



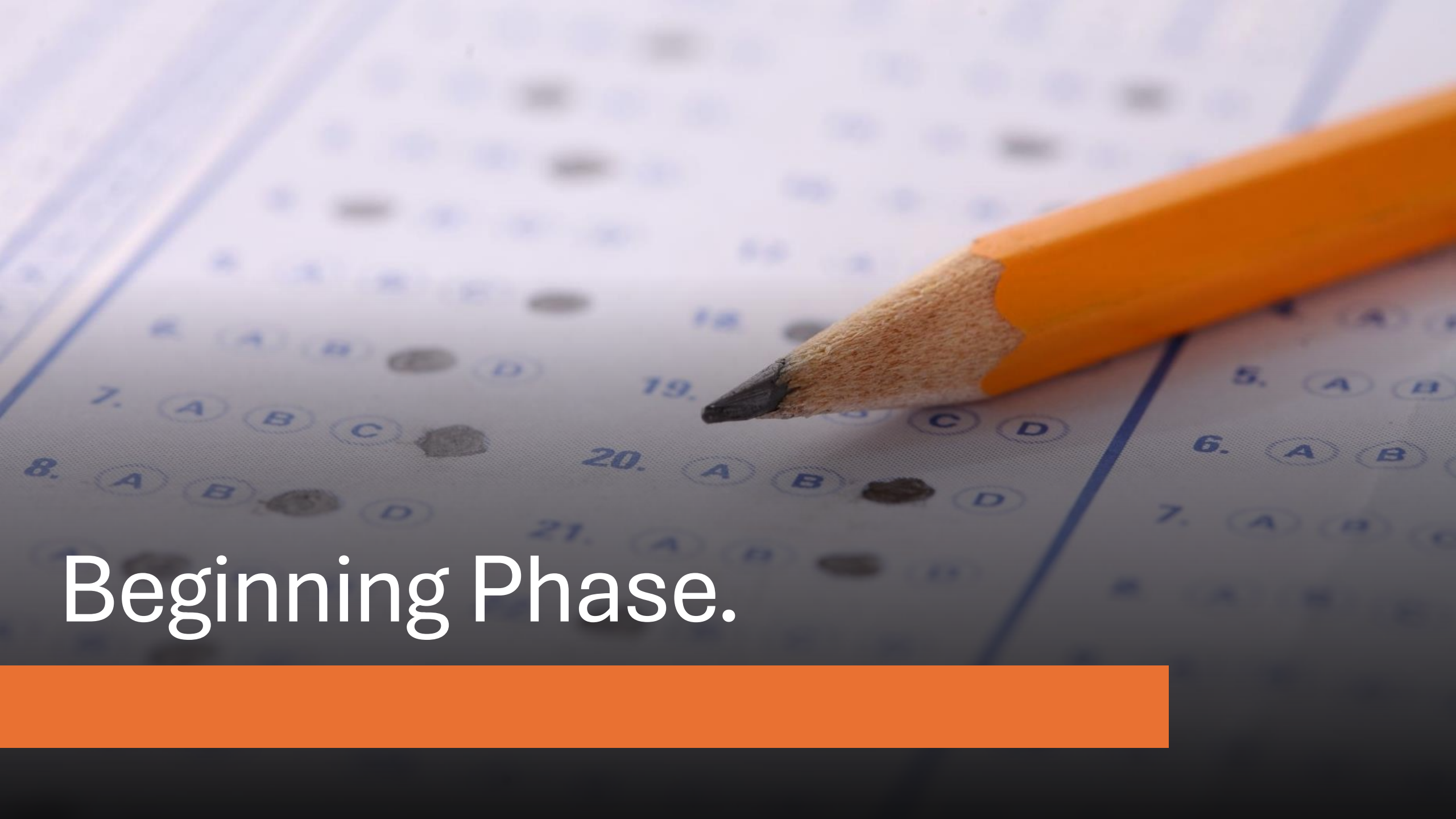
Unit 867 System Management.

Final Portfolio Projects.

By Jonathan Watts.

Training the Techies.

Job 1:



Beginning Phase.





Scenario.

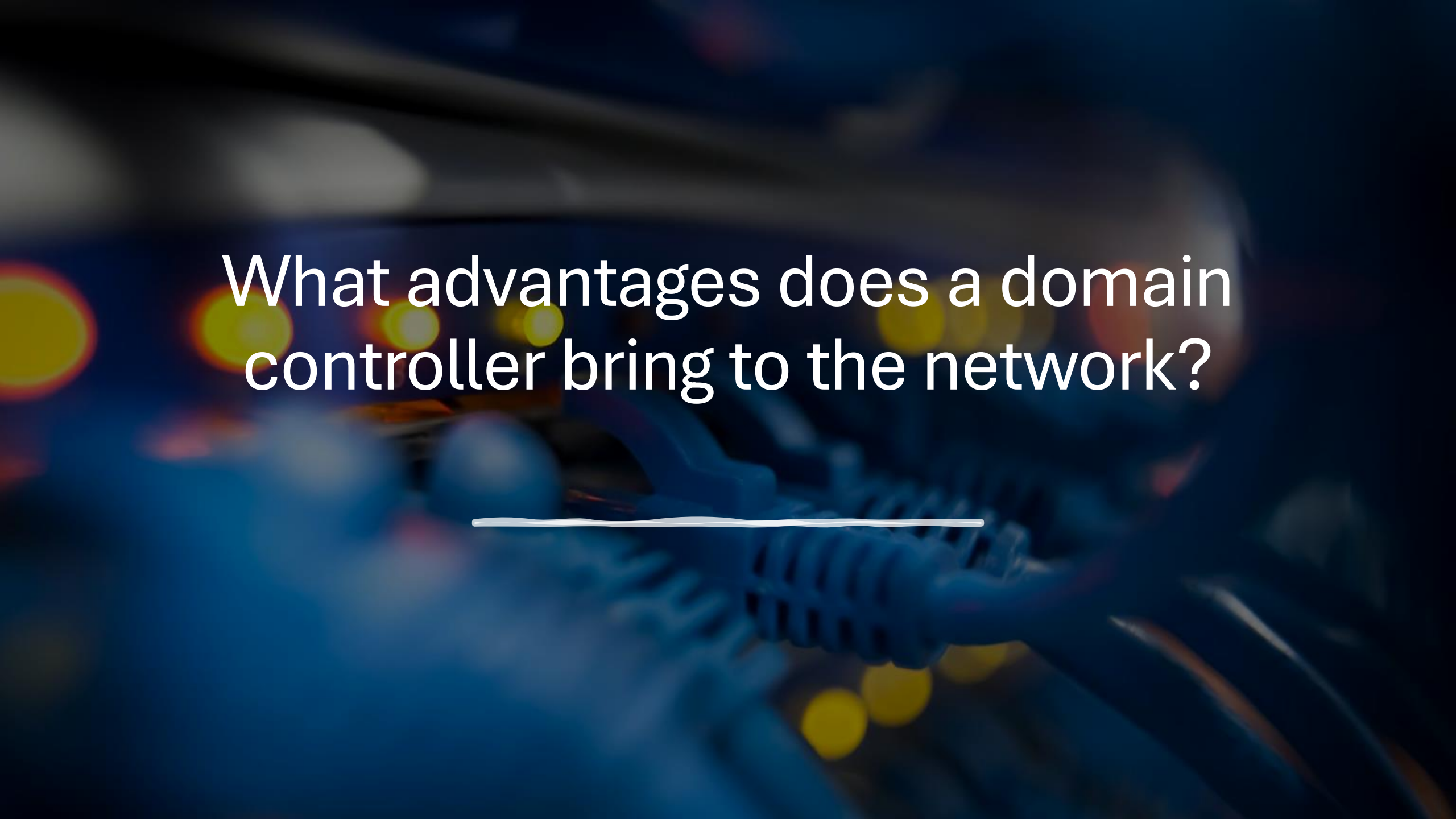


In this task we will promote a Windows Server to act as a Domain Controller.



Why Bother?



The background is a dark, out-of-focus image showing a network switch or patch panel. Several blue Ethernet cables are plugged into the ports, and some yellow and red lights are visible, creating a bokeh effect.

What advantages does a domain controller bring to the network?

It can save cost and time when setting login and security parameters for devices from a centralised server. Domain Controllers allow for automatically installing network printers onto your system as soon they join your domain.



What are the primary
functions of a Domain
Controller?

The primary functions of a domain controller include user authentication, resource access management and centralised administration. It can validate user log in credentials and manage permissions in group policy for shared resources.



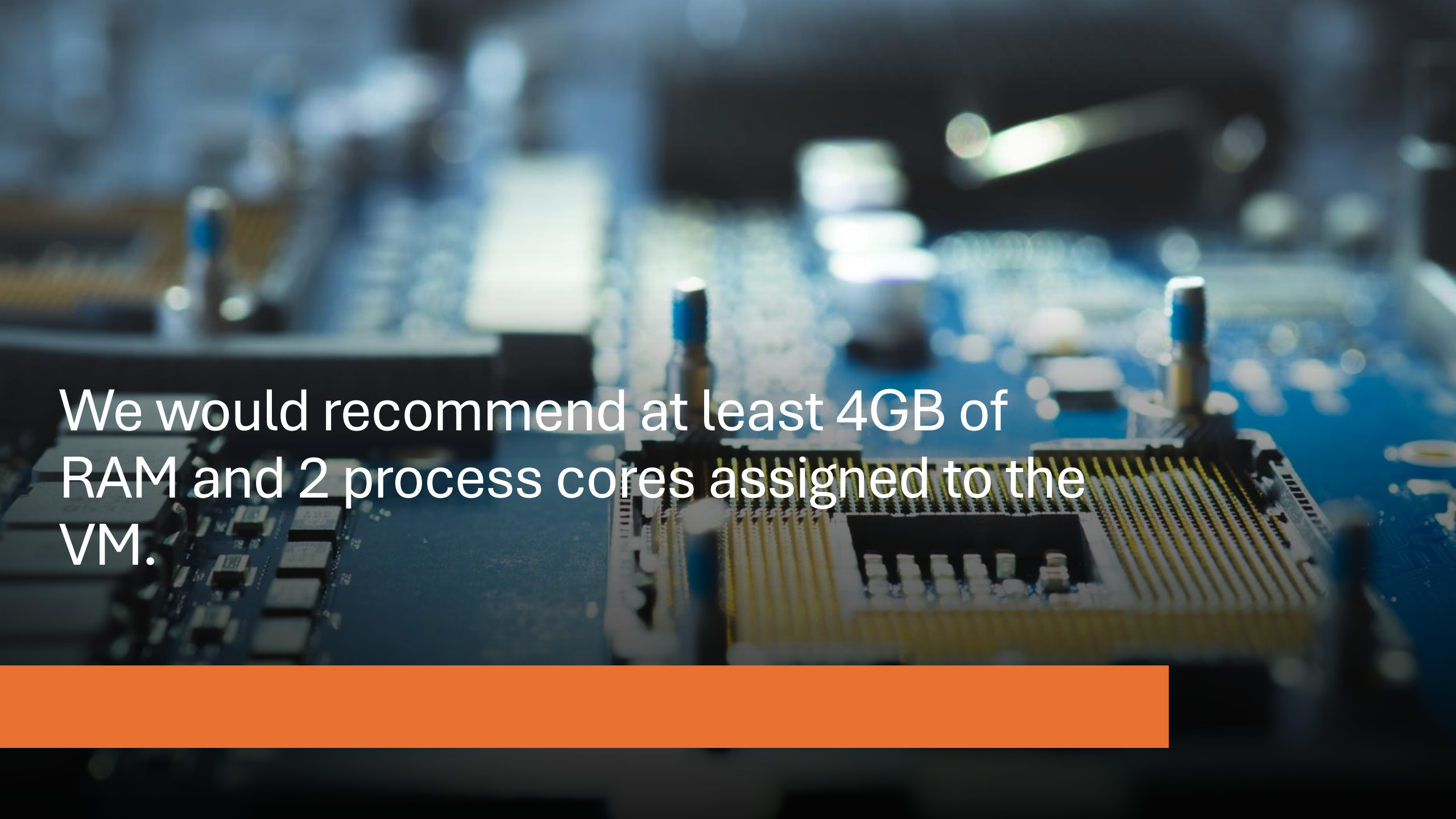
Before we begin.



What would we at least
recommend?

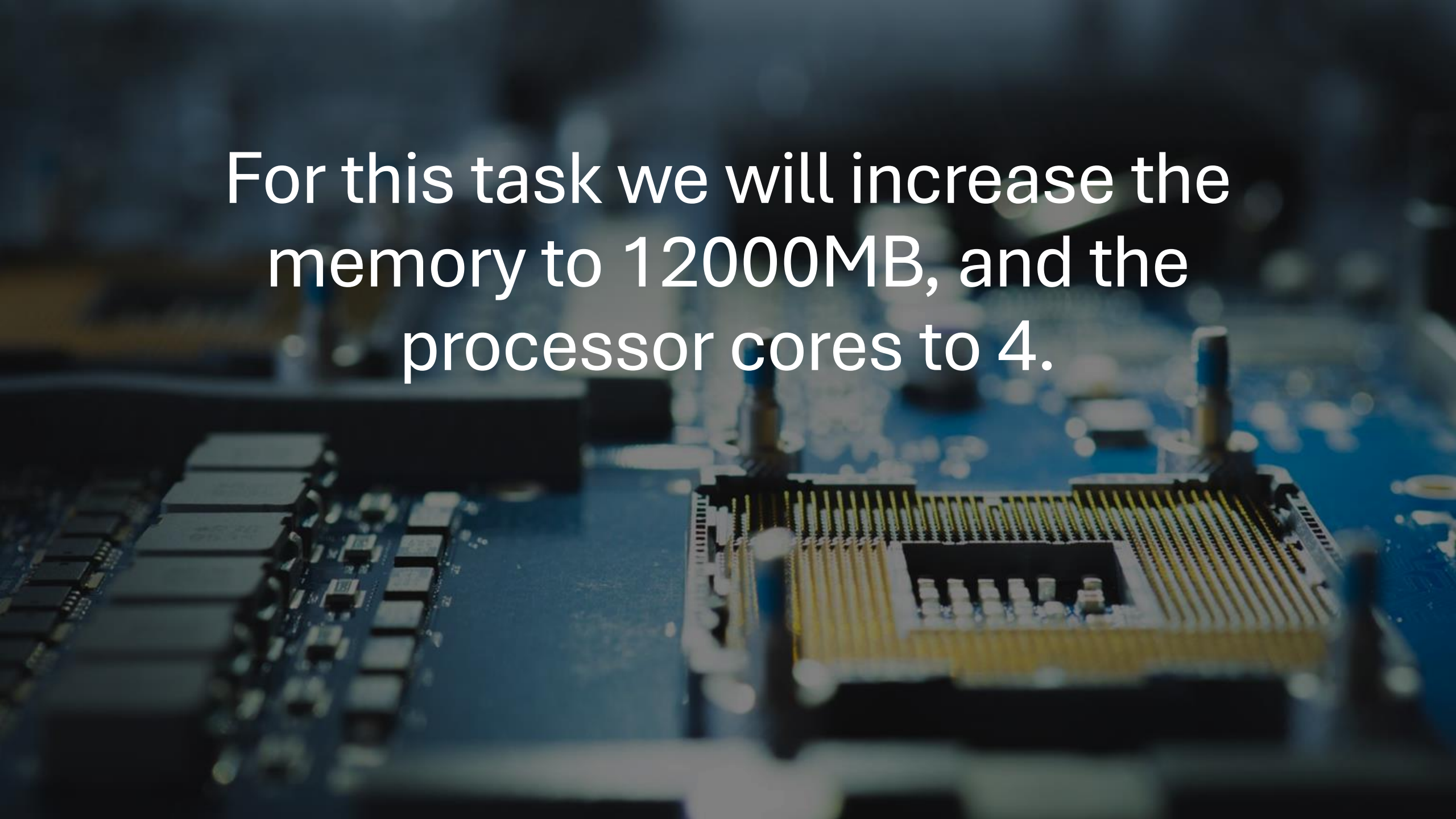
A server rack with multiple units, some of which are illuminated with blue light. The background is filled with out-of-focus yellow and blue circular lights, creating a bokeh effect.

Windows Server 2019 OS
should be installed.



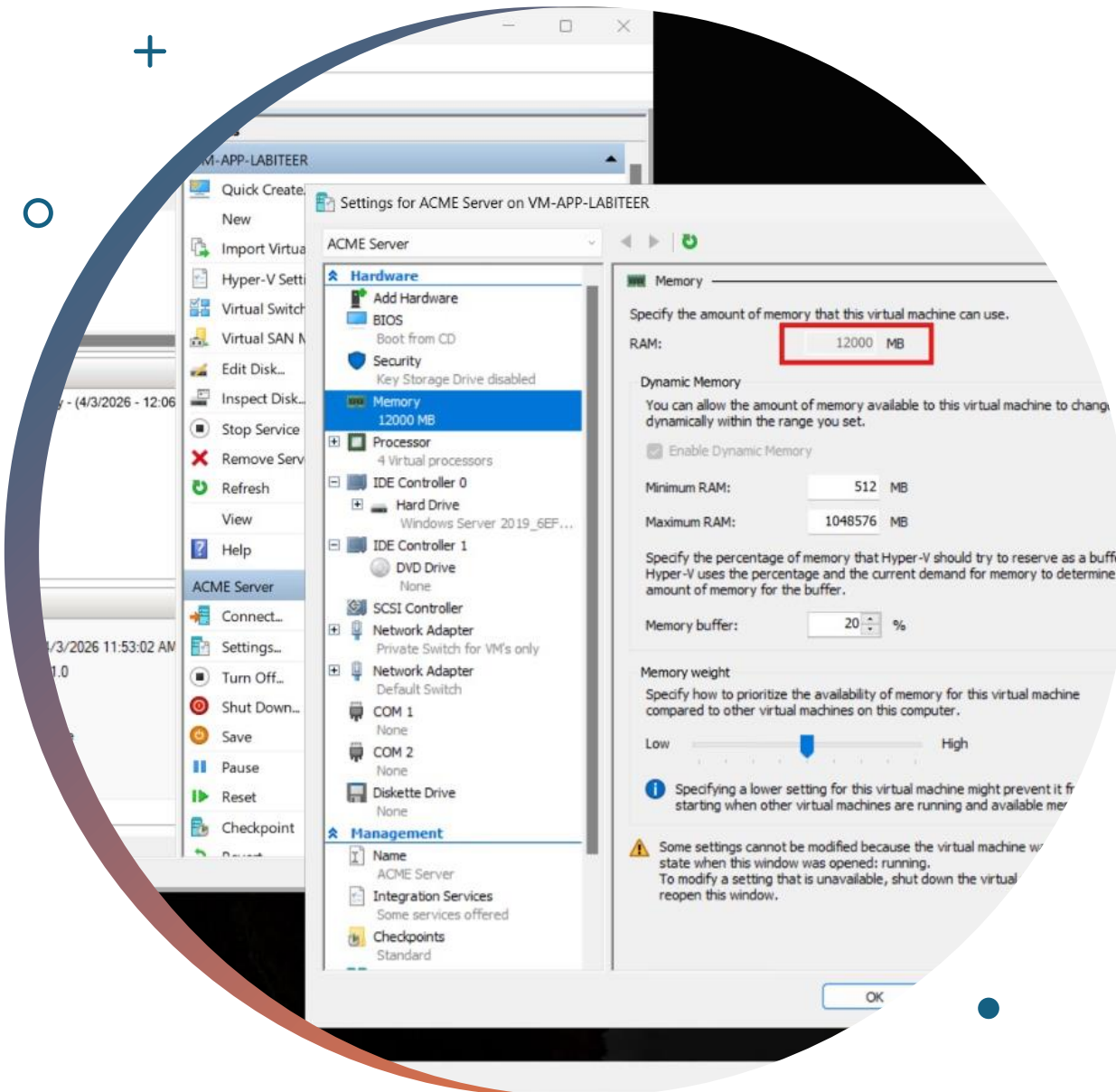
We would recommend at least 4GB of RAM and 2 process cores assigned to the VM.

For this task we will increase the
memory to 12000MB, and the
processor cores to 4.



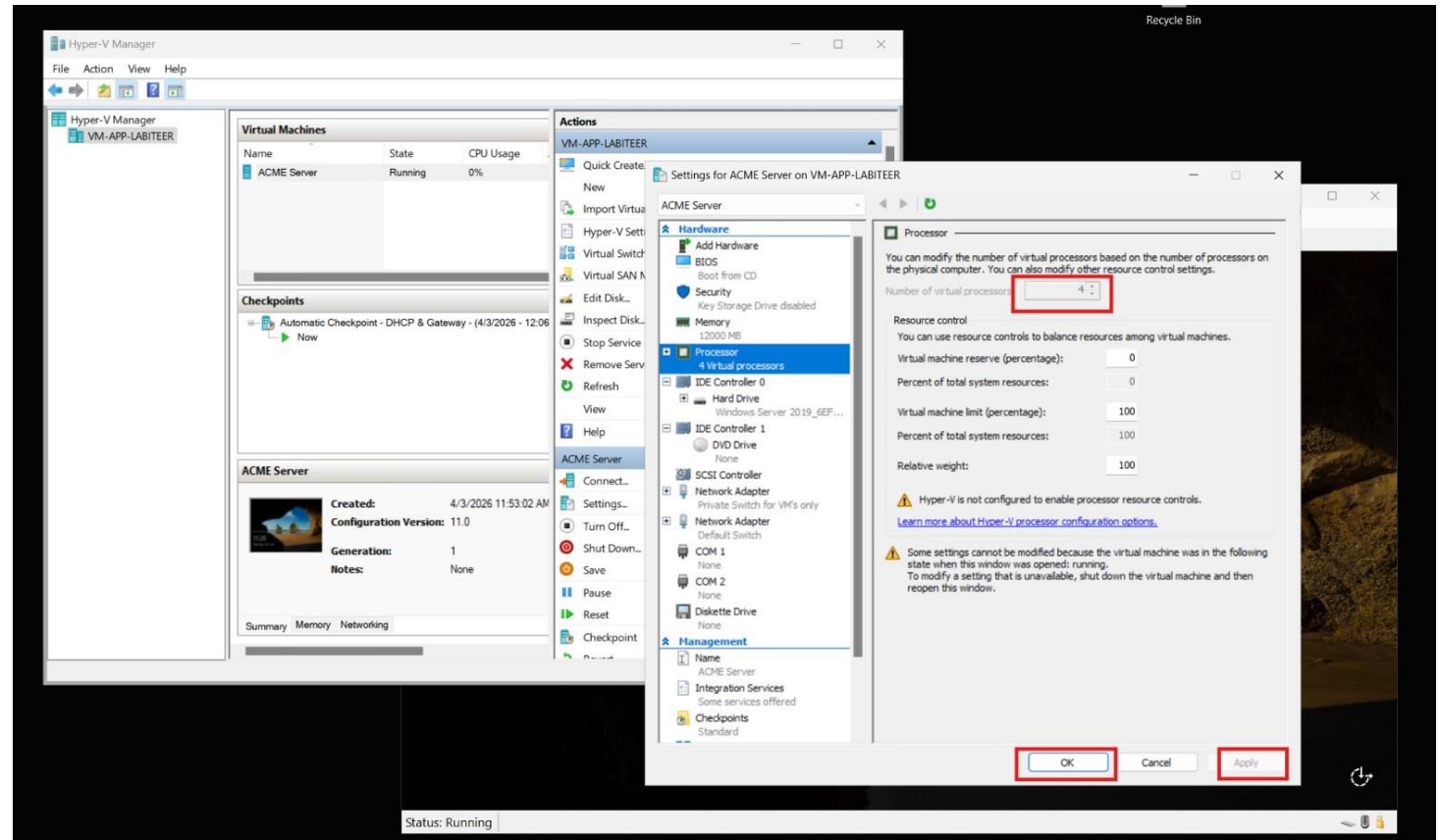
Increasing our Virtual Memory and Virtual Processor Cores.

- At the memory section we increase the memory available for the virtual machine to 12000MB or 12GB.



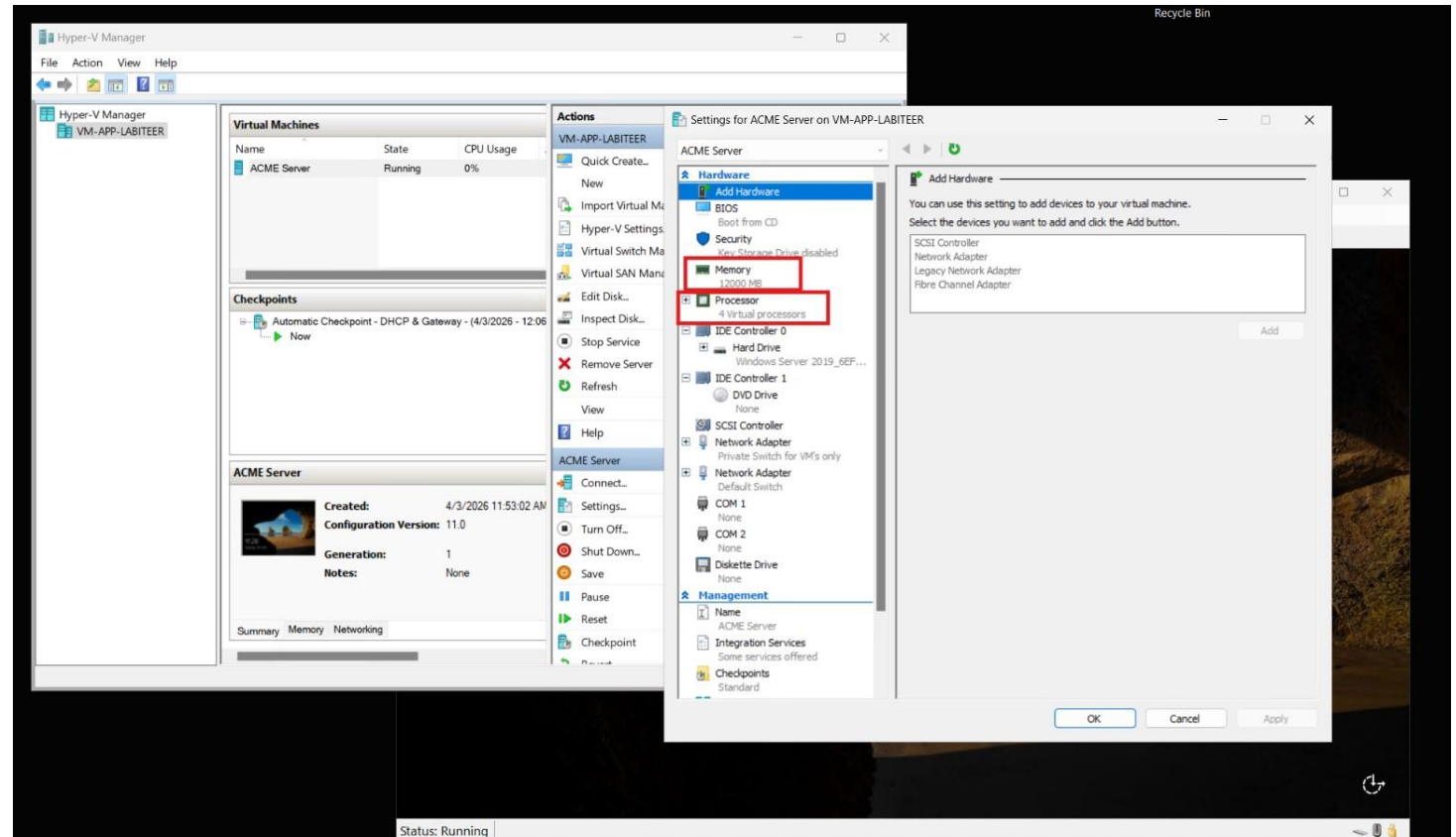
Increasing our Virtual Memory and Virtual Processor Cores.

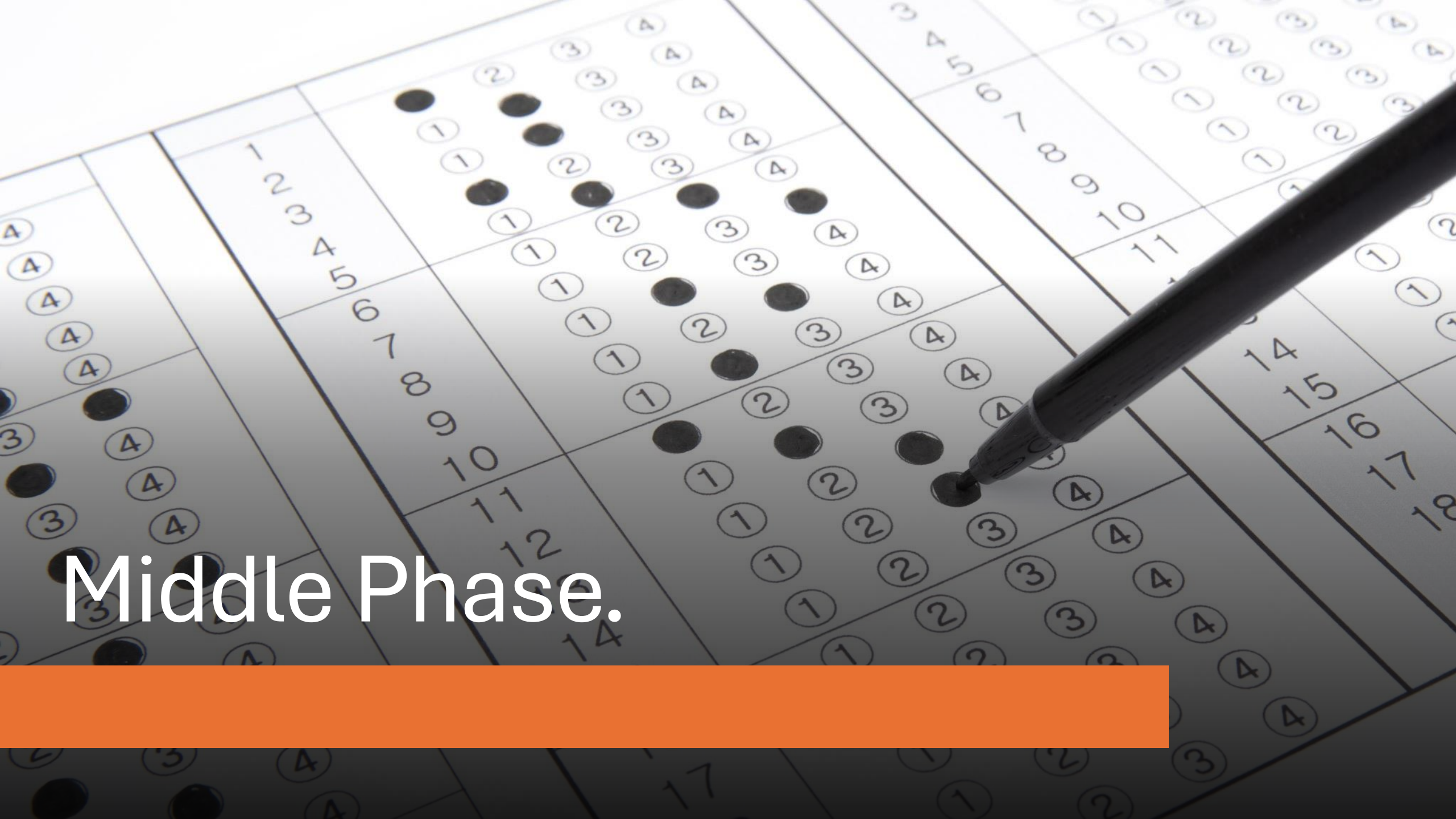
- Here in this screen shot I'm changing the processor cores from 1 to 4.



Increasing our Virtual Memory and Virtual Processor Cores.

- Once these have been changed, we then select “Apply” then press “OK” to complete the setup configuration for our VM Server.





Middle Phase.

Entering our Administrator Credentials for the Server.

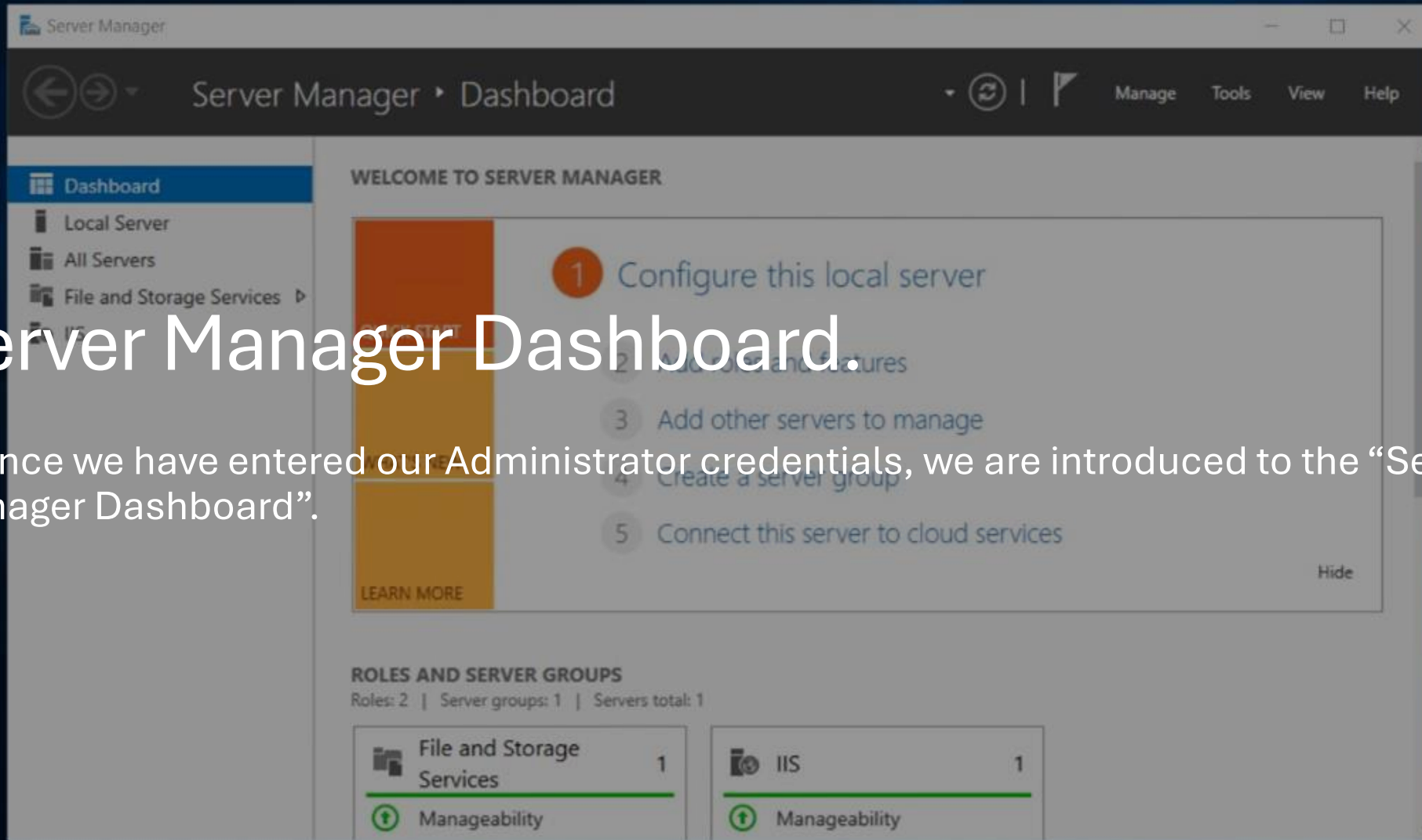
- We now load up our Server, and when prompted at the Administrator login we enter our password.



Administrator

Password





Server Manager Dashboard.

- Once we have entered our Administrator credentials, we are introduced to the “Server Manager Dashboard”.

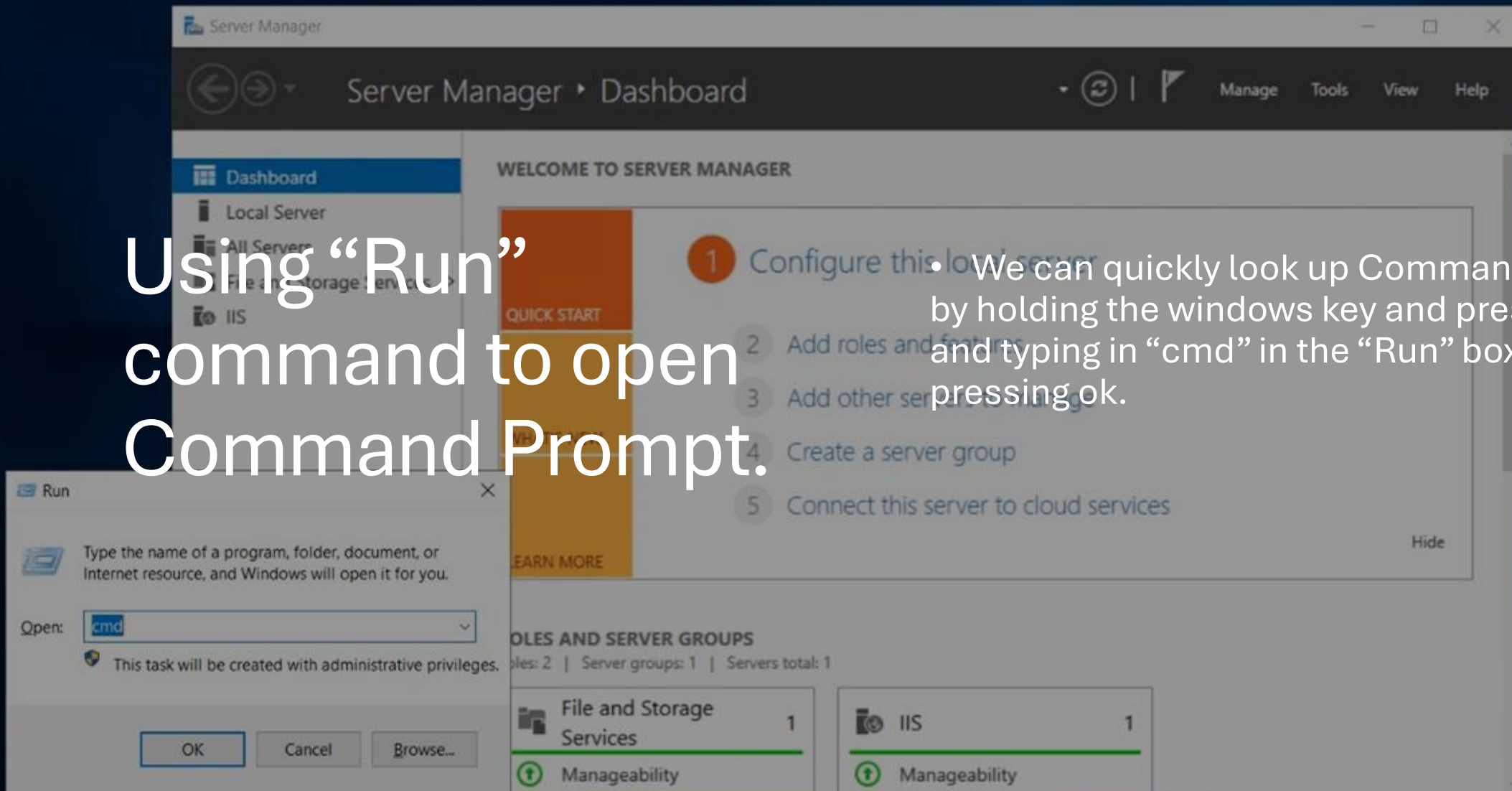
Before we can continue, we need to check in Command Prompt to make sure an APIPA address or Automatic Private Internet Protocol Addressing is NOT being used by the server.

For an example, a self-assigned emergency address which would look like: 169.254. This will cause issues when we are setting up Active Directory (AD). To prevent this happening, we need to either have a static IP address assigned or if there is a DHCP server within the subnet that we are wanting to use, we can use DHCP for it.

The IP address needs to be within the subnet for the domain we are wanting to create.

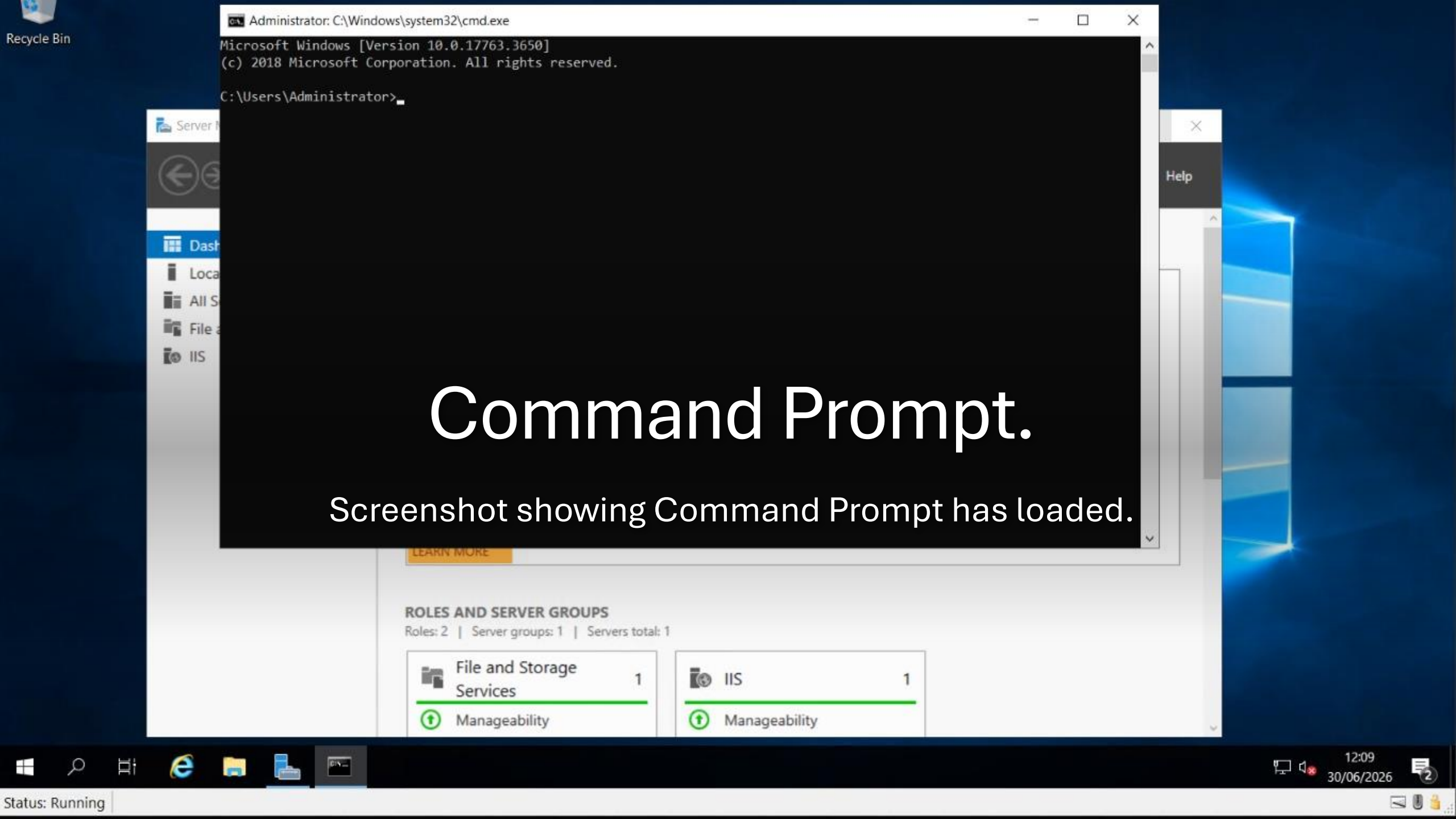
Using “Run” command to open Command Prompt.

• We can quickly look up Command prompt by holding the windows key and pressing “R” and typing in “cmd” in the “Run” box then pressing ok.



There can be a delay.
Do not worry!





Command Prompt.

Screenshot showing Command Prompt has loaded.

ROLES AND SERVER GROUPS

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



File and Storage
Services

1



Manageability

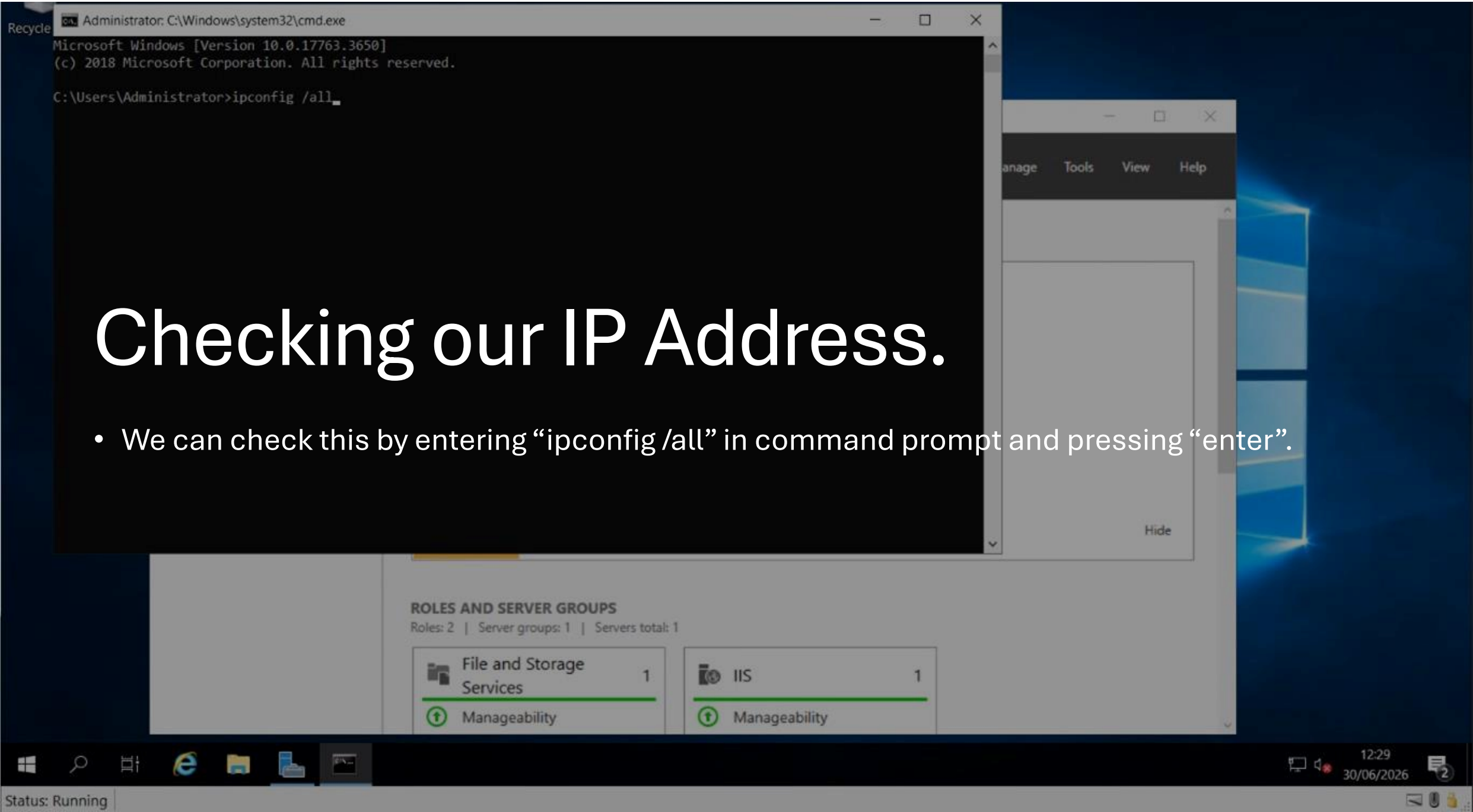


IIS

1



Manageability



Checking our IP Address.

- We can check this by entering “ipconfig /all” in command prompt and pressing “enter”.



Recycle Bin

Server



Dash

Local

All S

File a

IIS

Administrator: C:\Windows\system32\cmd.exe

```
IPv4 Address. . . . . : 172.26.218.204(Preferred)
Subnet Mask . . . . . : 255.255.240.0
Lease Obtained. . . . . : 30 June 2026 11:26:53
Lease Expires . . . . . : 01 July 2026 11:26:52
Default Gateway . . . . . : 172.26.208.1
DHCP Server . . . . . : 172.26.208.1
DHCPv6 IAID . . . . . : 301995357
DHCPv6 Client DUID. . . . . : 00-01-00-01-2C-89-EA-C2-00-15-5D-00-04-08
DNS Servers . . . . . : 172.26.208.1
NetBIOS over Tcpip. . . . . : Enabled
```

Ethernet adapter Ethernet 5:

```
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Hyper-V Network Adapter #5
Physical Address. . . . . : 00-15-5D-00-04-02
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::2f0:b26:1eb9:50b5%14(Preferred)
IPv4 Address. . . . . : 192.168.1.1(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 318772573
DHCPv6 Client DUID. . . . . : 00-01-00-01-2C-89-EA-C2-00-15-5D-00-04-08
DNS Servers . . . . . : fec0:0:0:ffff::1%1
                       : fec0:0:0:ffff::2%1
                       : fec0:0:0:ffff::3%1
NetBIOS over Tcpip. . . . . : Enabled
```

C:\Users\Administrator>

[LEARN MORE](#)

ROLES AND SERVER GROUPS

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

 File and Storage
Services 1

 Manageability

 IIS 1

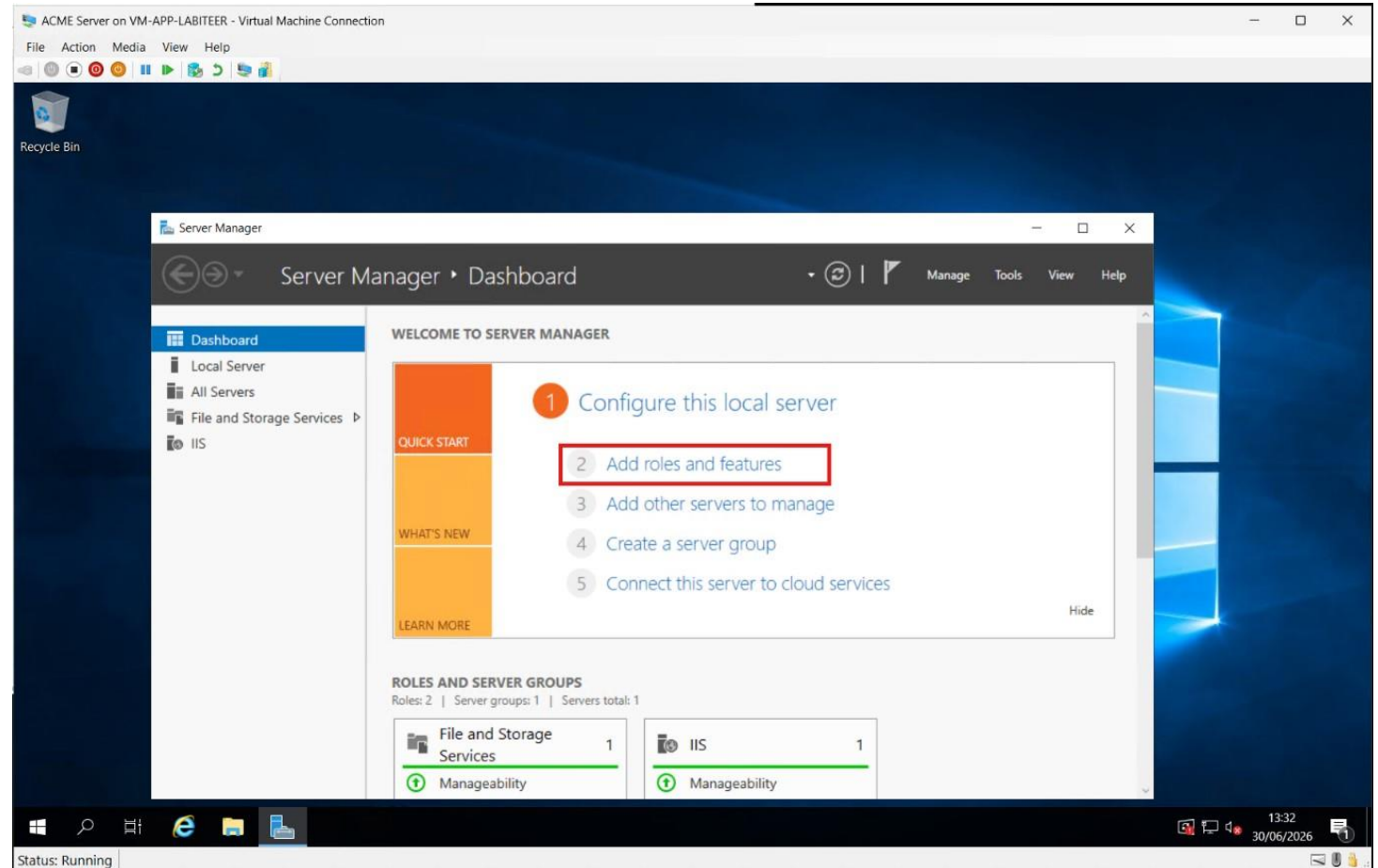
 Manageability

Checking our IP Address!

- We can see that our preferred IP address is 192.168.1 which is our private IP address. This confirms that we are not using an APIPA address.

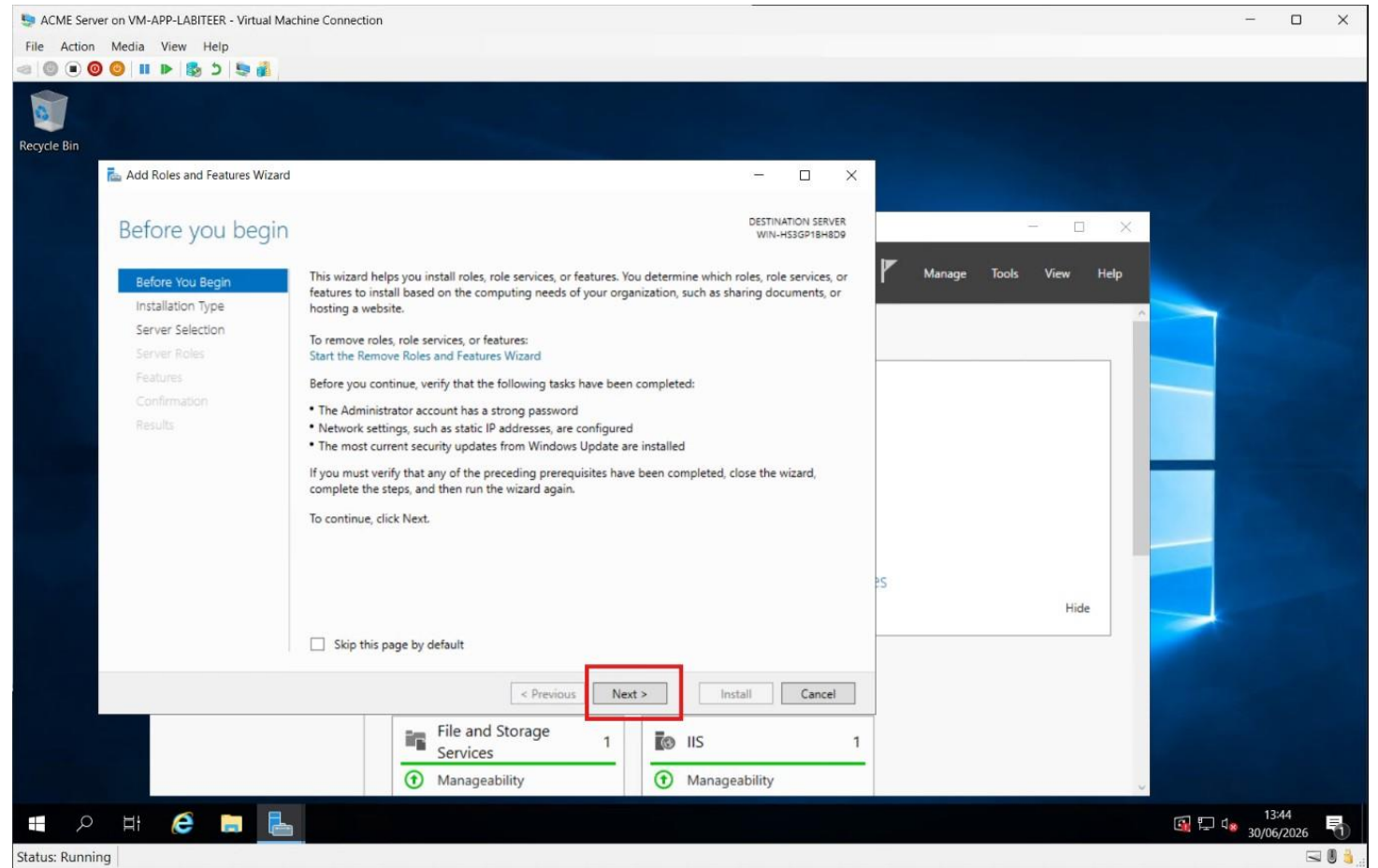
Adding roles and features from our Server Manager Dashboard.

- We now need to setup our Server as a Domain Controller. To do this we need to go to “Add Roles and Features” in the “Configure this local server” dashboard. This is the main dashboard for the Server Manager.



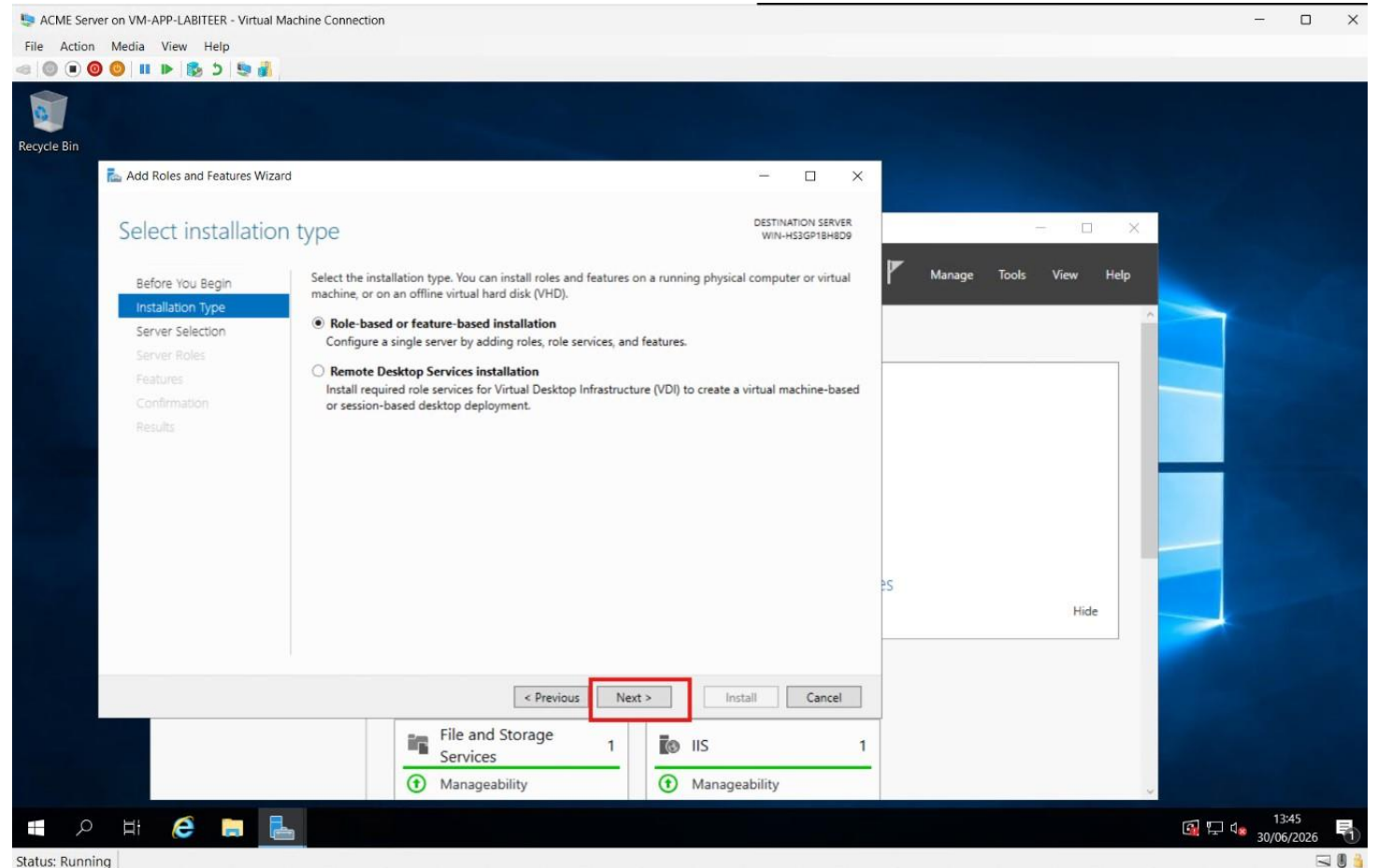
Before you begin.

- This will take us to the “Add Roles and Features Wizard”.
- Click “Next” to start the wizard.



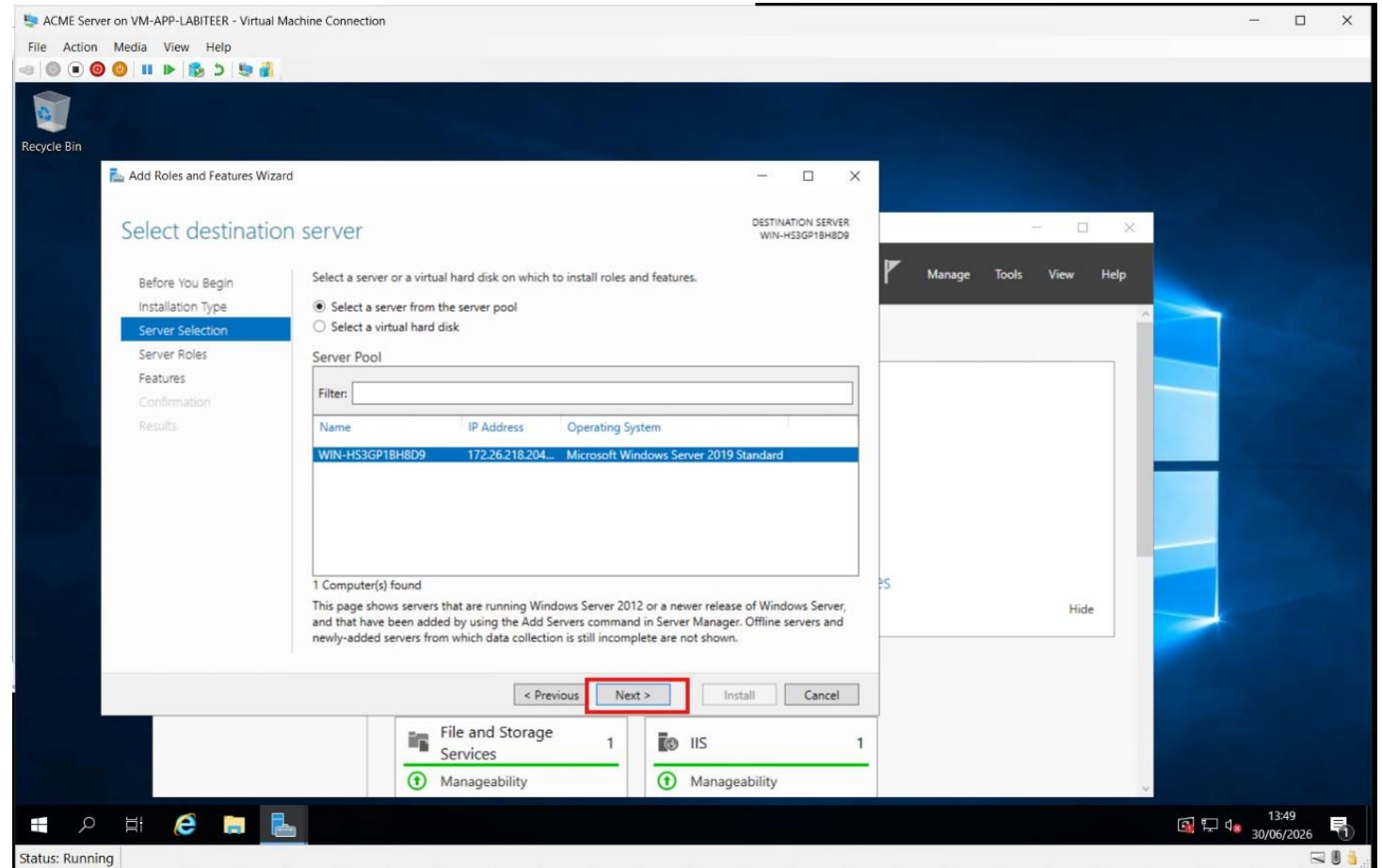
Select Installation type.

- We leave the selection as default setting. Which is “Role-based or feature-based Installation”.
- We just press the “Next” button to carry onto the next section of the wizard.



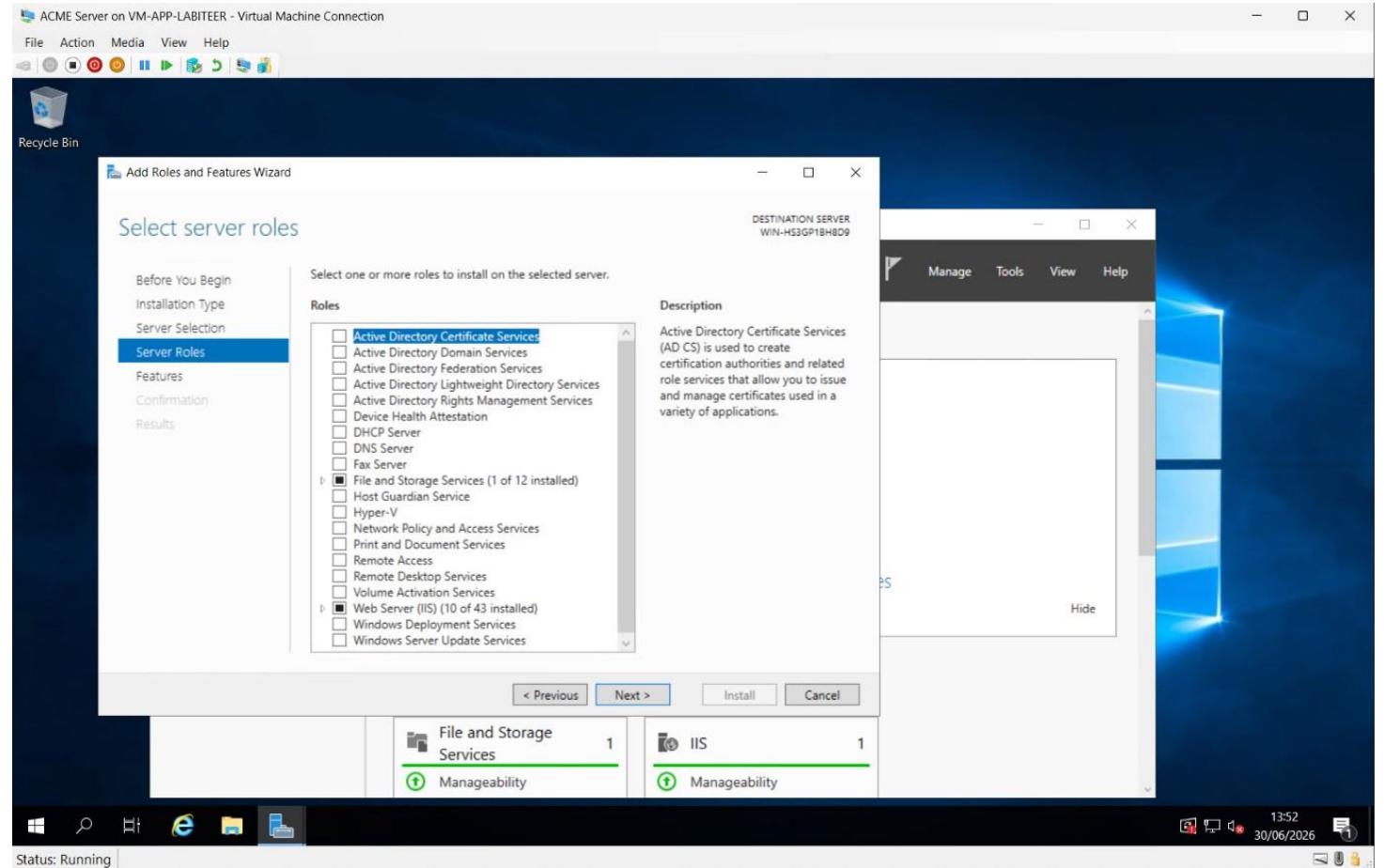
Selecting destination server.

- At the “Select destination server” section we again leave the settings as default and just click on “Next”.



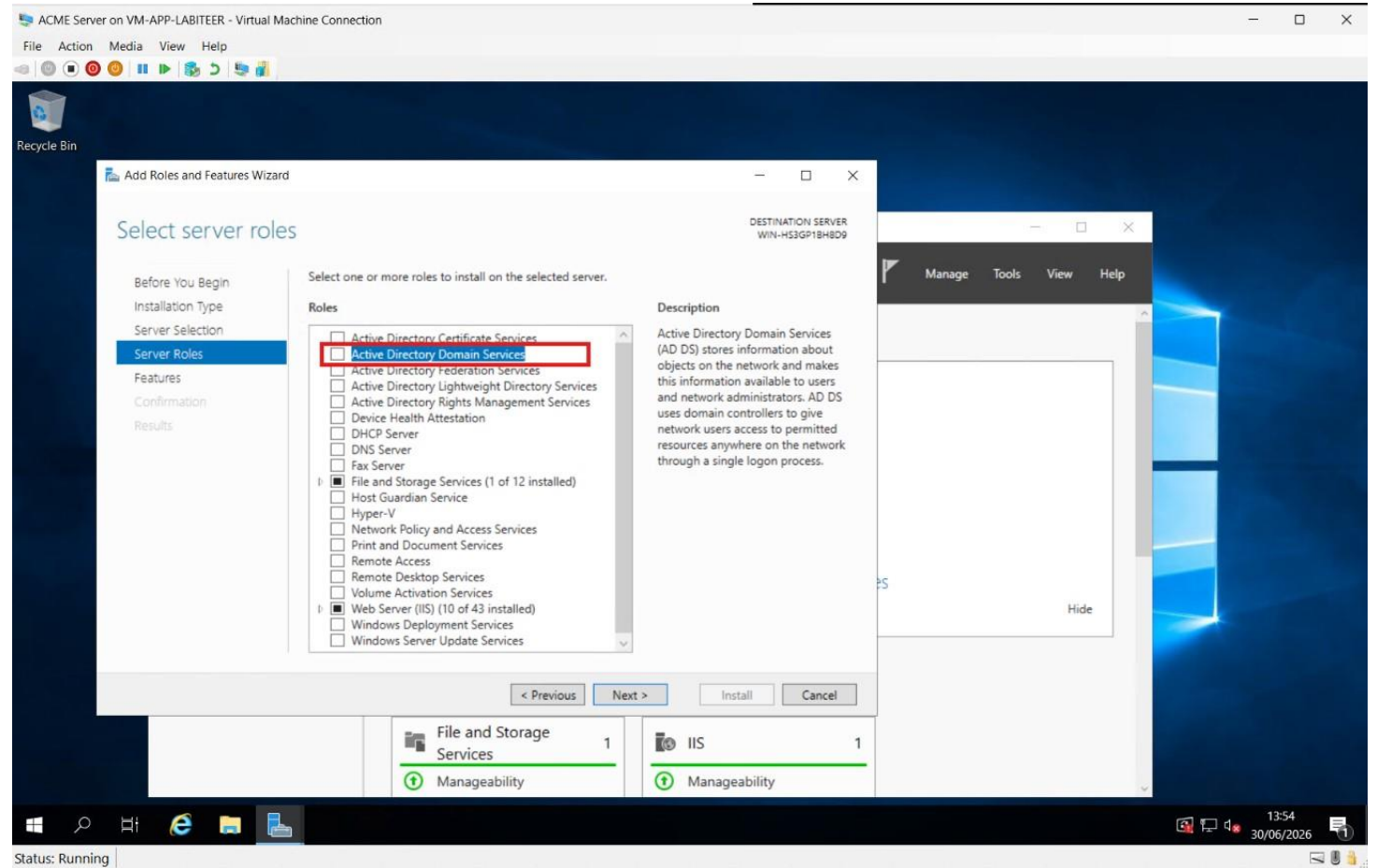
Select server roles.

- This now takes us to the “Select server roles” section of the wizard.



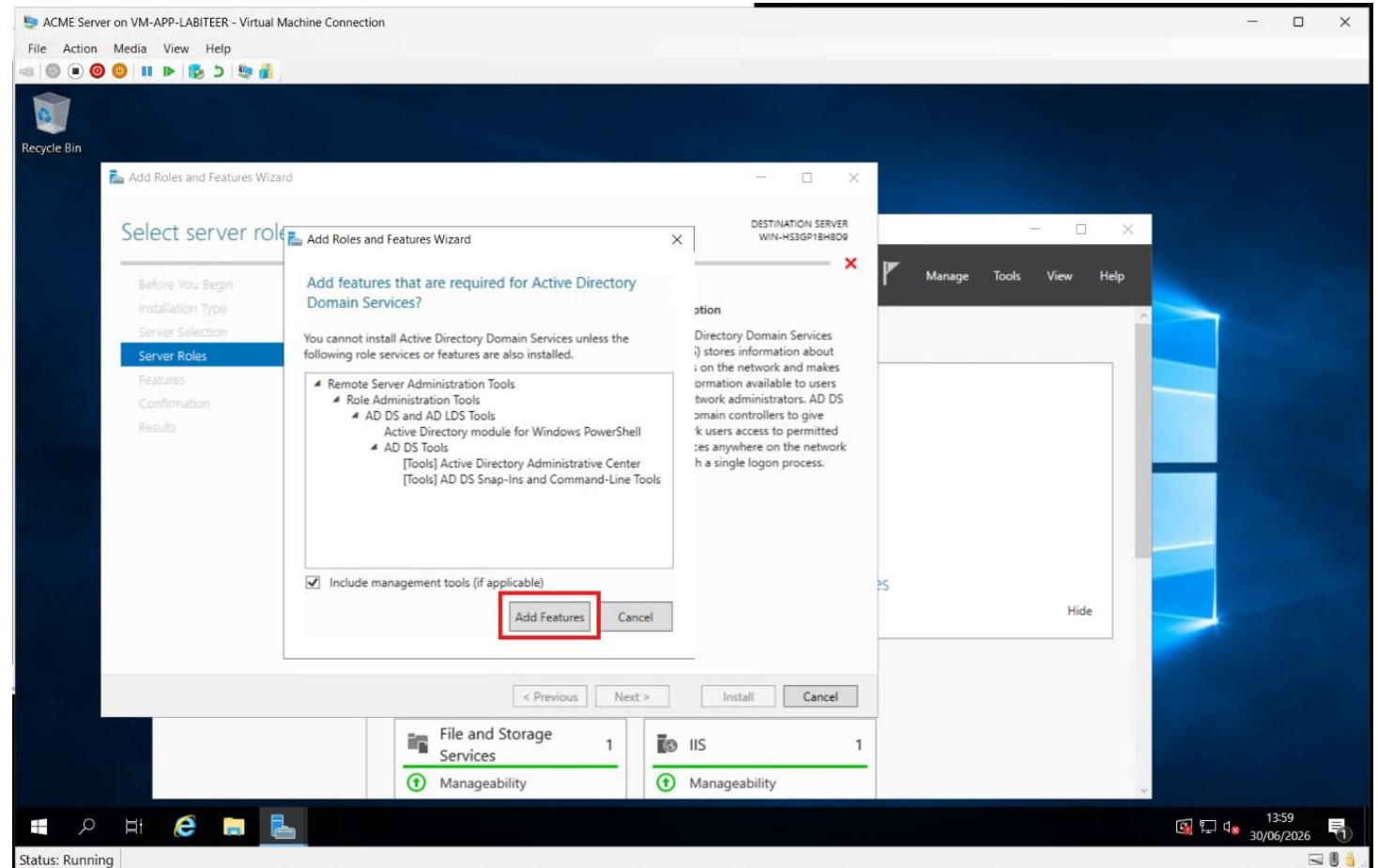
Select server roles.

- We will be now selecting “Active Directory Domain Services”.



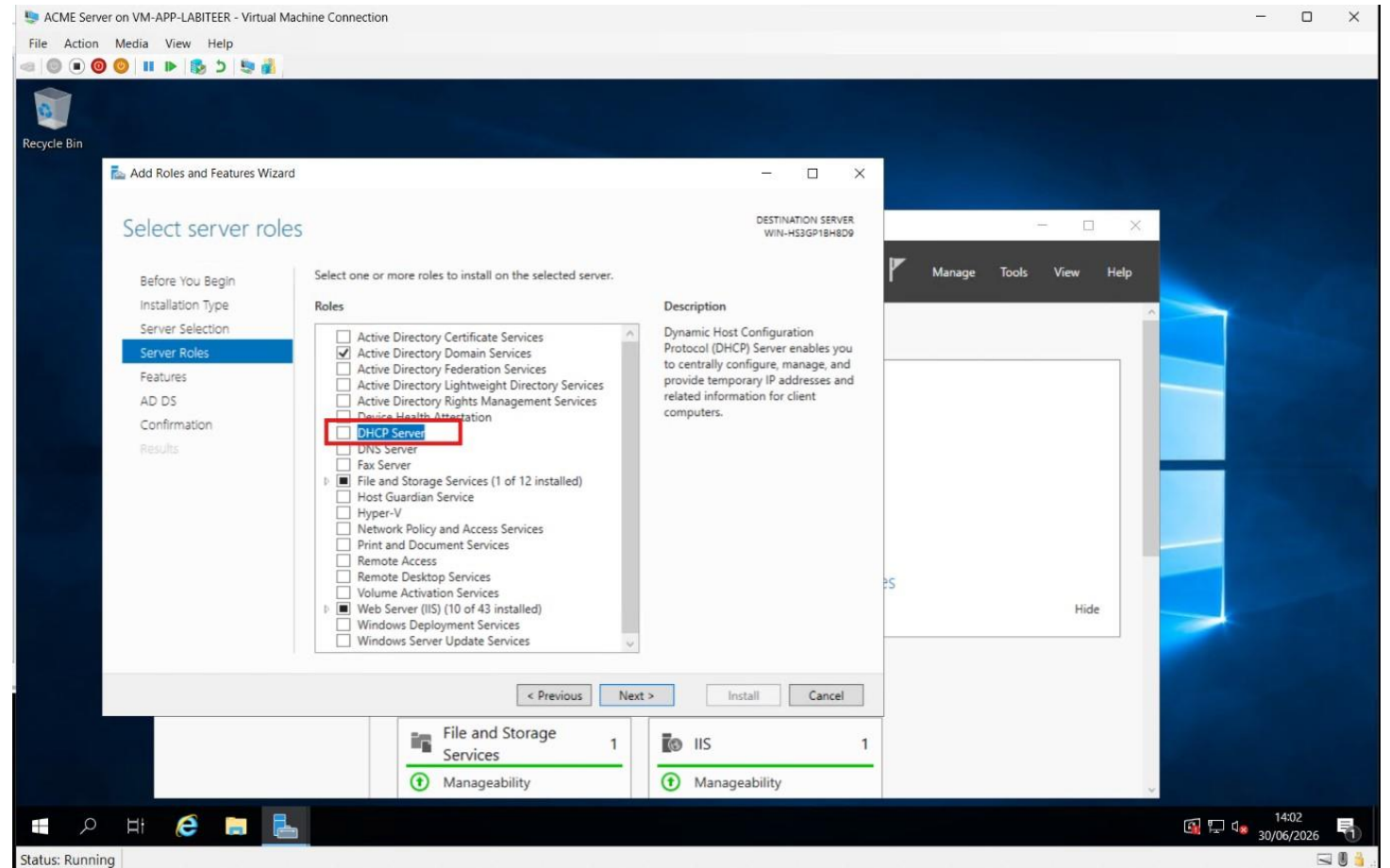
Add Roles and features Wizard.

- We now press the “Add Features” tab for the “Active Directory Domain Services”.



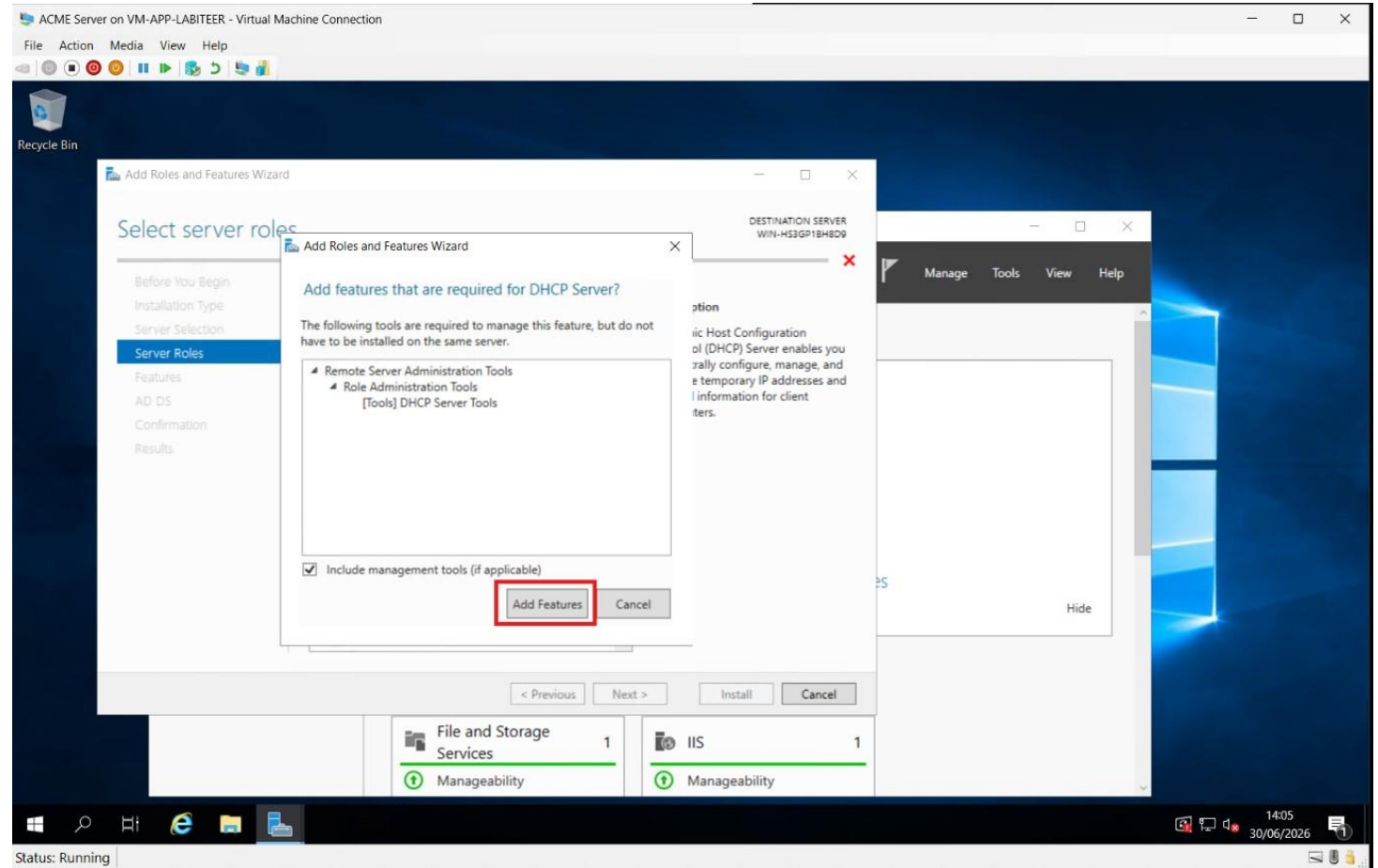
Select server roles.

- Back at the “Select server roles” we can now also select “DHCP Server” to be added.



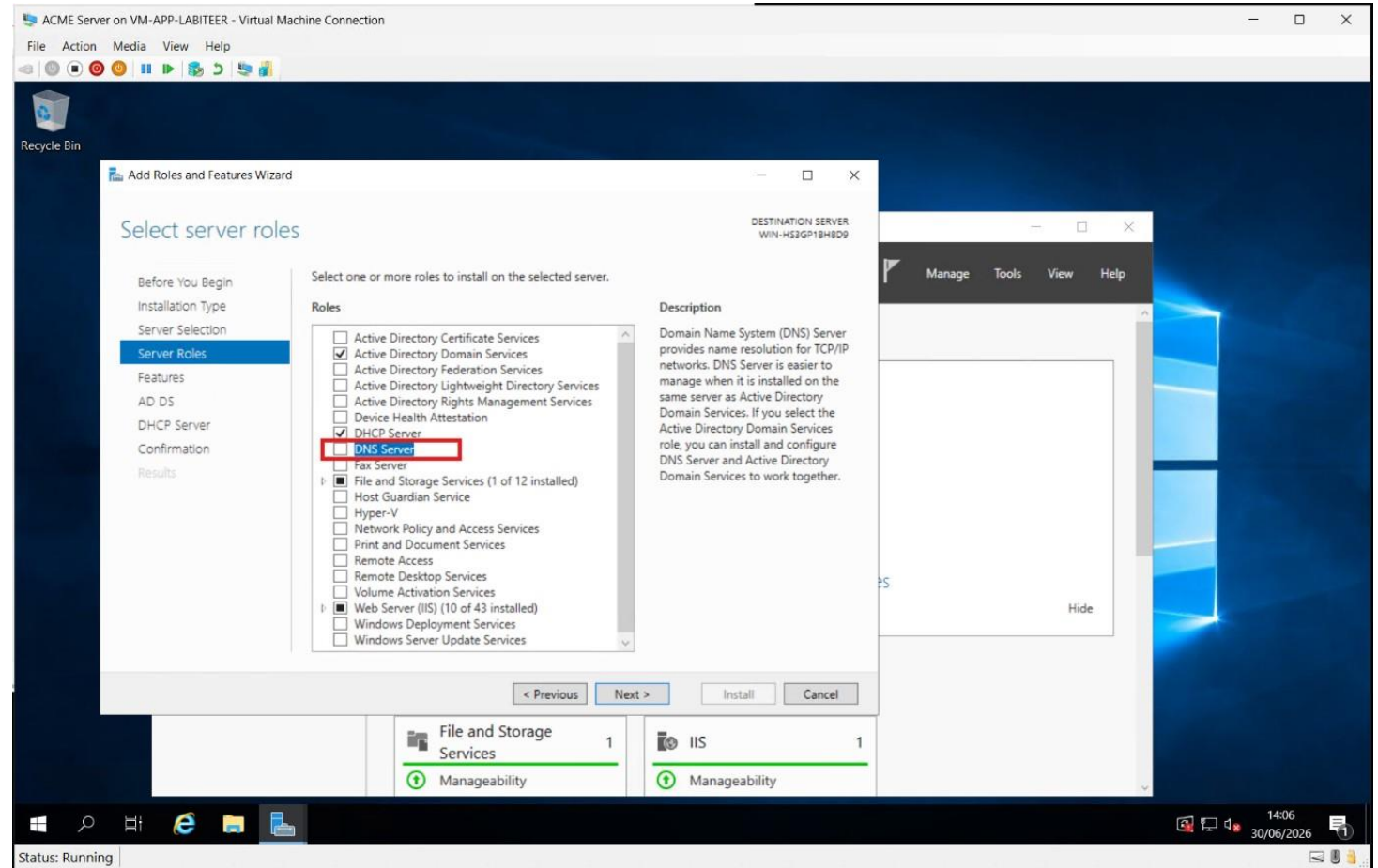
Add Roles and features Wizard.

- We now press the “Add Features” tab for the “DHCP Server”.



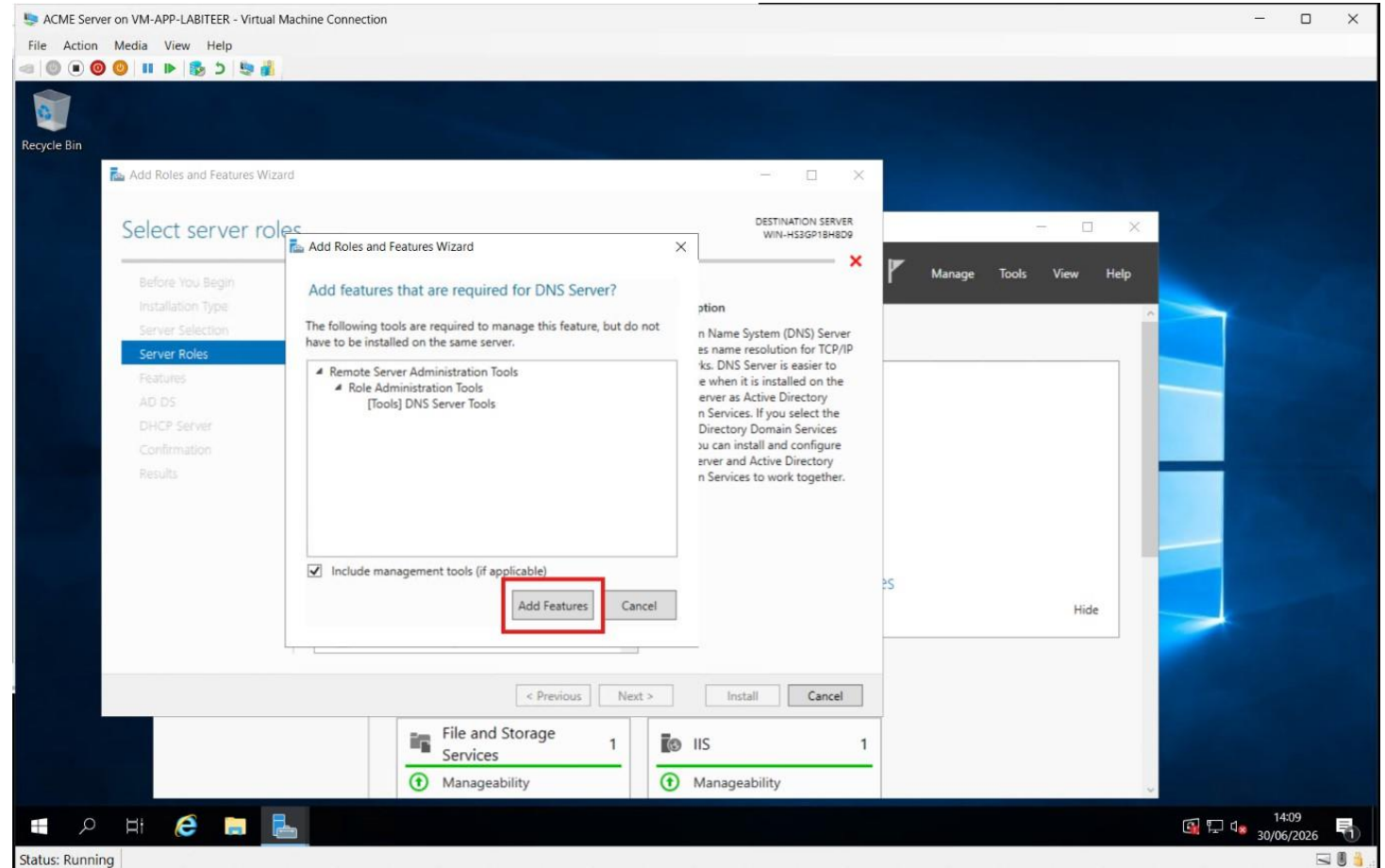
Select server roles.

- Back at the “Select server roles” we can now lastly add “DNS Server”.



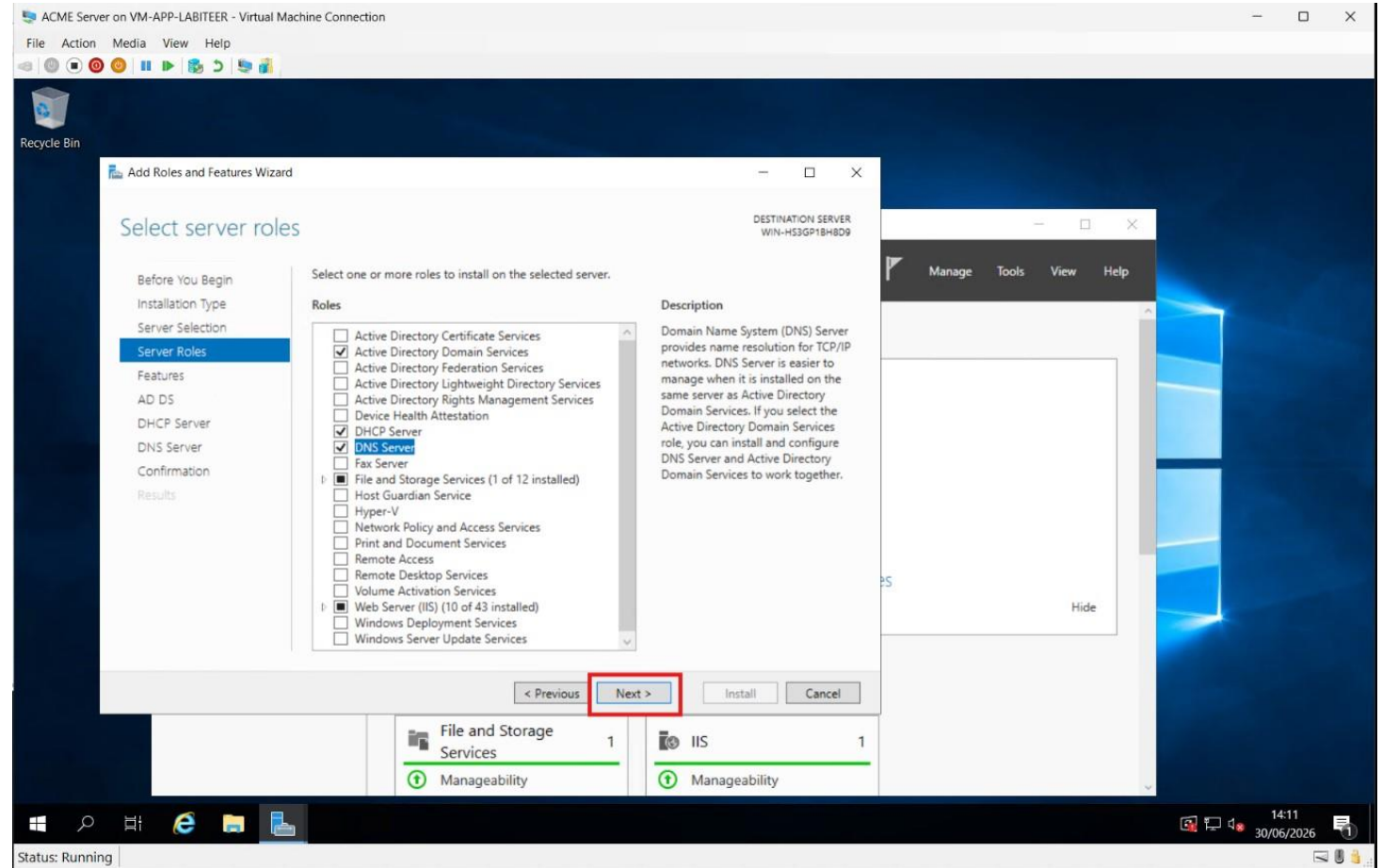
Adding Features for DNS Server.

- We now press the “Add Features” tab for the “DNS Server”.



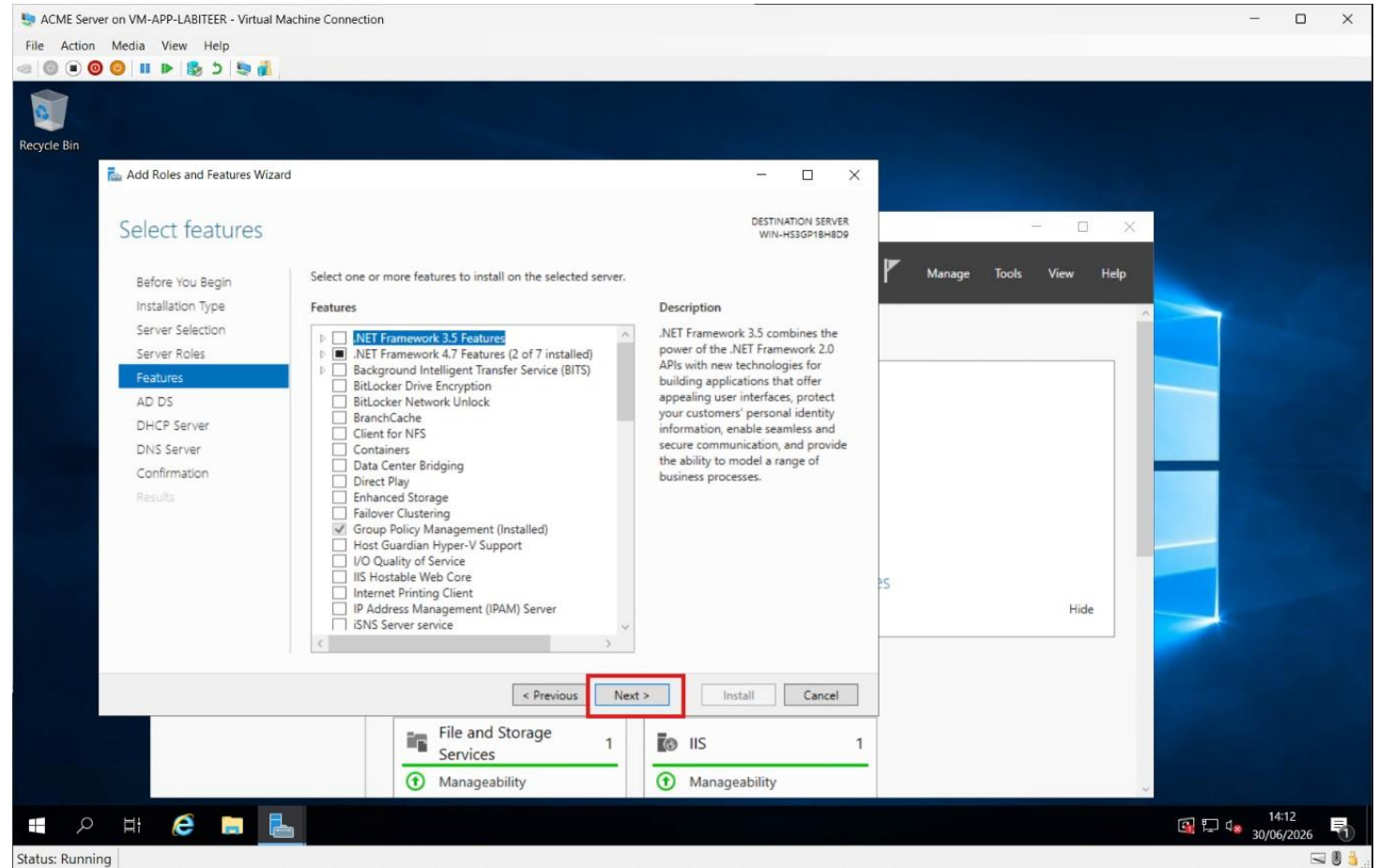
Select Server Roles.

- Back at the “Select server roles” we now press “Next”.



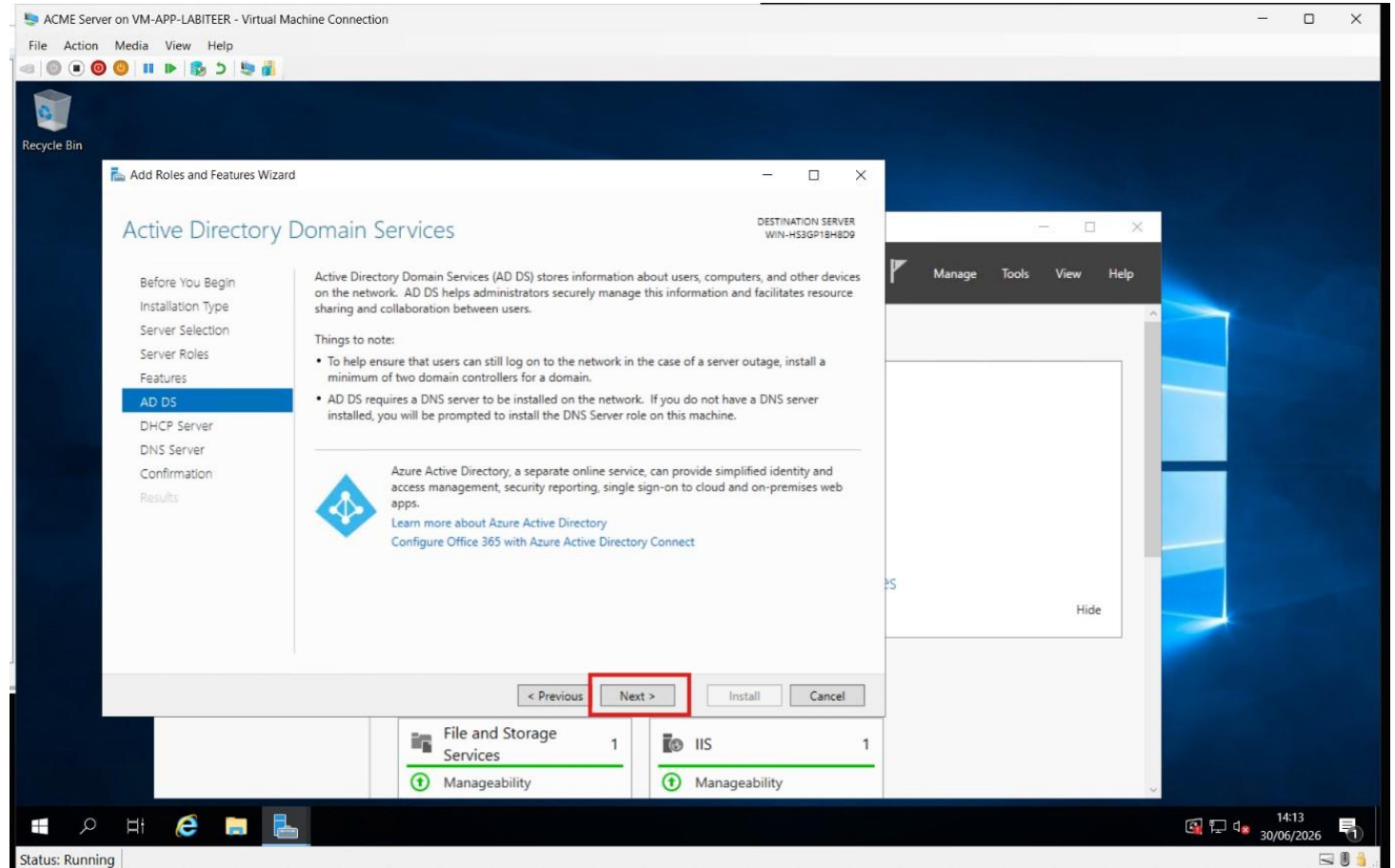
Select Features.

- At the “Features” section we just confirm the standard settings by pressing “Next”.



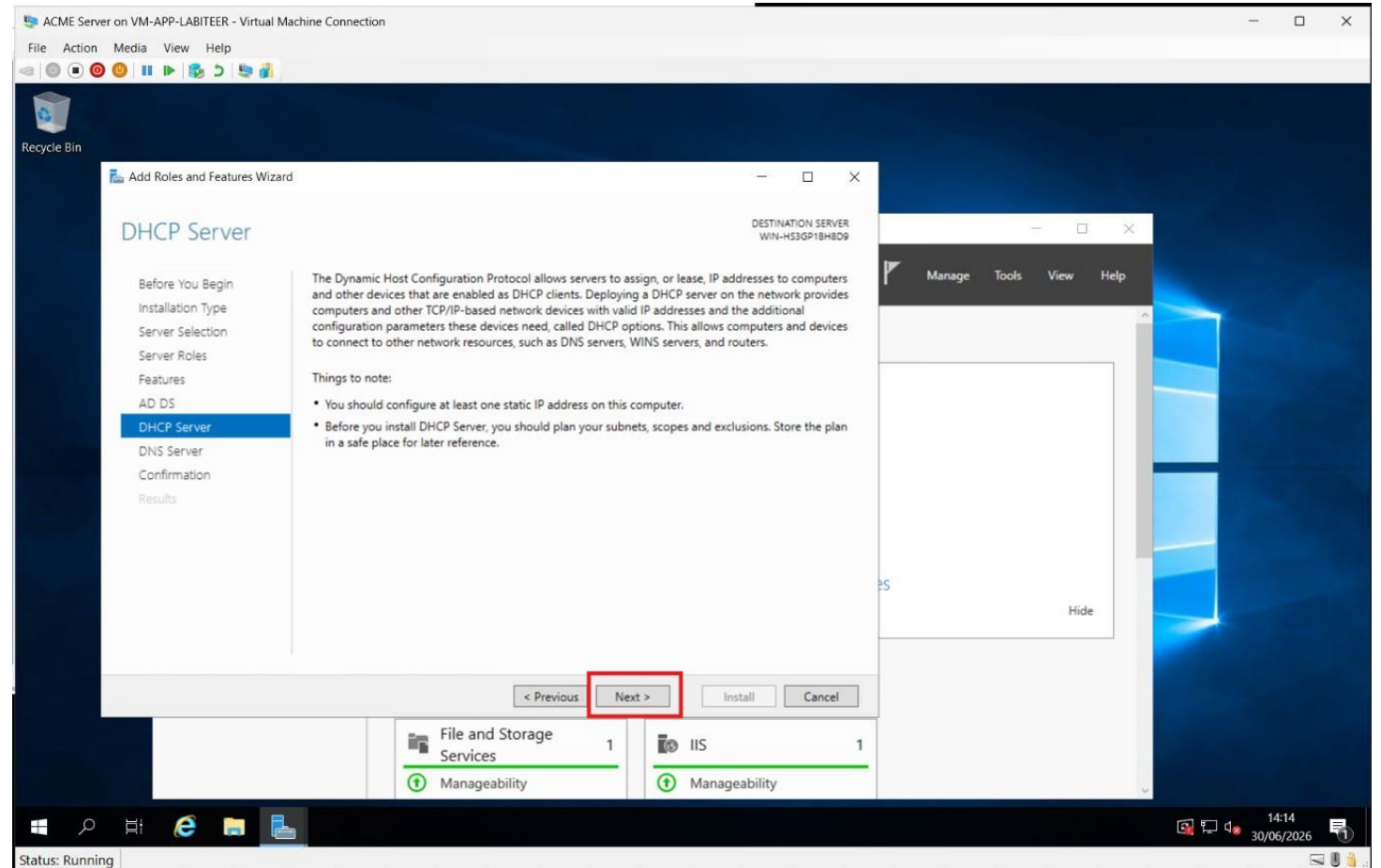
Active Directory Domain Services.

- At the “Active Directory Domain Services or AD DS” section we just click “Next”.



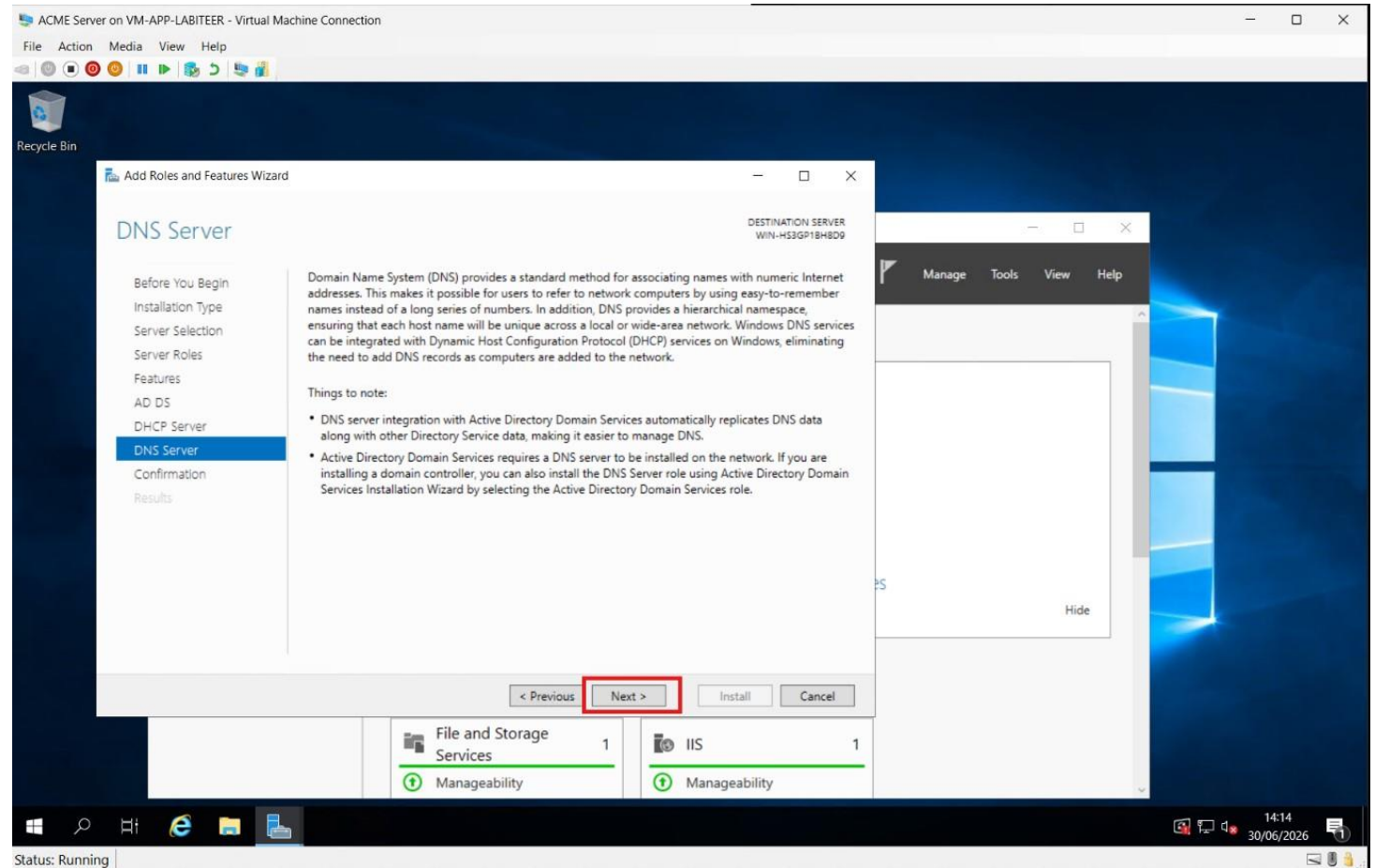
DHCP Server.

- At the “DHCP Server” section again we just press “Next”.



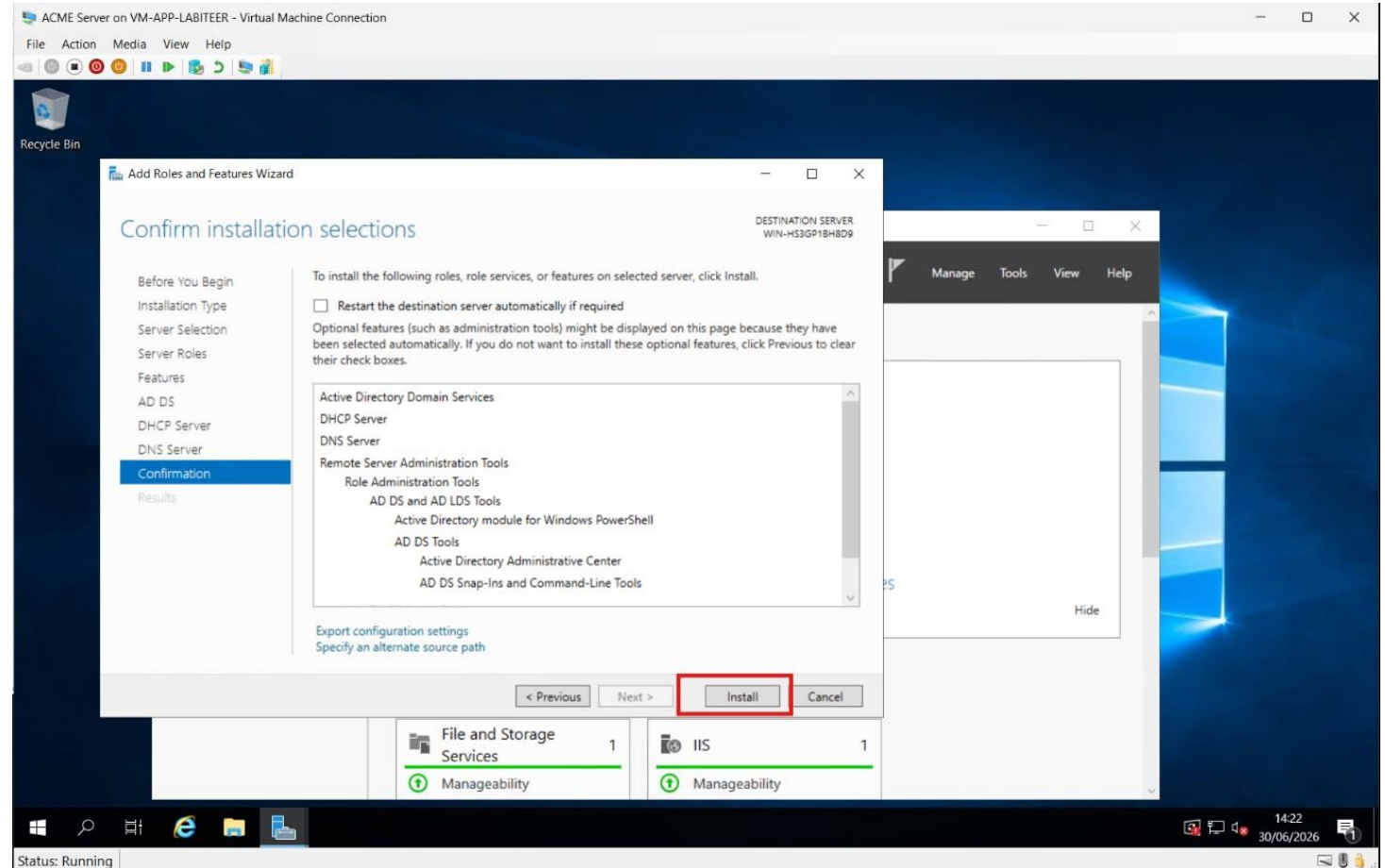
DNS Server.

- At the “DNS Server” again we just click “Next”.



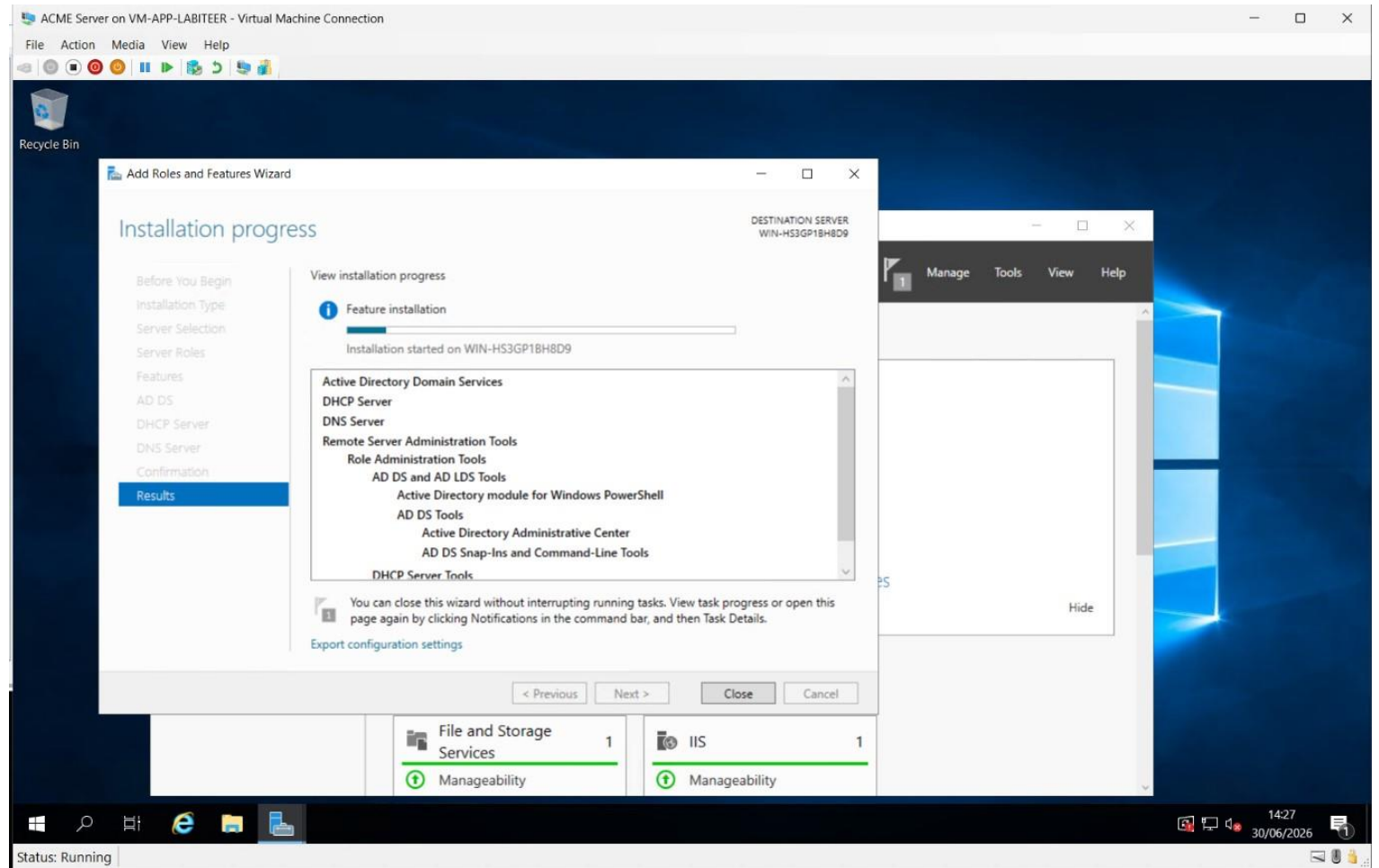
Confirming Installation Selections.

- At the “Confirm installation selections” we now click on “Install”.



Installation Progress.

This will now start the installation process.

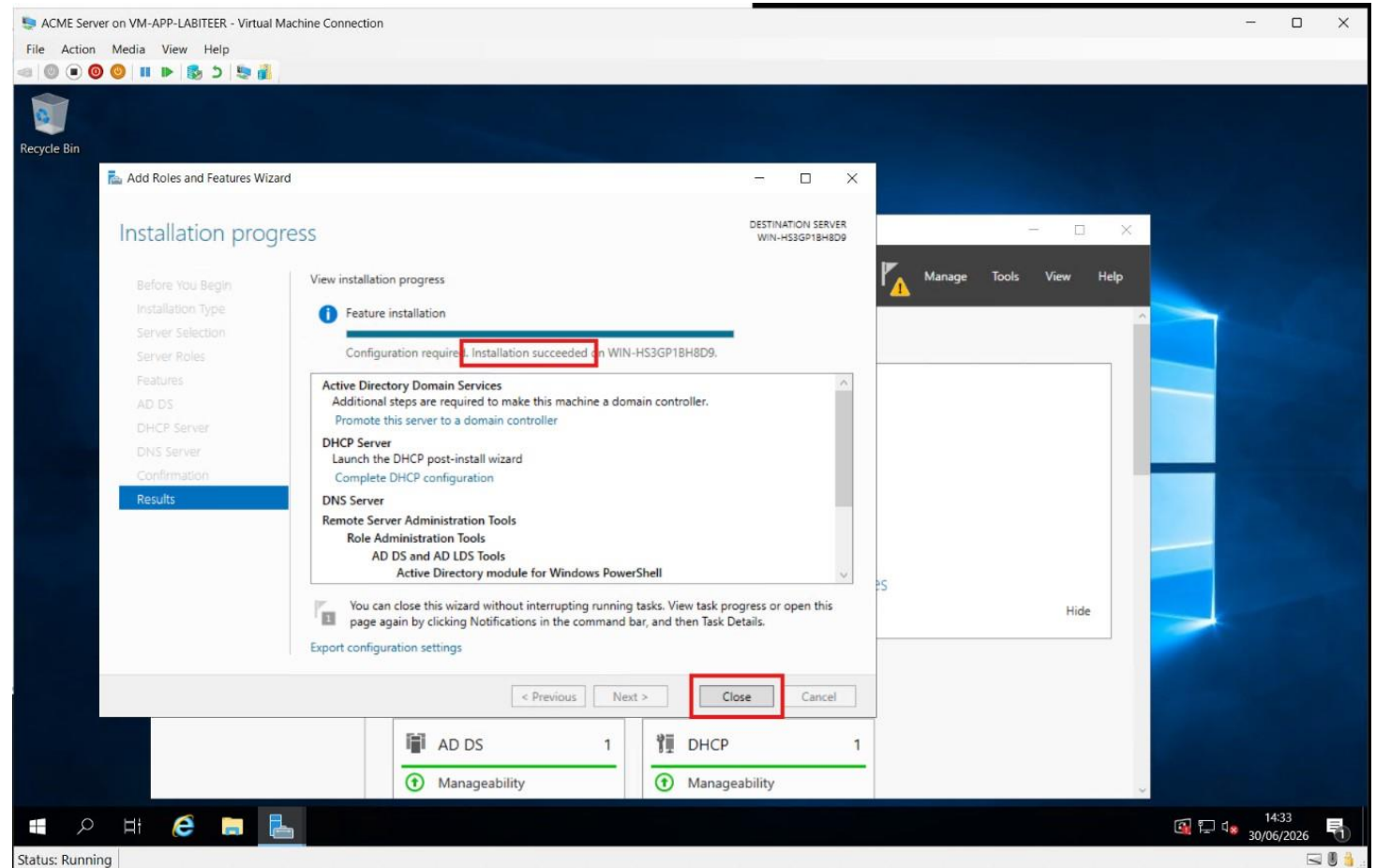


Please be patient this can
take a while to install.



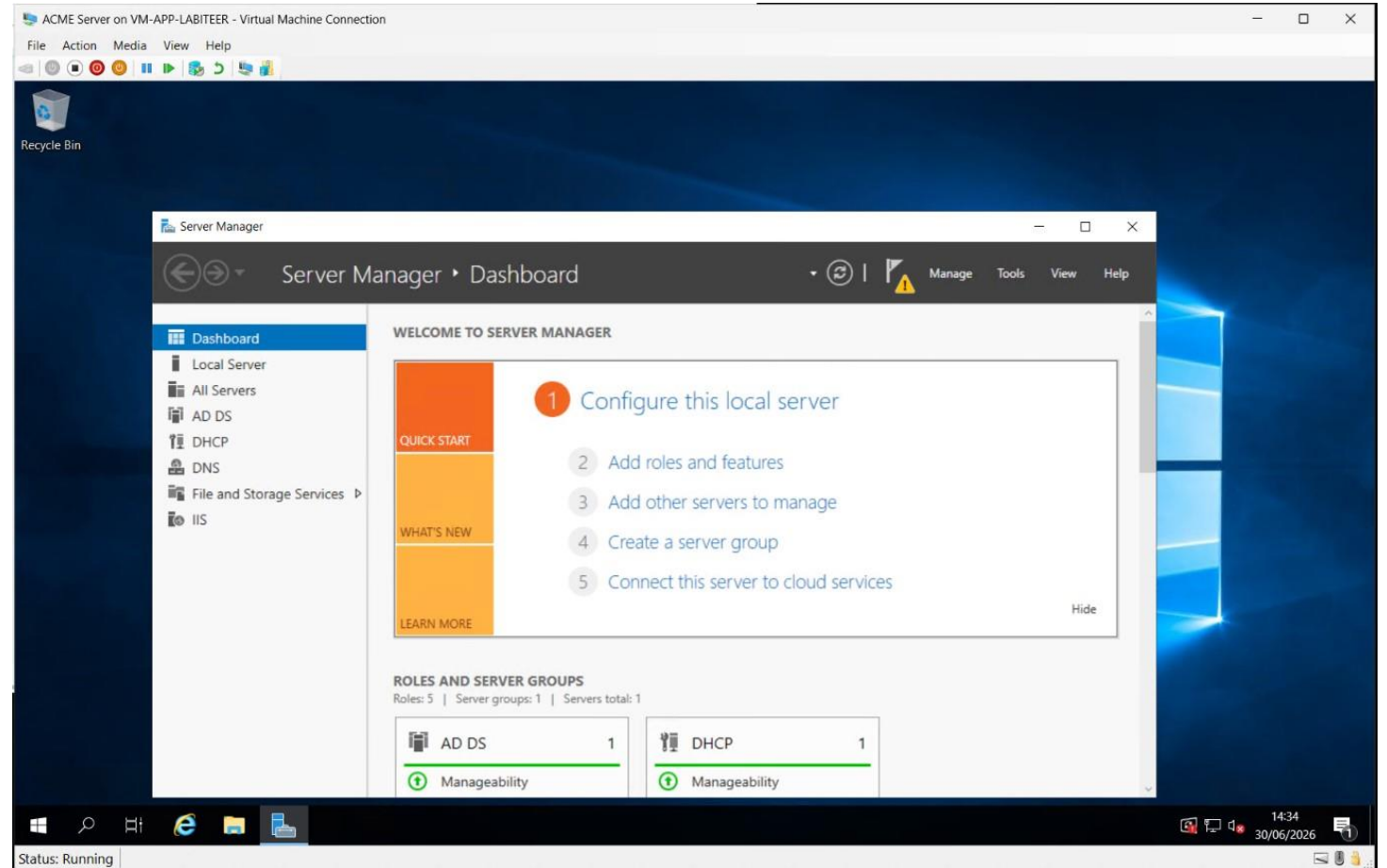
Installation Progress.

- Once installation is complete you will see “Installation succeeded”.
- Press “Close”.



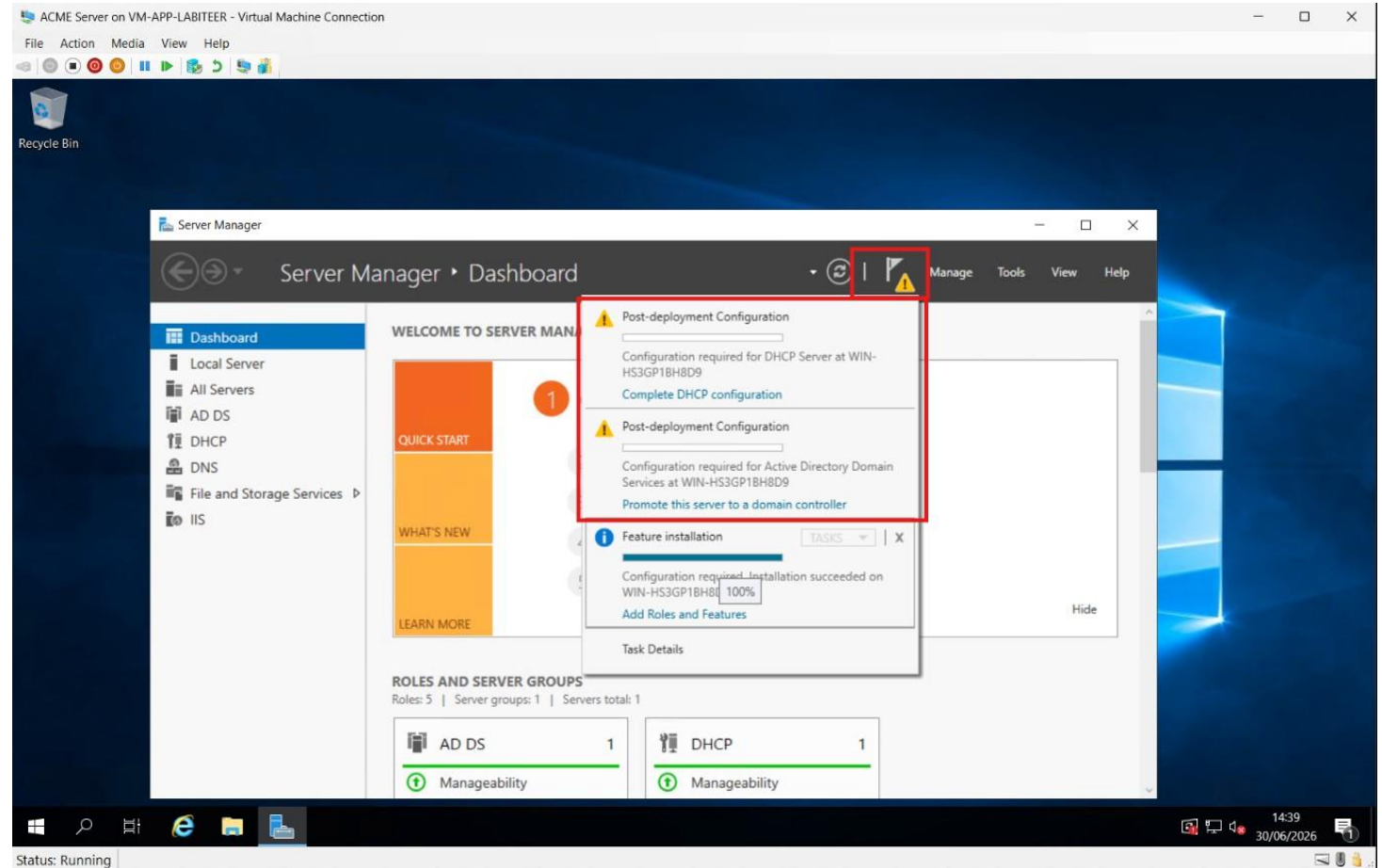
Server Manager Dashboard.

- This will now take you back to the “Server Manager Dashboard”.



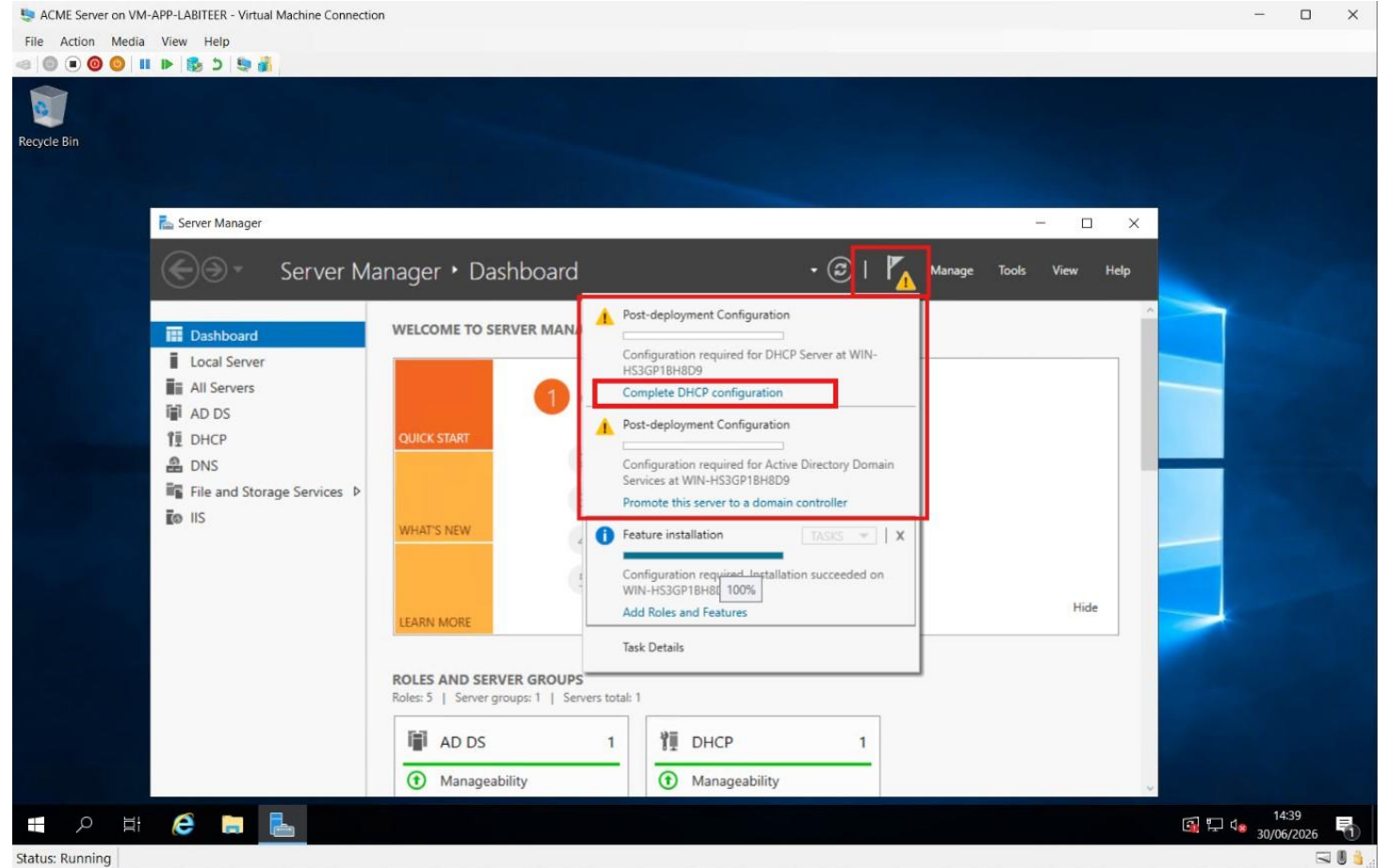
Post-deployment Configurations.

- At the top you can now see a yellow flag. By clicking on this we can see we have some configurations to complete.



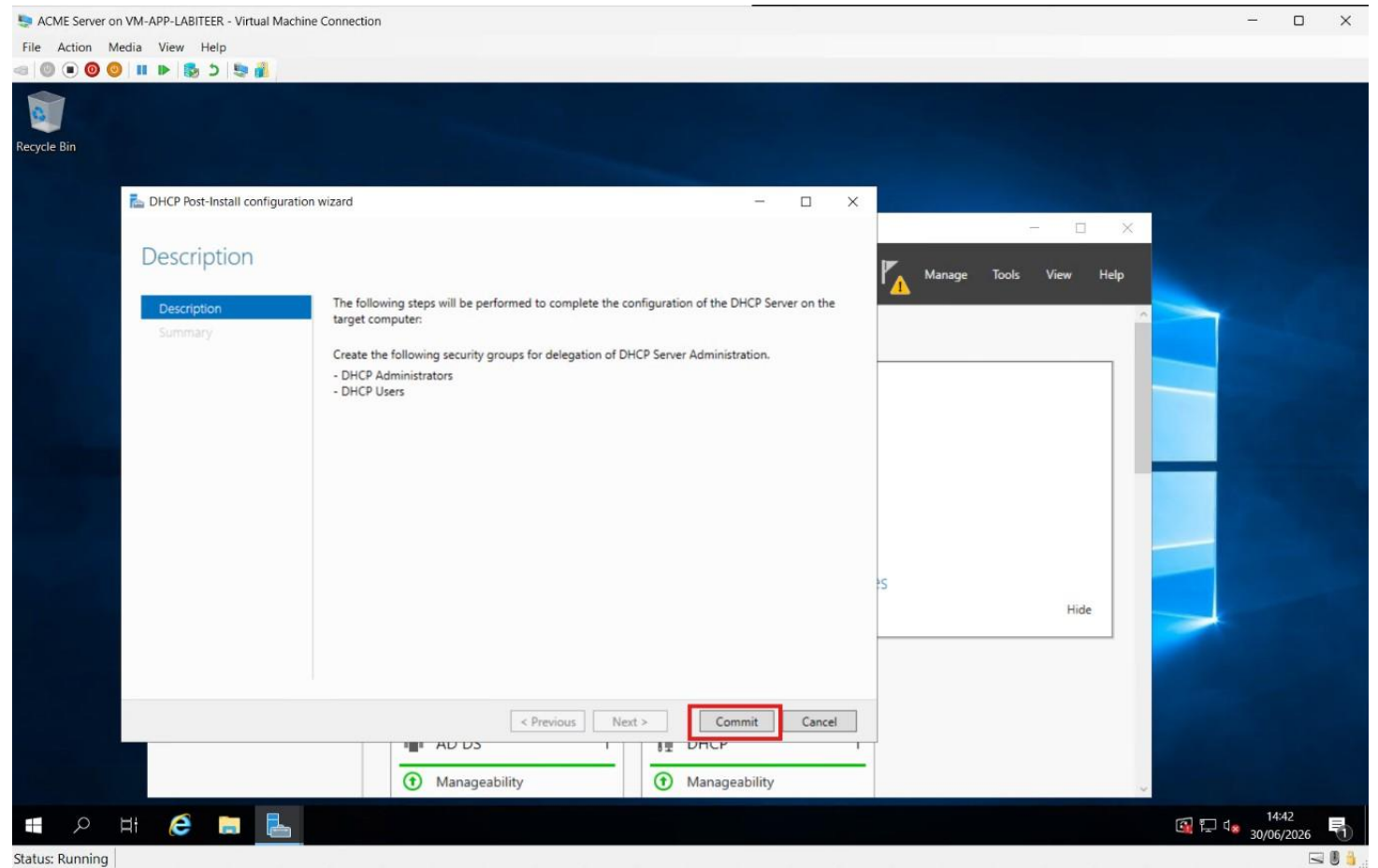
DHCP Configuration.

- Firstly, we click on “Complete DHCP configuration”.



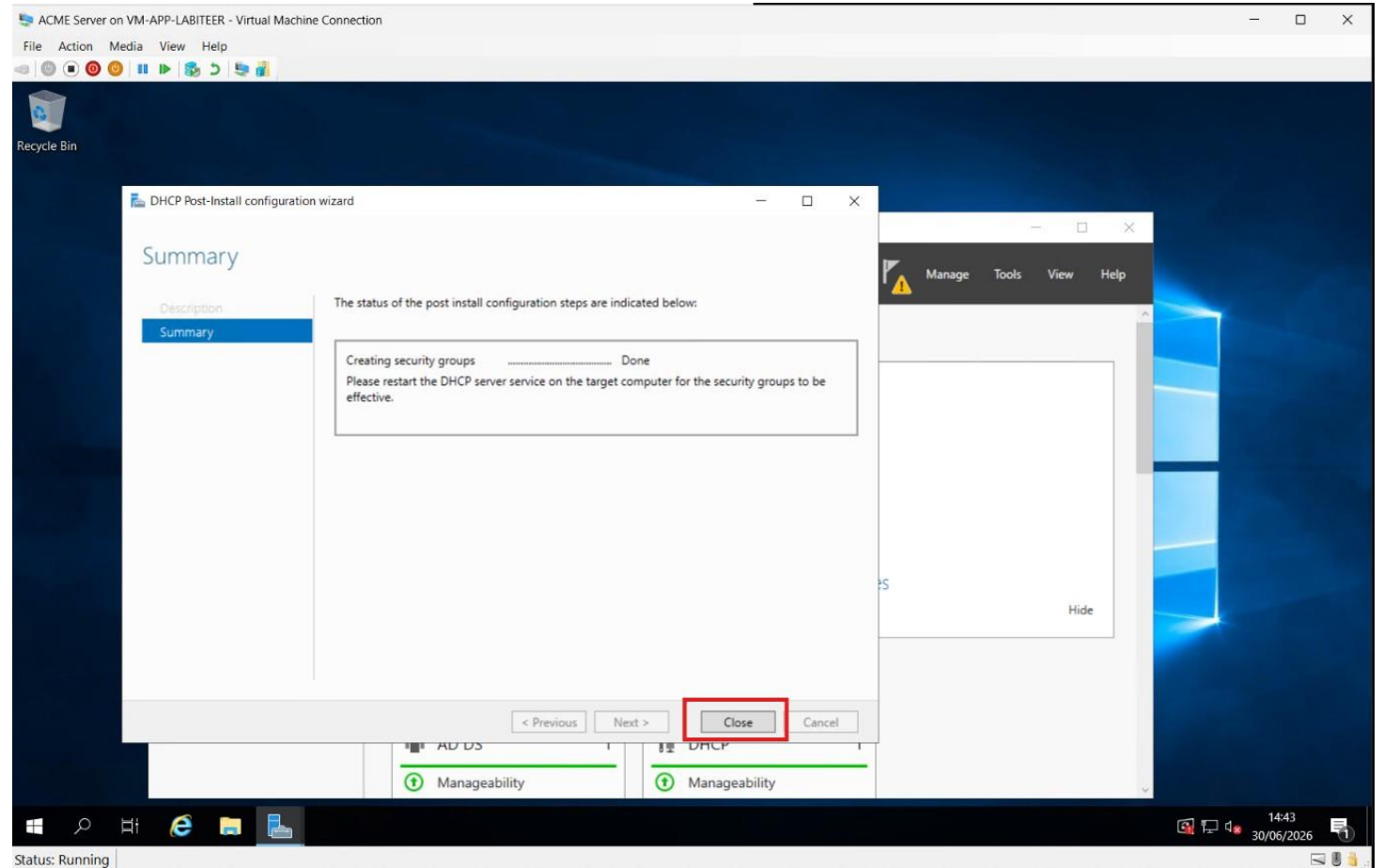
DHCP Configuration.

- At the “Description” section we click on “Commit”.



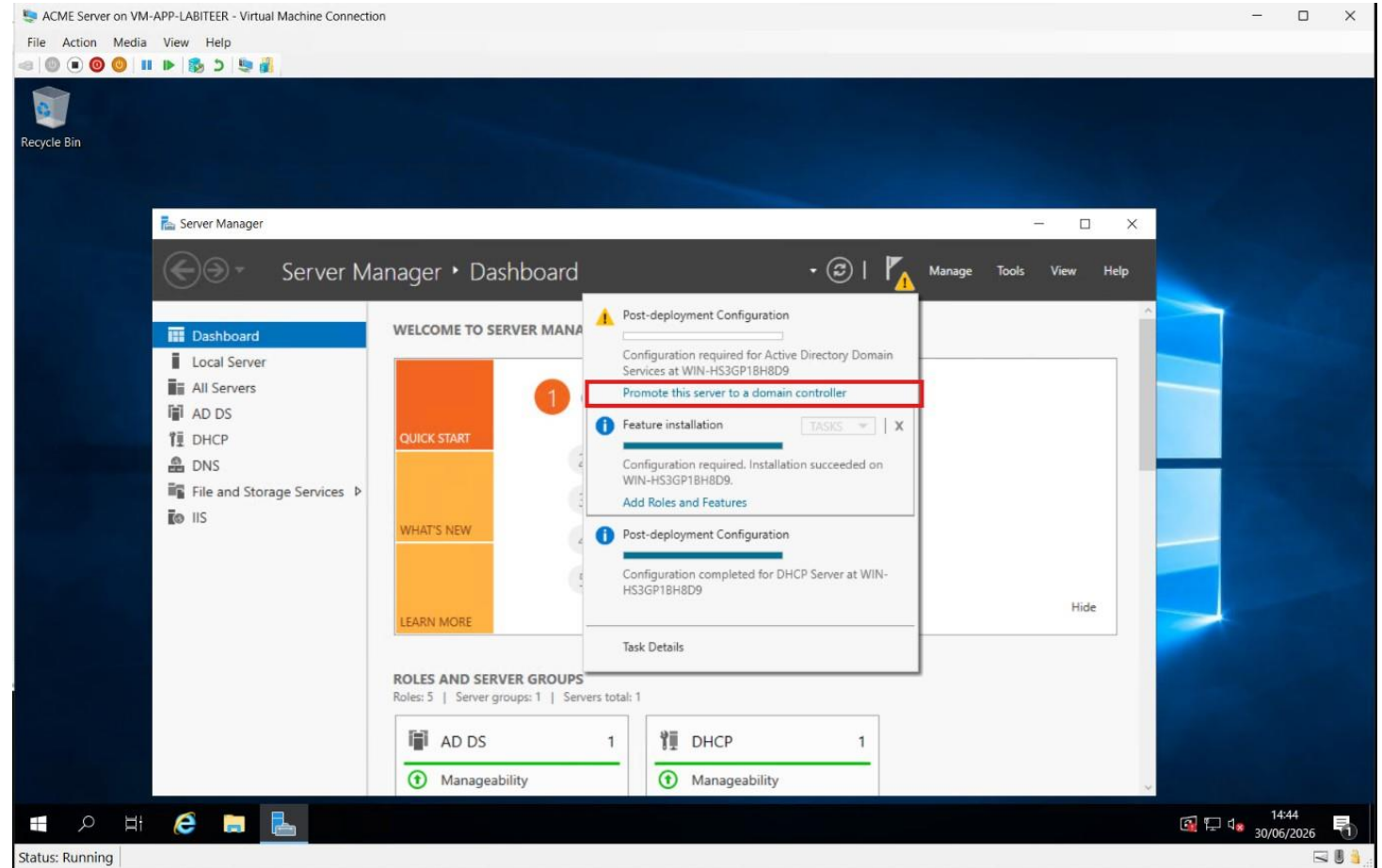
DHCP Configuration.

- We now click on “Close”.



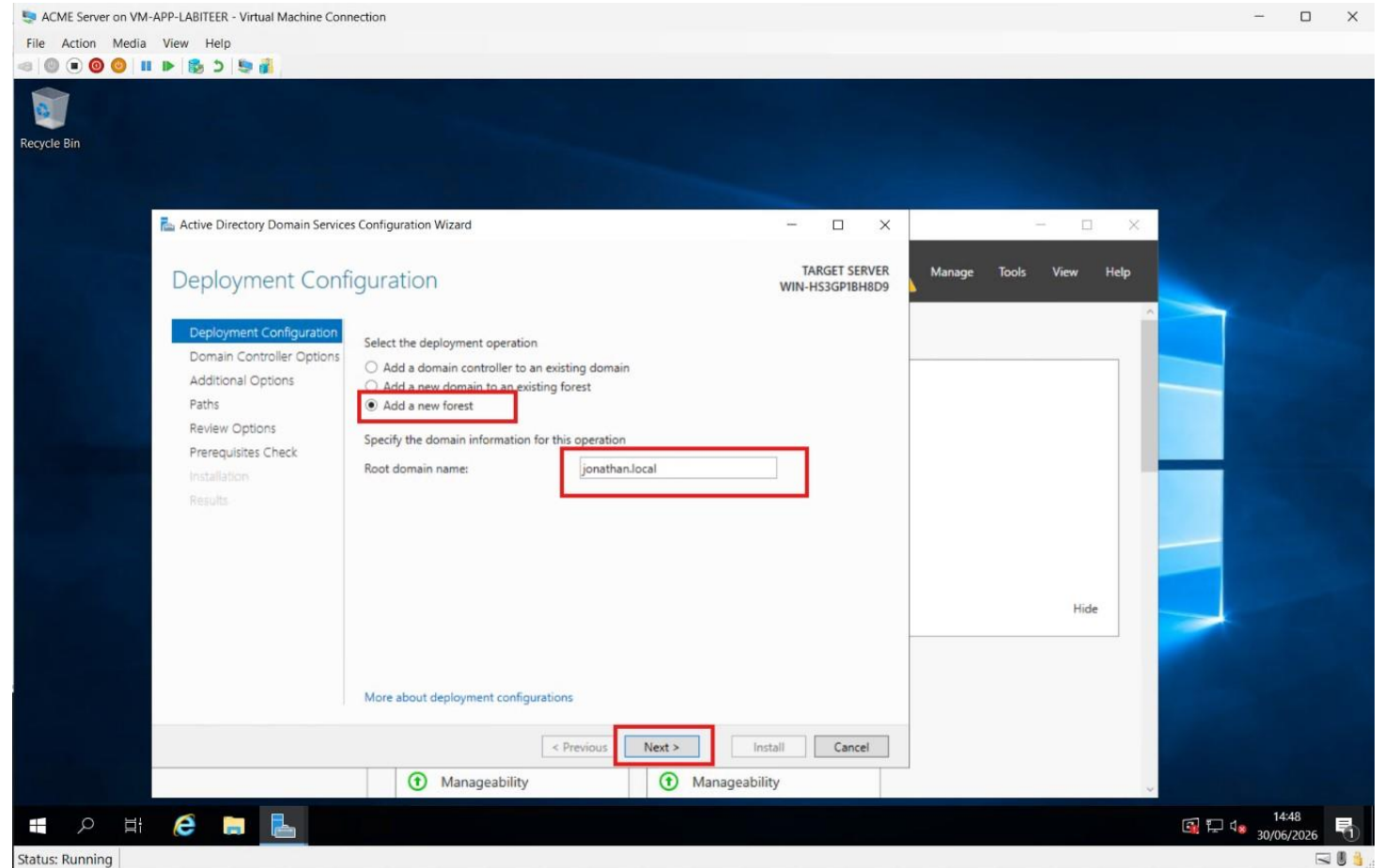
Promoting the Server.

- Back at the “Server Manager Dashboard” we now click on “Promote this server to a domain controller”.



Deployment Configuration.

- We now select “Add a new forest”. Then at the “Root domain name” for this task I used my first name followed by “. local”. “jonathan.local”. We then press “Next”.





Why this Configuration?



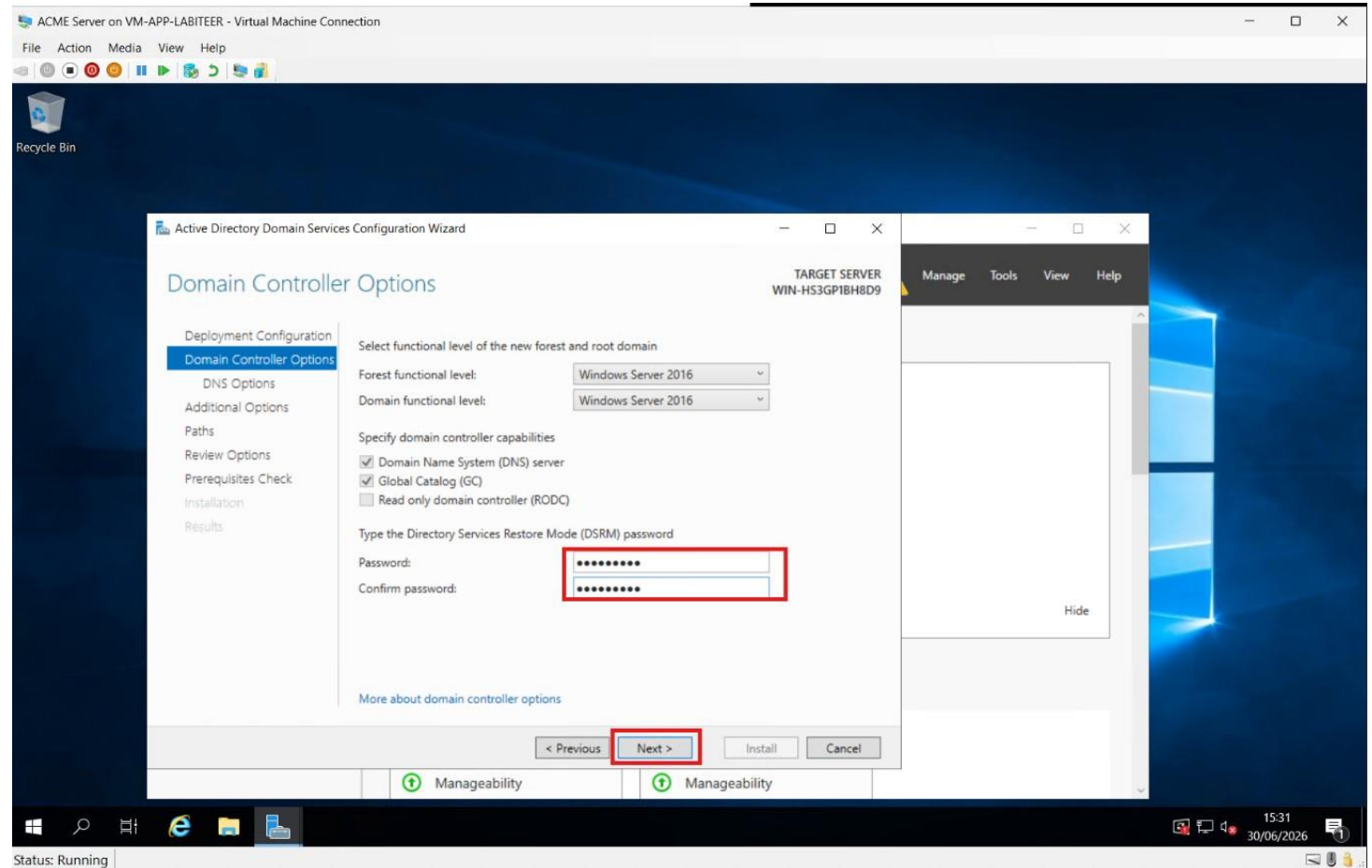
We have gone with the “.local” because we do not have a registered company domain name, and we are then not integrating it with the online services.

We have also selected add a new forest because this is the very first domain controller. This then means it is the root of the forest. In the server domains we get forest, then trees and at the end we get domains.



Domain Controller Options.

- At the “Domain Controller Options” we go to the section “Type the Directory Services Restore Mode (DSRM) password” and create our new password. We then need to rekey that password into the “confirm password”, then press “Next”.





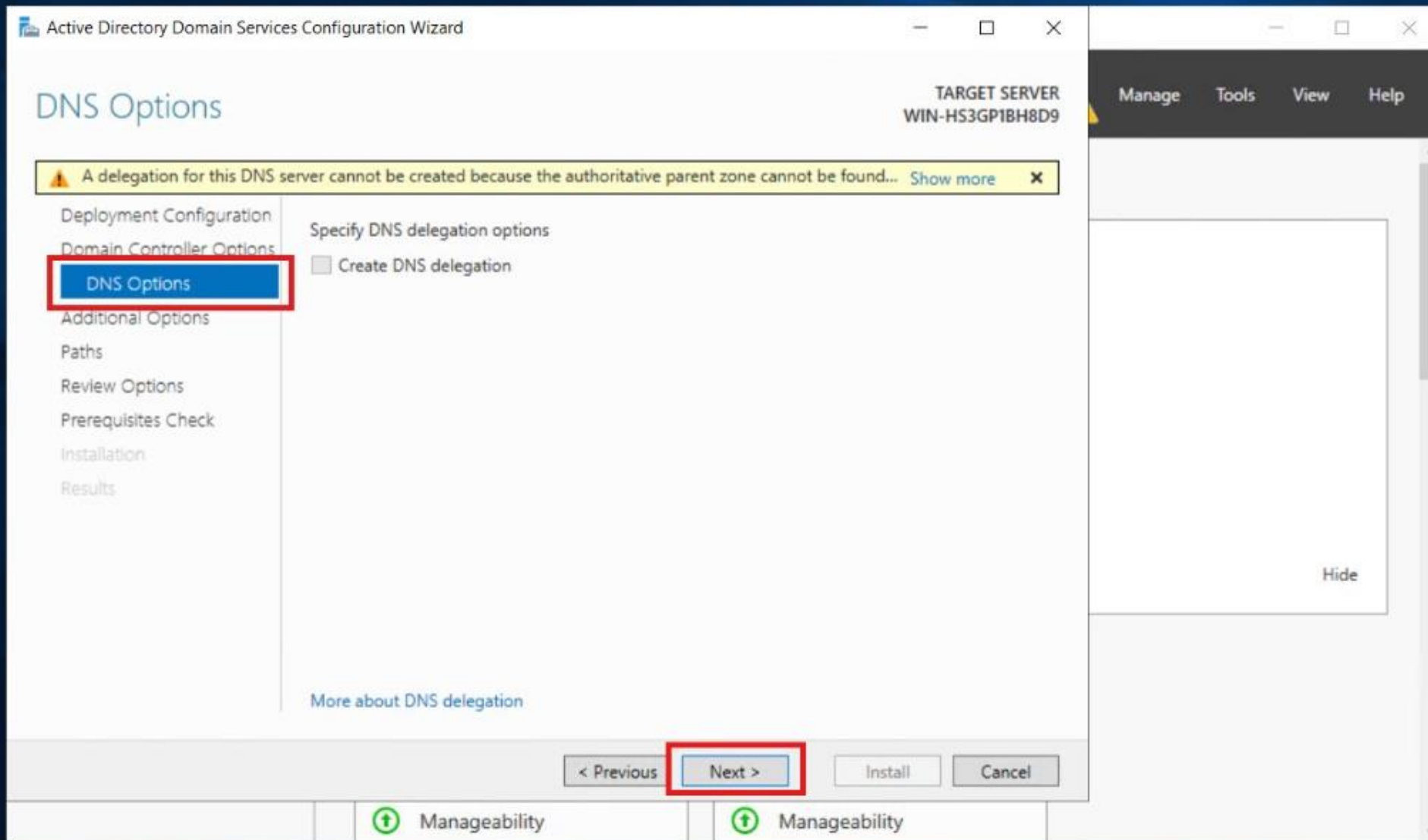
What is a (DSRM) Password?
And what does it do?

The password we have created is for the Directory Services Restore Mode administrator account. This password is setup when a Domain Controller is initially prompted, and the password never expires. Basically, it allows the administrator a backdoor into the database if something has gone wrong.



We will now select all defaults in the remaining part of the wizard by selecting “Next”.





Active Directory Domain Services Configuration Wizard

Additional Options

TARGET SERVER
WIN-HS3GP1BH8D9

ManageToolsViewHelp

Hide

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: JONATHAN

More about additional options

< Previous

Next >

Install

Cancel

Manageability

Manageability

Active Directory Domain Services Configuration Wizard

Paths

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

...

TARGET SERVER
WIN-HS3GP1BH8D9

Manage

Tools

View

Help

Hide

< Previous

Next >

Install

Cancel

Manageability

Manageability

Status: Running

15:45
30/06/2026



Recycle Bin

Active Directory Domain Services Configuration Wizard

Review Options

TARGET SERVER
WIN-HS3GP1BH8D9

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 "jonathan.local". This is also the name of the new forest.

The NetBIOS name of the domain: JONATHAN

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

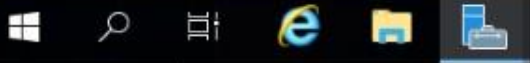
Cancel

Manageability

Manageability

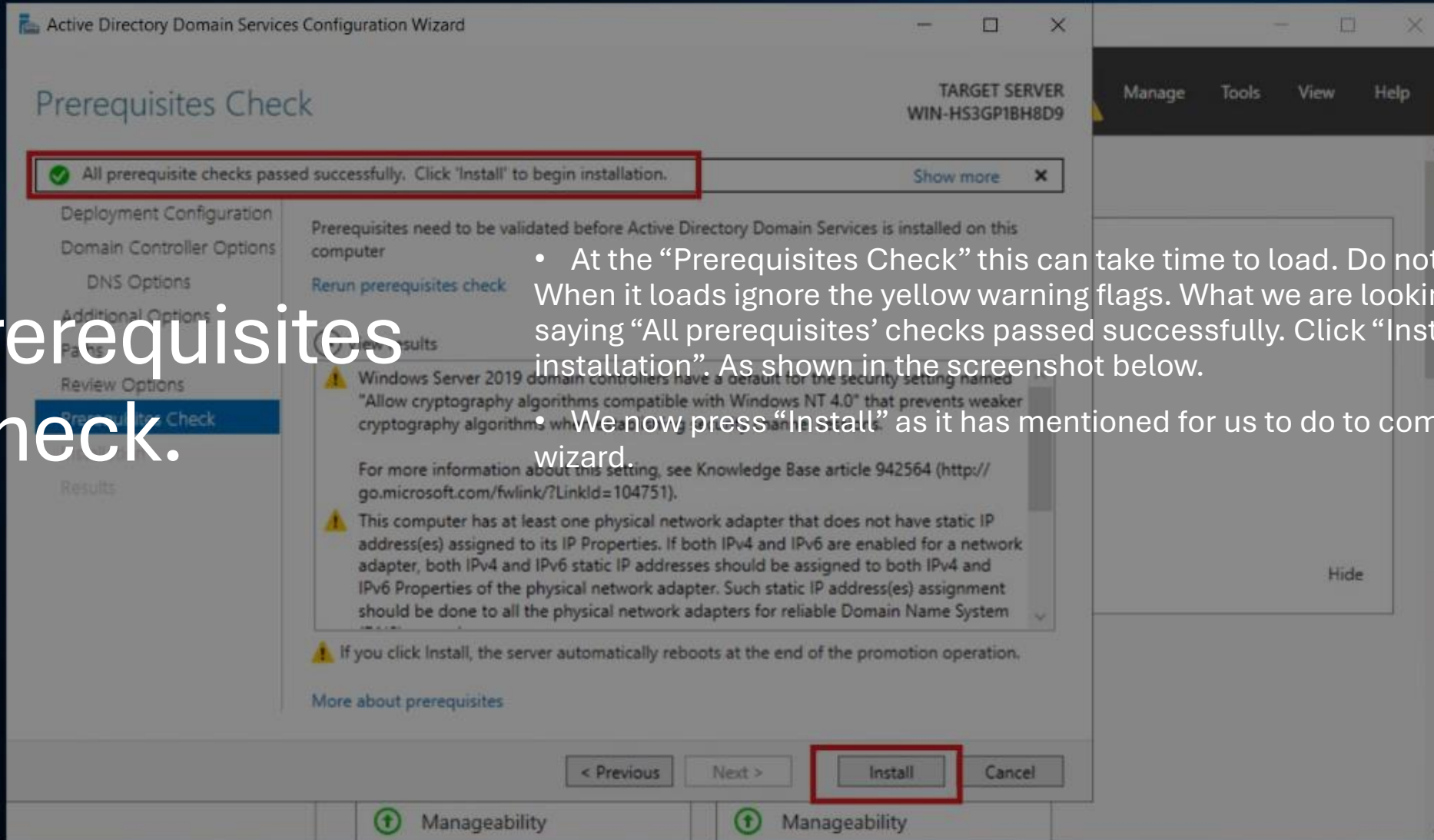
Manage Tools View Help

Hide

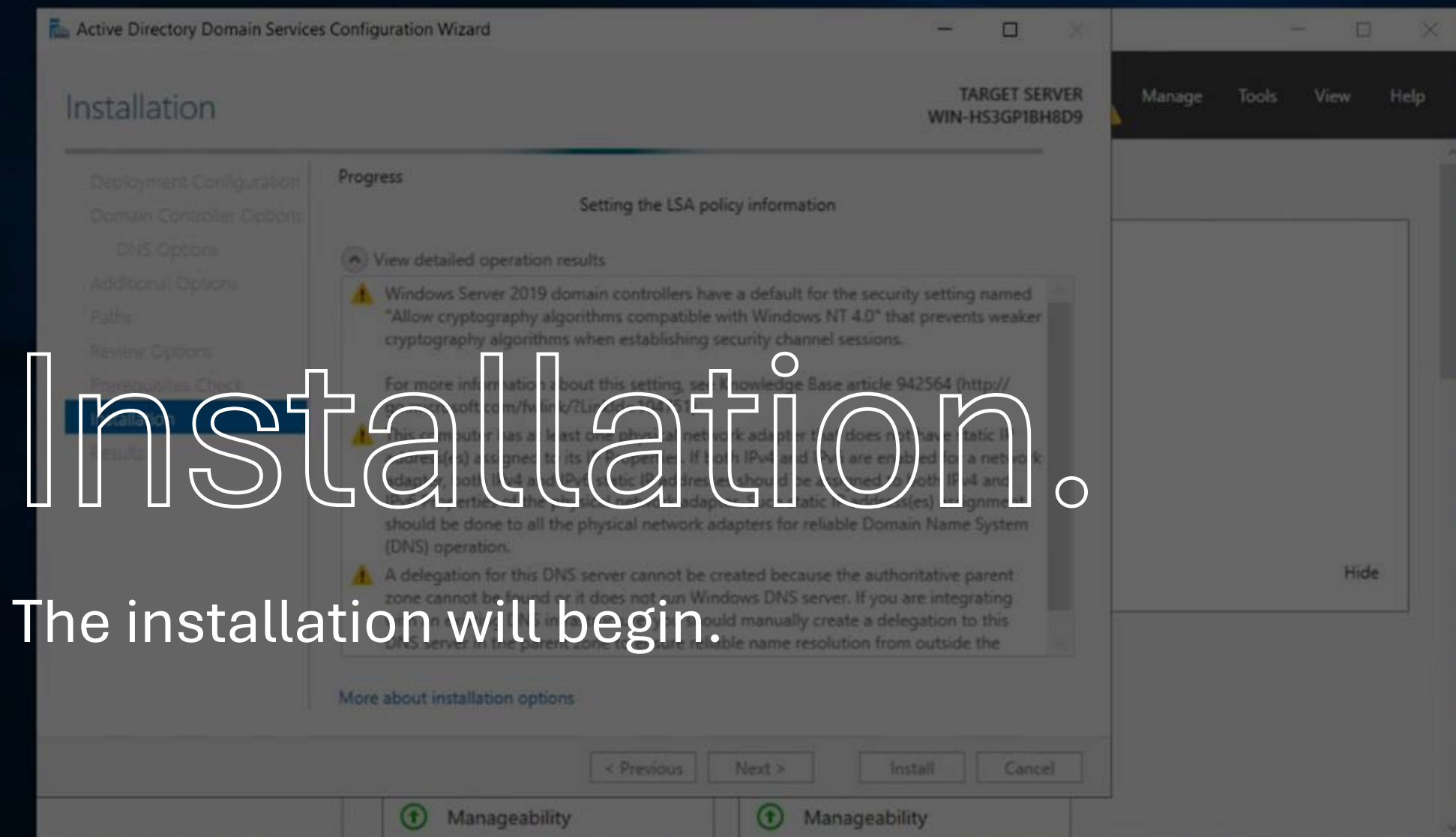


Status: Running

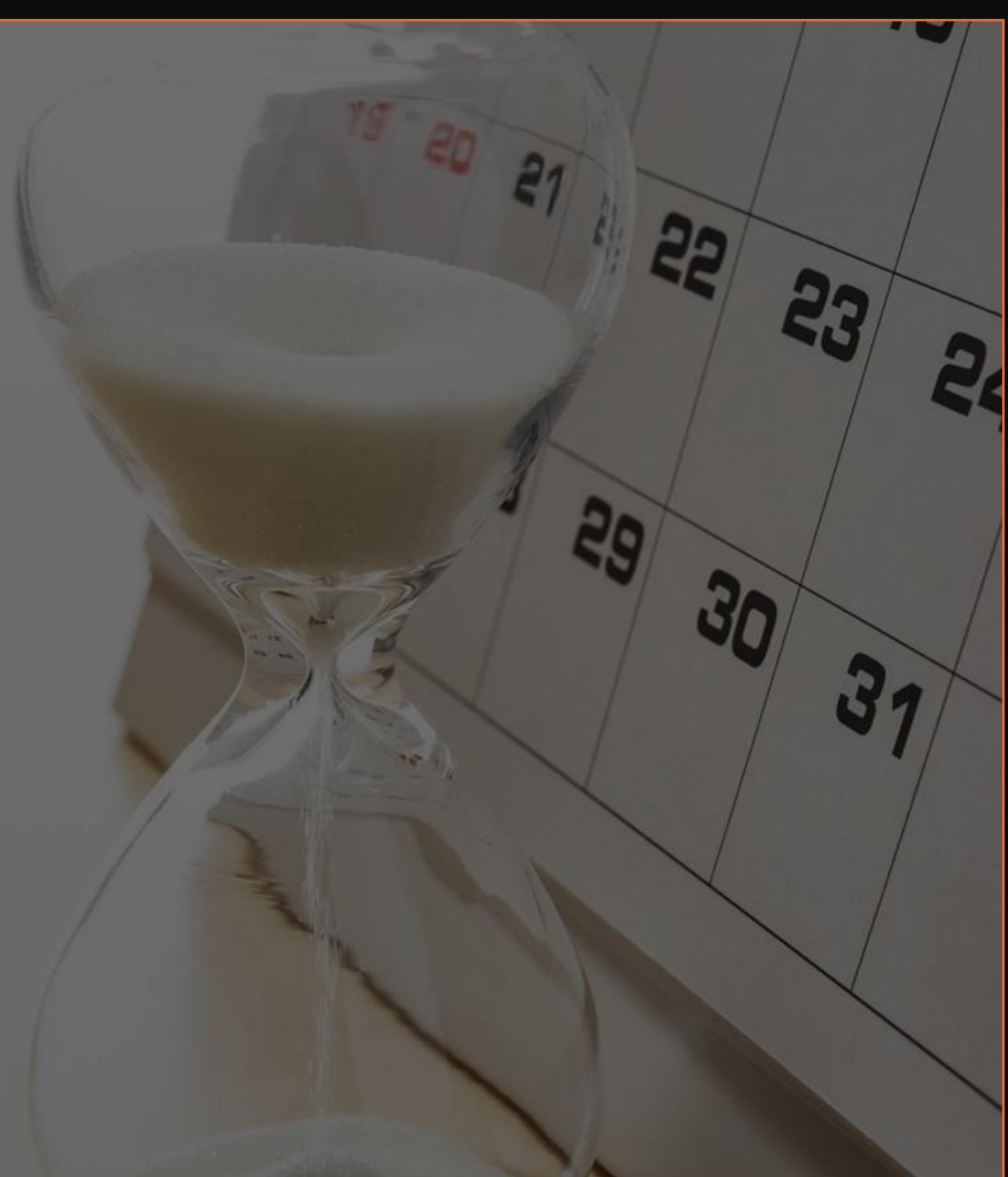
Prerequisites Check.



- At the “Prerequisites Check” this can take time to load. Do not worry. When it loads ignore the yellow warning flags. What we are looking for is it saying “All prerequisites’ checks passed successfully. Click “Install” to begin installation”. As shown in the screenshot below.
- We now press “Install” as it has mentioned for us to do to complete the wizard.

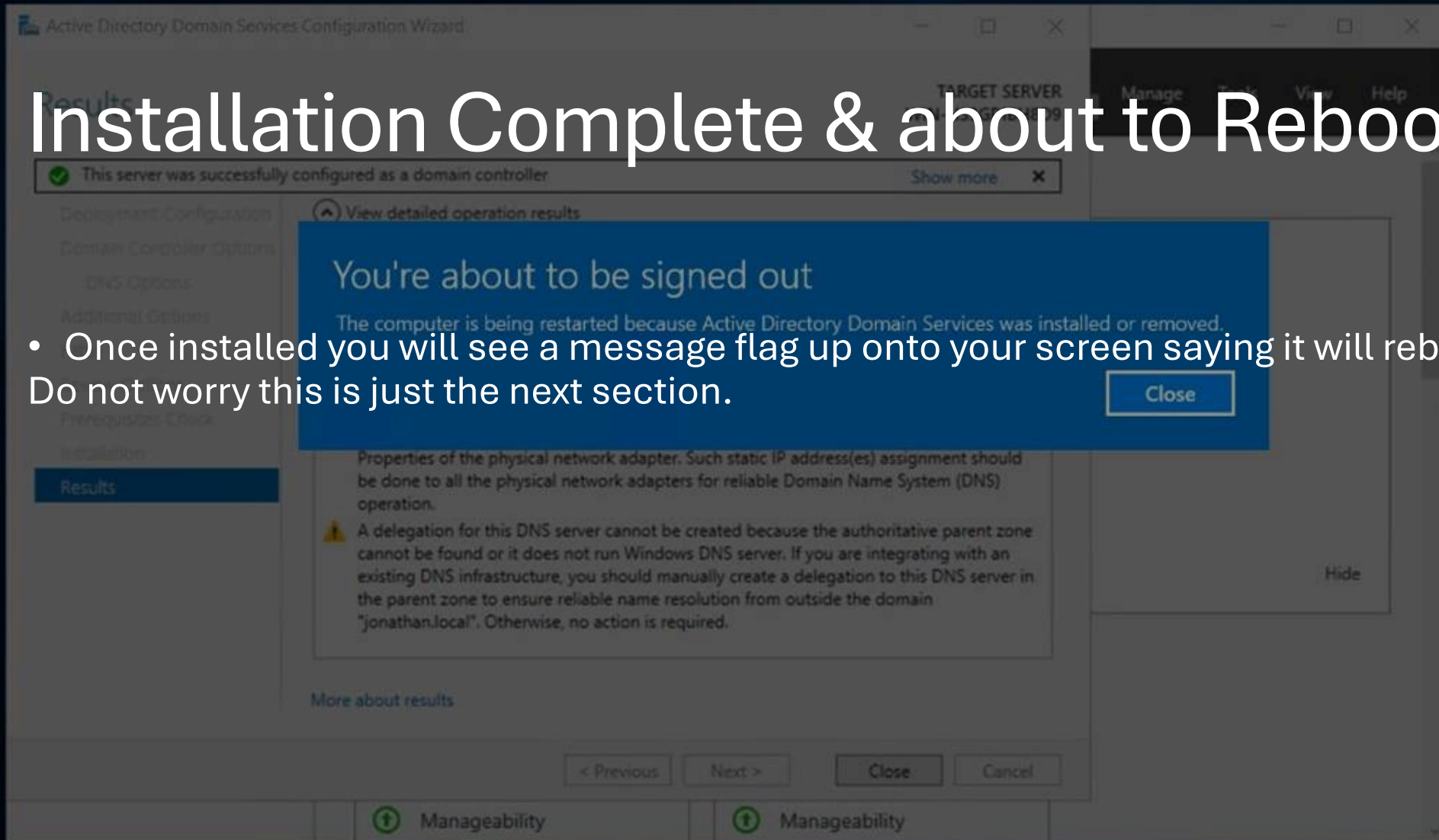


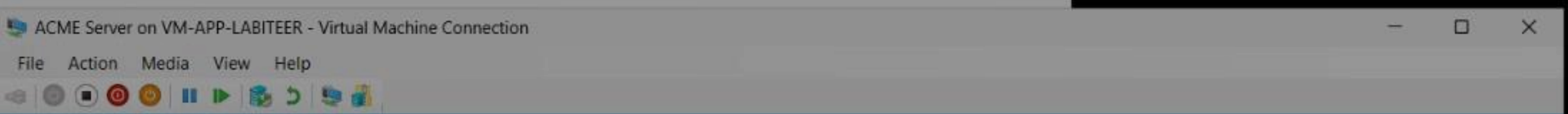
Again, the installation can take a while to complete. So do not worry.



Installation Complete & about to Reboot.

- Once installed you will see a message flag up onto your screen saying it will reboot. Do not worry this is just the next section.





Applying Settings.

- After rebooting it will now start applying computer settings.

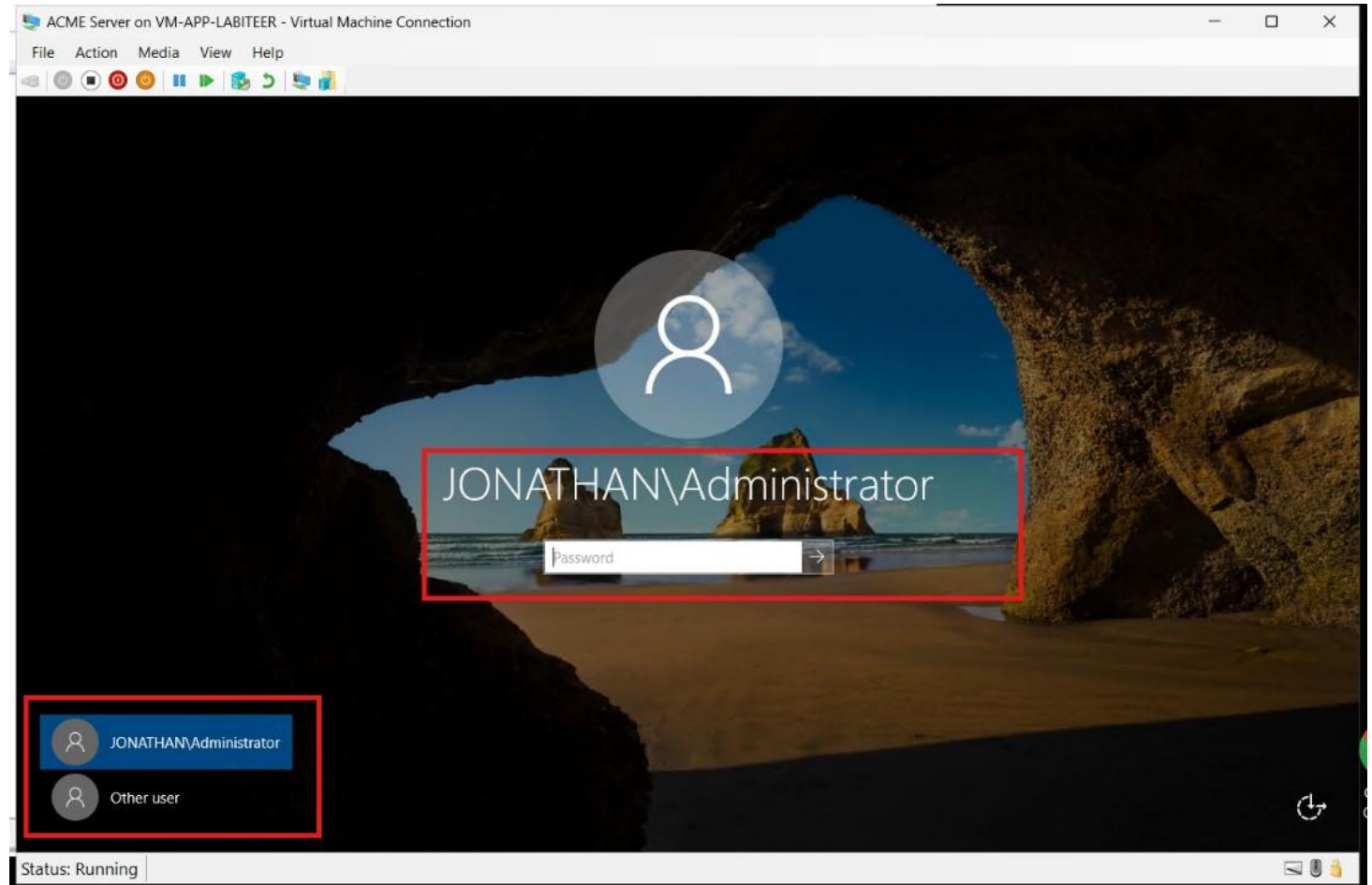
Applying computer settings



End Phase!

Sign in Credentials for Domain Controller.

- Once settings have been applied the login screen will load up. This shows my Domain has now been setup for the server.



Enter Password for Domain Account.

- We now put in our password that we created for the domain account.



JONATHAN\Administrator

A password input field with a white background and a black border. It contains ten black dots representing the password. To the right of the dots is a small eye icon for toggling visibility. The entire input field is enclosed in a red rectangular border.

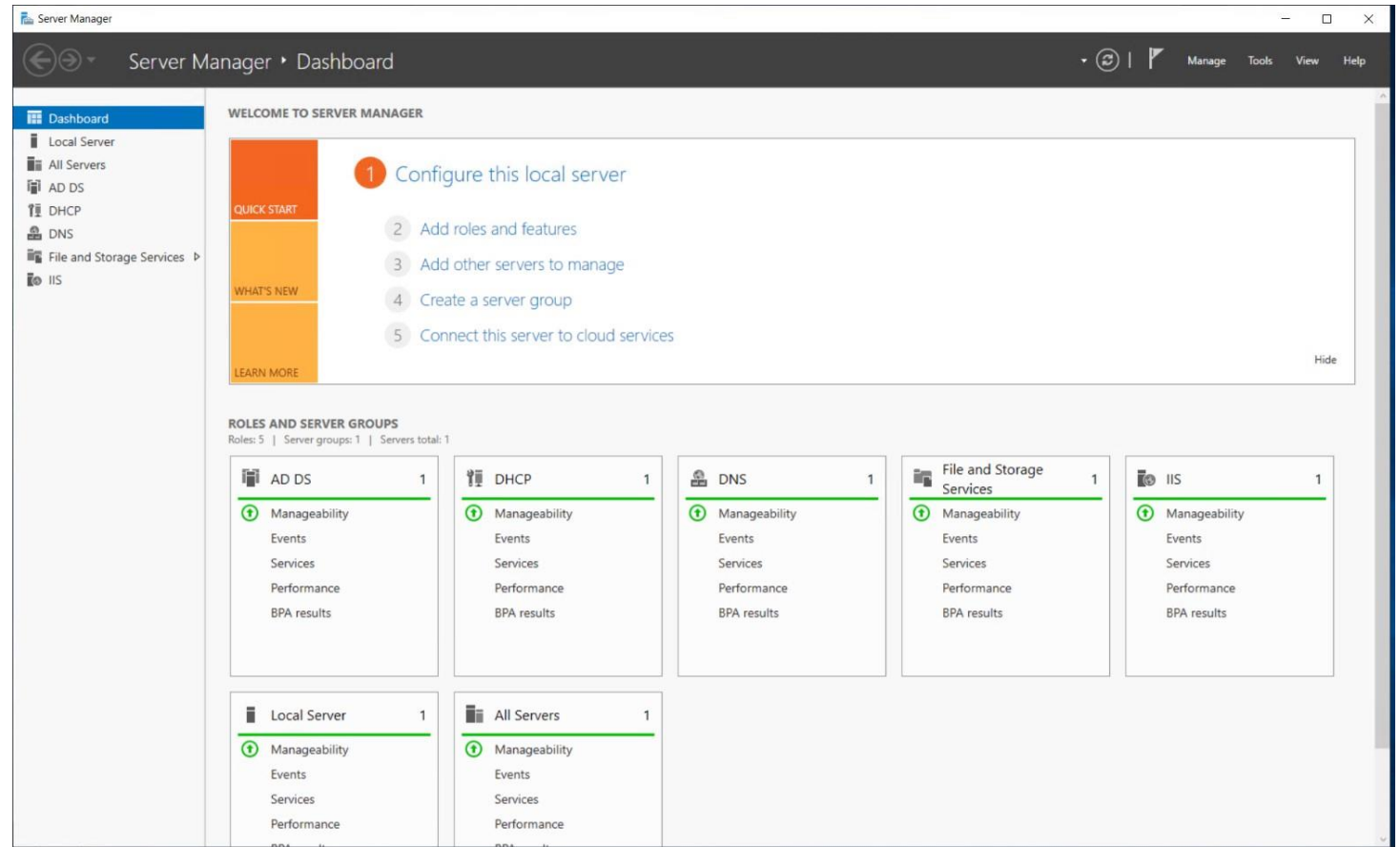


Test!



Testing your Domain Server.

- You can then start to add your client systems to the newly setup domain.



A black and white photograph of a wooden surface, possibly a table or floor, with white chalk markings. The markings include the number '5' and a circle. The wood grain is visible, and the chalk is slightly worn. An orange bar is at the bottom.

End of Task!