



A hand is shown interacting with a futuristic digital interface. The interface features a central globe and various data visualizations such as line graphs, bar charts, and scatter plots. A prominent blue rectangular overlay contains the text "VIRTUAL MACHINE". The overall theme is technology and data management.

VIRTUAL  
MACHINE

# *Virtual Machine Setup*

&

# *Configuration Plan*

# OVERVIEW

This project involves setting up a virtual machine environment using virtualization software (Virtual-box), installing multiple operating systems, and managing the VMs effectively.

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## Windows Server

Installing & Configuring Servers

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## Test Reports

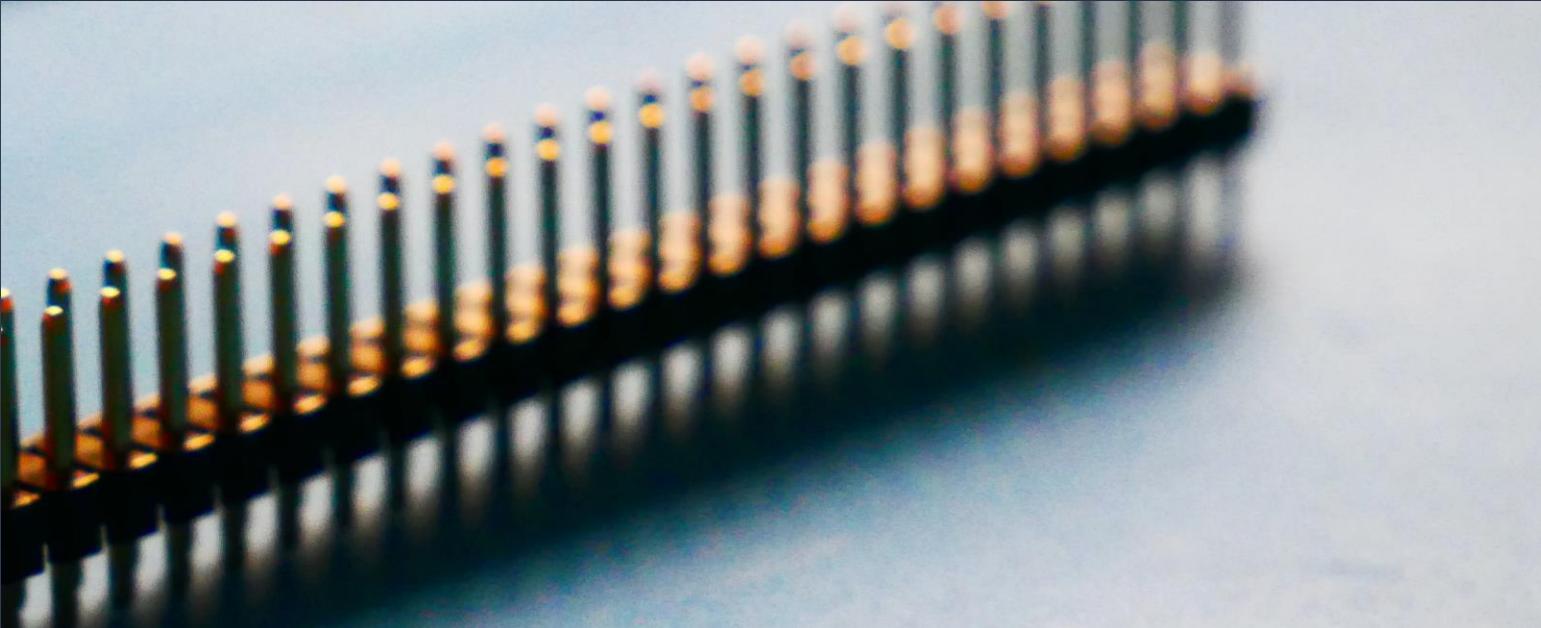
Issues & Solutions

01



# Virtual Box

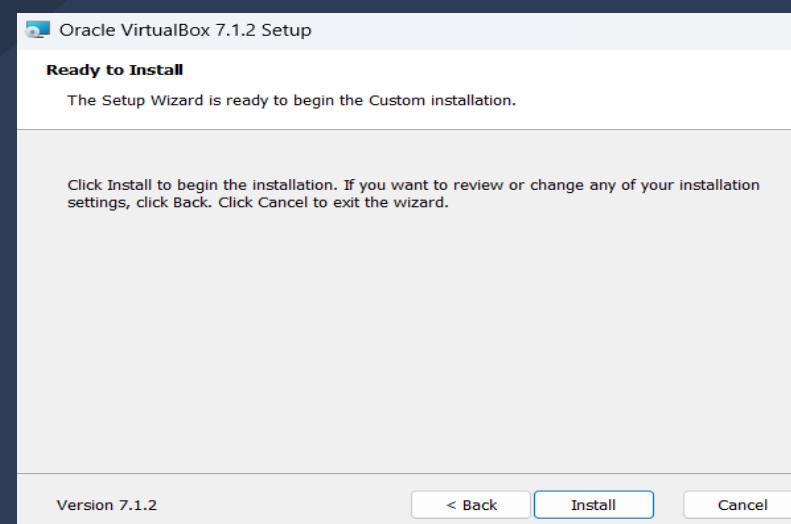
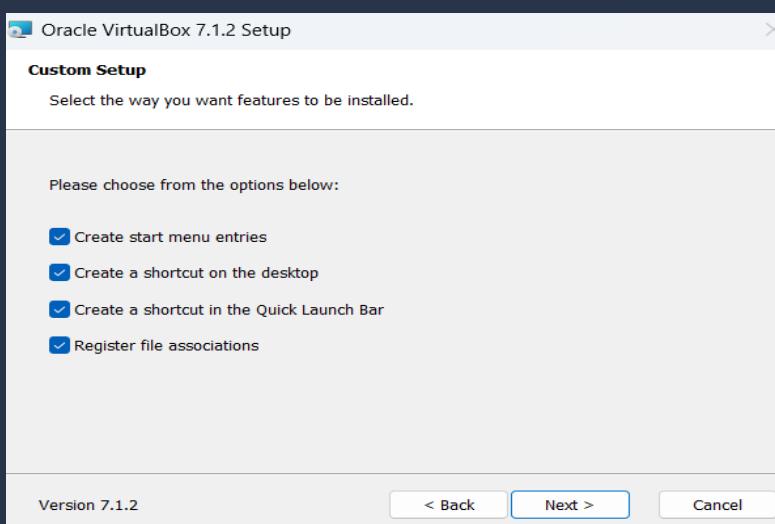
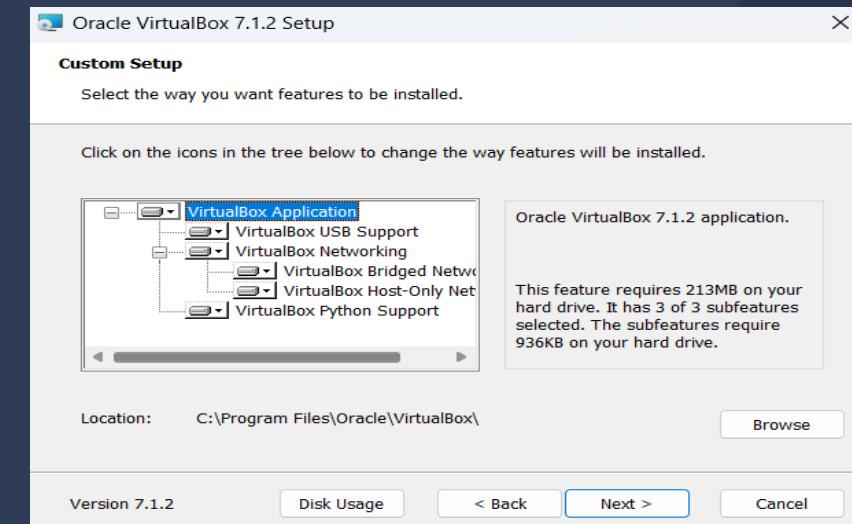
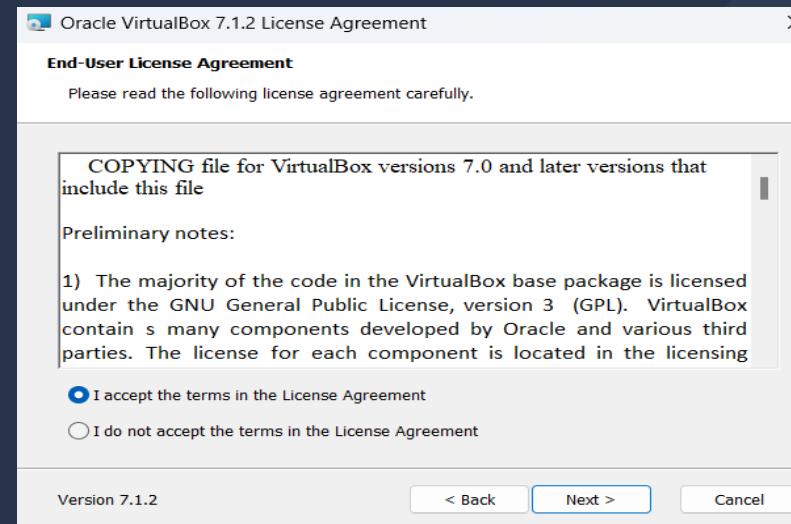
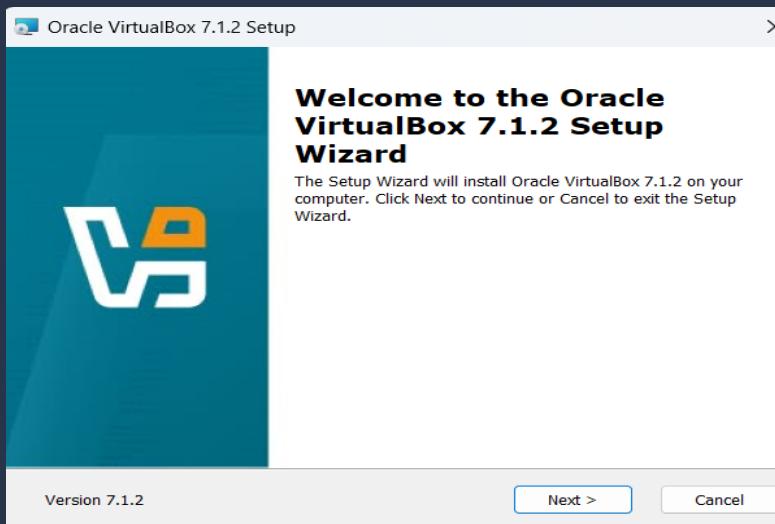
Downloading & Installing



# Download VirtualBox from the official website.

<https://www.virtualbox.org/wiki/Downloads>

## Install Virtual Box.

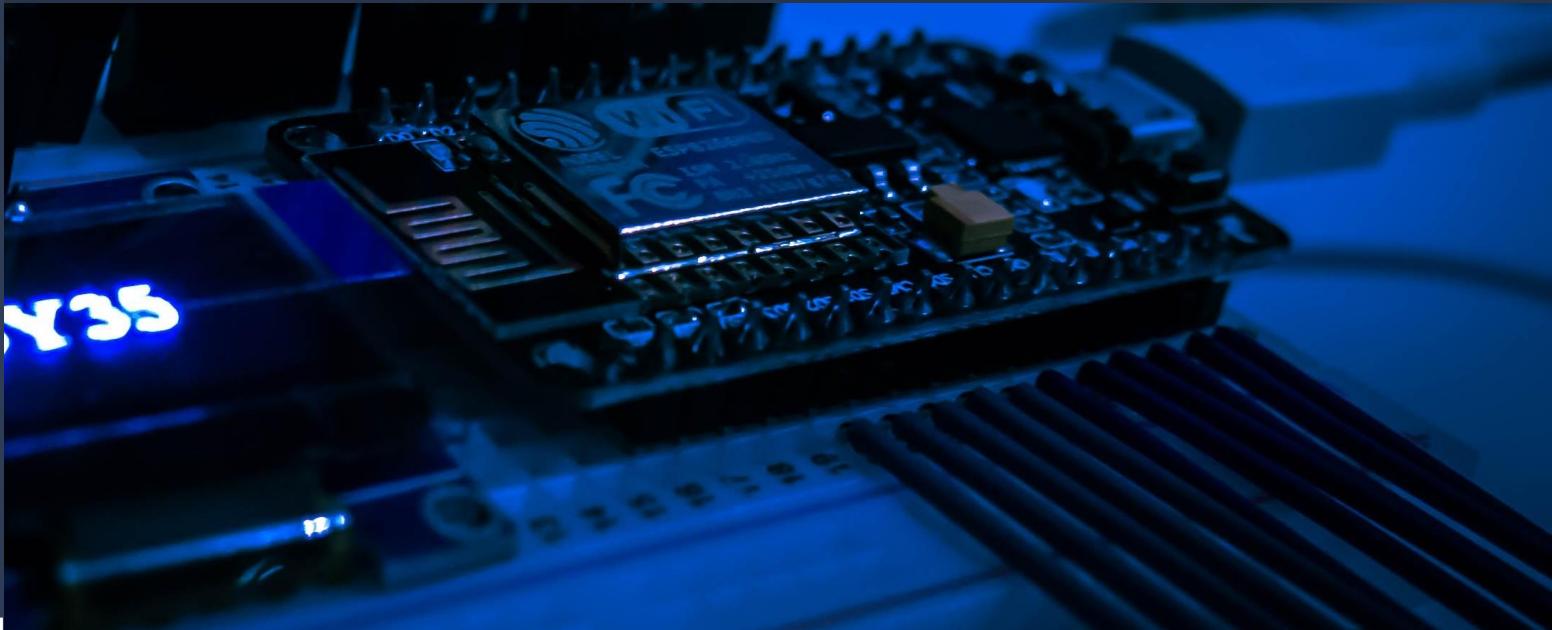


02



# Ubuntu

- Installing & Configuring
- Using Ubuntu Commands



# Download Ubuntu Image.

## Ubuntu 22.04.1 LTS

The latest LTS version of Ubuntu, for desktop PCs and laptops. LTS stands for long-term support — which means five years of free security and maintenance updates, guaranteed until April 2027.

[Ubuntu 22.04 LTS release notes](#)

Recommended system requirements:

- 2 GHz dual-core processor or better
- Internet access is helpful
- 4 GB system memory
- Either a DVD drive or a USB port for the installer media
- 25 GB of free hard drive space



[Download](#)

For other versions of Ubuntu Desktop including torrents, the network installer, a list of local mirrors and past releases see our [alternative downloads](#).

## Ubuntu 22.10

The latest version of the Ubuntu operating system for desktop PCs and laptops, Ubuntu 22.10 comes with nine months of security and maintenance updates, until July 2023.

Recommended system requirements are the same as for Ubuntu 22.04 LTS.

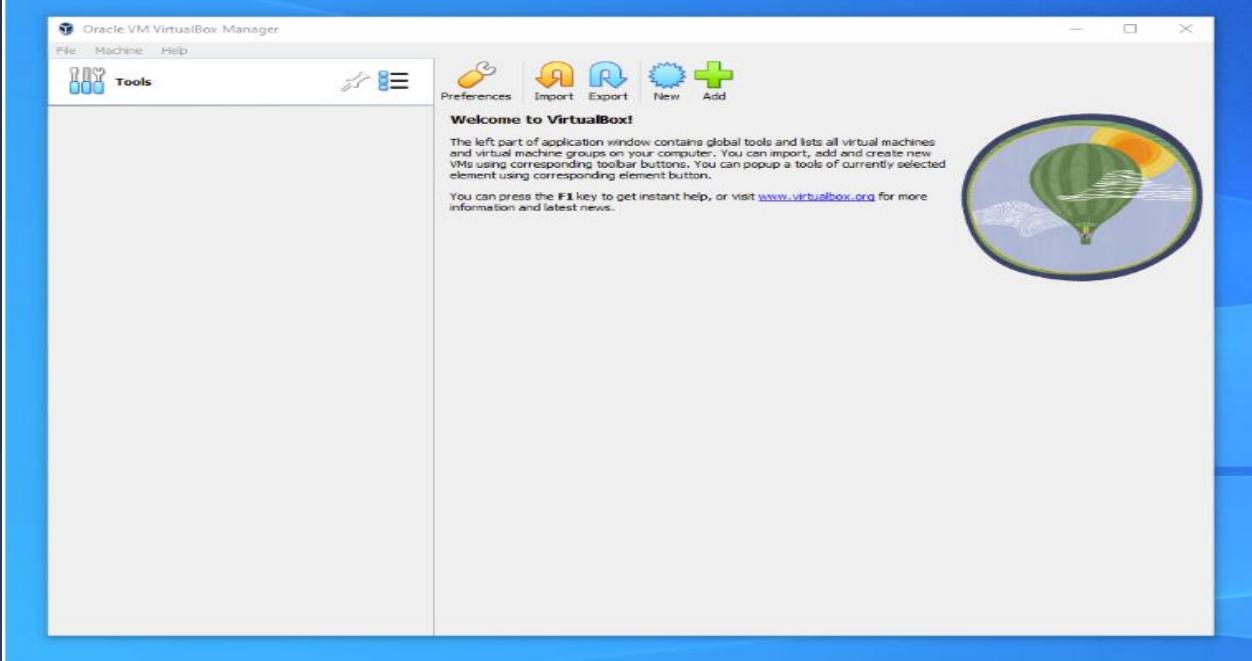
[Ubuntu 22.10 release notes](#)



[Download](#)

For other versions of Ubuntu Desktop including torrents, the network installer, a list of local mirrors and past releases see our [alternative downloads](#).

# Create a new VM.



## Create Virtual Machine

### Virtual machine Name and Operating System

Please choose a descriptive name and destination folder for the new virtual machine. The name you choose will be used throughout VirtualBox to identify this machine. Additionally, you can select an ISO image which may be used to install the guest operating system.

Name:

Folder:

ISO Image:

Edition:

Type:

Version:

Skip Unattended Installation

Detected OS type: Ubuntu (64-bit). This OS type can be installed unattendedly. The install will start after this wizard is closed.

Help

Expert Mode

Back

Next

Cancel

### Create Virtual Machine

### Unattended Guest OS Install Setup

You can configure the unattended guest OS install by modifying username, password, and hostname. Additionally you can enable guest additions install. For Microsoft Windows guests it is possible to provide a product key.

Username and Password

Username:

Password:

Repeat Password:

Additional Options

Product Key:

Hostname:

Domain Name:

Install in Background

Guest Additions

Guest Additions ISO:

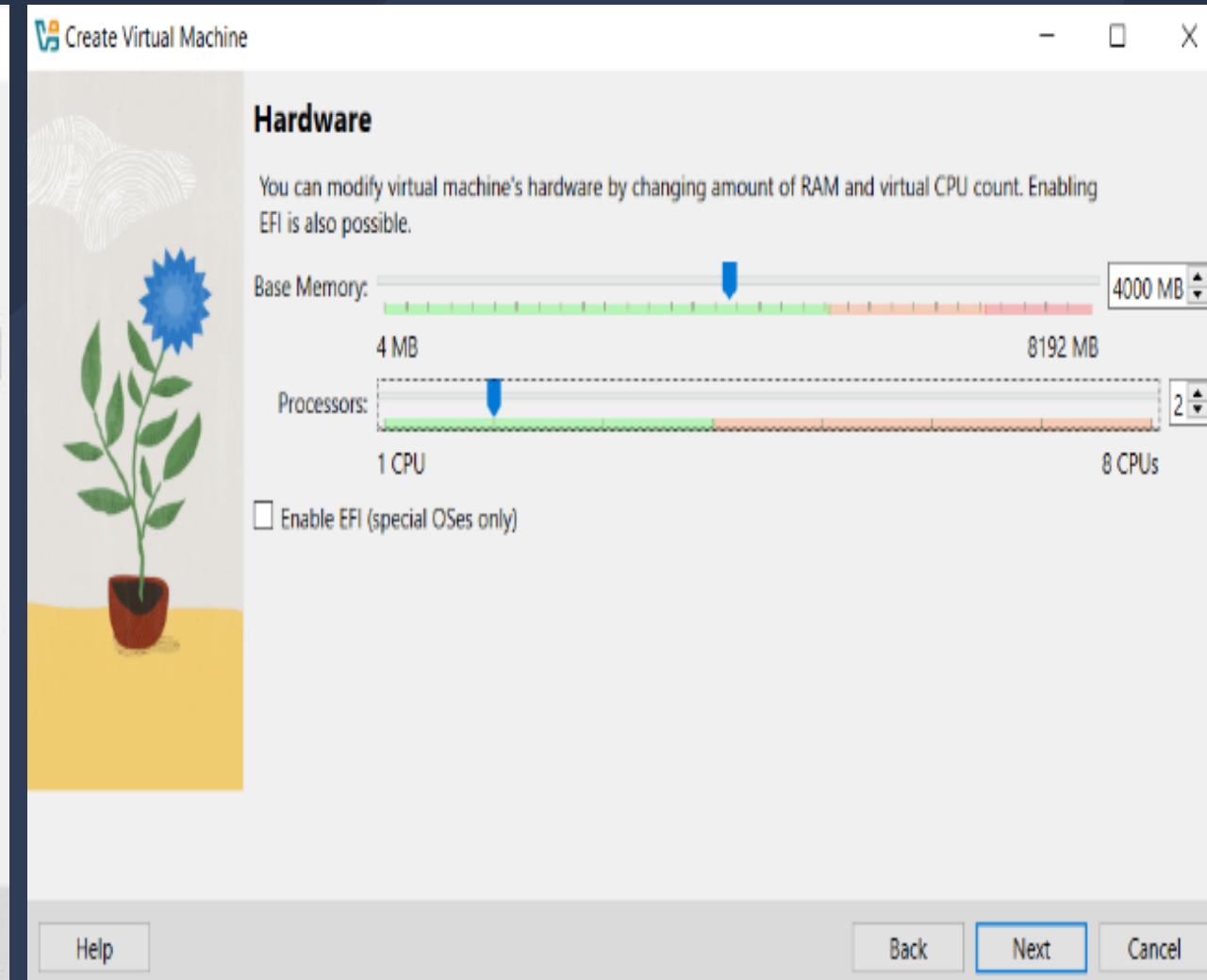
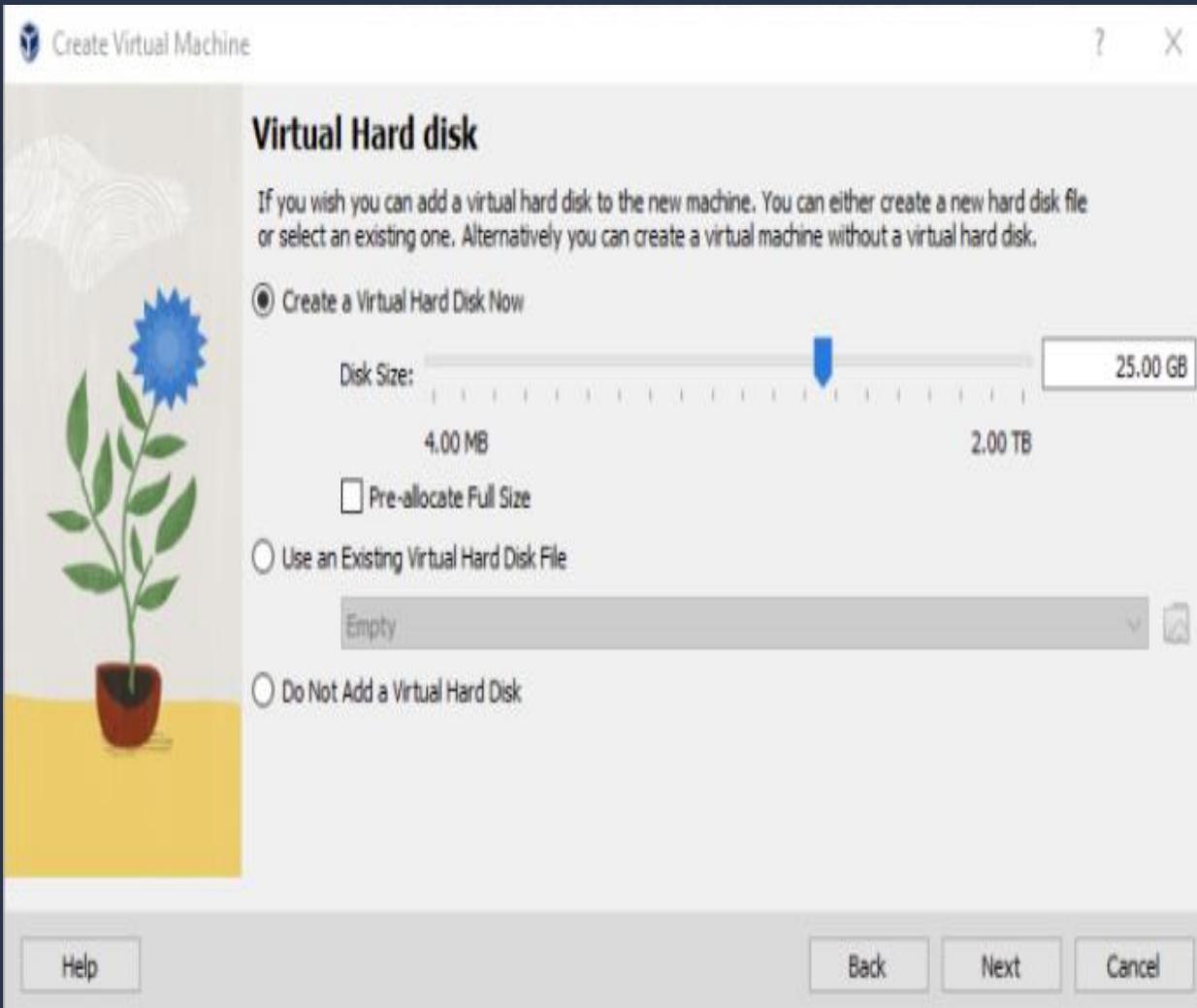
Help

Back

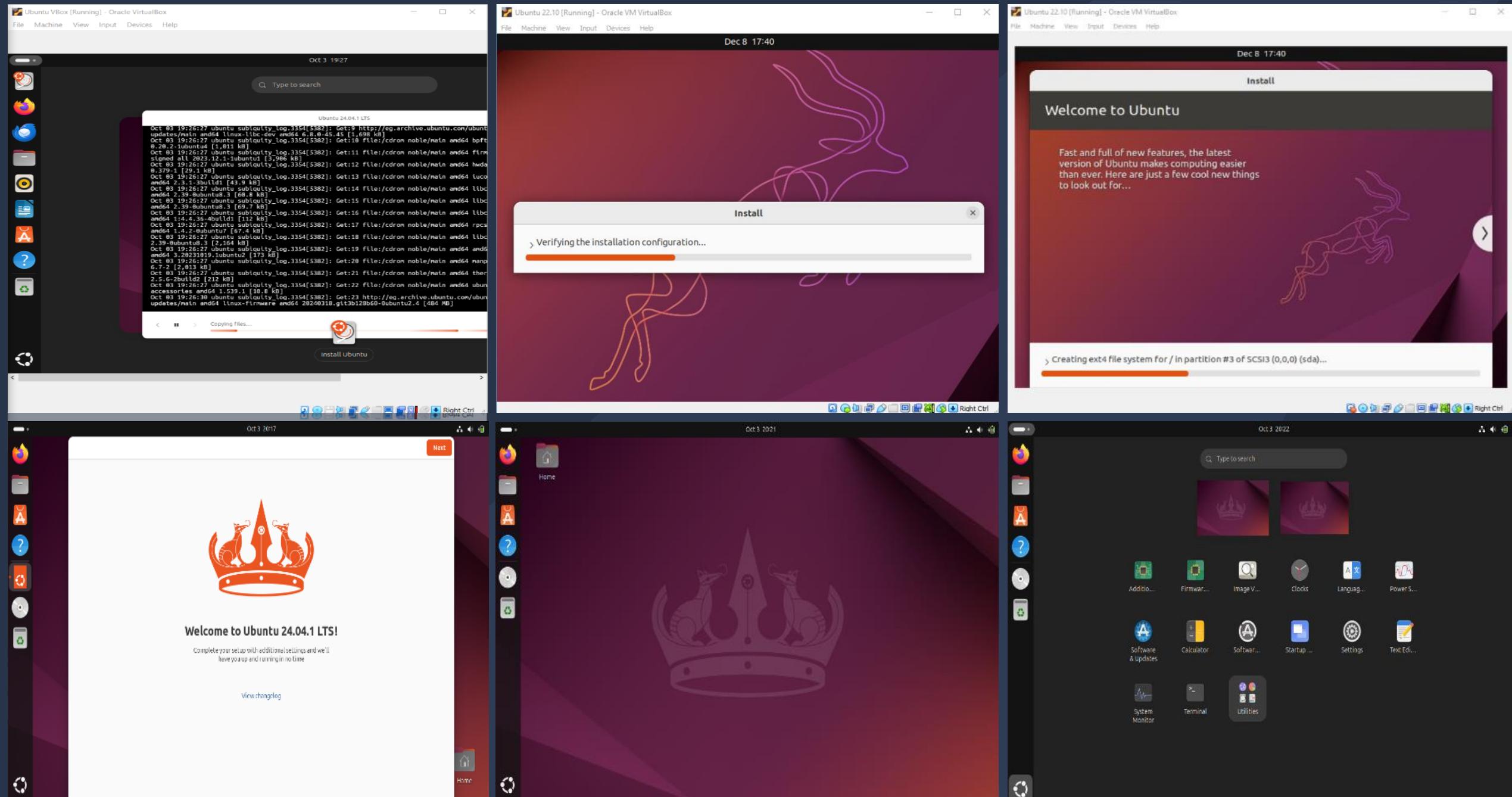
Next

Cancel

# Allocate appropriate resources (CPU, RAM, Disk Space).

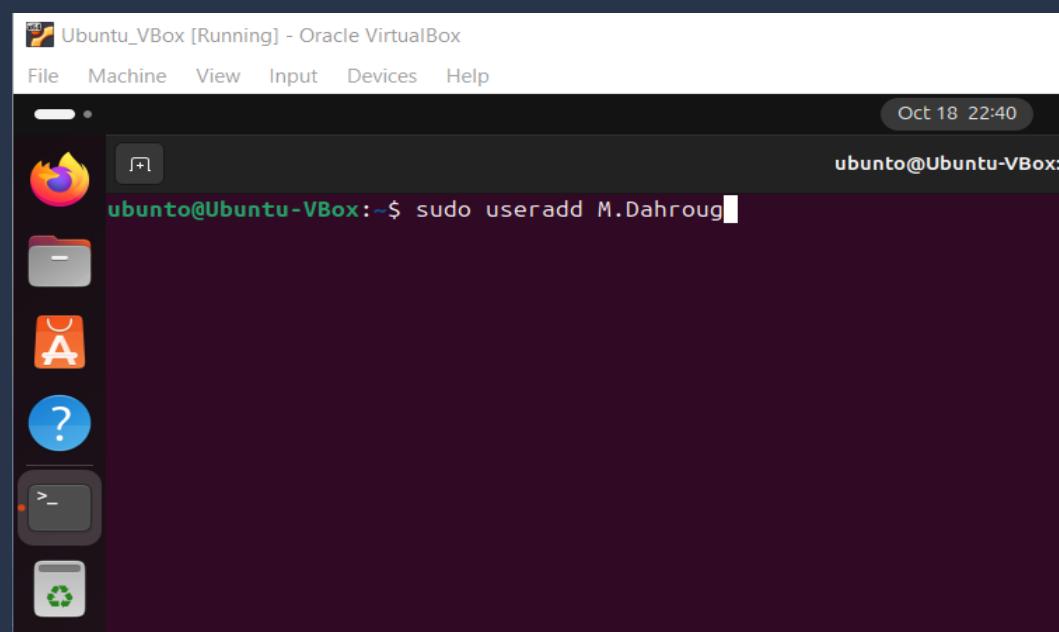


# Install the image



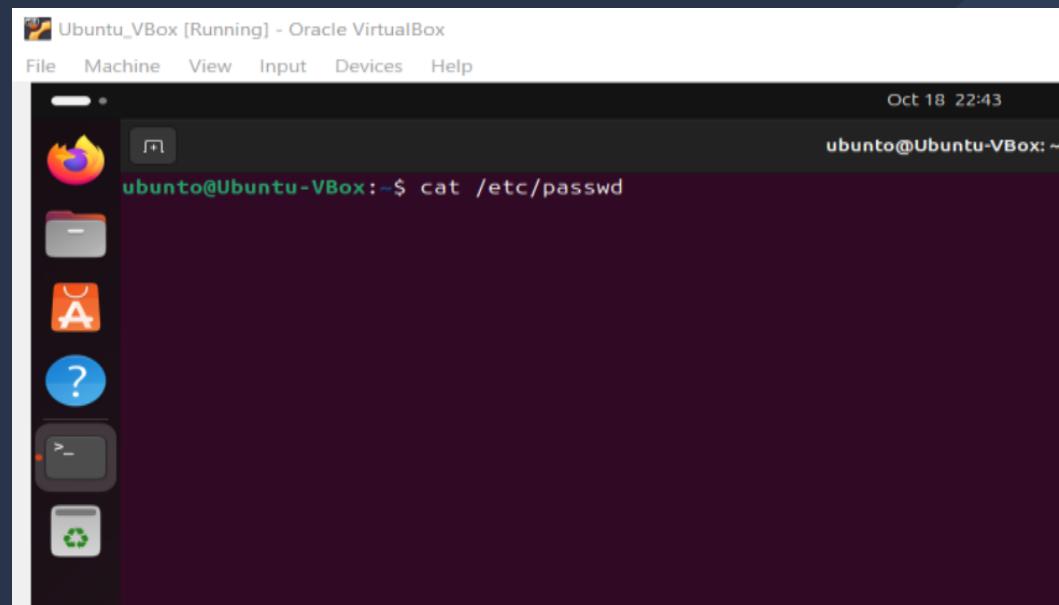
# Using Ubuntu Commands

To add user: "adduser [nameuser]"



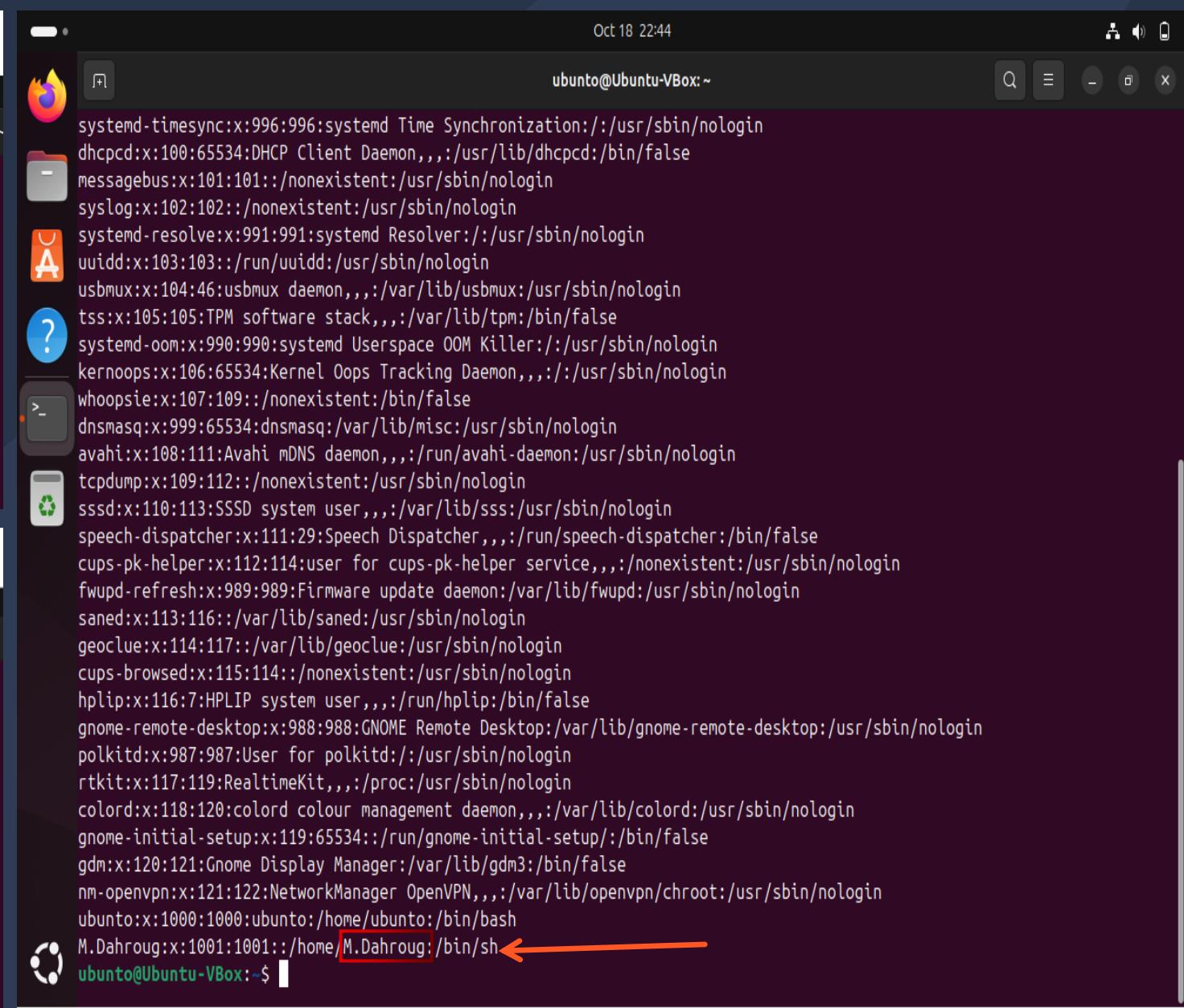
A screenshot of the Ubuntu desktop environment. On the left is a dock with icons for the Dash, Home, Applications, Help, and a terminal. The main window is a terminal window titled "Ubuntu\_VBox [Running] - Oracle VirtualBox". The terminal shows the command "sudo useradd M.Dahrour" being typed by the user "ubuntu@Ubuntu-VBox". The status bar at the bottom indicates it's Oct 18 22:40.

```
ubuntu@Ubuntu-VBox:~$ sudo useradd M.Dahrour
```



A screenshot of the Ubuntu desktop environment. On the left is a dock with icons for the Dash, Home, Applications, Help, and a terminal. The main window is a terminal window titled "Ubuntu\_VBox [Running] - Oracle VirtualBox". The terminal shows the command "cat /etc/passwd" being typed by the user "ubuntu@Ubuntu-VBox". The status bar at the bottom indicates it's Oct 18 22:43.

```
ubuntu@Ubuntu-VBox:~$ cat /etc/passwd
```



A screenshot of a terminal window titled "ubuntu@Ubuntu-VBox:~". The status bar at the top right shows the date and time: Oct 18 22:44. The terminal lists many system users with their UIDs and home directories. At the bottom, a new user entry "M.Dahrour:x:1001:1001::/home/M.Dahrour:/bin/sh" is added, highlighted with a red box and a red arrow pointing to it from the bottom right.

```
systemd-timesync:x:996:996:system Time Synchronization:/usr/sbin/nologin  
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false  
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin  
syslog:x:102:102::/nonexistent:/usr/sbin/nologin  
systemd-resolve:x:991:991:systemd Resolver:/usr/sbin/nologin  
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin  
usbmux:x:104:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
tss:x:105:105:TPM software stack,,,:/var/lib/tpm:/bin/false  
systemd-oom:x:990:990:systemd Userspace OOM Killer:/usr/sbin/nologin  
kernoops:x:106:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin  
whoopsie:x:107:109::/nonexistent:/bin/false  
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin  
avahi:x:108:111:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin  
tcpdump:x:109:112::/nonexistent:/usr/sbin/nologin  
sssd:x:110:113:sssd system user,,,:/var/lib/sssd:/usr/sbin/nologin  
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false  
cups-pk-helper:x:112:114:user for cups-pk-helper service,,,:/nonexistent:/usr/sbin/nologin  
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin  
saned:x:113:116::/var/lib/saned:/usr/sbin/nologin  
geoclue:x:114:117::/var/lib/geoclue:/usr/sbin/nologin  
cups-browsed:x:115:114::/nonexistent:/usr/sbin/nologin  
hplip:x:116:7:HPLIP system user,,,:/run/hplip:/bin/false  
gnome-remote-desktop:x:988:988:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/sbin/nologin  
polkitd:x:987:987:User for polkitd:/usr/sbin/nologin  
rtkit:x:117:119:RealtimeKit,,,:/proc:/usr/sbin/nologin  
colord:x:118:120:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
gnome-initial-setup:x:119:65534::/run/gnome-initial-setup:/bin/false  
gdm:x:120:121:Gnome Display Manager:/var/lib/gdm3:/bin/false  
nm-openvpn:x:121:122:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin  
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash  
M.Dahrour:x:1001:1001::/home/M.Dahrour:/bin/sh
```

To make a new file: "echo \$null >>

A screenshot of a Linux desktop environment in Oracle VirtualBox. The desktop has a dark theme with icons for various applications like a browser, file manager, and terminal. A terminal window is open with the command `echo "this is ubuntu" >> file.txt` being typed. The terminal title is "Ubuntu\_VBox [Running] - Oracle VirtualBox". The date and time at the top right are Oct 18 22:54.

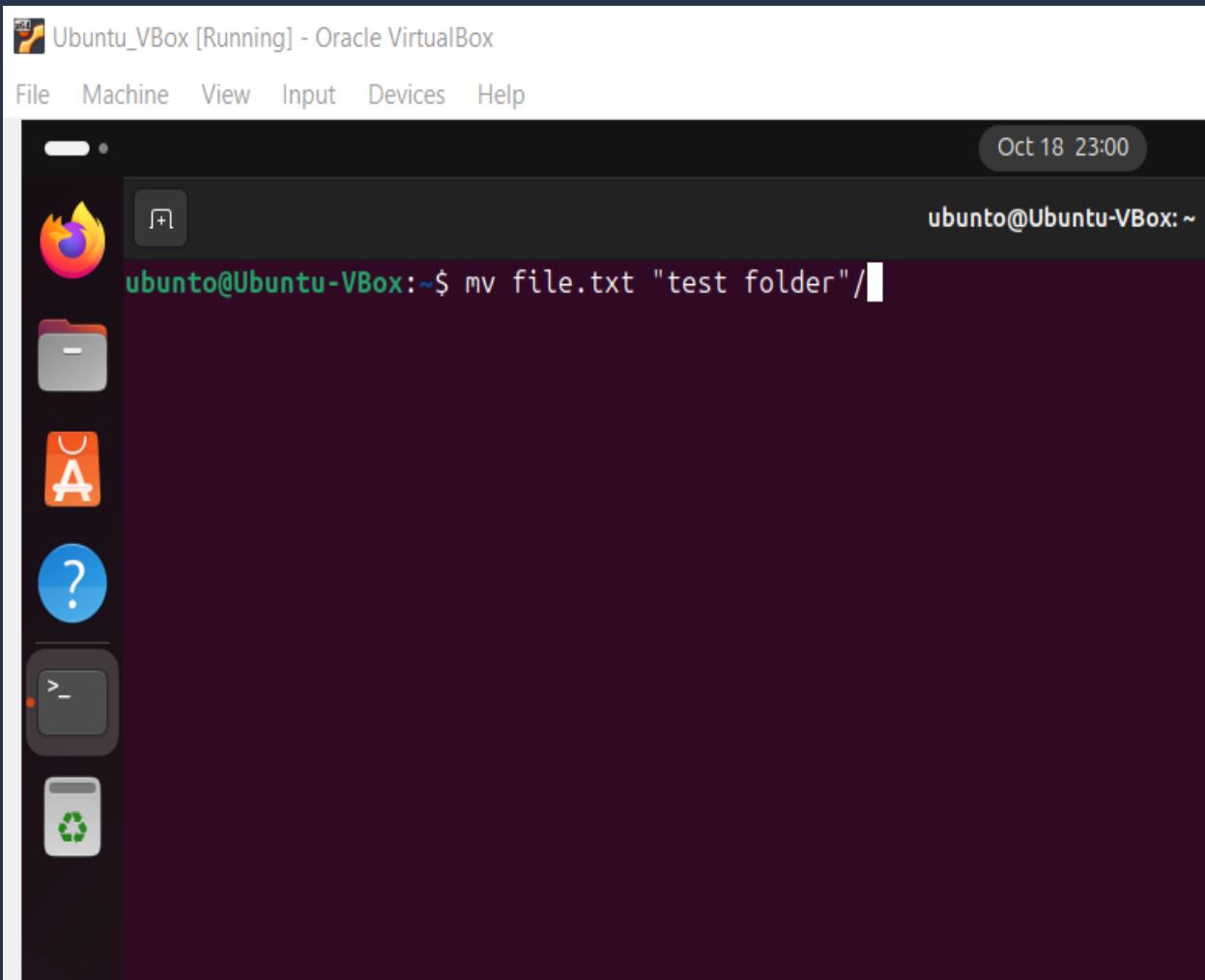
A screenshot of a Linux desktop environment in Oracle VirtualBox, showing the result of the previous command. The terminal window now shows the output of the `ls` command, which includes "file.txt". An orange arrow points from the left screenshot to this terminal window, indicating the progression of the command execution. The terminal title is "Ubuntu\_VBox [Running] - Oracle VirtualBox". The date and time at the top right are Oct 18 22:55.

To make a new folder: "mkdir [foldername]"

A screenshot of a Linux desktop environment in Oracle VirtualBox. A terminal window is open with the command `mkdir "test folder"` being typed. The terminal title is "Ubuntu\_VBox [Running] - Oracle VirtualBox". The date and time at the top right are Oct 18 22:57.

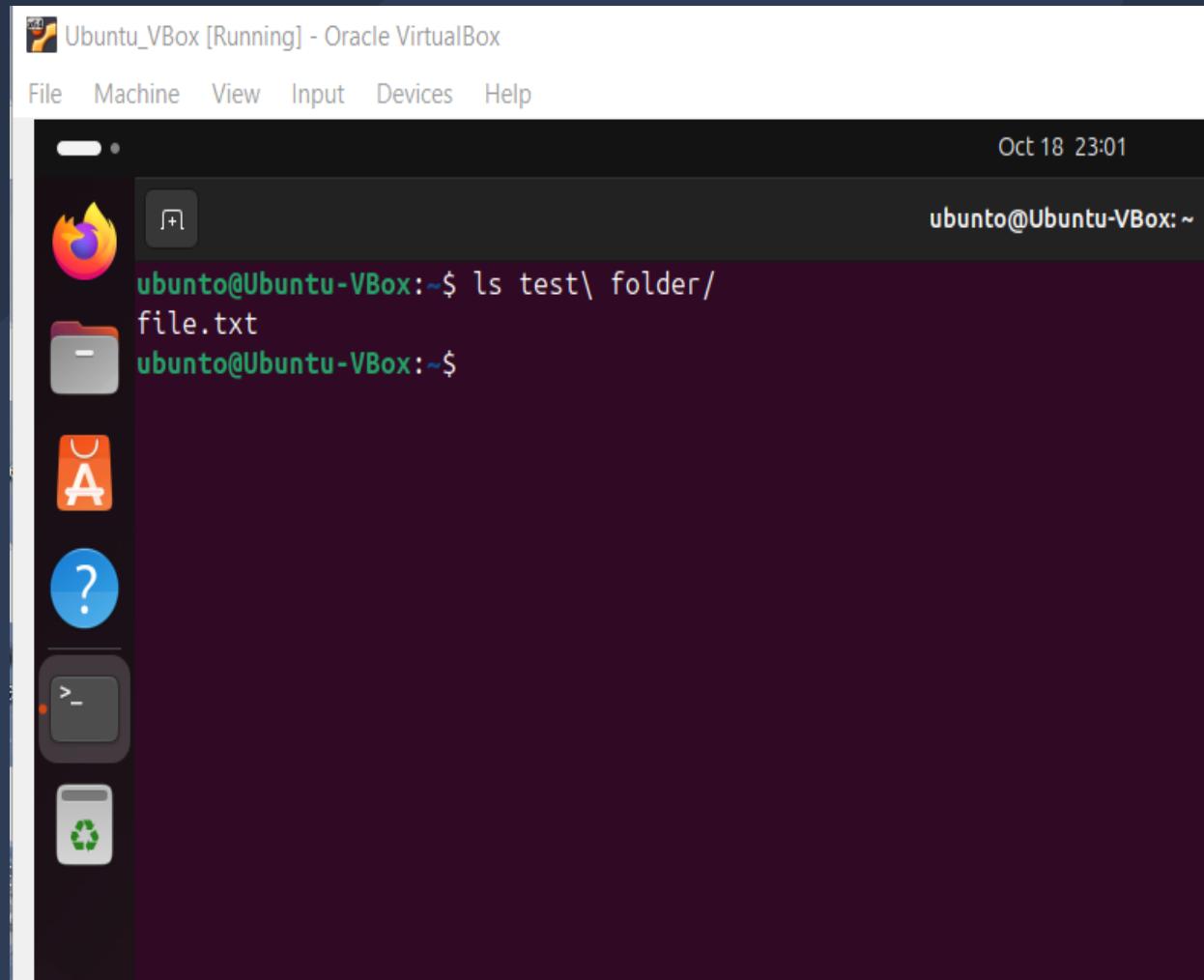
A screenshot of a Linux desktop environment in Oracle VirtualBox, showing the result of the `mkdir` command. The terminal window shows the output of the `ls` command, which includes "test folder". An orange arrow points from the left screenshot to this terminal window, indicating the progression of the command execution. The terminal title is "Ubuntu\_VBox [Running] - Oracle VirtualBox". The date and time at the top right are Oct 18 22:59.

To move the file within a new folder: "mv [filename] [newplace]"



A screenshot of a Linux desktop environment, likely Ubuntu, running in Oracle VirtualBox. The desktop has a dark theme with icons for various applications like a browser, file manager, and terminal. A terminal window is open with the command:

```
ubuntu@Ubuntu-VBox:~$ mv file.txt "test folder"/
```



A screenshot of the same Linux desktop environment. The terminal window shows the result of the previous command:

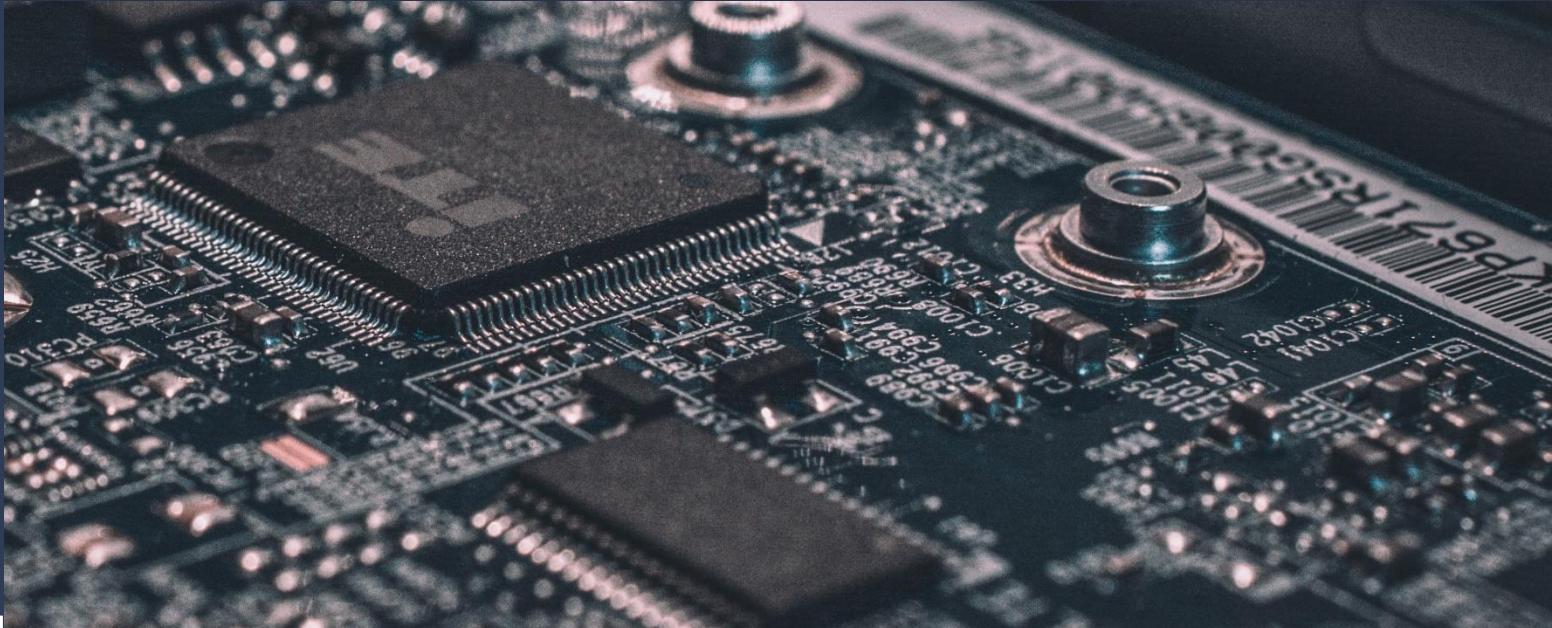
```
ubuntu@Ubuntu-VBox:~$ ls test\ folder/
file.txt
ubuntu@Ubuntu-VBox:~$
```



03

# Windows Server

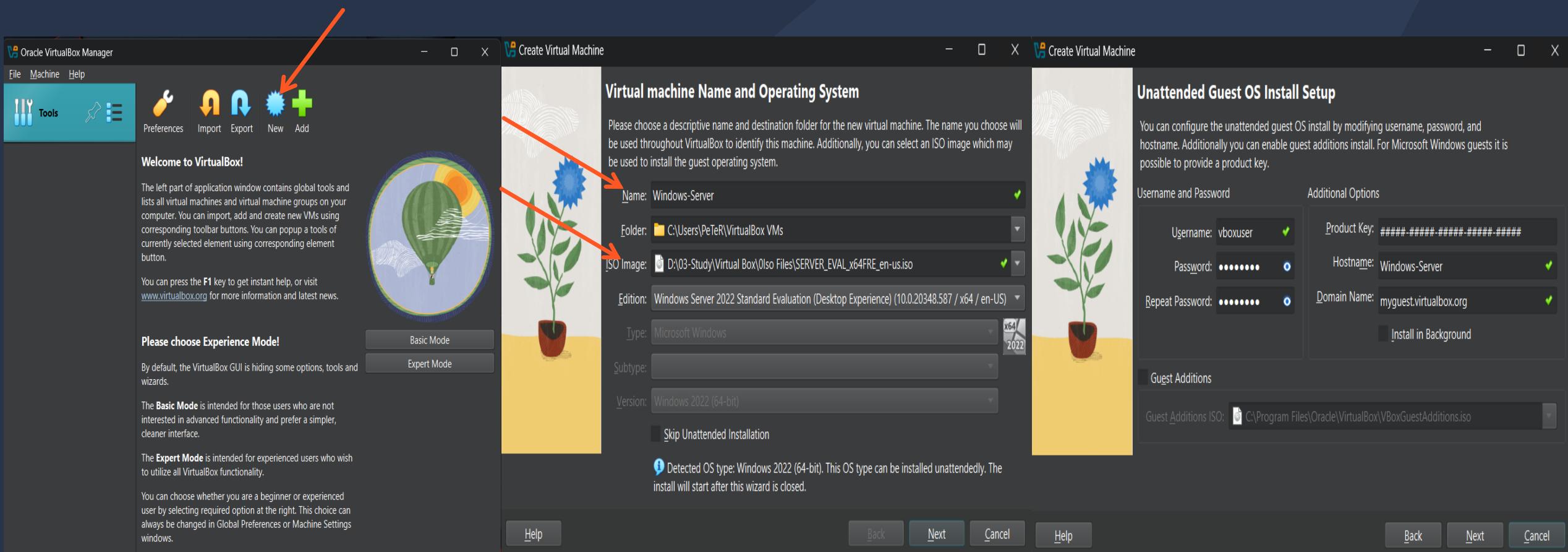
- Installing & Configuring
- Backup Configuration



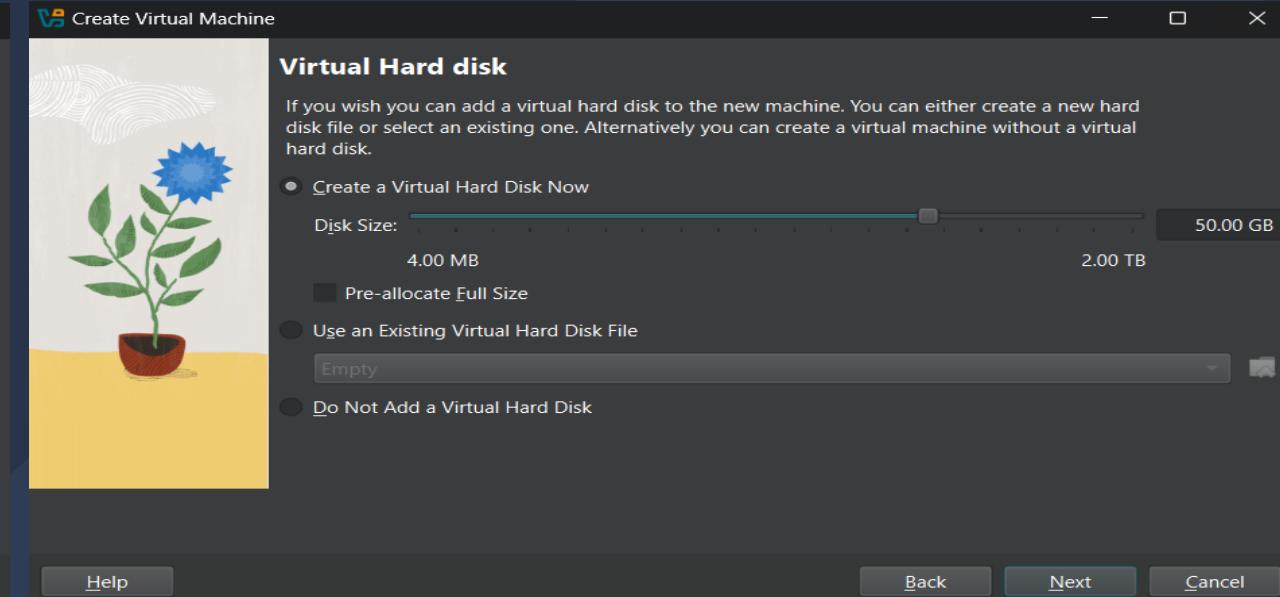
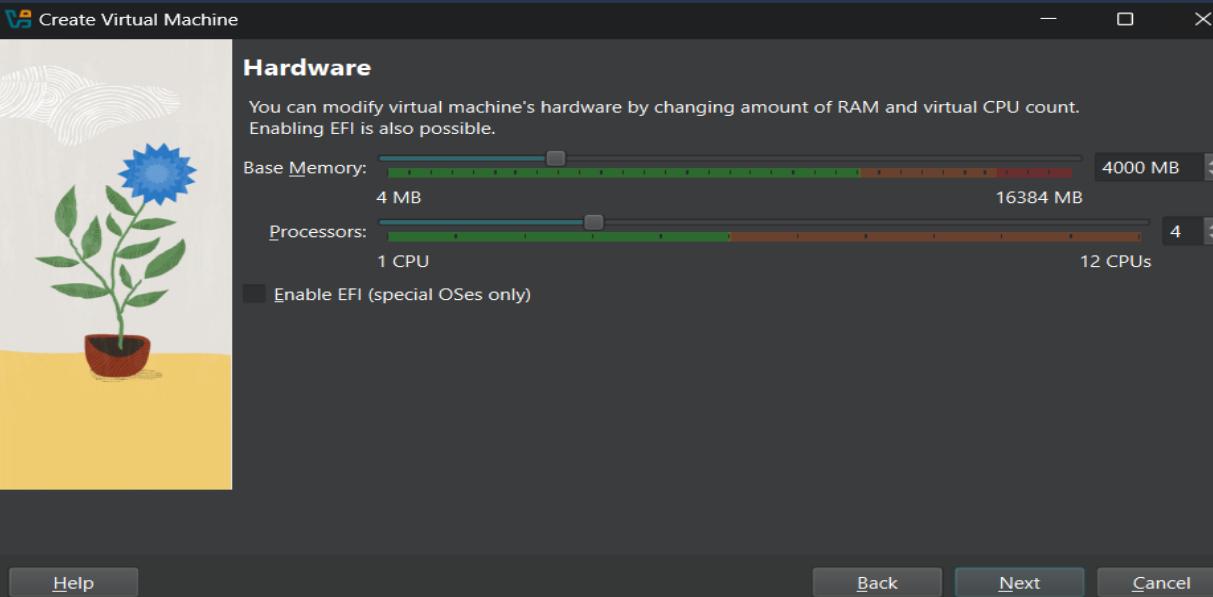
# Download Windows Server Image.

<https://www.microsoft.com/en-us/evalcenter/download-windows-server-2022>

## Create a new VM.



# Allocate appropriate resources (CPU, RAM, Disk Space).



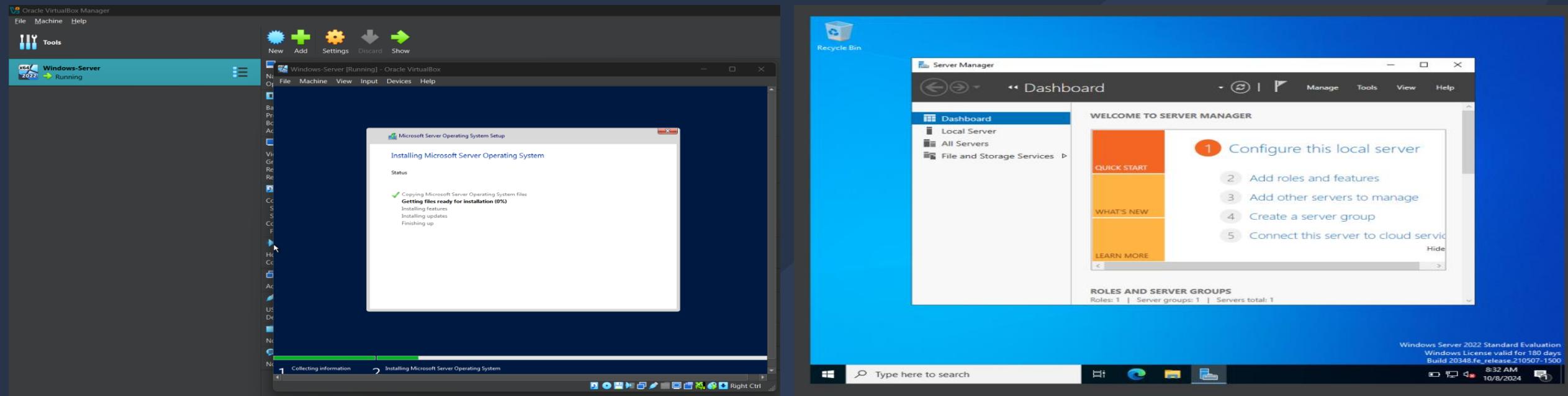
The screenshot shows the 'Summary' configuration step of the VirtualBox creation wizard. It features a decorative background of a potted plant on a yellow surface. The main content area is titled 'Summary' and contains the following information:

The following table summarizes the configuration you have chosen for the new virtual machine. When you are happy with the configuration press Finish to create the virtual machine. Alternatively you can go back and modify the configuration.

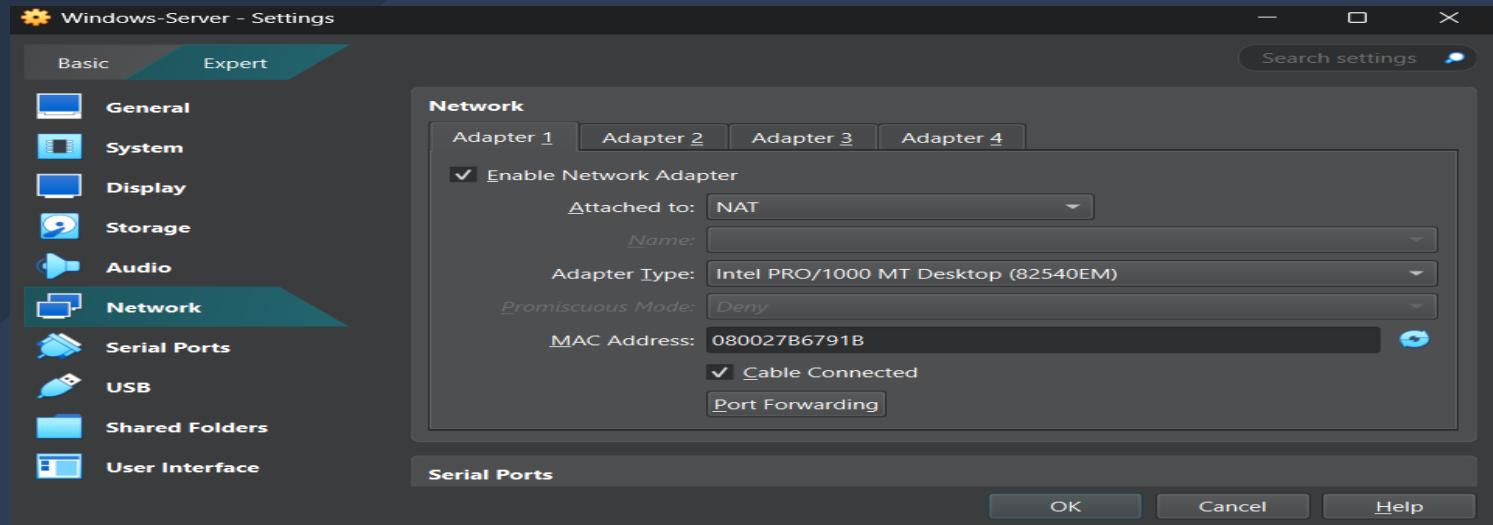
Machine Name and OS Type	
Machine Name	Windows-Server
Machine Folder	D:/03-Study/Virtual Box/Windows-Server
ISO Image	D:/03-Study/Virtual Box/0Iso Files/SERVER_EVAL_x64FRE_en-us.iso
Guest OS Type	Windows 2022 (64-bit)
Skip Unattended Install	false
Unattended Install	
Username	vboxuser
Product Key	false
Hostname/Domain Name	Windows-Server.myguest.virtualbox.org
Install in Background	false
Install Guest Additions	false
Hardware	
Base Memory	4000
Processor(s)	4
EFI Enable	false
Disk	
Disk Size:	50.00 GB

At the bottom are 'Help', 'Back', 'Finish', and 'Cancel' buttons.

# Install the image

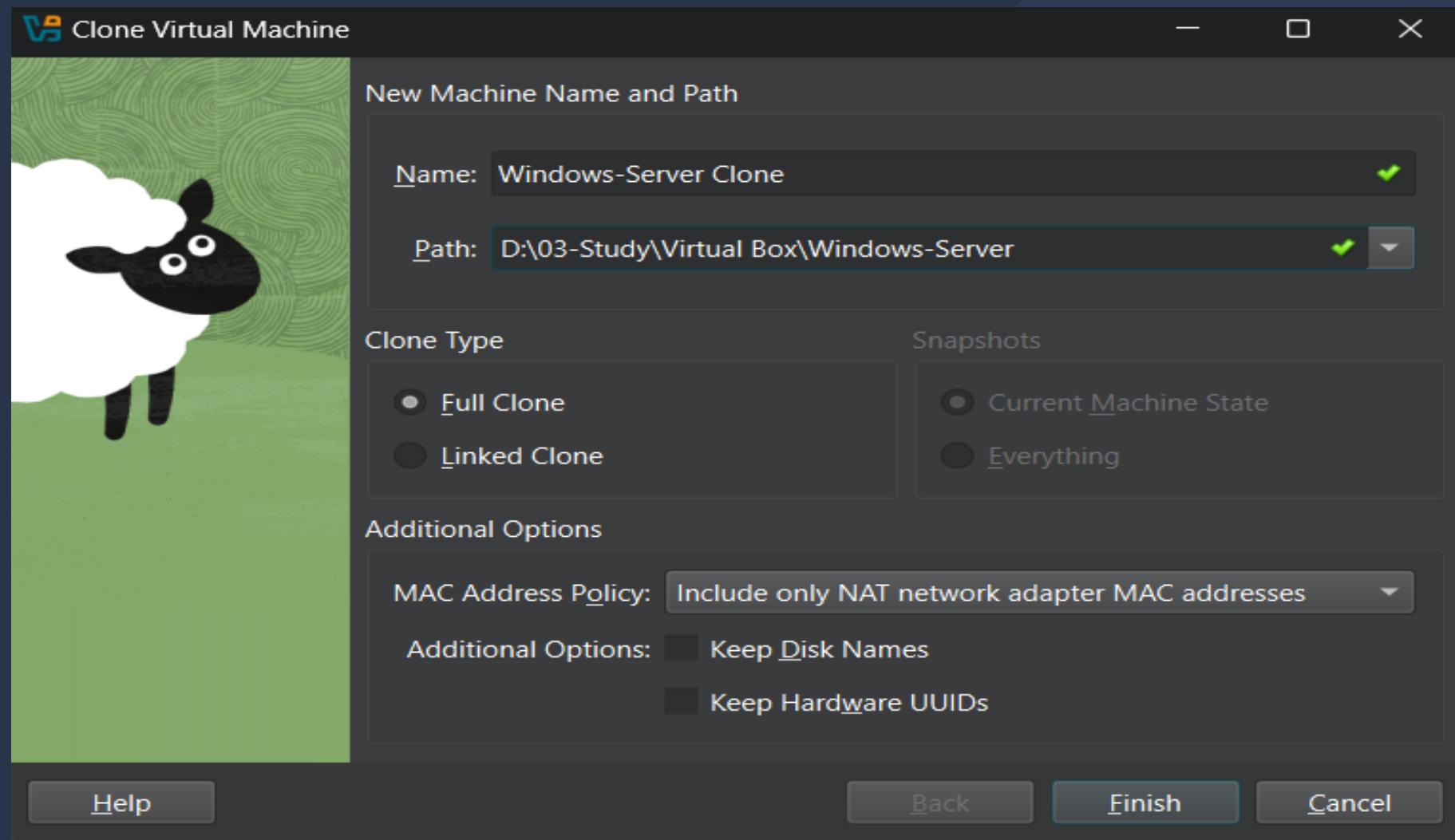


# Configure Network

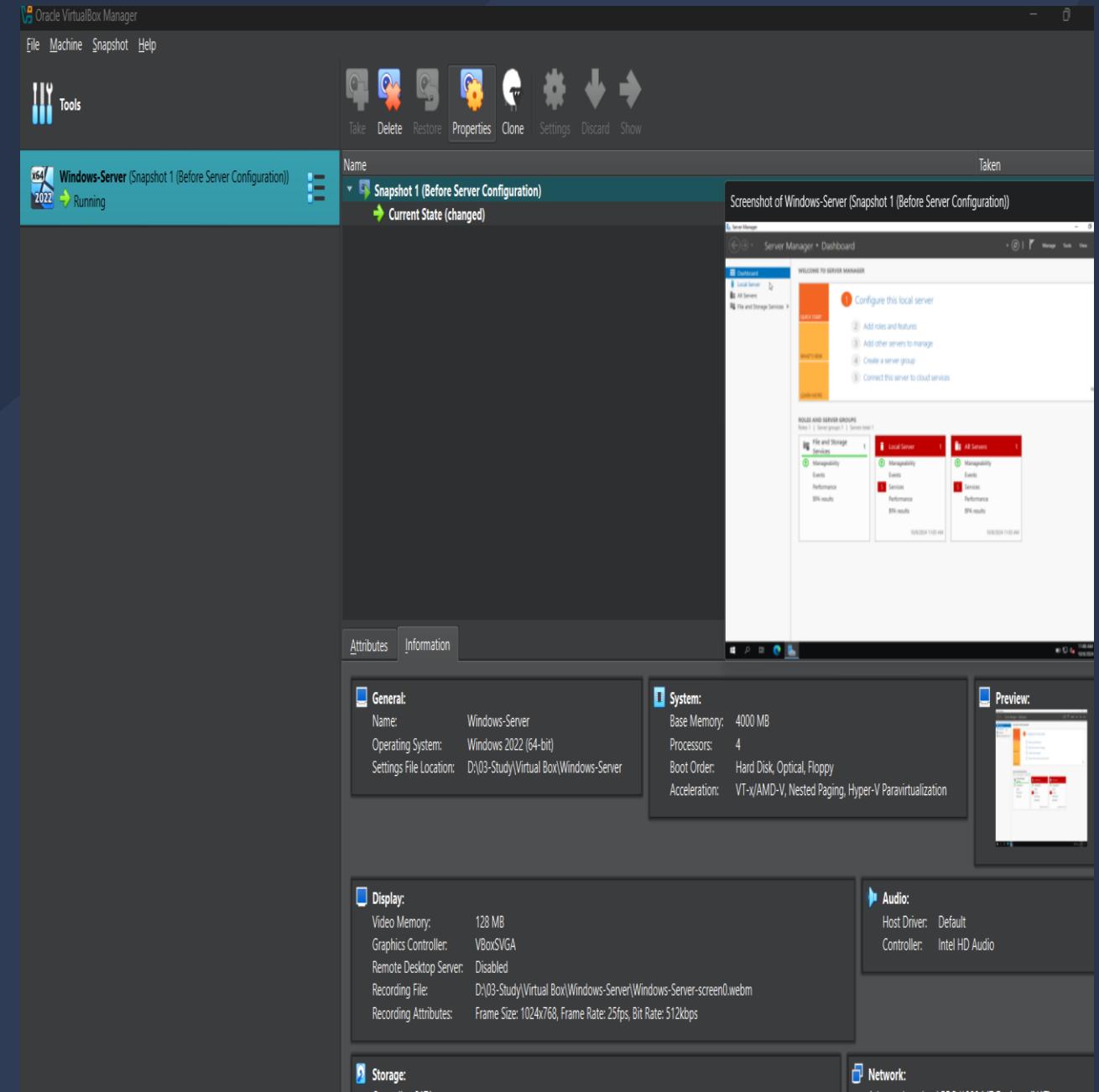
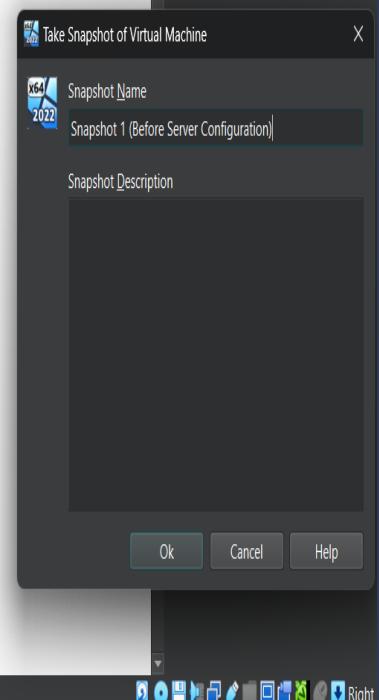
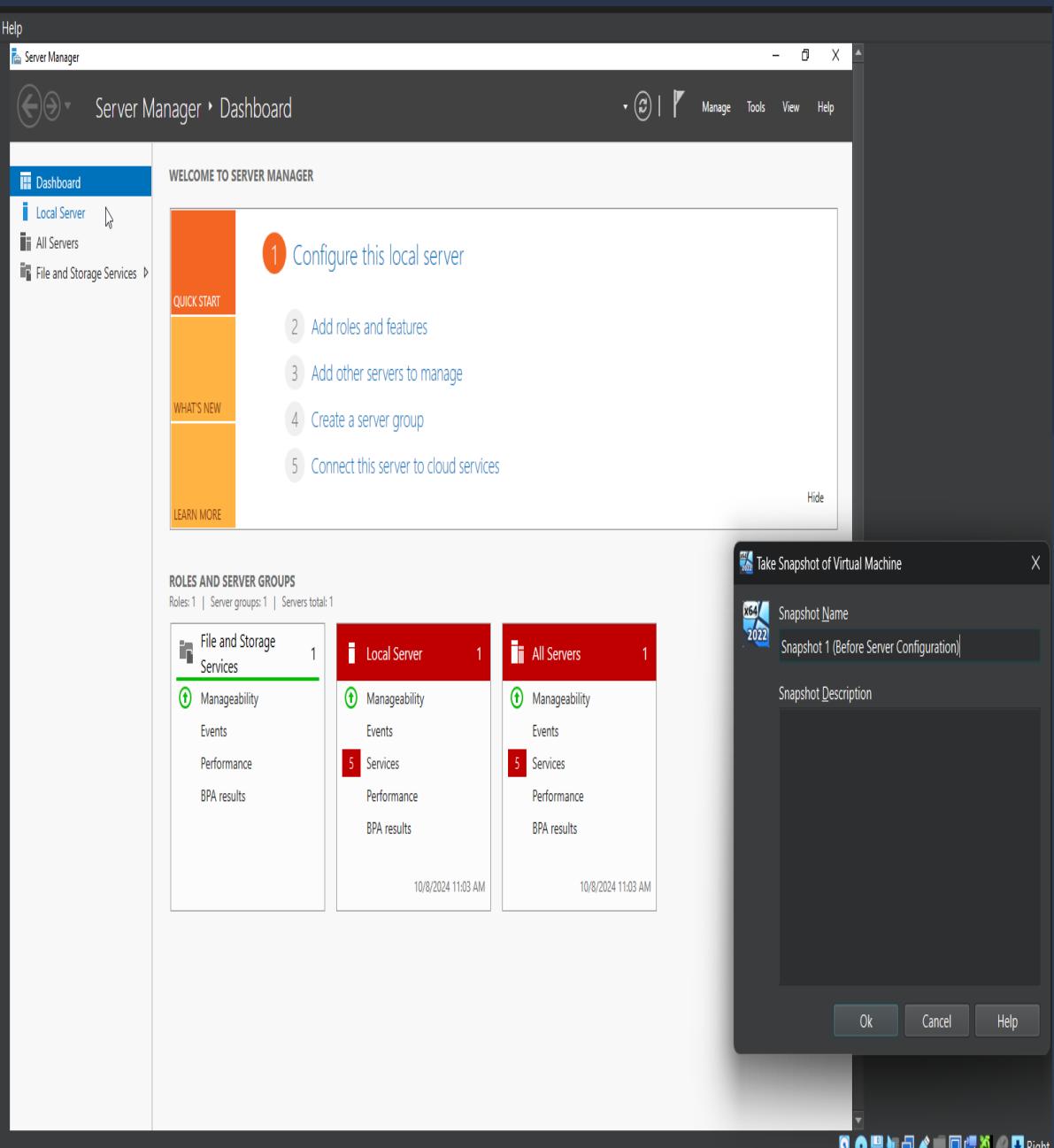


# Configuration Backup

using Clone



# using Snapshots

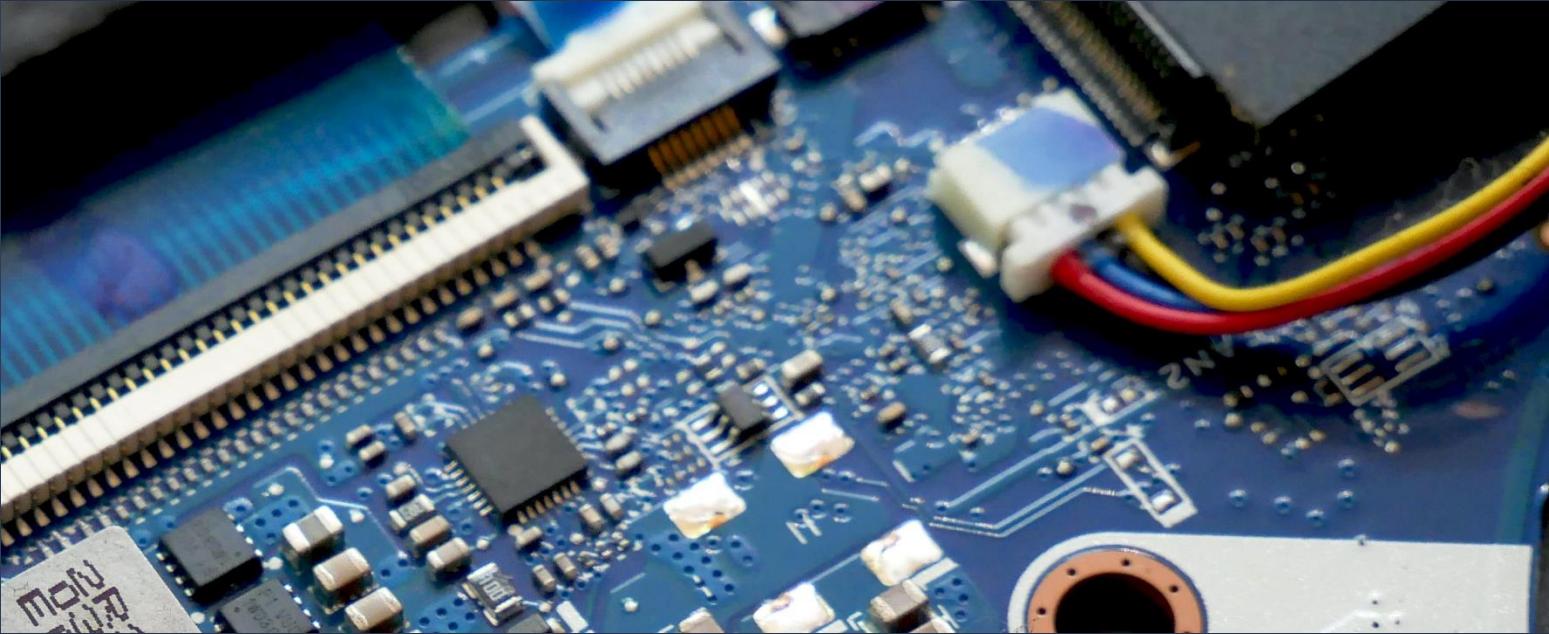




04

# Windows Server

## Installing & Configuring Servers



# Active Directory

WindowsServer2022 (Running) - Oracle VirtualBox

Server Manager

Server Manager • Dashboard

WELCOME TO SERVER MANAGER

1 Configure this local server

- 1 Add roles and features
- 2 Add other servers to manage
- 3 Create a server group
- 4 Connect this server to cloud services

QUICK START

WHAT'S NEW

LEARN MORE

ROLES AND SERVER GROUPS

Roles: 2 | Server groups: 1 | Servers total: 1

<b>AD DS</b> 1	<b>File and Storage Services</b> 1	<b>Local Server</b> 1	<b>All Servers</b> 1
Manageability	Manageability	Manageability	Manageability
Events	Events	Events	Events
Services	Services	Services	Services
Performance	Performance	Performance	Performance
BPA results	BPA results	BPA results	BPA results

Add Roles and Features Wizard

## Before you begin

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

DESTINATION SERVER  
WindowsServer20.projectcb.com

Windows Server 2022 Oracle VirtualBox Manager Screenshots and I more WindowsServer2022 [R] 10:59 AM 10/13/2024 11:59 AM 13-Oct-24

Add Roles and Features Wizard

## Select installation type

Before You Begin

**Installation Type**

Server Selection

Server Roles

Features

Confirmation

Results

DESTINATION SERVER  
WindowsServer20.projectcb.com

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

Before You Begin

Installation Type

**Server Selection**

Server Roles

Features

Confirmation

Results

DESTINATION SERVER  
WindowsServer20.projectcb.com

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:

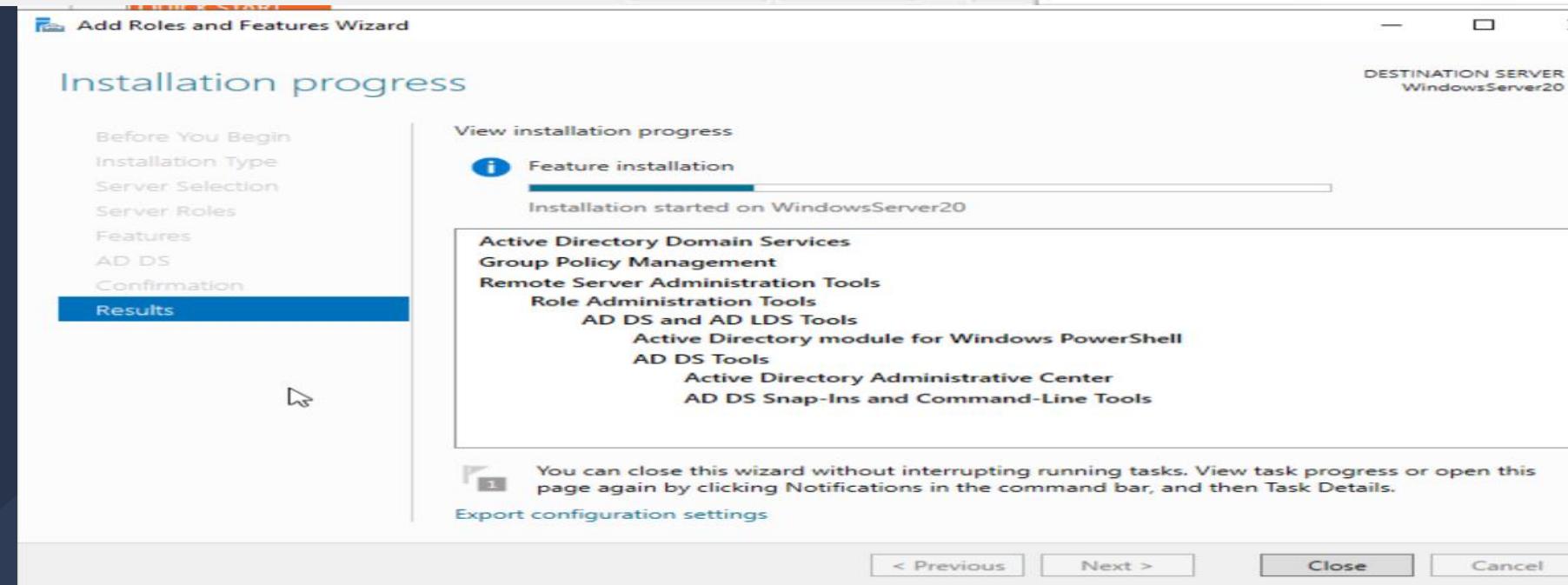
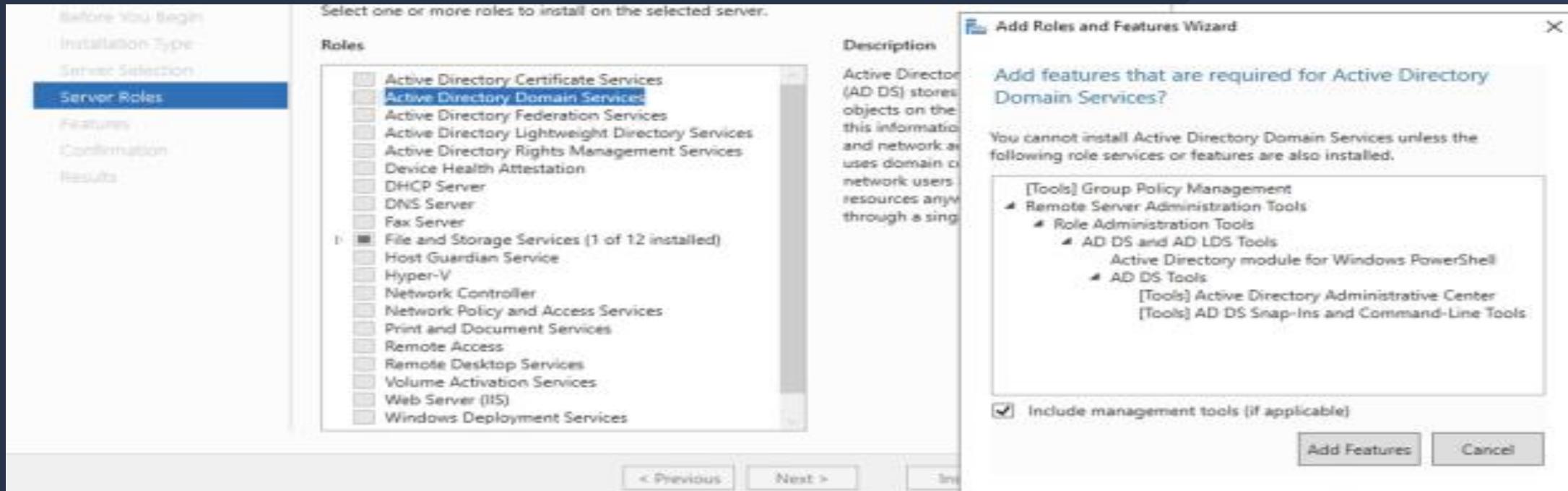
Name	IP Address	Operating System
WindowsServer20.project... 10.0.2.15		Microsoft Windows Server 2022 Standard Evaluation

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.

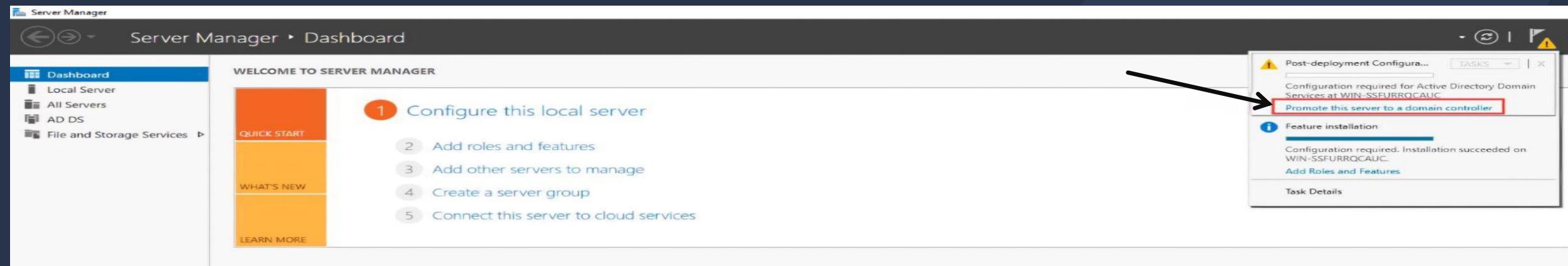
< Previous Next > Install Cancel

# Select Server Roles & Add Features

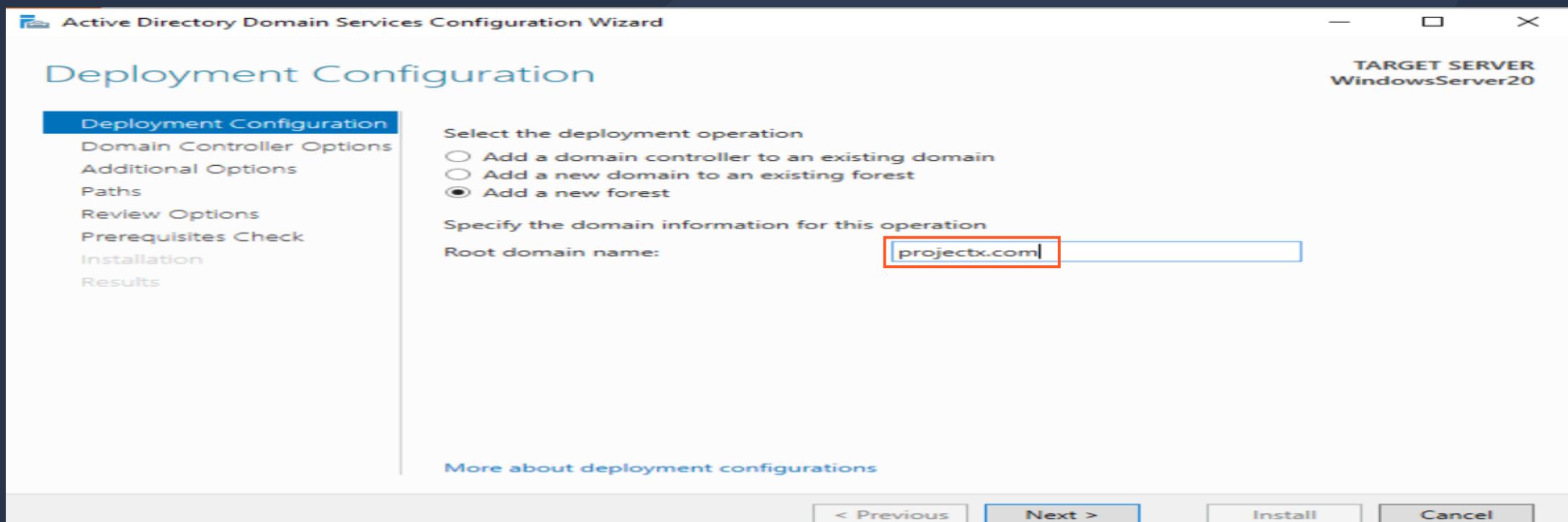


# Configure Active Directory Domain Services

Click on notification panel & select "Promote this server to a domain controller"



## Add a Forest



## Active Directory Domain Services Configuration Wizard

### Domain Controller Options

Deployment Configuration

#### Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

TARGET SERVER  
WindowsServer20

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

## Active Directory Domain Services Configuration Wizard

### Additional Options

Deployment Configuration

#### Domain Controller Options

#### Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

TARGET SERVER  
WindowsServer20

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

The NetBIOS domain name:

PROJECTX

[More about additional options](#)

< Previous

Next >

Install

Cancel

## Active Directory Domain Services Configuration Wizard

### Paths

Deployment Configuration

#### Domain Controller Options

Additional Options

#### Paths

Review Options

Prerequisites Check

Installation

Results

TARGET SERVER  
WindowsServer20

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

Deployment Configuration

#### Domain Controller Options

#### Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

TARGET SERVER  
WindowsServer20

Review your selections:

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

The new domain name is "projectx.com". This is also the name of the new forest.

The NetBIOS name of the domain: PROJECTX

Forest Functional Level: Windows Server 2016

Domain Functional Level: Windows Server 2016

Additional Options:

Global catalog: Yes

DNS Server: No

Database folder: C:\Windows\NTDS

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

[View script](#)

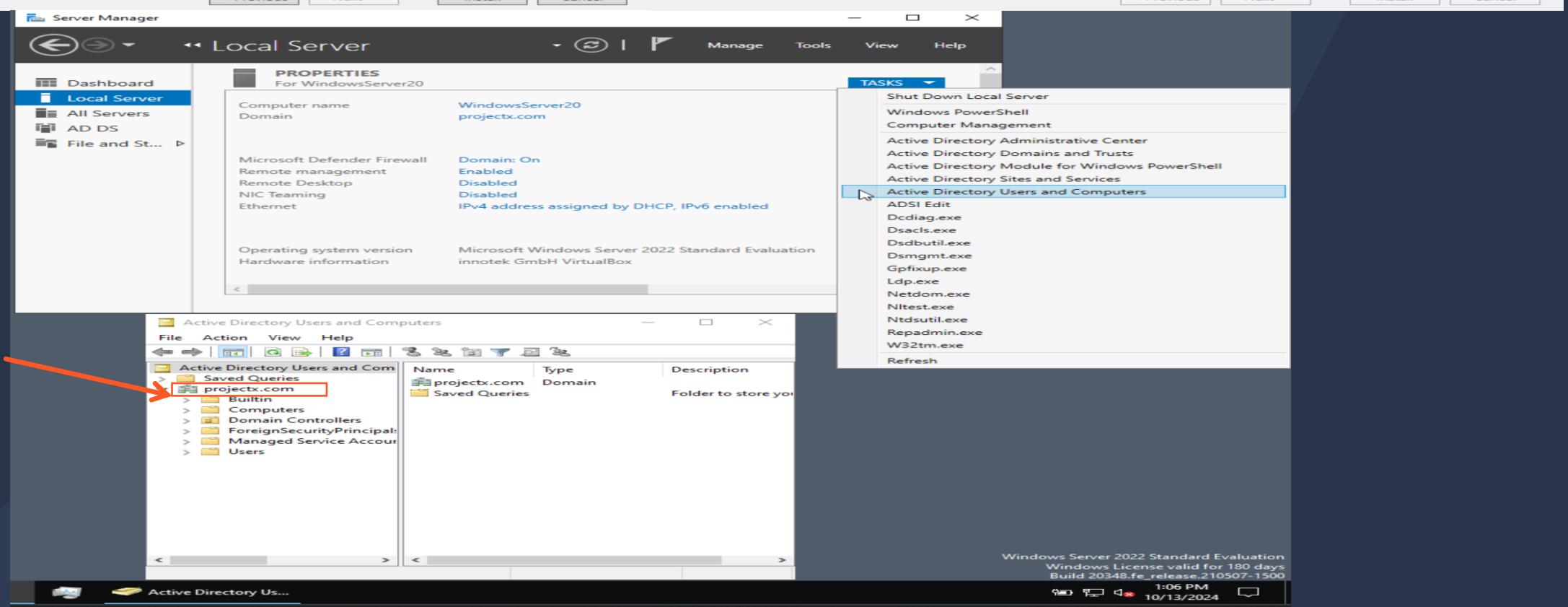
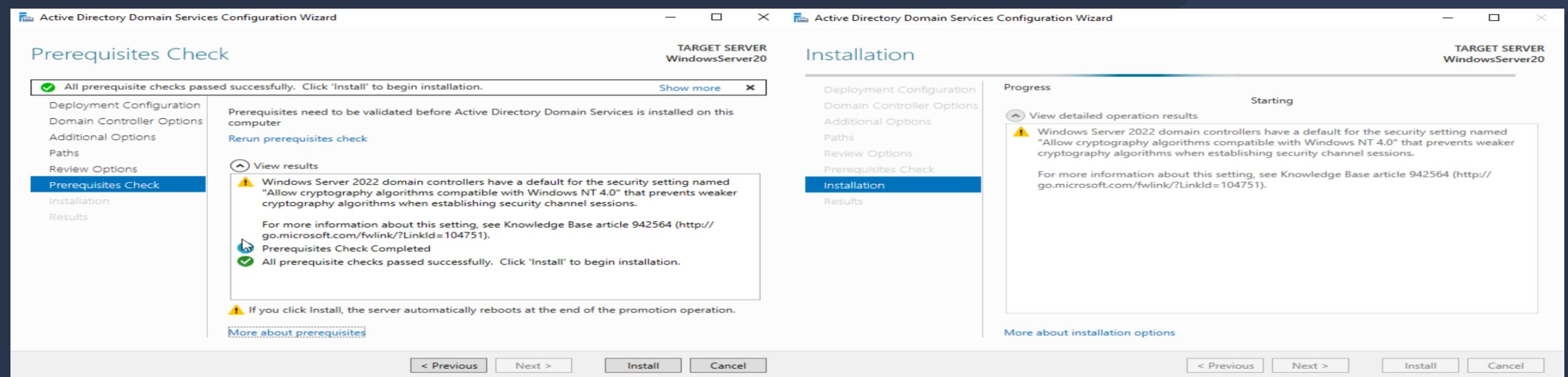
[More about installation options](#)

< Previous

Next >

Install

Cancel



# Creating user from Active Directory

Active Directory Users and Computers

File Action View Help

Active Directory Users and Com > Saved Queries > projectx.com > Builtin > Computers > Domain Controllers > ForeignSecurityPrincipals > Managed Service Accounts > Users

Name	Type	Description
Administrator	User	Built-in account for ad...
Allowed RO...	Security Group...	Members in this group c...
Cert Publish...	Security Group...	Members of this group ...
Cloneable D...	Security Group...	Members of this group t...
Denied ROD...	Security Group...	Members in this group c...
Domain Ad...	Security Group...	Designated administrato...
Domain Co...	Security Group...	All workstations and ser...
Domain Con...	Security Group...	All domain controllers i...
Domain Gue...	Security Group...	All domain guests
Domain Users	Security Group...	All domain users
Enterprise A...	Security Group...	Designated administrato...
Enterprise K...	Security Group...	Members of this group ...
Enterprise R...	Security Group...	Members of this group ...
Group Polic...	Security Group...	Members in this group c...
Guest	User	Built-in account for gue...
Key Admins	Security Group...	Members of this group ...
Protected Us...	Security Group...	Members of this group ...
RAS and IAS ...	Security Group...	Servers in this group can...
Read-only D...	Security Group...	Members of this group ...
Schema Ad...	Security Group...	Designated administrato...
Server	User	

Delegate Control...  
Find...  
New >  
All Tasks >  
Refresh  
Export List...  
View >  
Arrange Icons >  
Line up Icons  
Properties  
Help

Computer  
Contact  
Group  
InetOrgPerson  
msDS-KeyCredential  
msDS-ResourcePropertyList  
msDS-ShadowPrincipalContainer  
msImaging-PSPs  
MSMQ Queue Alias  
Printer  
**User**  
Shared Folder

Create a new object...

The image illustrates the process of creating a new user account in Active Directory and its subsequent use at a Windows logon screen.

**Top Left:** A screenshot of the "Active Directory Users and Computers" snap-in. It shows the "projectx.com" container expanded, displaying various security groups and objects. A "New Object - User" dialog box is open, prompting for user information. The "Create in:" field is set to "projectx.com/Users". The form includes fields for First name (peter), Last name (peter), Full name (peter), User logon name (@projectx.com dropdown), and User logon name (pre-Windows 2000) (PROJECTX\peter). Buttons for "< Back", "Next >" (highlighted), and "Cancel" are visible.

**Top Middle:** A screenshot of the "Active Directory Users and Computers" snap-in. It shows the "projectx.com" container expanded. A "New Object - User" dialog box is open, showing the summary of the object to be created: "Full name: peter", "User logon name: peter@projectx.com", and a note that "The user must change the password at next logon." Buttons for "< Back", "Finish" (highlighted), and "Cancel" are visible.

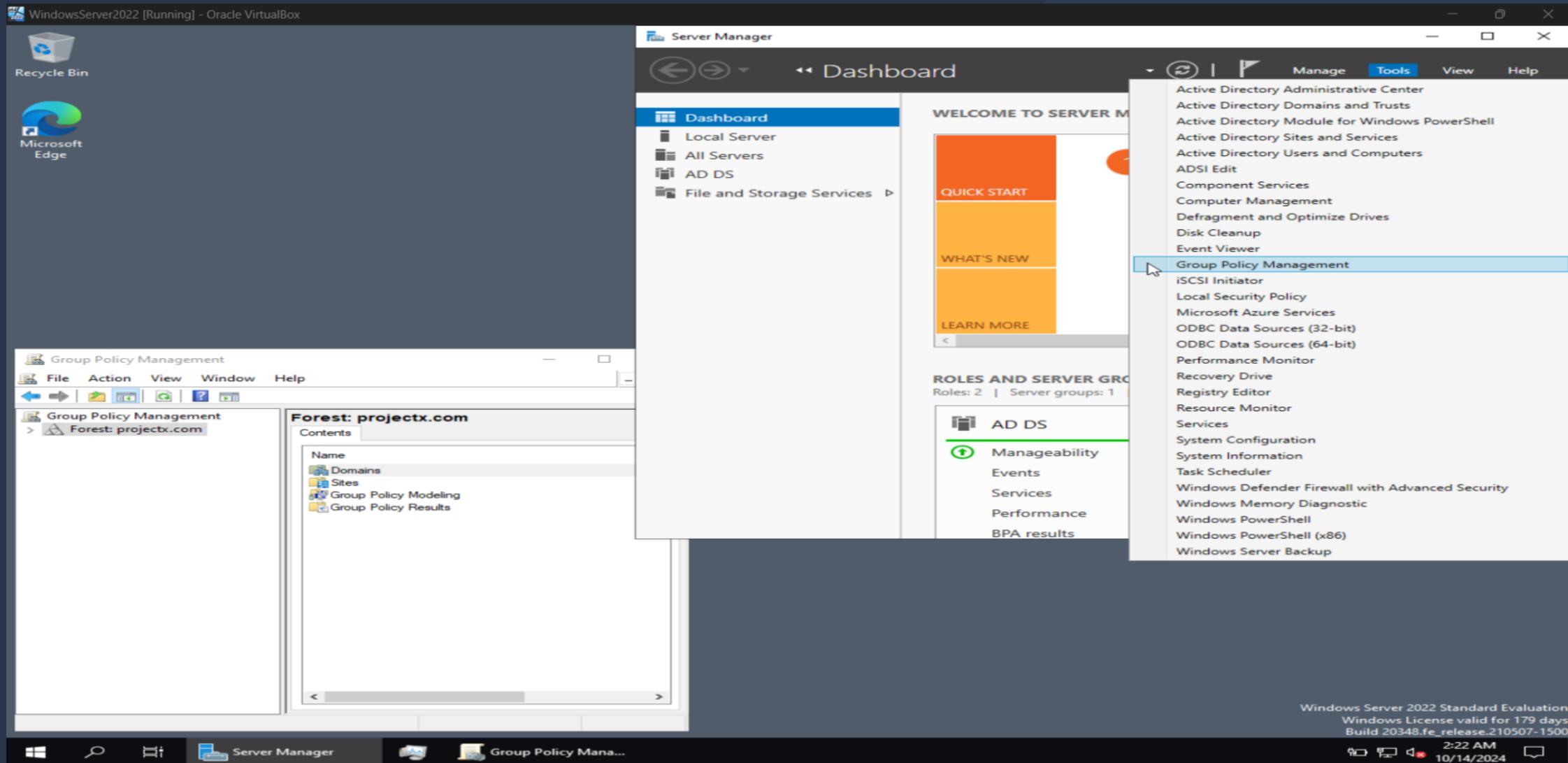
**Bottom Left:** A screenshot of the "Active Directory Users and Computers" snap-in. It shows the "projectx.com" container expanded. A "New Object - User" dialog box is open, prompting for a "Password" (\*\*\*\*\*) and "Confirm password" (\*\*\*\*\*). Below the password fields are four checkboxes: "User must change password at next logon" (checked), "User cannot change password" (unchecked), "Password never expires" (unchecked), and "Account is disabled" (unchecked). Buttons for "< Back", "Next >" (highlighted), and "Cancel" are visible.

**Bottom Middle:** A screenshot of the "Active Directory Users and Computers" snap-in. It shows the "projectx.com" container expanded, listing various security groups and objects. The "peter" user account is selected, highlighted with a blue border.

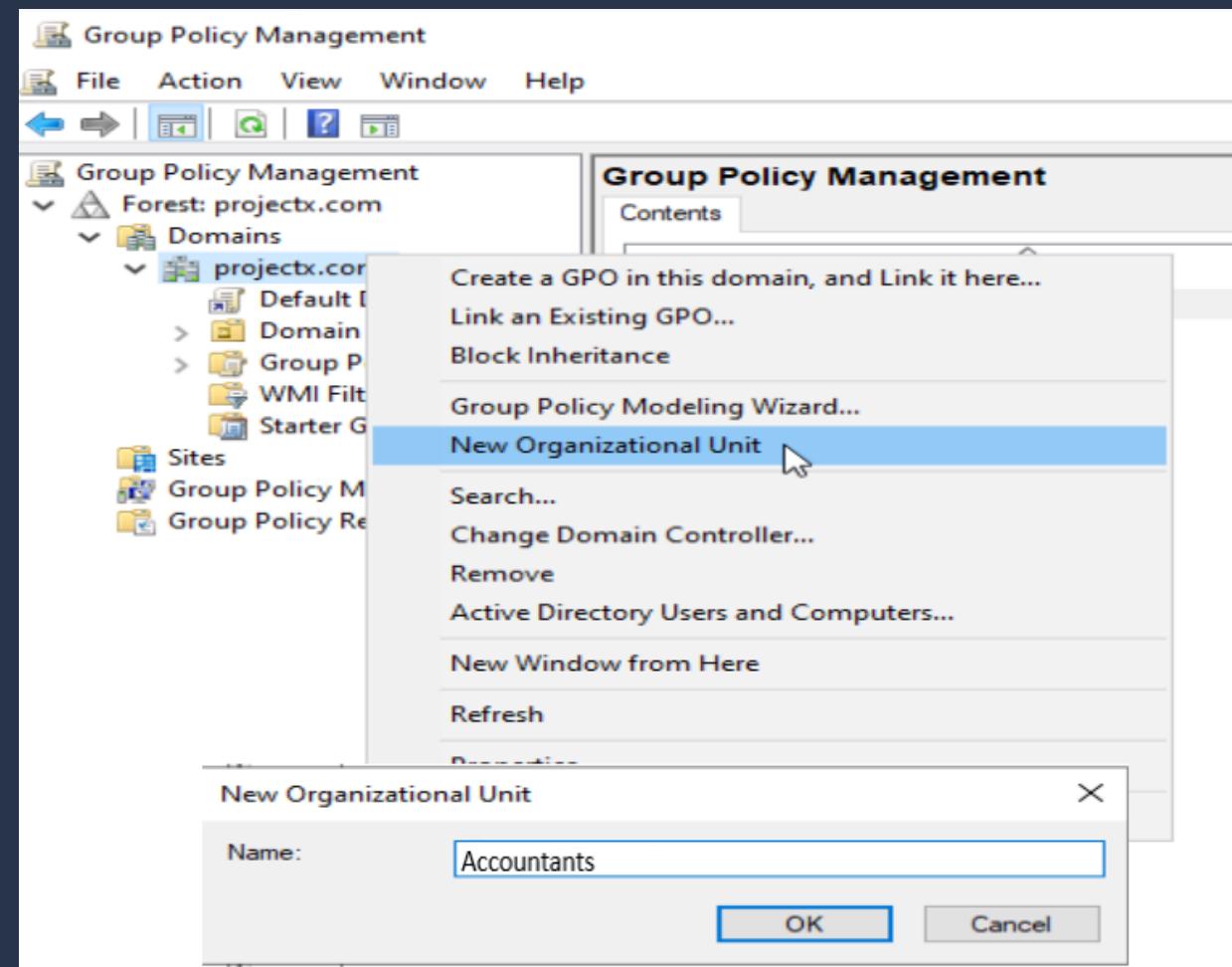
**Right Side:** A screenshot of a Windows logon screen. It features a large circular profile placeholder icon. The text "Other user" is displayed below it. A logon dialog box is open, showing the "projectx\peter" field filled with "\*\*\*\*\*". Below the password field is a "Sign in to: projectx" button. To the right of the password field is a "How do I sign in to another domain?" link and a "Cancel" button. The background of the logon screen is a scenic beach image.

# Configuring Policies

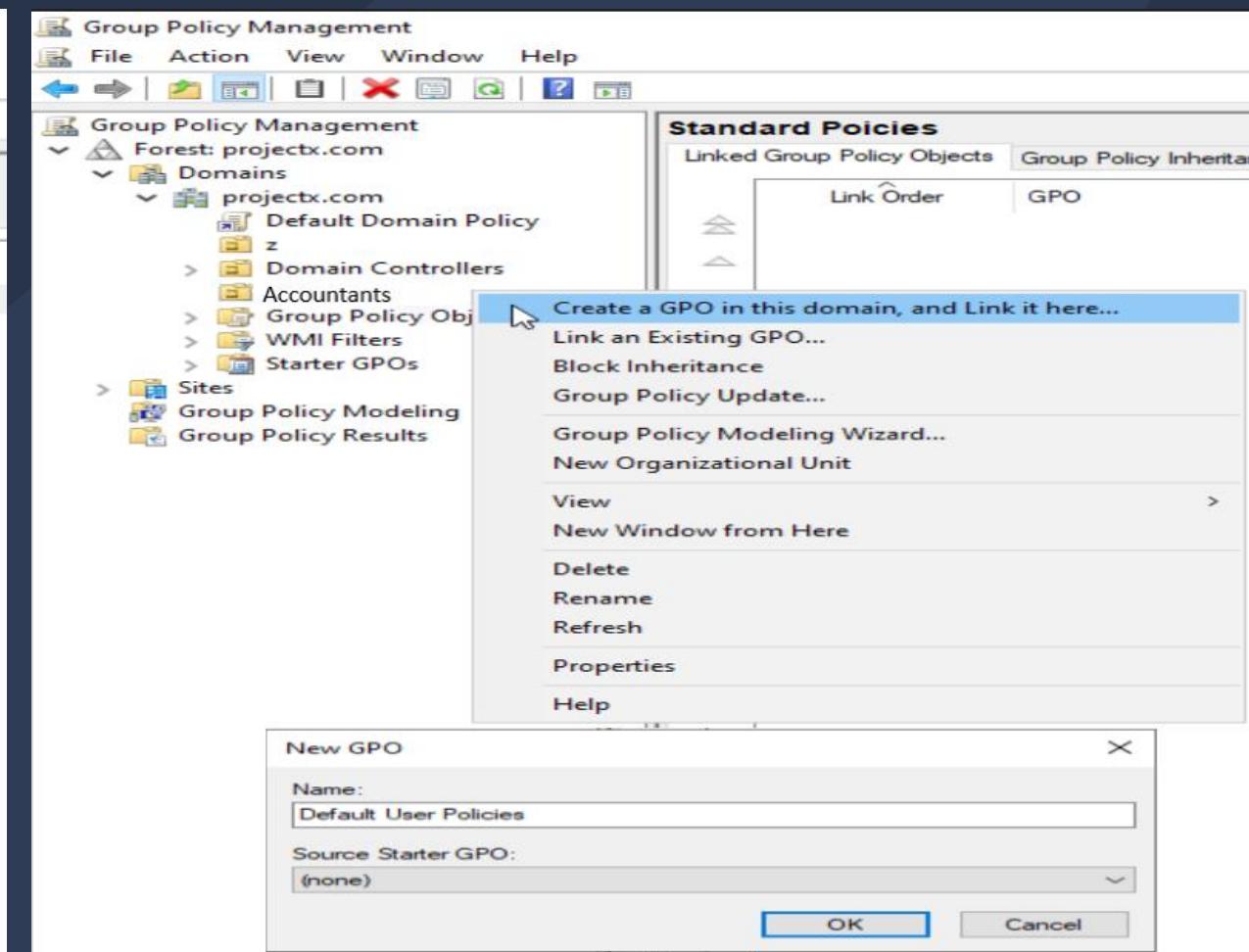
Select tools then group policy management



Right-click on projectx.com "whatever domain has been created", then select new OU



Right-click on Standard Policies "OU created", then select create a GPO



# Right-click on User Rights Assignment & Configure policies

The screenshot illustrates the process of configuring User Rights Assignment in Group Policy Management and Group Policy Management Editor.

**Group Policy Management:** Shows the navigation pane with "Forest: projectx.com" and "Domains". Under "Domains", "projectx.com" is expanded, showing "Default Domain Policy", "Domain Controllers", "Standard Policies", and "Default User Policies". The "Default User Policies" node is selected.

**Group Policy Management Editor:** Shows the "Default User Policies" configuration window. The "Links" tab is selected, displaying the GPO's links to "projectx.com". The "Policy" tab lists various user rights assignments. Several rights are highlighted with red boxes and arrows pointing to them from the left-hand navigation pane in the Group Policy Management Editor.

**Group Policy Management Editor Navigation Pane:** Shows the "Computer Configuration" section under "Policies". The "User Rights Assignment" node is selected and highlighted in blue. Other nodes include "Software Settings", "Windows Settings" (with "Name Resolution Policy" and "Scripts (Startup/Shutdown)" children), "Security Settings" (with "Account Policies" and "Local Policies" children), "Event Log", "Restricted Groups", "System Services", "Registry", "File System", "Wired Network (IEEE 802.3) Policies", "Windows Defender Firewall with Ad Network List Manager Policies", "Wireless Network (IEEE 802.11) Policies", "Public Key Policies", "Software Restriction Policies", "Application Control Policies", "IP Security Policies on Active Direct", "Advanced Audit Policy Configuration", "Policy-based QoS", "Administrative Templates: Policy definition", "User Configuration" (with "Policies" and "Preferences" children), and "User Configuration" (with "Policies" and "Preferences" children).

**Group Policy Management Editor Main Window:** Shows the "Policy" tab of the "Default User Policies" configuration. It lists 46 user rights assignments, many of which are highlighted with red boxes. The highlighted rights correspond to the ones selected in the navigation pane:

Policy	Policy Setting
Access Credential Manager as a trusted caller	Not Defined
Access this computer from the network	PROJECTX\Domain Users
Act as part of the operating system	Not Defined
Add workstations to domain	Not Defined
Adjust memory quotas for a process	Not Defined
Allow log on locally	Authenticated Users, Administrators
Allow log on through Remote Desktop Services	Not Defined
Back up files and directories	Administrators
Bypass traverse checking	Not Defined
Change the system time	Not Defined
Change the time zone	Not Defined
Create a pagefile	Not Defined
Create a token object	Not Defined
Create global objects	Not Defined
Create permanent shared objects	Not Defined
Create symbolic links	Not Defined
Debug programs	Not Defined
Deny access to this computer from the network	Not Defined
Deny log on as a batch job	Not Defined
Deny log on as a service	Not Defined
Deny log on locally	Not Defined
Deny log on through Remote Desktop Services	Not Defined
Enable computer and user accounts to be trusted for delegation	Not Defined
Force shutdown from a remote system	Not Defined
Generate security audits	Not Defined
Impersonate a client after authentication	Not Defined
Increase a process working set	Not Defined
Increase scheduling priority	Not Defined
Load and unload device drivers	Not Defined
Lock pages in memory	Not Defined
Log on as a batch job	Not Defined
Log on as a service	Not Defined

# Installing DNS Server & WEB Server

## Add Roles and Features Wizard

### Select installation type

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

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

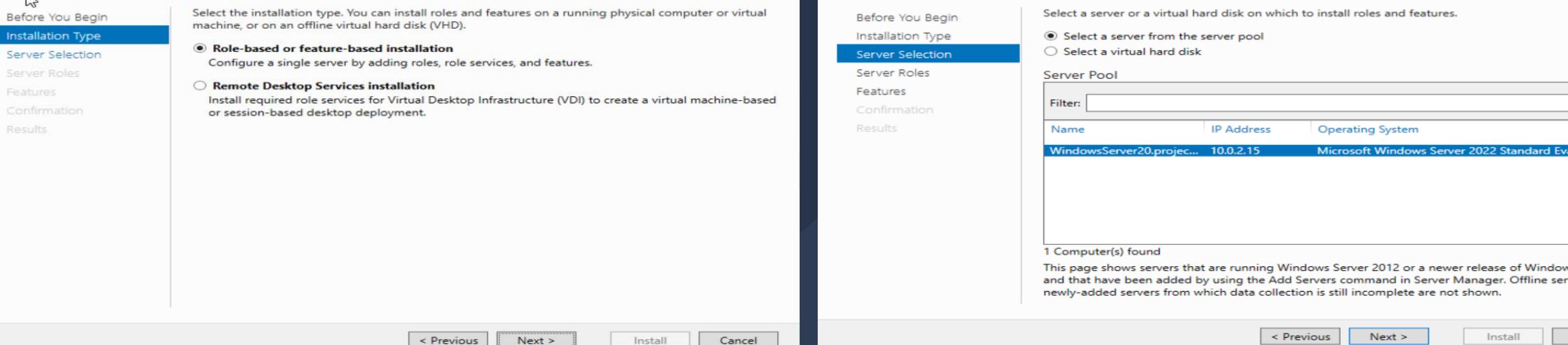
#### Role-based or feature-based installation

Configure a single server by adding roles, role services, and features.

#### Remote Desktop Services installation

Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

DESTINATION SERVER  
WindowsServer20.projectc.com



< Previous Next > Install Cancel

## Add Roles and Features Wizard

### Select server roles

Before You Begin

Installation Type

Server Selection

Server Roles

Features

DNS Server

Web Server Role (IIS)

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
- 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
- Remote Machine Access Services
- Web Server (IIS)
- Windows Deployment Services
- Windows Server Update Services

DESTINATION SERVER  
WindowsServer20.projectc.com

#### Description

Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.

< Previous Next > Install Cancel

Performance BPA results

## Add Roles and Features Wizard

### Select destination server

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

Name	IP Address	Operating System
WindowsServer20.project... 10.0.2.15	Microsoft Windows Server 2022 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

### Add features that are required for DNS 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] DNS Server Tools

Include management tools (if applicable)

Add Features Cancel

#### Local Server

## Add Roles and Features Wizard

### Add features that are required for Web Server (IIS)?

The following tools are required to manage this feature, but do not have to be installed on the same server.

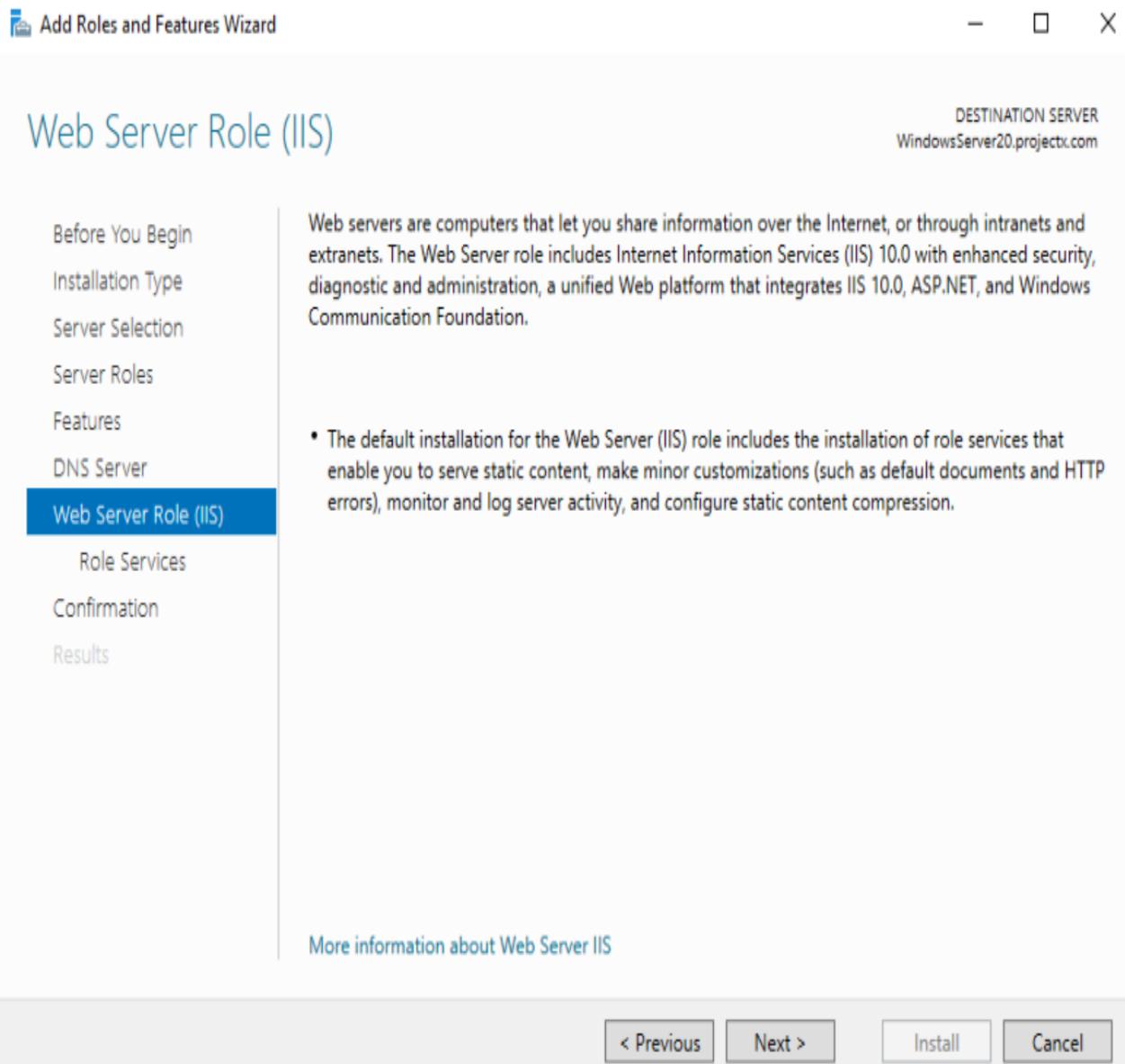
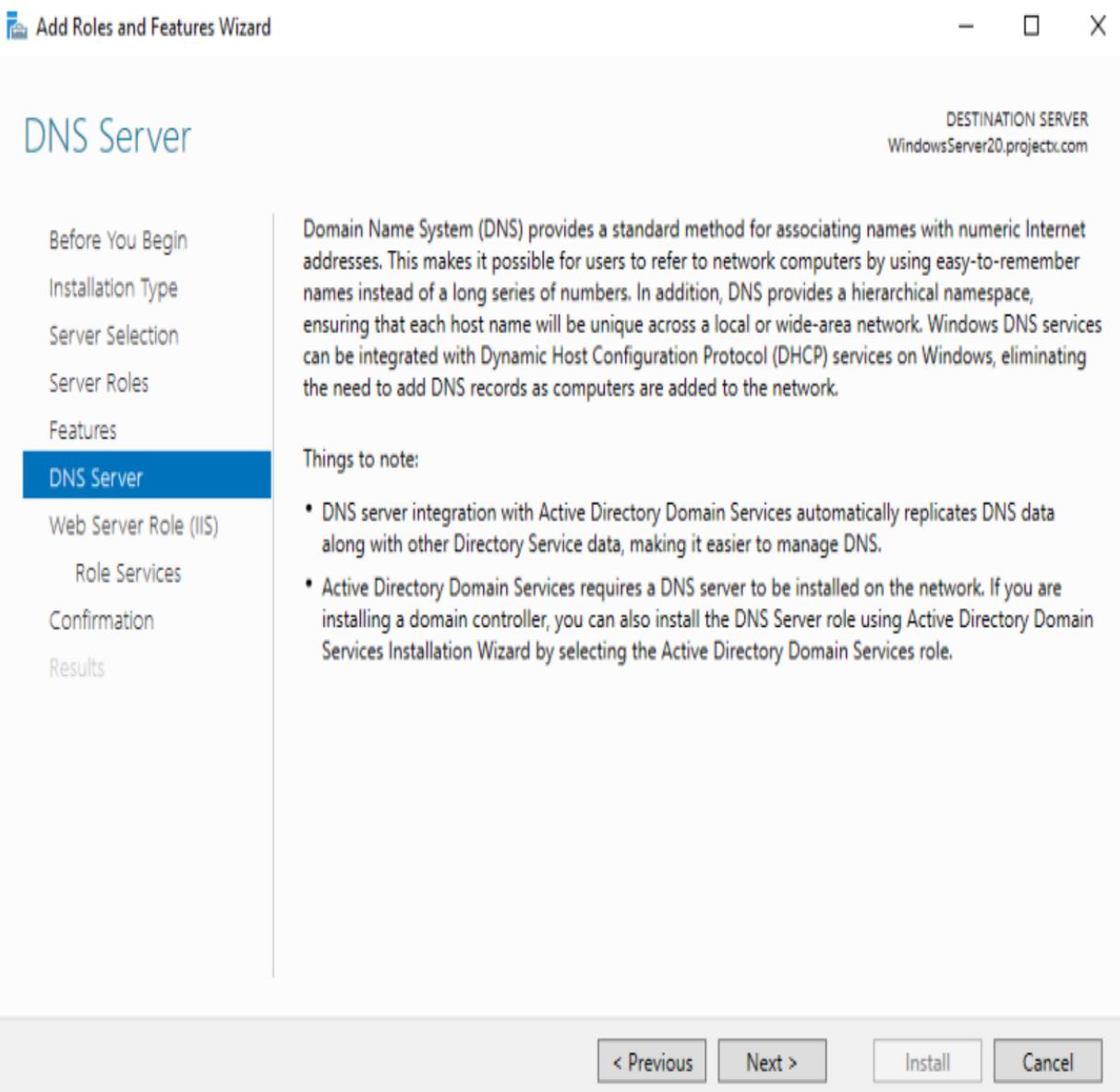
- Web Server (IIS)
  - Management Tools
    - [Tools] IIS Management Console

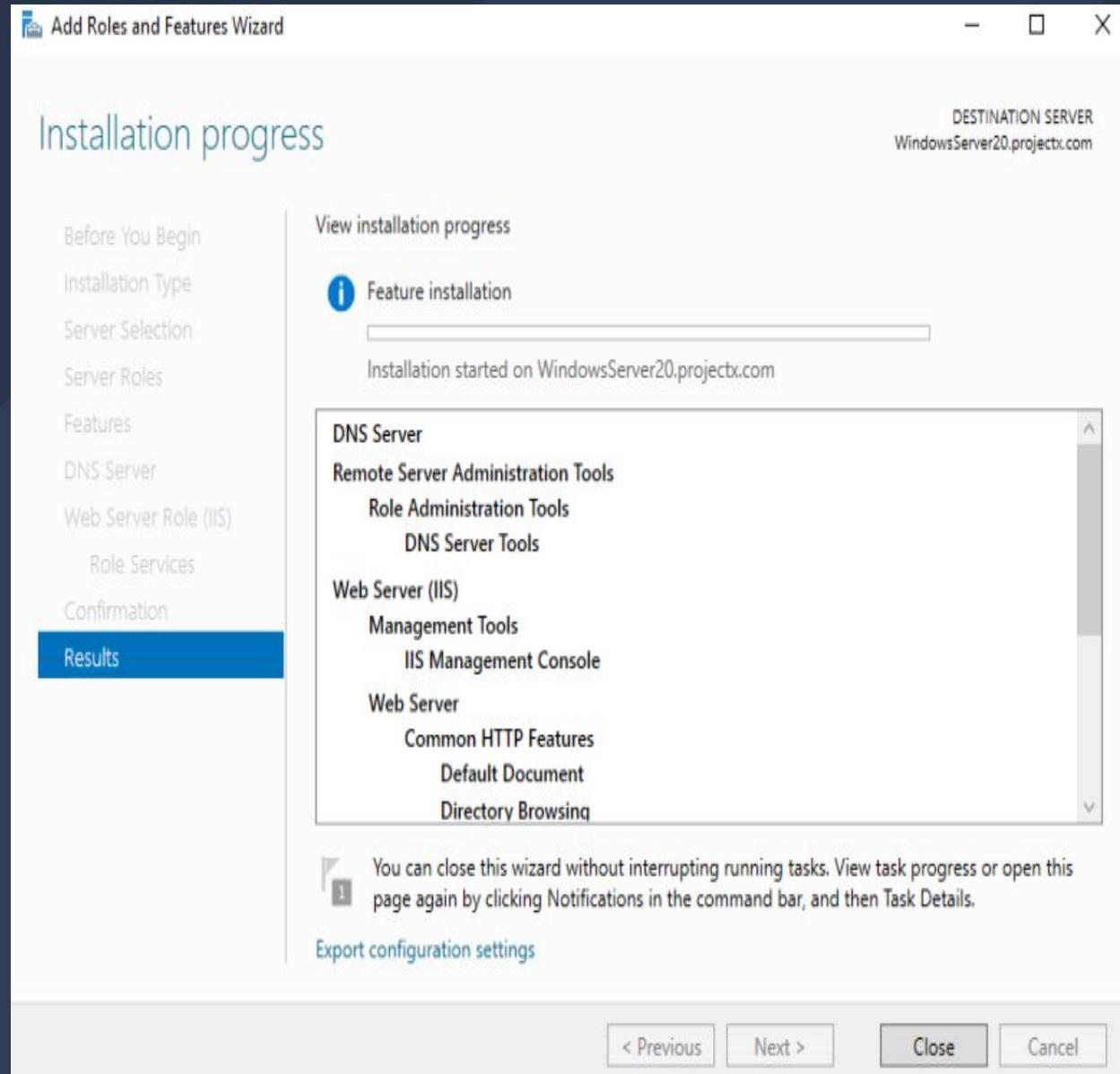
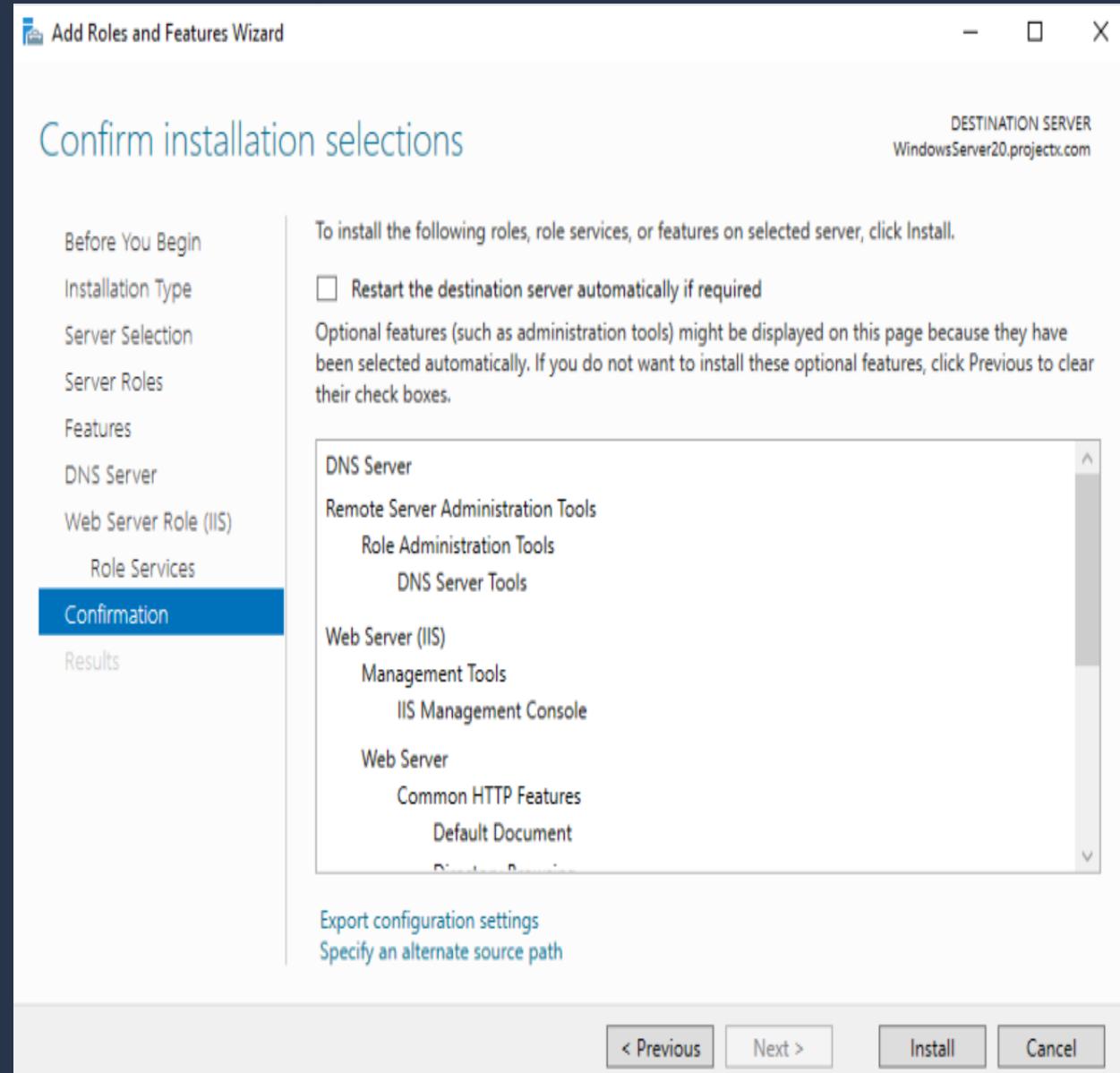
Include management tools (if applicable)

Add Features Cancel



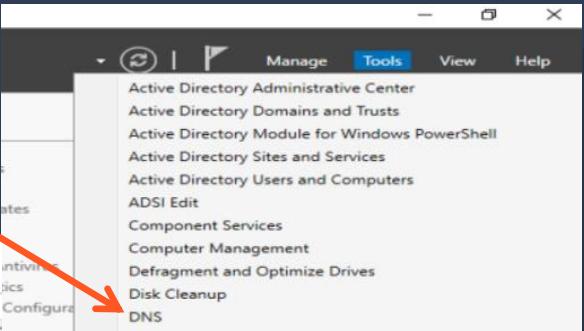
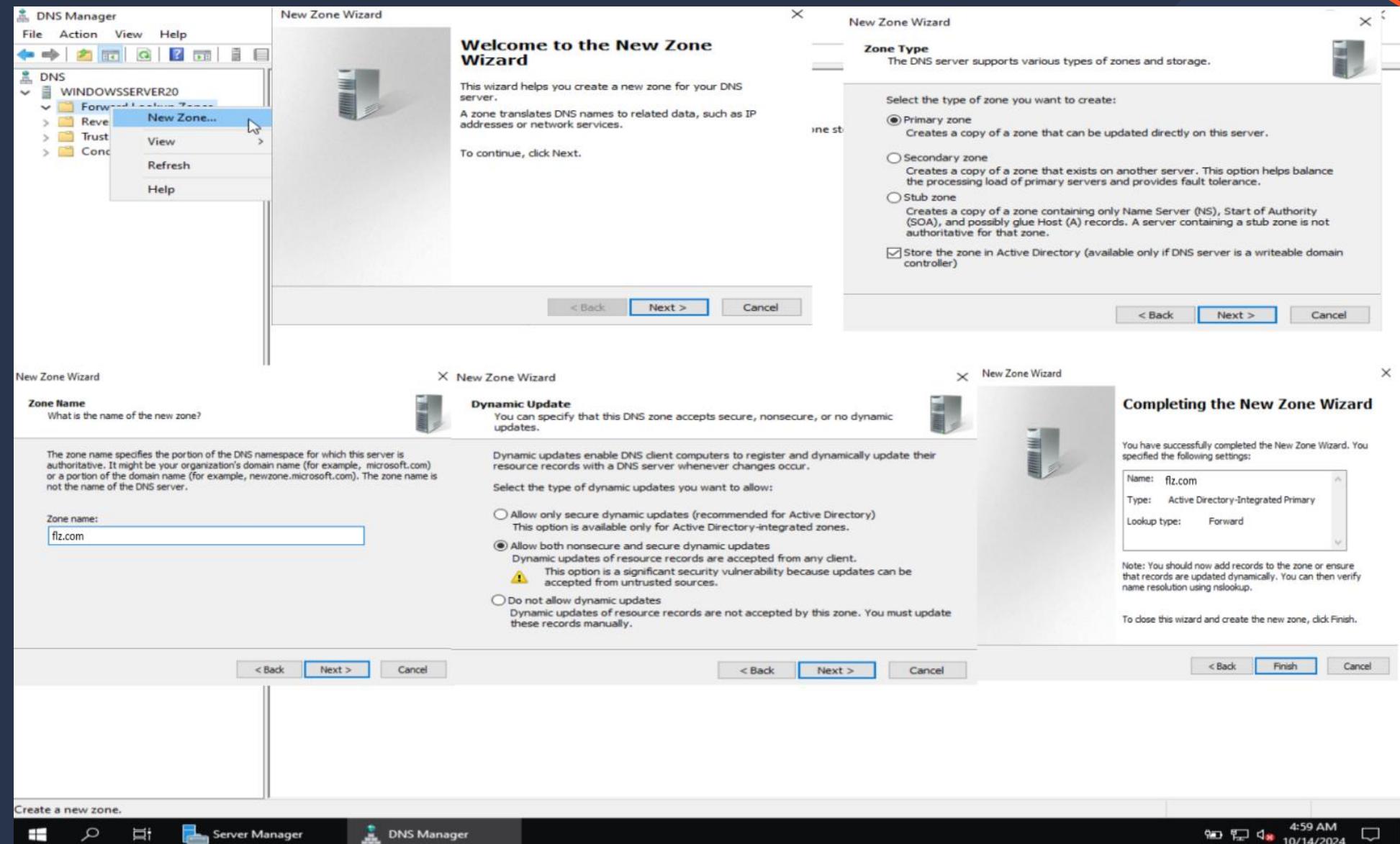
# Server roles & features





# Configuring DNS

Right-click on Forward Lookup Zones, then select New Zone



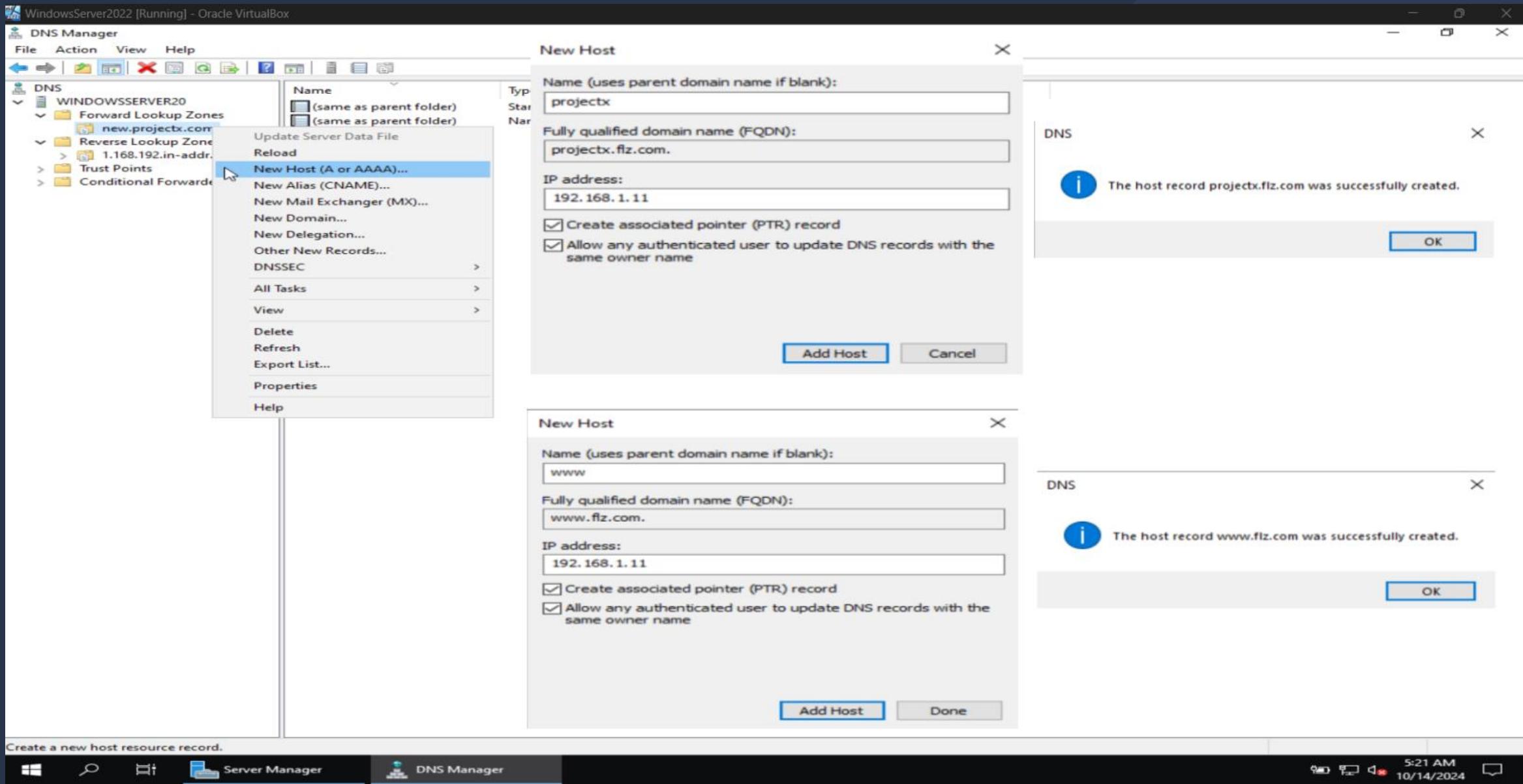
# Right-click on Reverse Lookup Zones, then select New Zone

The screenshot illustrates the step-by-step process of creating a new reverse lookup zone in the Windows Server 2012 DNS Manager. The steps are as follows:

- Welcome to the New Zone Wizard**: This is the first screen of the wizard. It provides an overview of what the wizard does and asks the user to click Next.
- Zone Type**: This screen allows the user to choose the type of zone. The "Primary zone" option is selected, which creates a copy of a zone that can be updated directly on this server. Other options include "Secondary zone" (copy from another server) and "Stub zone" (copy containing NS, SOA, and glue A records). A checkbox for "Store the zone in Active Directory" is available but unchecked.
- Reverse Lookup Zone Name**: This screen specifies the name of the reverse lookup zone. It is described as translating IP addresses into DNS names. The "IPv4 Reverse Lookup Zone" option is selected. The zone name entered is "1.168.192.in-addr.arpa".
- Dynamic Update**: This screen configures dynamic update settings. The "Allow both nonsecure and secure dynamic updates" option is selected, which is recommended for Active Directory. A warning note states that this option is a significant security vulnerability because updates can be accepted from untrusted sources.
- Completing the New Zone Wizard**: This is the final screen, summarizing the completed settings. The zone name is "1.168.192.in-addr.arpa", the type is "Active Directory-Integrated Primary", and the lookup type is "Reverse". A note at the bottom indicates that records should be added to the zone or updated dynamically using nslookup.

The DNS Manager interface shows a tree view of the "WINDOWS SERVER 2012" domain, with "Forward Lookup Zones" and "Reverse Lookup Zones" expanded. The "Reverse Lookup Zones" node contains "new.projectbx.com". The "New Zone..." option under "Reverse Lookup Zones" is highlighted with a blue cursor.

Right-click on the created zone, then select New Host



DNS Manager

File Action View Help

DNS

- WINDOWS SERVER 20
  - Forward Lookup Zones
    - flz.com
  - Reverse Lookup Zones
    - 1.168.192.in-addr.arpa
  - Trust Points
  - Conditional Forwarders

Name	Type	Data	Timestamp
(same as parent folder)	Start of Authority (SOA)	[11], windowsserver20.pro...	static
(same as parent folder)	Name Server (NS)	windowsserver20.projectx....	static
projectx	Host (A)	192.168.1.11	static
www	Host (A)	192.168.1.11	static

DNS Manager

File Action View Help

DNS

- WINDOWS SERVER 20
  - Forward Lookup Zones
    - flz.com
  - Reverse Lookup Zones
    - 1.168.192.in-addr.arpa
  - Trust Points
  - Conditional Forwarders

Name	Type	Data	Timestamp
(same as parent folder)	Start of Authority (SOA)	[11], windowsserver20.pro...	static
(same as parent folder)	Name Server (NS)	windowsserver20.projectx....	static
192.168.1.11	Pointer (PTR)	www.flz.com.	static
192.168.1.11	Pointer (PTR)	projectx.flz.com.	static

Administrator: Windows PowerShell

Windows PowerShell

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Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

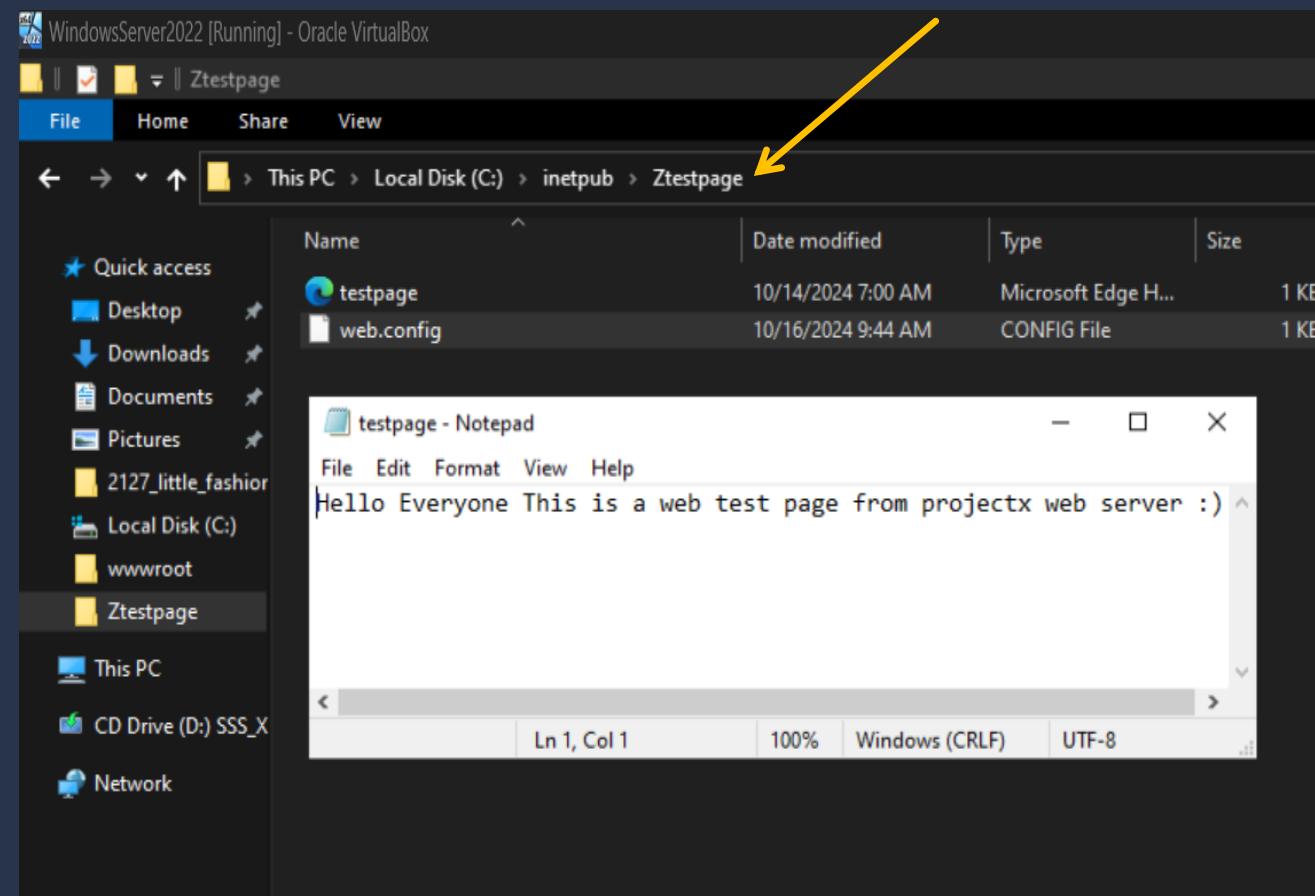
PS C:\Users\administrator> ping www.flz.com

```
Pinging www.flz.com [192.168.1.11] with 32 bytes of data:  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
Reply from 192.168.1.11: bytes=32 time=1ms TTL=128  
  
Ping statistics for 192.168.1.11:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

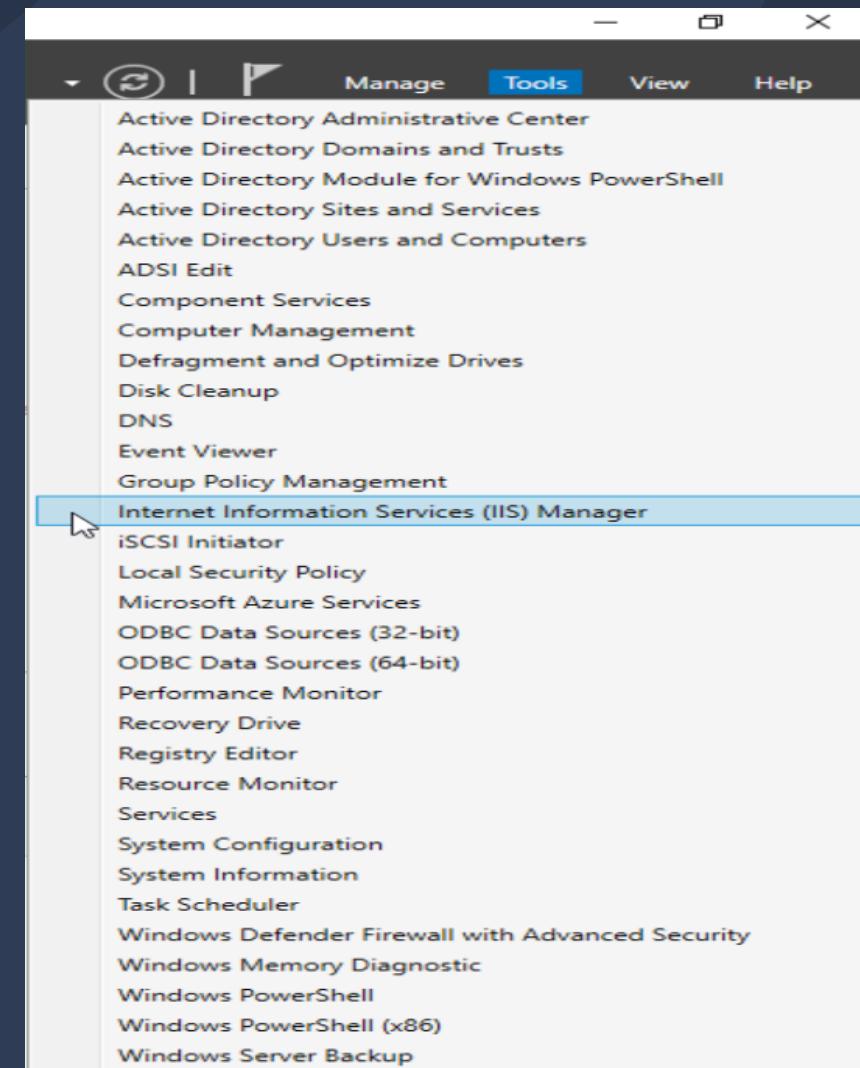
PS C:\Users\administrator>

## Create Website

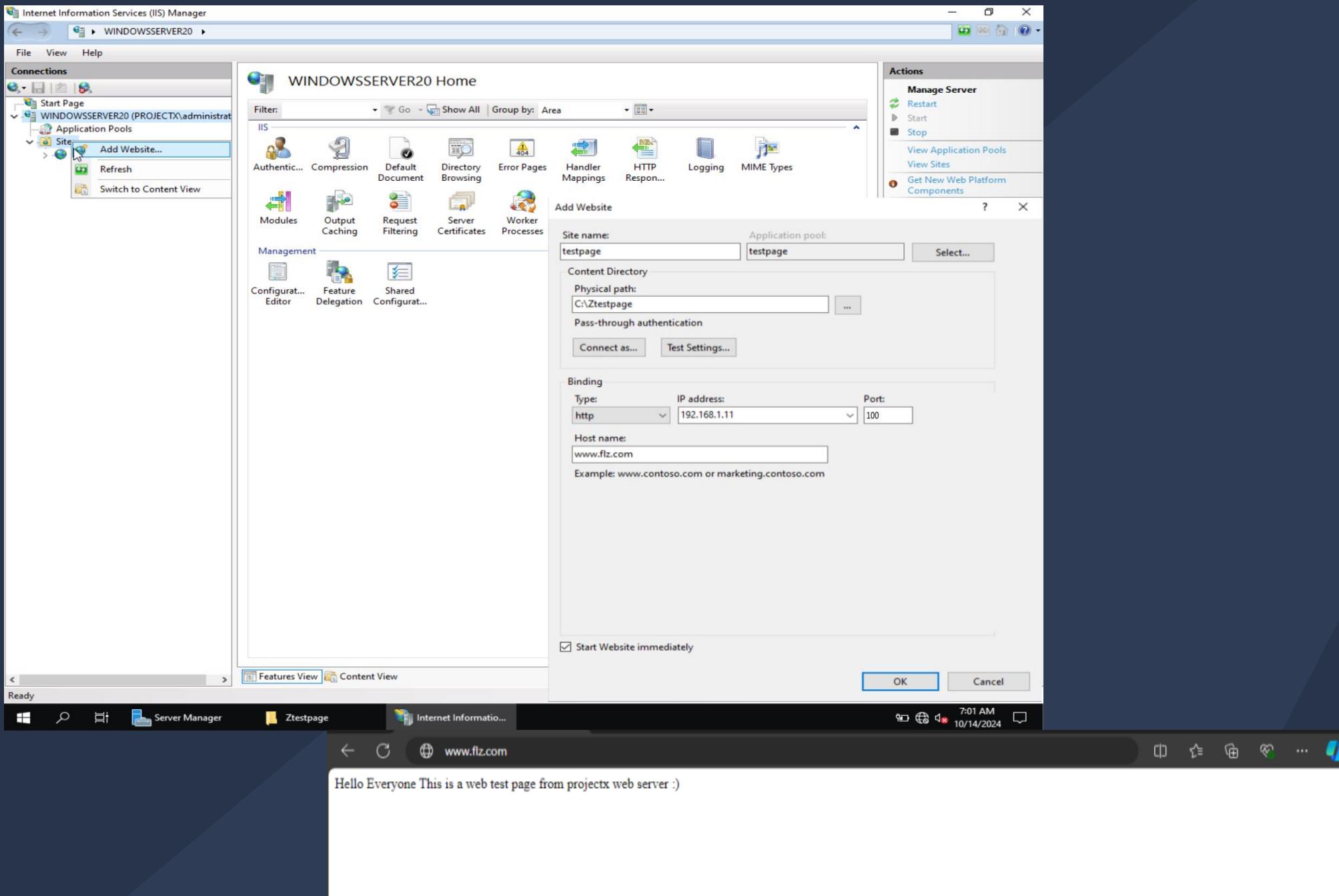
Create a document file & save it as html file in the path below " ISS Manger Path"



Open Server Manger, select tools , select IIS Manger

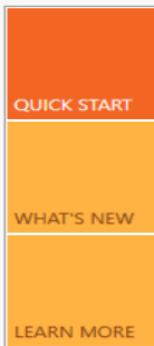


Right-click on sites, then select add website, then fill the data required



**Dashboard**

- Local Server
- All Servers
- AD DS
- DNS
- File and Storage Services ▾
- IIS

**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: 4 | Server groups: 1 | Servers total: 1

**AD DS** 1

- Manageability
- Events
- Services
- Performance
- BPA results

**DNS** 1

- Manageability
- Events
- Services
- Performance
- BPA results

**File and Storage Services** 1

- Manageability
- Events
- Services
- Performance
- BPA results

**IIS** 1

- Manageability
- Events
- Services
- Performance
- BPA results

**Local Server** 1

- Manageability
- Events
- Services
- Performance
- BPA results

**All Servers** 1

- Manageability
- Events
- Services
- Performance
- BPA results

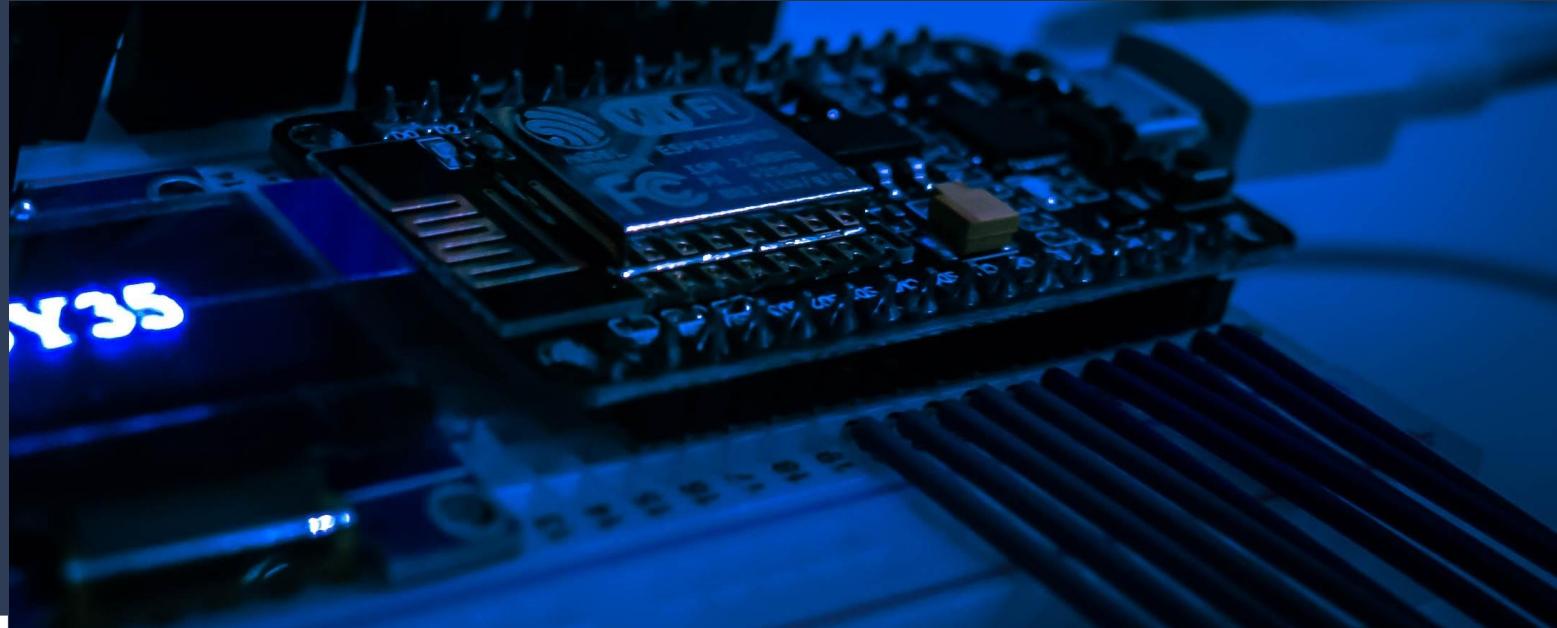


05



# Test Reports

Issues & Solutions



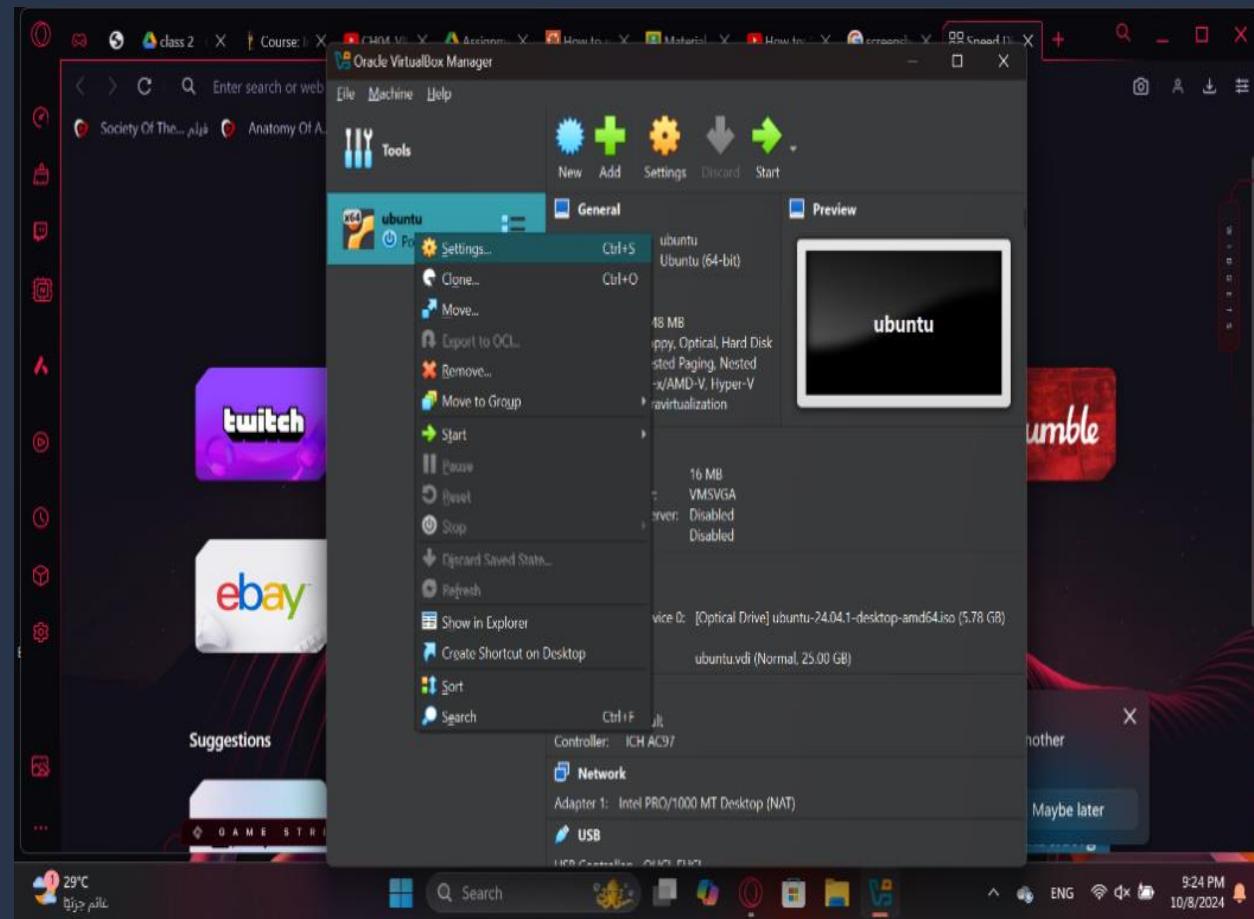
## Issue 1

Backscreen: when run the ubuntu from the VBOX displays a backscreen

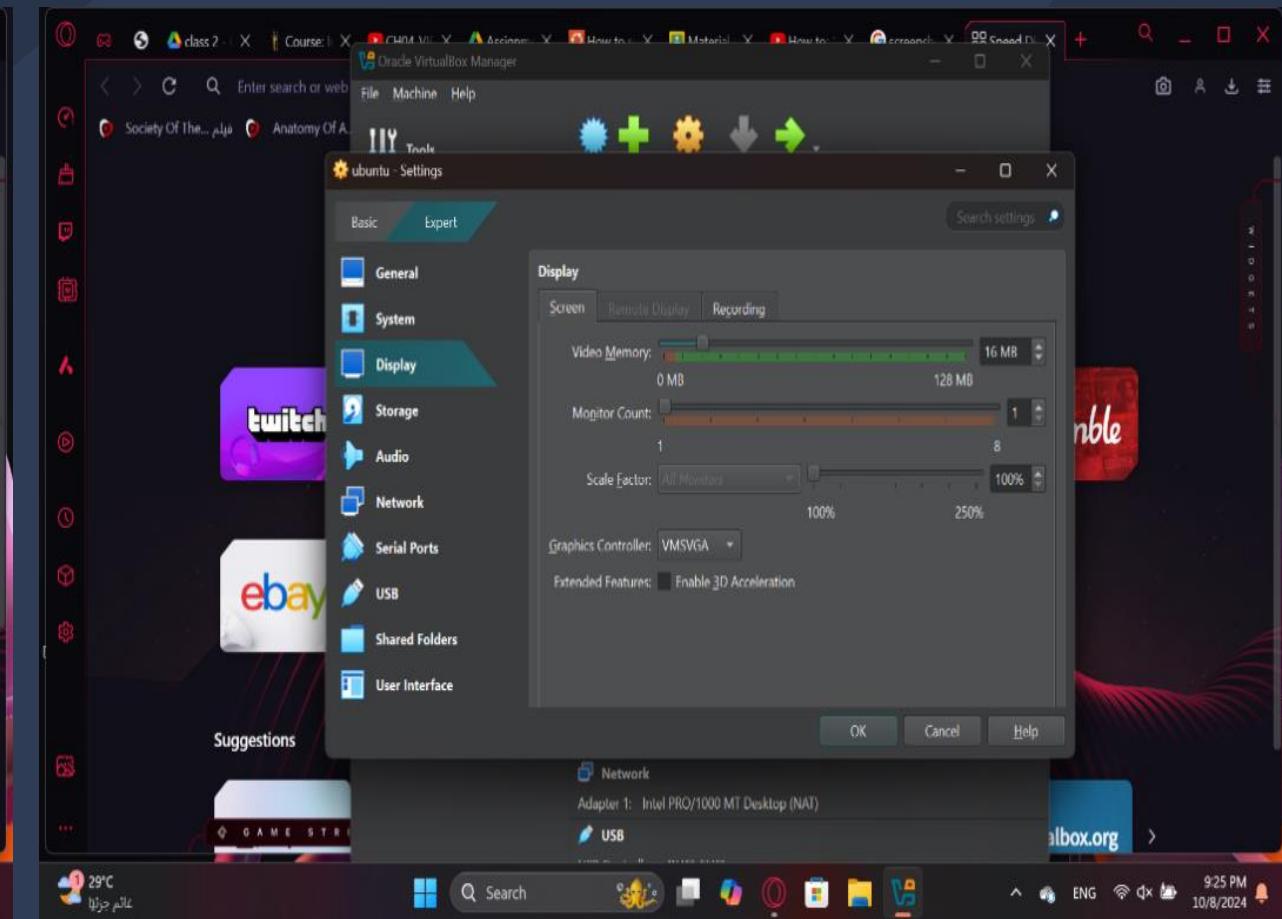
## Solution

increase the video memory to 50 or 60 MB then the ubuntu will work properly

ubuntu settings



display then increase video memory to 50 or 60 MB



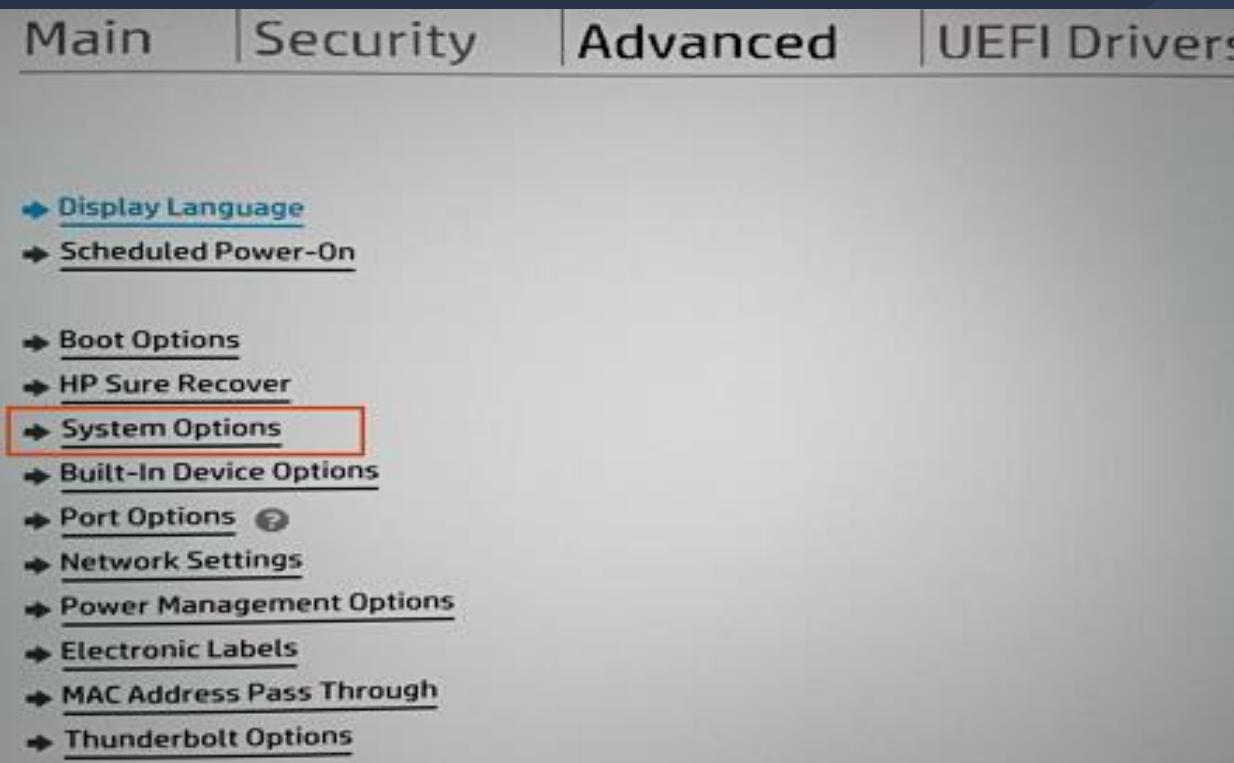
## Issue 2

Error message that AMD-V is and VTx is disabled.

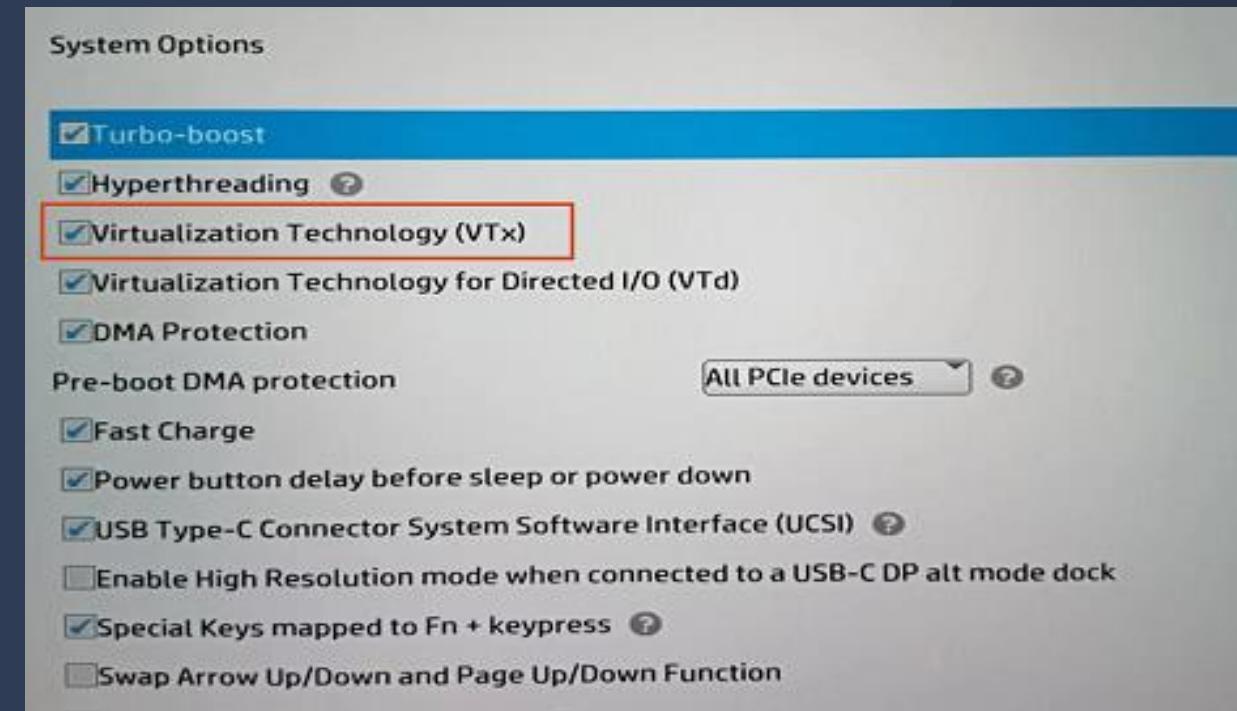
## Solution

enable the AMD-V AND vt<sub>x</sub> from the BIOS.

1-enter the bios of your device then click advanced.  
2-from advanced select system options.



In the System Options window, select the Virtualization Technology (VTx) box.



Press f10 to save your changes and exit BIOS.

# Enable Virtualization Technology

In the BIOS Under the Security tab, use the up and down arrows to select USB Security, and then press enter.

Use the up and down arrows to select Virtualization Technology (VTx), and then use the left and right arrows to select either Enabled or Disabled.



### Issue 3

error invalid setting detected Not enough memory is left for the host operation system

VirtualBox

### Solution

allocate enough RAM and CPU minimum 2GB more is better

### Issue 4

VirtualBox Version Compatibility

### Solution

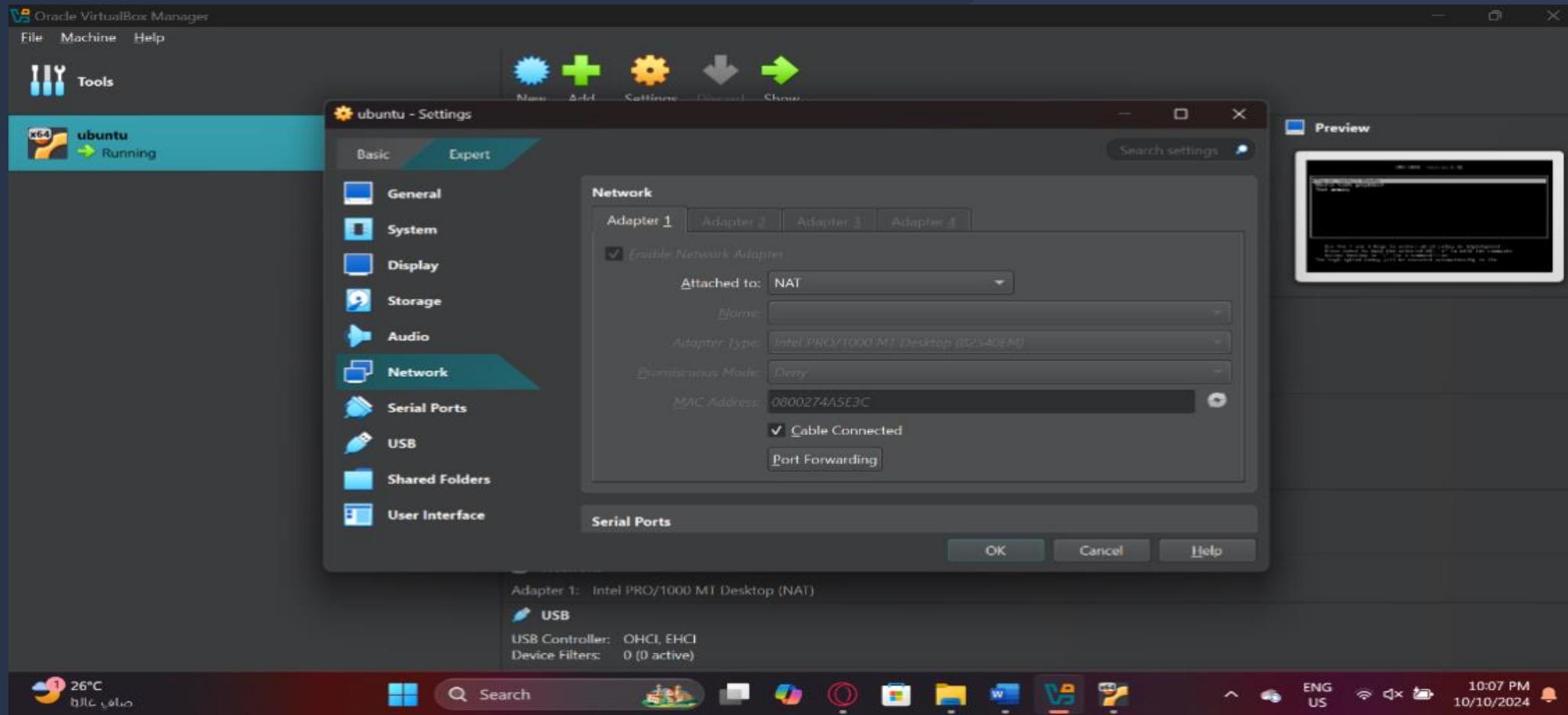
Ensure you are using the latest version of VirtualBox. Compatibility issues can arise with older versions.

## Issue 5

If you have network problems

## Solution

Ensure the network adapter is set to "NAT" or "Bridged" in the VM settings. You may also need to configure the firewall settings on your host machine



## Issue 6

### Website error loading

The screenshot shows a browser window titled "IIS 10.0 Detailed Error - 403.14 - Forbidden" from "www.flz.com". The error message is: "HTTP Error 403.14 - Forbidden" and "The Web server is configured to not list the contents of this directory." Below this, under "Most likely causes:", it lists: "A default document is not configured for the requested URL, and directory browsing is not enabled on the server." Under "Things you can try:", it provides steps to enable directory browsing via IIS Manager and to verify configuration settings. The "Detailed Error Information" section shows the following data:

Module	DirectoryListingModule	Requested URL	http://www.flz.com:80/
Notification	ExecuteRequestHandler	Physical Path	C:\Ztestpage
Handler	StaticFile	Logon Method	Anonymous
Error Code	0x00000000	Logon User	Anonymous

Under "More Information:", it states: "This error occurs when a document is not specified in the URL, no default document is specified for the Web site or application, and directory listing is not enabled for the Web site or application. This setting may be disabled on purpose to secure the contents of the server." A link "View more information" is provided.

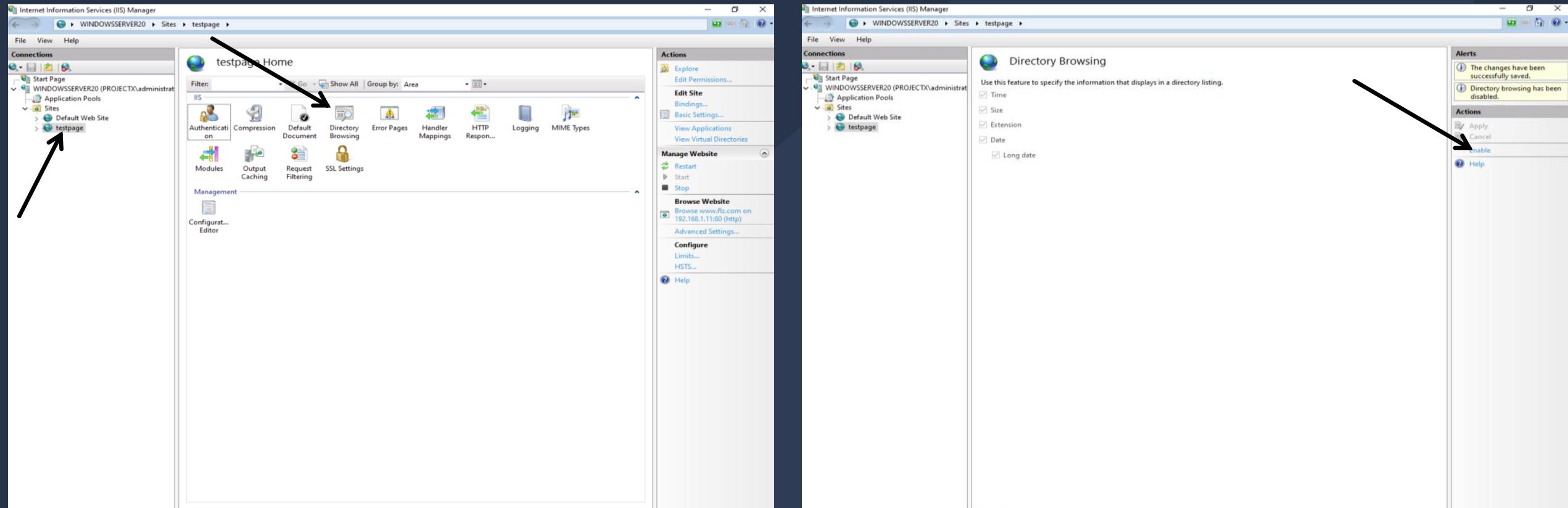
At the bottom of the screen, the taskbar shows icons for Server Manager, Ztestpage, Internet Information..., and IIS 10.0 Detailed Err... The system tray shows the date and time as 7:04 AM, 10/14/2024.

## Solution

### Ensure to enable Directory Browsing

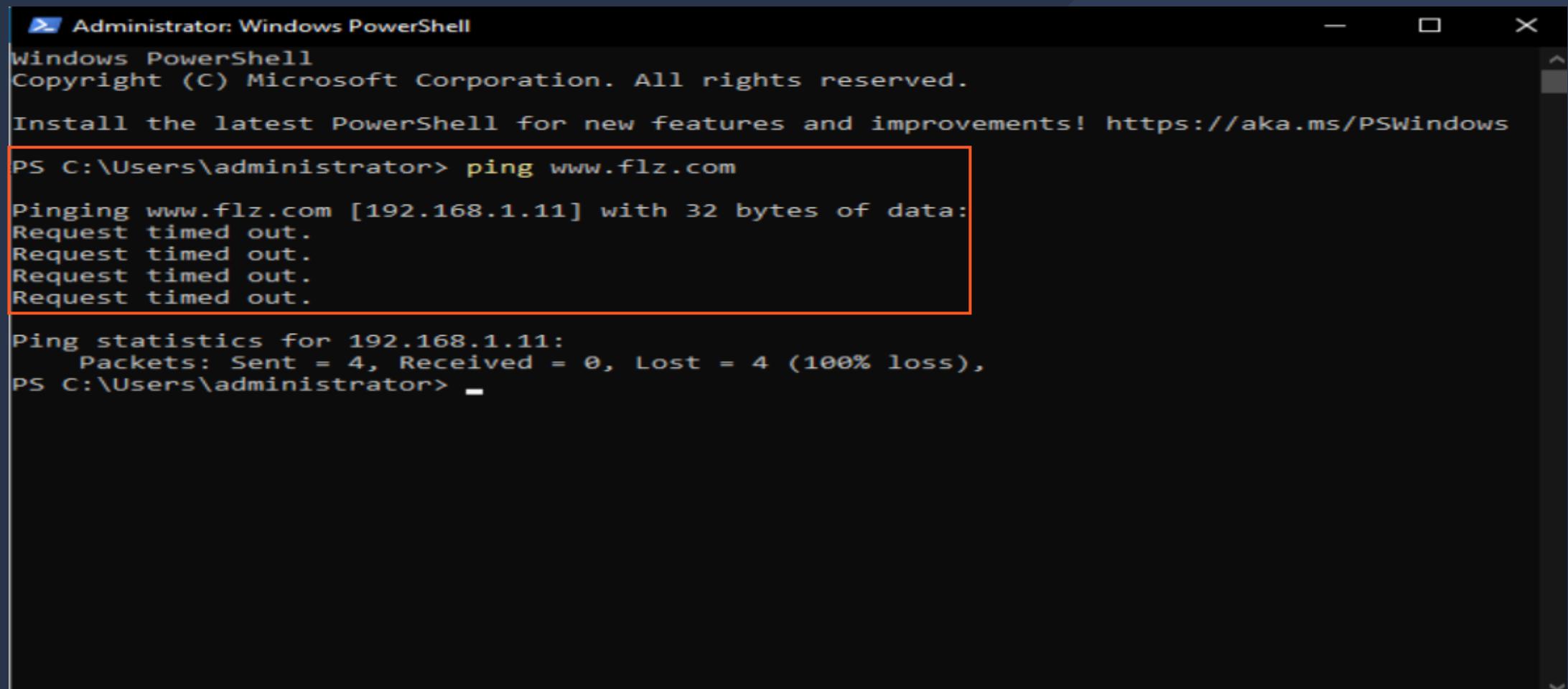
Right-click on the website created, then select Directory Browsing

Click on enable



## Issue 7

Host name & Domain name are not replying



Administrator: Windows PowerShell

Windows PowerShell  
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Install the latest PowerShell for new features and improvements! <https://aka.ms/PSWindows>

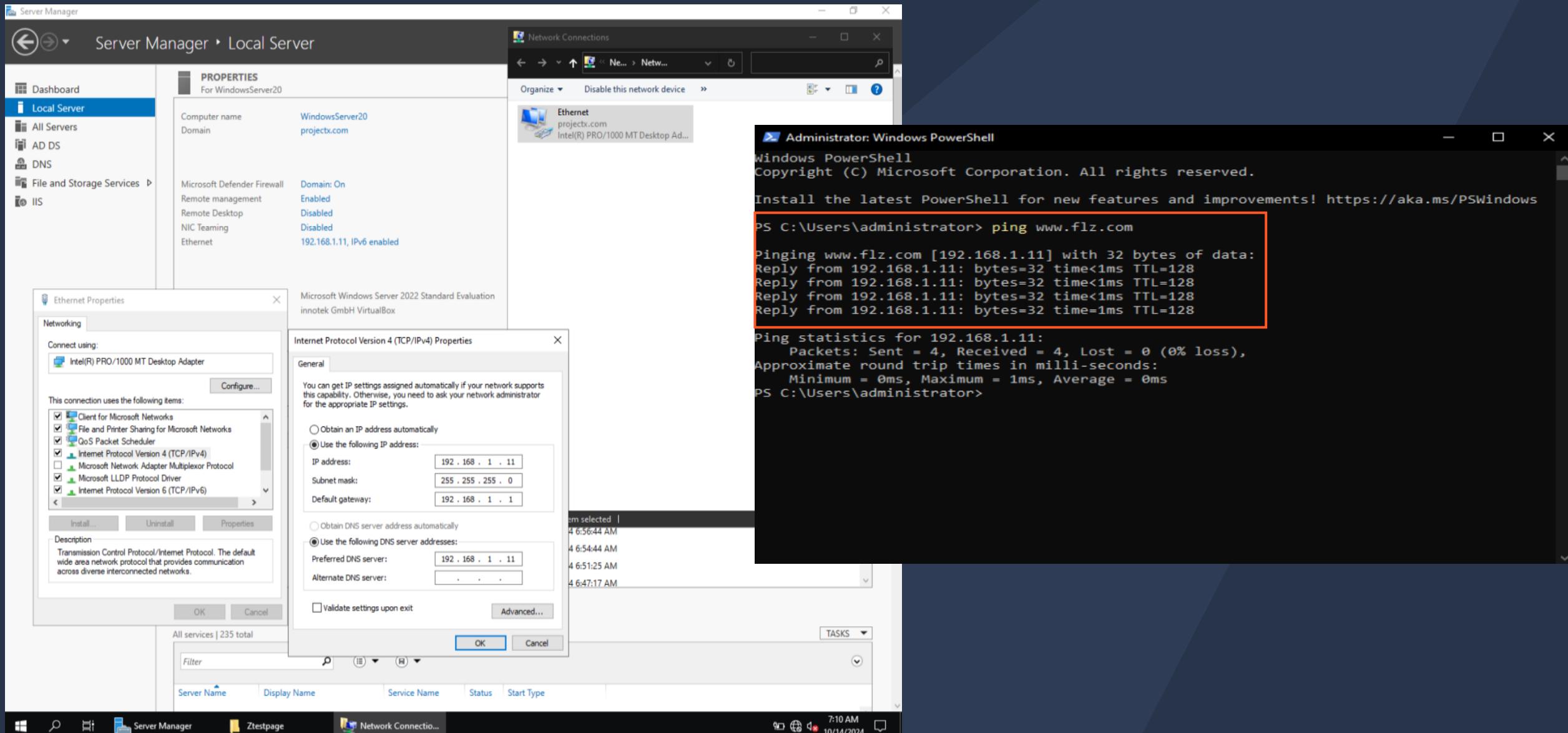
```
PS C:\Users\administrator> ping www.flz.com

Pinging www.flz.com [192.168.1.11] with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.11:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
PS C:\Users\administrator> -
```

# Solution

Ensure to configure your network settings

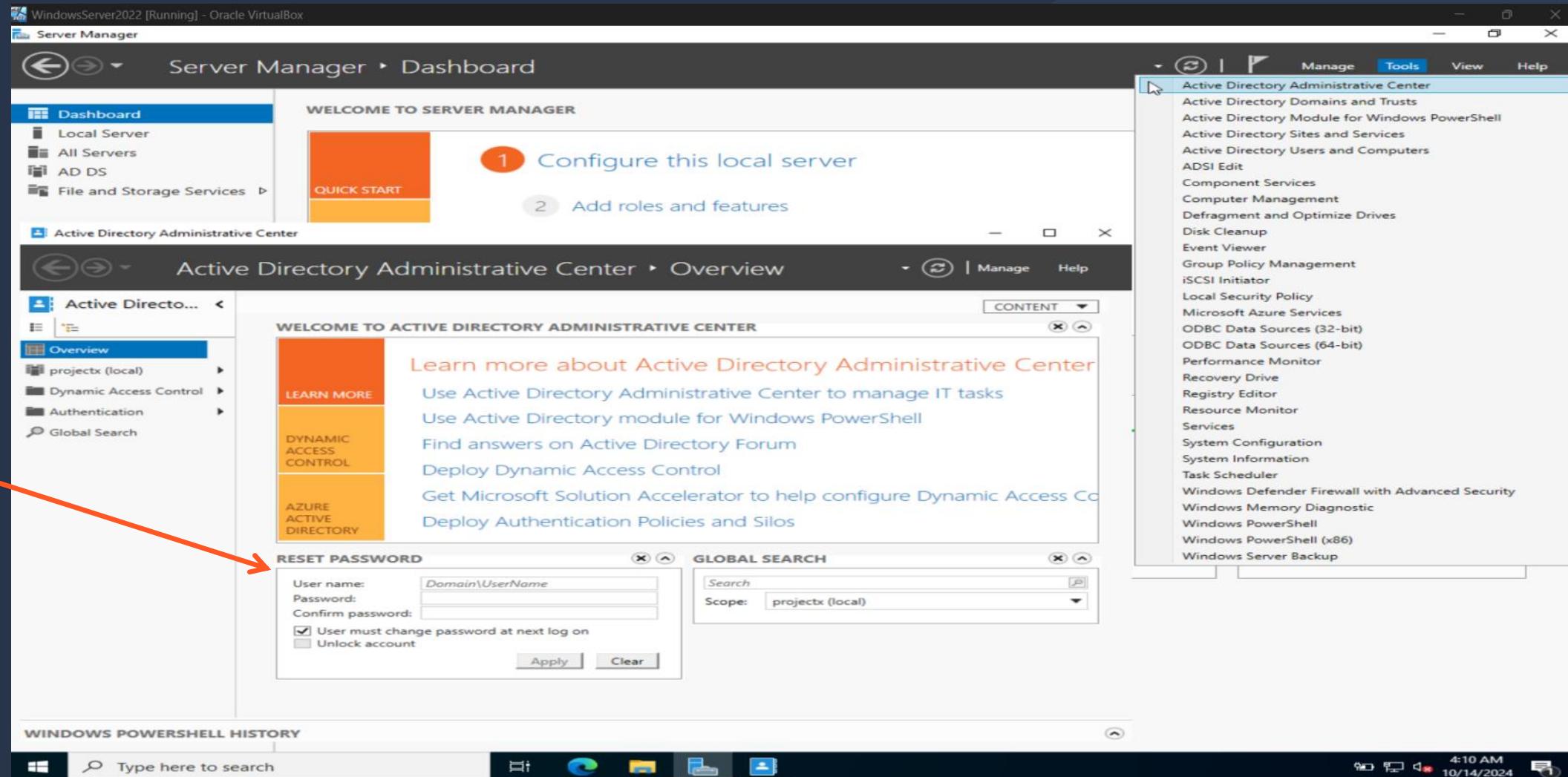


## Issue 8

Server users forgot their passwords

## Solution

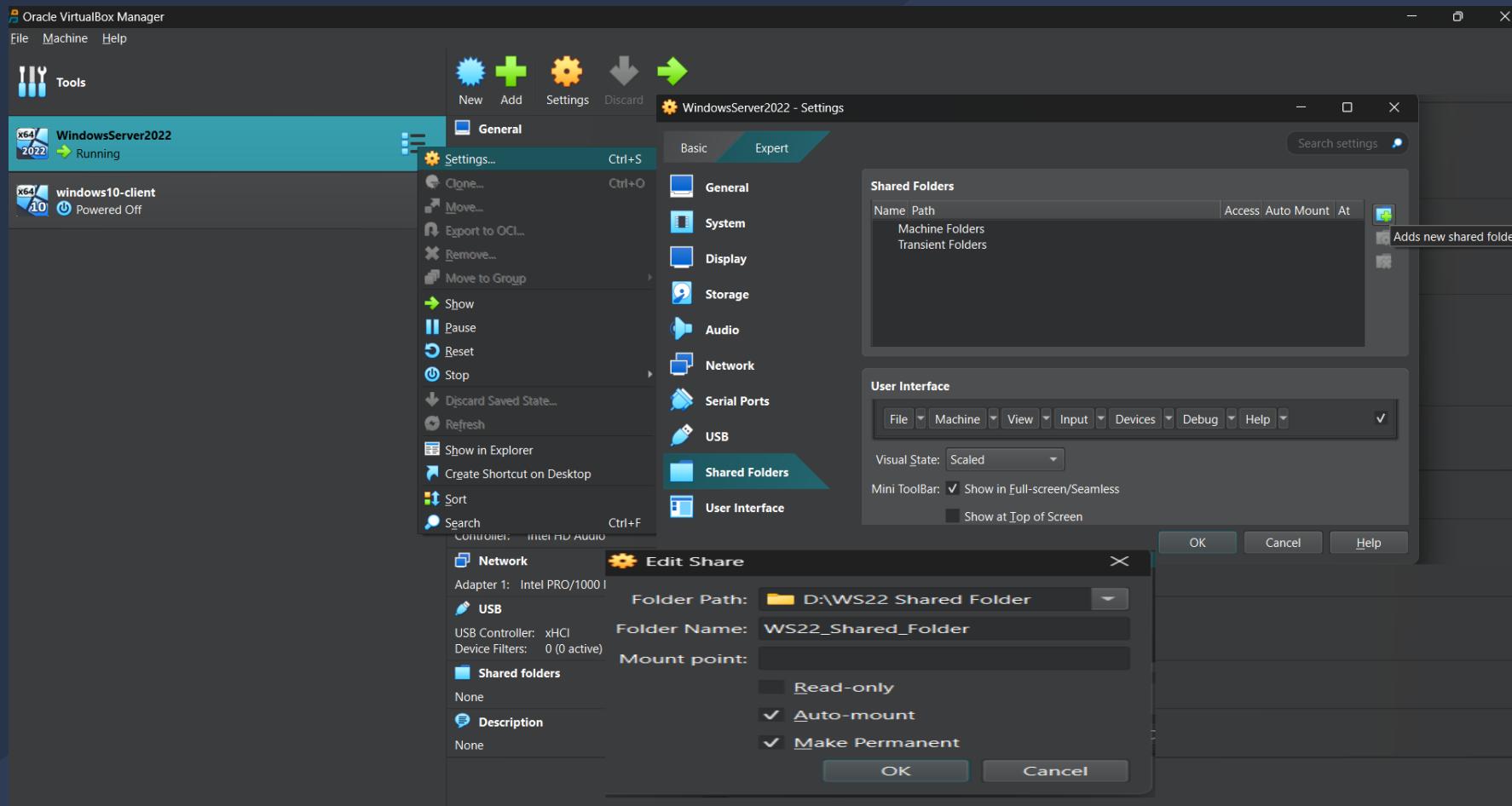
Select tools, then click-on active directory administrative center



# Useful Tips

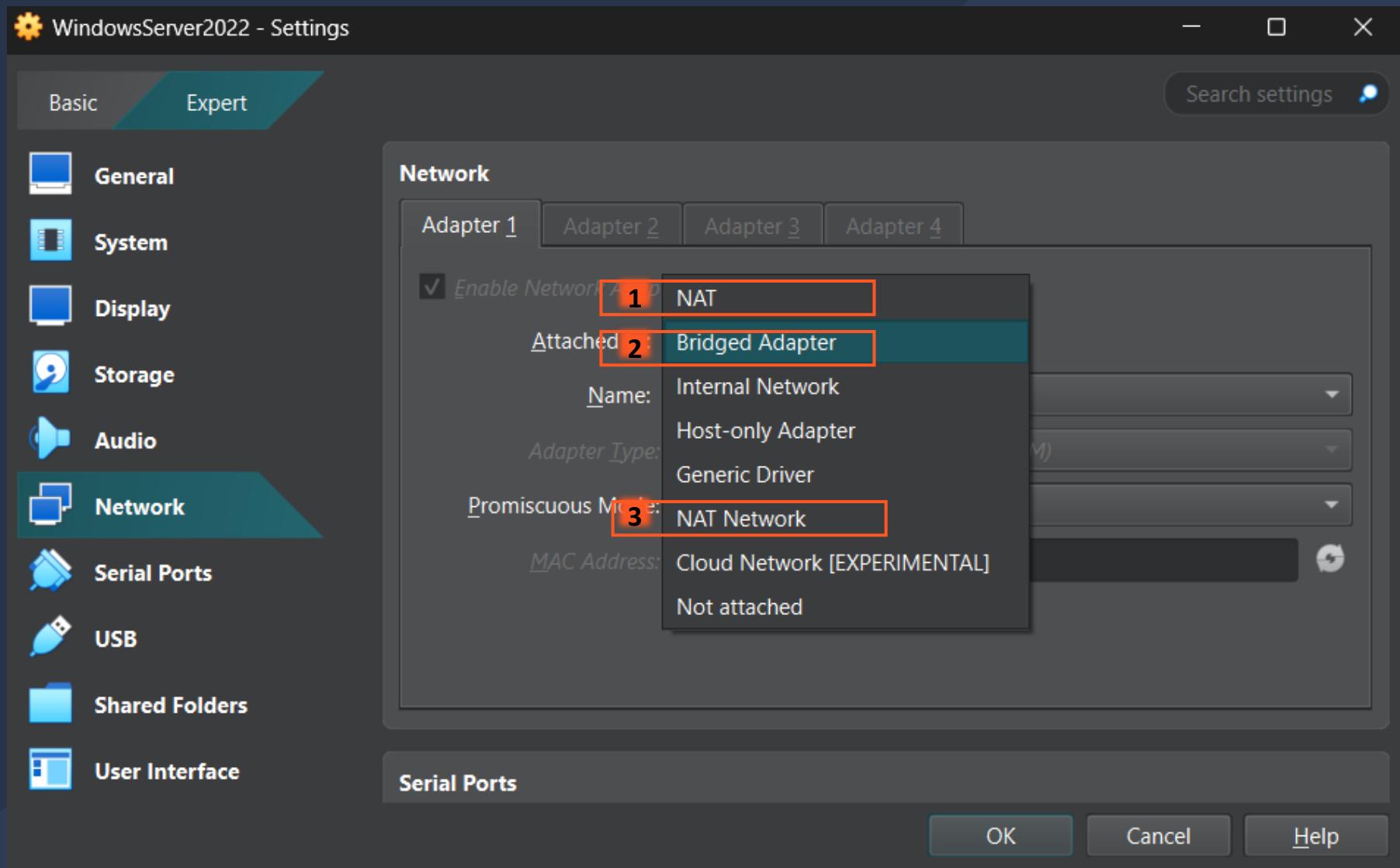
## Sharing Folders from your own OS to virtual OS

- ✓ ✎Right click on OS intended to share folders with
- ✓ ✎Select settings, then shared folders
- ✓ ✎Fill required data



# OS Network Failure

Choose between one of the following adapters & your network will work properly



# THANKS



ts

ts

ts

ts

ts

