0

Lab #3

Setting up A SOHO network

Week #4/5

NACT-262 Fundamentals of System Administration

2025-2026 Fall Semester

Submitted by Jibreal Id-deen

Due by September 28, 2025

Professor Mark Jeremy

Table Of Contents

Table of Figures

Lab #2- IPMI and Microsoft Window Server

OBJECTIVE

As independent working on this, I set up a SOHO LAN with a router and a Windows Server 2019 providing DNS/DHCP on 192.168.2XX.0/24 and deploy IIS on PC1 and PC2, then verify site access and A/PTR DNS lookups from a wired laptop.

NETWORK DIAGRAM

RIT Rochester Institute of Technology

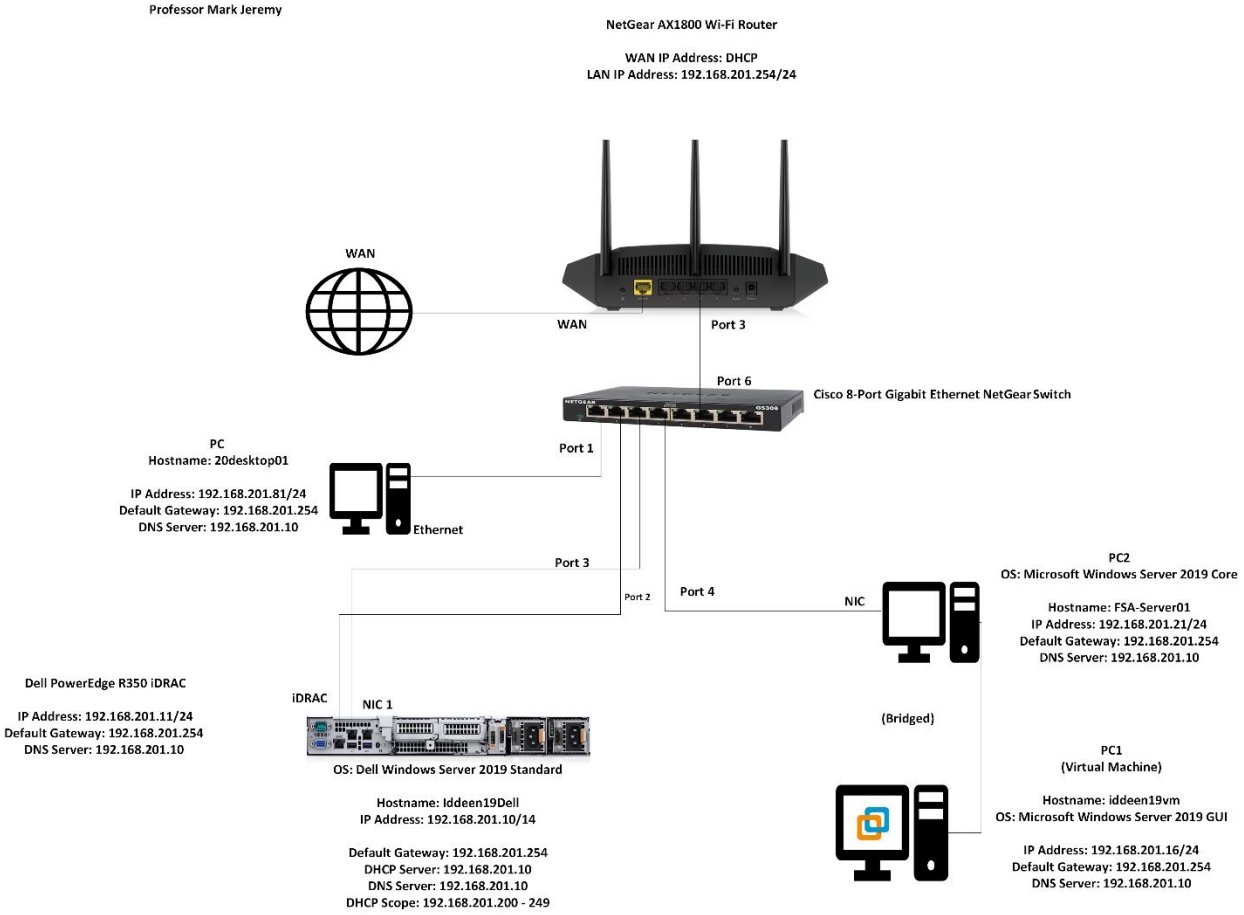
Setting up a SOHO Network

NACT-262 Fundamentals of Systems Administration

September 14, 2025

Jibreal Id-deen

Professor Mark Jeremy



Hostname	Iddeen19Dell
Virtual Machine or Physical?	Physical
Operating System	Windows Server 2019 Standard (GUI)

RAM size	128GB
HD size	4TB
IPMI IP Address (if none – remove line)	192.168.201.11
IPMI Gateway IP address (if none – remove line)	192.168.201.254
Ethernet #1 IP Address (if none – remove line)	192.168.201.10
Ethernet Gateway IP Address (if none – remove line)	192.168.201.254
Primary DNS IP Address (if none – remove line)	192.168.201.10
Network Services (if none – remove line)	DHCP Server, DNS Server

Hostname	iDRAC
Virtual Machine or Physical?	Physical
Operating System	iDRAC9 firmware
RAM size	128GB
HD size	4TB
IPMI IP Address (if none – remove line)	192.168.201.11
IPMI Gateway IP address (if none – remove line)	192.168.201.254
Primary DNS IP Address (if none – remove line)	192.168.201.10
Network Services (if none – remove line)	Remote Management

Hostname	Iddeen19vm
Virtual Machine or Physical?	Virtual Machine (VMware Workstation, Bridged)

Operating System	Windows Server 2019 Standard (GUI)
RAM size	32GB
Ethernet #1 IP Address (if none – remove line)	192.168.201.16
Ethernet Gateway IP Address (if none – remove line)	192.168.201.10
Primary DNS IP Address (if none – remove line)	192.168.201.10
Network Services (if none – remove line)	IIS (custom homepage)

Hostname	FSA-Server01
Virtual Machine or Physical?	Physical
Operating System	Windows Server 2019 Standard Core
RAM size	32GB
HD size	950GB
Ethernet #1 IP Address (if none – remove line)	192.168.201.21
Ethernet Gateway IP Address (if none – remove line)	192.168.201.254
Primary DNS IP Address (if none – remove line)	192.168.201.10
Network Services (if none – remove line)	IIS (custom homepage)

PROCEDURE

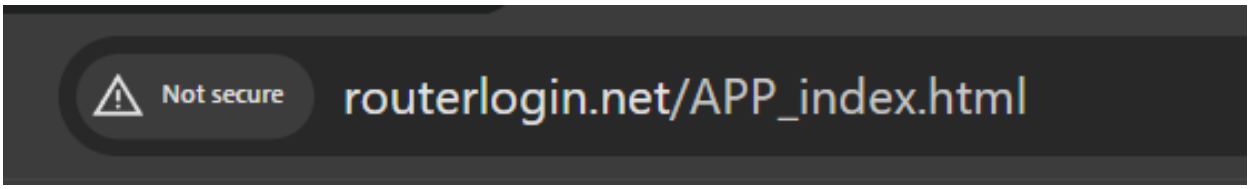


FIGURE 1 - TYPE THE ROUTER'S LOGIN WEBSITE

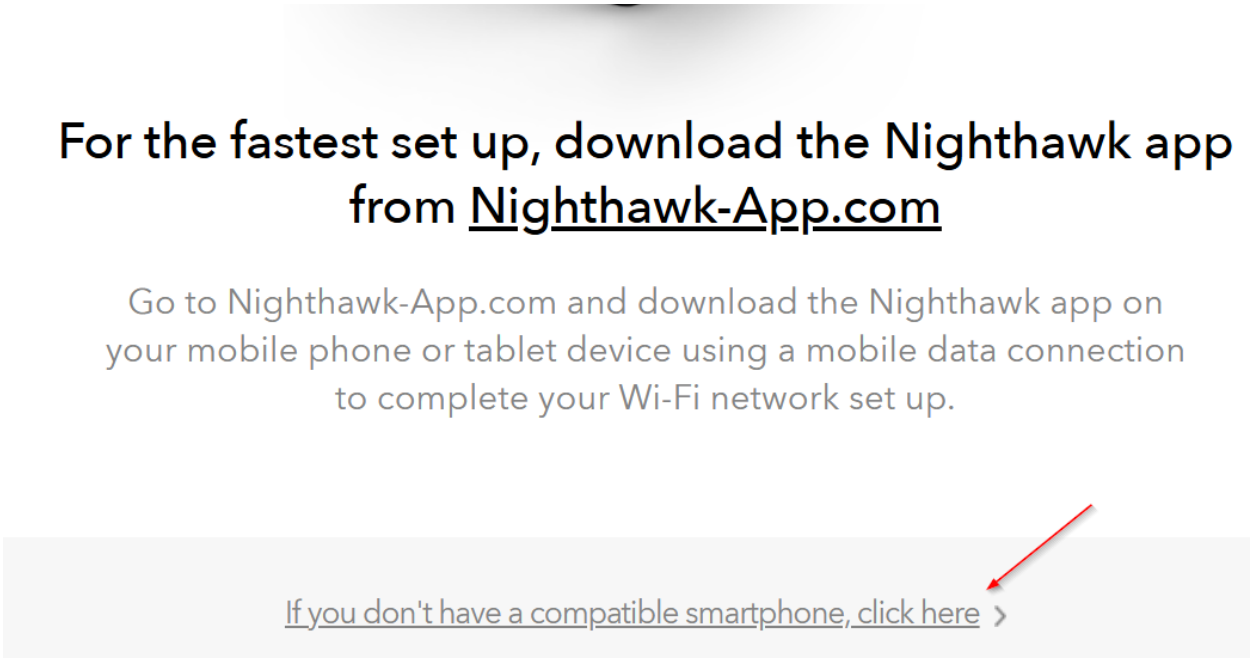


FIGURE 2 - CLICK HERE TO PROCEED

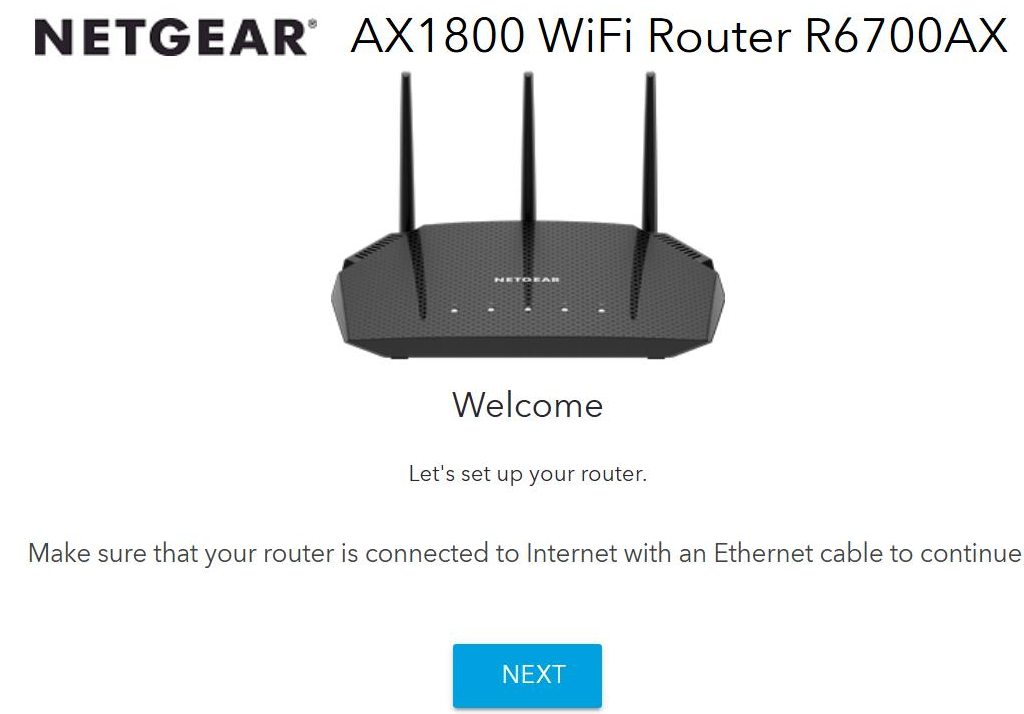


FIGURE 3 - CLICK "NEXT"

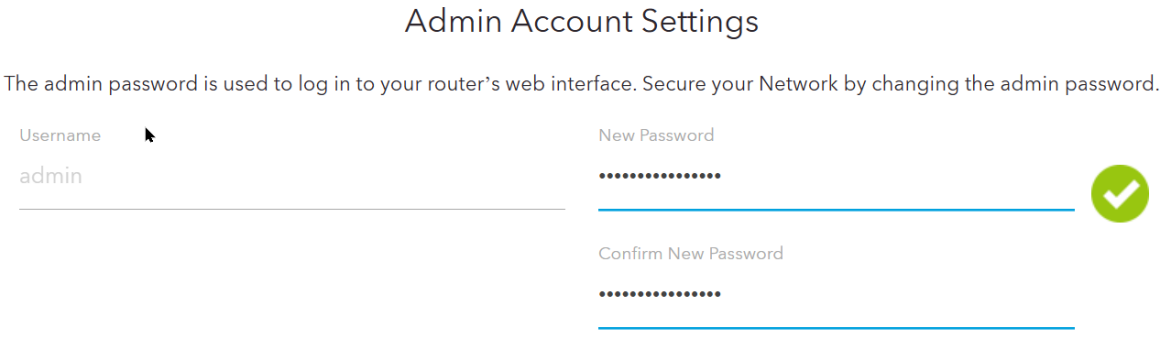


FIGURE 4 - SET THE NEW PASSWORD

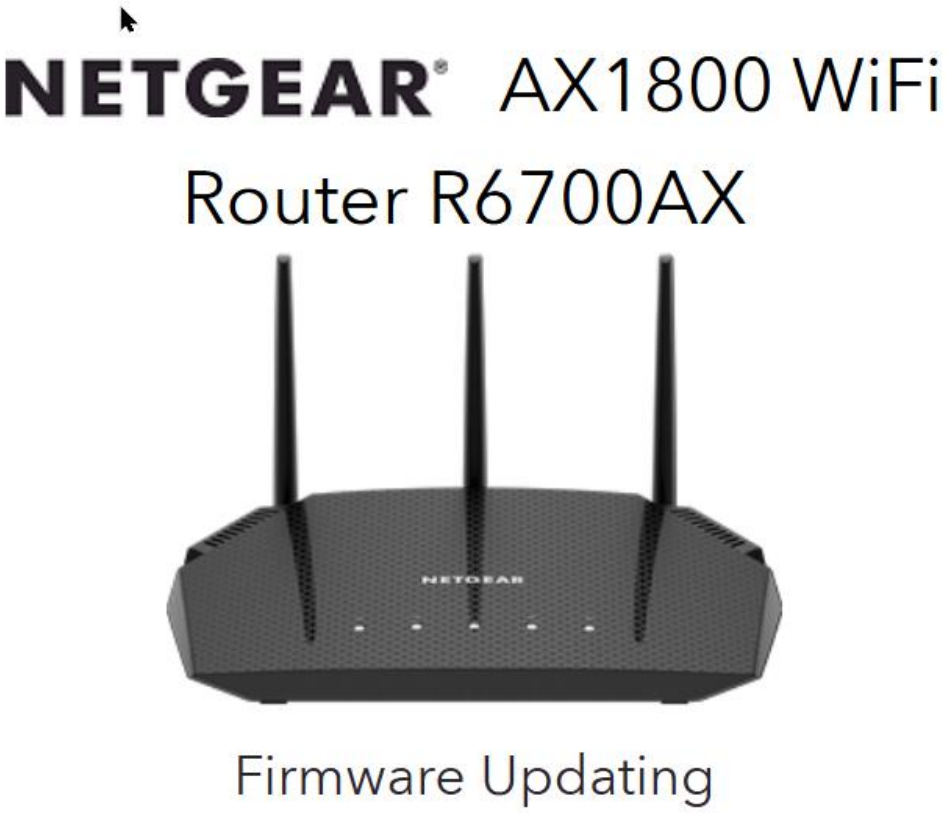


FIGURE 5 - FIRMWARE UPDATING

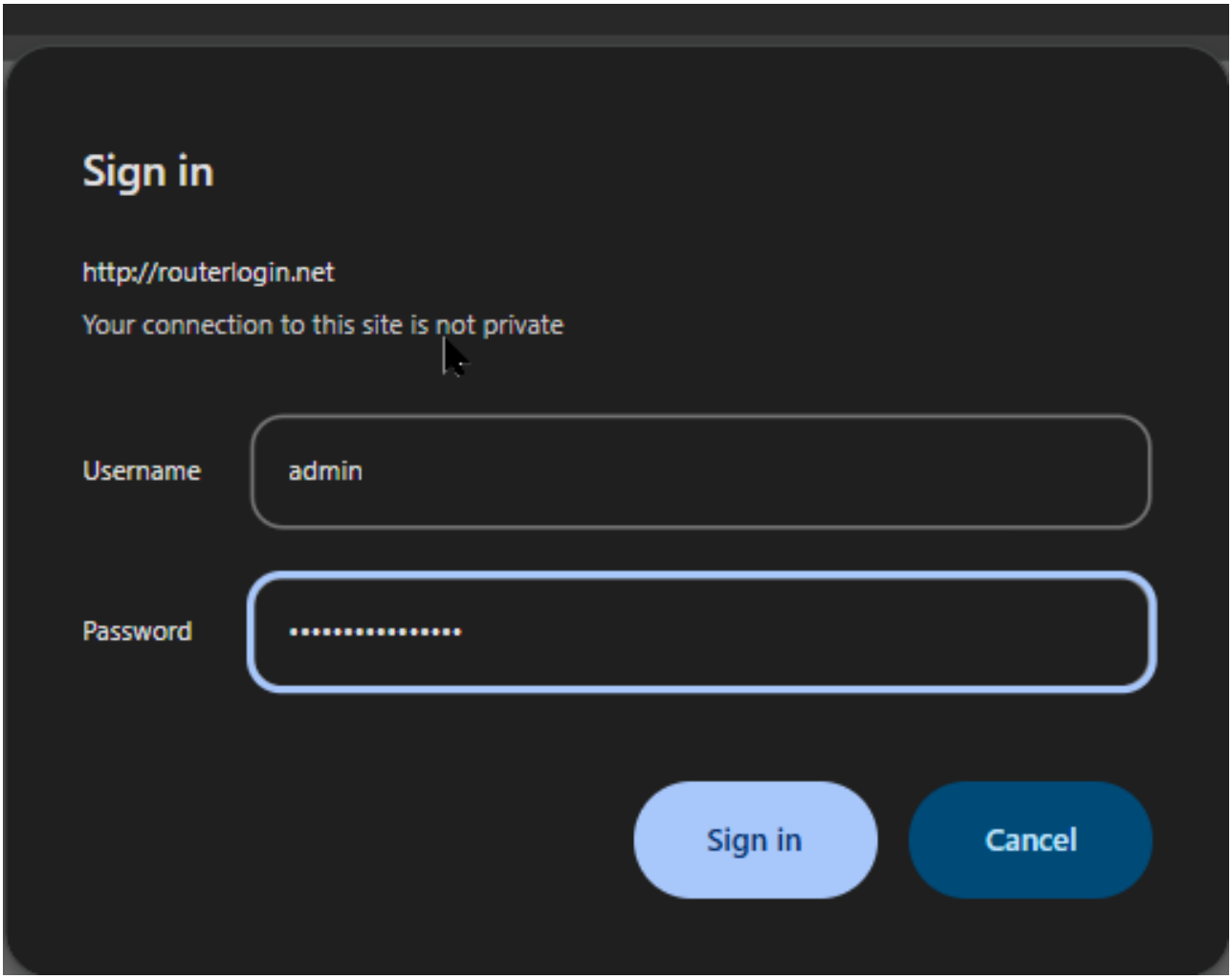


FIGURE 6 - LOG IN THE ROUTER ACCOUNT

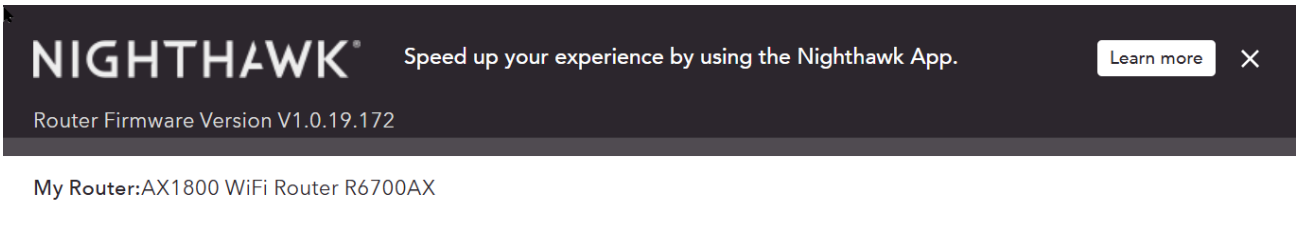


FIGURE 7 - THE OVERVIEW OF THE ROUTER DASHBOARD

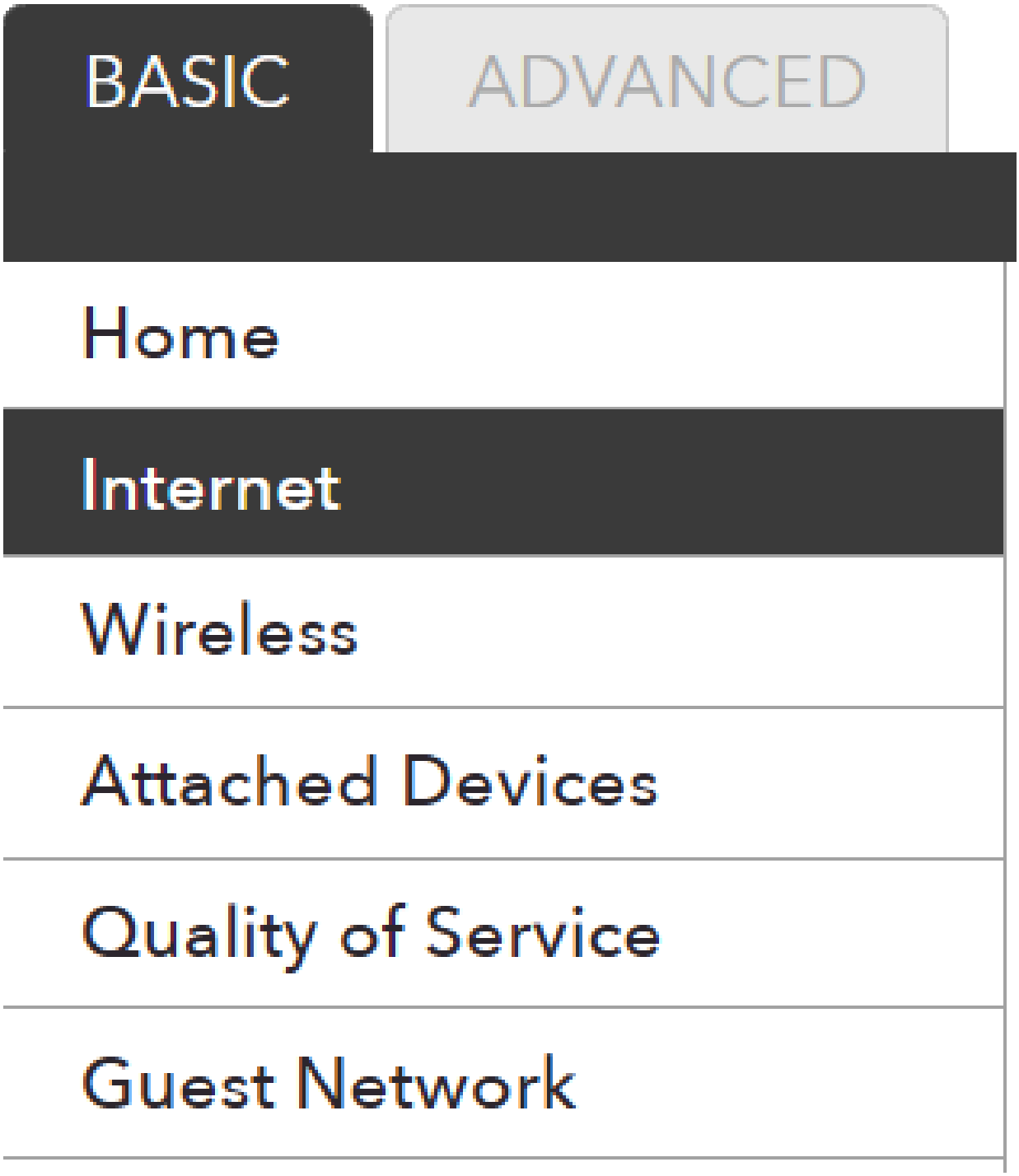


FIGURE 8 - CLICK "BASIC" THEN "INTERNET"

FIGURE 9 - CHECK THE ROUTER'S WAN IP ADDRESS

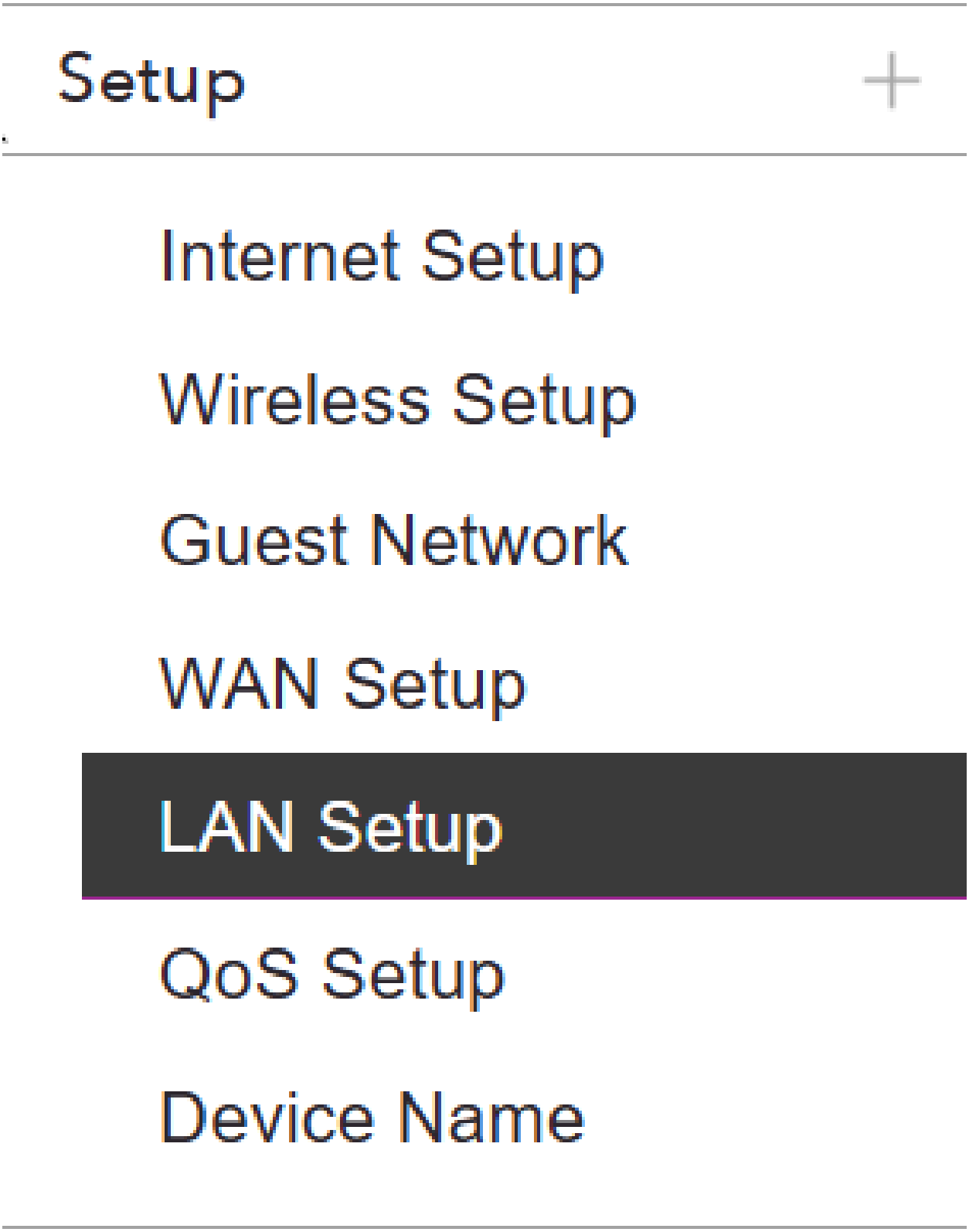


FIGURE 10 - CLICK "LAN SETUP"

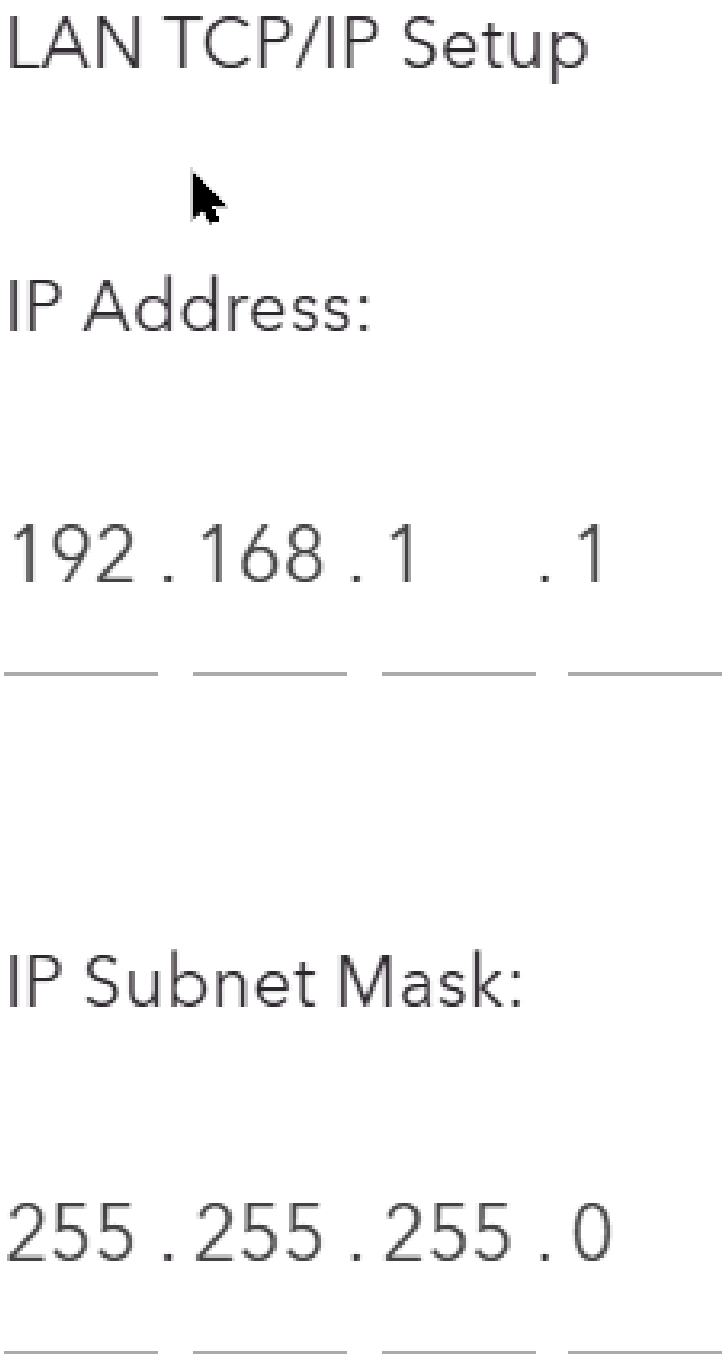


FIGURE 11 - CHECK THE ROUTER'S LAN IP TO CHANGE

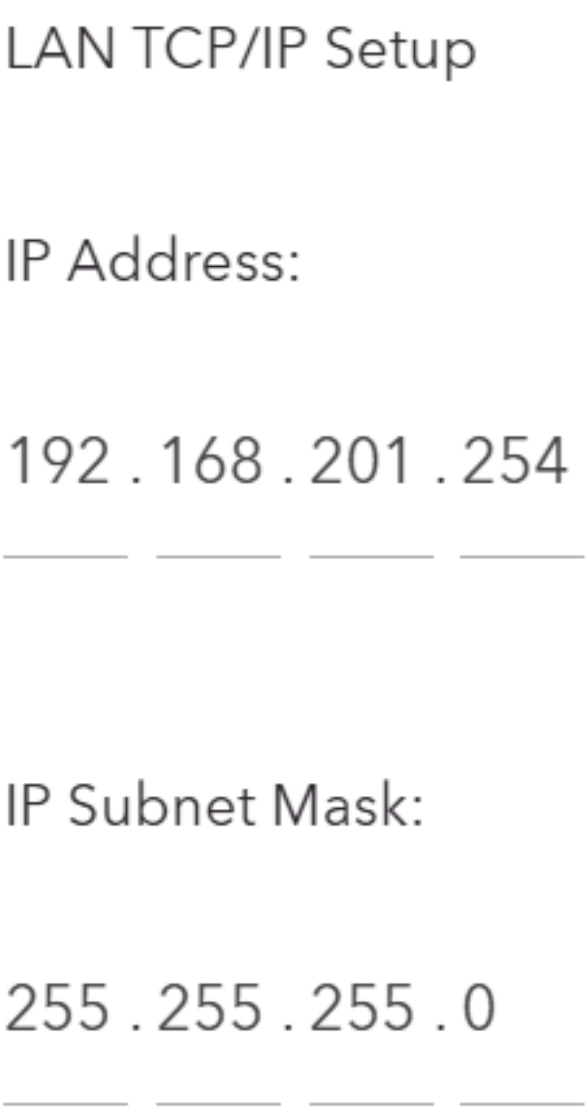


FIGURE 12 - DONE CHANGING THE LAN IP ADDRESS

FIGURE 13 - DISABLE THE DHCP SERVER

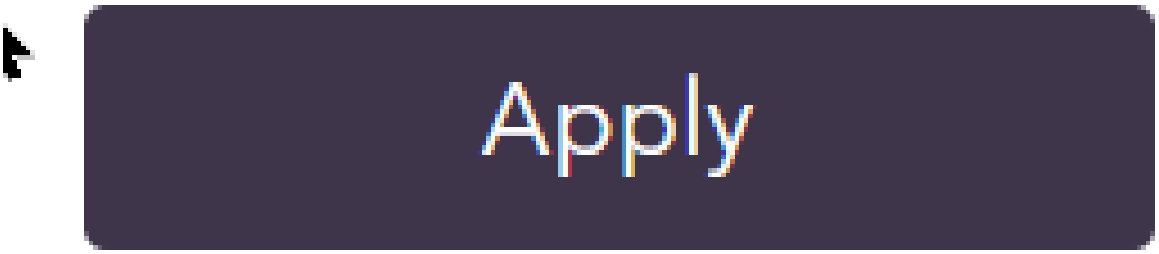


FIGURE 14 - APPLY IT

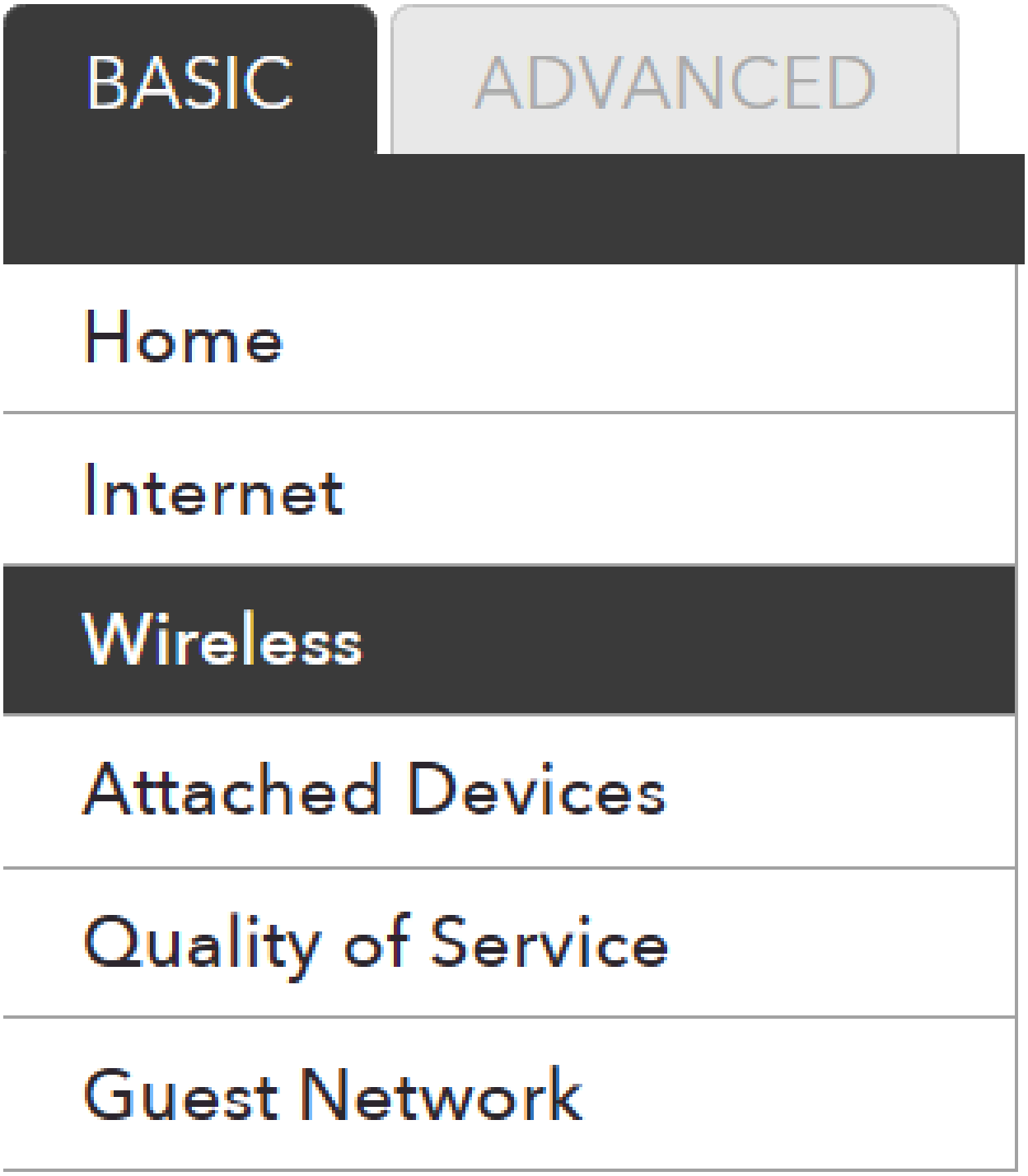


FIGURE 15 - CLICK "WIRELESS"

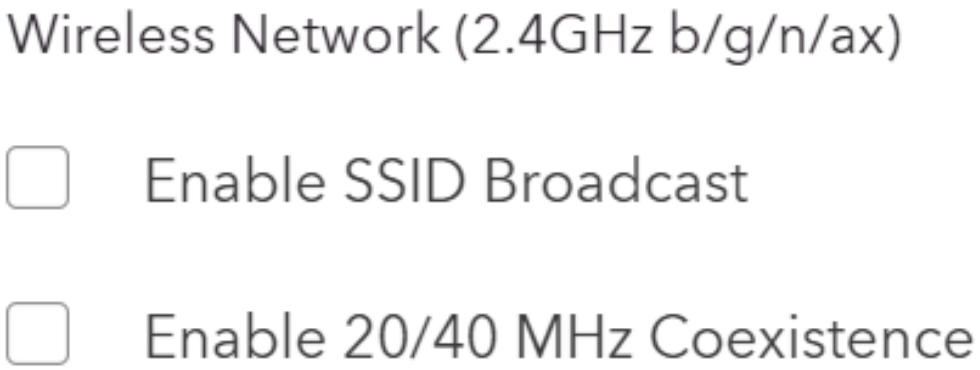


FIGURE 16 - DISABLE WI-FI (2.4GHZ)

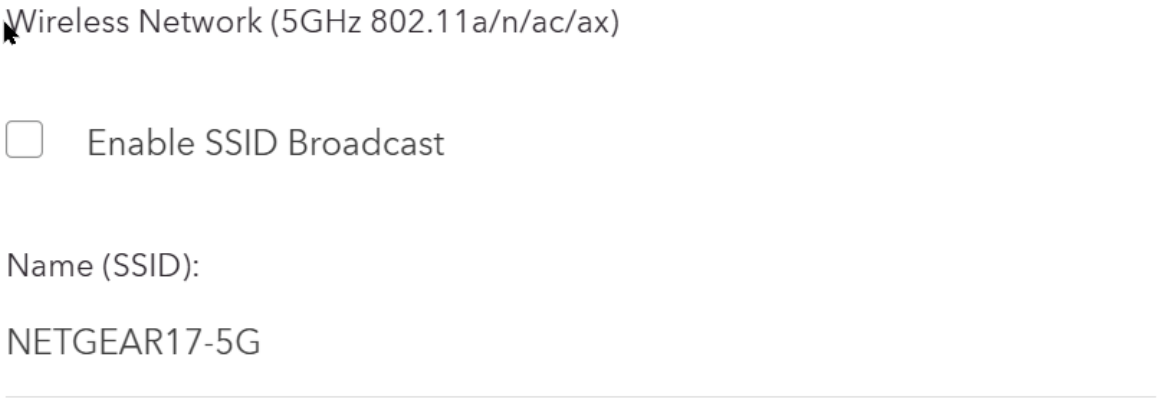


FIGURE 17 - DISABLE WI-FI (5GHZ)

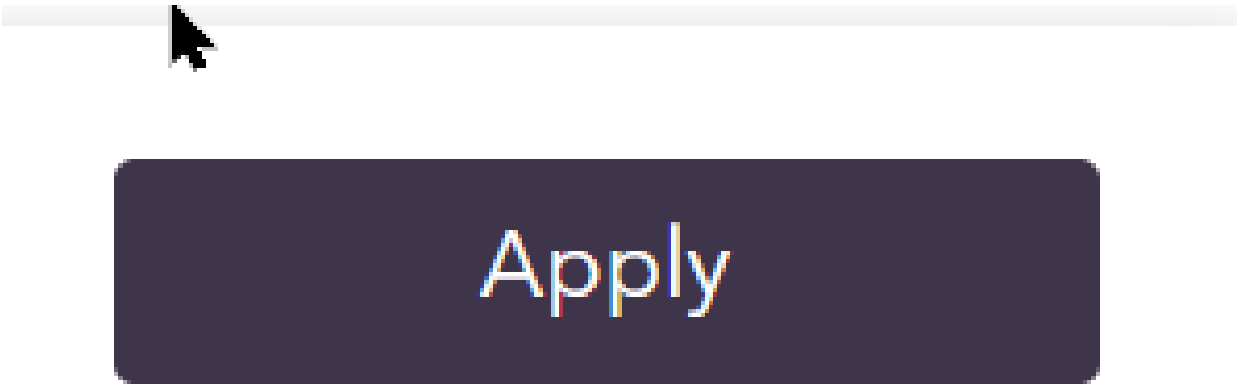


FIGURE 18 - APPLY IT

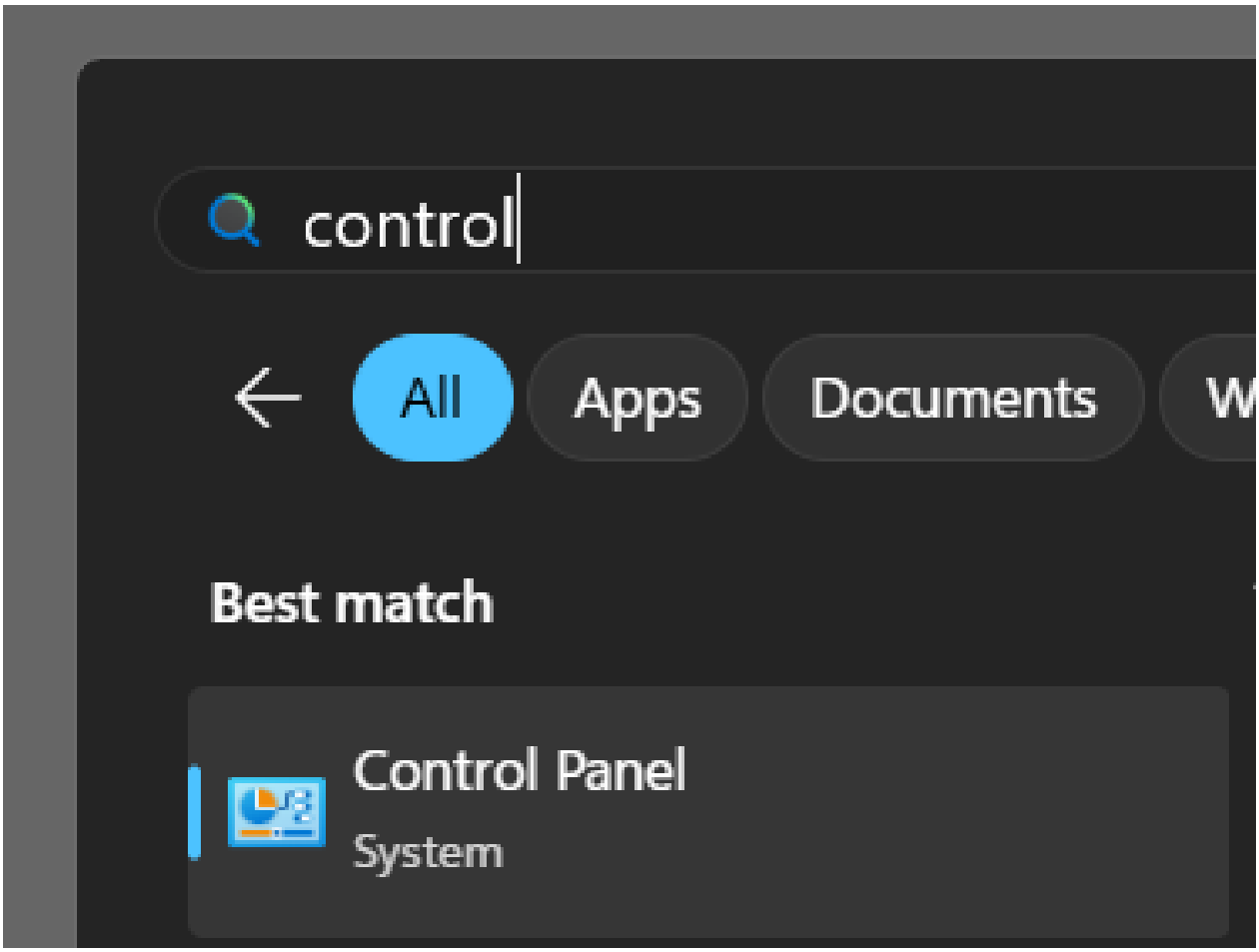


FIGURE 19 - TYPE "CONTROL PANEL" TO ENTER

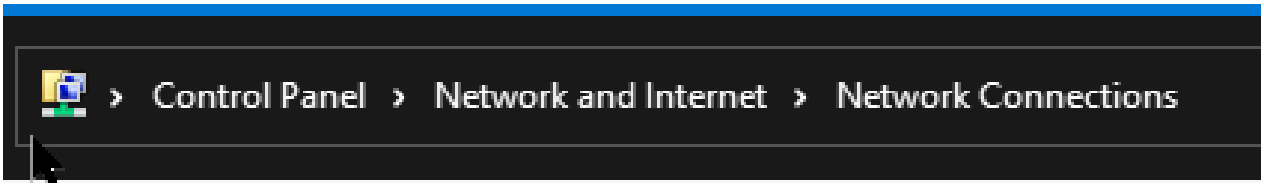


FIGURE 20 - FOLLOW THE PROCESS TO NETWORK CONNECTIONS

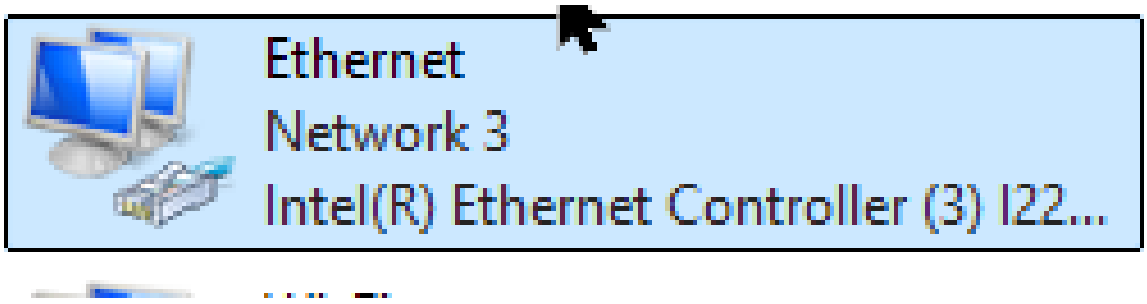


FIGURE 21 - CLICK THIS "ETHERNET"

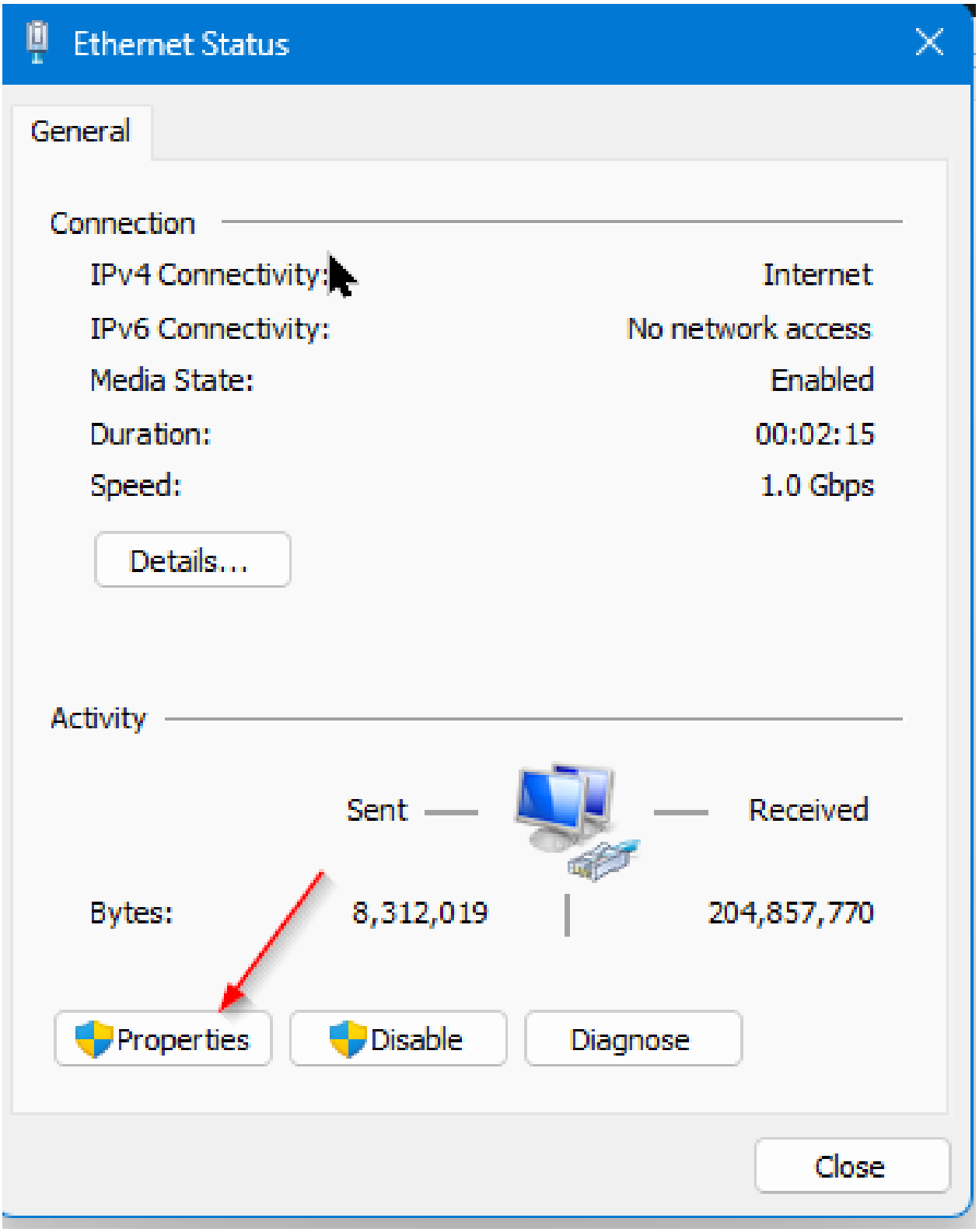


FIGURE 22 - CLICK "PROPERTIES"

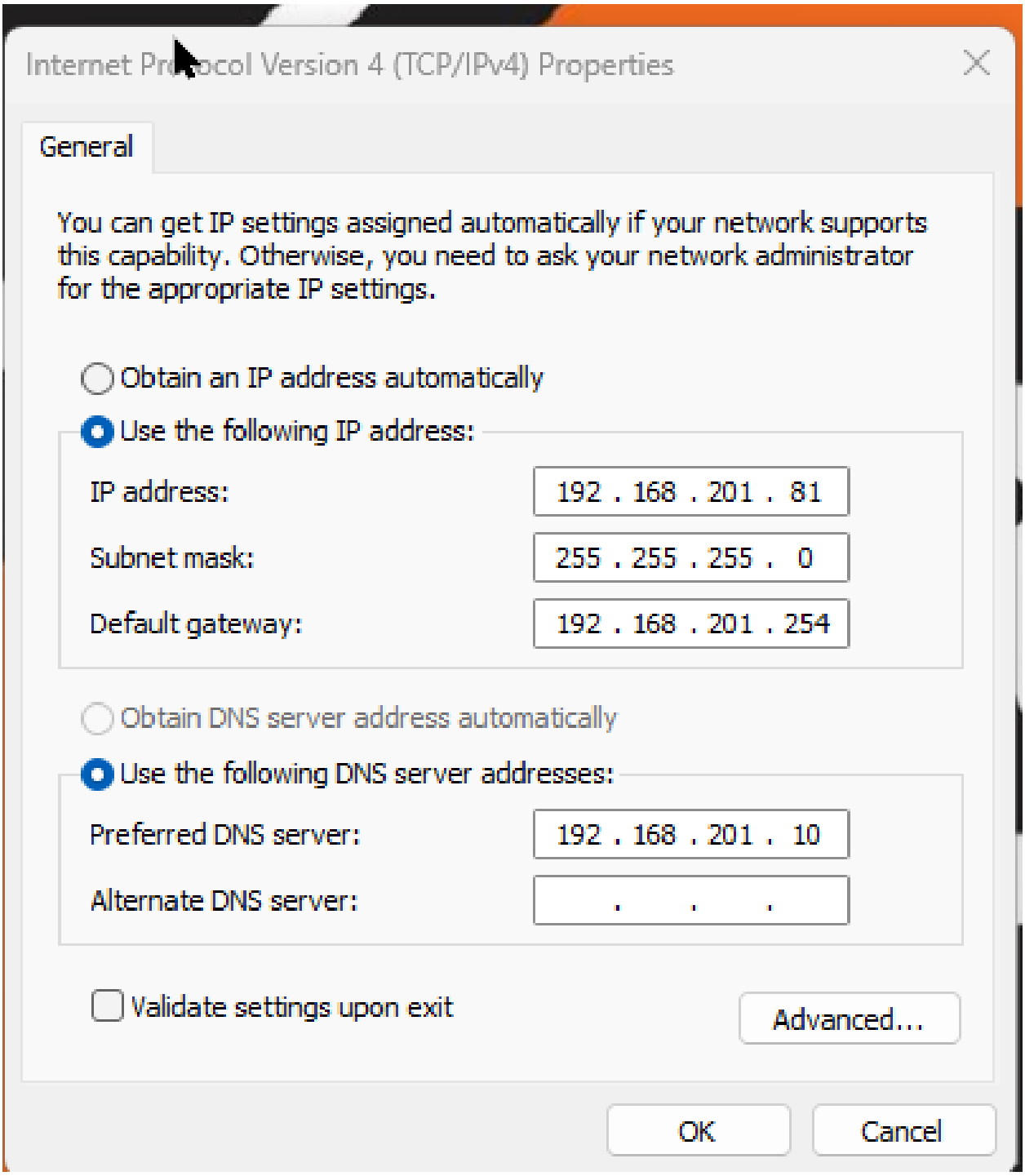


FIGURE 23 - PUT THE MANUALLY IP ADDRESS AND THE REQUIRED STUFFS ON IT

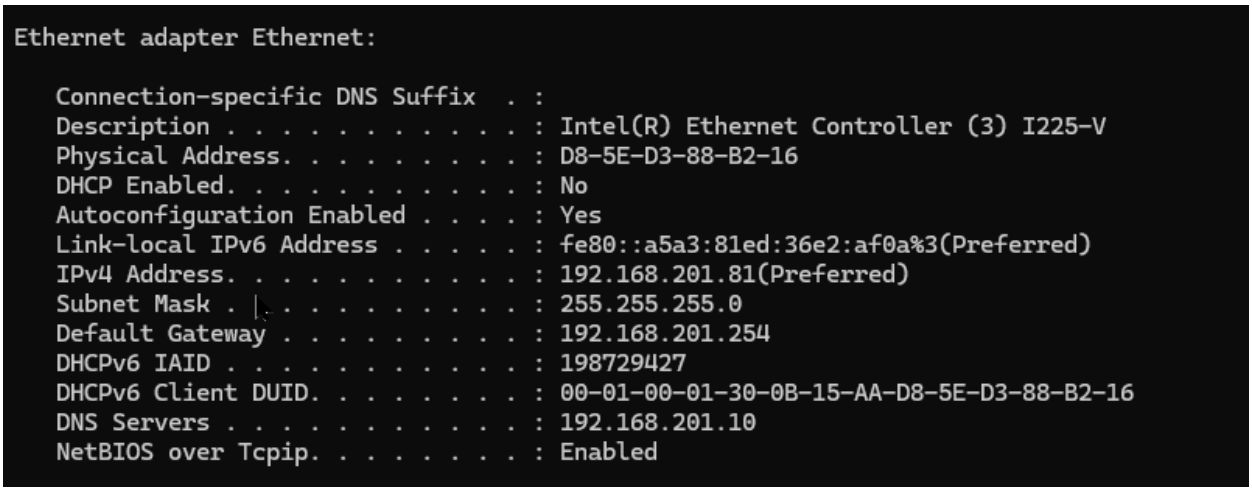


FIGURE 24 - TYPE "IPCONFIG" ON DESKTOP PC AND SEE THE REST OF THE ETHERNET ADAPTER

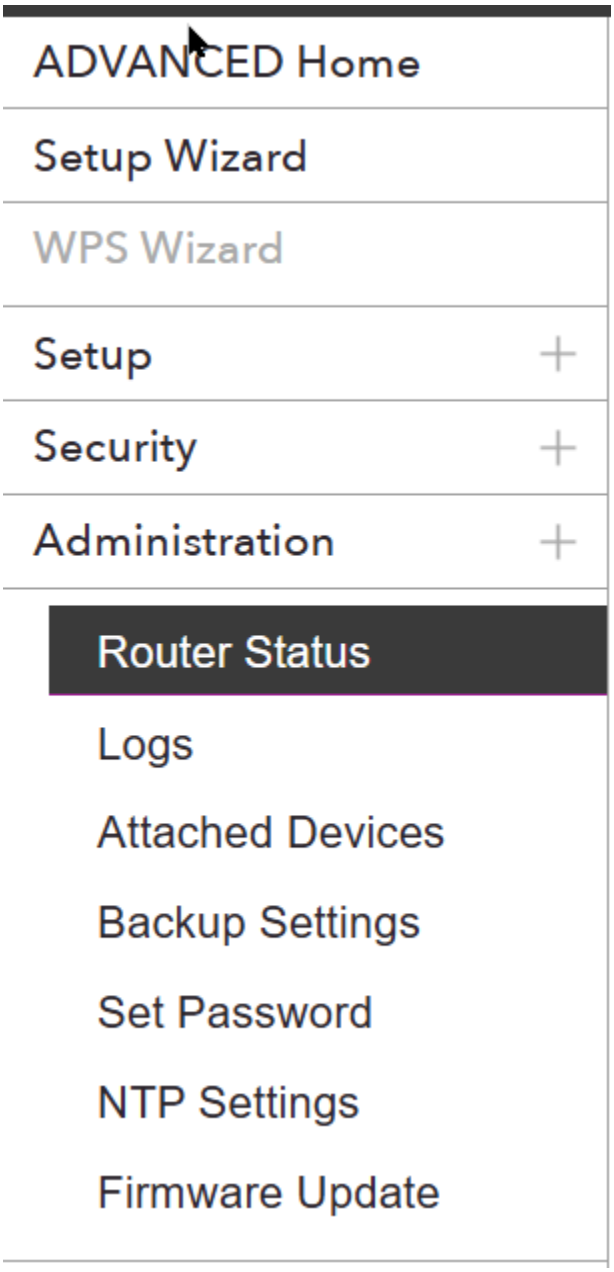


FIGURE 25 - CLICK "ROUTER STATUS" THEN CLICK "SET PASSWORD"

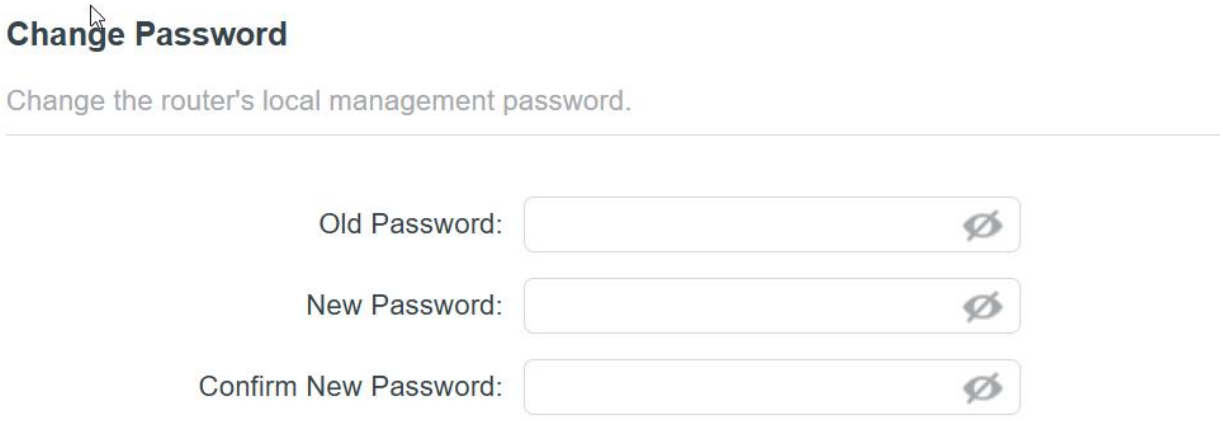


FIGURE 26 - SET NEW PASSWORD AND CONFIRM IT

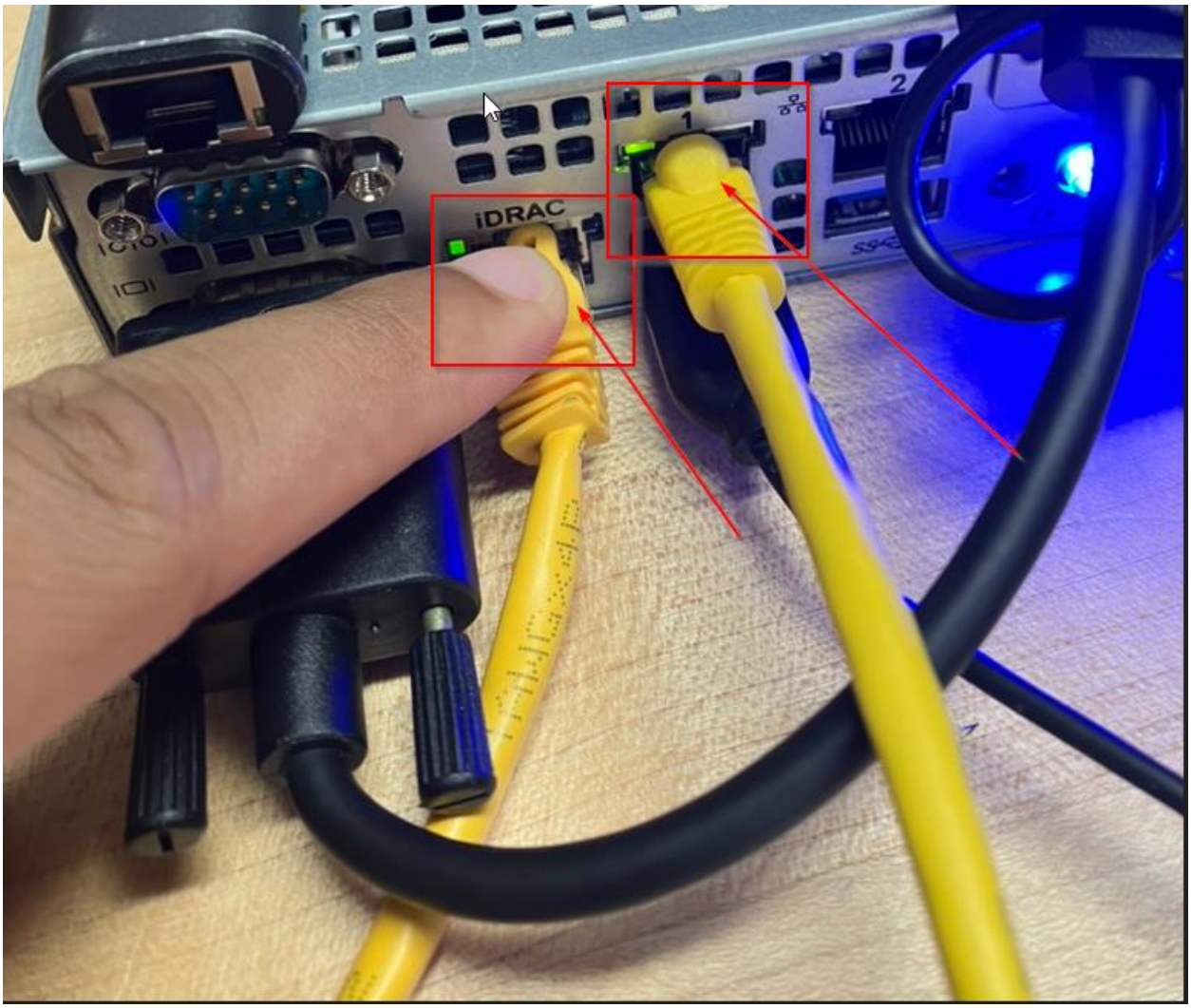


FIGURE 27 - CONNECT TO IDRAC AND NIC 1 WITH ETHERNET FROM THE ROUTER

FIGURE 28 - MAKE SURE TO REMEMBER THE BENCH NUMBER FOR IP ADDRESS

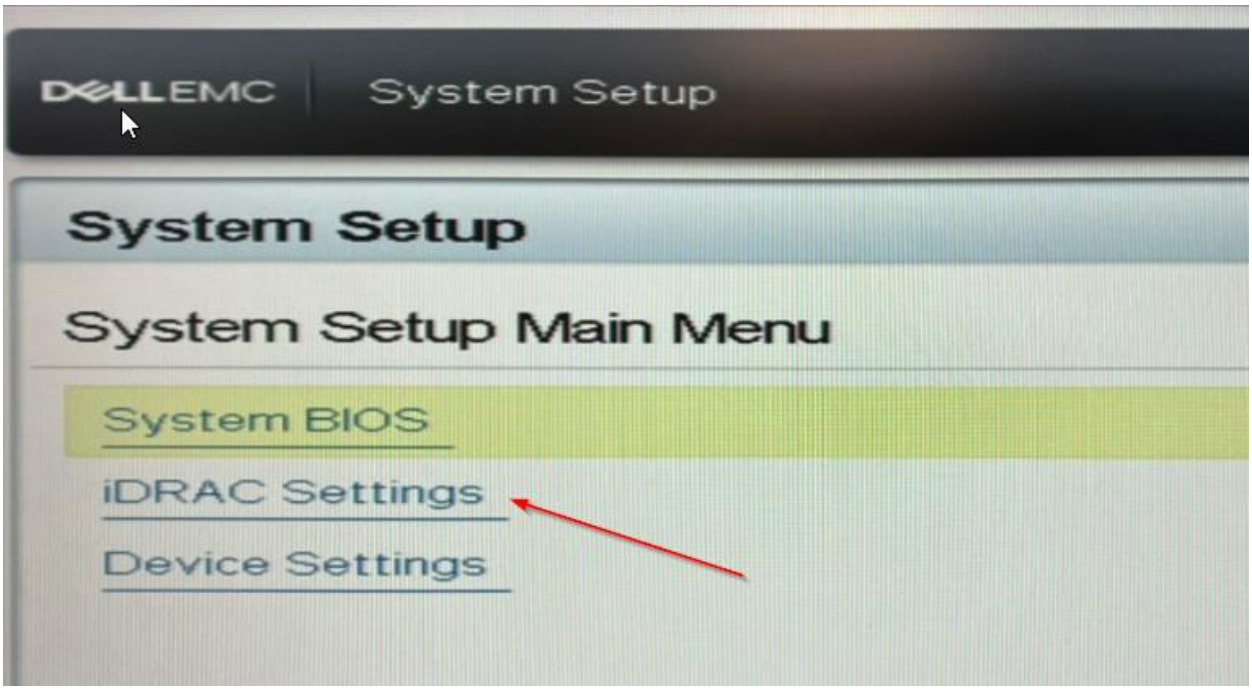


FIGURE 29 - IN IDRAC SETTING, CLICK "SYSTEM BIOS"

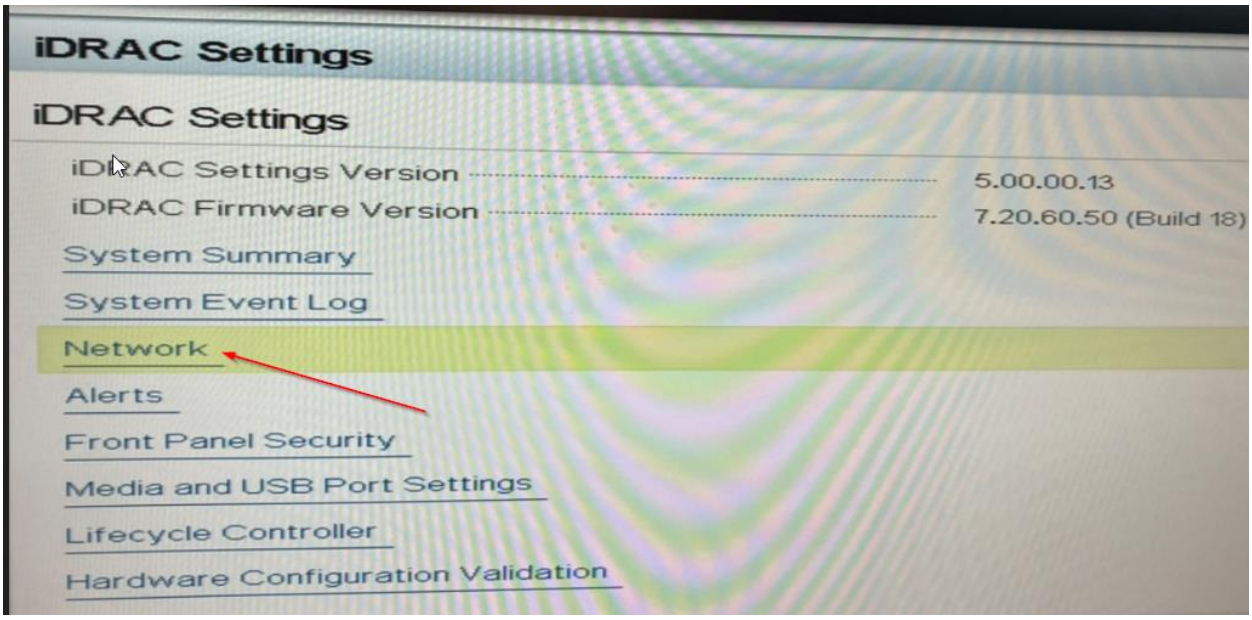


FIGURE 30 - CLICK "NETWORK"

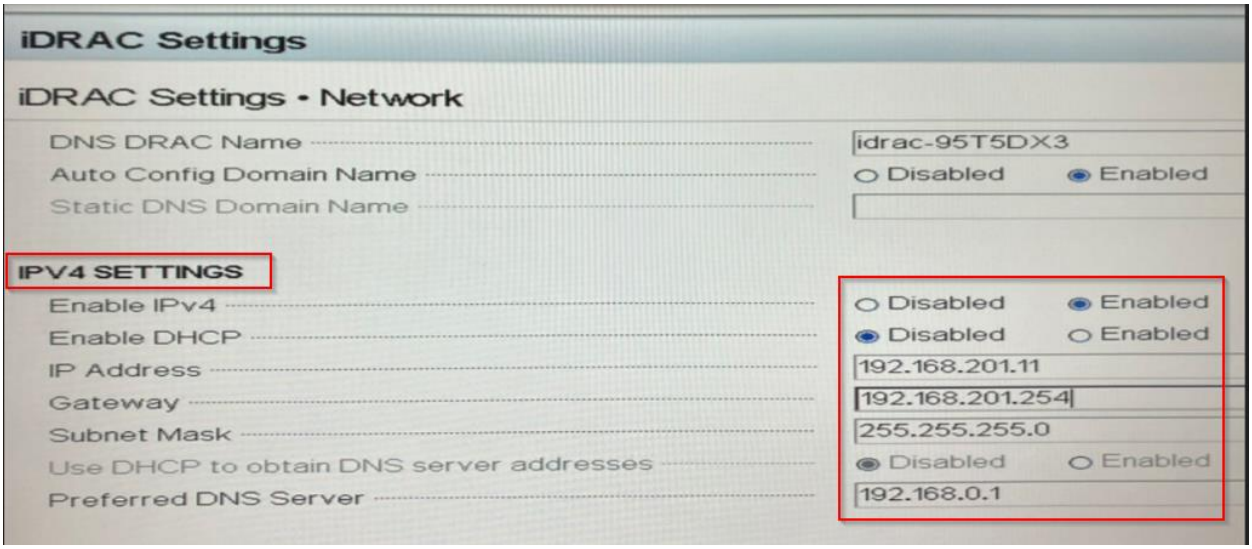


FIGURE 31 - PUT THE MANUALLY IP ADDRESS AND THE REQUIRED STUFF ON IT

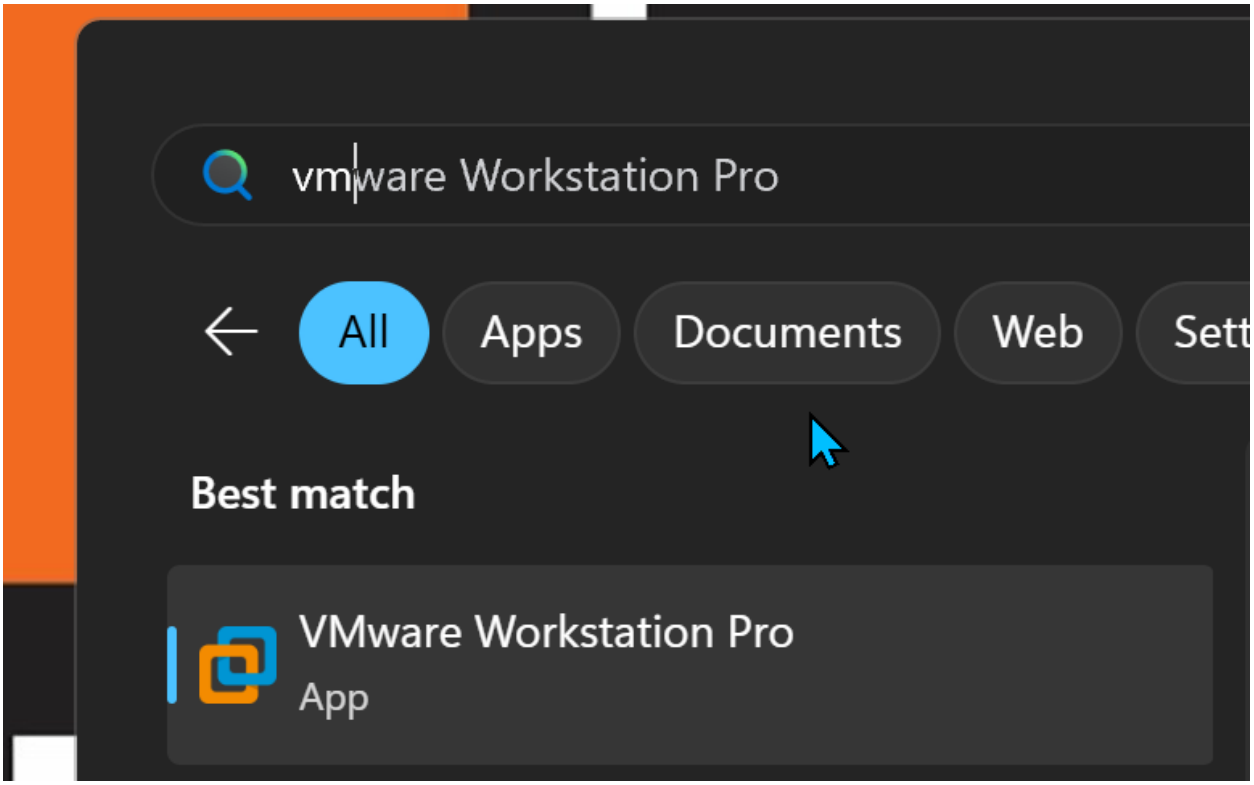


FIGURE 32 - OPEN THE VMWARE WORKSTATION PRO

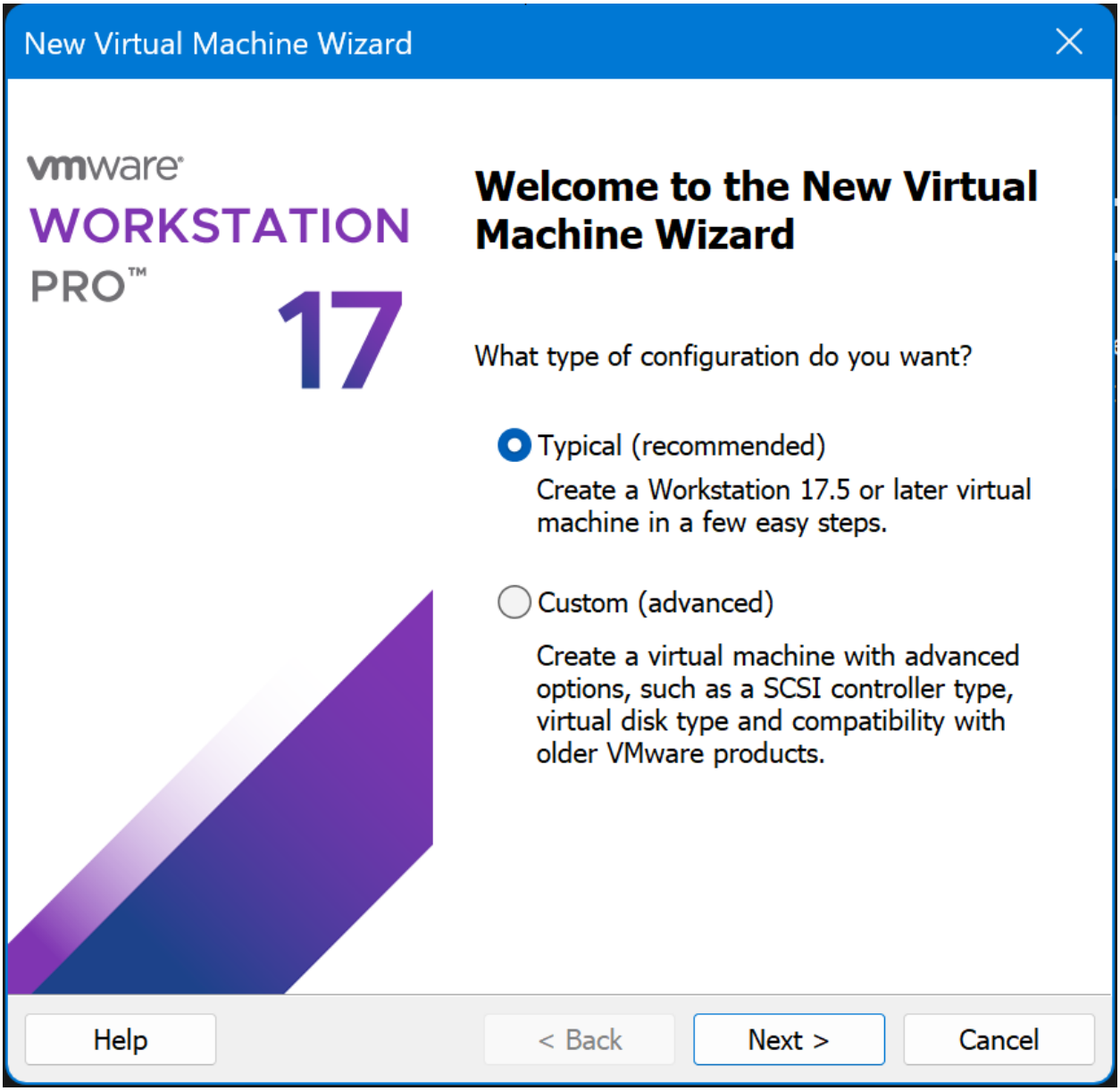


FIGURE 33 – PROCCED

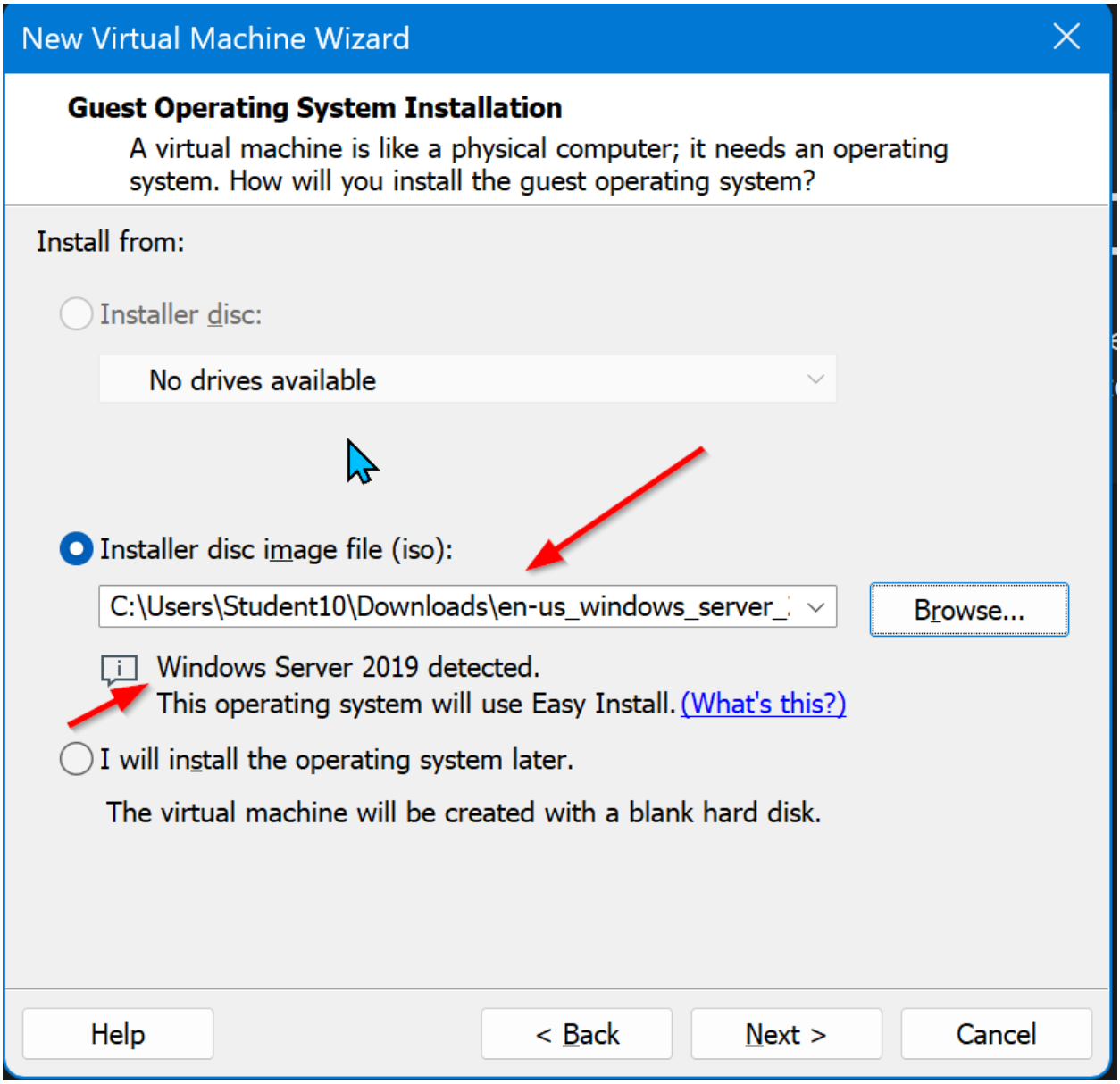


FIGURE 34 - MAKE SURE TO SELECT THE WINDOWS SERVER 2019 TO BE DETECTED

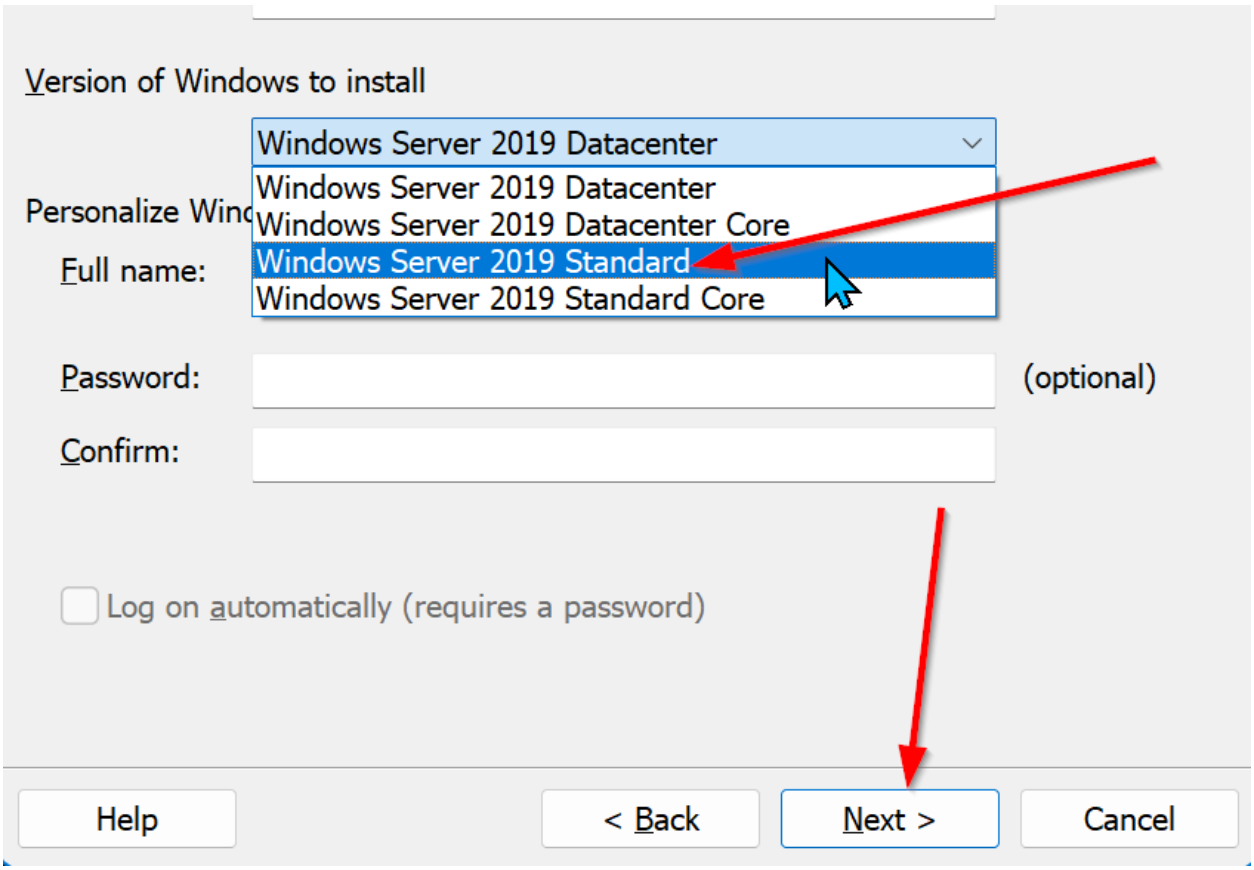


FIGURE 35 - SELECT WS 2019 STANDARD FOR VM

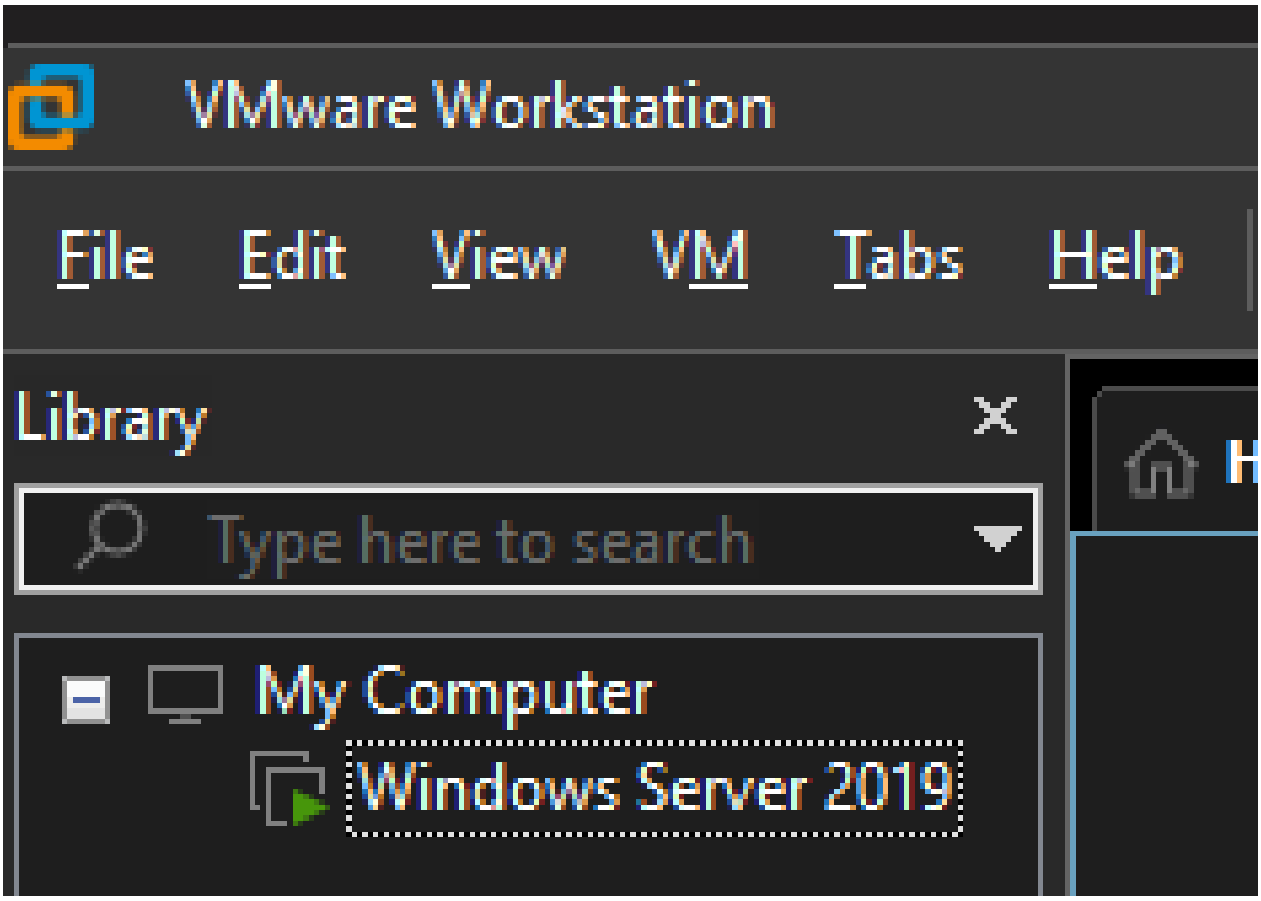


FIGURE 36 - CLICK "EDIT"

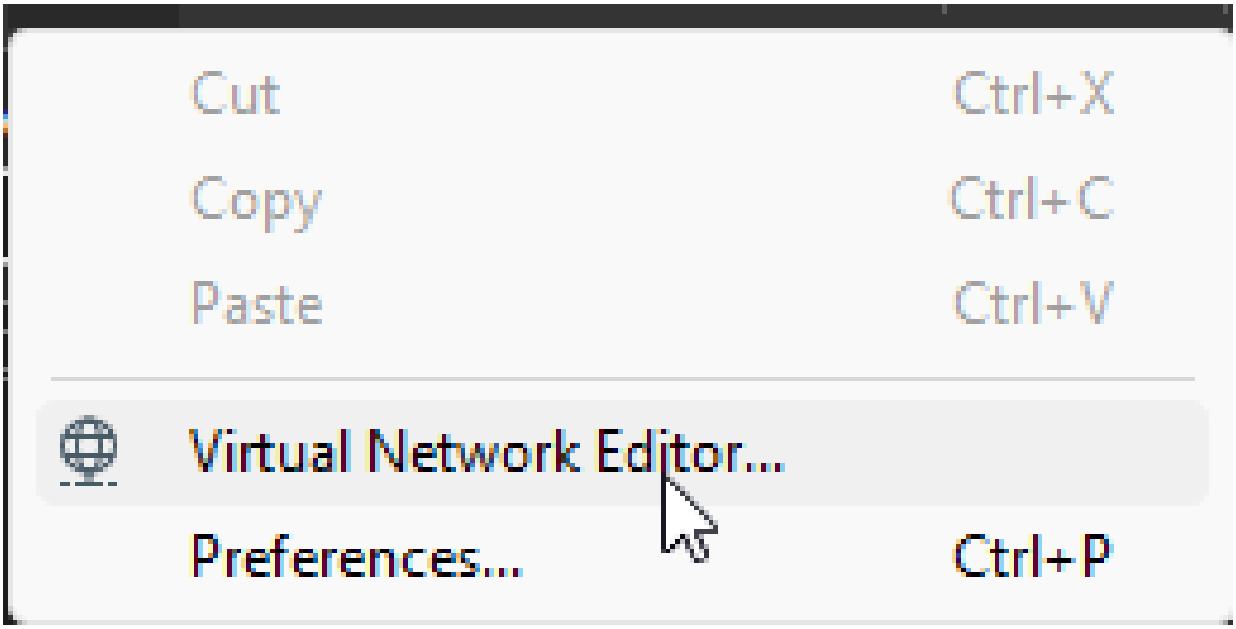


FIGURE 37 - CLICK "VIRTUAL NETWORK EDITOR"

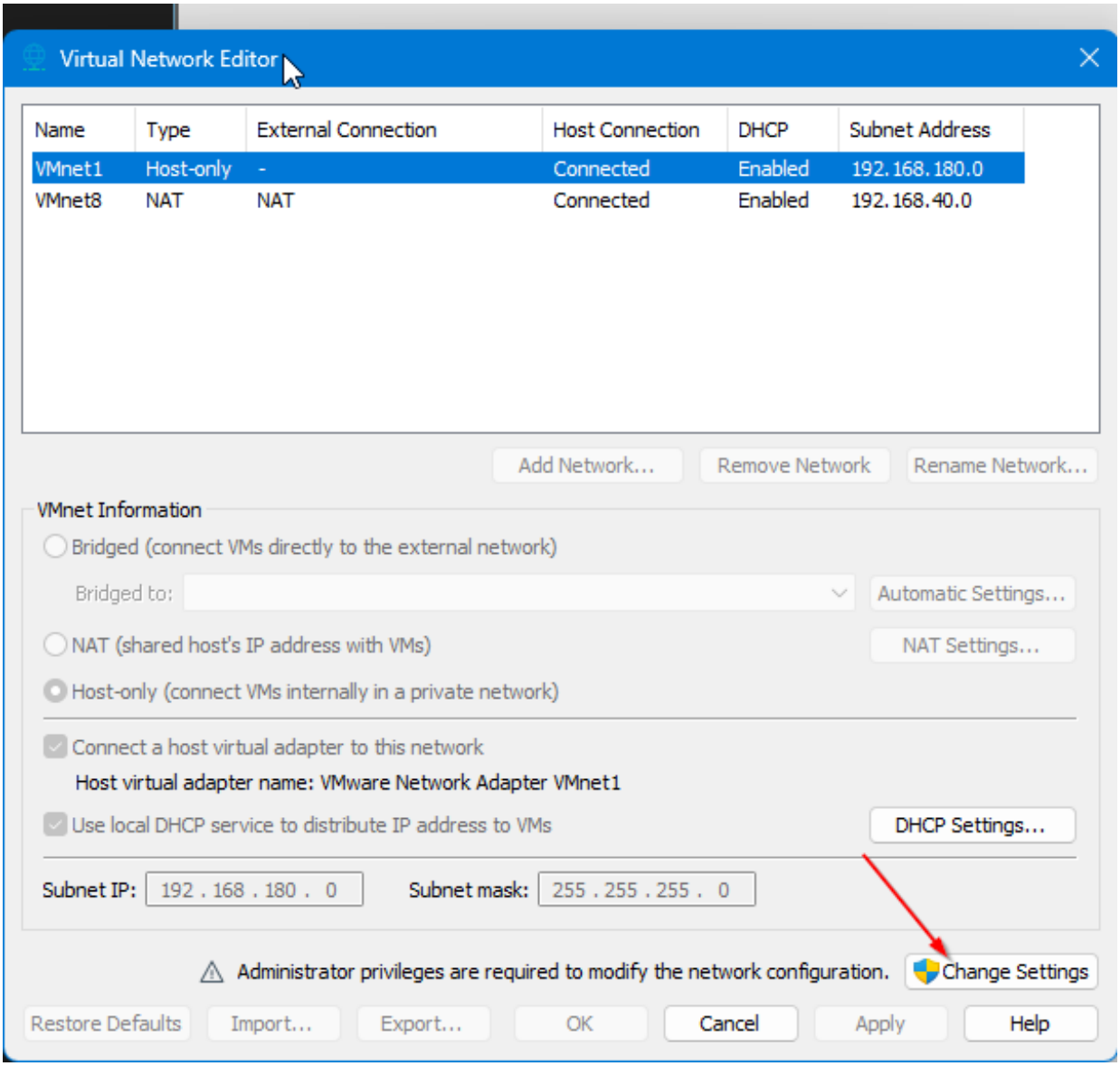


FIGURE 38 - CLICK "CHANGE SETTINGS"

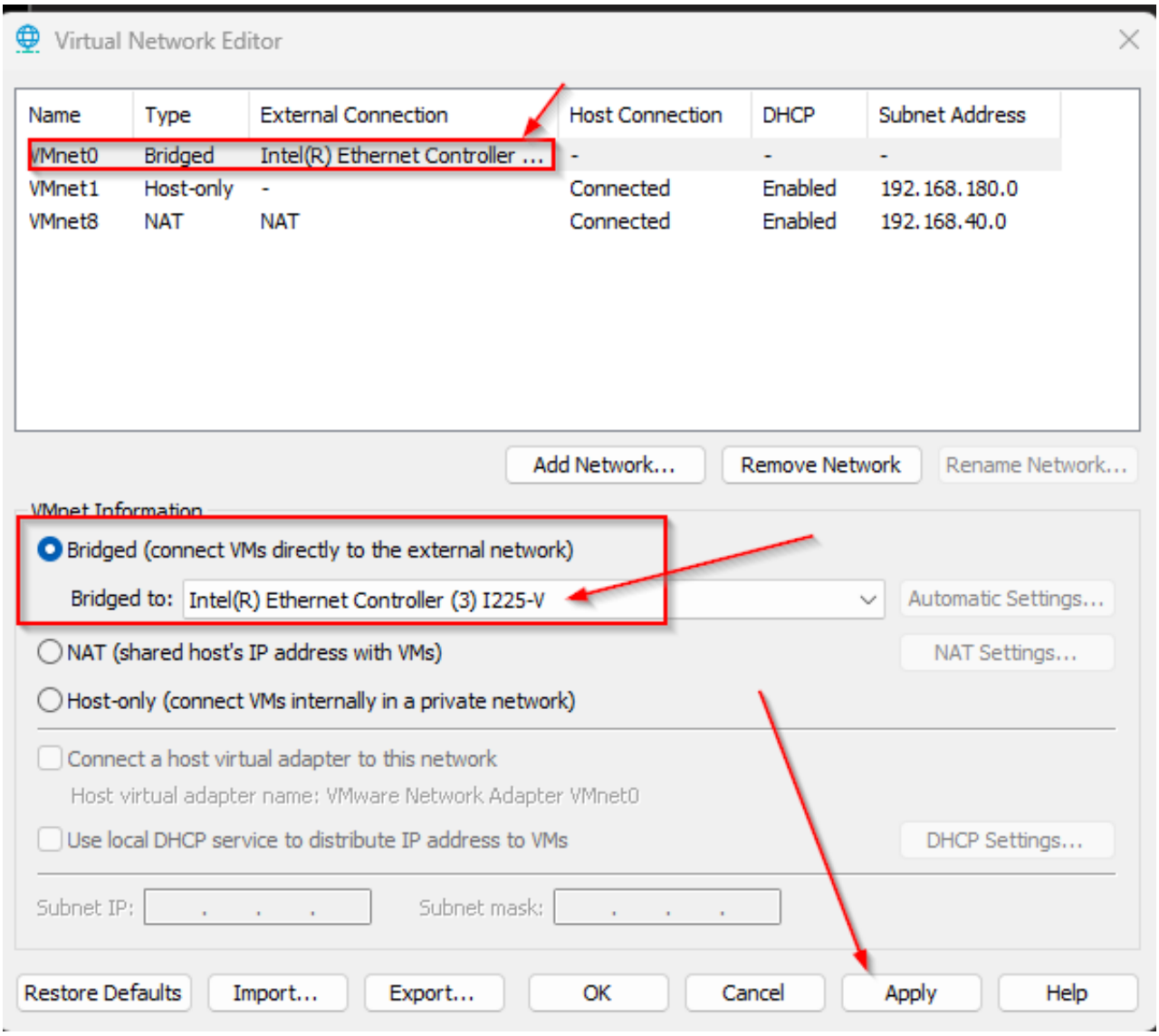


FIGURE 39 - CHANGE THE VMNET INFORMATION TO BRIDGE TO THE ETHERNET CONTROLLER

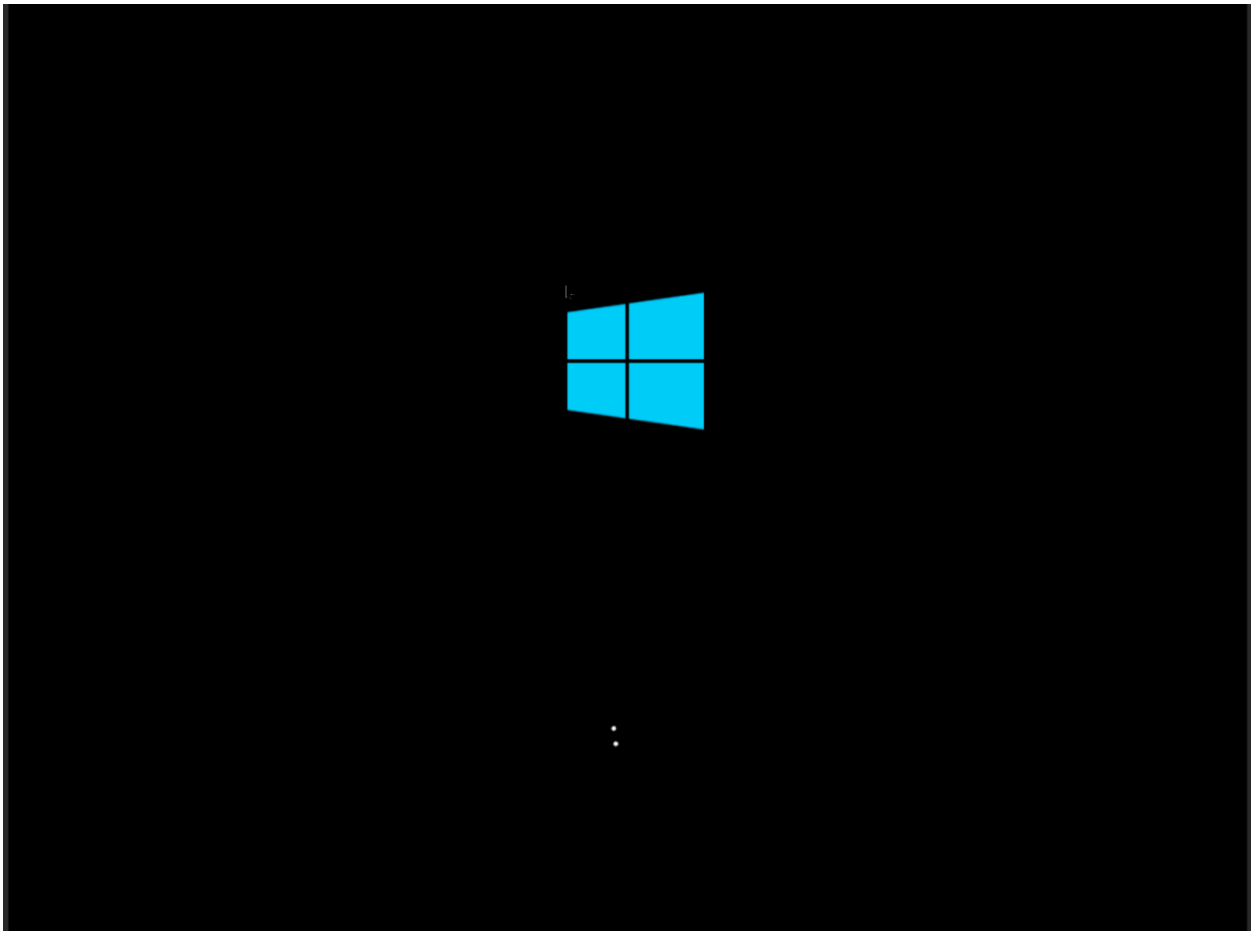


FIGURE 40 - REBOOT INTO WINDOWS SERVER 2019

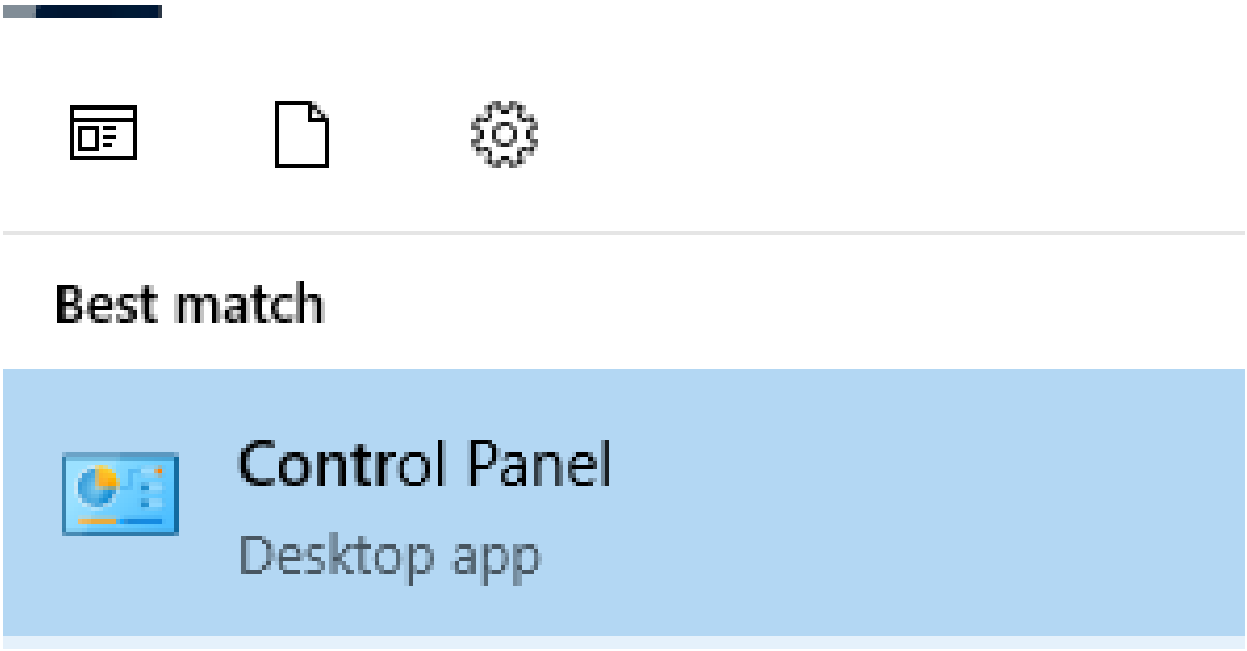


FIGURE 41 - OPEN THE CONTROL PANEL

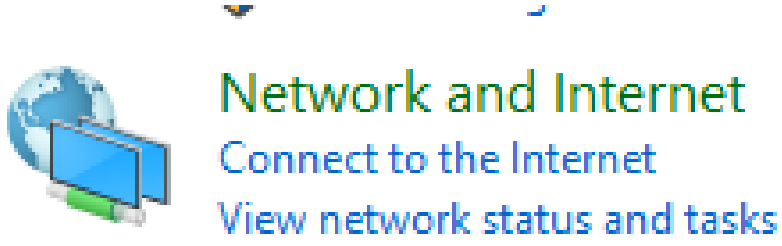


FIGURE 42 - CLICK THE "NETWORK AND INTERNET"

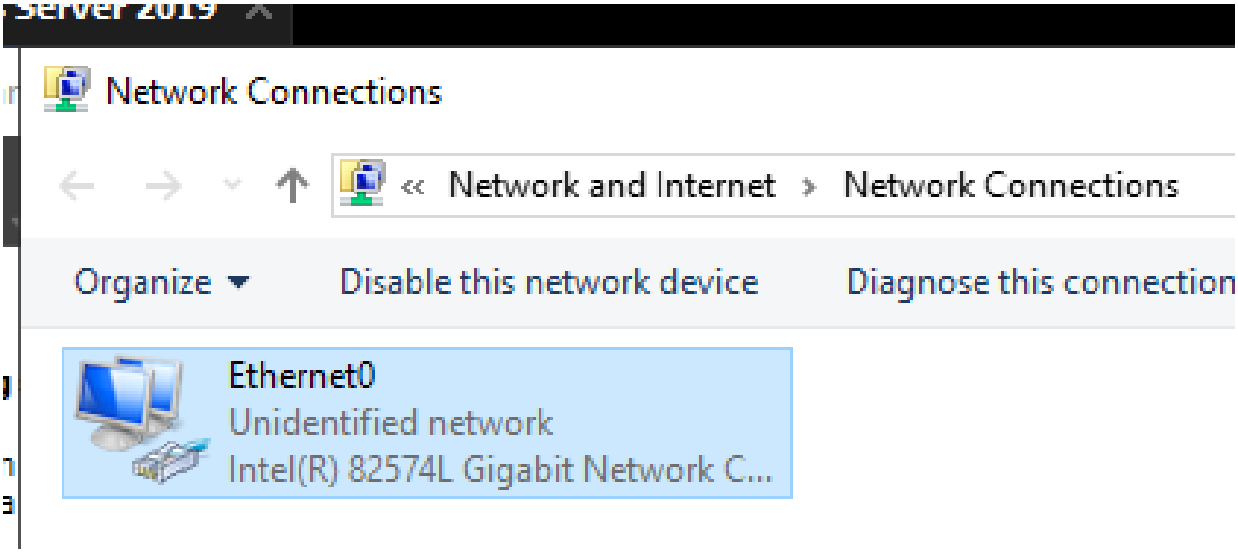


FIGURE 43 - CLICK "ETHERNET0"

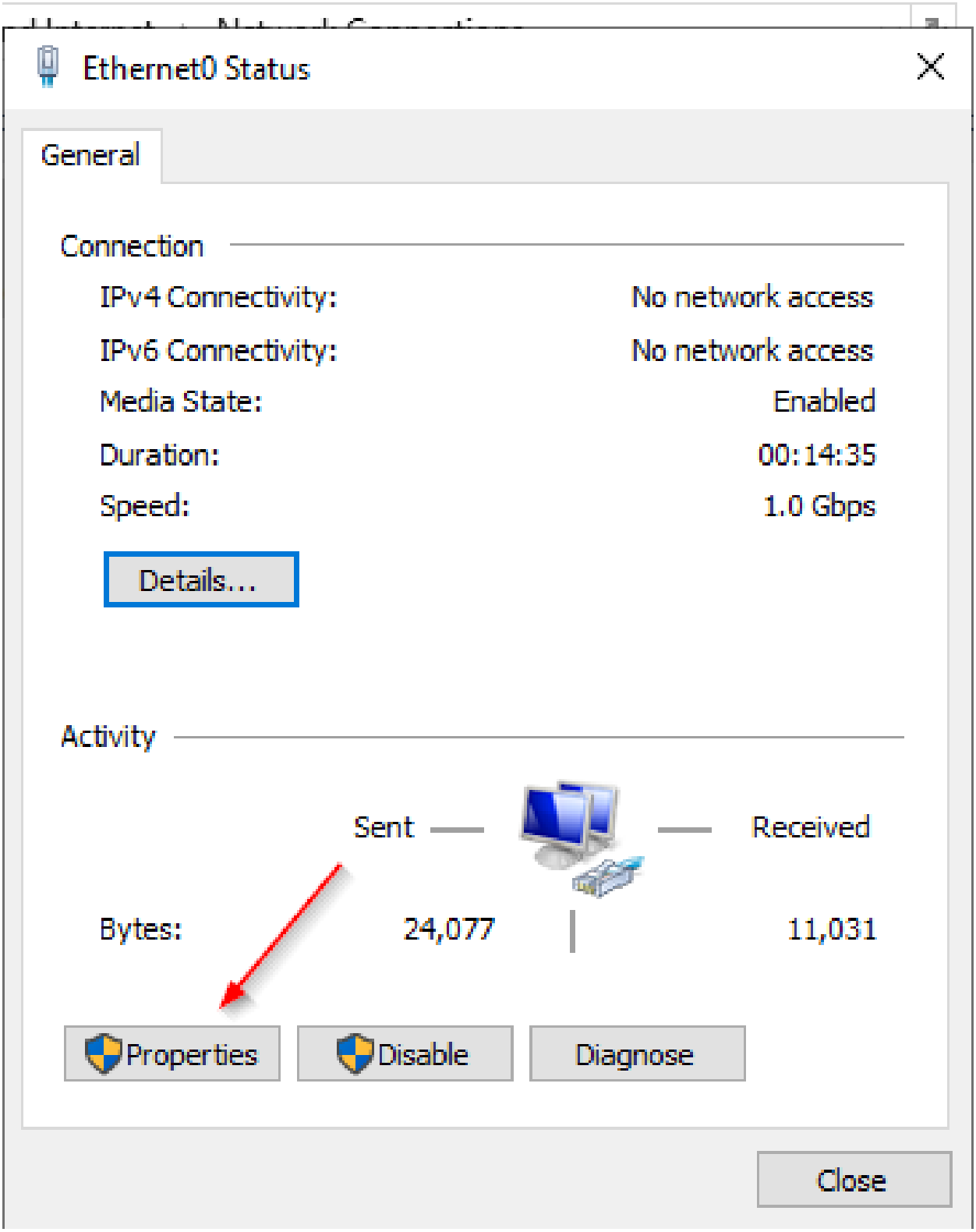


FIGURE 44 - CLICK "PROPERTIES"

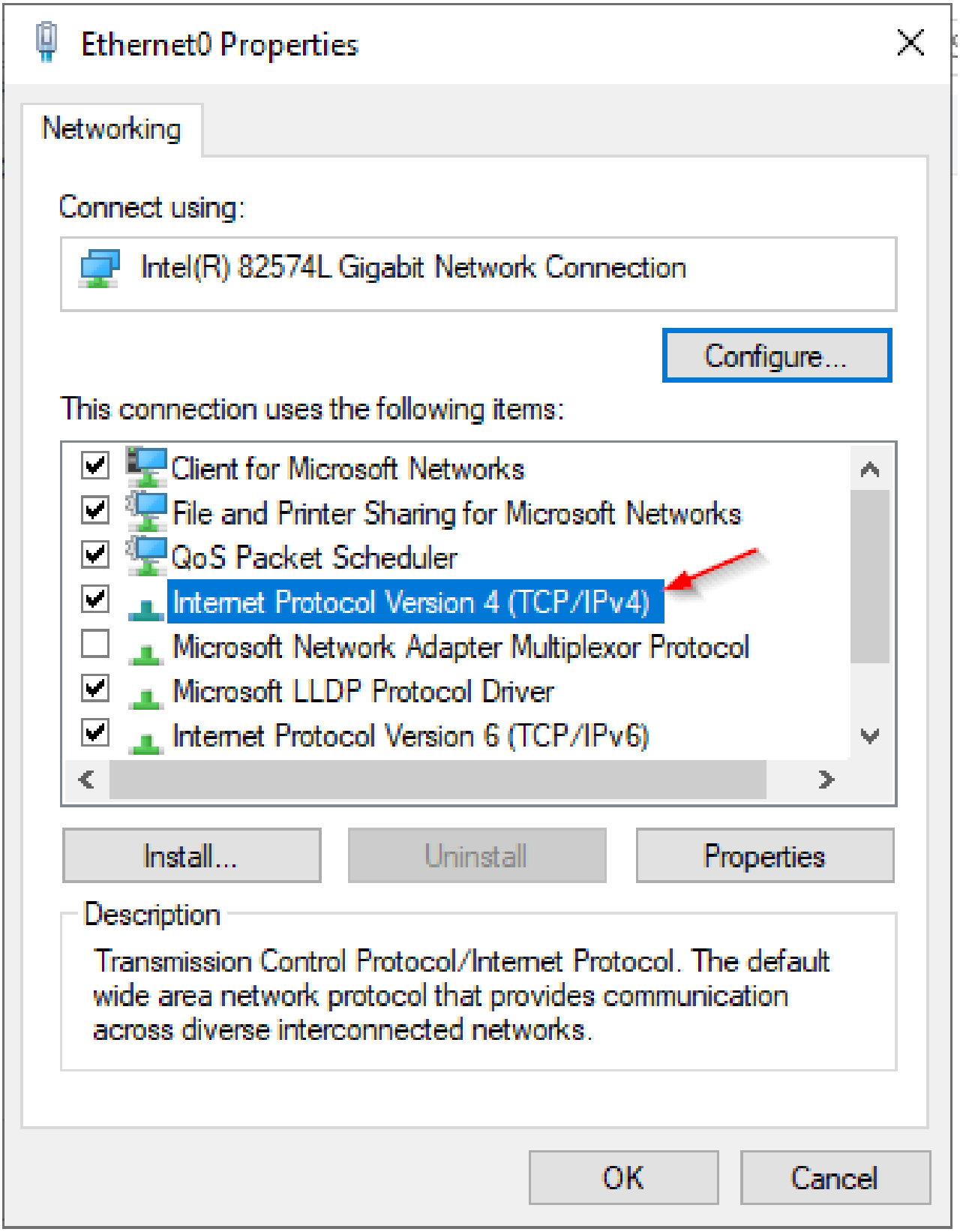


FIGURE 45 - CLICK THIS IPV4

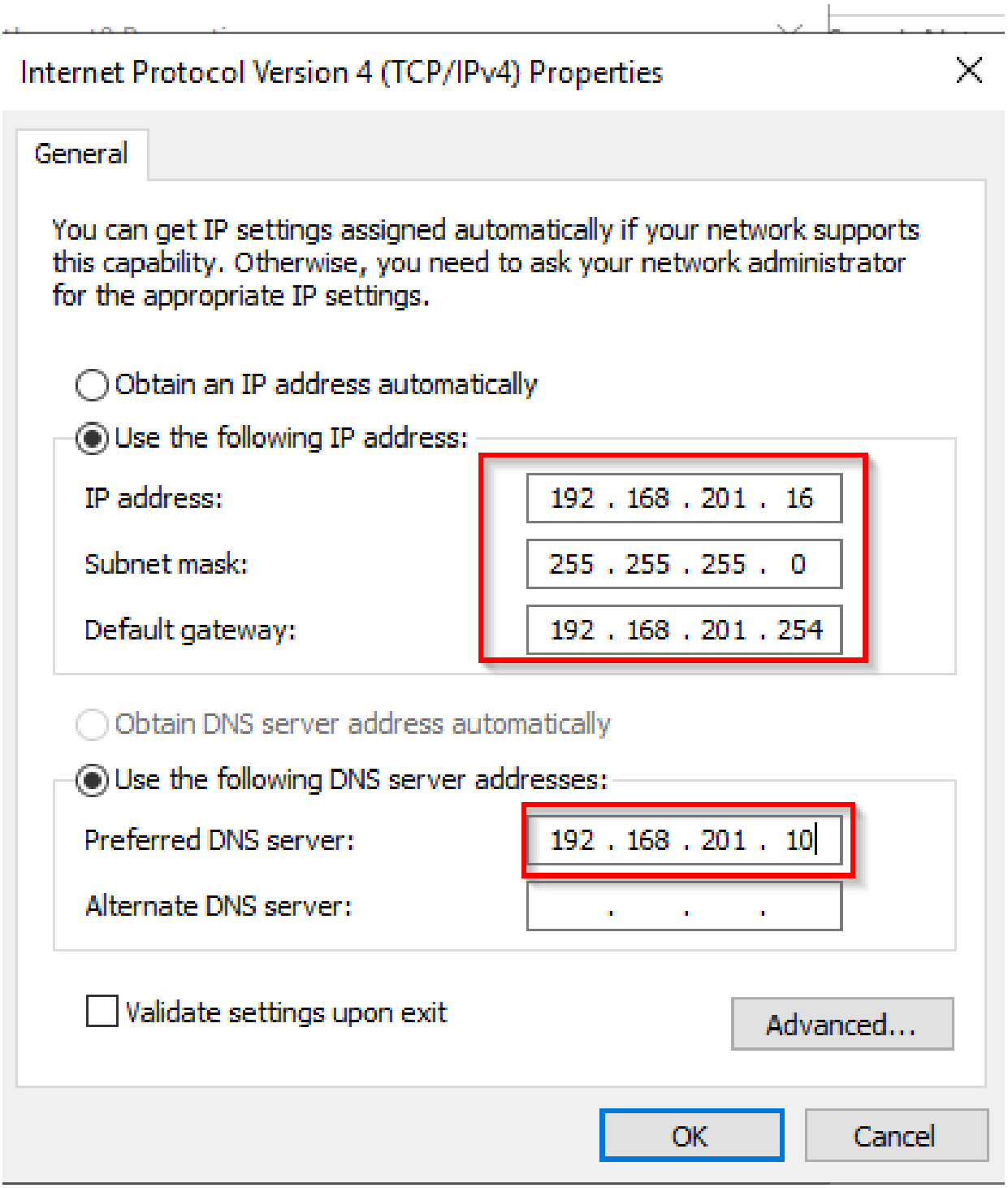


FIGURE 46 - PUT THE MANUALLY IP ADDRESS AND THE REQUIRED STUFF ON IT

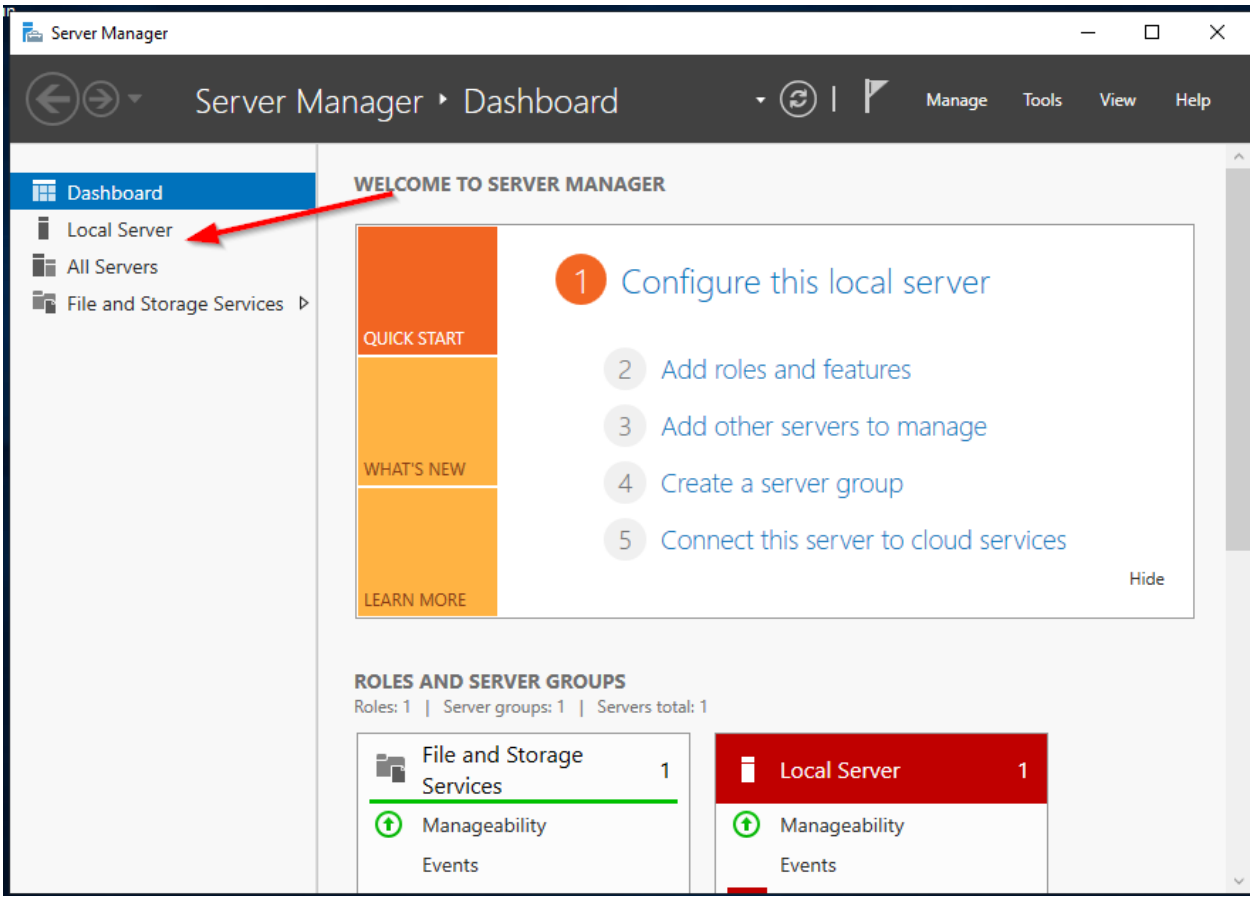


FIGURE 47 - OPEN THE SERVER MANAGER THEN CLICK "LOCAL SERVER"

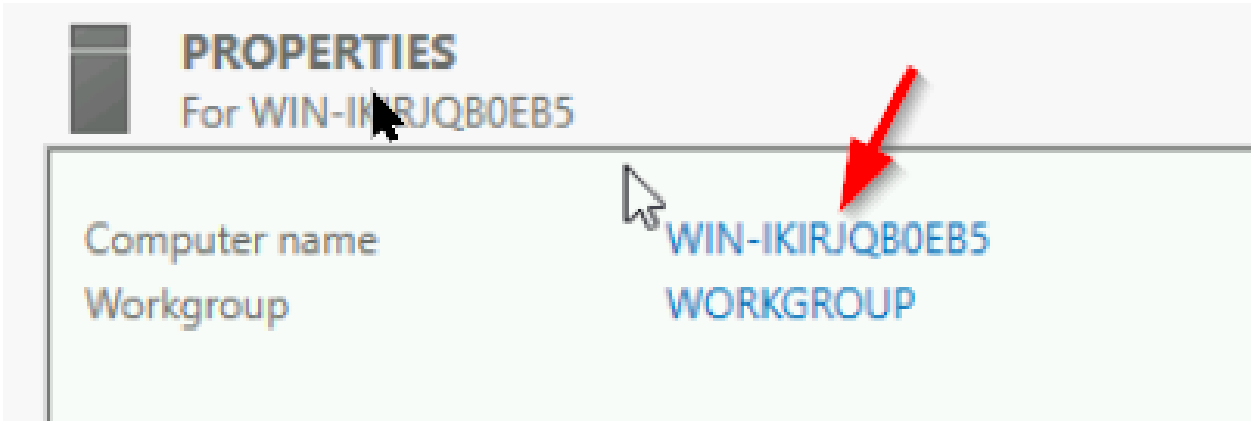


FIGURE 48 - CHANGE THE COMPUTER NAME

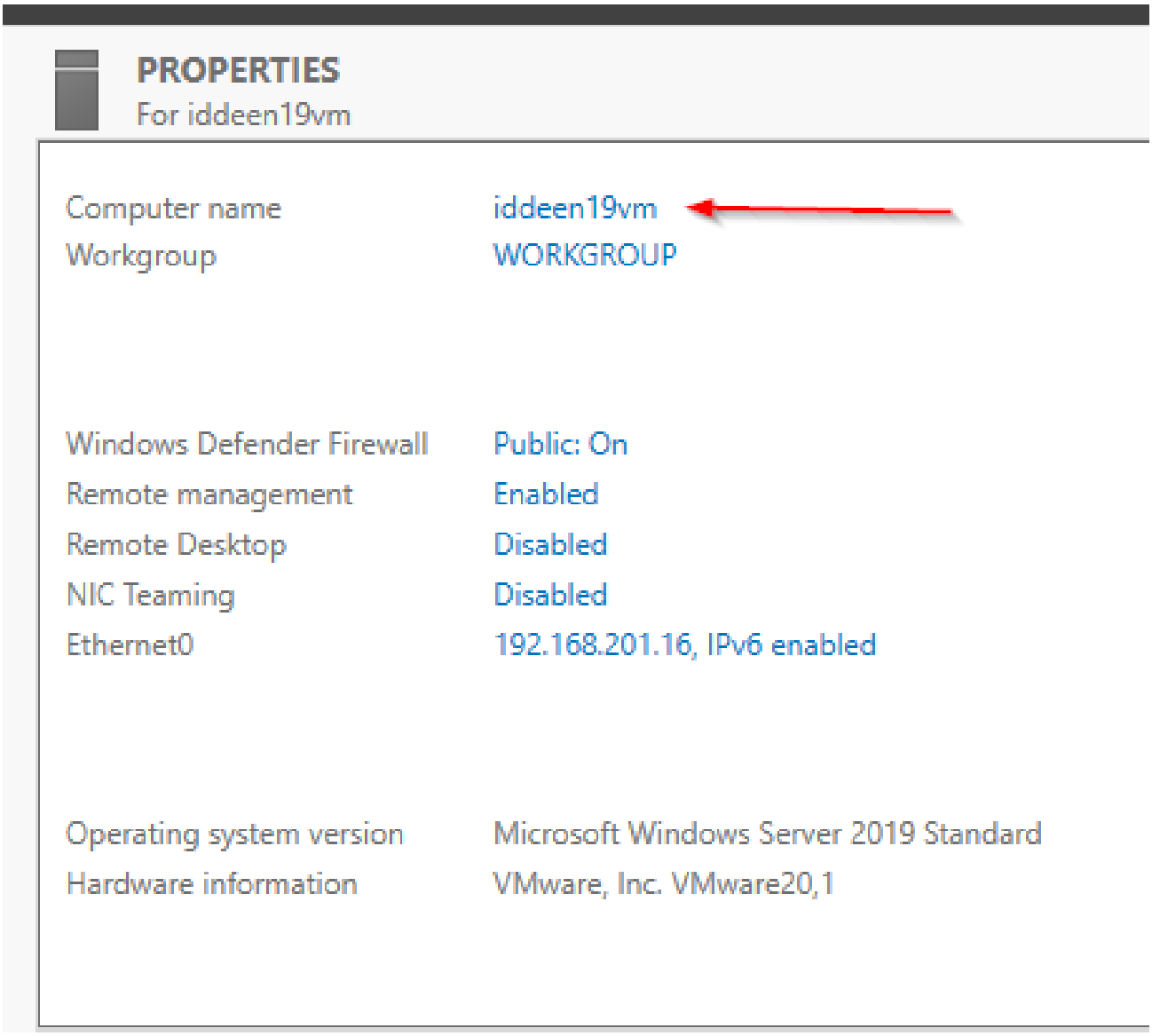


FIGURE 49 - DONE CHANGING COMPUTER NAME

FIGURE 50 - CLICK MANAGE

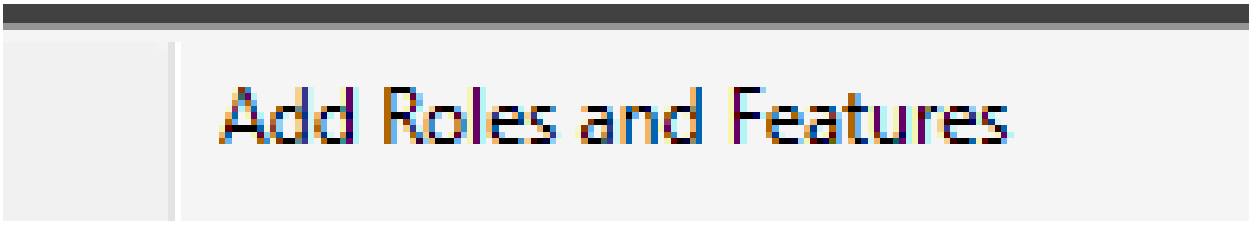


FIGURE 51 - CLICK " ADD ROLES AND FEATURES"

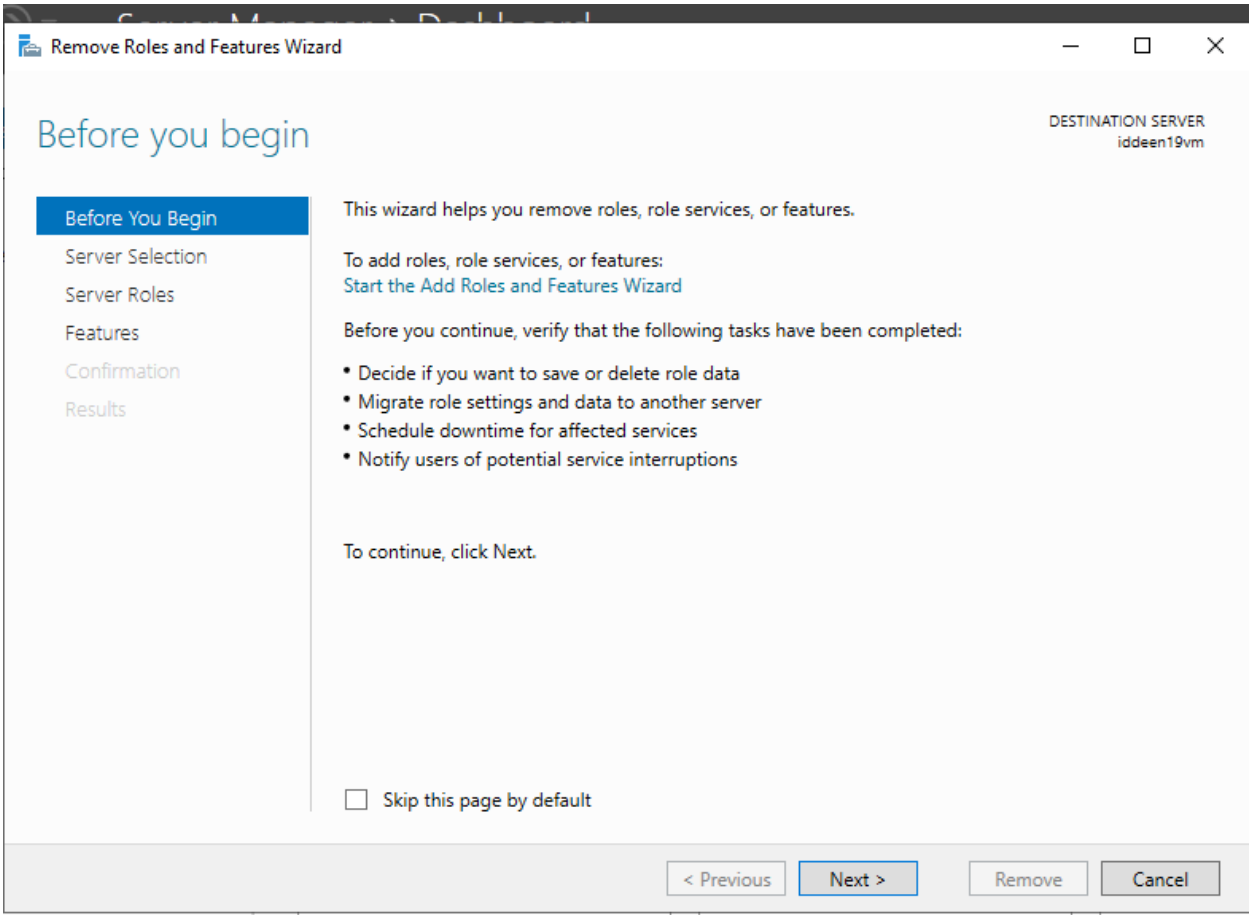


FIGURE 52 - PROCEED!

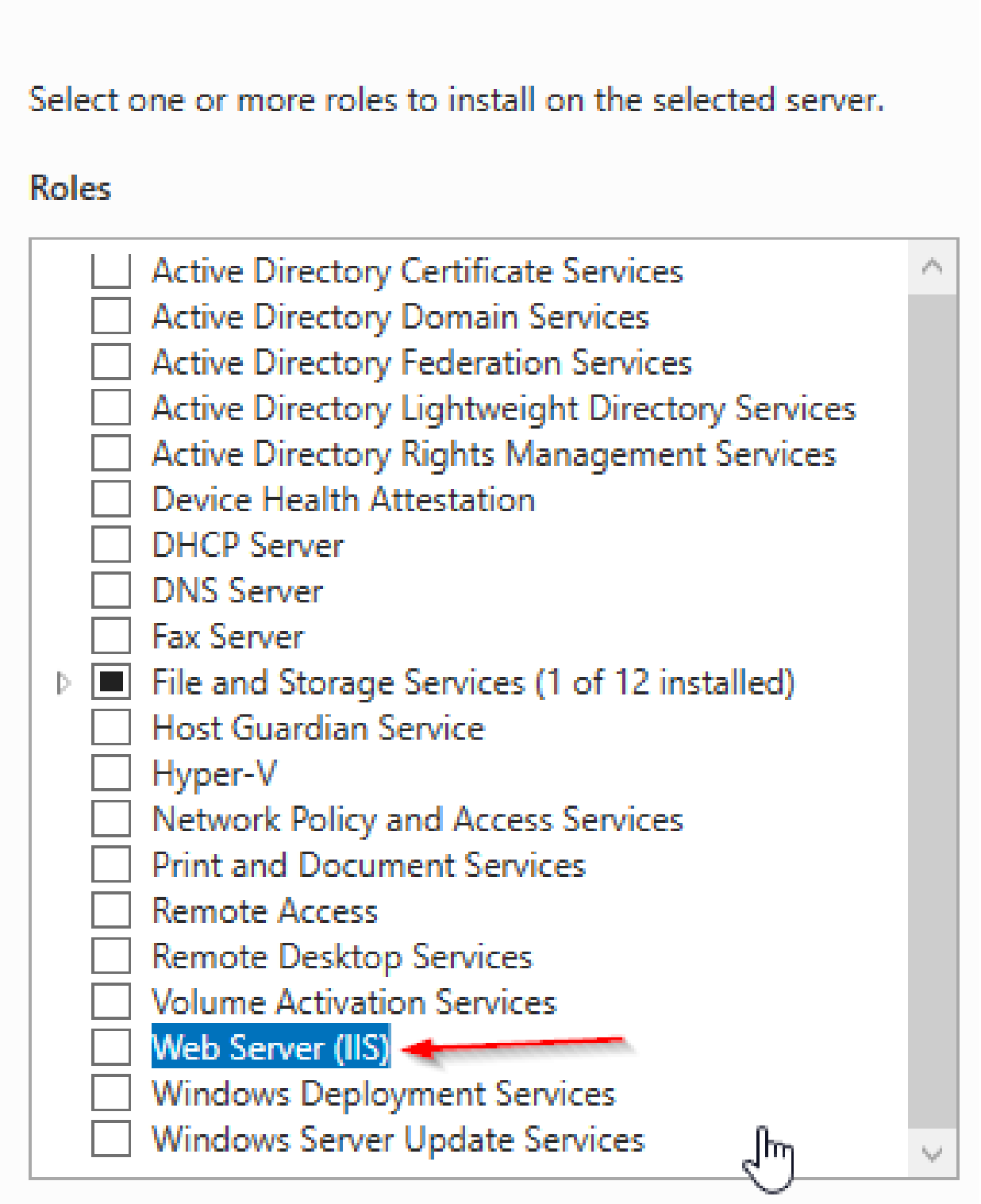


FIGURE 53 - CLICK "WEB SERVER (IIS)"

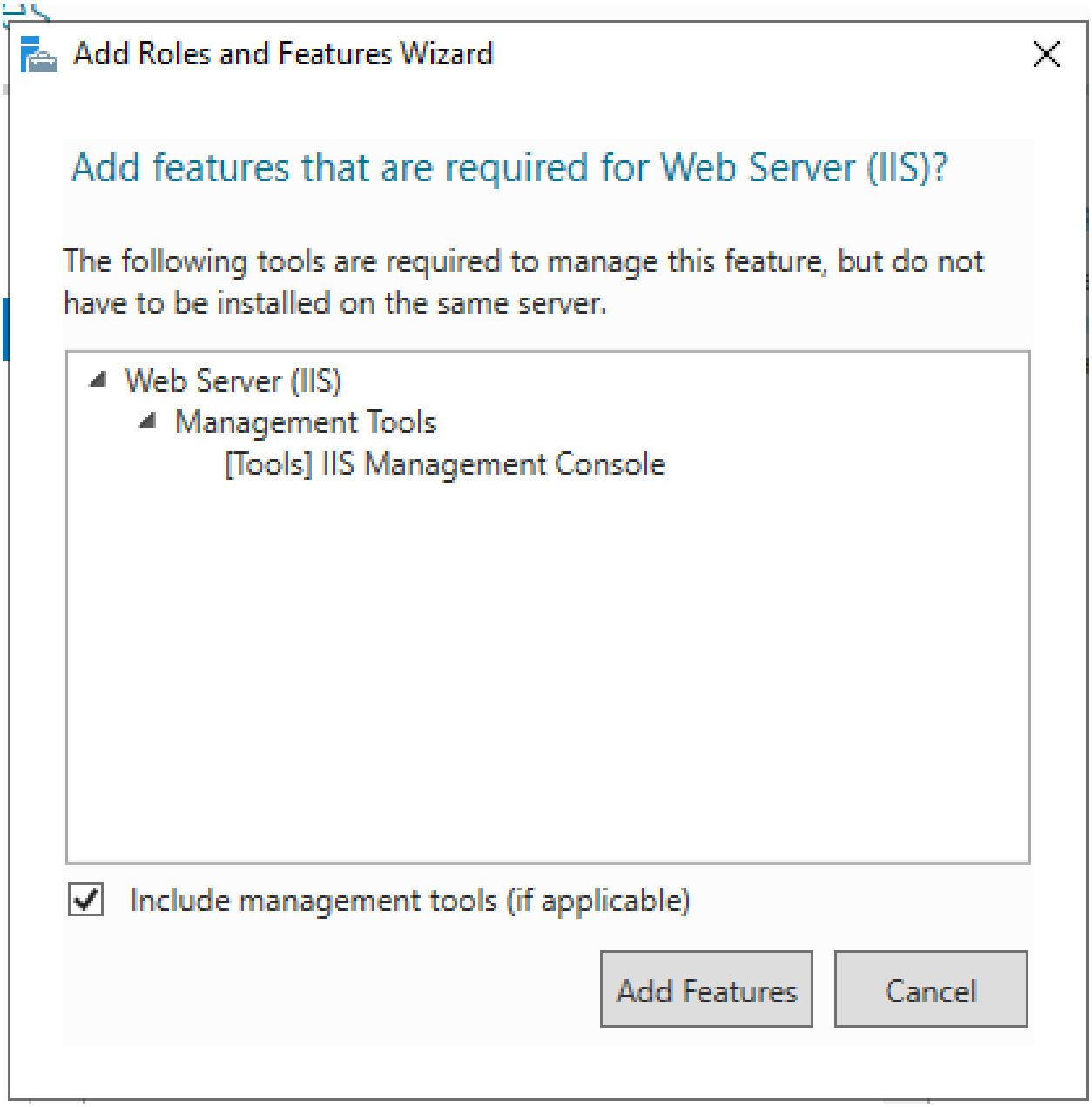


FIGURE 54 - CLICK "ADD FEATURES"

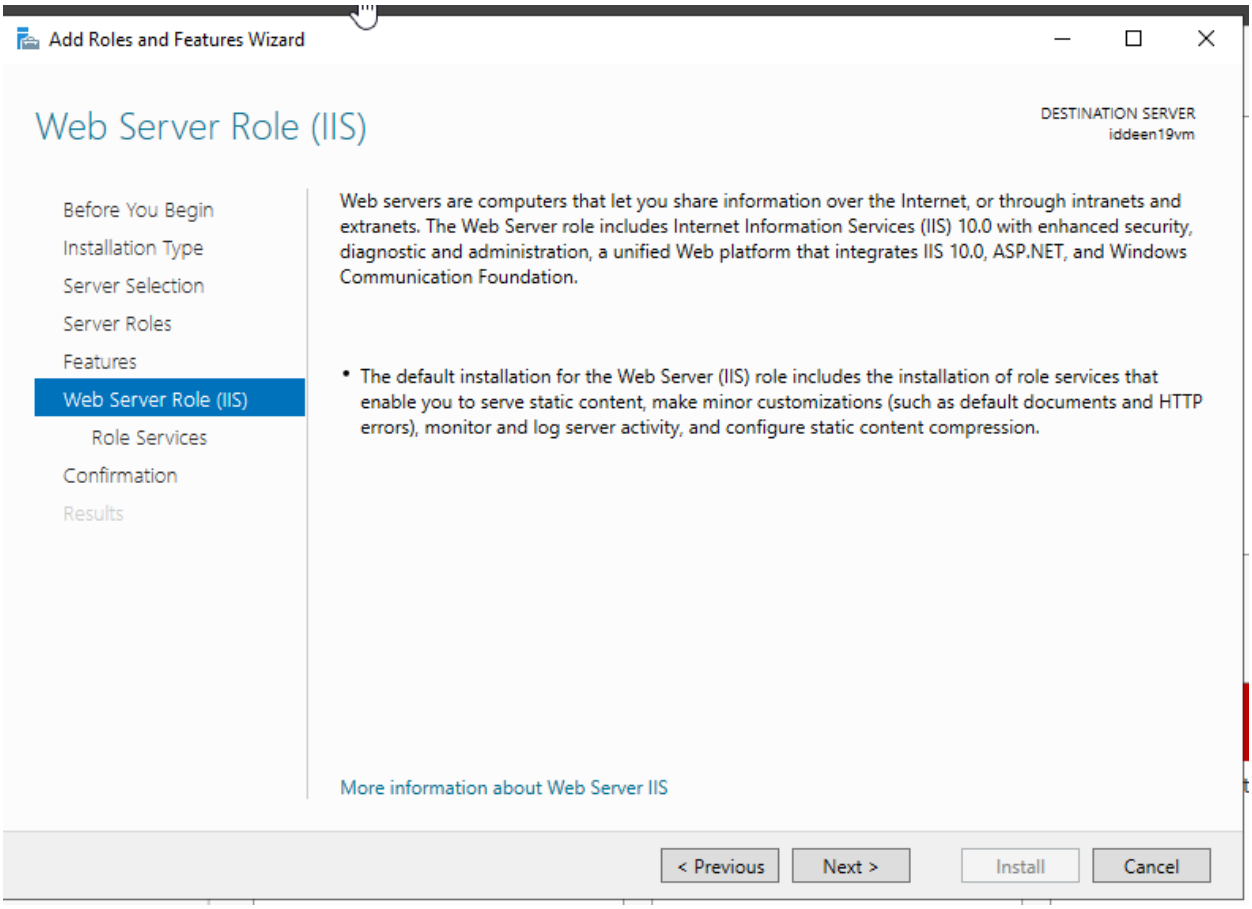


FIGURE 55 - INSTALL THE WEB SERVER ROLE

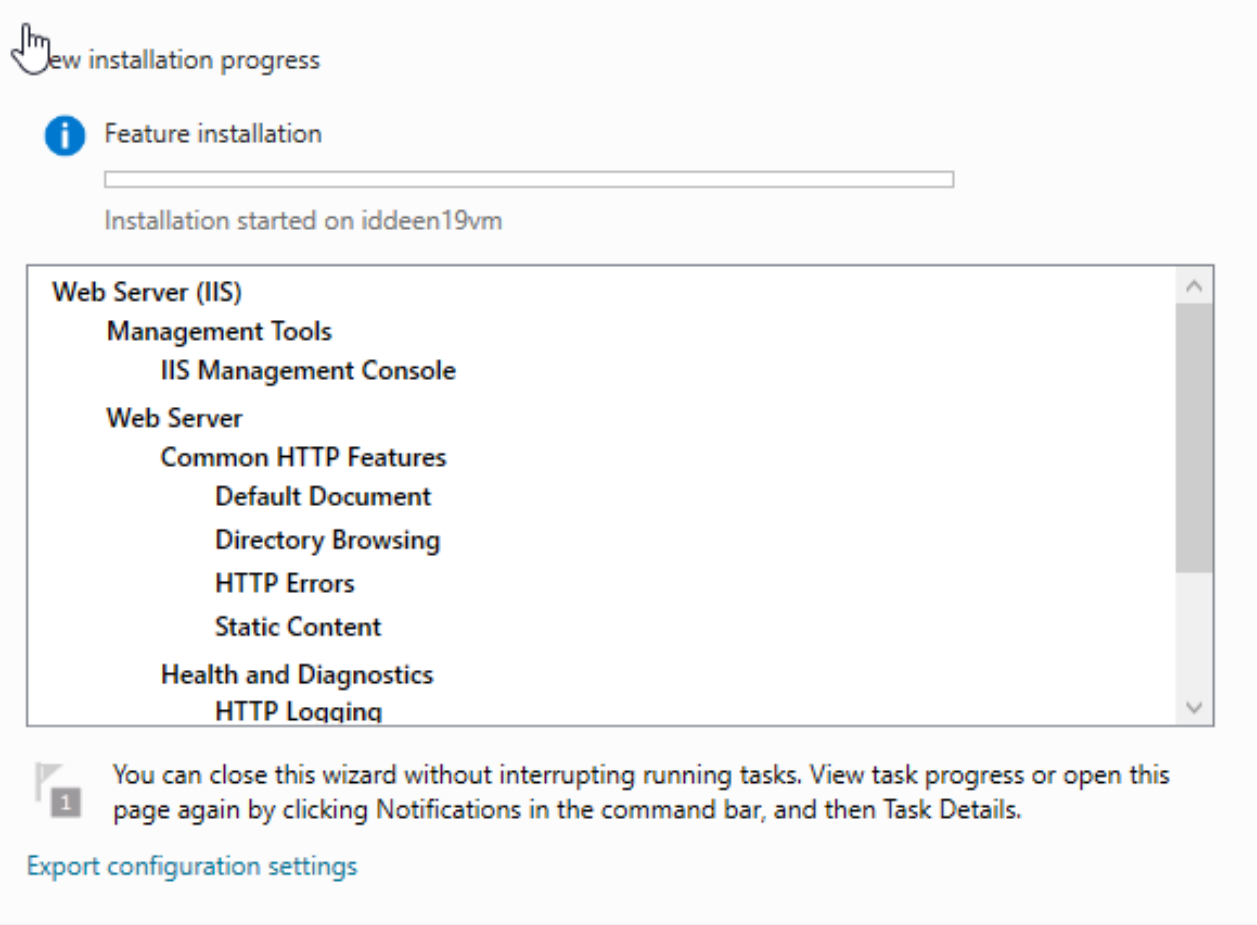


FIGURE 56 - INSTALLATION STARTED

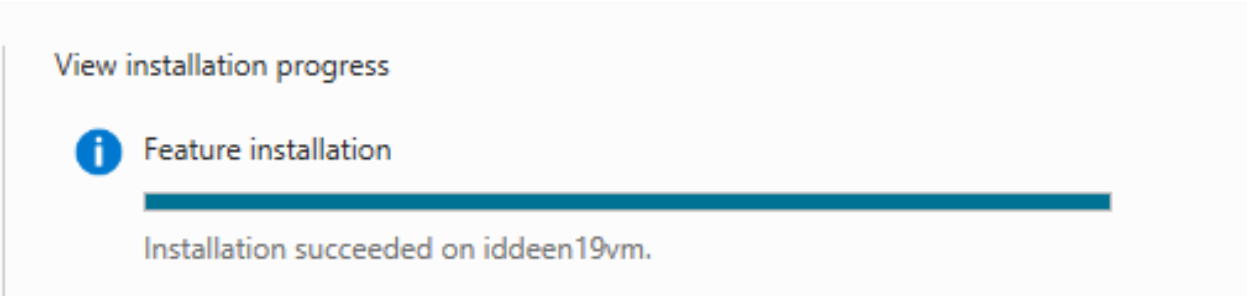


FIGURE 57 - INSTALLATION SUCCESSFULLY

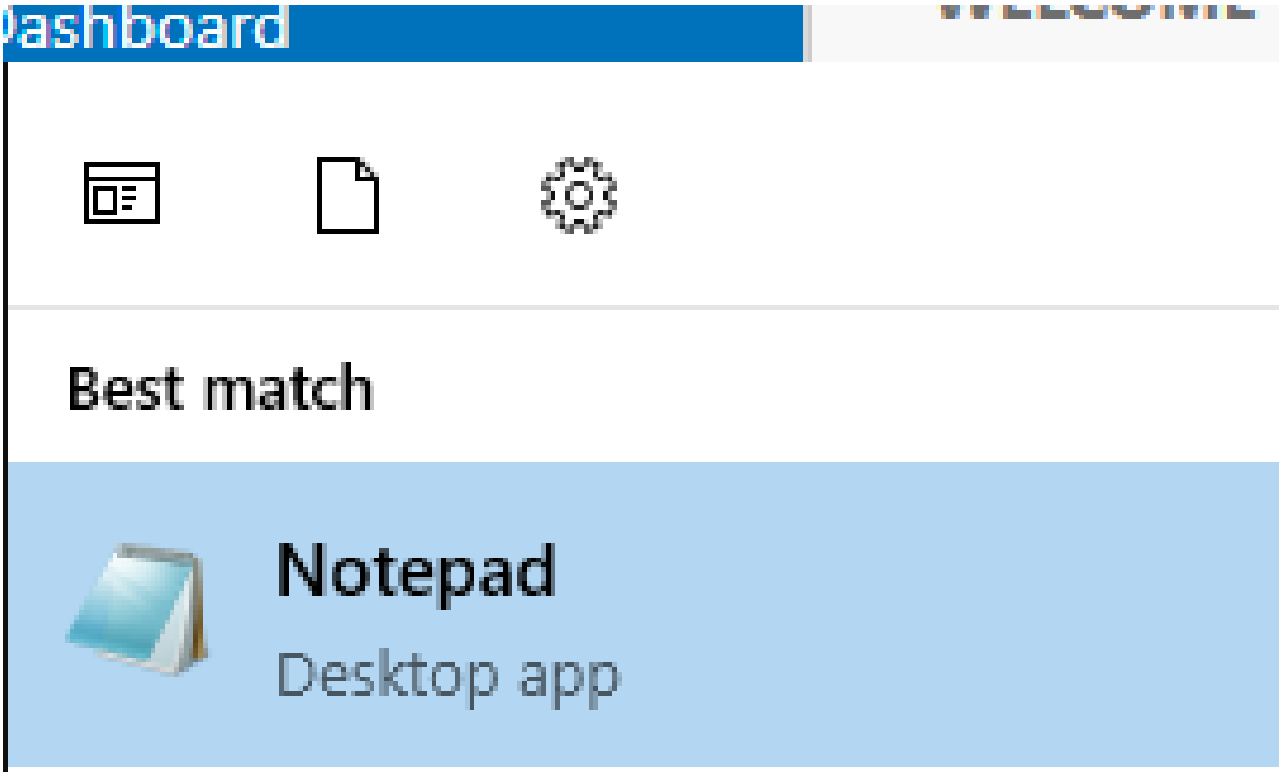


FIGURE 58 - OPEN NOTEPAD

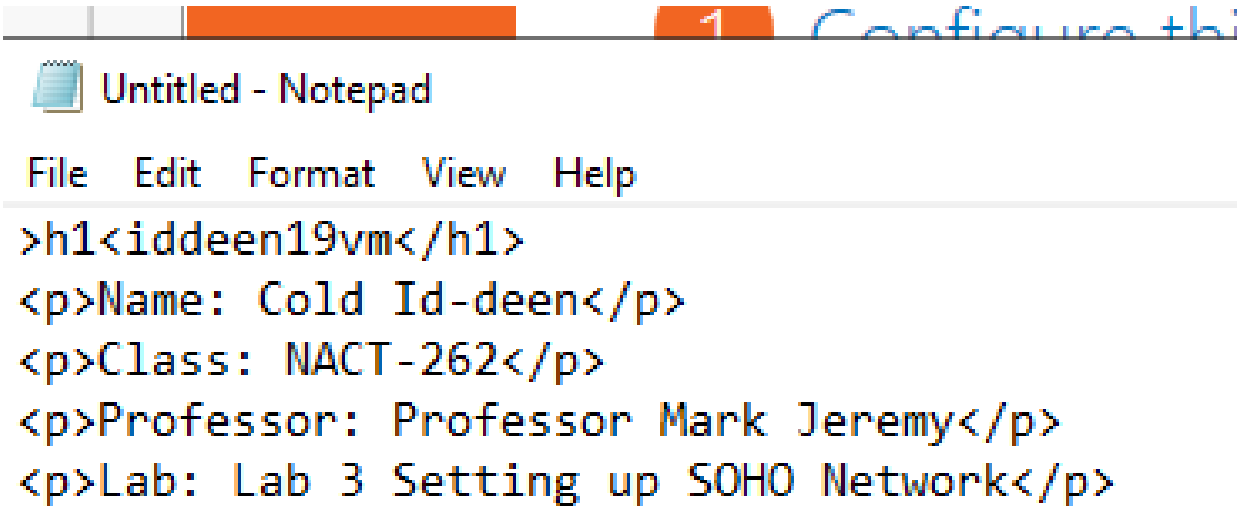


FIGURE 59 - MAKE AN HTML CODING ON NOTEPAD

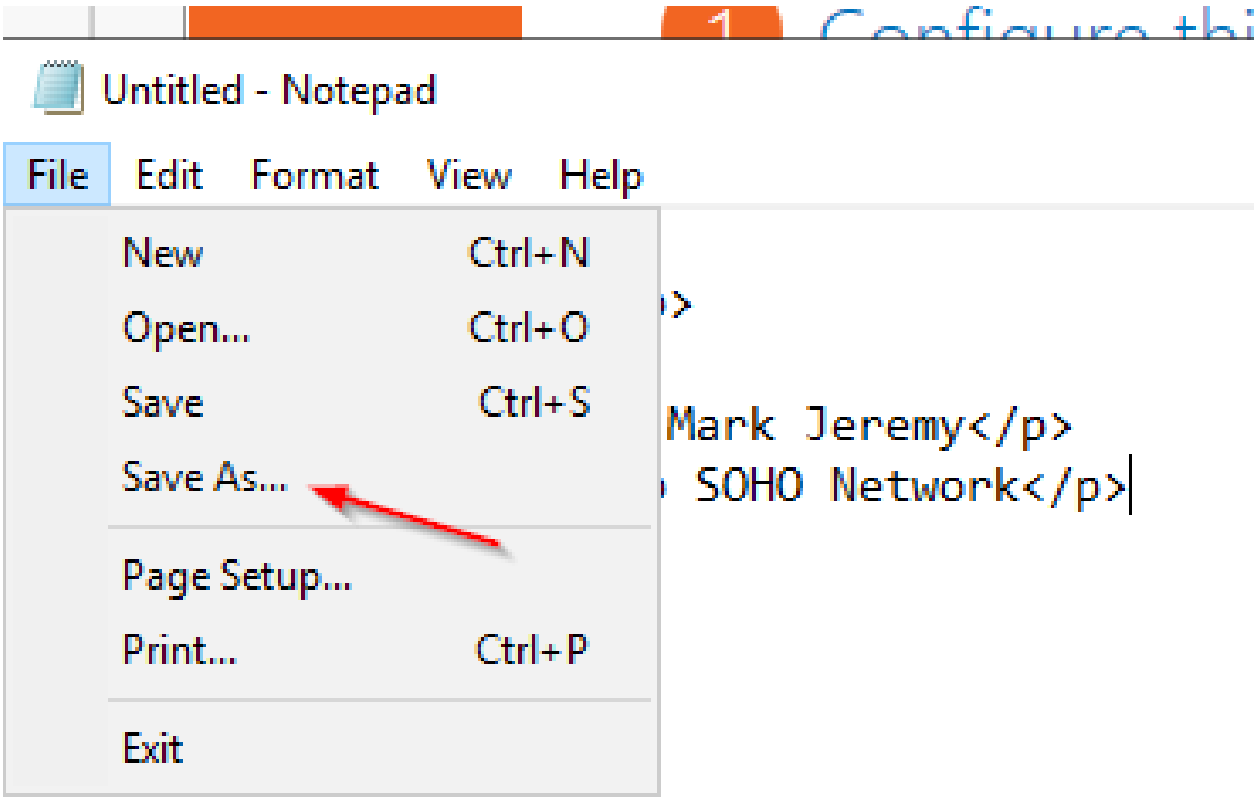


FIGURE 60 - CLICK "SAVE AS"

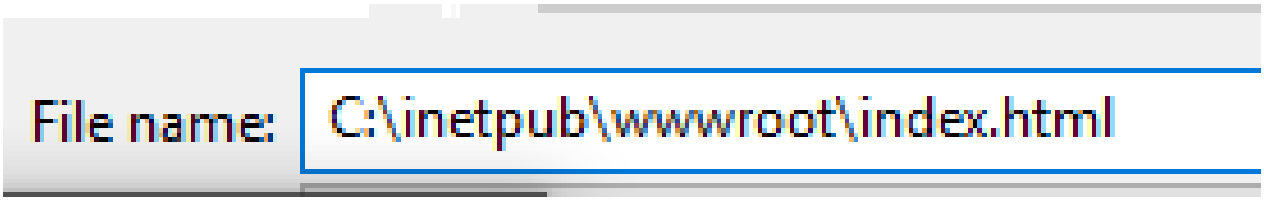


FIGURE 61 - TYPE THE REQUIRED FILE NAME TO PUT IN

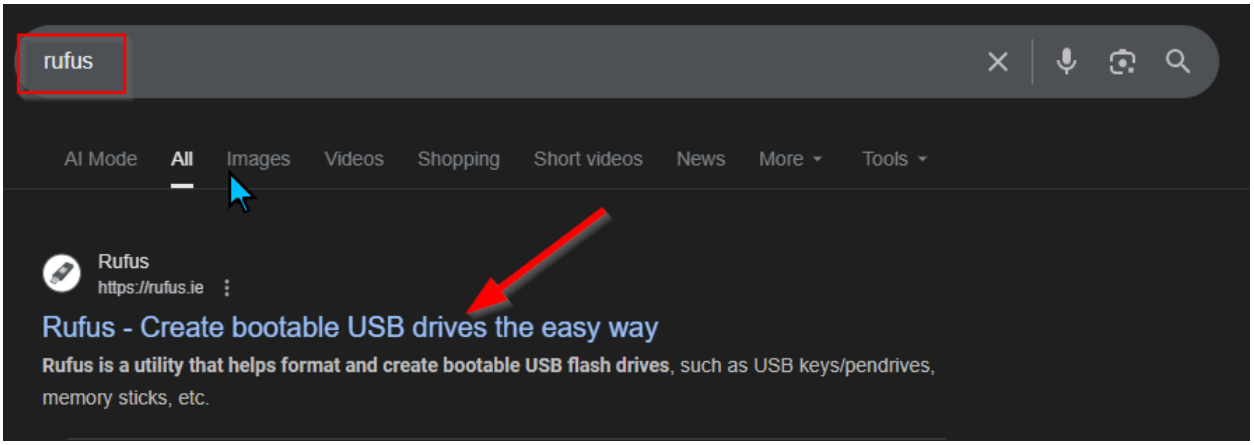


FIGURE 62 - TYPE "RUFUS" AND CLICK THIS LINK

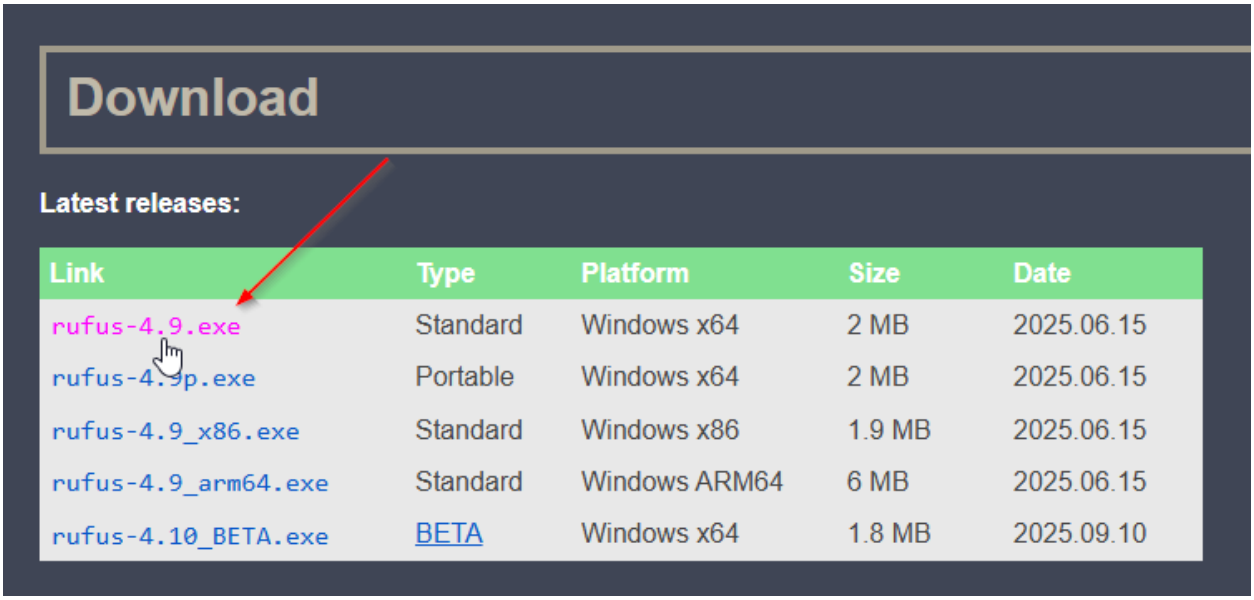


FIGURE 63 - DOWNLOAD RUFUS.EXE

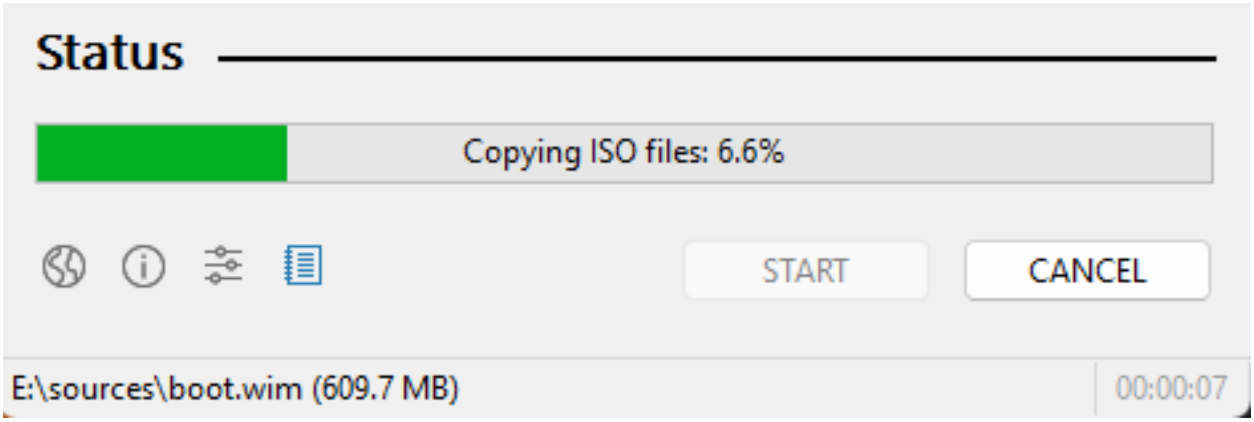


FIGURE 64 - COPYING ISO FILES

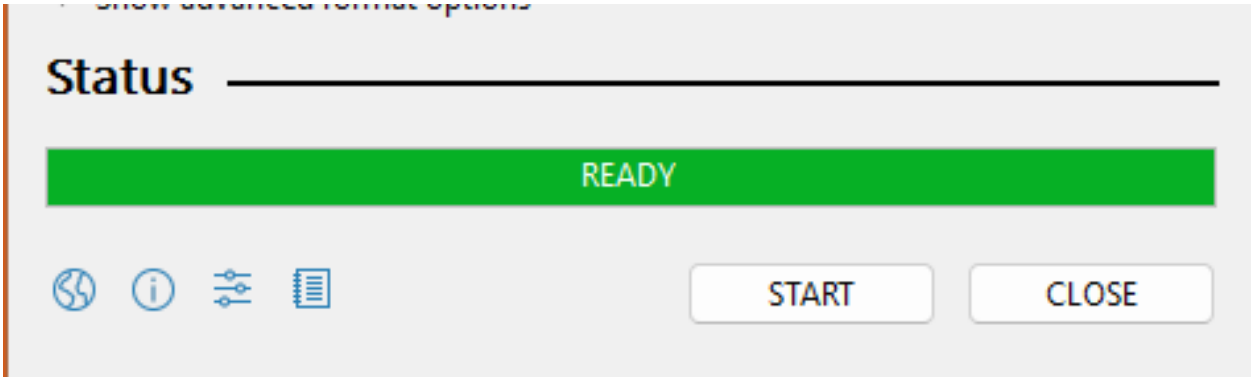


FIGURE 65 - READY TO GO!

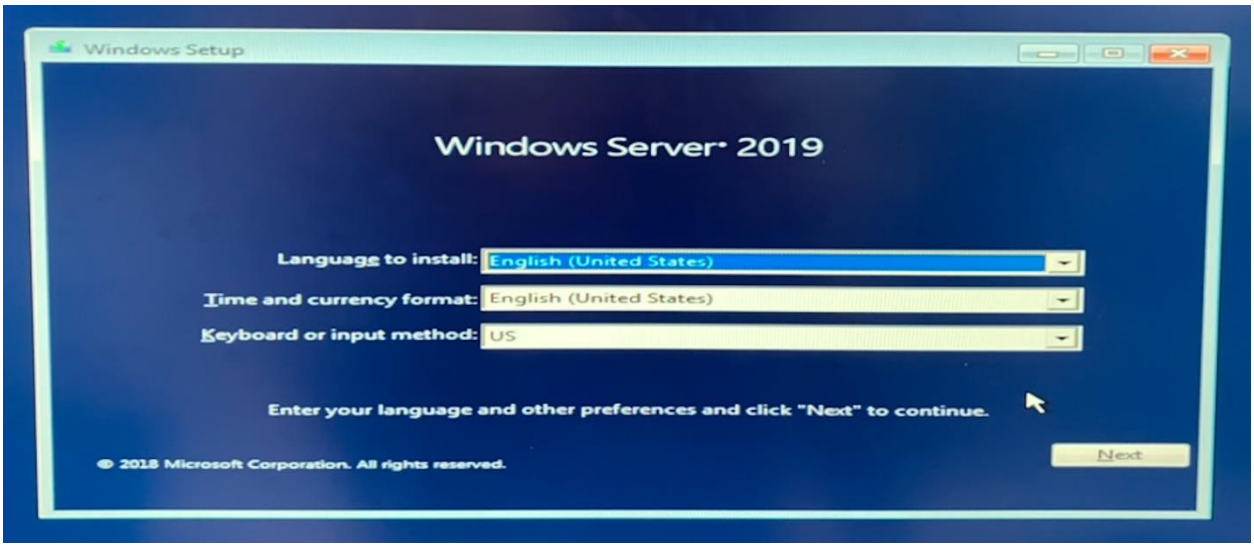


FIGURE 66 - INSTALL WINDOWS SERVER 2019 IN PC-B

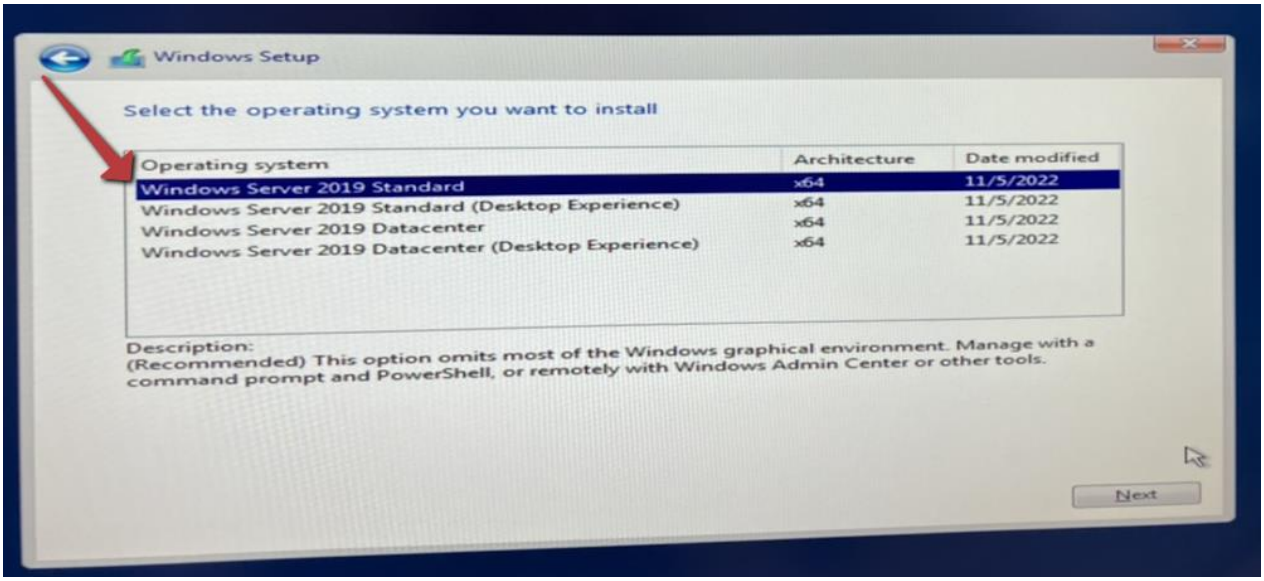


FIGURE 67 - CLICK THIS WS 2019 STANDARD

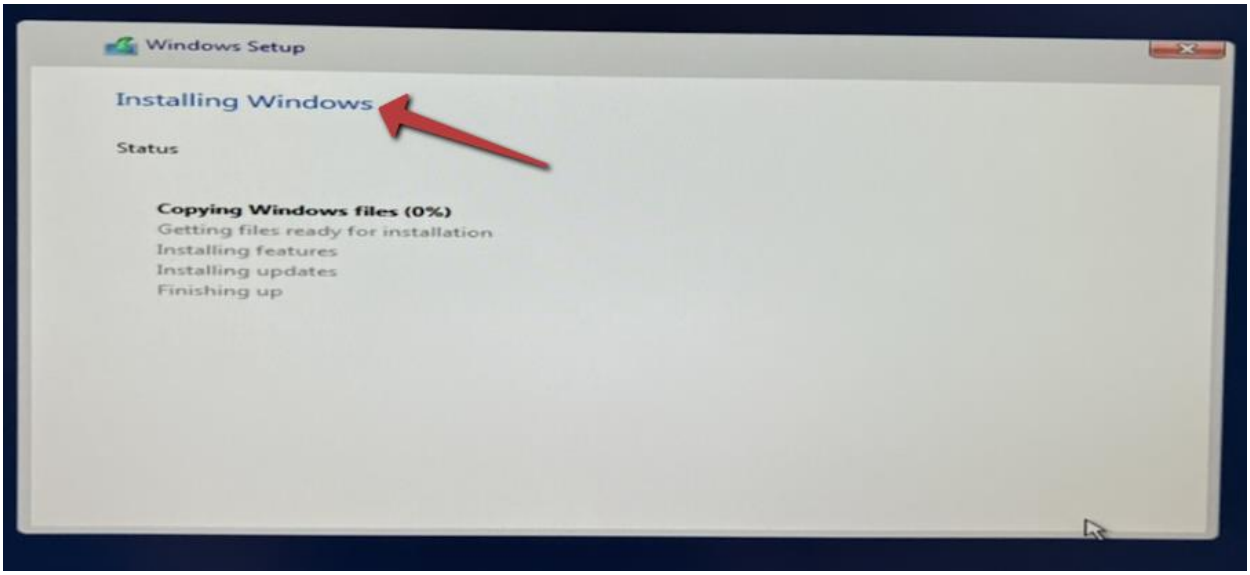


FIGURE 68 - INSTALLING WINDOWS

FIGURE 69 - LOADING FILES

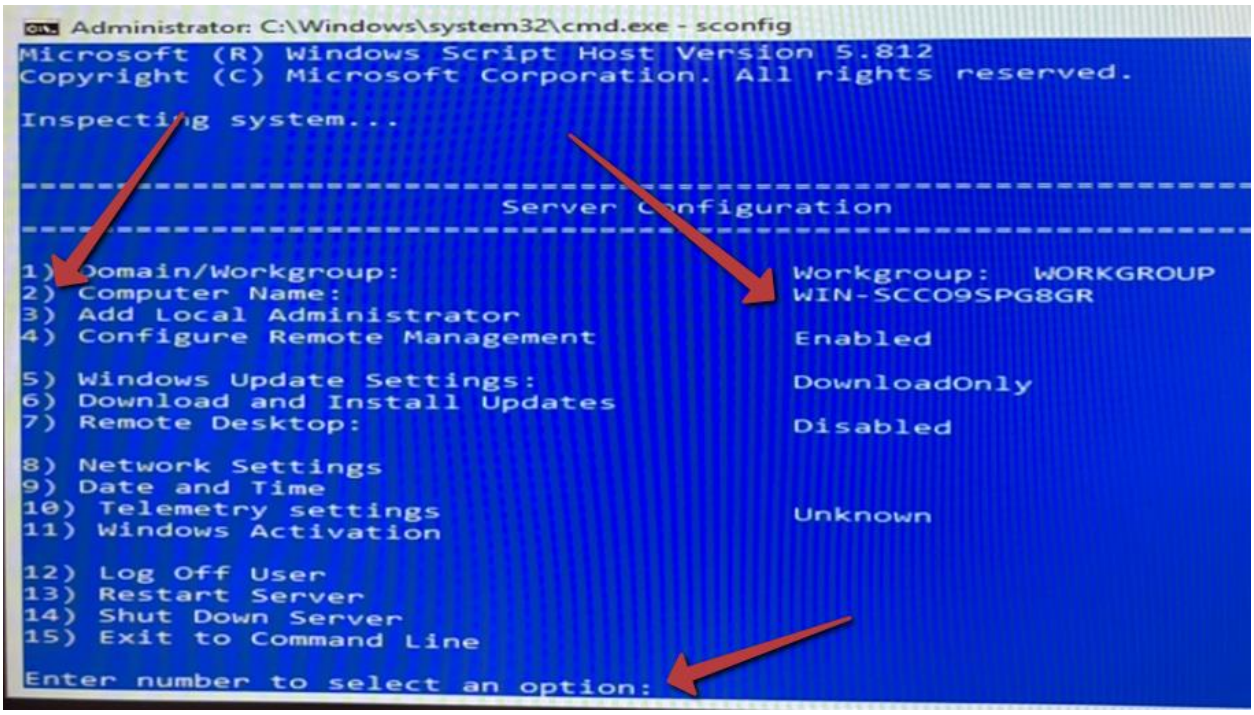


FIGURE 70 - CHANGE THE COMPUTER NAME BY PRESSING TWO NUMBER

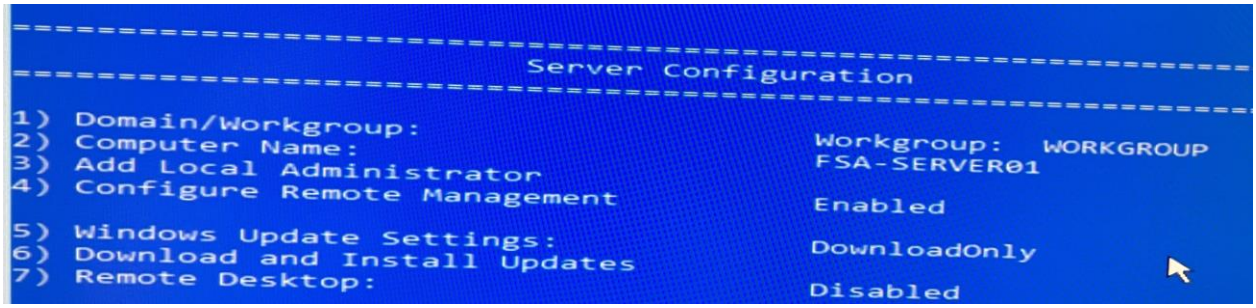


FIGURE 71 - DONE CHANGING THE COMPUTER NAME

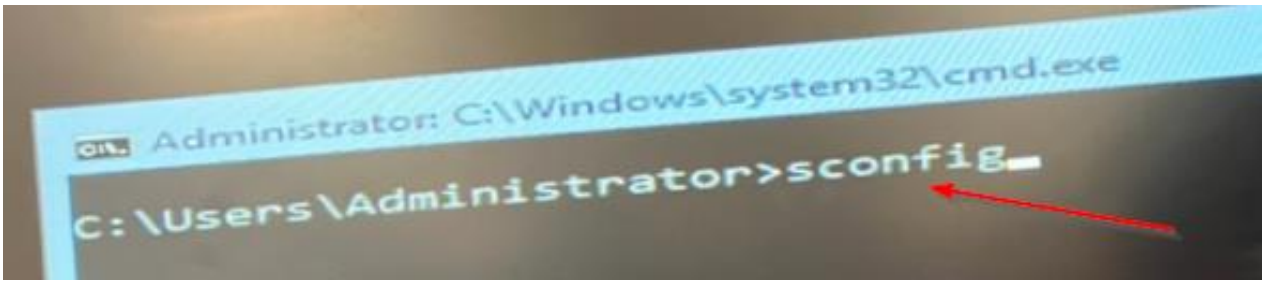


FIGURE 72 - TYPE "SCONFIG"

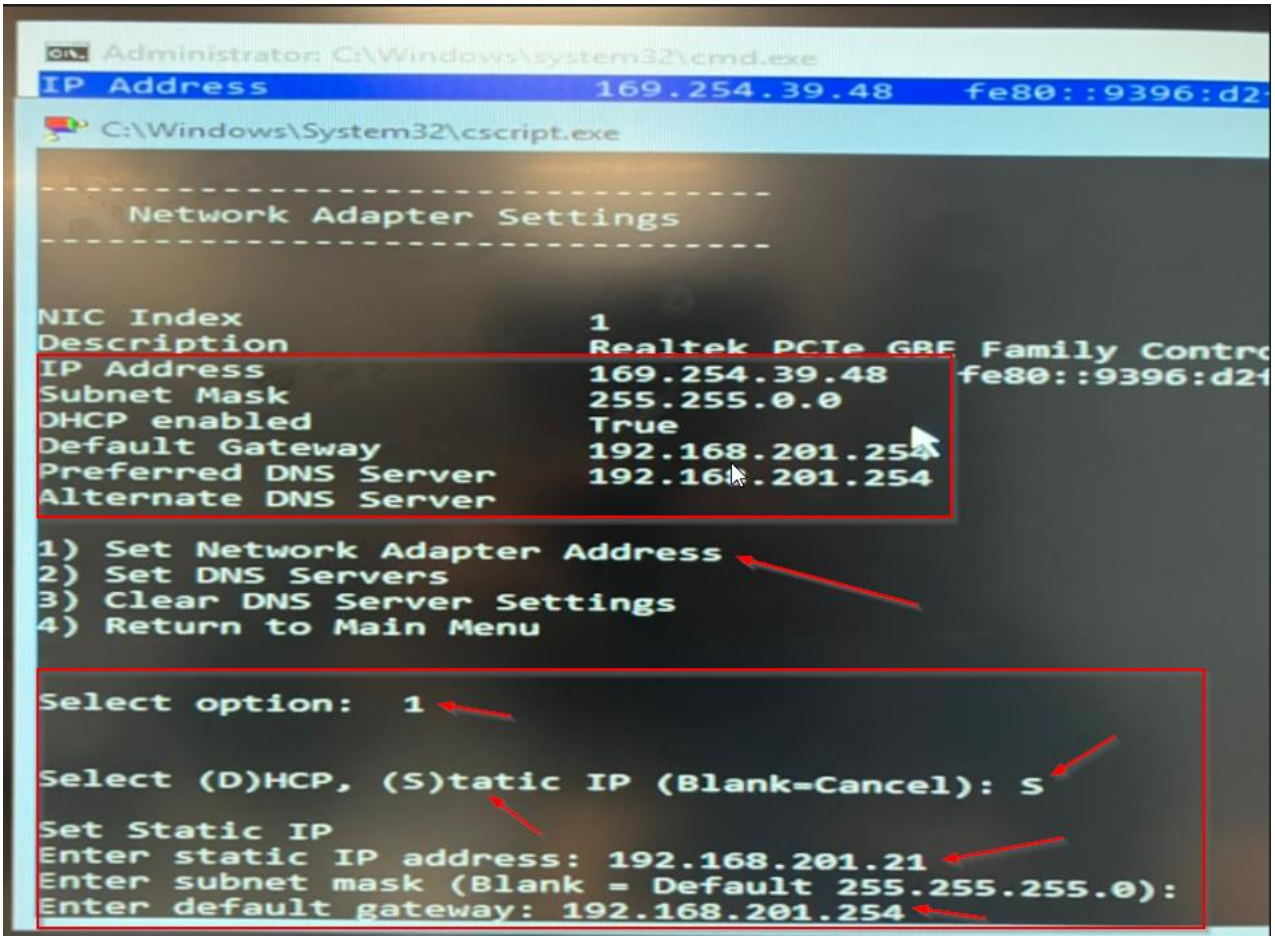


FIGURE 73 - CHANGE THE IP ADDRESS AND PUT THE REQUIRED STUFFS ON IT

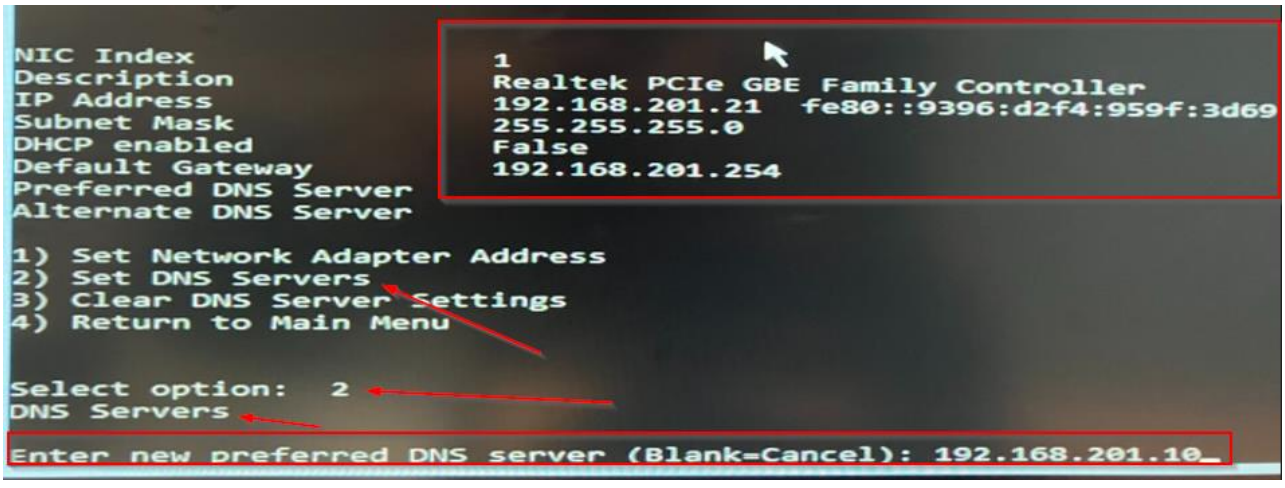


FIGURE 74 - SET THE NEW DNS SERVER

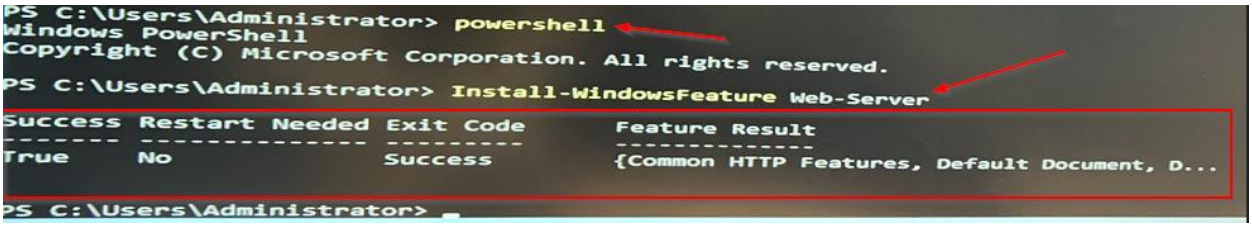


FIGURE 75 - USE POWERSHELL AS COMMAND THEN TYPE THE REQUIRED COMMAND

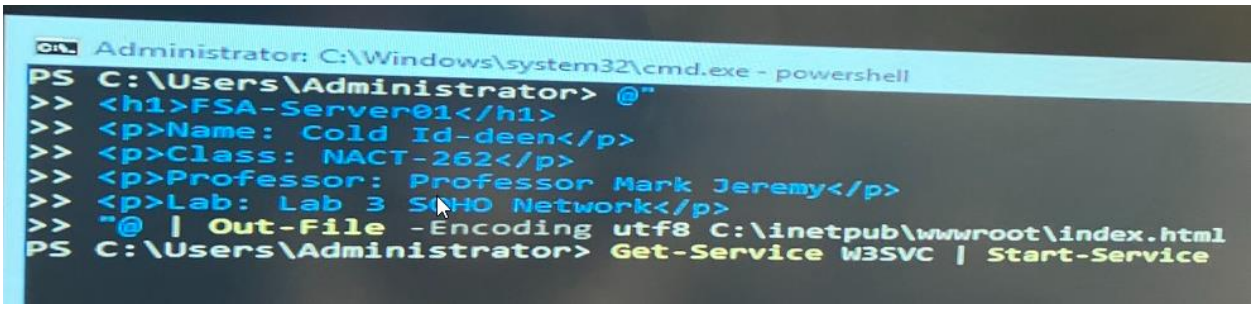


FIGURE 76 - TYPE THE HTML LANGUAGE AS CODING TO CREATE A WEBSITE AND START THE WEB SERVICE

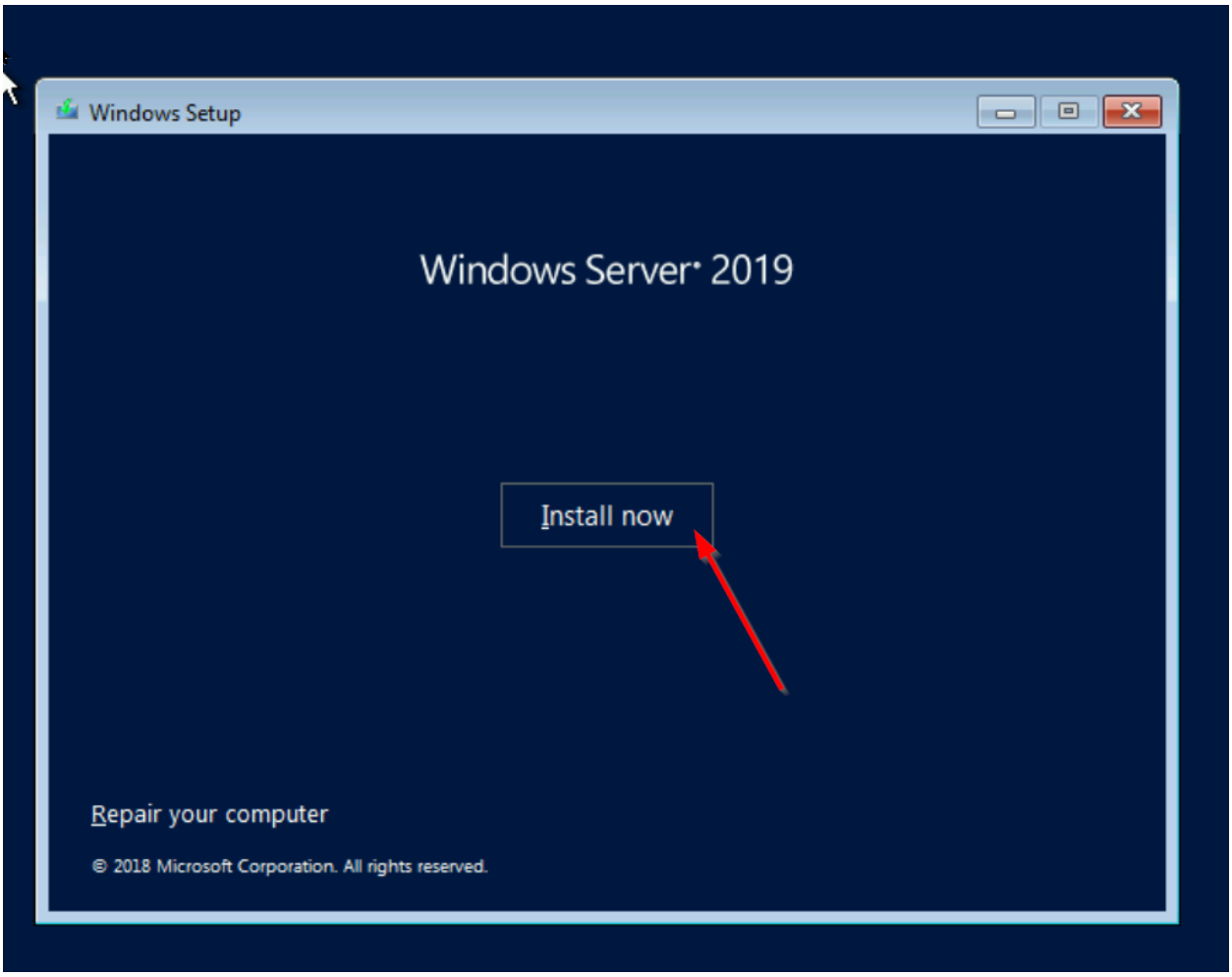


FIGURE 77 - INSTALL WS 2019 IN THE DELL SERVER

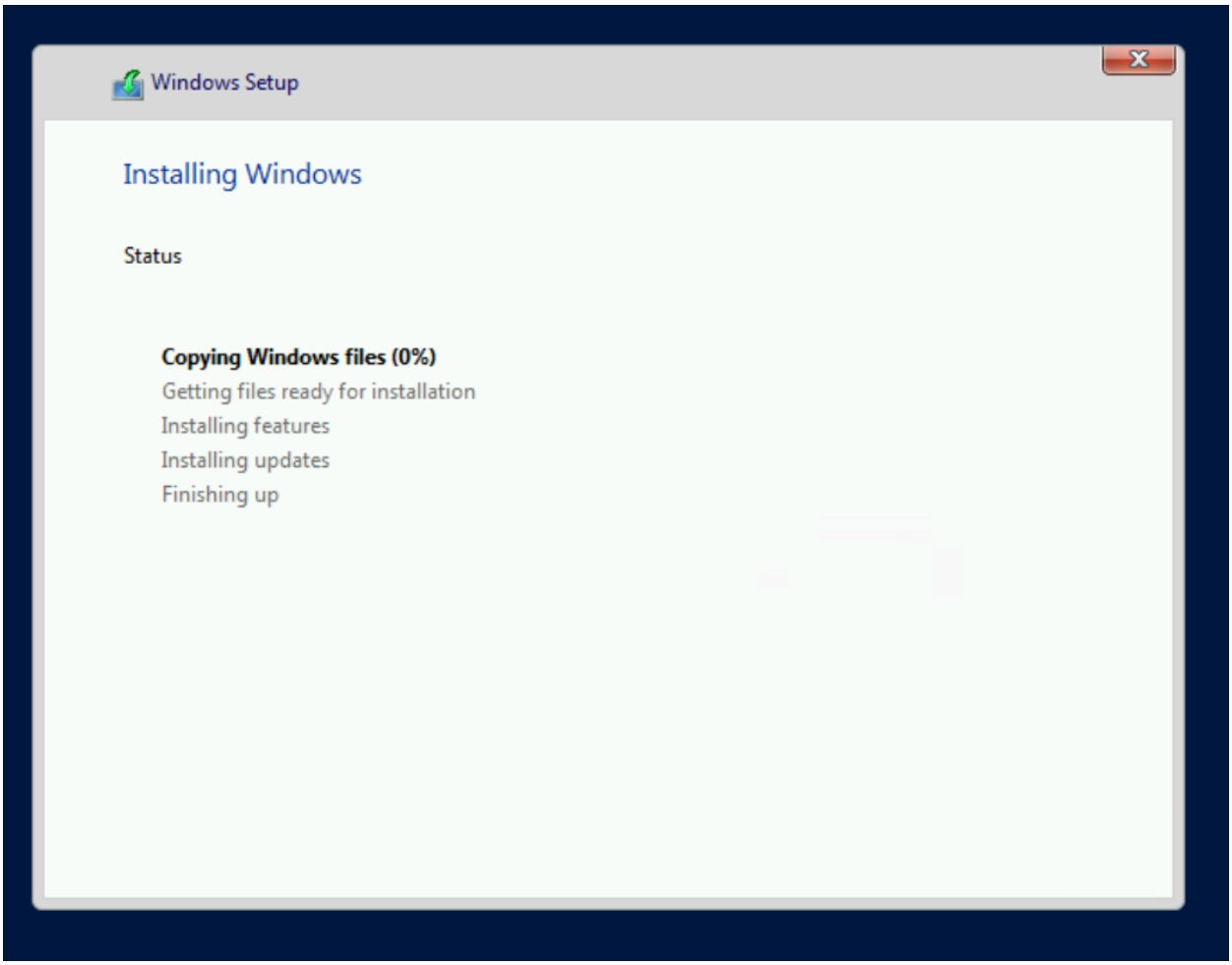


FIGURE 78 - INSTALLING WINDOWS

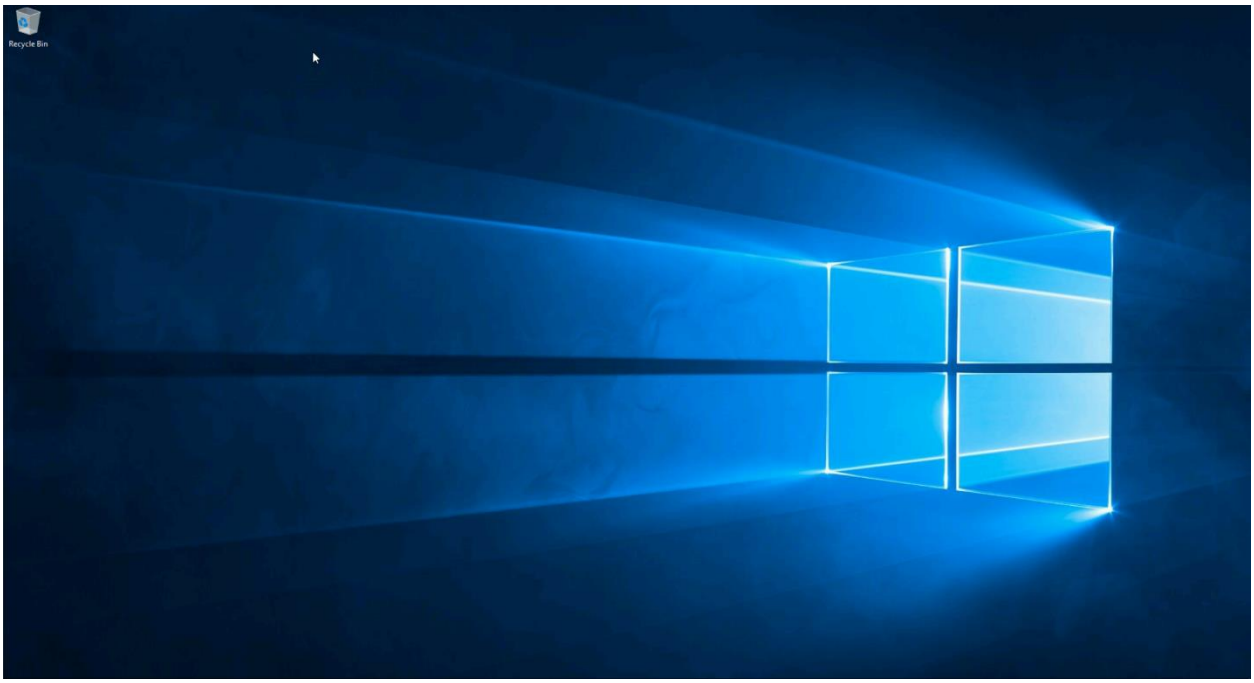


FIGURE 79 - THE OVERVIEW OF THE WS 2019 IN DELL SERVER

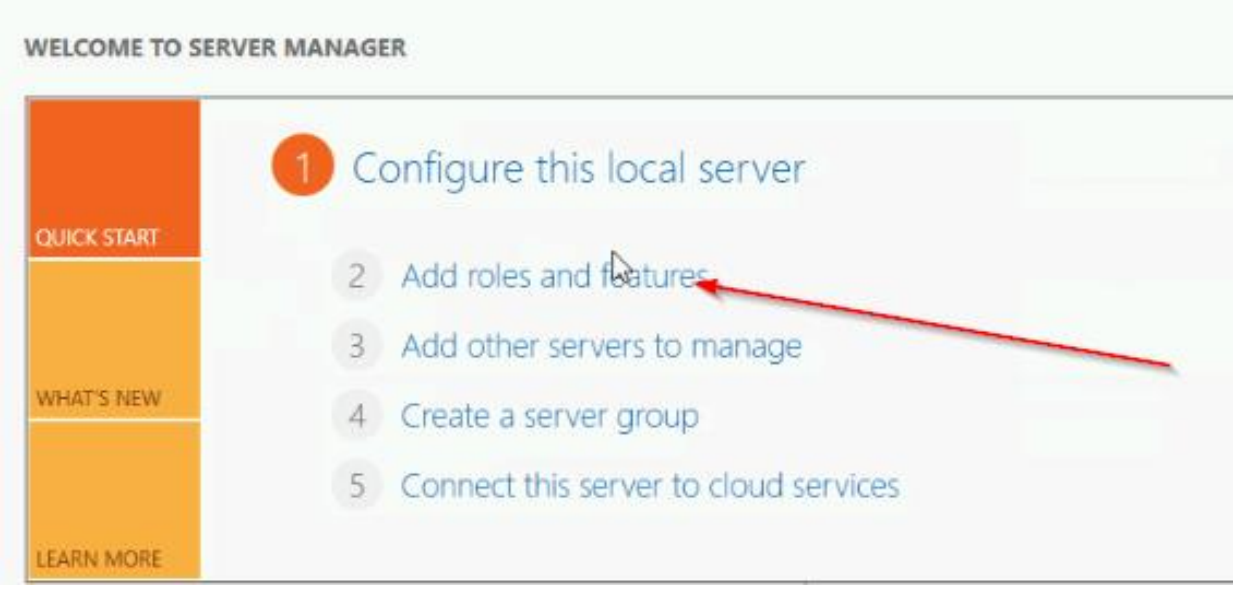


FIGURE 80 - CLICK "ADD ROLES AND FEATURES"

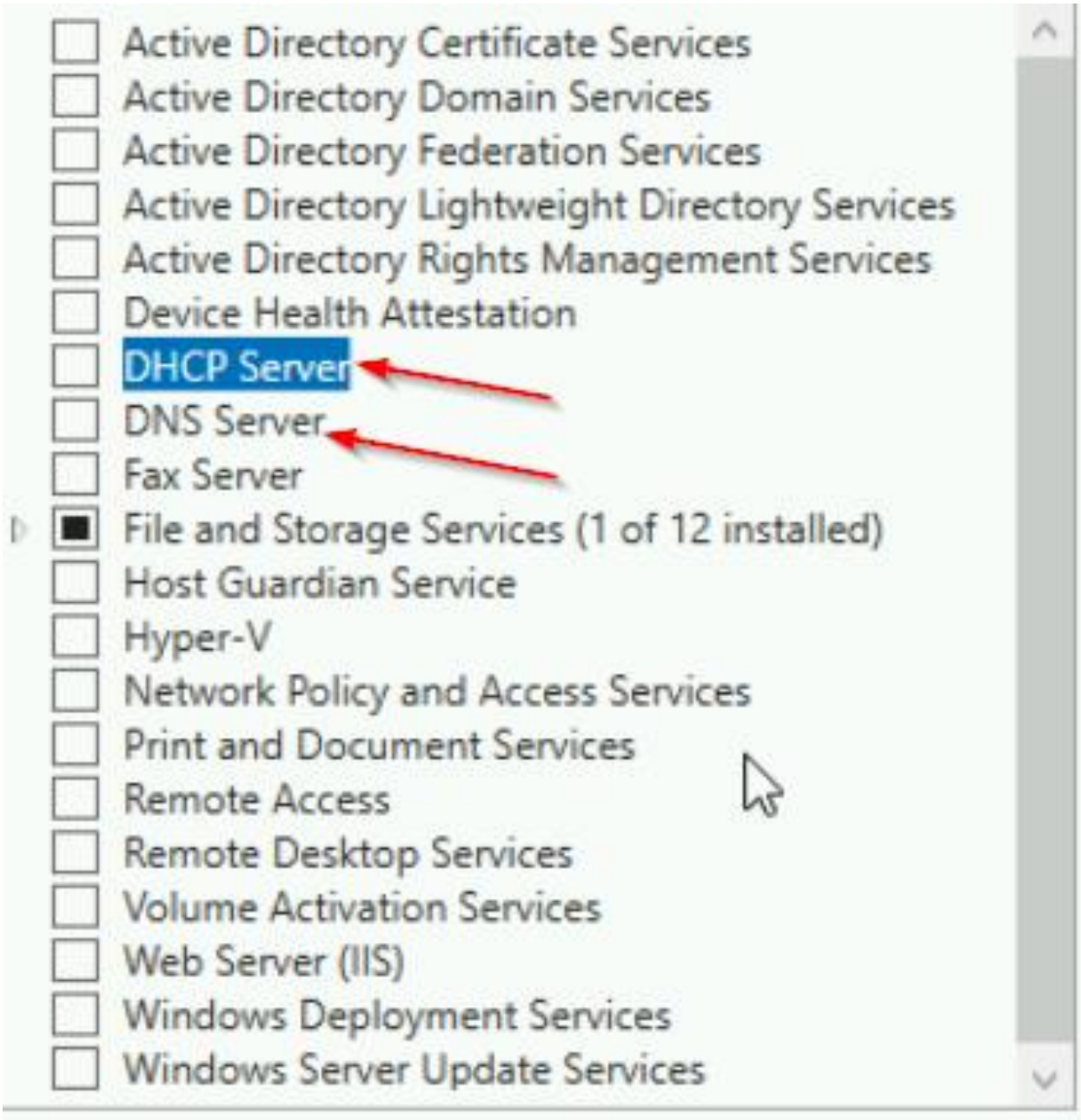
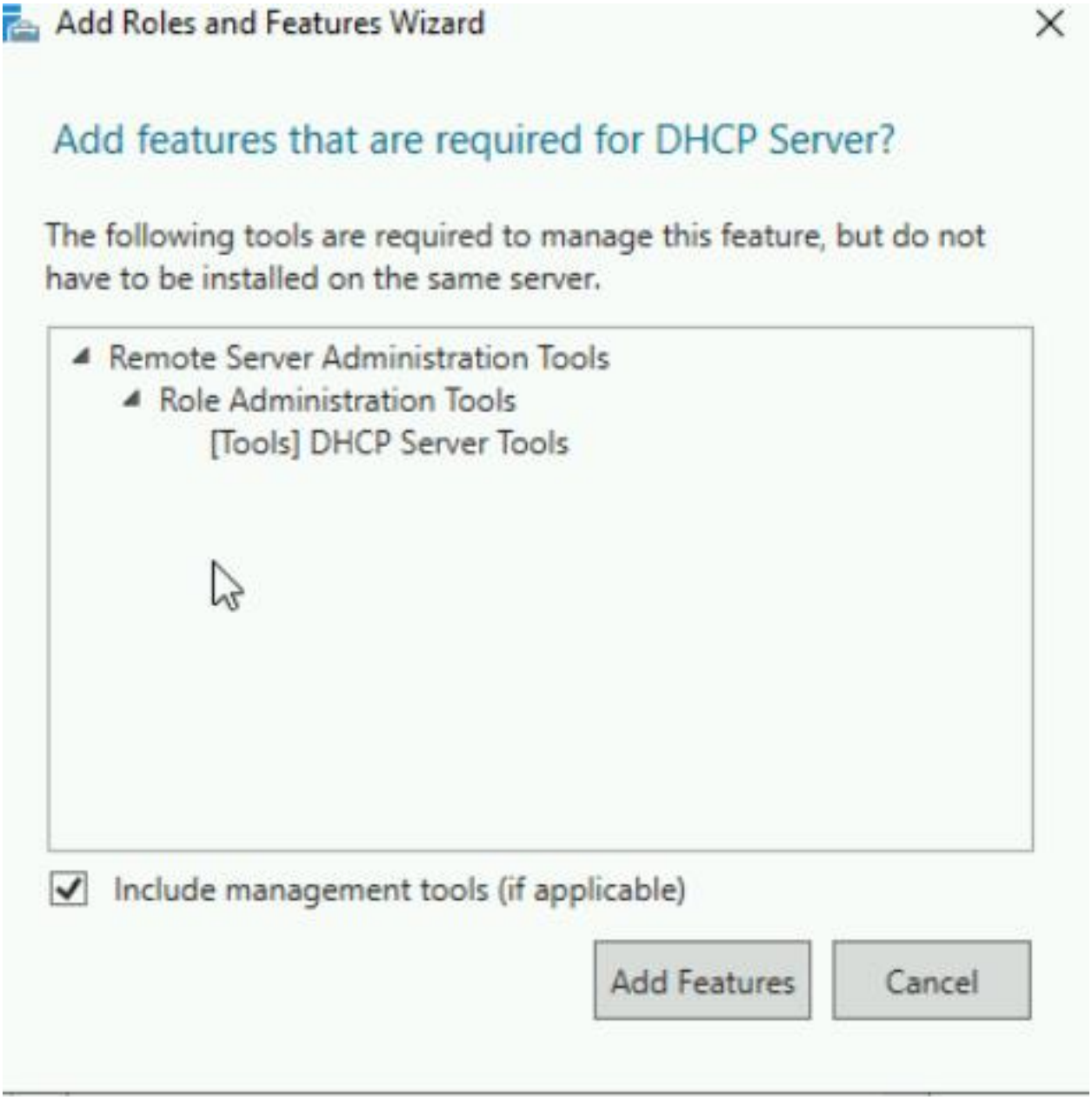


FIGURE 81 - SELECT DHCP AND DNS SERVER


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

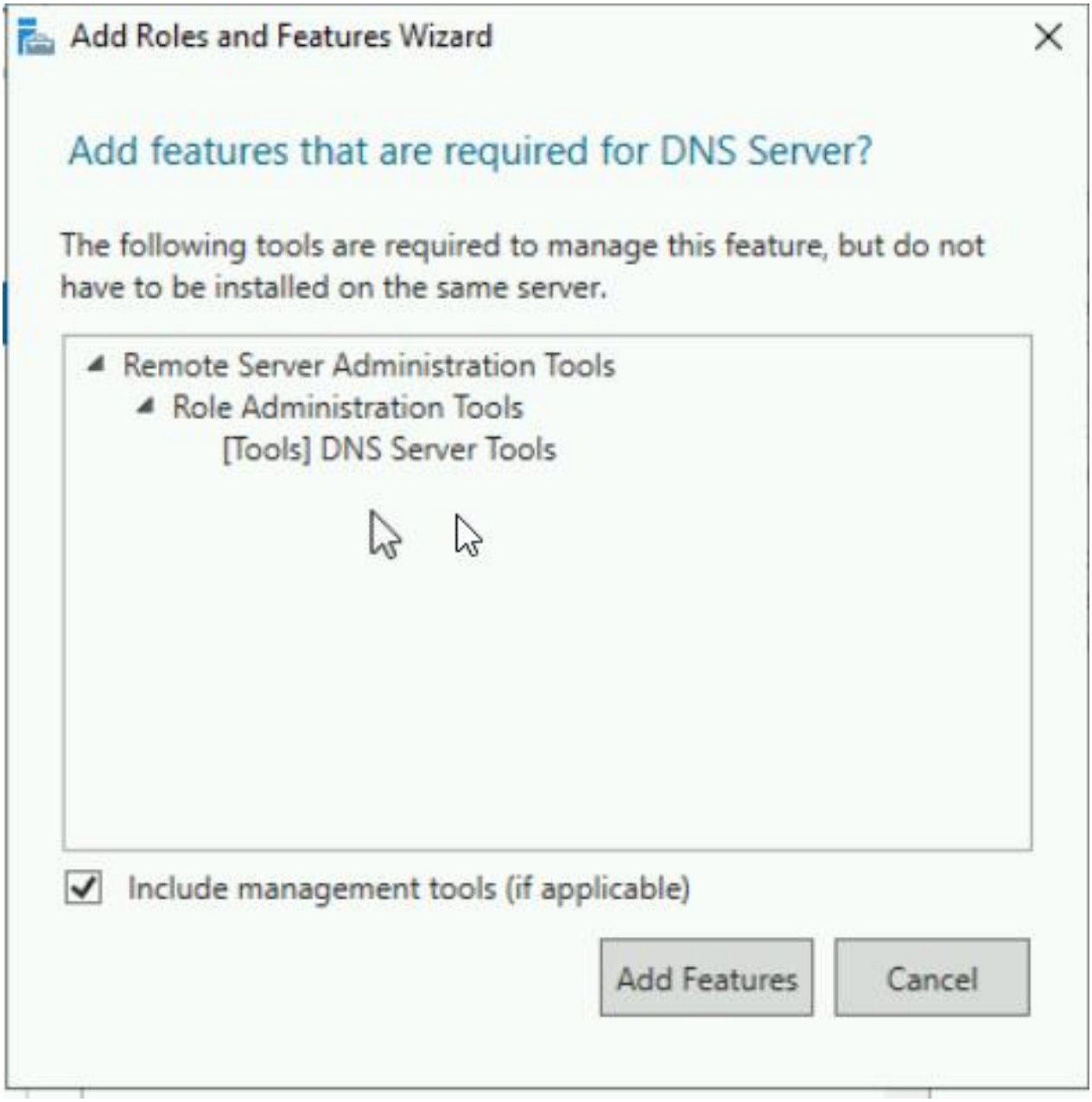


FIGURE 82 - ADD FEATURES FOR DHCP AND DNS

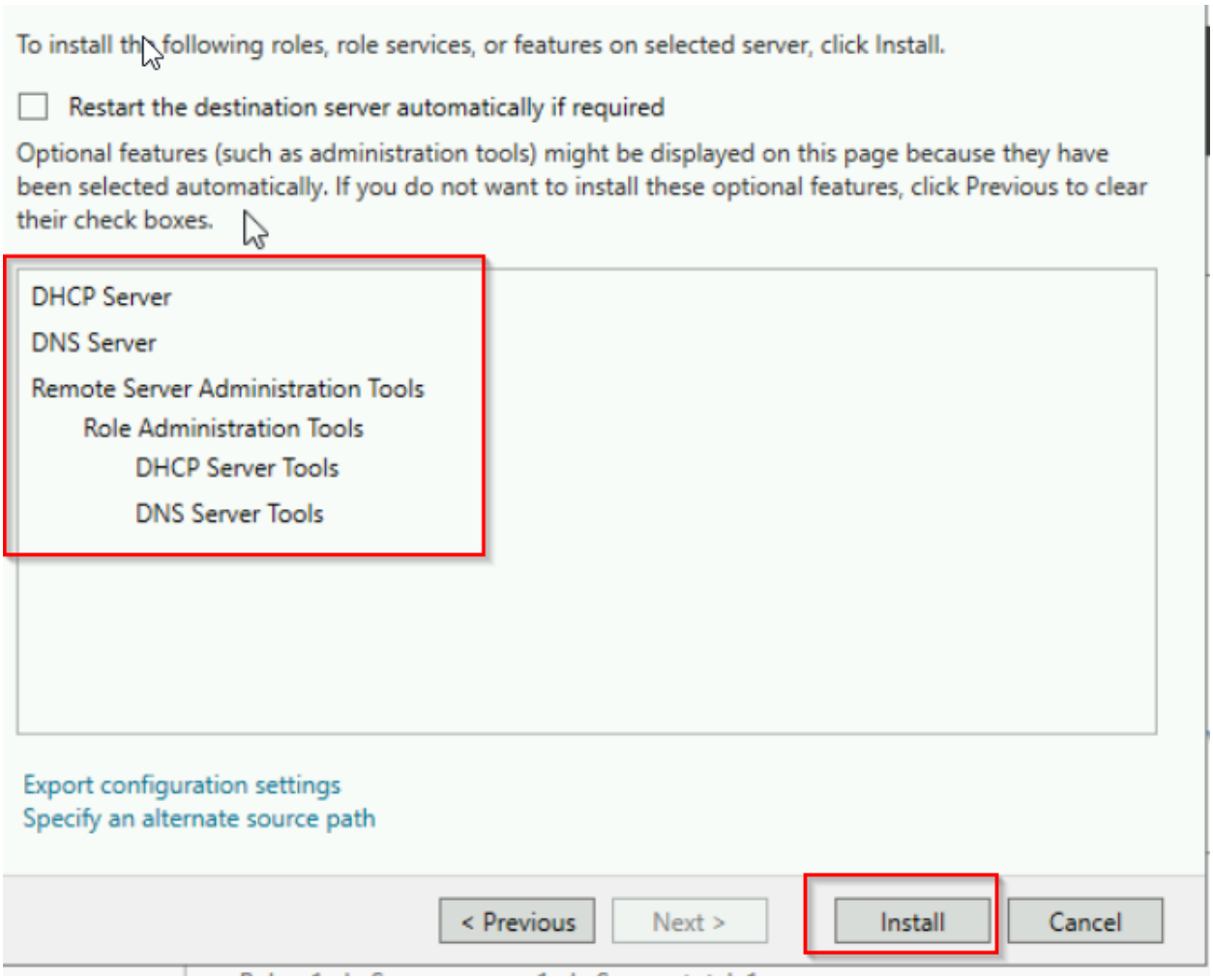


FIGURE 83 - INSTALL BOTH OF IT

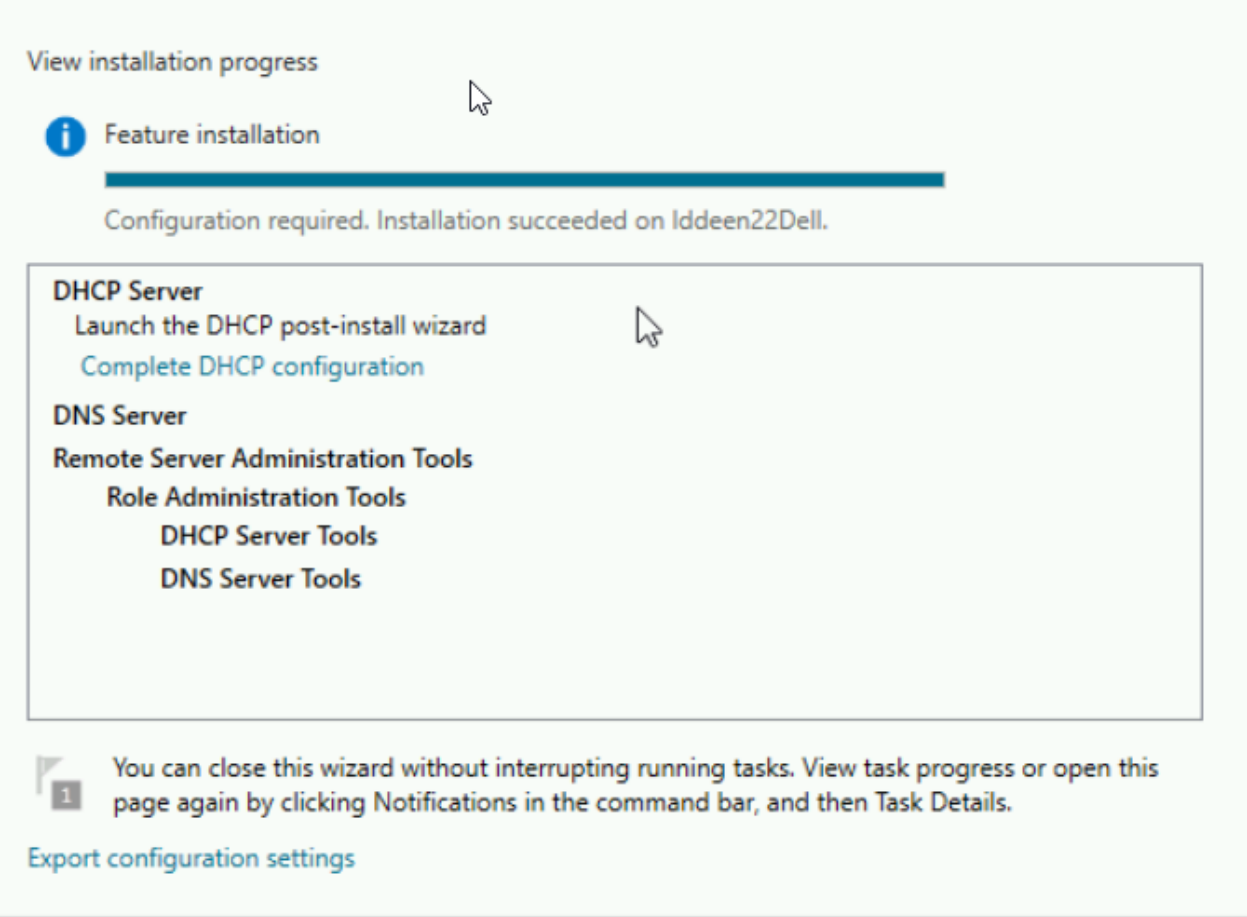


FIGURE 84 - INSTALLATION COMPLETED

FIGURE 85 - CLICK "TOOLS"

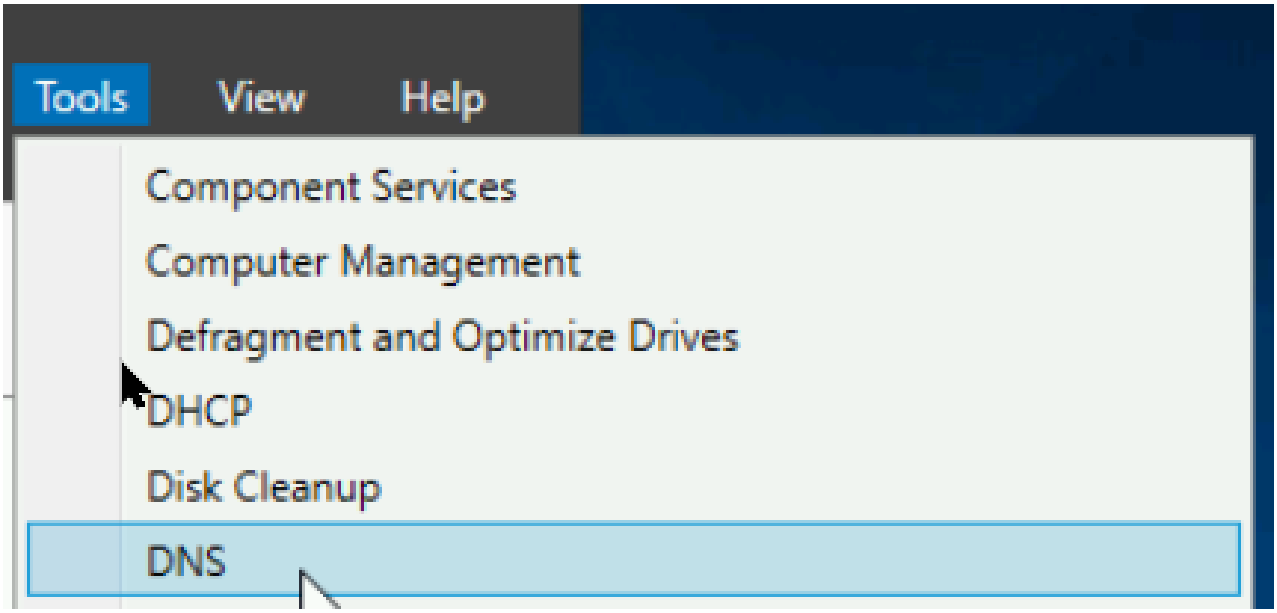


FIGURE 86 - CLICK "DNS"

FIGURE 87 - SEE THE OVERVIEW OF THE DNS MANAGER

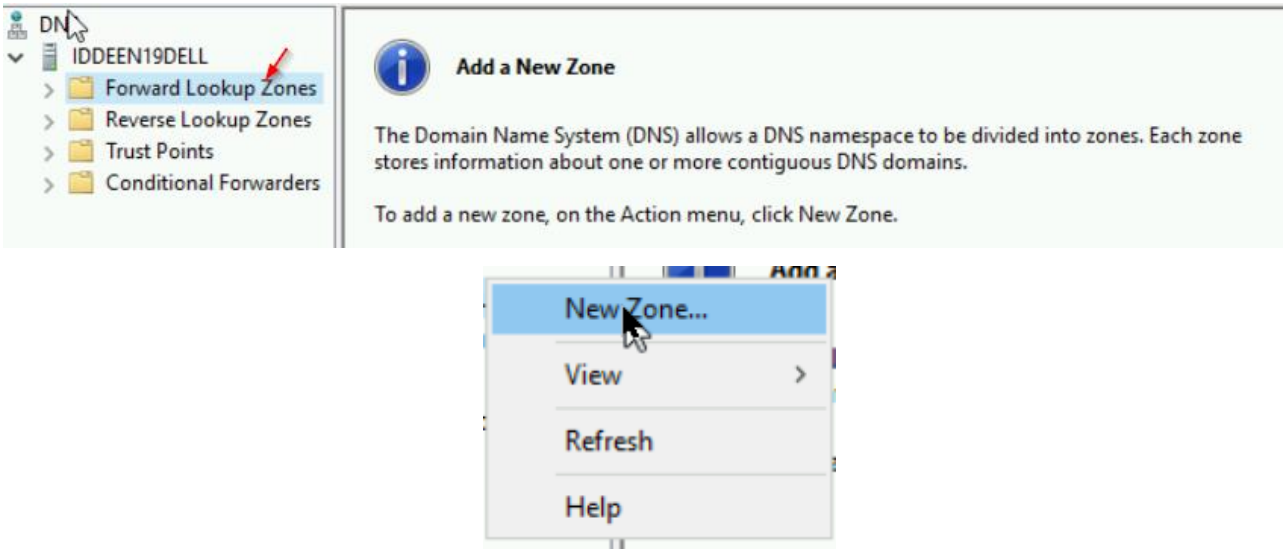


FIGURE 88 - ADD A NEW ZONE

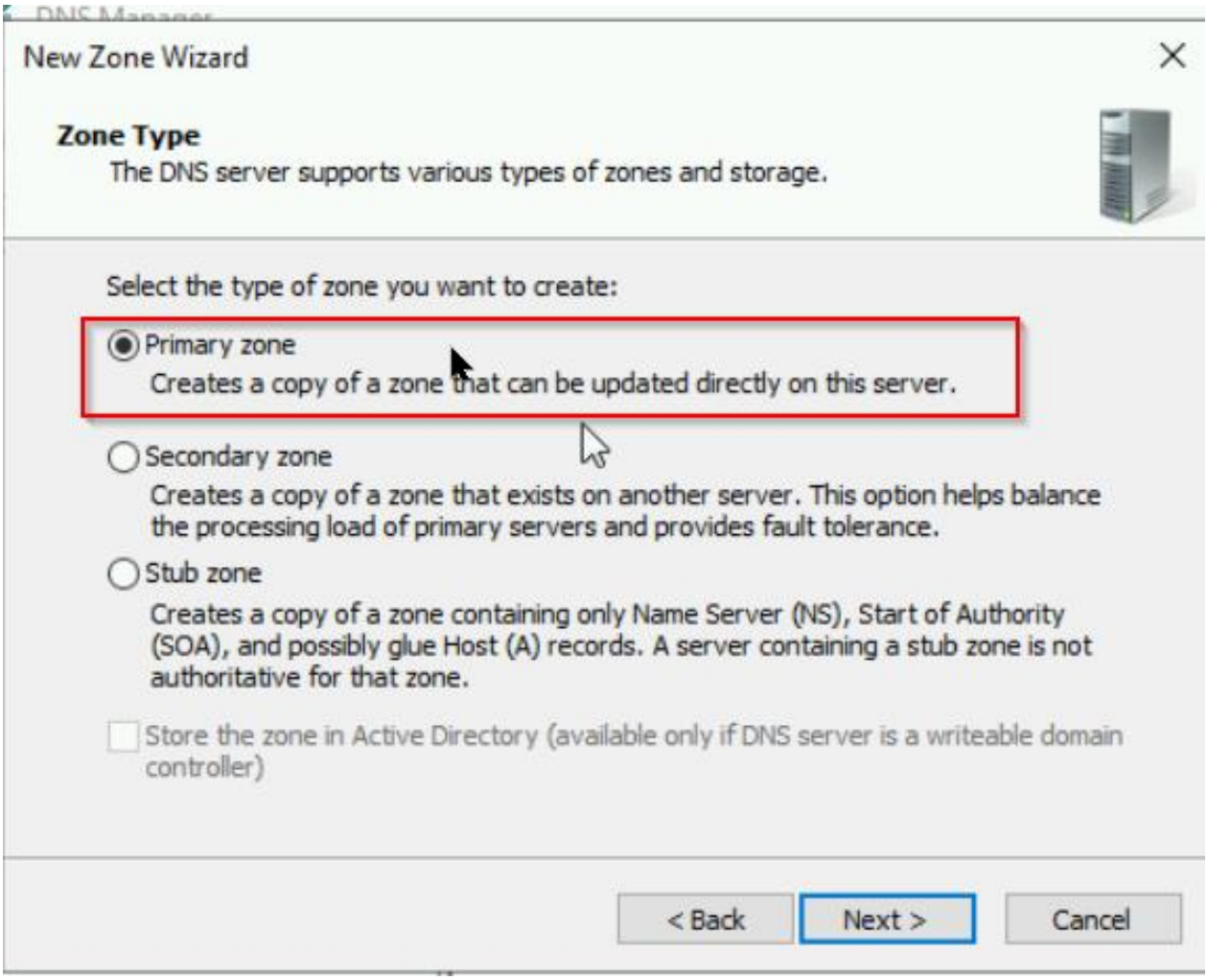


FIGURE 89 - PROCCED THE ZONE WIZARD

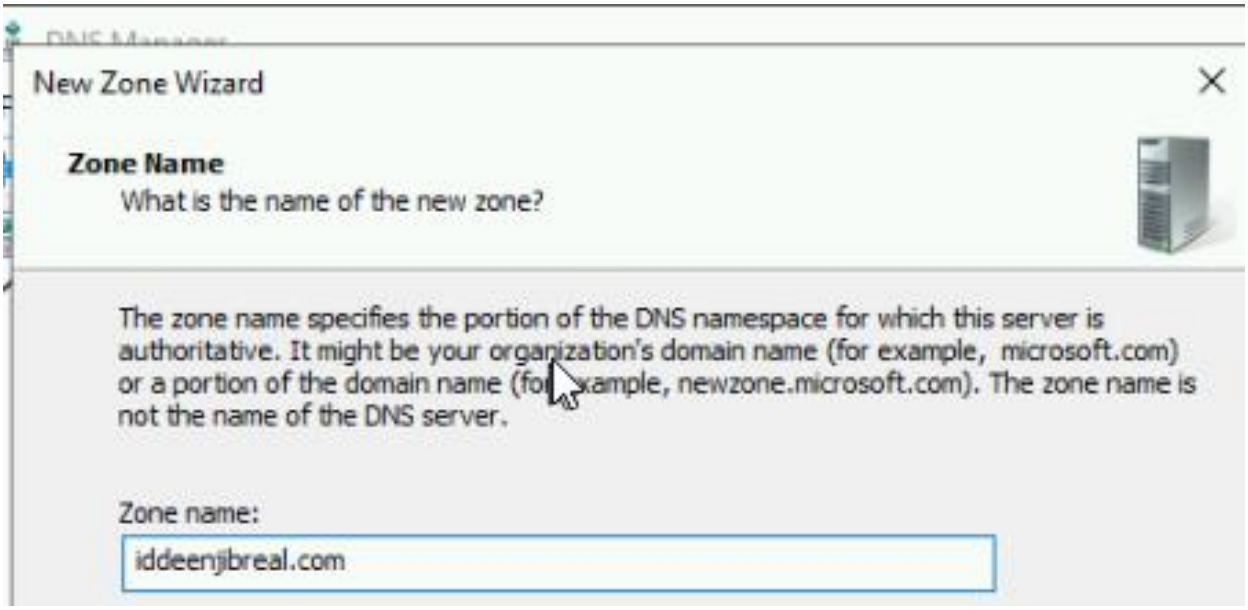


FIGURE 90 - TYPE THE REQUIRED TEXT ON ZONE NAME

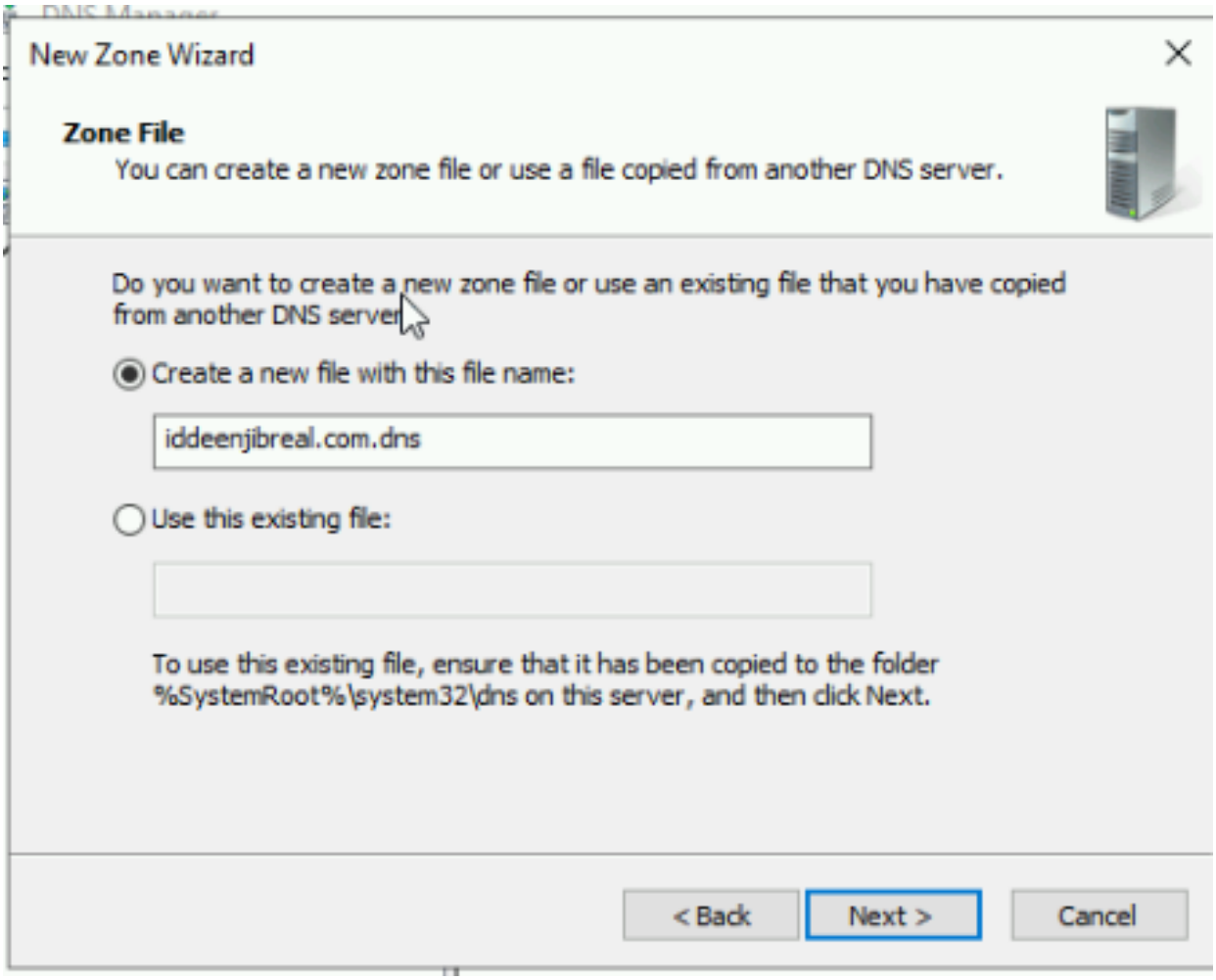
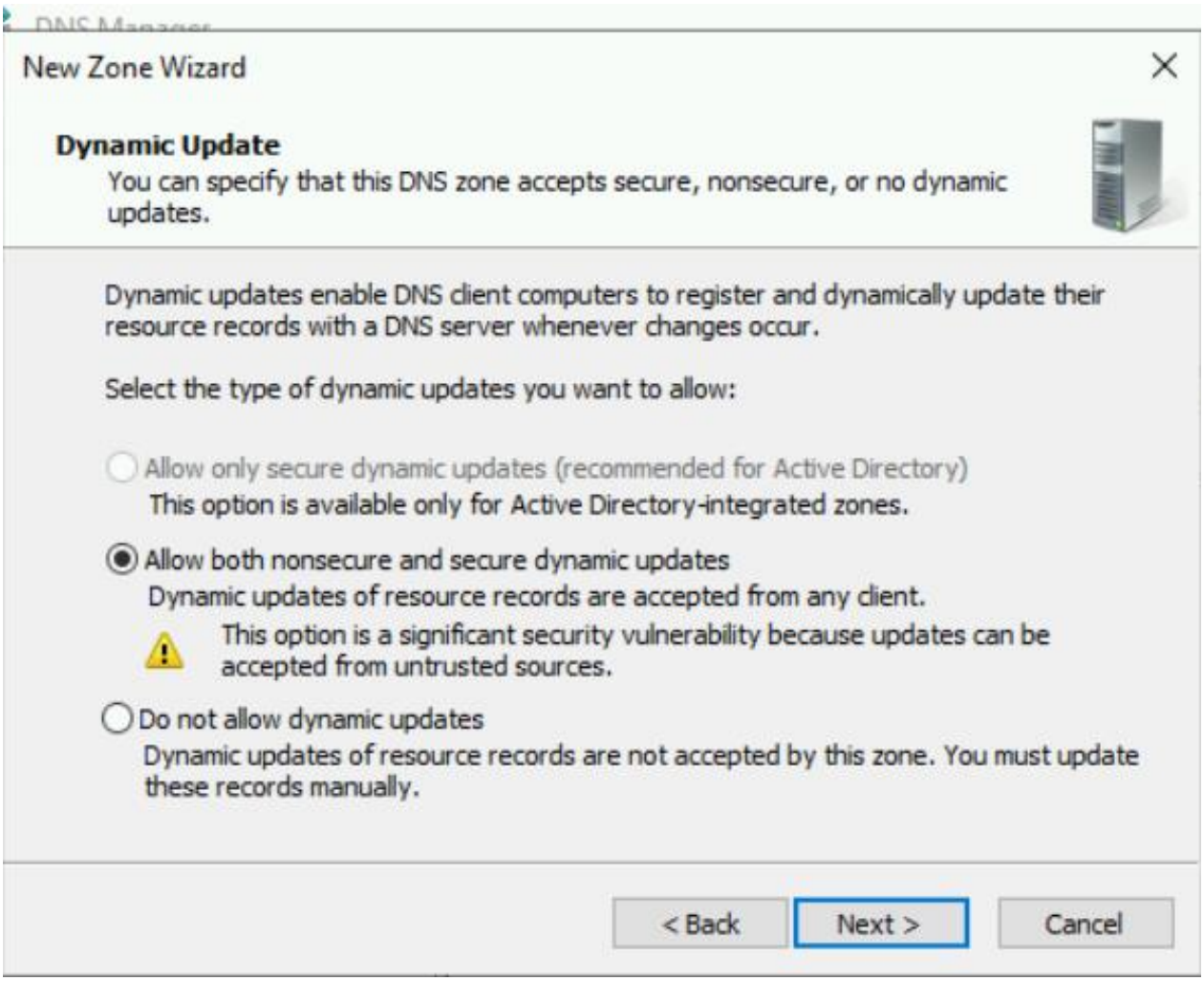


FIGURE 91 - CREATE A NEW FILE WITH THIS FILE NAME


DNS Manager
New Zone Wizard
Dynamic Update
You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.
Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur.
Select the type of dynamic updates you want to allow:
Allow only secure dynamic updates (recommended for Active Directory)
This option is available only for Active Directory-integrated zones.
Allow both nonsecure and secure dynamic updates
Dynamic updates of resource records are accepted from any client.
This option is a significant security vulnerability because updates can be accepted from untrusted sources.
Do not allow dynamic updates
Dynamic updates of resource records are not accepted by this zone. You must update these records manually.
< Back
Next >
Cancel

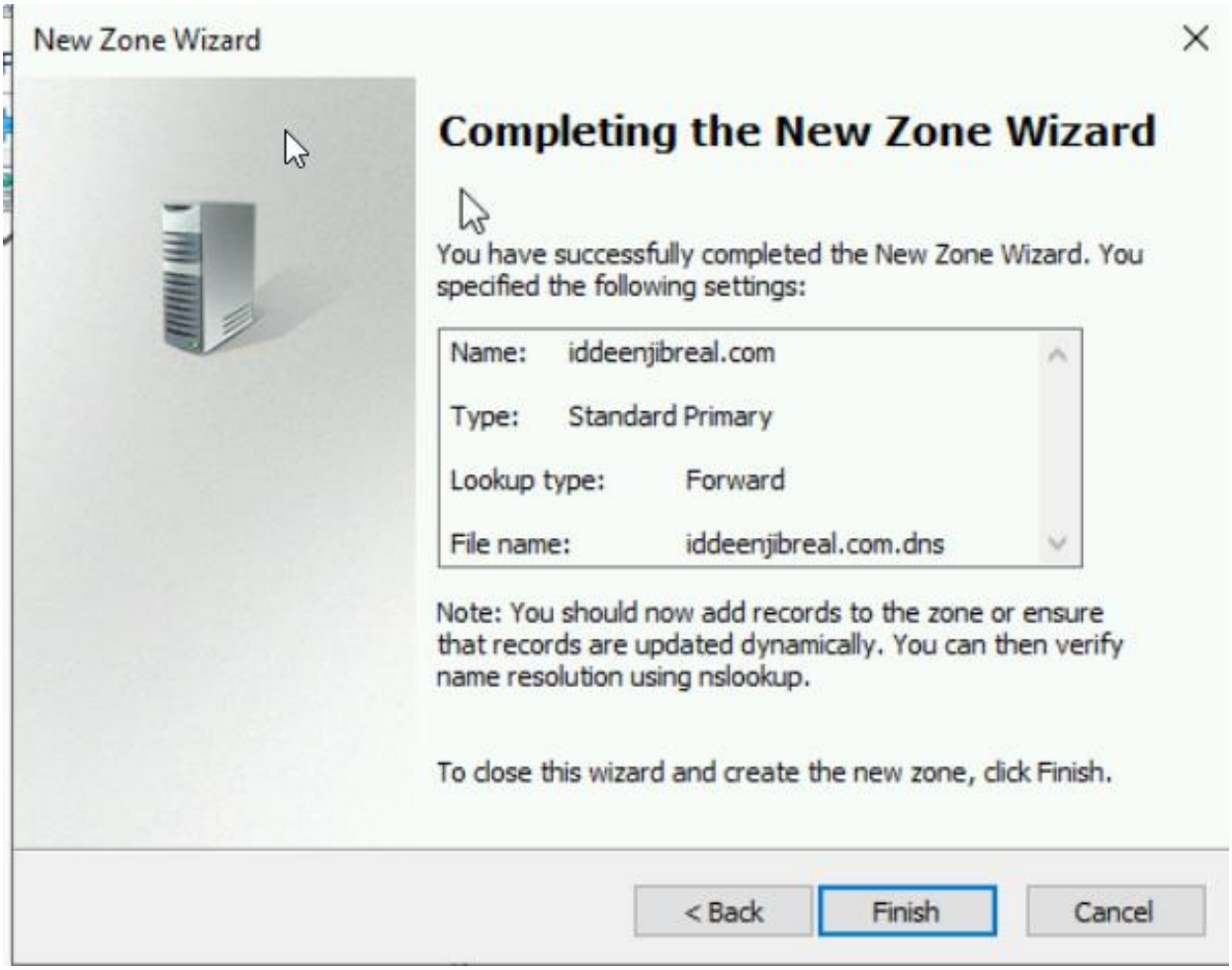


FIGURE 92 - PROCCED TO COMPLETE THE NEW ZONE WIZARD

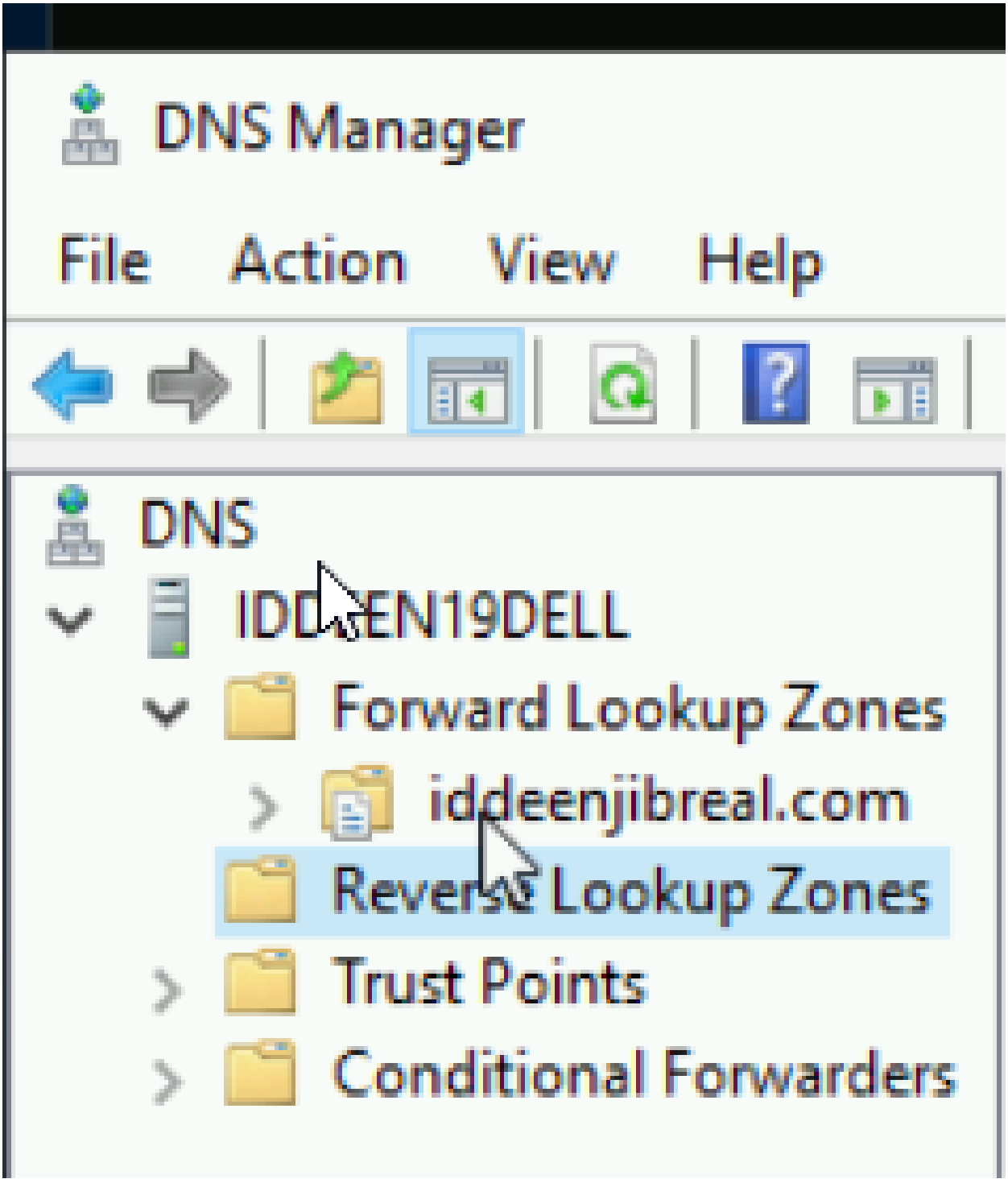


FIGURE 93 - CLICK "REVERSE LOOKUP ZONES" TO CREATE ANOTHER ZONE

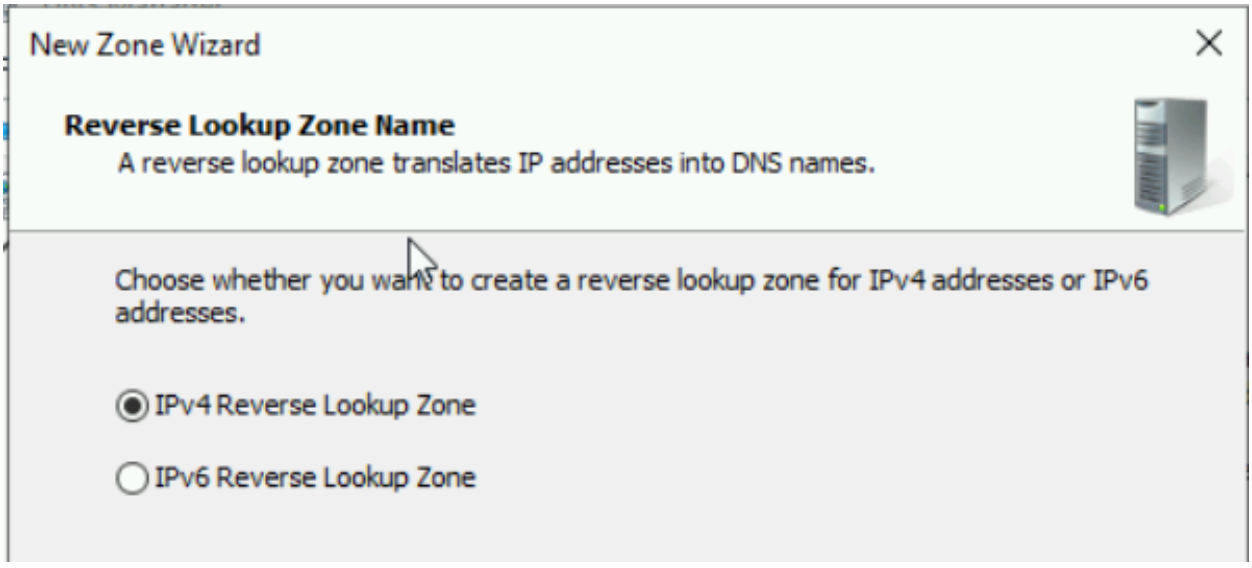


FIGURE 94 - PROCCED UNTIL CLICK "IPV4 REVERSE LOOKUP ZONE"

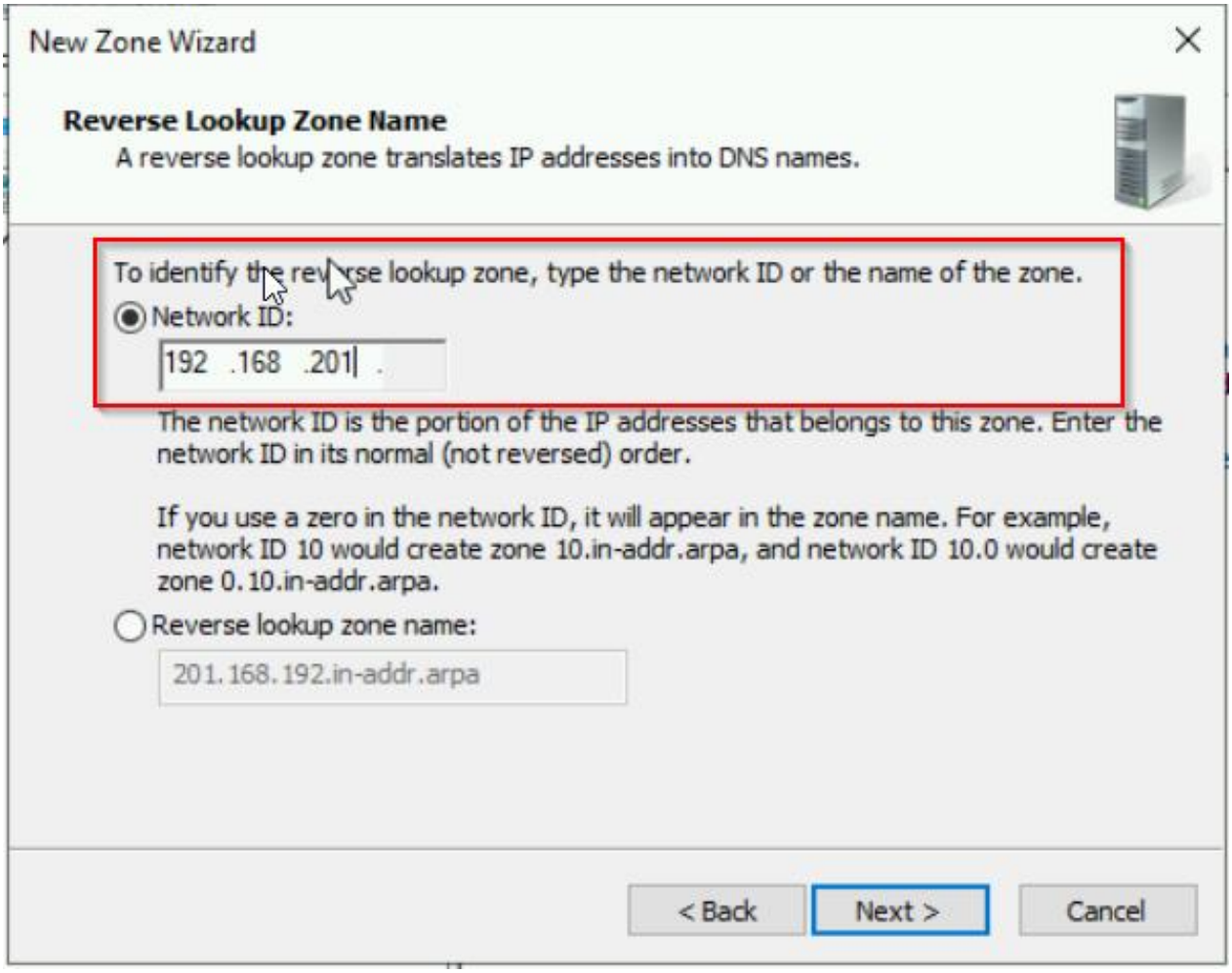
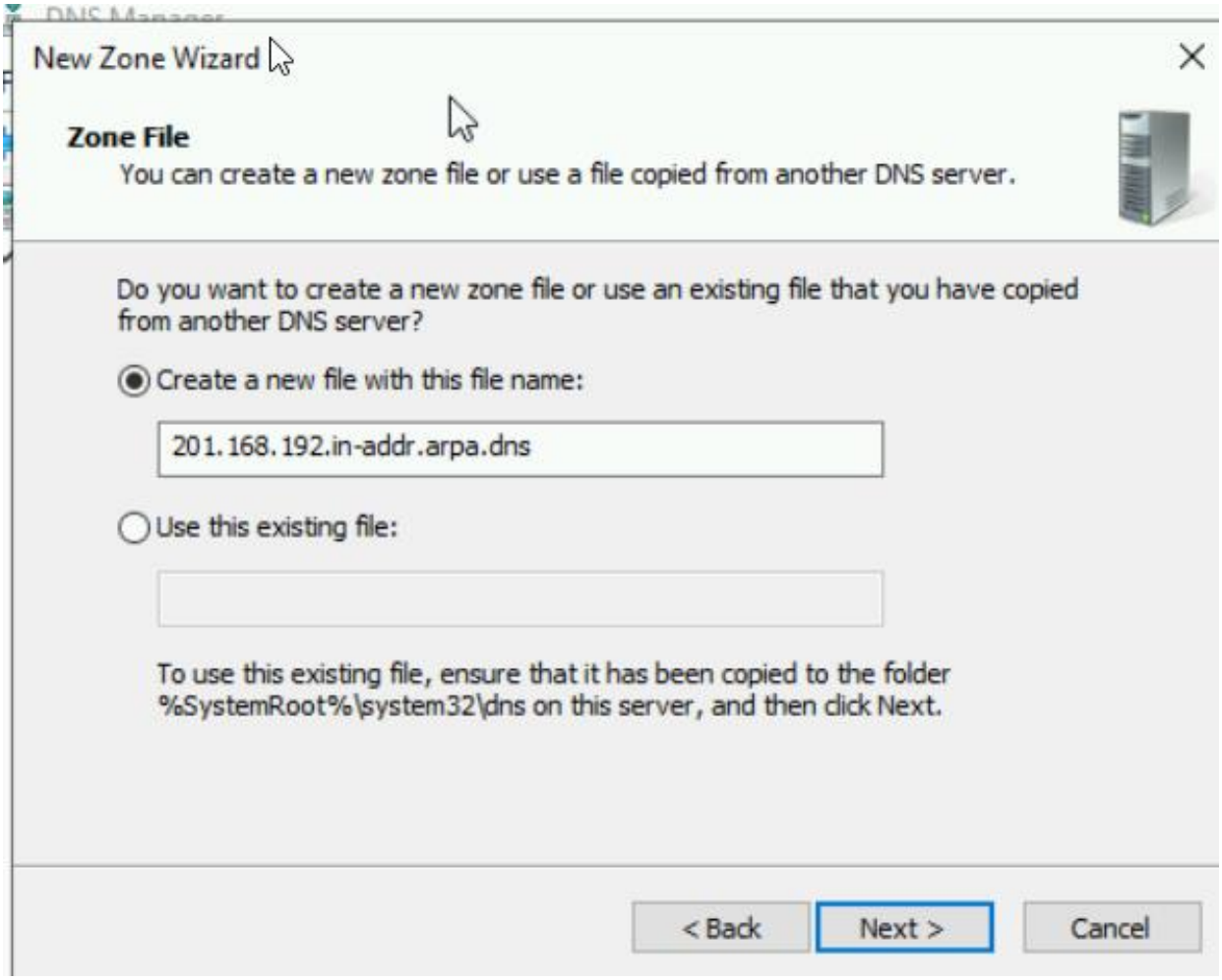


FIGURE 95 - TYPE THE REQUIRED NETWORK ID TO PROCCED


DNS Manager
New Zone Wizard
Zone File
You can create a new zone file or use a file copied from another DNS server.
Do you want to create a new zone file or use an existing file that you have copied from another DNS server?
Create a new file with this file name:
201.168.192.in-addr.arpa.dns
Use this existing file:
To use this existing file, ensure that it has been copied to the folder %SystemRoot%\system32\dns on this server, and then click Next.
< Back
Next >
Cancel

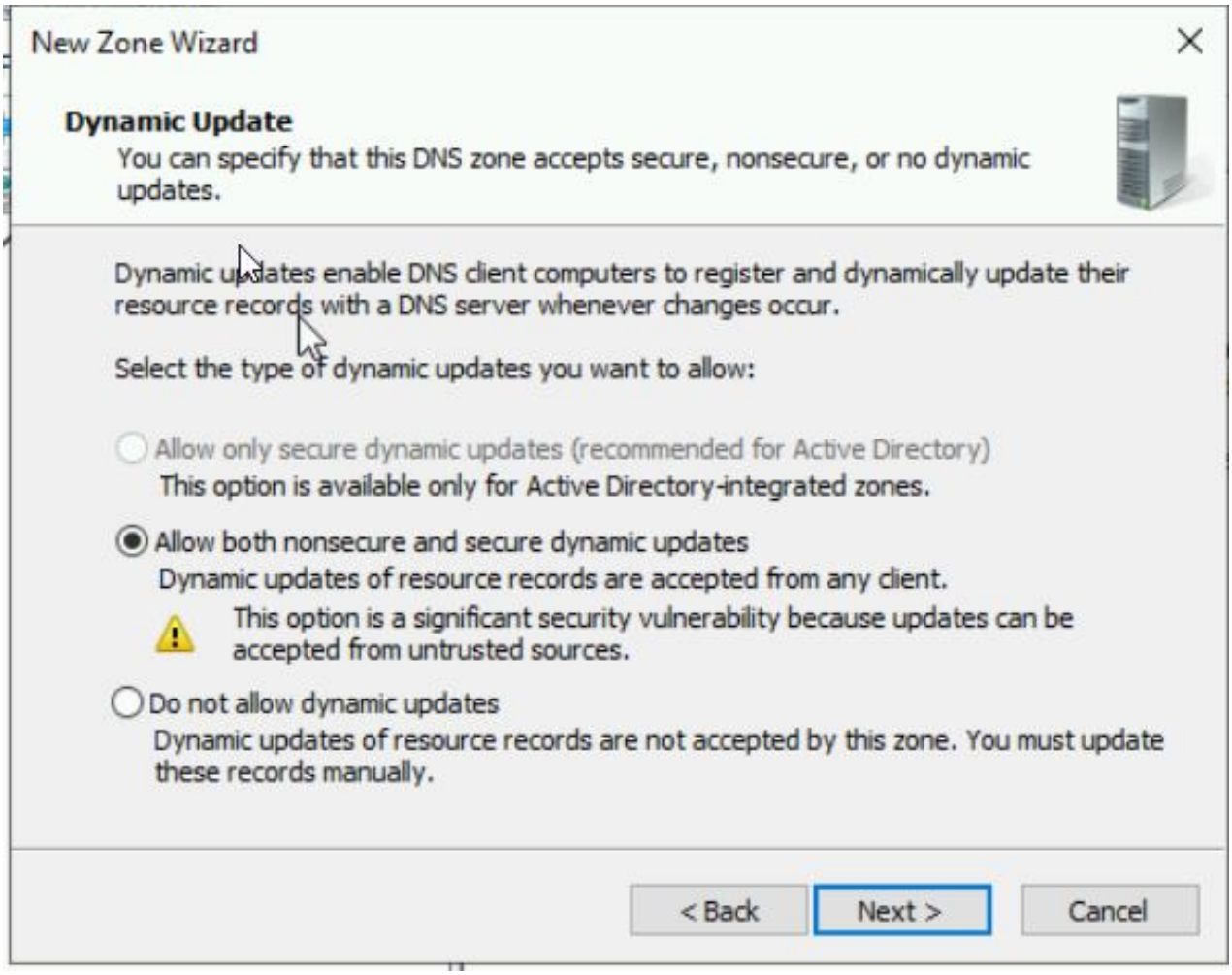


FIGURE 96 - PROCCED TO DO THE SAME THING AS FOR FORWARD ZONE

FIGURE 97 - CLICK "FINISH"

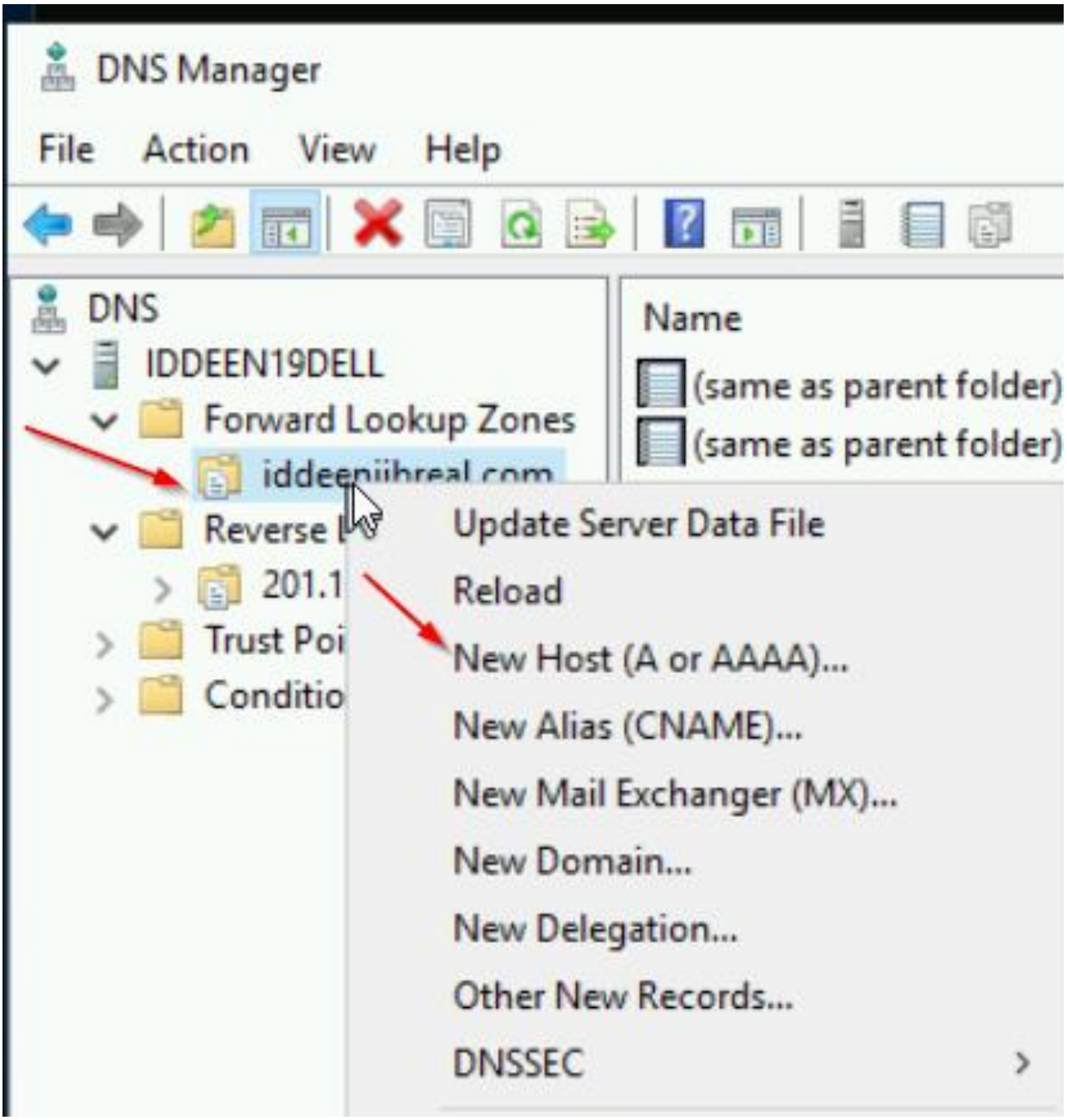
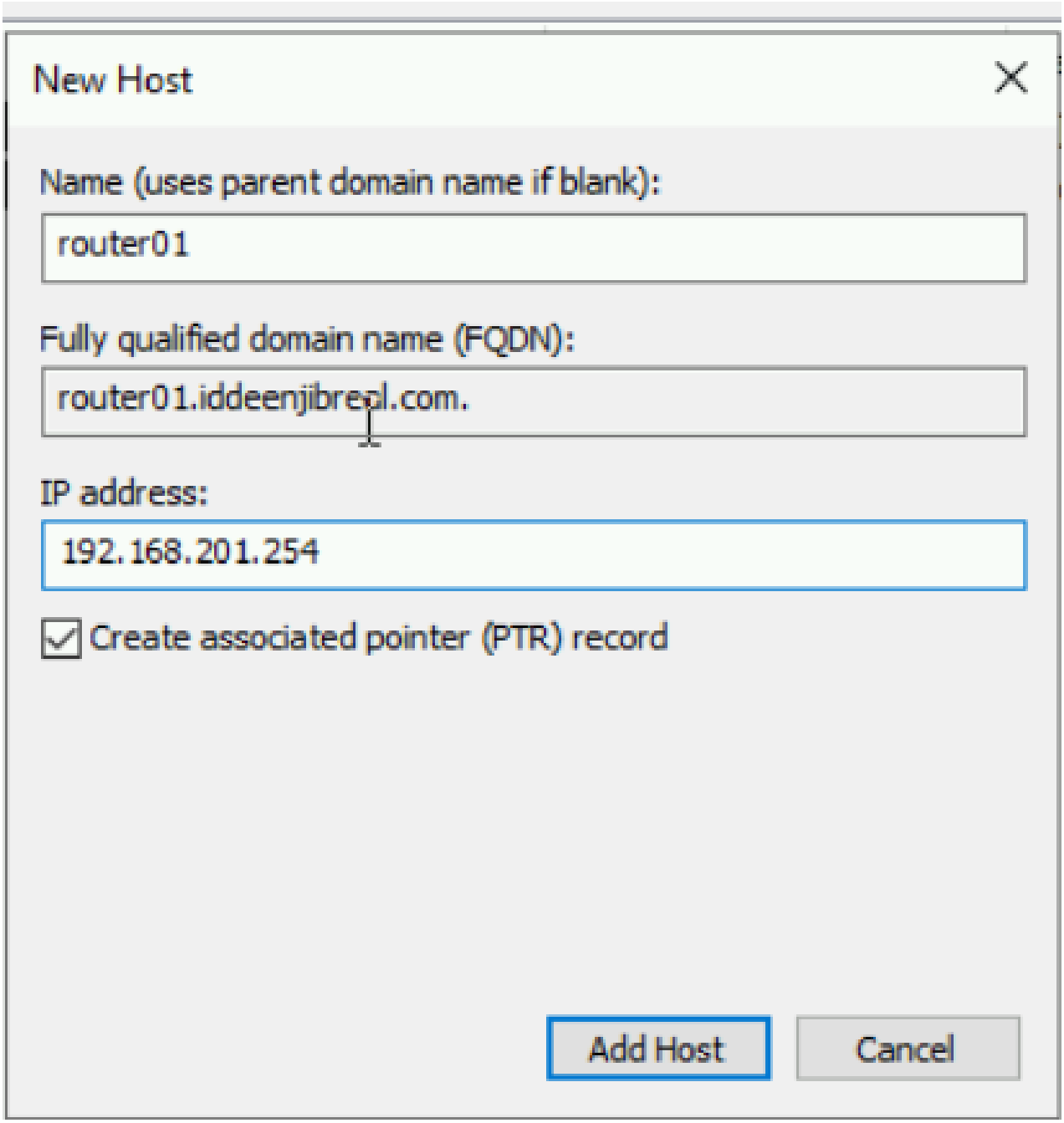
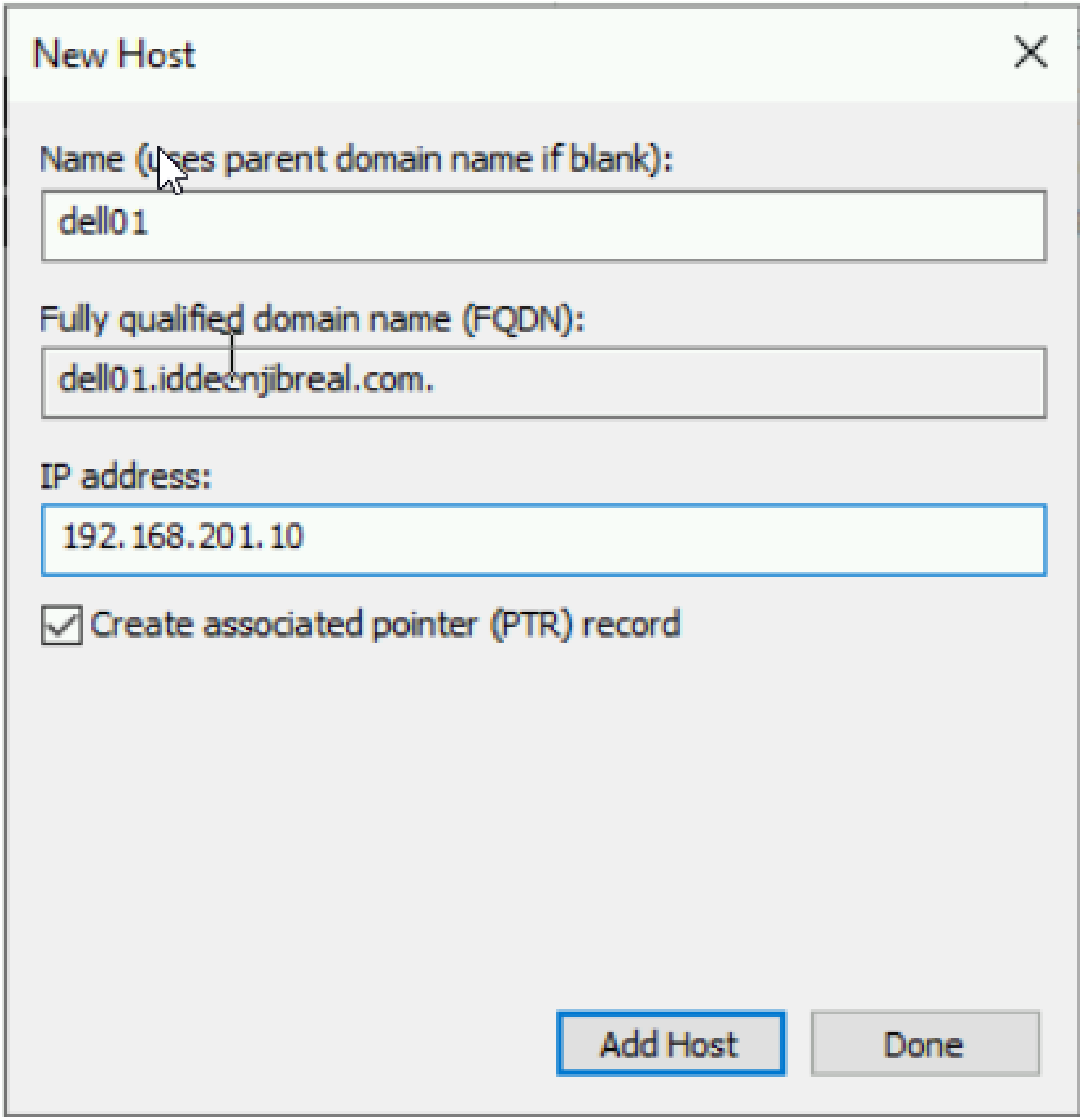
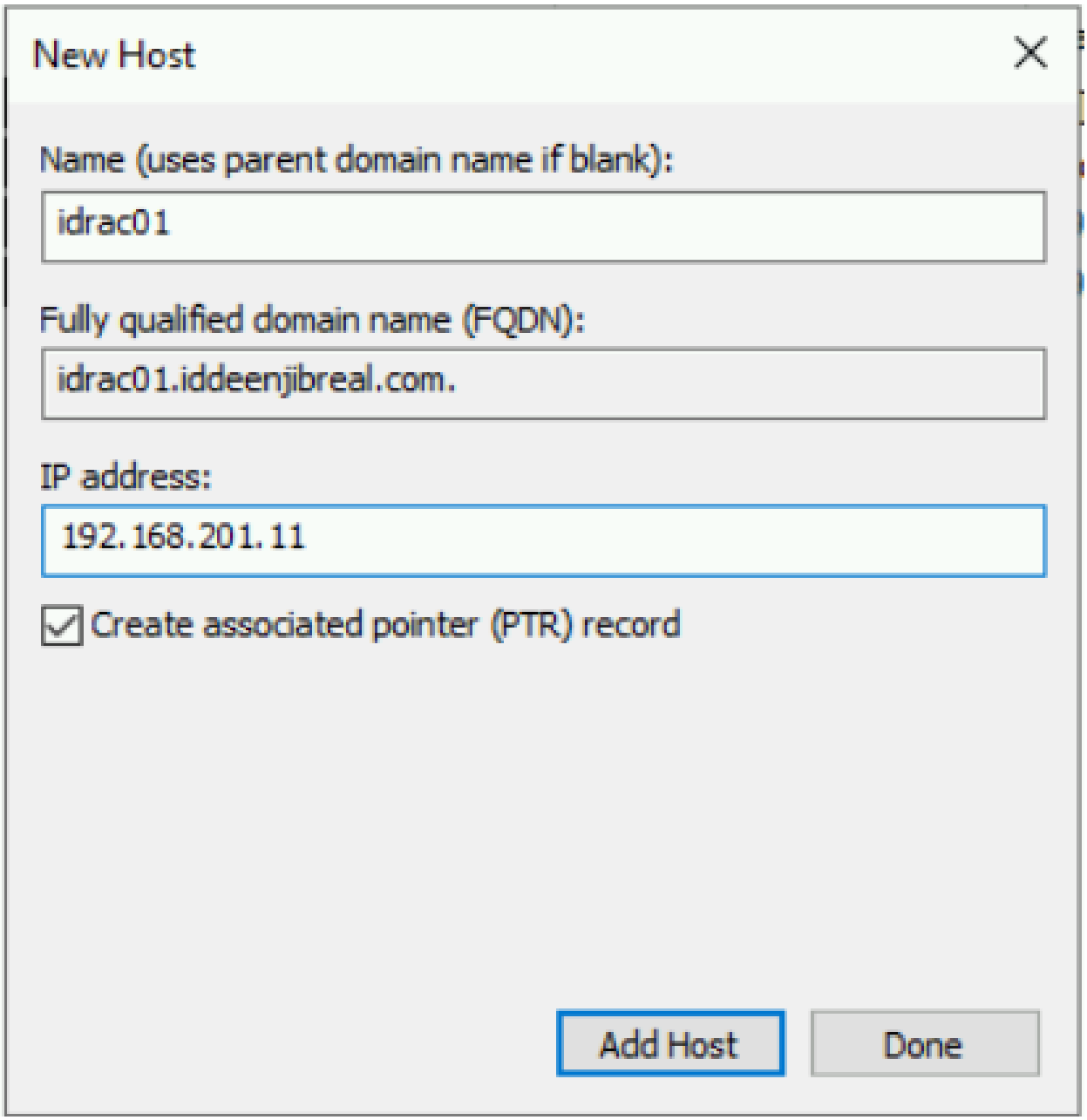
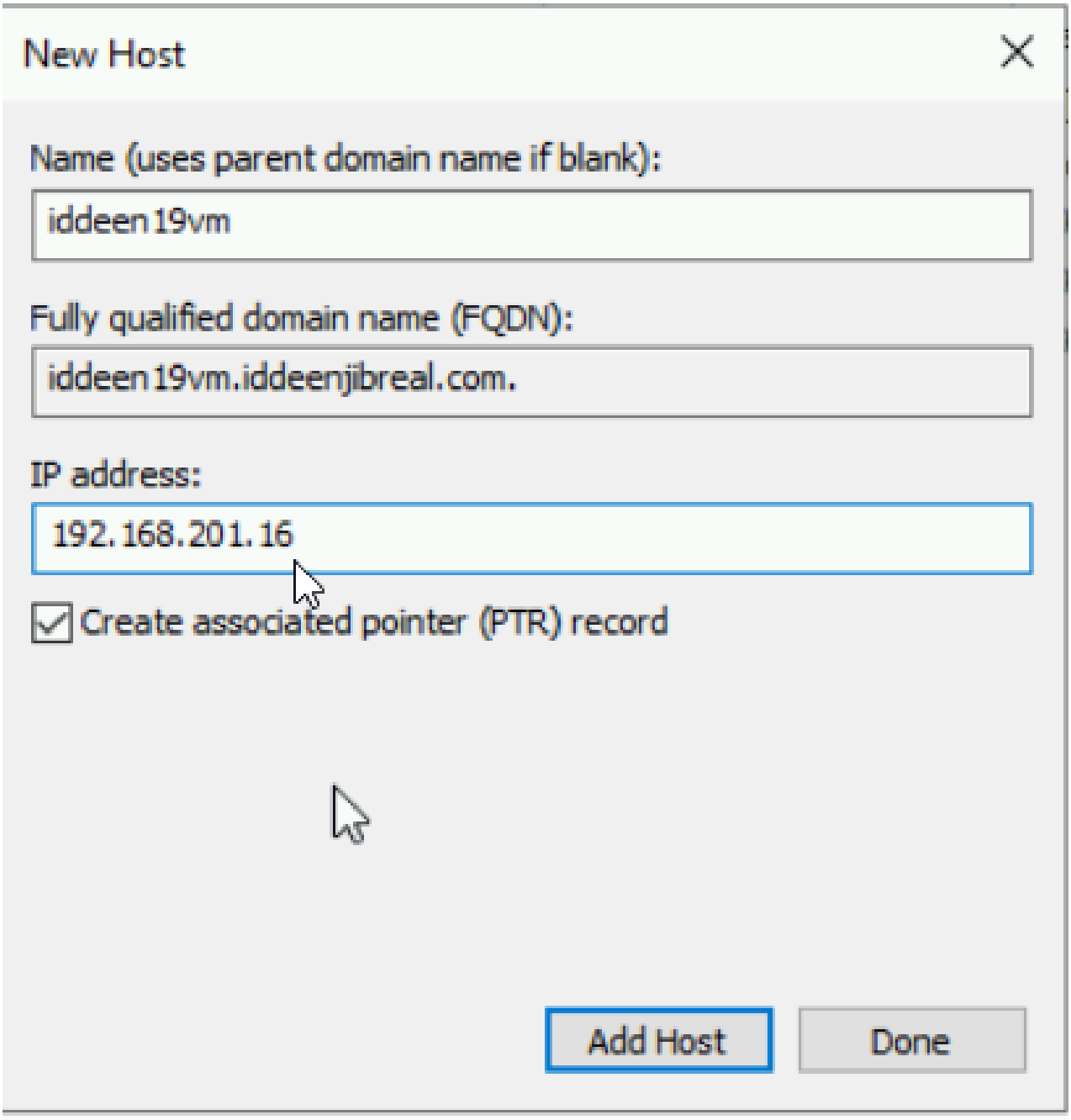


FIGURE 98 - CLICK "NEW HOST (A OR AAAA)"


New Host
Name (uses parent domain name if blank):
router01
Fully qualified domain name (FQDN):
router01.iddeenjibreal.com.
IP address:
192.168.201.254
Create associated pointer (PTR) record
Add Host
Cancel


New Host
Name (uses parent domain name if blank):
dell01
Fully qualified domain name (FQDN):
dell01.iddeenjibreal.com.
IP address:
192.168.201.10
Create associated pointer (PTR) record
Add Host
Done


New Host
Name (uses parent domain name if blank):
idrac01
Fully qualified domain name (FQDN):
idrac01.iddeenjibreal.com.
IP address:
192.168.201.11
Create associated pointer (PTR) record
Add Host
Done


New Host
Name (uses parent domain name if blank):
iddeen19vm
Fully qualified domain name (FQDN):
iddeen19vm.iddeenjibreal.com.
IP address:
192.168.201.16
Create associated pointer (PTR) record
Add Host
Done

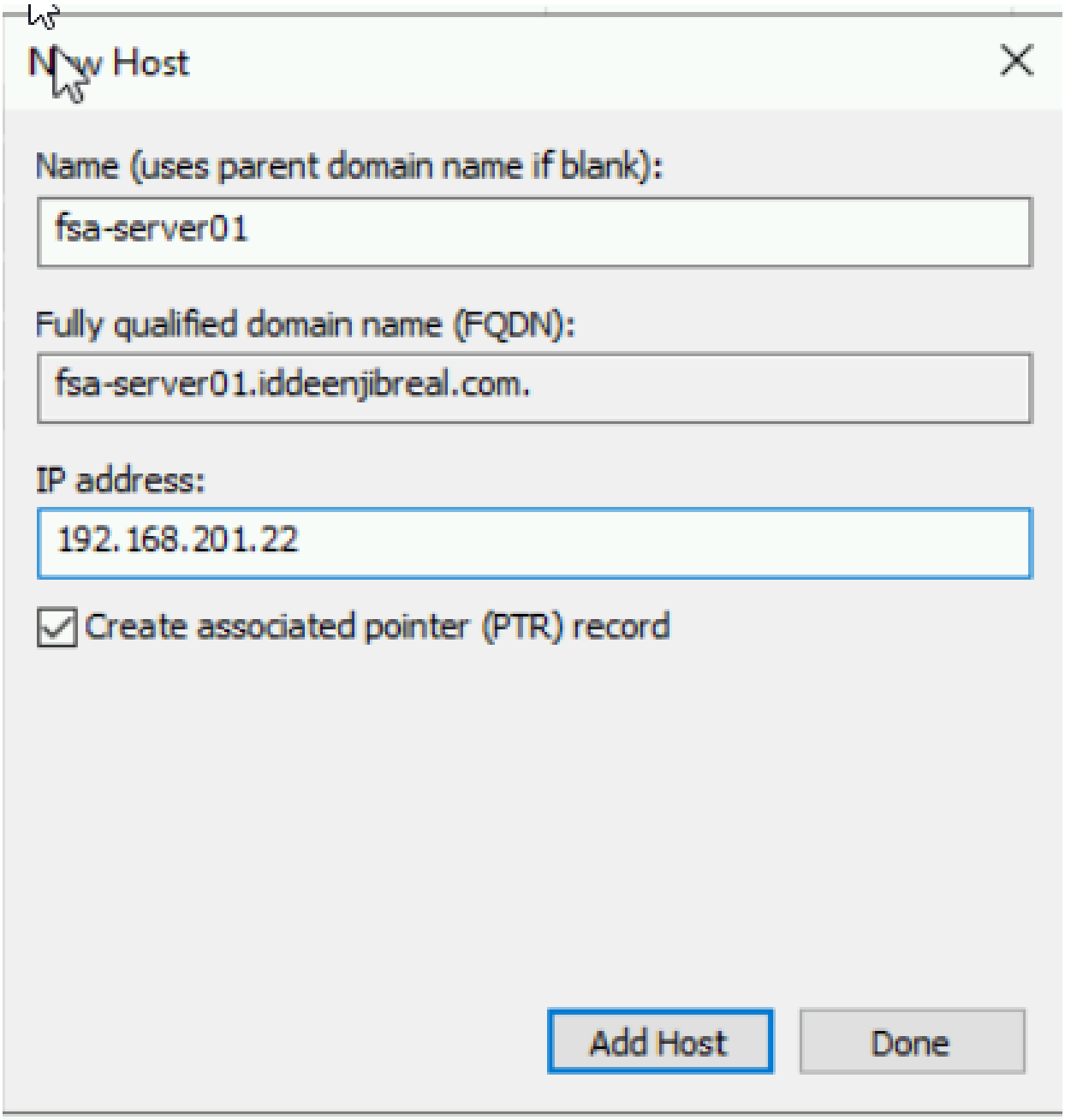


FIGURE 99 - ASSIGN DNS A RECORD FOR ALL OF THE DEVICES

FIGURE 100 - GO BACK TO THE DASHBOARD, AND CLICK "TOOLS"

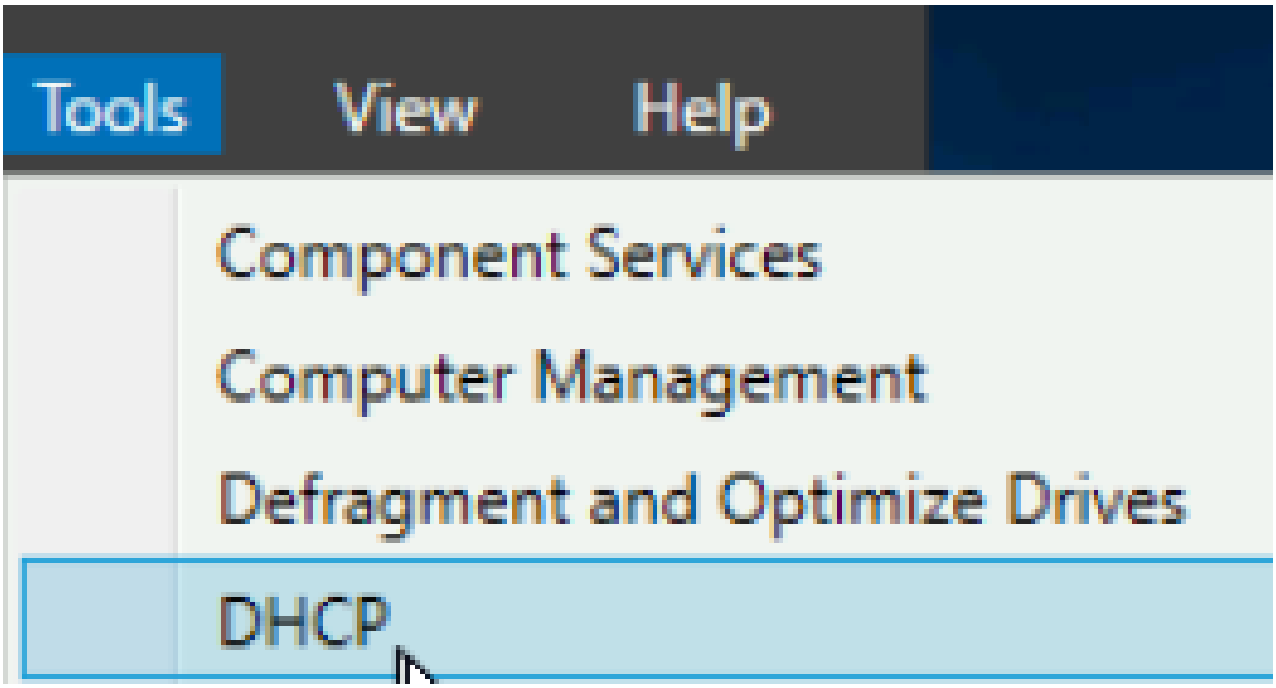


FIGURE 101 - CLICK "DHCP"

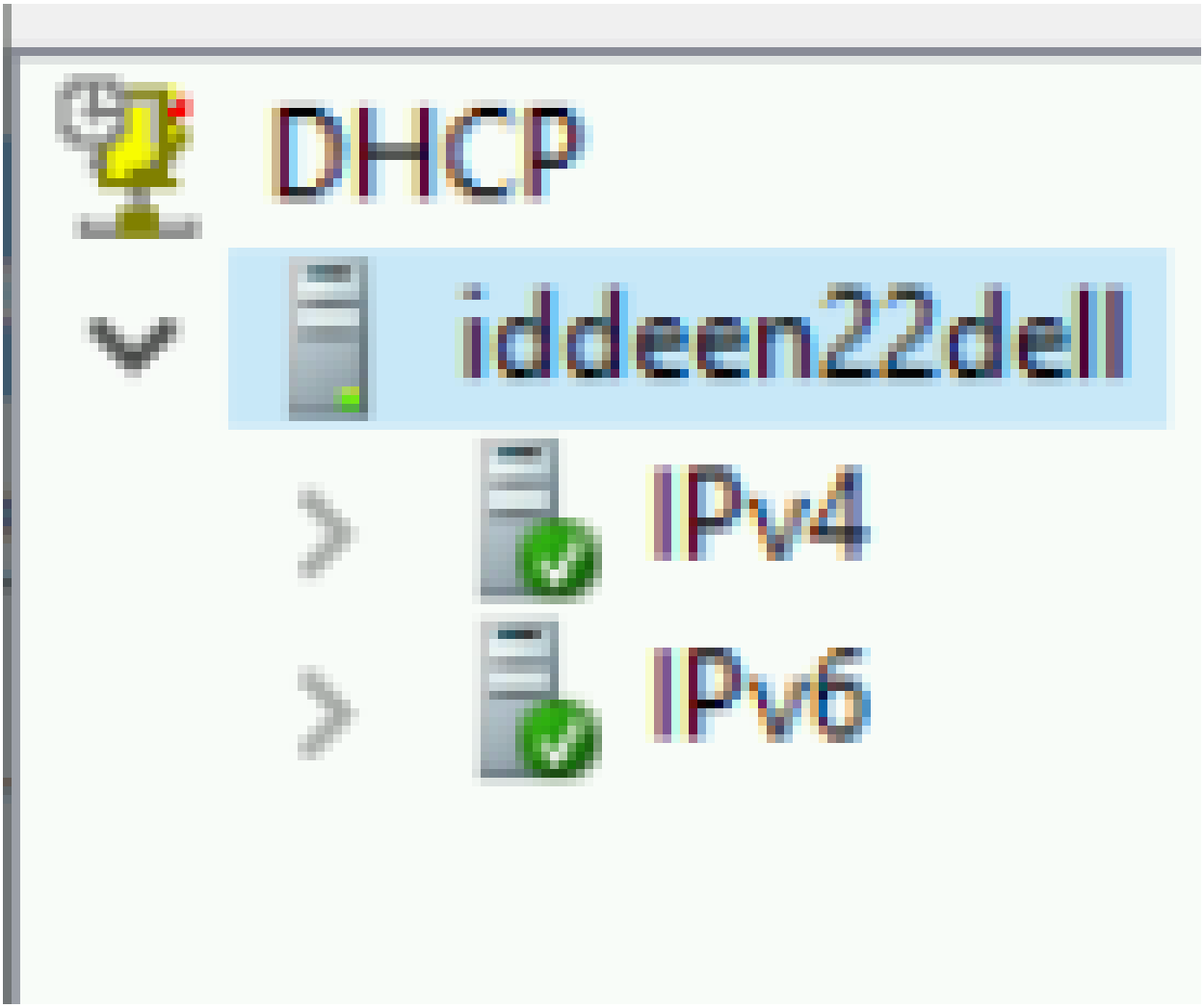


FIGURE 102 - SEE THE OVERVIEW OF THE DHCP MENU

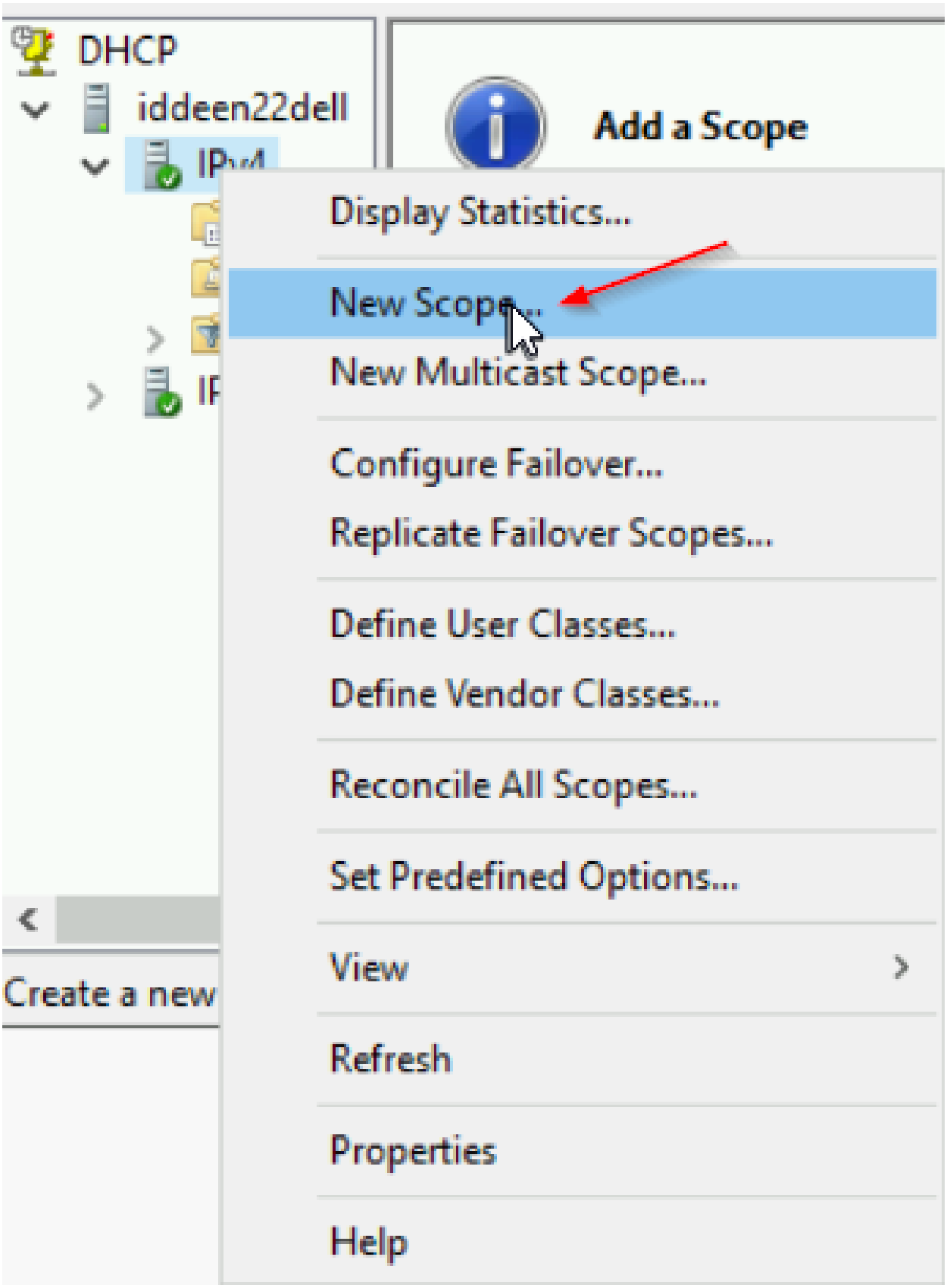

DHCP
iddeen22dell
Add a Scope
Display Statistics...
New Scope...
New Multicast Scope...
Configure Failover...
Replicate Failover Scopes...
Define User Classes...
Define Vendor Classes...
Reconcile All Scopes...
Set Predefined Options...
View
Refresh
Properties
Help
Create a new

FIGURE 103 - CLICK "NEW SCOPE"

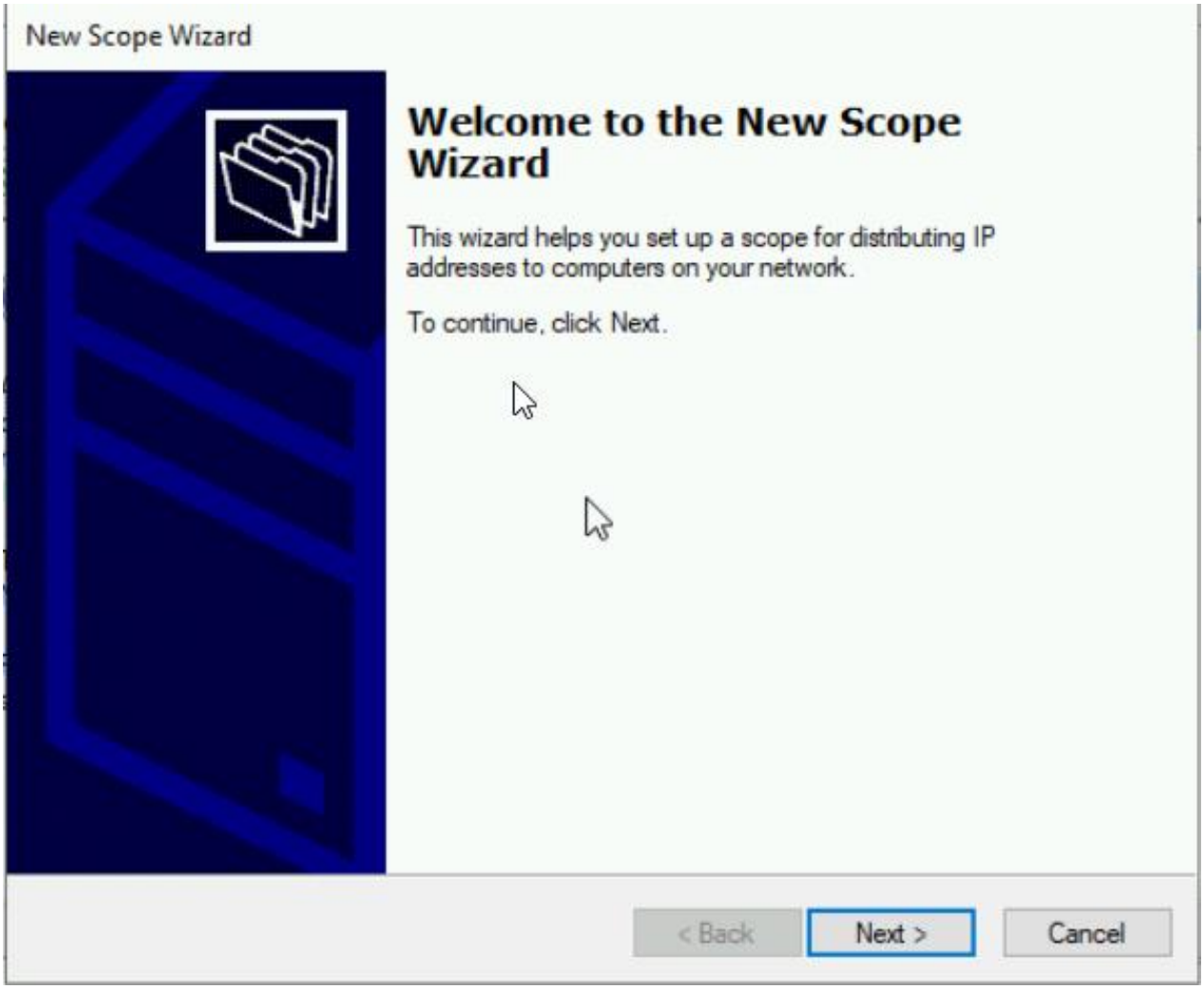


FIGURE 104 - "CLICK NEXT"

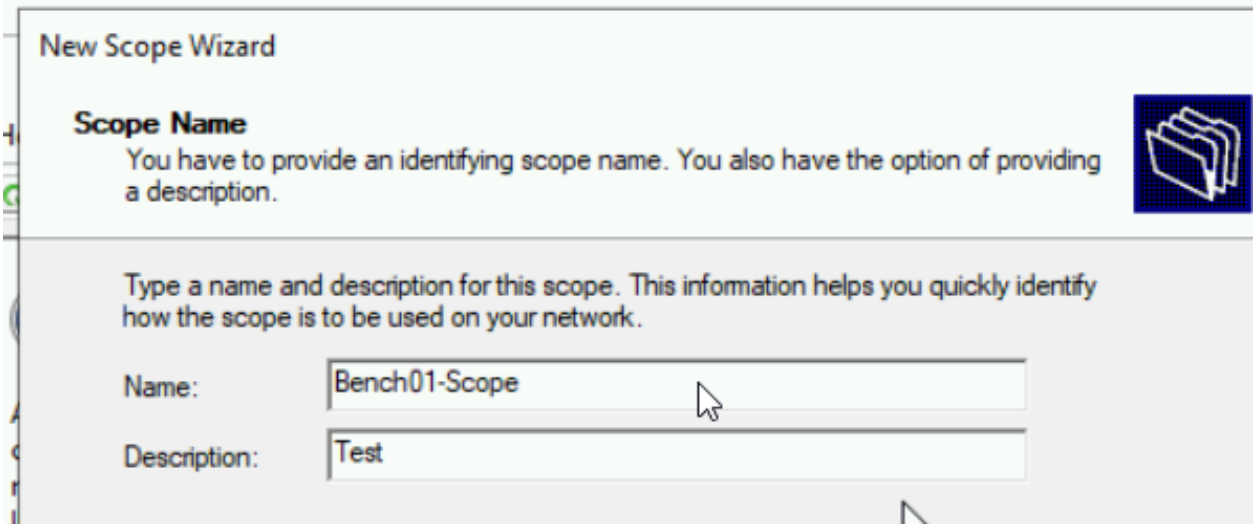


FIGURE 105 – PROCCED

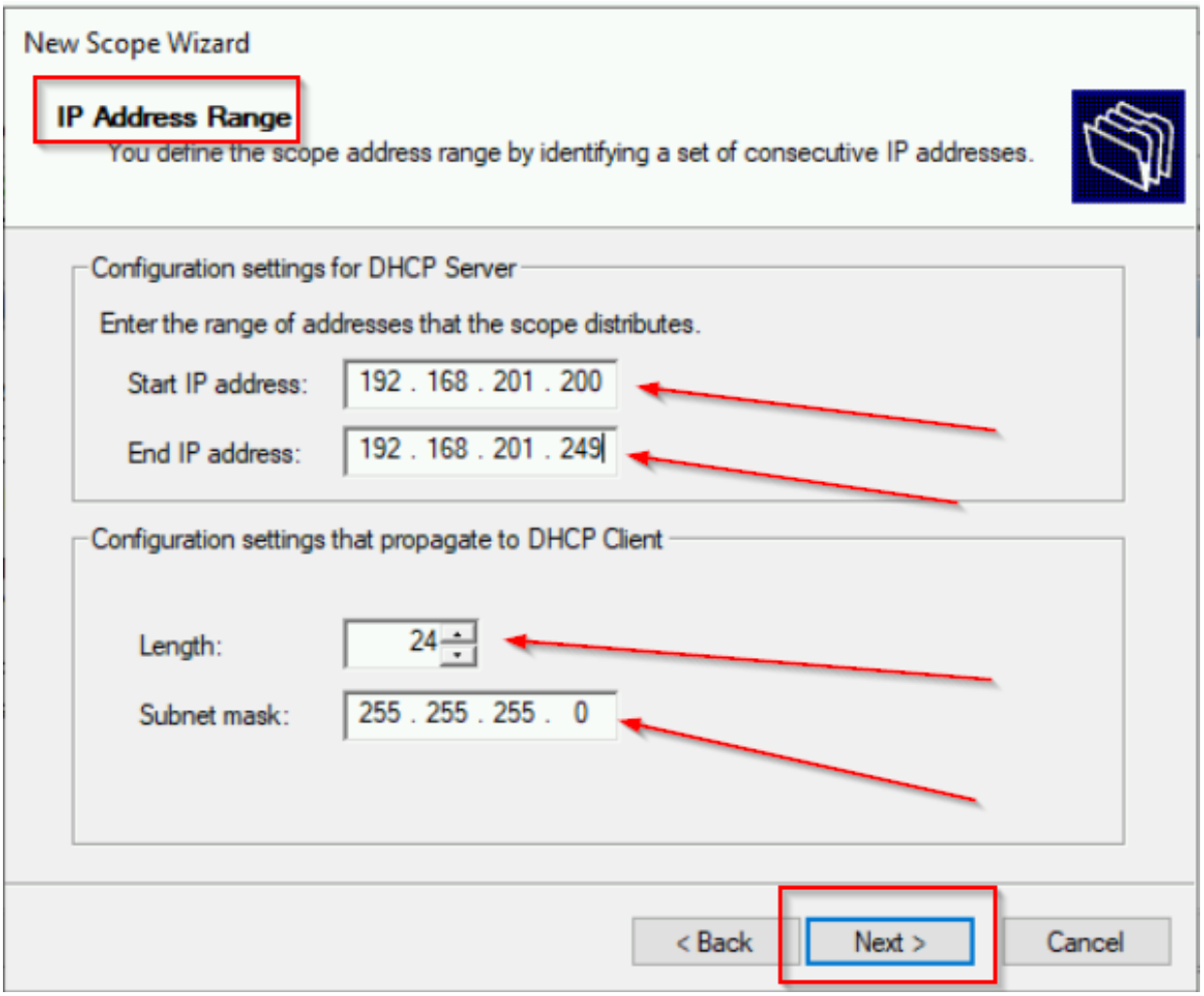


FIGURE 106 - PUT THE STARTING IP ADDRESS AND THE END TO CLICK "NEXT"

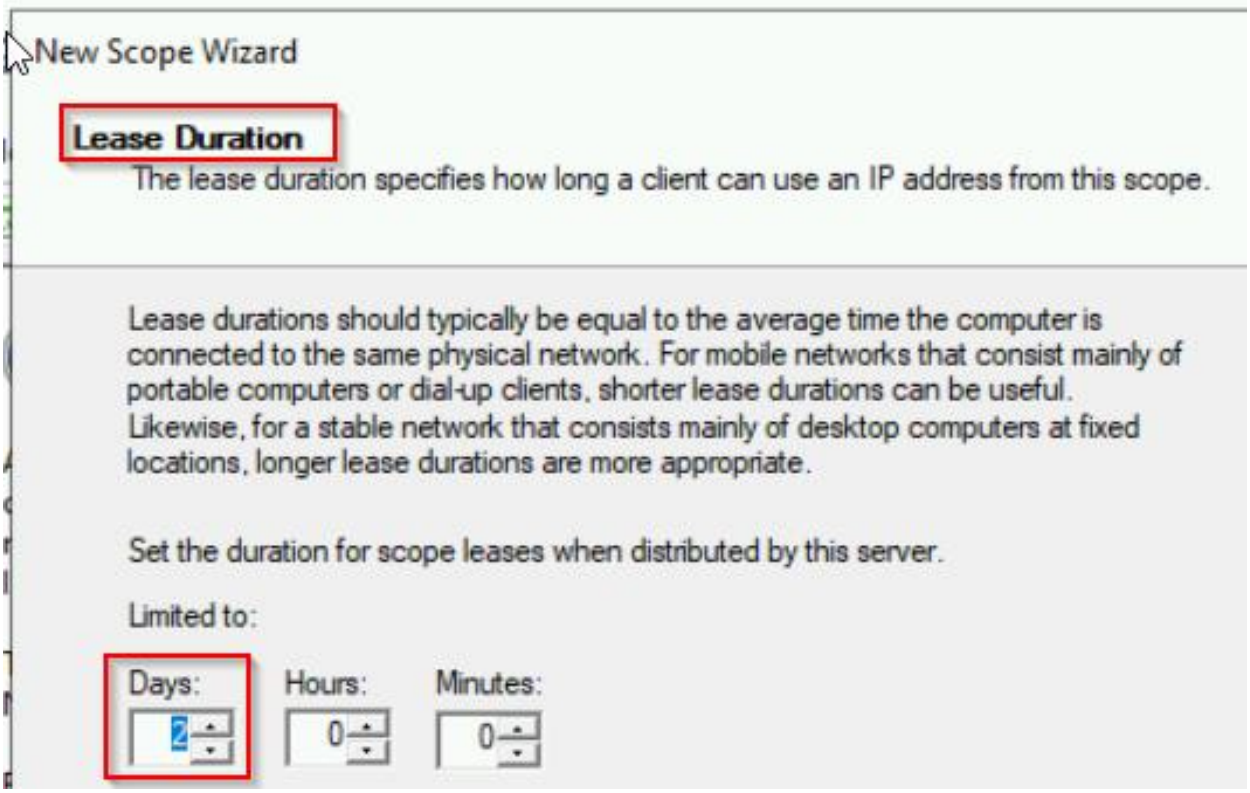


FIGURE 107 - SET THE LEASE DURATION

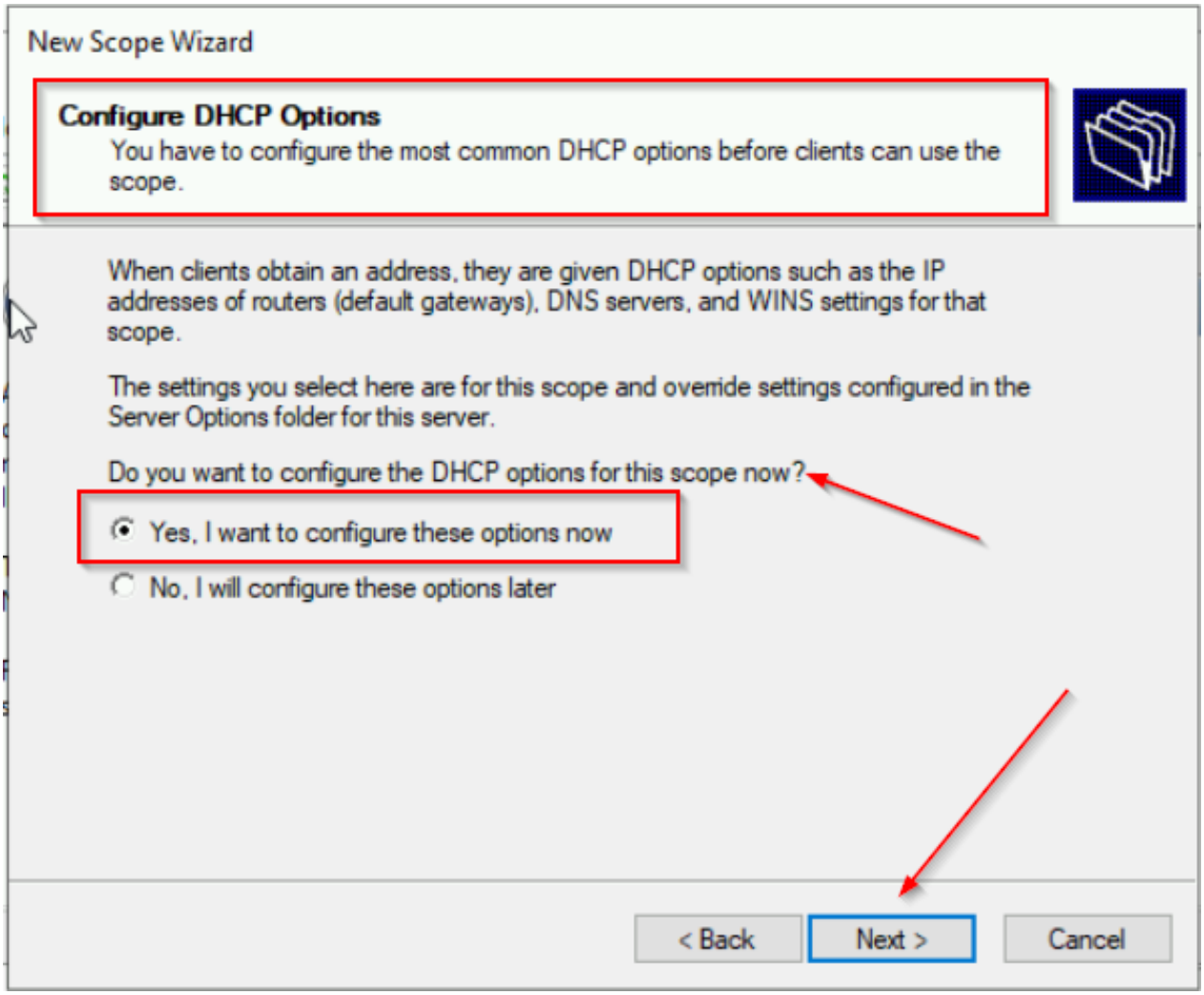


FIGURE 108 - CONFIGURE DHCP OPTIONS

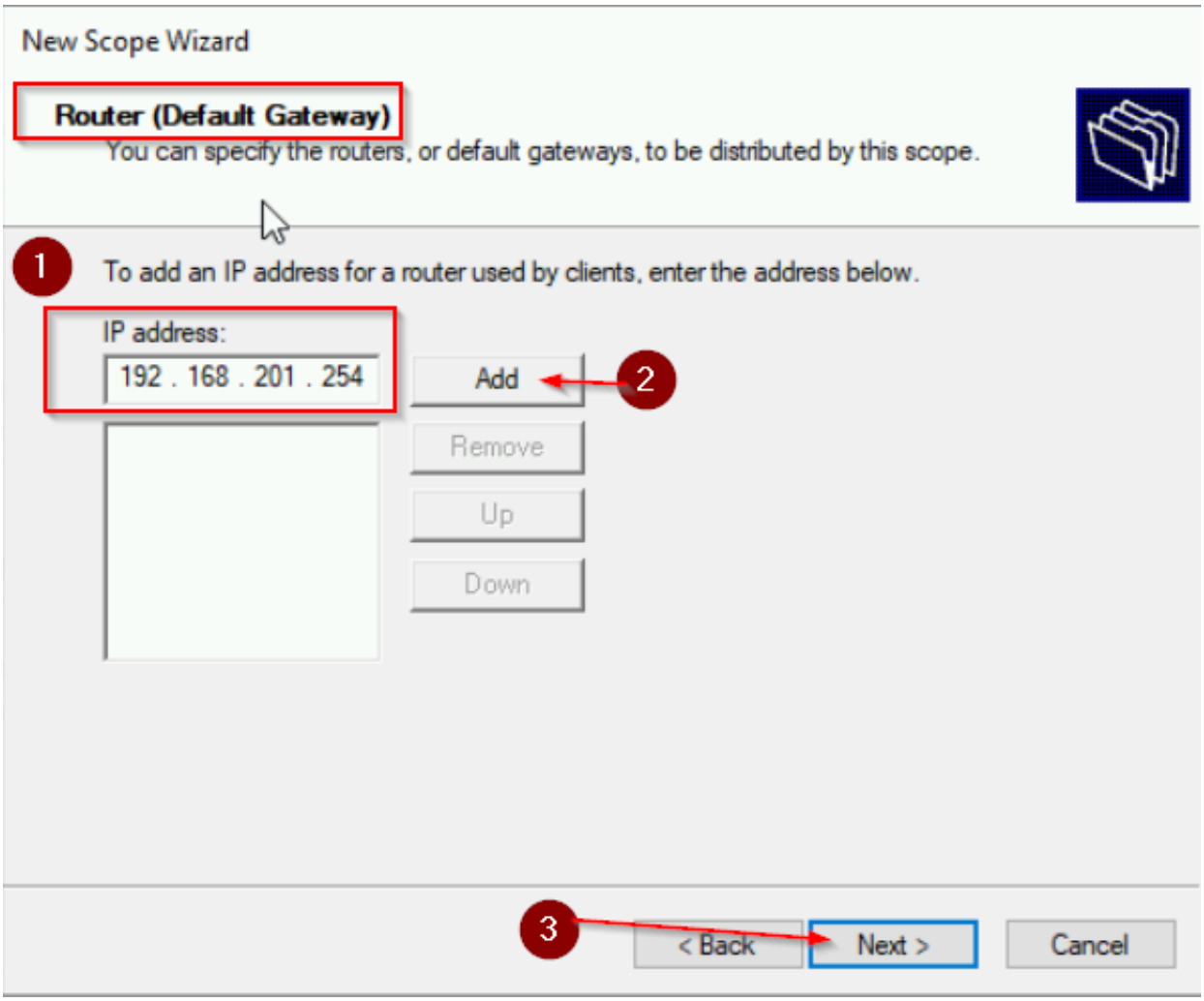


FIGURE 109 - ADD THE ROUTER DEFAULT GATEWAY

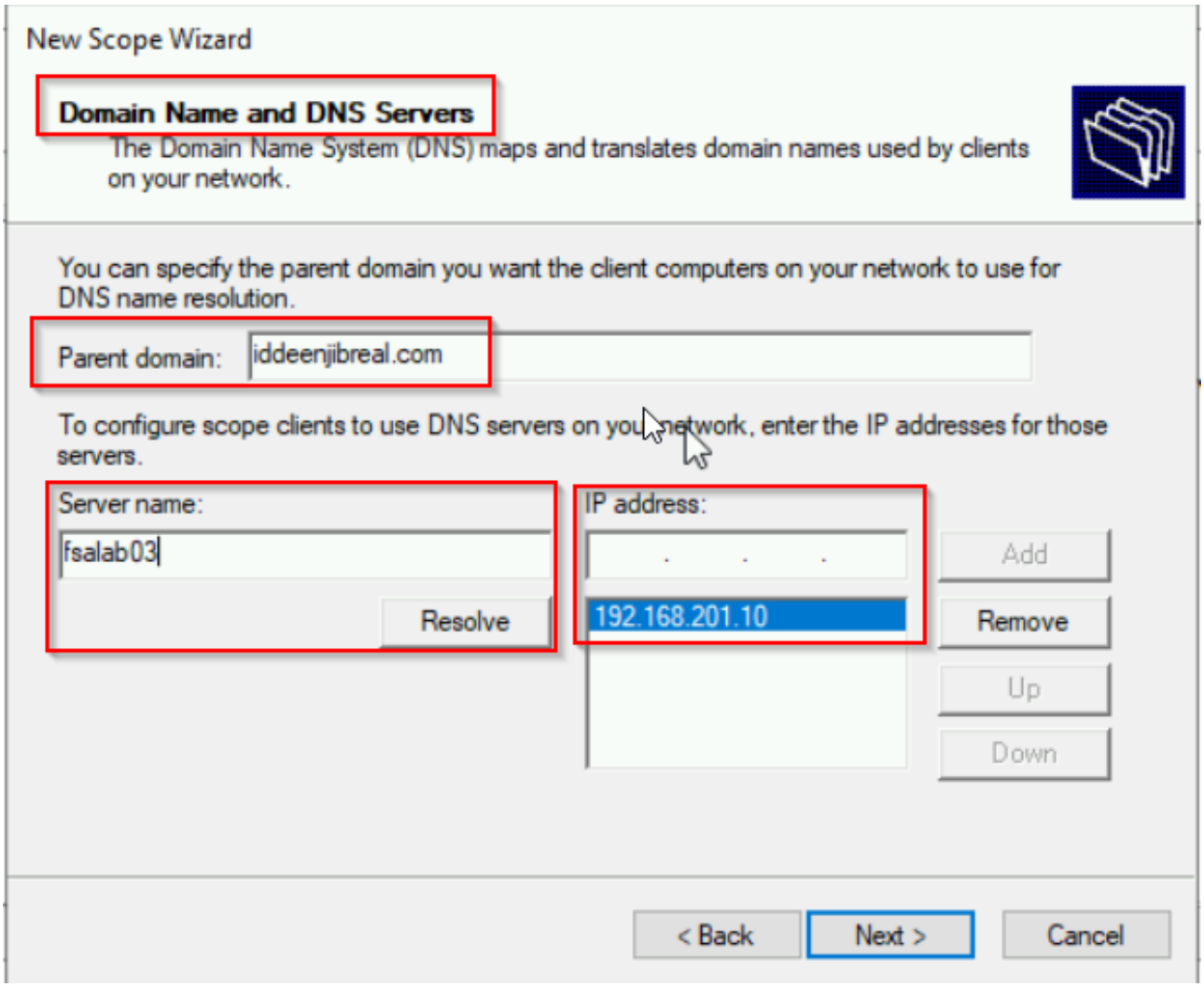


FIGURE 110 - SET THE PARENT DOMAIN AND EDIT THE STUFF, THEN CLICK "NEXT"

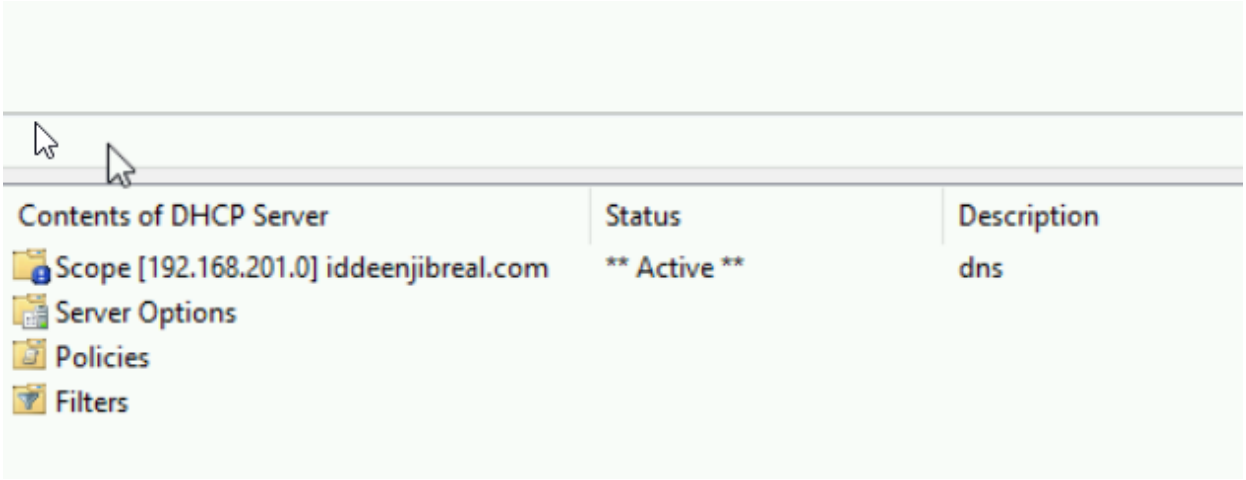


FIGURE 111 - SEE THE SCOPE BEING ACTIVE!

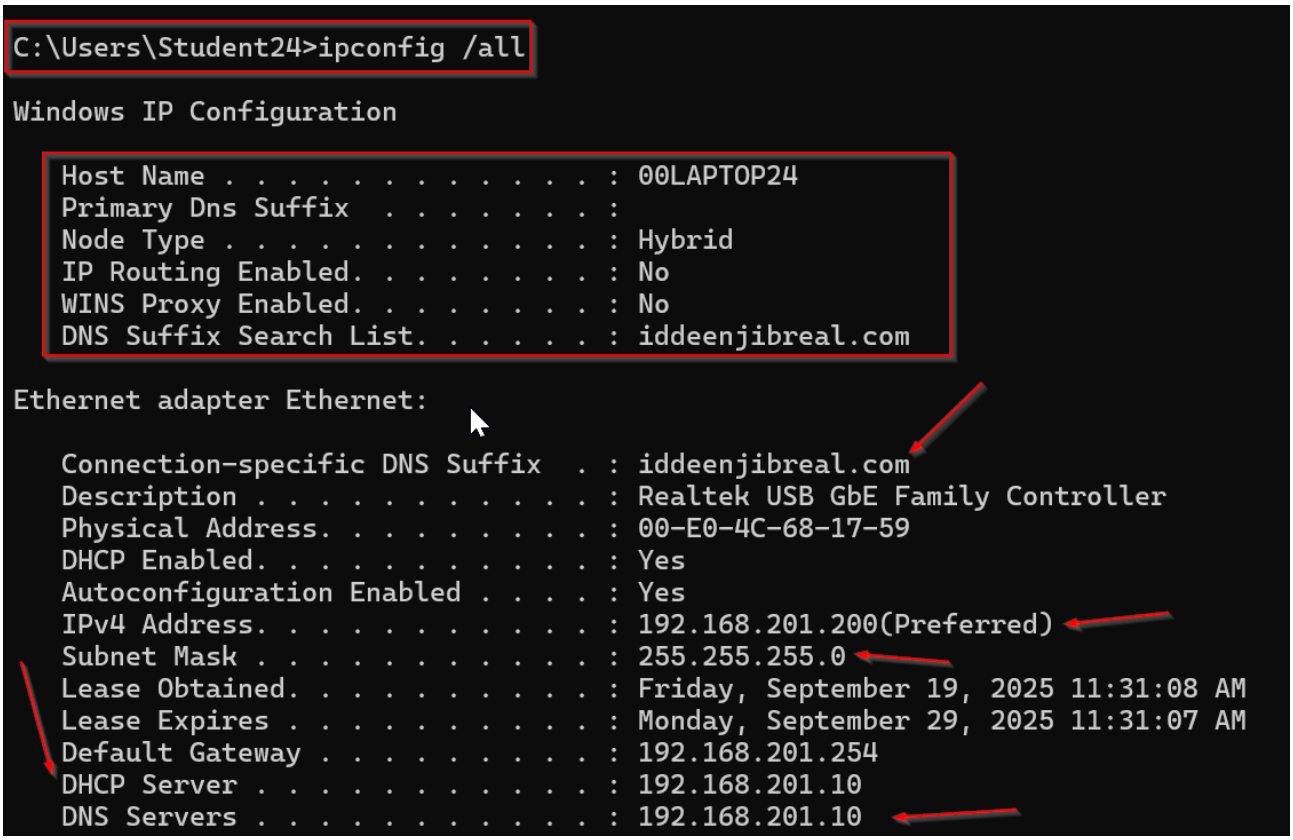


FIGURE 112 - SEE THE LAPTOP GETTING IP ADDRESS FROM DHCP SERVER

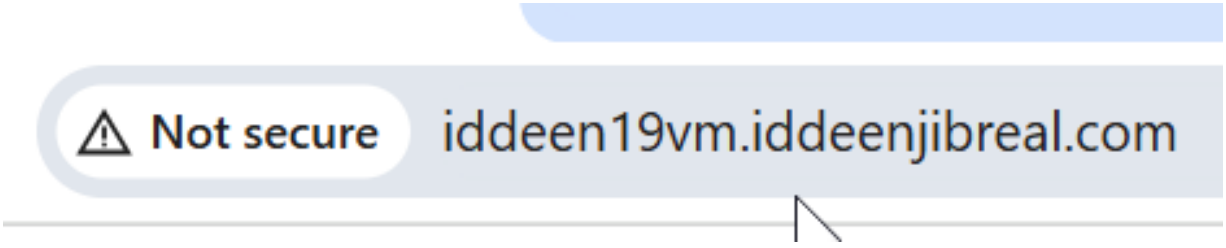


FIGURE 113 - TYPE THE IIS WEBSITE ON LAPTOP

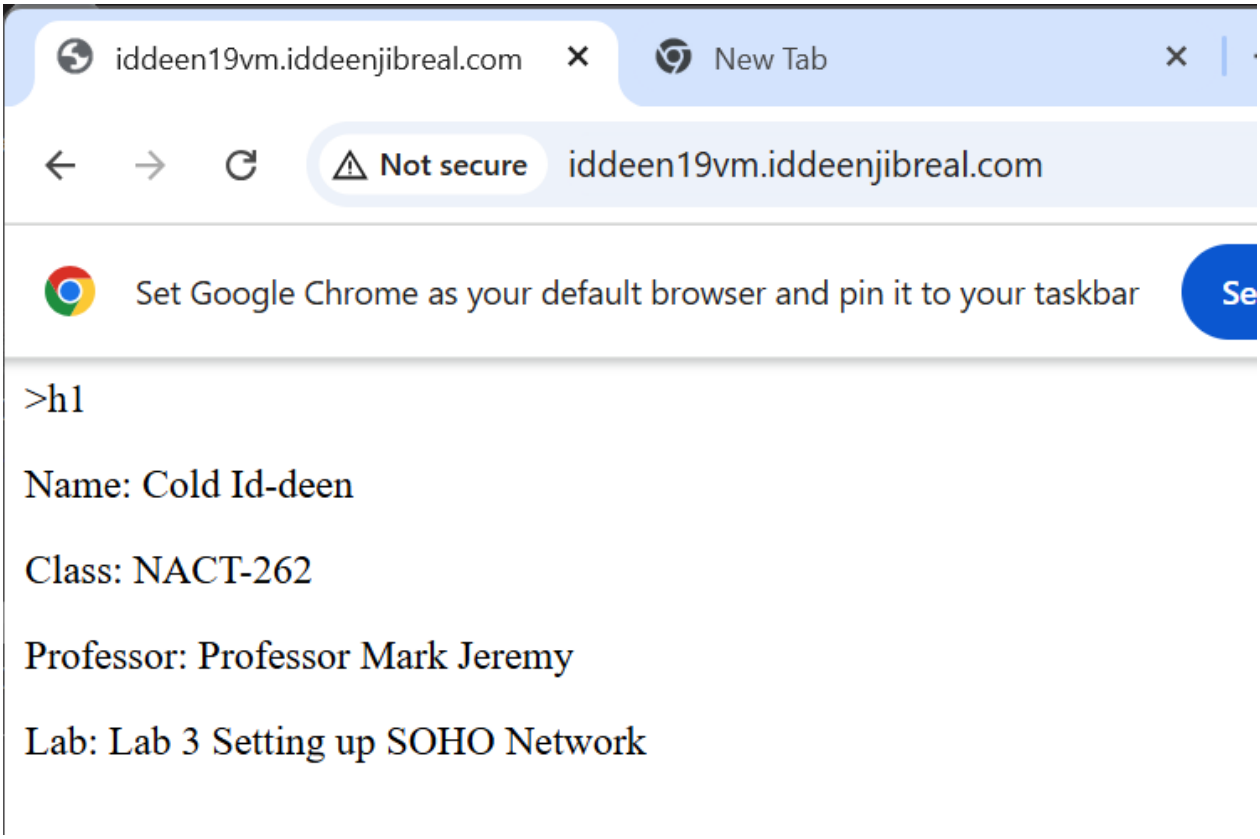


FIGURE 114 - SEE YOUR OWN IIS WEBSITE FROM THE PCA

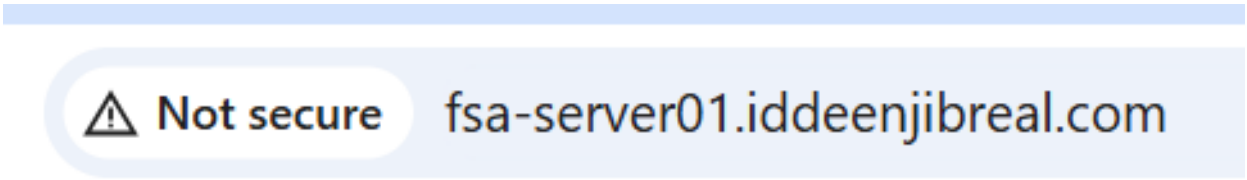


FIGURE 115 - TYPE ANOTHER IIS WEBSITE ON THE LAPTOP

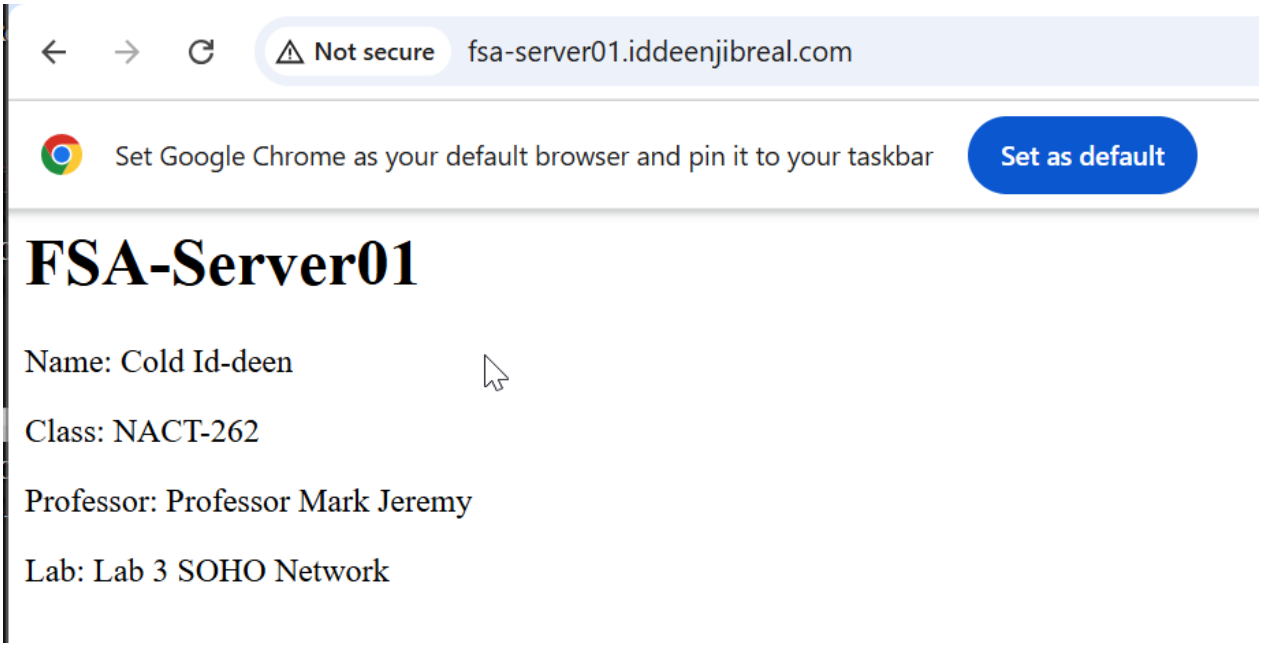


FIGURE 116 - SEE YOUR OWN IIS WEBSITE FROM THE PCB CORE!

```
C:\Users\Student24>nslookup router01.iddeenjibreal.com
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    router01.iddeenjibreal.com
Address:  192.168.201.254
```

```
C:\Users\Student24>nslookup 192.168.201.254
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    router01.iddeenjibreal.com
Address:  192.168.201.254
```

FIGURE 117- NSLOOKUP ON DNS A AND REVERSE IP RECORDS FOR ROUTER

```
C:\Users\Student24>nslookup iddeen19vm.iddeenjibreal.com
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    iddeen19vm.iddeenjibreal.com
Address:  192.168.201.16
```

```
C:\Users\Student24>nslookup 192.168.201.16
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    iddeen19vm.iddeenjibreal.com
Address:  192.168.201.16
```

FIGURE 118 - NSLOOKUP ON DNS A AND REVERSE IP RECORDS FOR PCA VM

```
C:\Users\Student24>nslookup fsa-server01.iddeenjibreal.com
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    fsa-server01.iddeenjibreal.com
Address:  192.168.201.21
```

```
C:\Users\Student24>nslookup 192.168.201.21
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    fsa-server01.iddeenjibreal.com
Address:  192.168.201.21
```

FIGURE 119 - NSLOOKUP ON DNS A AND REVERSE IP RECORDS FOR PCB CORE

```
C:\Users\Student24>nslookup dell01.iddeenjibreal.com
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    dell01.iddeenjibreal.com
Address:  192.168.201.10
```

```
C:\Users\Student24>nslookup 192.168.201.10
Server:  dell01.iddeenjibreal.com
Address:  192.168.201.10

Name:    dell01.iddeenjibreal.com
Address:  192.168.201.10
```

FIGURE 120 - NSLOOKUP ON DNS A AND REVERSE IP RECORDS FOR DELL SERVER

QUESTIONS AND ANSWERS

- In which part of the lab activity did you find the most challenging?
  - Getting the VM truly bridged to the wired LAN while chasing the rogue router DHCP and fixing DNS/forwarders was the most painful part I struggled with.

OBSERVATIONS

Well, it was excellent learning for me to do this type of stuff, it was really cool. I made big mistake that I added the “Excluded and Delay” to block any incoming DHCP IP Address while it was not supposed to happen! Good experience.