

# Windows Active Directory

## Adding an Additional Domain Controller to an existing domain

The steps mentioned in this document can be performed on Windows Server 2012 R2 and above.

This step adds another server to an existing active directory domain as Additional Domain Controller (ADC). The ADC server holds the same active directory database as the main Domain Controller. Thus creating this server solves 2 problems. First in case if the main Domain controller fails, the ADC will work and provide services to clients.

The second problem it solves is by reducing WAN traffic between branch office and head office. For this an ADC is required to be placed in the branch office. This will help clients in the branch office get active directory services like authentication locally. Thus clients do not need to contact the DC/ADC in the head office.

### Prerequisites :-

1. A Windows Server 2012 R2 or above installed either on physical server or on a virtual machine. For this document Windows Server 2016 Evaluation version is used.
2. An existing forest and a domain with domain controller up and running.
3. Basic knowledge about Windows Active Directory and its terms like Forest, Domain, Domain Controller, Additional Domain Controller etc.

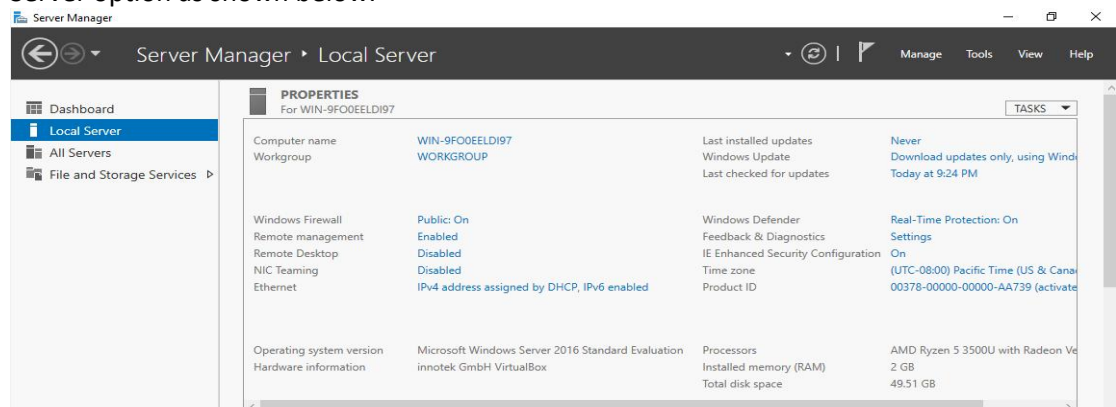
**\*\*\*Perform following steps on the second server which will be working as an additional domain controller.**

### Steps:-

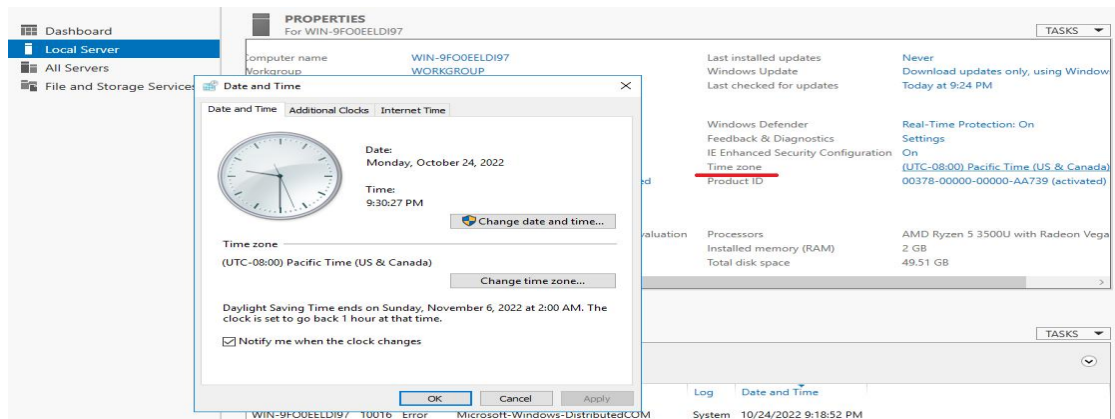
#### 1. Post install configuration of Windows Server.

##### A. Set the correct time zone.

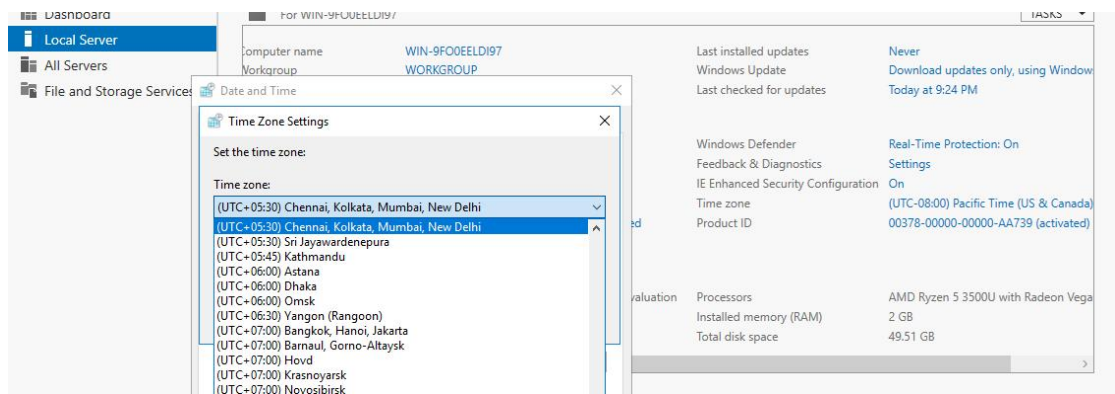
In the Server Manager window that opens when the server starts, click the Local Server option as shown below.



In the right side pane, click the option in front of Time zone.



On the new window that opens click the Change Time one button. In the new window that opens, use the drop down list to select appropriate time zone.



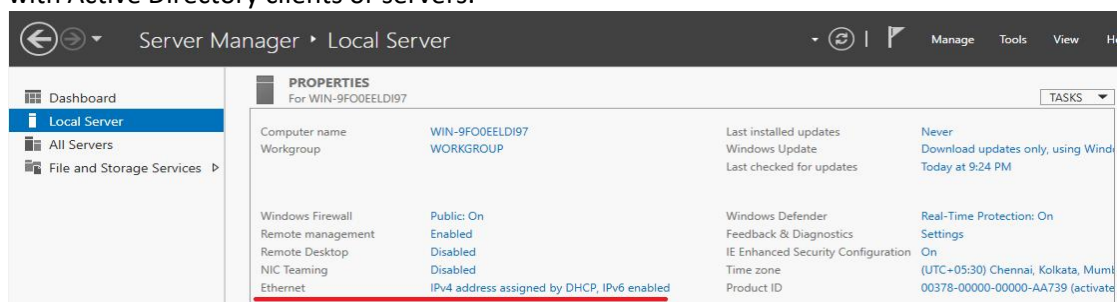
Click Ok. After you select the time zone, the time displayed will change. Make sure the time displayed is the current time displayed as per your location. Click OK to close the window.

If the selected time zone is not shown in the Server Manager in front of Time zone option, click refresh button to refresh the Server Manager window.

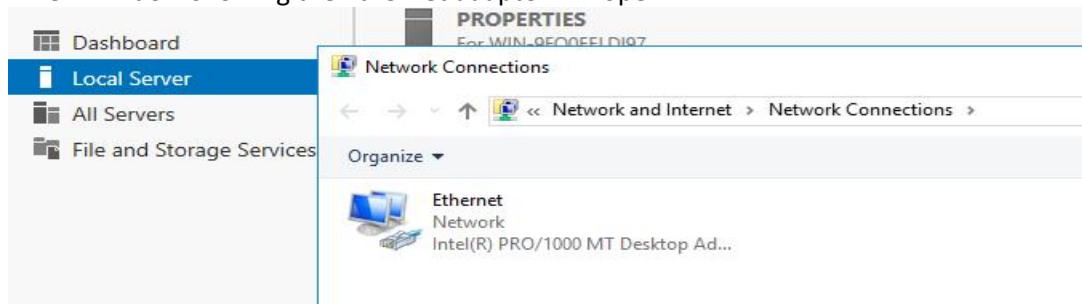


## B. Set the IPv4 address

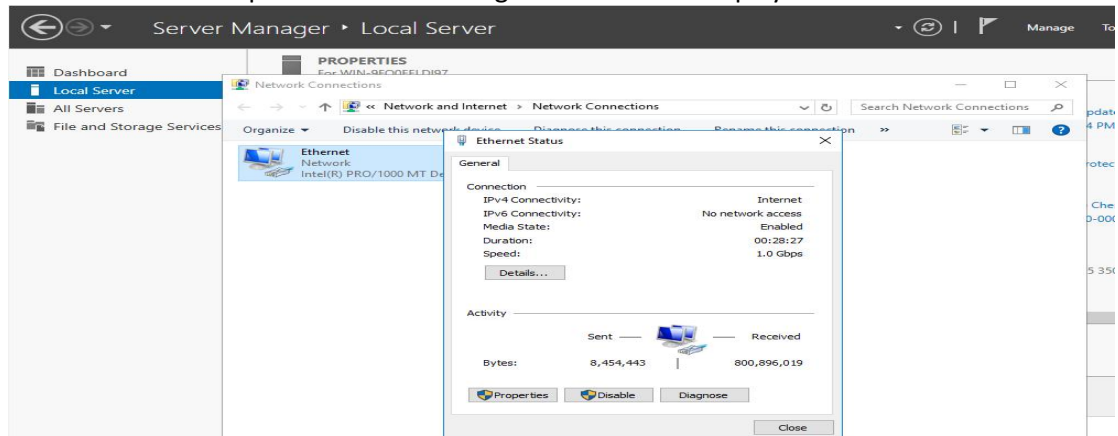
To set manual IPv4 address to the server, click the option in front of Ethernet in the Server Manager Window as shown below. If multiple adapters are attached then there will be multiple entries. Select the adapter that will be used to communicate with Active Directory clients or servers.



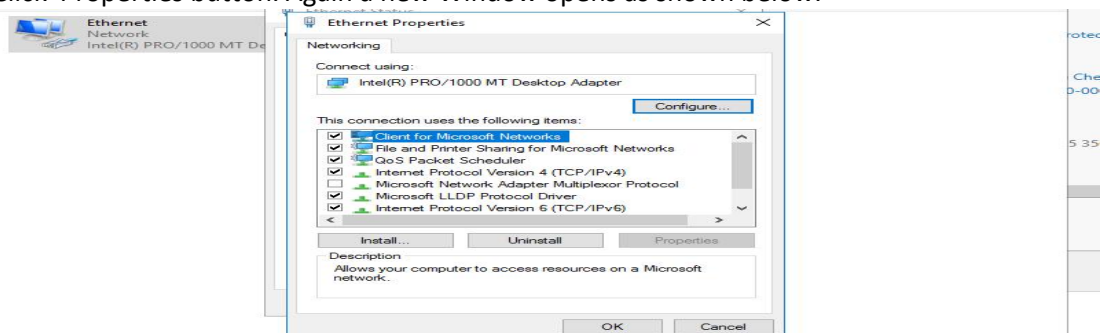
A new window showing the Ethernet adapter will open.



Double click the adapter name. Following window will be displayed.



Click Properties button. Again a new Window opens as shown below.

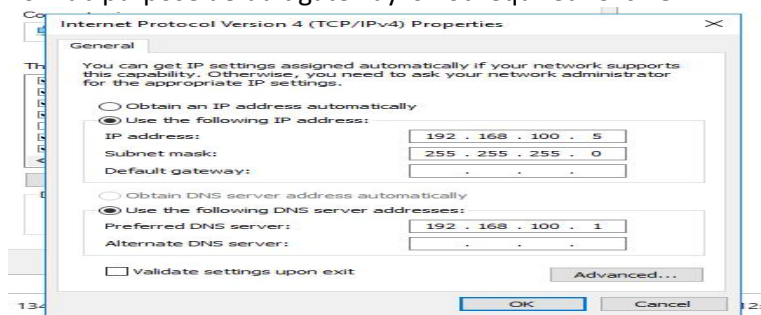


In that window double click the **Internet Protocol Version 4(TCP/IPv4)** option.

A new window is displayed. Select the Use the following IP address option. Then provide the required IP address and subnet mask.

**Make sure you provide the main DC server IP address in the Preferred DNS Server.**

For Lab purpose default gateway is not required. Click OK.



Then click OK on earlier windows and close all the windows opened. Do not close the Server Manager window.

Again if the given IP address is not displayed in the Server Manager window, Click the refresh button.

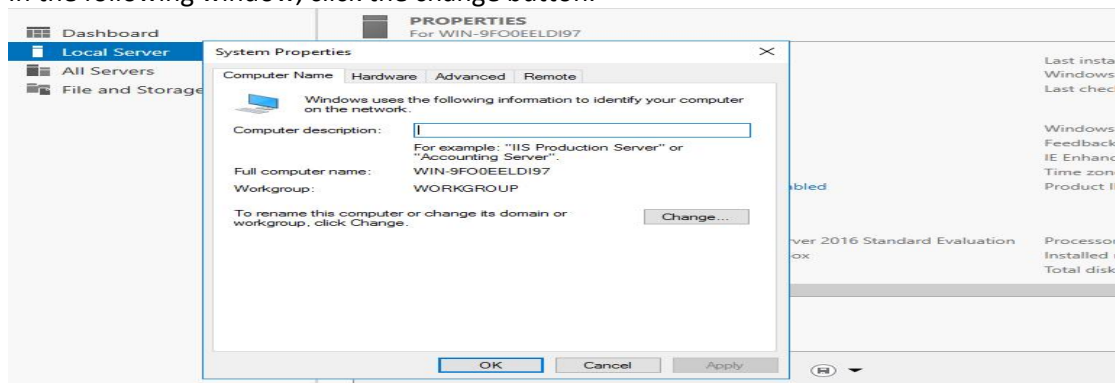
### C. Set a computer name for the server.

After this step, you need to restart the server.

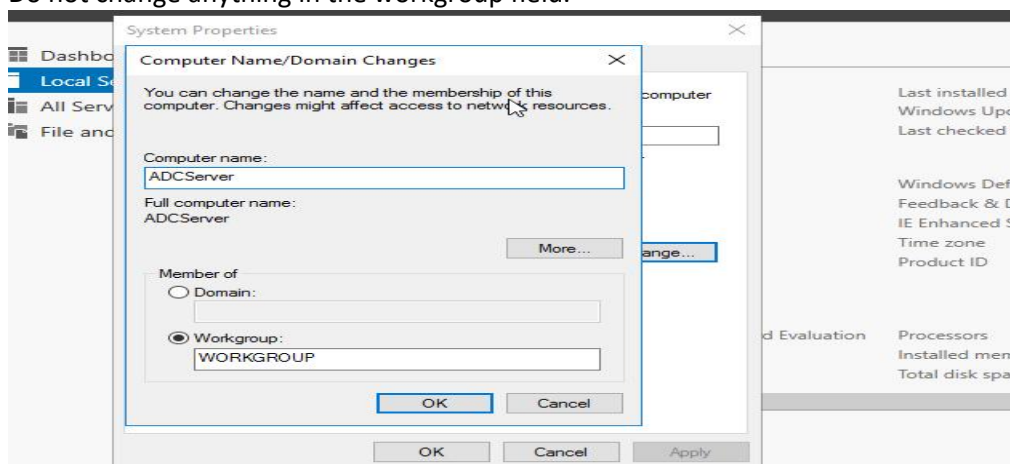
To assign a computer name to the server, in the Server Manager click any option - Computer Name or Workgroup. It will open the same window.



In the following window, click the change button.



This will open following window. In the Computer Name field specify a name for this server. Do not change anything in the workgroup field.



Click OK. It will display a restart warning. Click OK to close all earlier windows. The server restart option will be displayed. Click Restart Now and restart the server. This will bring the new computer name in effect.

Restart is necessary to successfully install Windows Active Directory.

After restart logon as Administrator and now you are ready to install your first forest and create your first Active Directory domain.

## 2. Install Active Directory Domain Services (ADDS)

### A. Install Active Directory Domain Services (ADDS)

To this server as an additional domain controller in an existing domain, you need to first install the Windows Active Directory Domain Services (ADDS). This will copy all the files and create a directory structure required.

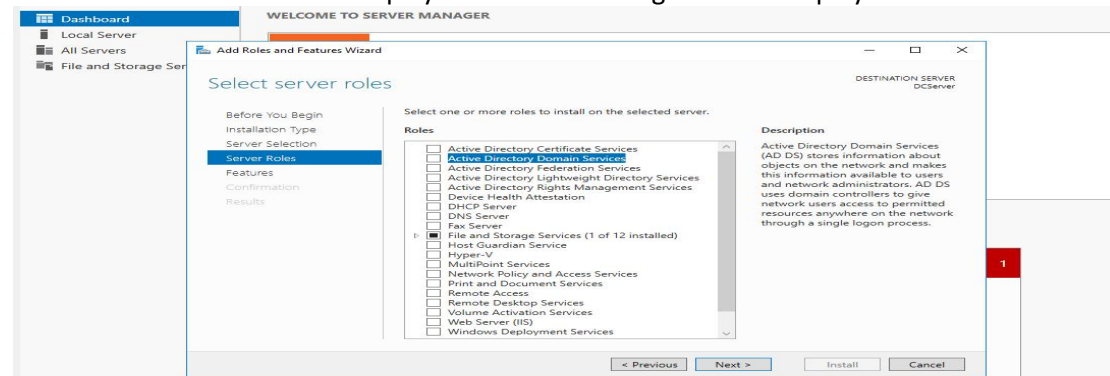
You do not require Windows Server installation media (CD/DVD/USB) for any of the steps.

To install ADDS, in the Server Manager window, click the Manage option.

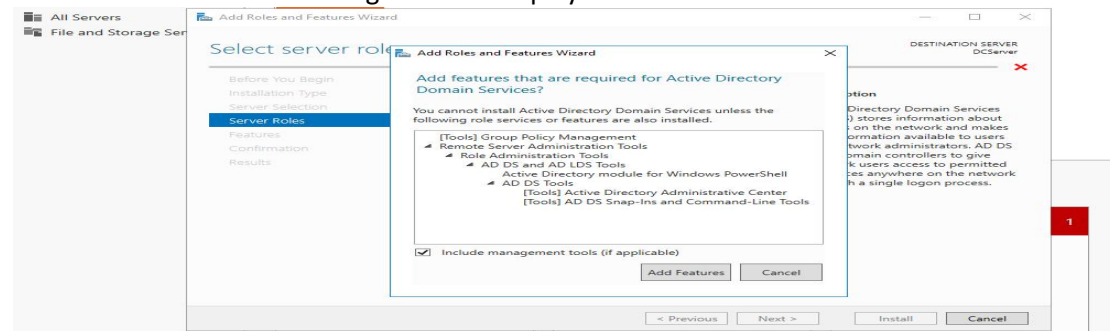


Then Click the **Add Roles and Features** option.

Click Next on all the screens displayed till the following screen is displayed.

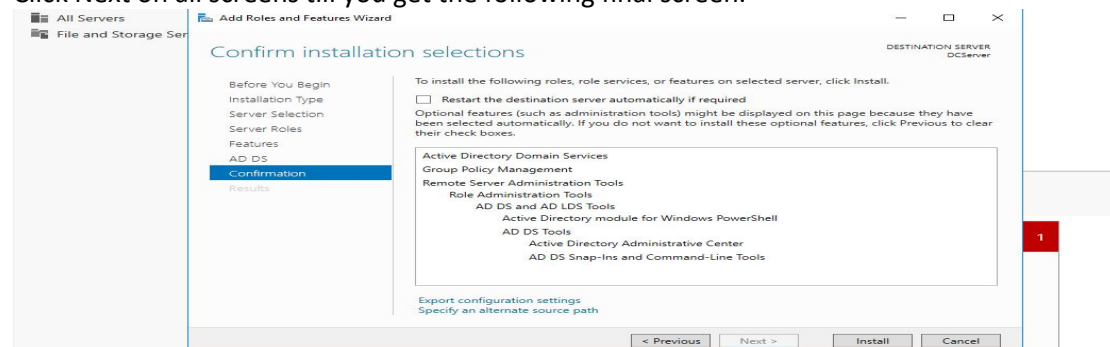


In this screen, select the check box in front of **Active Directory Domain Services** role. As the check box is selected following screen is displayed.



Click Add Features button.

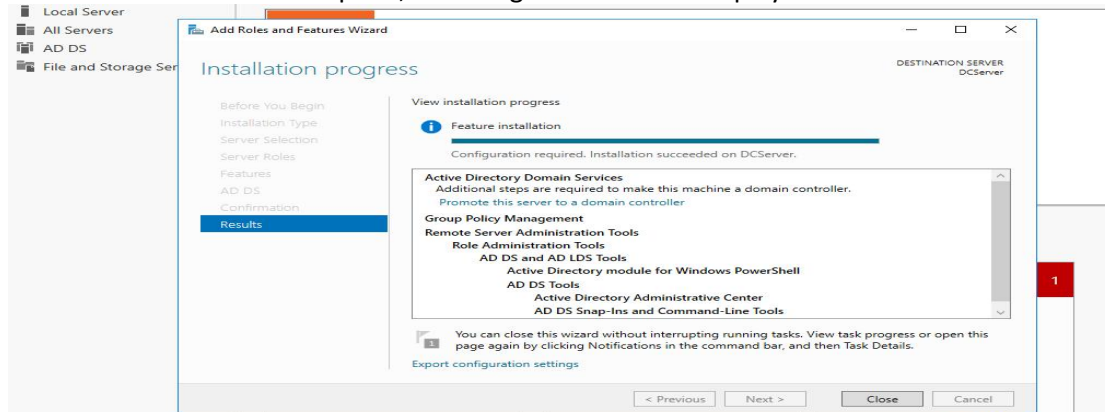
Click Next on all screens till you get the following final screen.





Click Install button to start installing the ADDS role on the server.

Once the installation is complete, following screen will be displayed.



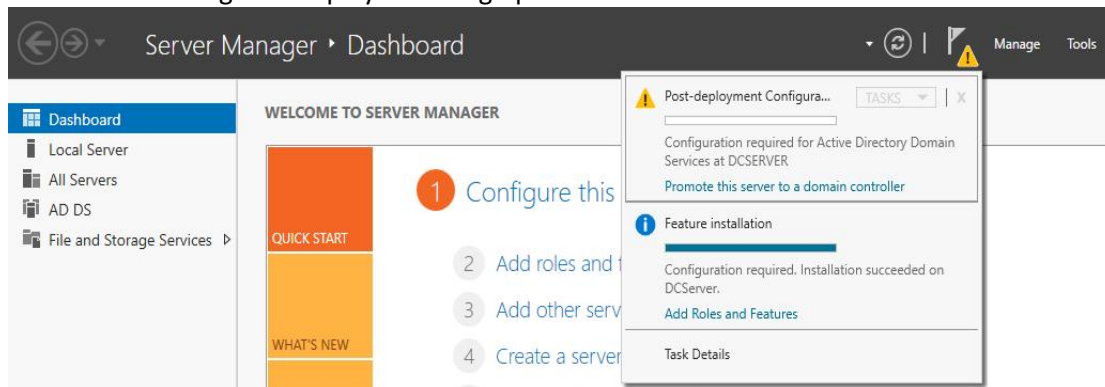
Make sure the installation succeeded without any errors. Click Close.

### B. Configure Windows Active Directory Domain Services (ADDS)

Once the ADDS service is successfully installed. The Server Manager window will display a yellow triangle near flag in right upper corner as shown below.

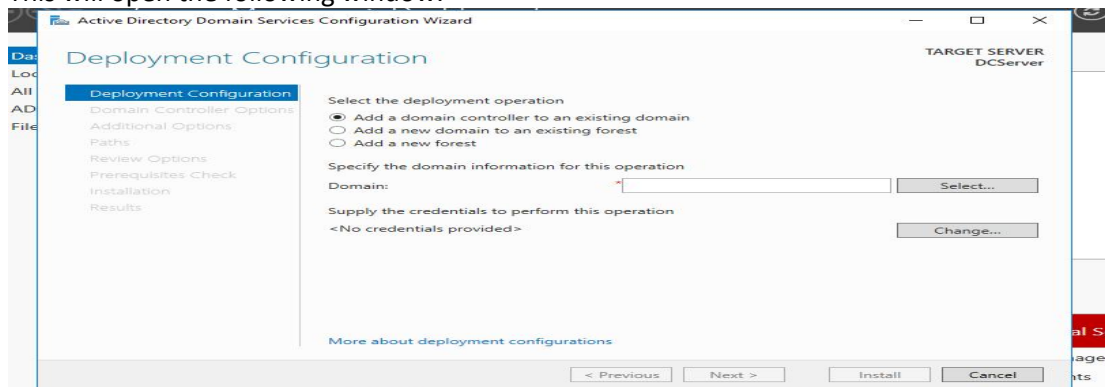


Click on that triangle to display following option.

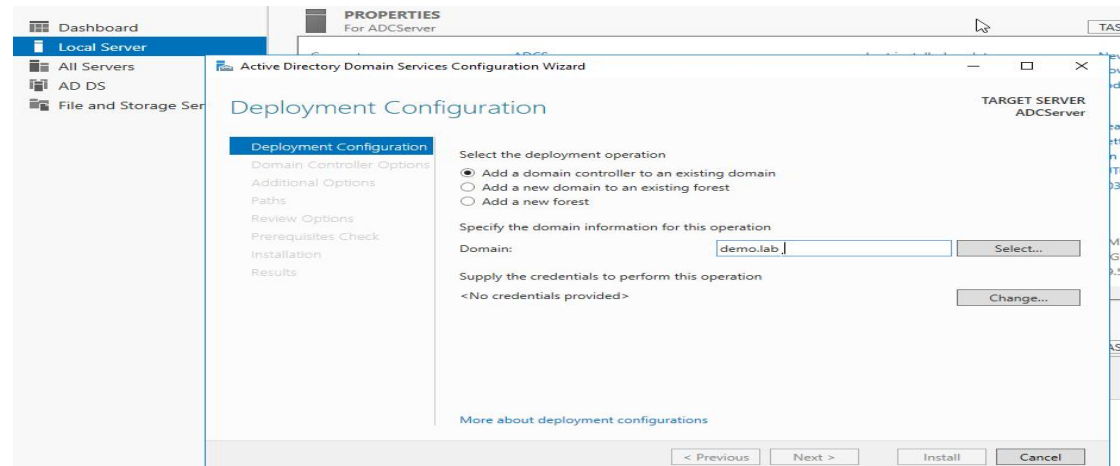


Click **Promote this server to a domain controller** option in the post-deployment configuration section.

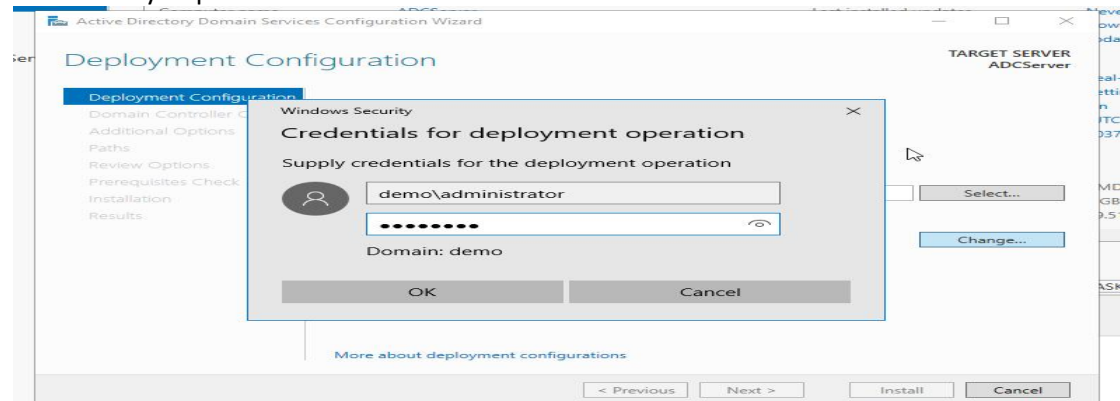
This will open the following window.



Select **Add a domain controller to an existing domain** option. Specify the domain name in which this server will work as an ADC.

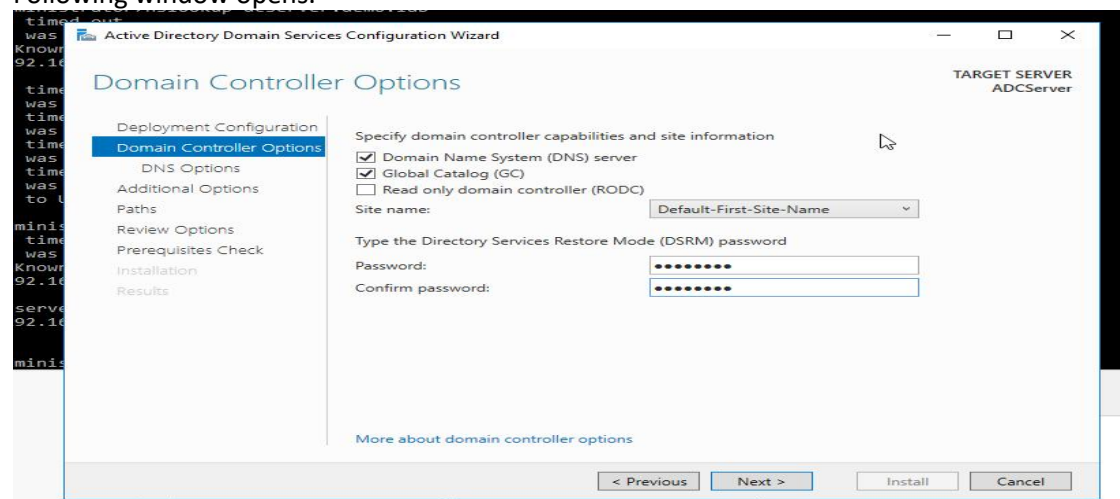


Click **Change** button in the Supply the credentials to perform this operation. In the new window that opens, provide the username and password of the main DC server. Make sure you provide the username with domain name as shown below.



Click OK. Click Next.

Following window opens.

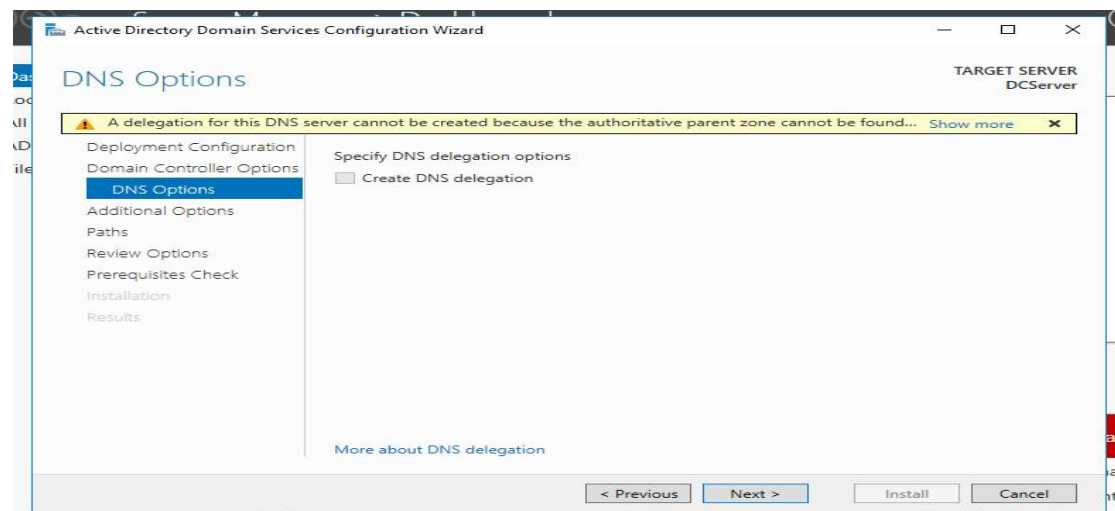


In this window keep all other settings as default.

Provide a DSRM password. As you know this password will be required for recovering active directory database from backup. Click Next.

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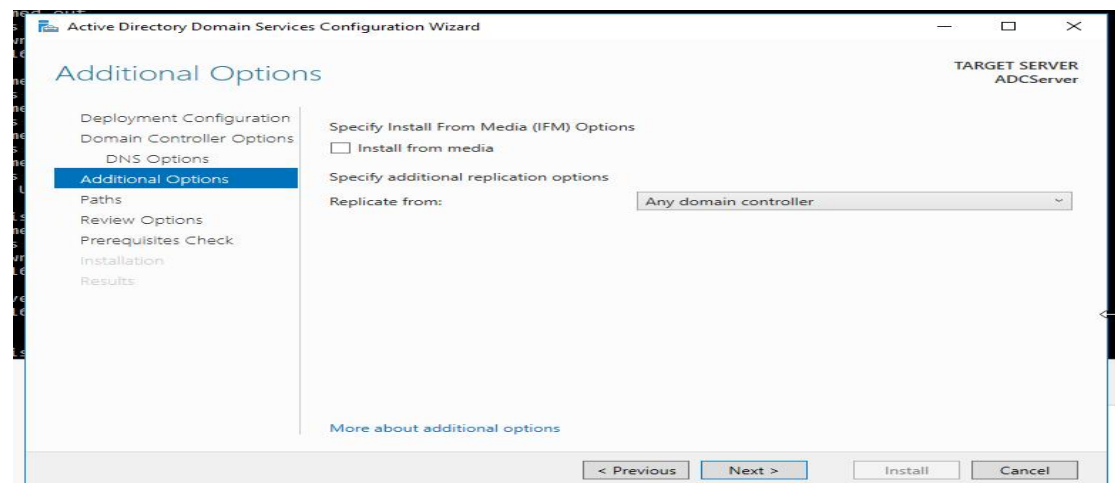
Following screen is displayed.



Windows active directory requires a working DNS server. However we do not have any DNS sever installed. Thus above warning screen is displayed. **Click Next.**

The next screen displays the options about how this server will get the copy of the existing active directory domain database. As you know that ADC holds the same database as the main domain controller.

The Install from media option helps you install the active directory domain database from a backup device like tape or external USB drive. This option is useful while installing ADC in branch offices. For a branch office where low speed WAN link is present, using this option helps save time and network traffic. You need to send the database backup to the branch office before you start this process.

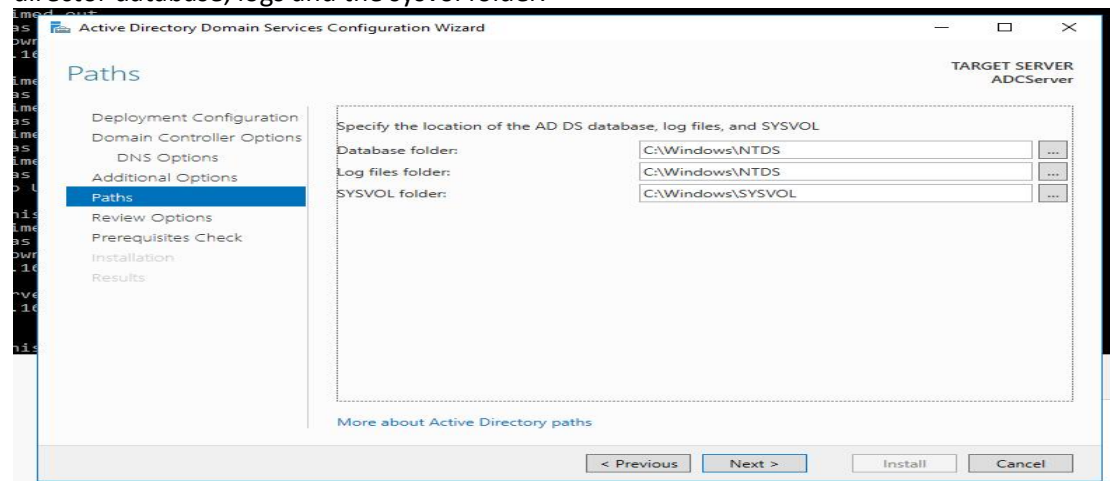


However for all LAN and high speed WAN installations replicate from option is used. If you already have multiple domain controllers within a domain then the drop down button in front of Replicate from will display a list of all these domain controllers. The default Any Domain controller option will select one of the available domain controller.

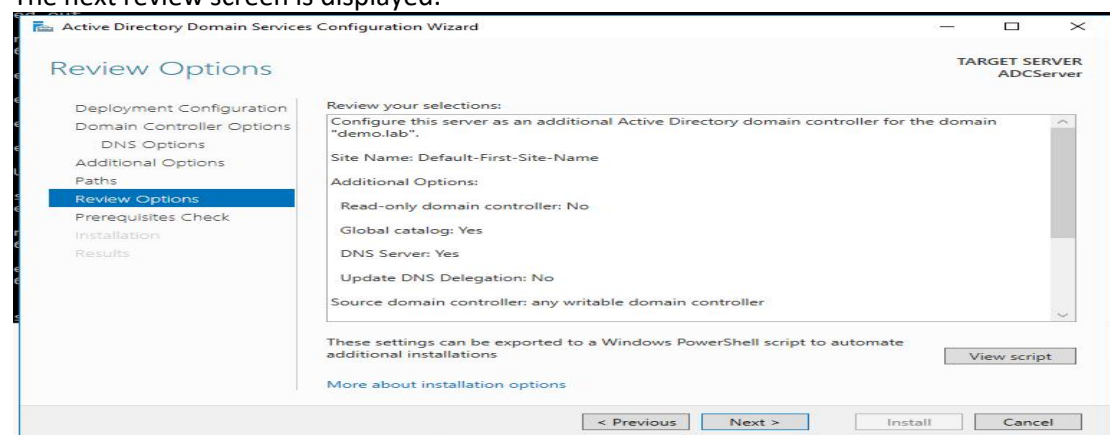
**Keep the default option and click Next.**



Click Next on the following window to select the default directory paths for the active director database, logs and the sysvol folder.

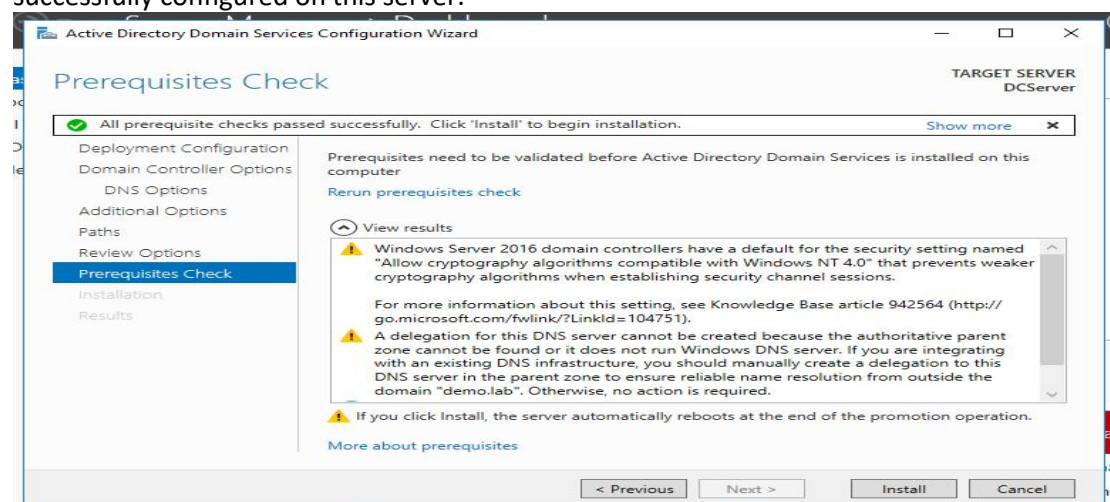


The next review screen is displayed.



Make sure all selected options on the earlier screens are correct.  
To finally configure the ADDS as per the settings , click Next.

The installer will verify that all the required prerequisites are met and the ADDS can be successfully configured on this server.



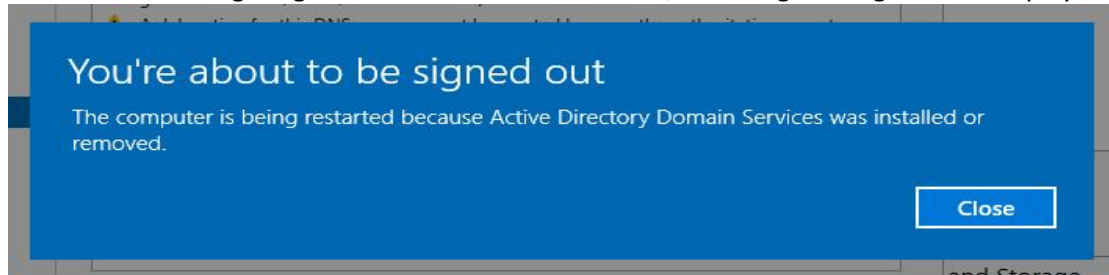
If there is any red coloured warning message, the Install button will be disabled. In such case read the error carefully and solve the problem.

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Any warning with yellow signs can be neglected and will not create any problems for ADDS configuration.

**Click Install.**

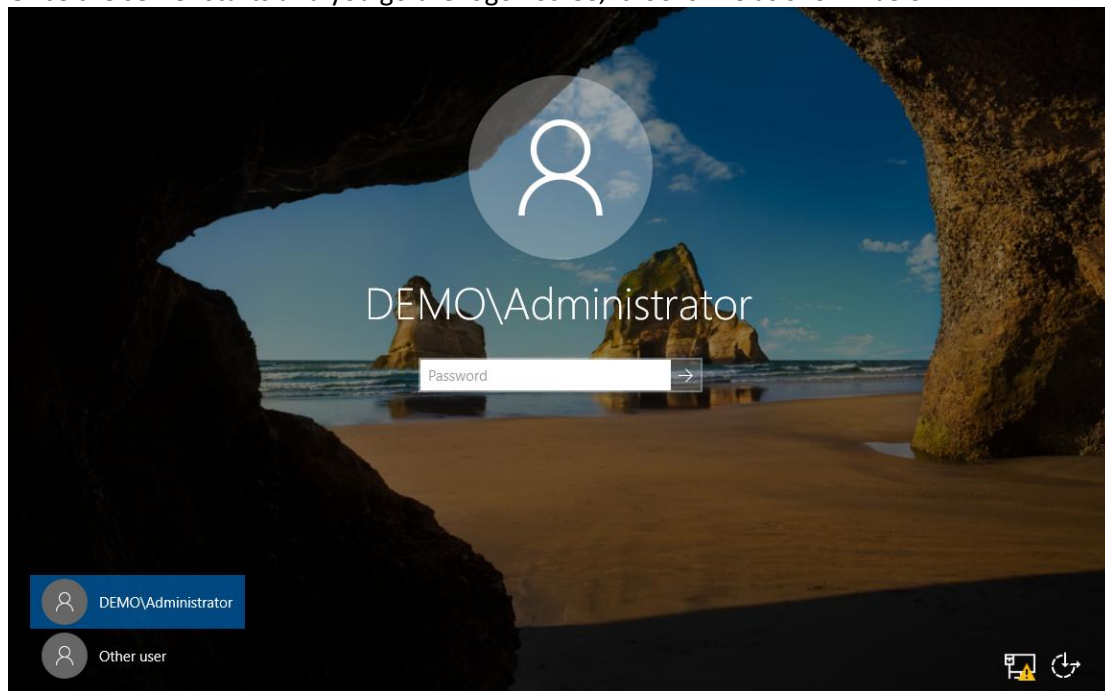
This will start configuring ADDS service. Once it finishes, following message will be displayed.



Just wait and server will automatically restart.

It will require some time for the server to start.

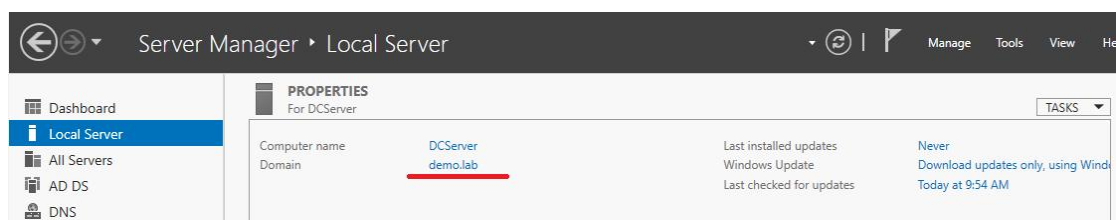
Once the server starts and you go the logon scree, it looks like as shown below.



Now the Logon name is displayed as **domain-name/Administrator**.

Provide earlier administrator password to login.

Now in the Server Manager window that opens, click Local Server option. In the workgroup option it will display your domain name.



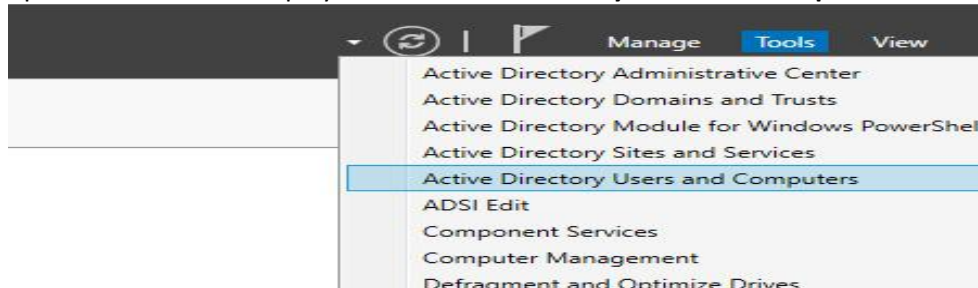
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### 3. Verify that the ADC is installed correctly.

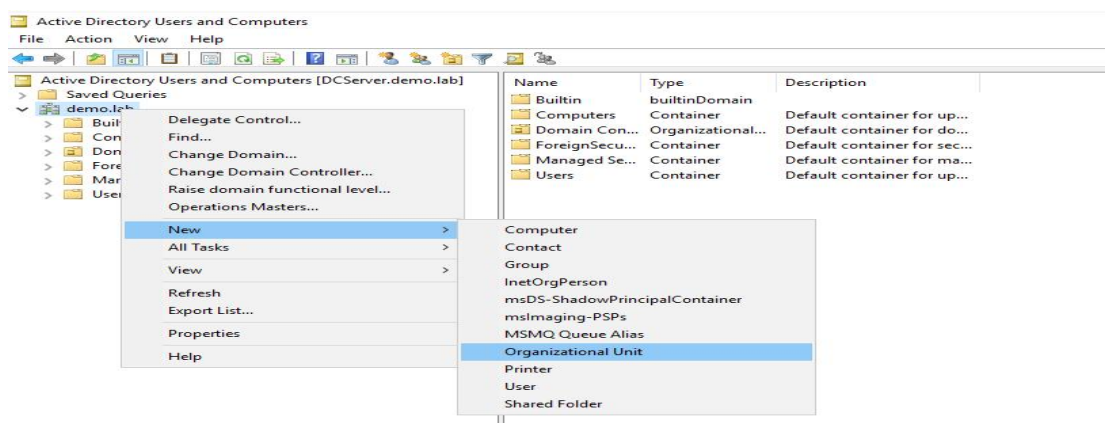
To verify that ADC is correctly install and the main DC and the new ADC are able to synchronize their database, perform the following steps.

#### A. Logon to the main domain controller and create a user in an organizational unit.

After you logon to the man DC as administrator, in the Server Manager window click Tools option. In the menu displayed click **Active Directory Users and Computers**.

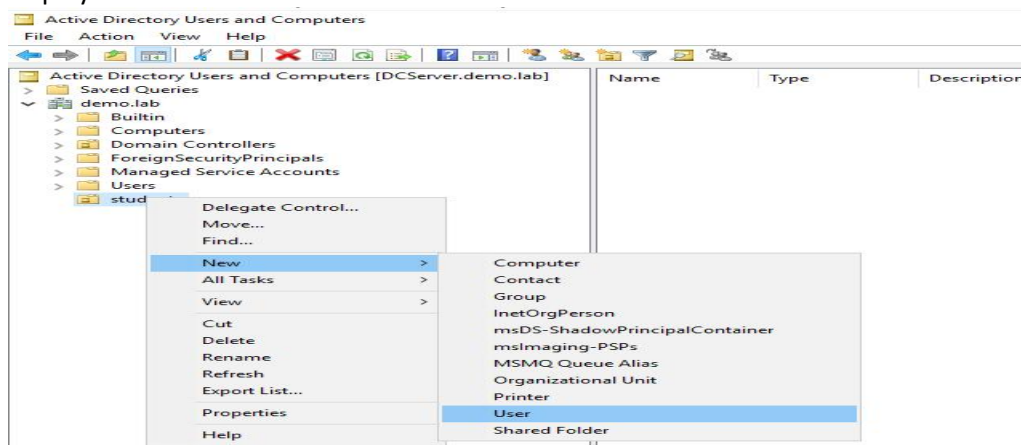


In the Active Directory Users and Computers window, expand the domain name shown. Then right click on the domain name. Go to the New option in the displayed menu. Then click Organizational Unit option as shown below.

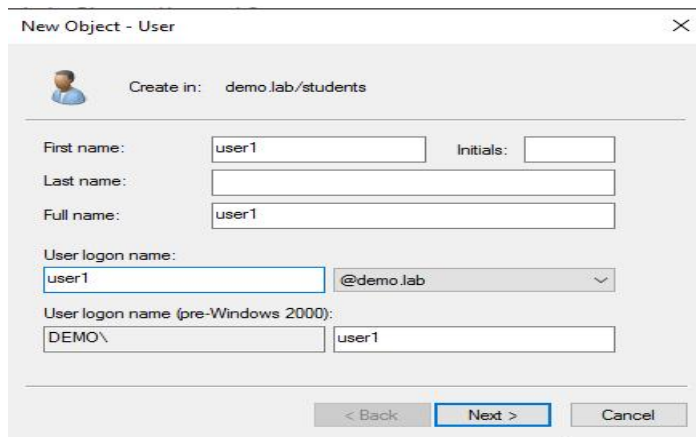


In the new window that opens provide a name for the organizational unit(OU). Click OK.

Once the OU is created , right click the name of the OU. Then select New option in the menu displayed. Click User to create a user inside the OU. This is show below.

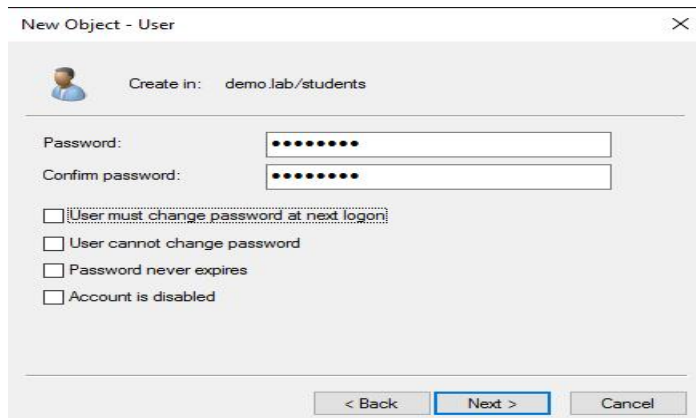


In the new window that opens provide First name, Full name and User logon name as shown below.



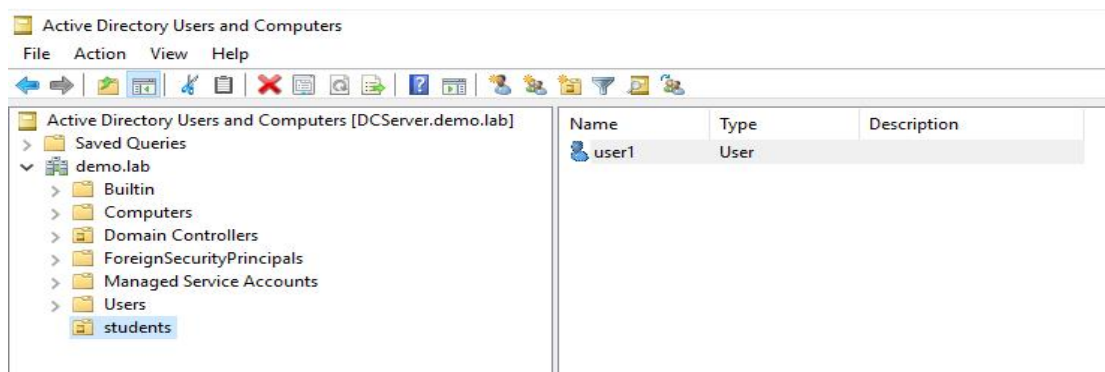
Click Next.

In the new window that opens , provide a password for the new user. Also deselect the checkbox from User must change password at next logon.



Click Next. Then click Finish to create the user.

The user will be displayed as below.

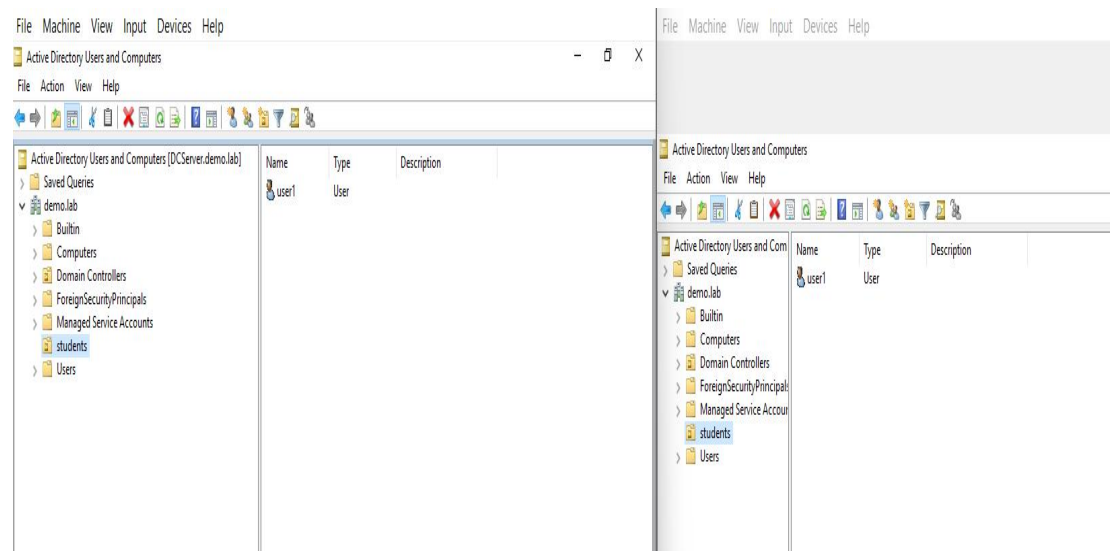


## B. Logon to the Additional Domain Controller and Open Active Directory Users and Computers.

Logon to the ADC as administrator. Go to Tools option in the Server Manager. The click Active Directory Users and Computers . The following window opens.

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Both the Domain controllers should show the OU created above and also the user within it as shown below.



Also create an OU and a user within it on the Additional Domain Controller and verify that it automatically reflects in the main Domain Controller.

This is how you have successfully installed the ADDS role on this server. You configured ADDS on this sever to add this server as a Additional Domain Controller (ADC) in your existing domain. This server is now additional domain controller for the domain demo.lab.