

This document will provide instructions on the installation, setup, and configuration of the server/software. Instructions on how to install Microsoft Windows virtual machines, add a second adapter and setting a virtual network are provided in the previous documents.

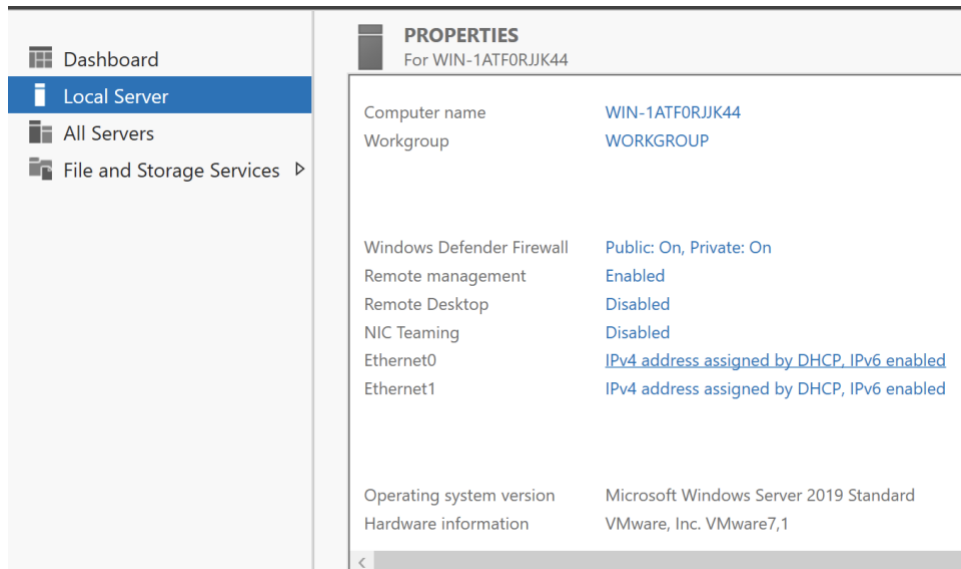
## Prerequisites/Work Environment

- Microsoft Windows Server 2019 - two fresh installations
- Hypervisor software (Ex: VMware Fusion)
- Network Adaptor for the virtual machines are set to one of the **vmnet** using 192.168.50.0/24 as the network (add a second adaptor and set it to **Share with my Mac**, if there is not internet connection)

## Instructions

### Setting up Static IP Windows Server 2019

1. In **Server Manager** (Automatically loads when signing in to Windows Server if this does not happen you can search for Server Manager) **click on Local Server** on the left side panel.
2. Click on your network device to access Network Connections as shown in the screenshot below.



3. Right click on your correct network adapter and select properties. *\*If you are not sure of your correct network adapter, you can open up cmd and type ipconfig to see network settings including the dns server.*

4. Highlight "Internet Protocol Version 4(TCP/IPv4) and click properties. You should now be seeing the properties dialog box for IPv4. Select "Use the following IP address" and enter in the correct information in the fields. Click ok when finished and close on the network properties box. The static Ip address should take affect right after, if not then restart your server. **\*You should check to make sure you can ping a website by using the cmd tool and command "ping google.com" as an example.**

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 50 . 13

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 50 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 192 . 168 . 50 . 1

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

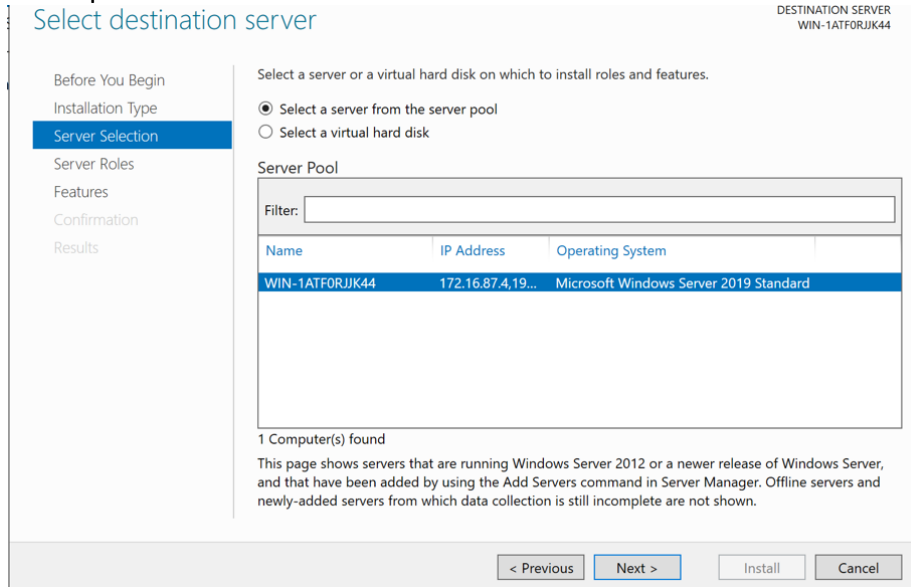
OK Cancel

## Making NLB-server1 a domain controller

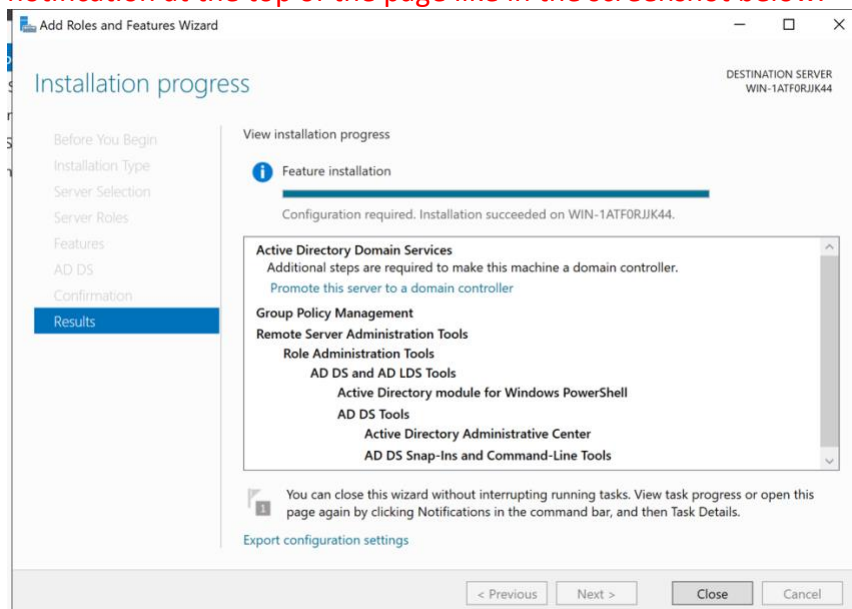
**\*Make sure the local Administrator has a password. If not go to Tools in the upper right-hand corner in Server Manager -> Computer Management -> Local Users and Groups -> Users -> Right Click Administrator -> Set Password. Follow on screen instructions.**

1. In Server Manager click on Manage in the upper right-hand corner and select Add Roles and Features. The Wizard should open.
2. On the Before you begin page click next -> Select Role-based or feature-based installation on the installation type page and click next.

3. On the destination server you should see your server's name already highlighted in the server pool -> click next.

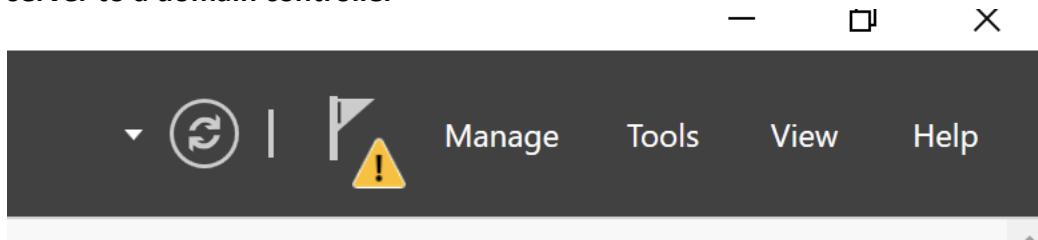


4. On the server roles page select "Active Directory Domain Services" and click "Add Features" on the pop-up dialog box. Click next.
5. We are not adding any additional features so click next on the Select features page. Also, click next on the AD DS page and you should arrive at the confirmation page.
6. Select "Restart the destination server automatically if required" and confirm selection. Click install. **\*To know that the installation successfully completed you will get a notification at the top of the page like in the screenshot below.**

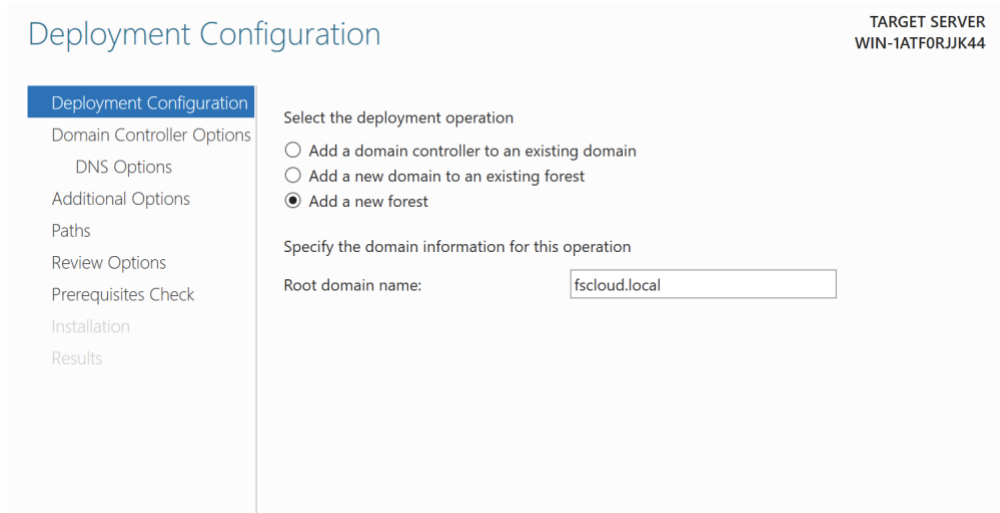


7. You are finished with the installation. Click close.

8. We will now configure AD DS. At the top right you will see a **yellow triangle alert symbol**. As shown in the screenshot below. Click on that and select **“Promote this server to a domain controller”**

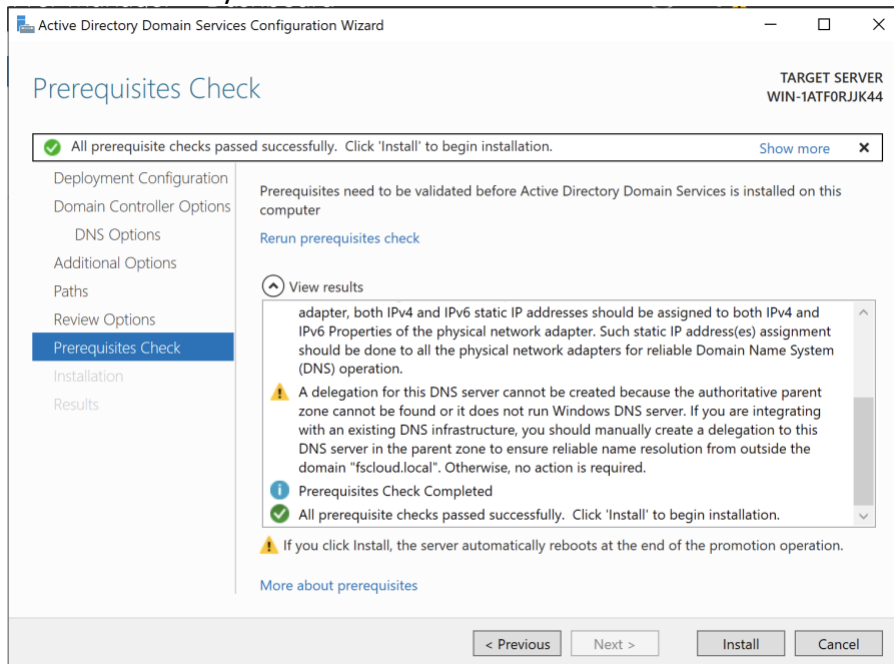


9. On the Deployment Configuration screen, we will **Add a new forest** for our deployment operation. For your root domain name use **“fscloud.local”** and select **next**.

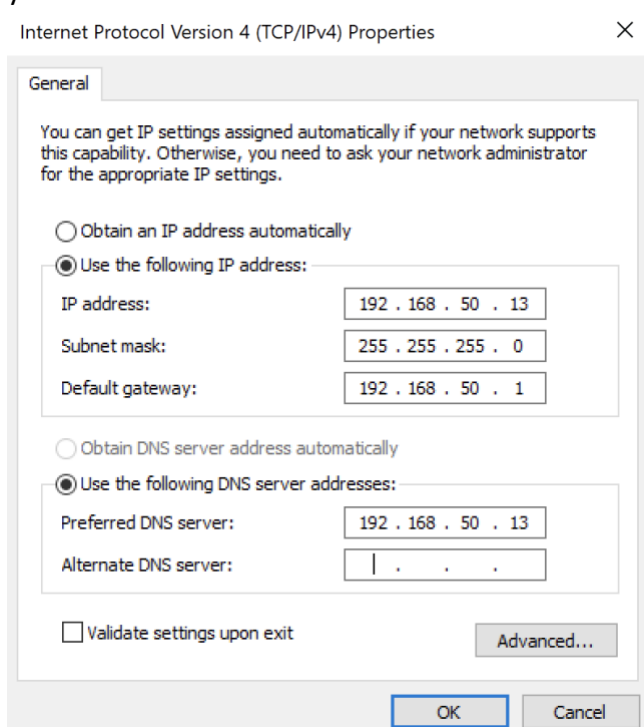


10. Keep all default options on Domain Controller Options page and select a password at the bottom page.
11. Click Next on the DNS Options window as no action is required. On the Additional Options page your NetBIOS domain name should auto populate -> click Next.
12. On the Paths screen we can accept all default locations. Click Next.

13. Click Next in the Review Options window. The system will run a Prerequisites Check and if all prerequisite checks passed successfully, you will be able to install AD DS. The Server will automatically restart.



14. Once the server comes back up you will want to go back to IPv4 Properties like shown above for setting a static IP address and change the Preferred DNS server IP address to your server IP address. Like shown below.



15. Restart Server and then log back into the server with the admin password and open CMD and ping google.com. If you receive a reply, then your domain controller is configured properly.

## Adding NLB-server2 to the domain

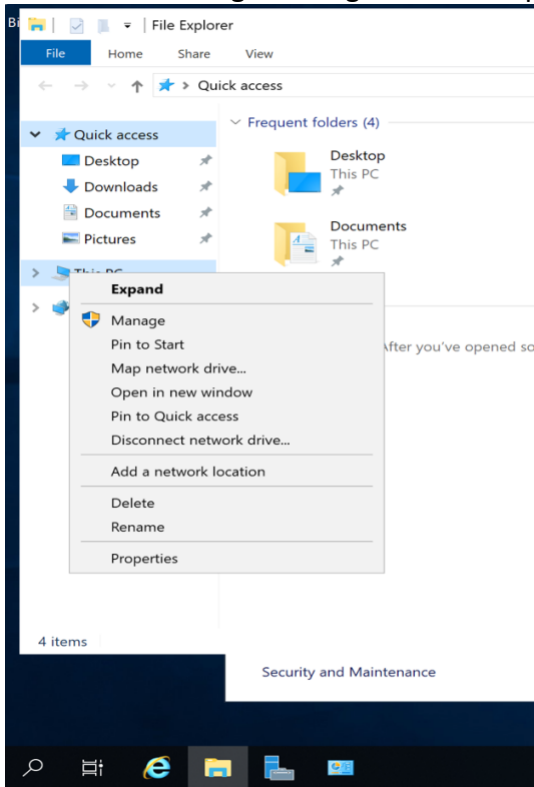
1. The NLB-server2 should also have a static IP address and also the preferred DNS server should be the IP address of your domain. Refer to above instructions to complete this step before joining this server to our domain. Make sure you also ping your domain controller from the NLB-server2 cmd to make sure the communication is successful.

```
C:\Users\Damarkus Harris>ping 192.168.50.13

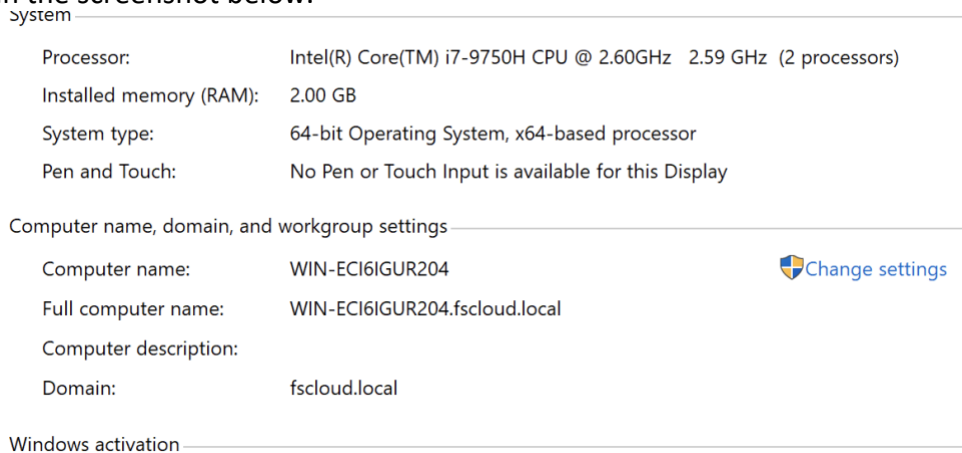
Pinging 192.168.50.13 with 32 bytes of data:
Reply from 192.168.50.13: bytes=32 time<1ms TTL=128
Reply from 192.168.50.13: bytes=32 time<1ms TTL=128
Reply from 192.168.50.13: bytes=32 time<1ms TTL=128
Reply from 192.168.50.13: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.50.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

2. Open File Explorer (the folder in the taskbar), right click on **"This PC"** -> Select Properties and click on Change Settings under Computer name, domain and workgroup settings.



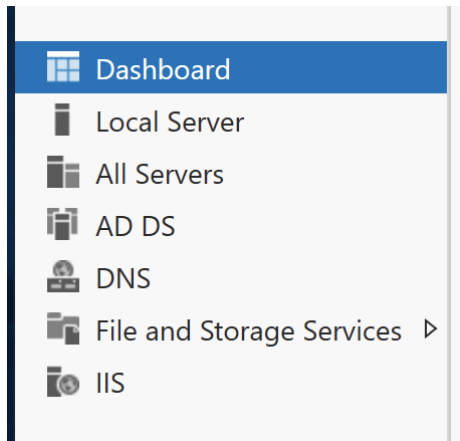
3. Click on **Change** in System Properties and Click on **Domain** button to join the domain. Your domain name should be **Fscloud.local**. Enter in the domain user name and password. Administrator should be the username and the password and your admins password.
4. You now have successfully joined the domain. To test users' access, login in as a new user and access his/her shared folder. You can also check to make sure the server was added to domain by going back to System and you will see the domain name as shown in the screenshot below.



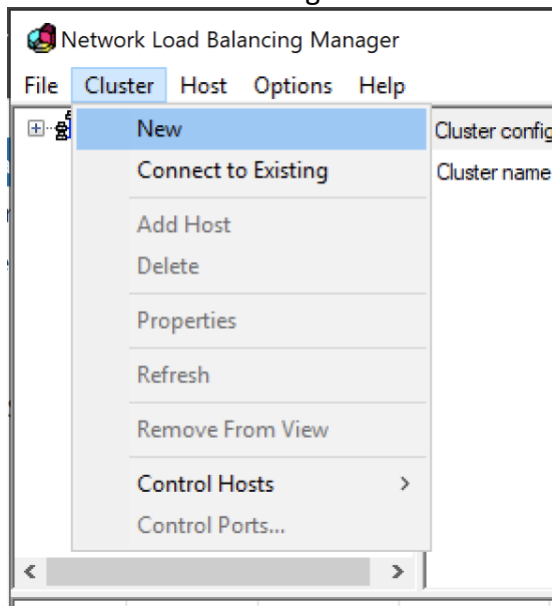
## Installing IIS role, and Network Load Balancing feature, on both servers

1. On your dashboard select Add roles and features to bring up the wizard. Select Next.
2. Select Next on installation type the default should be Role-based or feature-based installation.
3. Select your server from the server pool -> next
4. Select Web Server IIS for Server Roles & Network Load Balancing for Features

5. Select Next until you reach the confirmation page and select Restart the destination server automatically if required. Click Install. You should see IIS as now a part of your side menu.



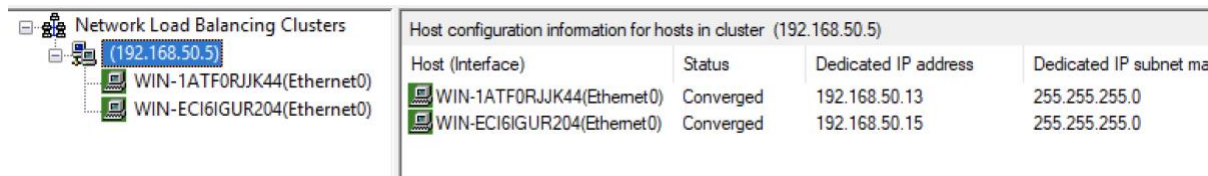
6. On NLB-server1 – create a new Cluster by going to Server Manager -> Tools Menu -> Network Load Balancing -> Cluster -> New



7. Follow Provided directions below.
  - a. For Host add NLB-server1 IP address -> Click Next
  - b. Click Next on the Host Parameters
  - c. On the New Cluster screen Click Add and add a unique IP address on the 192.168.50.0/24 network. This IP address represents your cluster IP.
  - d. Click Next and change operation mode to **Multicast -> Next**
  - e. Keep Port Rules at default settings -> Click **Finish**
  - f. Right click cluster and select **Add Host to Cluster** -> add NLB-server2 IP address for host. Click next until you are able to hit **Finish**



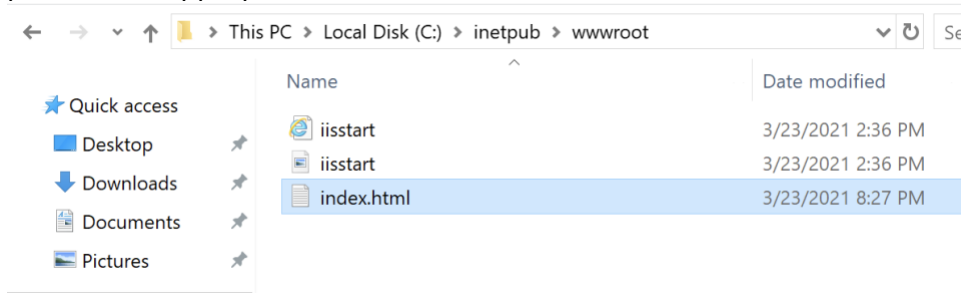
- g. The end results should look like the screenshot below showing green for both host added to the cluster.



The screenshot shows the 'Network Load Balancing Clusters' console. A cluster with IP (192.168.50.5) is selected, showing two hosts: WIN-1ATF0RJK44(Ethernet0) and WIN-ECI6IGUR204(Ethernet0). Both hosts are in a 'Converged' state, indicated by green icons.

Host configuration information for hosts in cluster (192.168.50.5)			
Host (Interface)	Status	Dedicated IP address	Dedicated IP subnet mask
WIN-1ATF0RJK44(Ethernet0)	Converged	192.168.50.13	255.255.255.0
WIN-ECI6IGUR204(Ethernet0)	Converged	192.168.50.15	255.255.255.0

8. On both servers – create a new index.html file in the C: drive of each server and place in the appropriate IIS folders.



9. Open IIS management console by clicking on tools -> IIS manager in Server Manager on both servers.

\*I could not get number 8 and 9 on Milestone 3.