

How to upgrade Windows Server 2012 to Server 2022

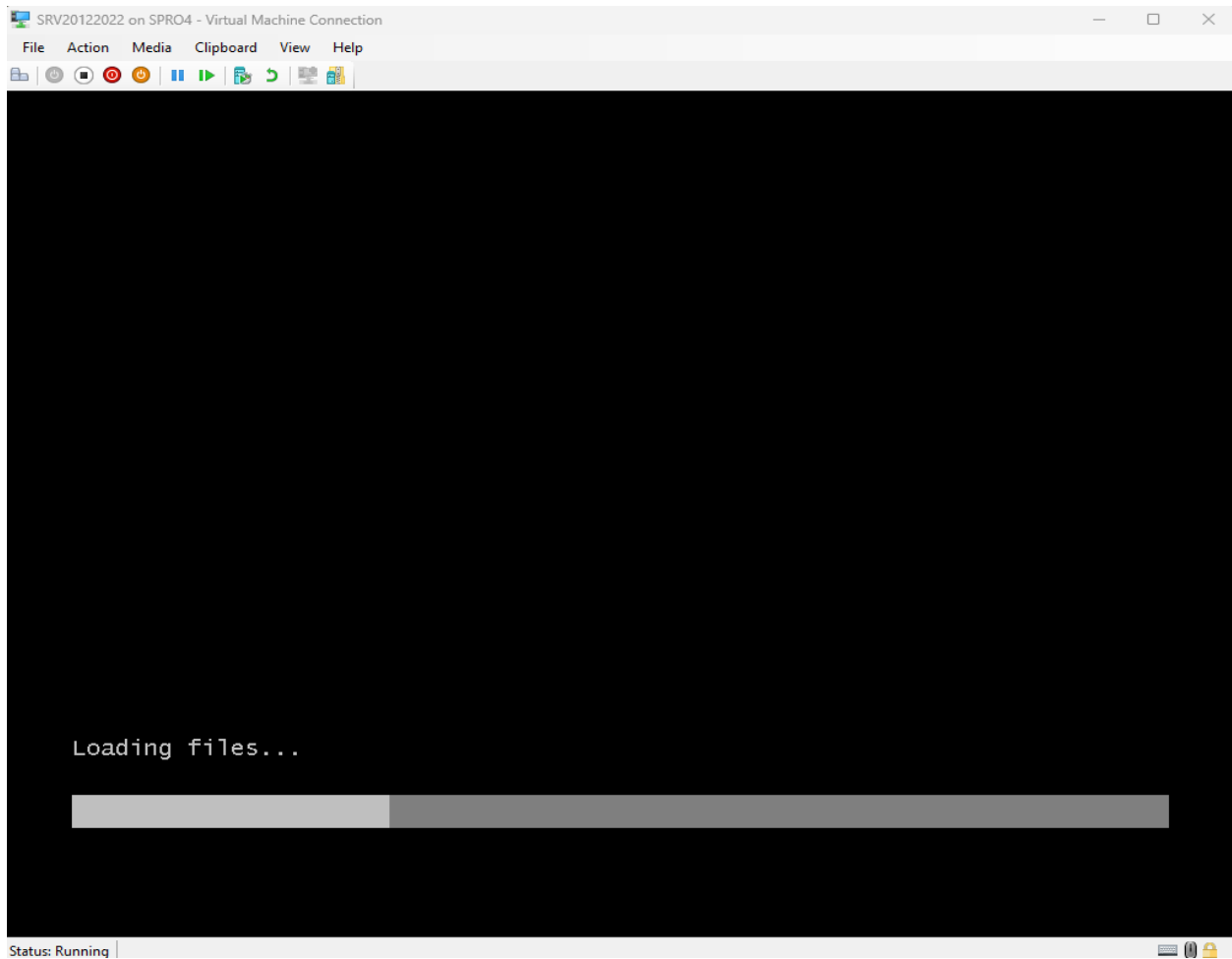
In this post, I am going to upgrade server 2012 to 2022. This server has very few roles and features installed.

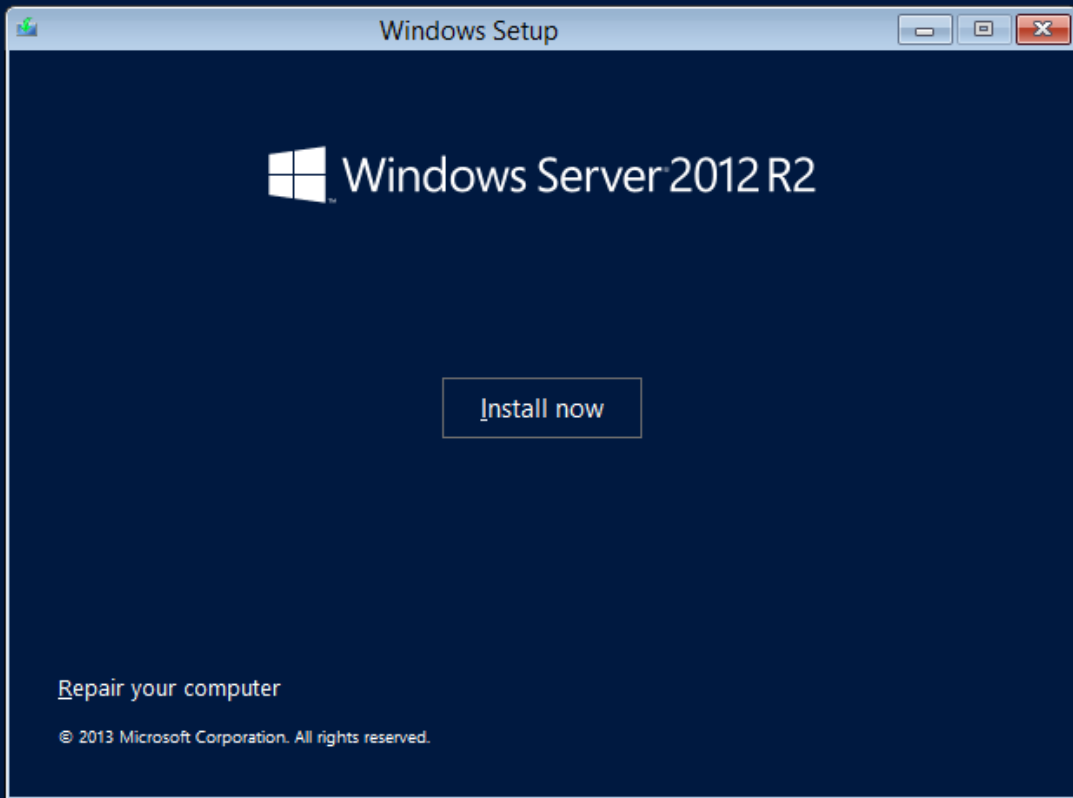
In production you should take full backup of the server in case of failure during the upgrade. I am not going to do a full backup as it is lab setup.

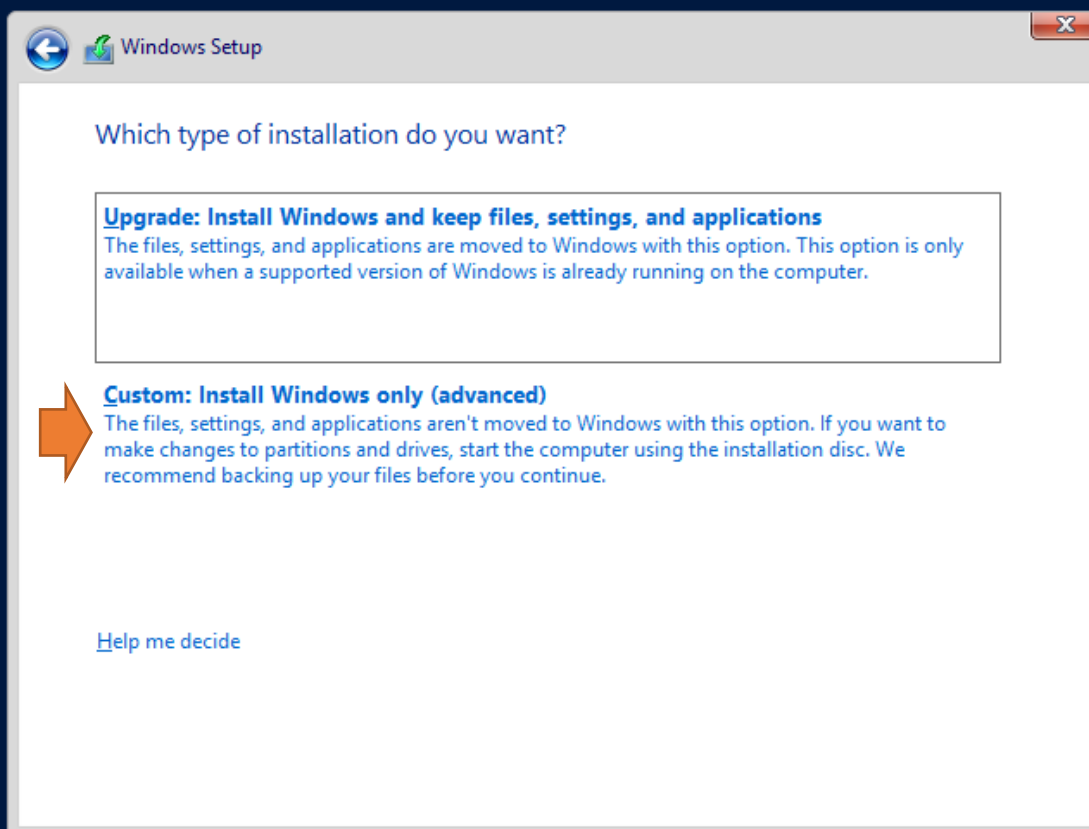
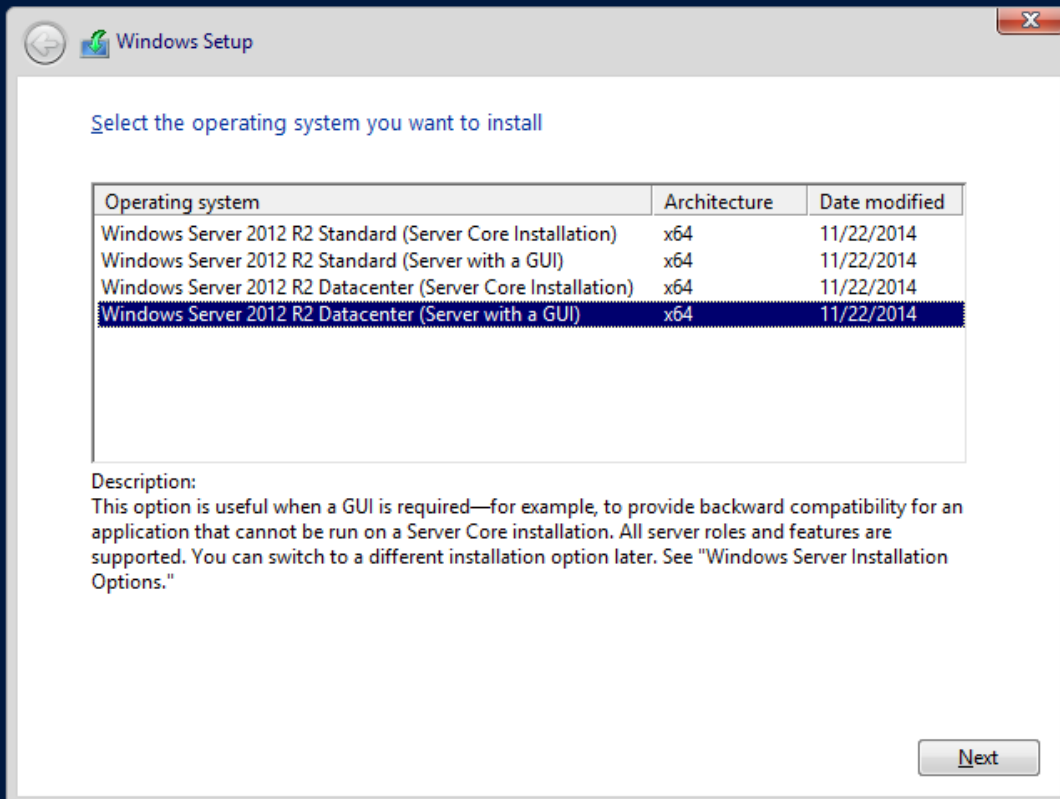
These are the procedures for the upgrade.

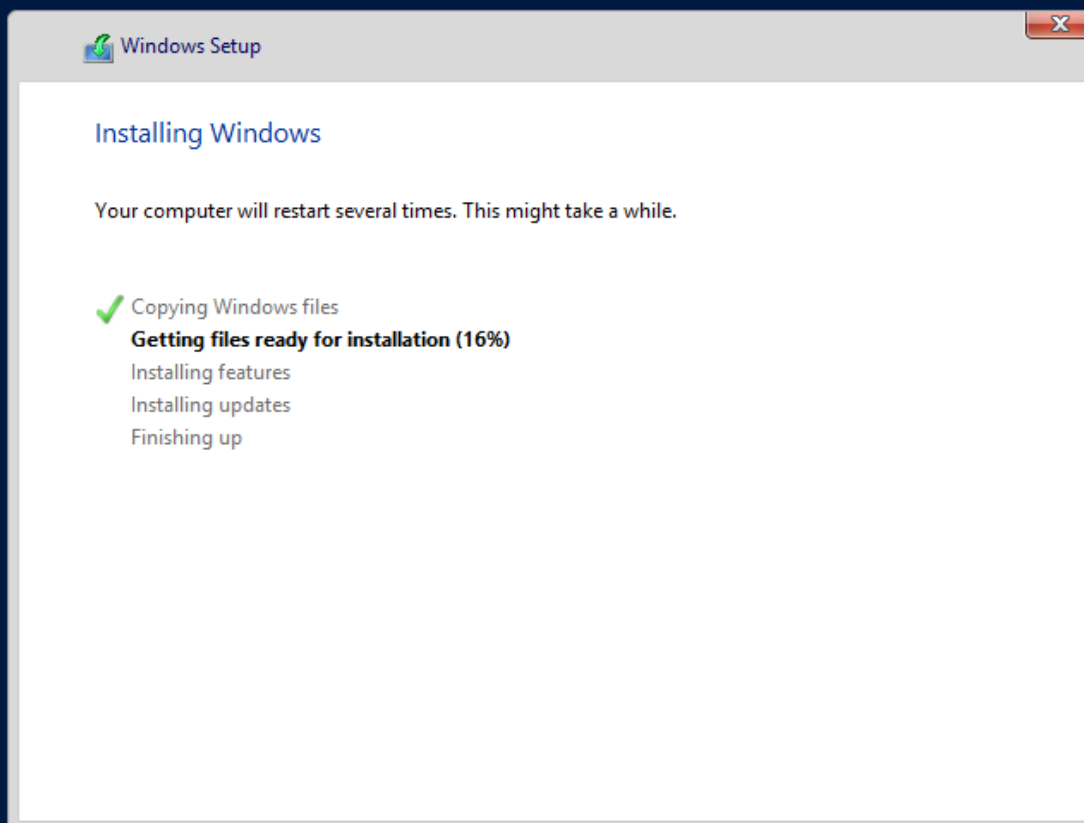
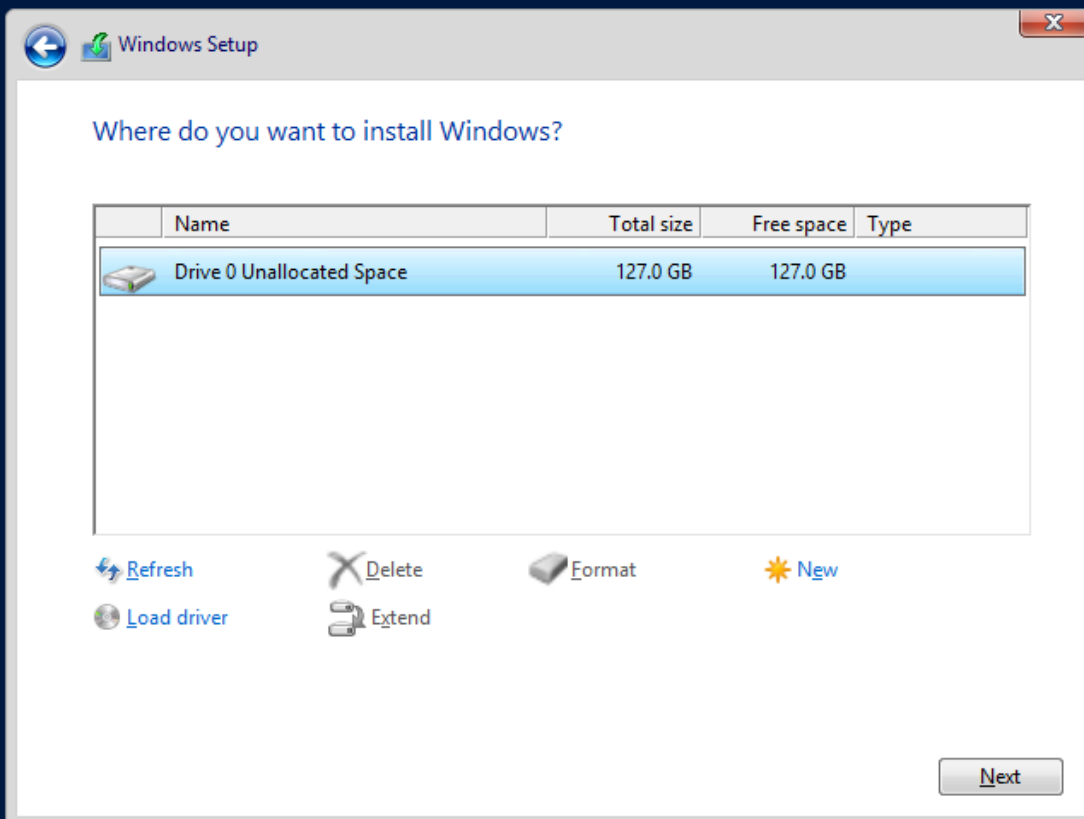
1. Install Windows Server 2012 as a VM
2. Install all the updates and restart
3. Install File and Print server role
4. Install .NET features and others – see screen shot below
5. Mount Windows Server 2022 using virtual CD/DVD and run the installer
6. Go through the process and wait for the upgrade to complete
7. Install all the updates and check Event Viewer for any errors
8. Check the roles and features are present

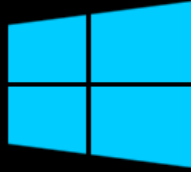
01 SERVER 2012 INSTALL:












Getting devices ready 100%

Settings

Type a password for the built-in administrator account that you can use to sign in to this computer.

User name

Password

Reenter password 



Finish



Administrator





 Windows Server 2012 R2

Server Manager ▶ Local Server

Dashboard
Local Server
All Servers
File and Storage Services ▶

PROPERTIES
For SRV20122022

Computer name	SRV20122022	Last installed updates	Never
Workgroup	WORKGROUP	Windows Update	Not configured
		Last checked for updates	Never
Windows Firewall	Private: Off	Windows Error Reporting	Off
Remote management	Enabled	Customer Experience Improvement Program	Not participating
Remote Desktop	Enabled	IE Enhanced Security Configuration	Off
NIC Teaming	Disabled	Time zone	(UTC-05:00) Eastern Time (US & Canada)
Ethernet	IPv4 address assigned by DHCP, IPv6 enabled	Product ID	00253-50000-00000-AA442 (activated)
Operating system version	Microsoft Windows Server 2012 R2 Datacenter	Processors	Intel(R) Core(TM) i7-6650U CPU @ 2.20GHz
Hardware information	Microsoft Corporation Virtual Machine	Installed memory (RAM)	5.91 GB
		Total disk space	126.66 GB

02 Windows Updates:


Windows Update

Control Panel ▶ System and Security ▶ Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 **Turn on automatic updating**
Updates are not being installed automatically

Turn on automatic updating to help improve the security and performance of your PC and allow standard users to install updates on this PC.

[Turn on automatic updates](#)
[Let me choose my settings](#)

Most recent check for updates: Never
Updates were installed: Never
You receive updates: For Windows only.


Windows Update

Control Panel ▶ System and Security ▶ Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 **Checking for updates...**

Most recent check for updates: Never
Updates were installed: Never
You receive updates: For Windows only.


Windows Update

Control Panel > System and Security > Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 You're set to automatically install updates
106 important updates are available
6 optional updates are available

Most recent check for updates: Today at 10:15 AM
Updates were installed: Never
You receive updates: For Windows only.


Windows Update

Control Panel > System and Security > Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 Downloading updates...
Downloading 112 updates (1,378.1 MB total, 94% complete)

Stop download

Most recent check for updates: Today at 10:15 AM
Updates were installed: Never
You receive updates: For Windows only.


Windows Update

Control Panel > System and Security > Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 Installing updates...
Installing update 106 of 112...
Security Update for Windows Server 2012 R2 (KB3126041)

Stop installation

Most recent check for updates: Today at 10:15 AM
Updates were installed: Never
You receive updates: For Windows only.


Windows Update

Control Panel > System and Security > Windows Update

Control Panel Home

Check for updates
Change settings
View update history
Restore hidden updates

Windows Update

 You're set to automatically install updates
No updates are available.

Most recent check for updates: Today at 12:10 PM
Updates were installed: Today at 12:07 PM.
You receive updates: For Windows only.

03 - 04 Roles and Features Install

The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. In the top right corner, it says 'DESTINATION SERVER SRV20122022'. The main heading is 'Select installation type'. On the left, a navigation pane lists: 'Before You Begin', 'Installation Type' (highlighted), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main content area contains the following text: 'Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD)'. There are two radio button options:
1. **Role-based or feature-based installation** (selected): 'Configure a single server by adding roles, role services, and features.'
2. **Remote Desktop Services installation**: 'Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.' At the bottom, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. In the top right corner, it says 'DESTINATION SERVER SRV20122022'. The main heading is 'Select destination server'. On the left, a navigation pane lists: 'Before You Begin', 'Installation Type', 'Server Selection' (highlighted), 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main content area contains the following text: 'Select a server or a virtual hard disk on which to install roles and features.' There are two radio button options:
1. **Select a server from the server pool** (selected)
2. **Select a virtual hard disk** Below this is a 'Server Pool' section with a 'Filter:' input field. A table lists the server pool contents:

Name	IP Address	Operating System
SRV20122022	192.168.0.105	Microsoft Windows Server 2012 R2 Datacenter

 Below the table, it says '1 Computer(s) found'. A note at the bottom states: 'This page shows servers that are running Windows Server 2012, 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.' At the bottom, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Add Roles and Features Wizard

DESTINATION SERVER
SRV20122022

Select server roles

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

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

Roles	Description
<input type="checkbox"/> Active Directory Certificate Services	File and iSCSI Services provides technologies that help you manage file servers and storage, reduce disk space utilization, replicate and cache files to branch offices, move or fail over a file share to another cluster node, and share files by using the NFS protocol.
<input type="checkbox"/> Active Directory Domain Services	
<input type="checkbox"/> Active Directory Federation Services	
<input type="checkbox"/> Active Directory Lightweight Directory Services	
<input type="checkbox"/> Active Directory Rights Management Services	
<input type="checkbox"/> Application Server	
<input type="checkbox"/> DHCP Server	
<input type="checkbox"/> DNS Server	
<input type="checkbox"/> Fax Server	
<input checked="" type="checkbox"/> File and Storage Services (1 of 12 installed) <ul style="list-style-type: none"> <input checked="" type="checkbox"/> File and iSCSI Services <input checked="" type="checkbox"/> Storage Services (Installed) 	
<input type="checkbox"/> Hyper-V	
<input type="checkbox"/> Network Policy and Access Services	
<input type="checkbox"/> Print and Document Services	

< Previous
Next >
Install
Cancel

Add Roles and Features Wizard

DESTINATION SERVER
SRV20122022

Select features

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Web Server Role (IIS)

Role Services

Confirmation

Results

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

Features	Description
<input checked="" type="checkbox"/> .NET Framework 3.5 Features	Remote Server Administration Tools includes snap-ins and command-line tools for remotely managing roles and features.
<input checked="" type="checkbox"/> .NET Framework 4.5 Features (2 of 7 installed)	
<input type="checkbox"/> Background Intelligent Transfer Service (BITS)	
<input type="checkbox"/> BitLocker Drive Encryption	
<input type="checkbox"/> BitLocker Network Unlock	
<input type="checkbox"/> BranchCache	
<input checked="" type="checkbox"/> Client for NFS	
<input type="checkbox"/> Data Center Bridging	
<input type="checkbox"/> Direct Play	
<input type="checkbox"/> Enhanced Storage	
<input type="checkbox"/> Failover Clustering	
<input type="checkbox"/> Group Policy Management	
<input type="checkbox"/> IIS Hostable Web Core	
<input type="checkbox"/> Ink and Handwriting Services	

< Previous
Next >
Install
Cancel

DESTINATION SERVER
SRV20122022

Confirm installation selections

⚠ Do you need to specify an alternate source path? One or more installation selections are missing source files on the destinati... ✕

- Before You Begin
- Installation Type
- Server Selection
- Server Roles
- Features
- 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

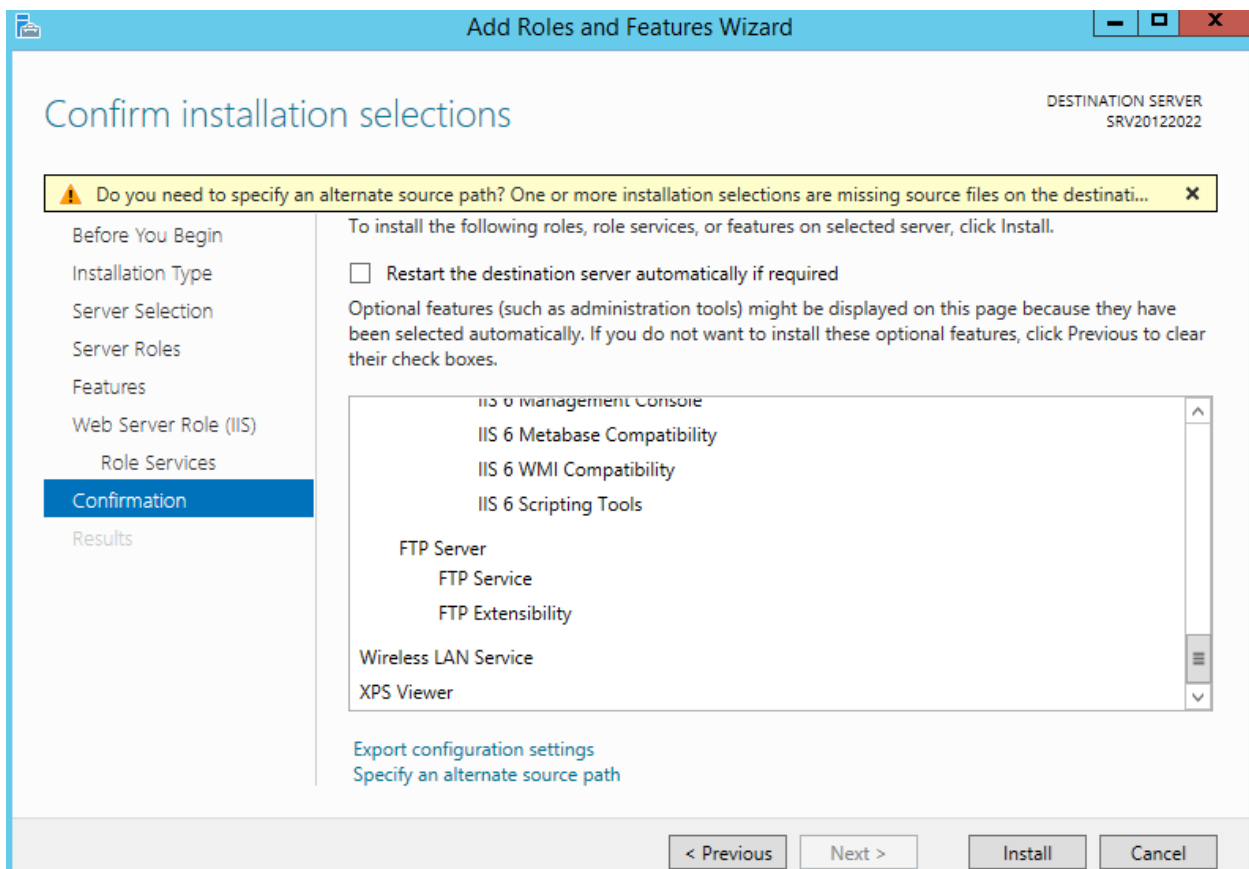
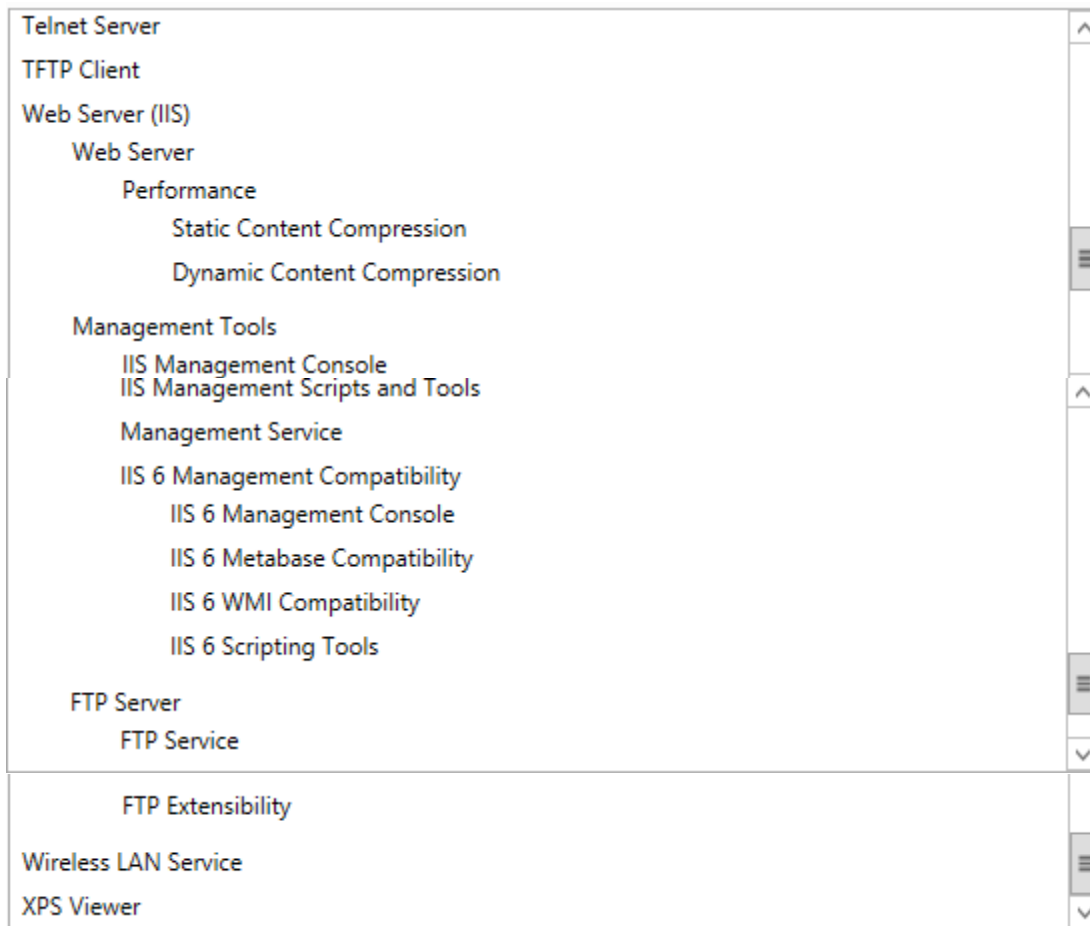
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

- .NET Framework 3.5 Features
 - .NET Framework 3.5 (includes .NET 2.0 and 3.0)
- .NET Framework 4.5 Features
 - ASP.NET 4.5
- Client for NFS
- File and Storage Services
 - File and iSCSI Services
 - File Server
- Remote Server Administration Tools

[Export configuration settings](#)
[Specify an alternate source path](#)

< Previous
Next >
Install
Cancel

- Role Administration Tools
 - AD DS and AD LDS Tools
 - AD DS Tools
 - AD DS Snap-Ins and Command-Line Tools
 - Active Directory Administrative Center
 - AD LDS Snap-Ins and Command-Line Tools
 - Active Directory module for Windows PowerShell
 - Hyper-V Management Tools
 - Hyper-V GUI Management Tools
 - Hyper-V Module for Windows PowerShell
 - Windows Server Update Services Tools
 - User Interface Management Console
 - API and PowerShell cmdlets
 - Remote Desktop Services Tools
 - Feature Administration Tools
 - SMTP Server Tools
- Telnet Client



Add Roles and Features Wizard DESTINATION SERVER SRV20122022

Installation progress

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

View installation progress

Feature installation

A restart is pending on SRV20122022. You must restart the destination server to finish the installation.

Wireless LAN Service

XPS Viewer

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

[Export configuration settings](#)

< Previous Next > Close Cancel

Add Roles and Features Wizard DESTINATION SERVER SRV20122022

Installation progress

- Before You Begin
- Installation Type
- Server Selection
- Server Roles
- Features
- Web Server Role (IIS)
 - Role Services
- Confirmation
- Results**

View installation progress

Feature installation

Installation succeeded on SRV20122022.

.NET Framework 4.5 Features

ASP.NET 4.5

Remote Server Administration Tools

Role Administration Tools

- AD DS and AD LDS Tools
 - AD DS Tools
 - AD DS Snap-Ins and Command-Line Tools
 - Active Directory Administrative Center
- AD LDS Snap-Ins and Command-Line Tools
- Active Directory module for Windows PowerShell

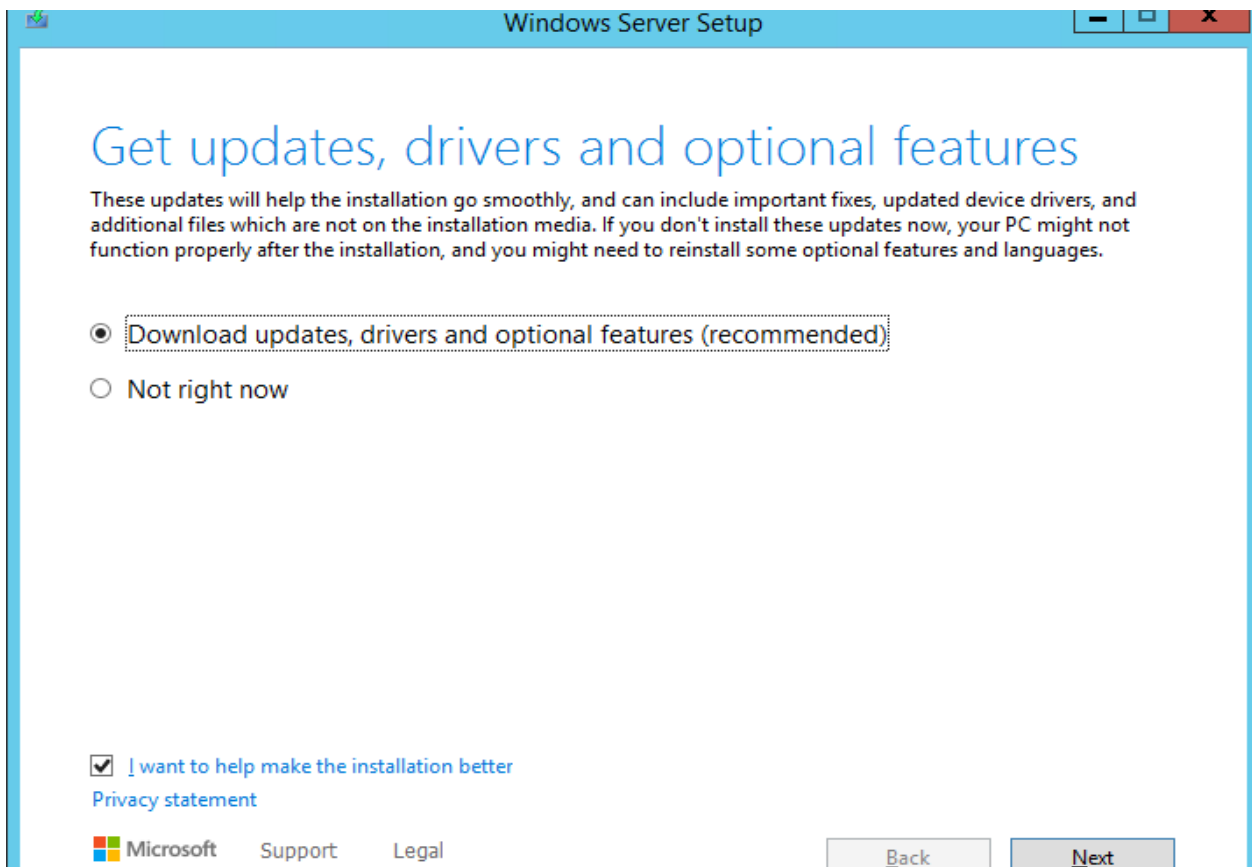
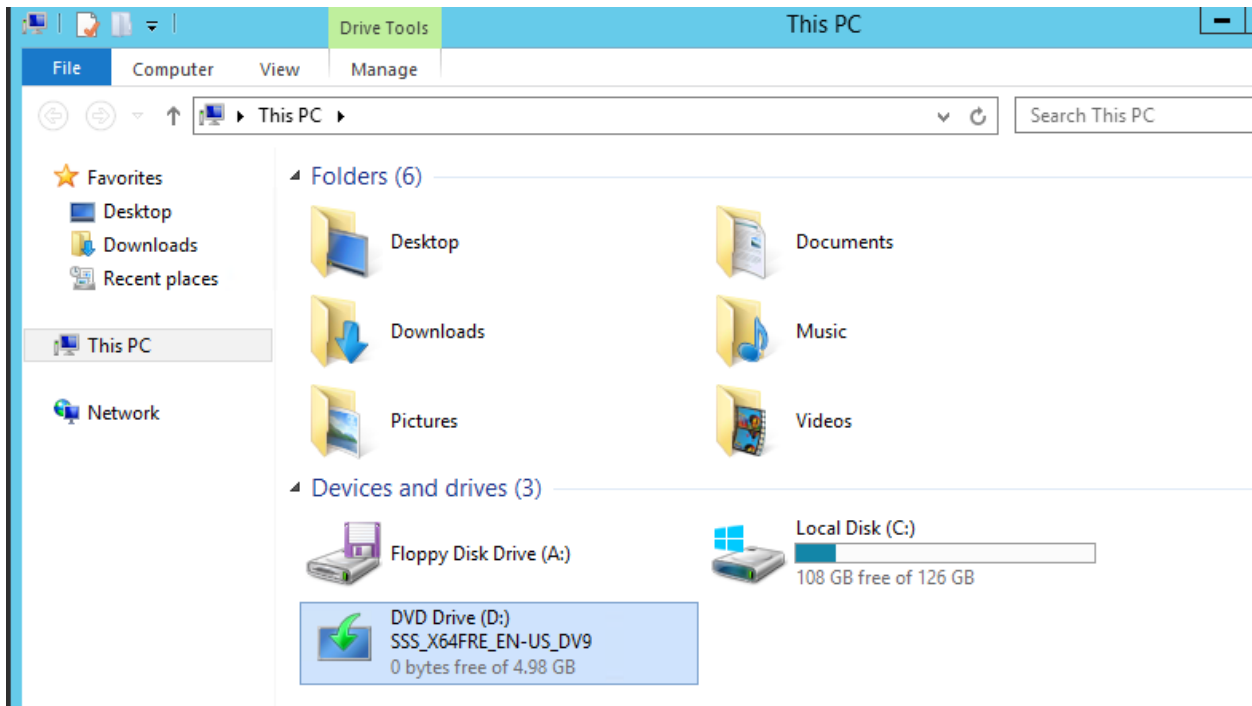
Hvner-V Management Tools

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

[Export configuration settings](#)

< Previous Next > Close Cancel

05 Upgrade to server 2022



Windows Server Setup

Product key


The product key should be with the box the DVD came in or on your email receipt.

It looks similar to this: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

Enter Product key

WX4NM-KYWYW-QJJR4-XV3QB-6VM33

Your product key works! Continue when you're ready.



Microsoft Support Legal

Back Next

Windows Server Setup

Select Image

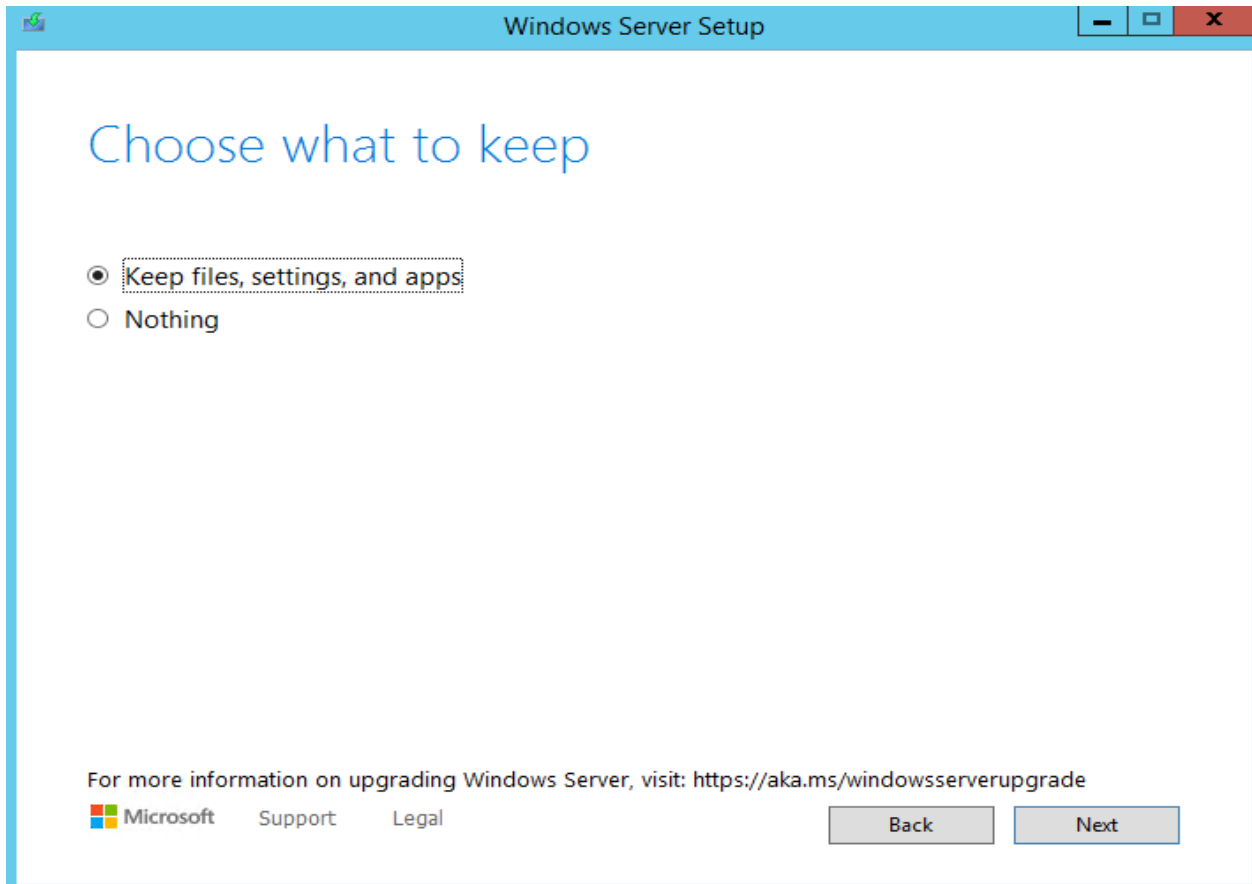
Please select the image you want to install.

Operating System:	Language:
Windows Server 2022 Datacenter	en-US
Windows Server 2022 Datacenter (Desktop Experience)	en-US

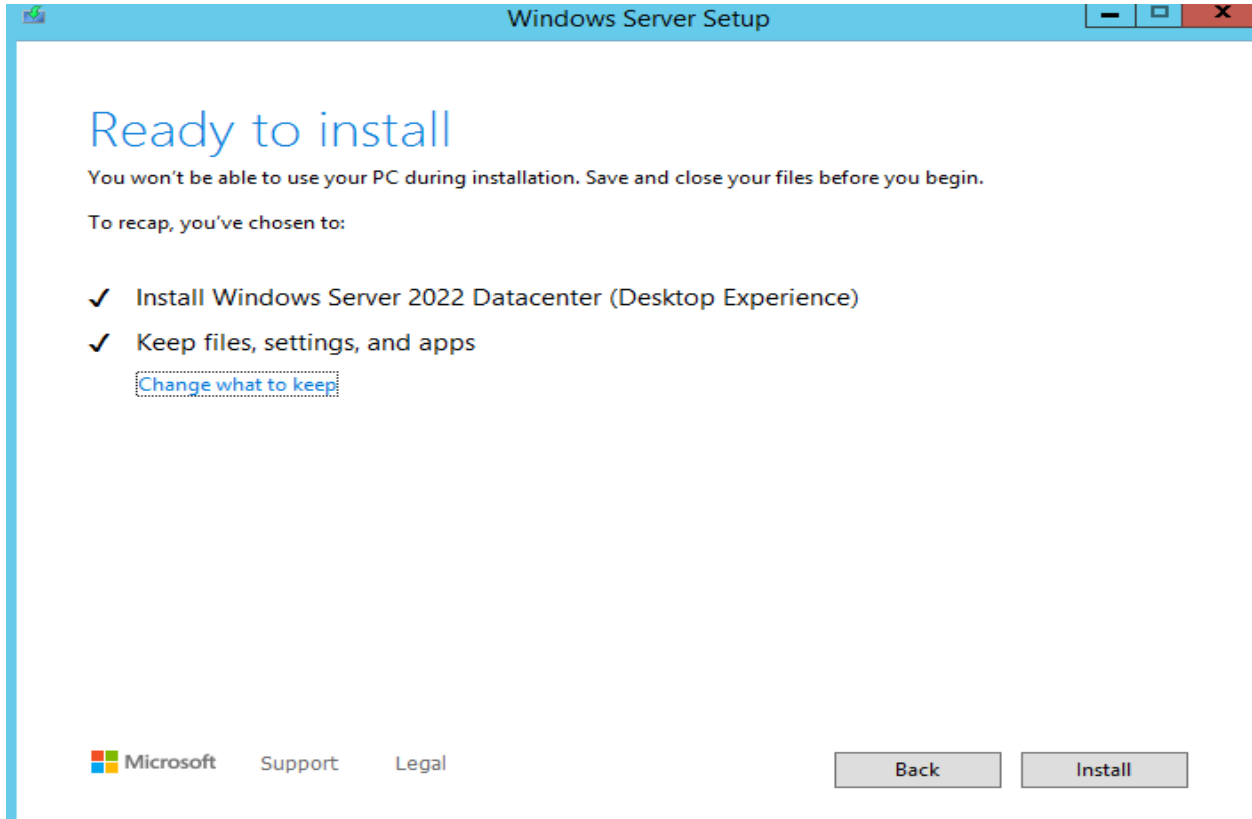
This option installs the full Windows graphical environment, consuming extra drive space. It can be useful if you want to use the Windows desktop or have an app that requires it.

Microsoft Support Legal

Back Next




If you installed Telnet Server – please remove the role before the upgrade.



Installing Windows Server


Your PC will restart several times. This might take a while.

 2% complete

Cancel

Installing Windows Server

Your PC will restart several times. This might take a while.

 16% complete

Cancel

System will restart few times during the process.



Working on updates 0%
Don't turn off your PC. This will take a while.

Your PC will restart several times.



Working on updates 99%
Don't turn off your PC. This will take a while.

Your PC will restart several times.

About Windows



Windows Server* 2022

Microsoft Windows Server
Version 21H2 (OS Build 20348.2031)
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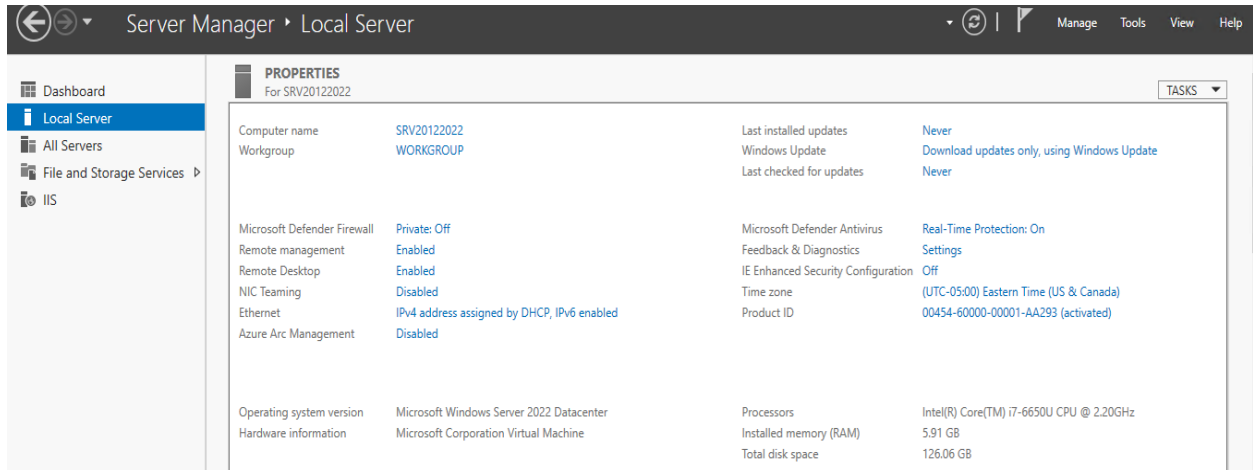
The Windows Server 2022 Datacenter operating system and its user interface are protected by trademark and other pending or existing intellectual property rights in the United States and other countries/regions.

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Windows User

OK

06 Install Updates Server 2022



The screenshot shows the Server Manager interface for a local server. The left sidebar contains navigation options: Dashboard, Local Server (selected), All Servers, File and Storage Services, and IIS. The main area displays the 'PROPERTIES' for server 'SRV20122022'. The properties are organized into two columns:

Property	Value	Property	Value
Computer name	SRV20122022	Last installed updates	Never
Workgroup	WORKGROUP	Windows Update	Download updates only, using Windows Update
		Last checked for updates	Never
Microsoft Defender Firewall	Private: Off	Microsoft Defender Antivirus	Real-Time Protection: On
Remote management	Enabled	Feedback & Diagnostics	Settings
Remote Desktop	Enabled	IE Enhanced Security Configuration	Off
NIC Teaming	Disabled	Time zone	(UTC-05:00) Eastern Time (US & Canada)
Ethernet	IPv4 address assigned by DHCP, IPv6 enabled	Product ID	00454-60000-00001-AA293 (activated)
Azure Arc Management	Disabled		
Operating system version	Microsoft Windows Server 2022 Datacenter	Processors	Intel(R) Core(TM) i7-6650U CPU @ 2.20GHz
Hardware information	Microsoft Corporation Virtual Machine	Installed memory (RAM)	5.91 GB
		Total disk space	126.06 GB

Windows Update

*Some settings are managed by your organization ([View policies](#))



Updates available

Last checked: Today, 1:46 PM

Security Intelligence Update for Microsoft Defender Antivirus - KB2267602 (Version 1.401.556.0) - Current Channel (Broad)

Status: Downloading - 39%

2023-10 Cumulative Update for .NET Framework 3.5, 4.8 and 4.8.1 for Microsoft server operating system version 21H2 for x64 (KB5031221)

Status: Downloading - 51%

*We'll automatically download and install updates, except on metered connections (where charges may apply). In that case, we'll automatically download only those updates required to keep Windows running smoothly.

Windows Update

*Some settings are managed by your organization ([View policies](#))

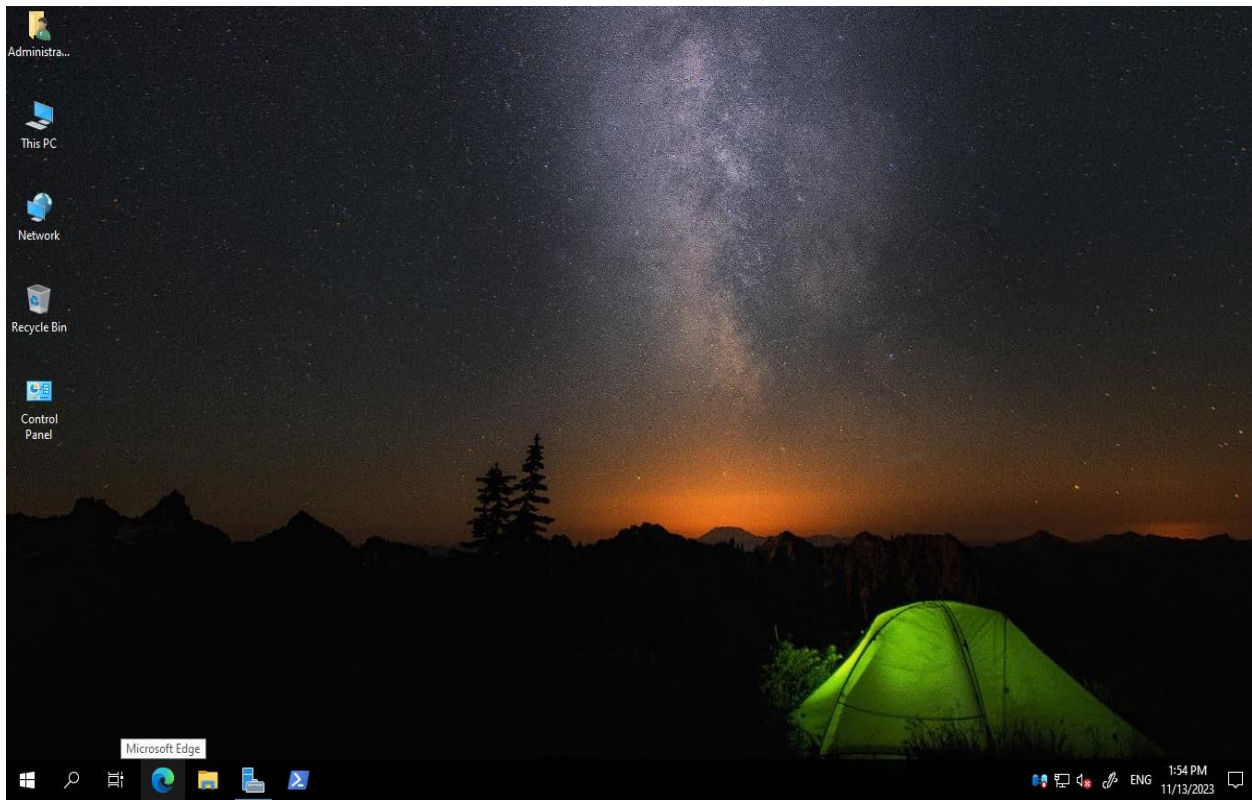


You're up to date

Last checked: Today, 1:59 PM

Check for updates

*We'll automatically download and install updates, except on metered connections (where charges may apply). In that case, we'll automatically download only those updates required to keep Windows running smoothly.



07 Check Event Viewer for errors

Event Viewer

File Action View Help

Event Viewer (Local)

- Custom Views
 - Server Roles
 - Remote Desktop Serv
 - Web Server (IIS)
 - Administrative Events
 - Windows Logs
 - Application
 - Security
 - Setup
 - System
 - Forwarded Events
 - Applications and Services Lo
 - Subscriptions

Administrative Events Number of events: 0

Number of events: 0

Level	Date and Time	Source	Event ID	Task Category
-------	---------------	--------	----------	---------------

Event Viewer (Local)

- Custom Views
 - Server Roles
 - Remote Desktop Serv
 - Web Server (IIS)
 - Administrative Events
 - Windows Logs
 - Application
 - Security
 - Setup
 - System
 - Forwarded Events
 - Applications and Services Lo
 - Subscriptions

Application Number of events: 0 (1) New events available

Level	Date and Time	Source	Event ID	Task Category
-------	---------------	--------	----------	---------------

Event Viewer (Local)
 Overview and Summary
 Last refreshed: 11/13/2023 1:57:43 PM

Summary of Administrative Events

Event Type	Event ID	Source	Log	Last hour	24 hours	7 days
Critical	-	-	-	0	0	0
Error	-	-	-	0	0	0
Warning	-	-	-	0	0	0
Information	-	-	-	6	6	6

Recently Viewed Nodes

Name	Description	Modified	Created
Windows Logs\Applicati...	N/A	11/13/2023 1:56:57 PM	11/13/2023 1:38:18 PM
Custom Views\Administr...	Critical, Er...	N/A	N/A
Windows Logs\Setup	N/A	11/13/2023 1:57:34 PM	11/13/2023 1:38:18 PM
Windows Logs\Security	N/A	11/13/2023 1:57:34 PM	11/13/2023 1:38:18 PM

Log Summary

Log Name	Size (Curr...	Modified	Enabled	Retention Policy
Windows PowerShell	68 KB/15 ...	11/13/2023 1:57:35 PM	Enabled	Overwrite events as nec...
System	68 KB/20 ...	11/13/2023 1:57:35 PM	Enabled	Overwrite events as nec...
Security	68 KB/20 ...	11/13/2023 1:57:34 PM	Enabled	Overwrite events as nec...
Key Management Service	68 KB/20 ...	11/13/2023 1:56:57 PM	Enabled	Overwrite events as nec...

08 Check installed Roles and Features

Remove Roles and Features Wizard

DESTINATION SERVER
SRV20122022

Remove server roles

Before You Begin
 Server Selection
Server Roles
 Features
 Confirmation
 Results

To remove one or more installed roles from the selected server, clear their check boxes.

Roles

- Active Directory Certificate Services (Not installed)
- Active Directory Domain Services (Not installed)
- Active Directory Federation Services (Not installed)
- Active Directory Lightweight Directory Services (Not installed)
- Active Directory Rights Management Services (Not installed)
- Device Health Attestation (Not installed)
- DHCP Server (Not installed)
- DNS Server (Not installed)
- Fax Server (Not installed)
- File and Storage Services
- Host Guardian Service (Not installed)
- Hyper-V (Not installed)
- Network Controller (Not installed)
- Network Policy and Access Services (Not installed)
- Print and Document Services (Not installed)
- Remote Access (Not installed)
- Remote Desktop Services (Not installed)
- Volume Activation Services (Not installed)
- Web Server (IIS)

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 > Remove Cancel

Remove features

DESTINATION SERVER
SRV20122022

Before You Begin

Server Selection

Server Roles

Features

Confirmation

Results

To remove one or more installed features from the selected server, clear their check boxes.

Features

<input type="checkbox"/>	Remote Server Administration Tools
<input type="checkbox"/>	RPC over HTTP Proxy (Not installed)
<input type="checkbox"/>	Setup and Boot Event Collection (Not installed)
<input type="checkbox"/>	Simple TCP/IP Services (Not installed)
<input checked="" type="checkbox"/>	SMB 1.0/CIFS File Sharing Support
<input type="checkbox"/>	SMB Bandwidth Limit (Not installed)
<input type="checkbox"/>	SMTP Server (Not installed)
<input type="checkbox"/>	SNMP Service (Not installed)
<input type="checkbox"/>	Software Load Balancer (Not installed)
<input type="checkbox"/>	Storage Migration Service (Not installed)
<input type="checkbox"/>	Storage Migration Service Proxy (Not installed)
<input type="checkbox"/>	Storage Replica (Not installed)
<input checked="" type="checkbox"/>	System Data Archiver
<input type="checkbox"/>	System Insights (Not installed)
<input checked="" type="checkbox"/>	Telnet Client
<input checked="" type="checkbox"/>	TFTP Client
<input type="checkbox"/>	VM Shielding Tools for Fabric Management (Not installed)
<input type="checkbox"/>	WebDAV Redirector (Not installed)
<input type="checkbox"/>	Windows Diagnostic Framework (Not installed)

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 >

Remove

Cancel

This concludes the in-place upgrade.

Thanks

Ram

13th Nov 2023

<https://learn.microsoft.com/en-us/windows-server/get-started/kms-client-activation-keys>