

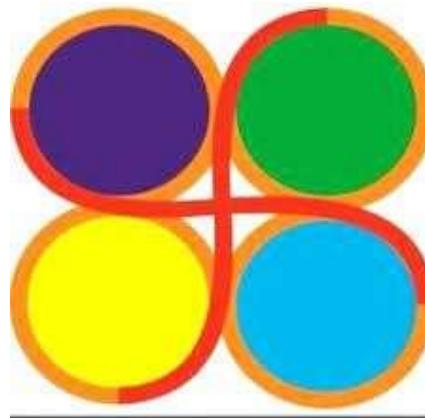
**GOVERNMENT POLYTECHNIC, AHMEDABAD**

**COMPUTER ENGINEERING DEPARTMENT**

**SEM - 6**

**SUBJECT: NETWORK MANAGEMENT & ADMINISTRATION (3360703)**

**LAB MANUAL**



*Prepared By: Smt.M.M.Bhadarka*

# Certificate

*This is to certify that Mr. /Miss*

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*Of \_\_\_\_\_ class*

*Enrollment No. \_\_\_\_\_*

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*has satisfactorily completed his/her term work in*

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*for the term ending in \_\_\_\_\_ 2020.*

*Date: \_\_\_\_\_*

*Signature of teacher*

*Head of the  
Department*

**Government Polytechnic, Ahmedabad**  
**Computer Department**  
**INDEX**  
**Network Management and Administrator (3360703)**

Name: \_\_\_\_\_ Batch: \_\_\_\_\_ Enrollment No: \_\_\_\_\_

Sr. No.	Practical Name	Page No	Date	Grade	Sign
1	Execute basic TCP/IP utilities and commands (eg:- ping, ipconfig, tracert, Arp, tcpdump, whois, host, netstat, nslookup, ftp, telnet, etc....)				
2	Configure the router (Ethernet and interface) using router commands on any network simulator.				
3	Configure VPN components and setup-VPN				
4	Design and implement small network using actual physical components with IP address scheme				
5	Configuration of the Remote Login service- TELNET/SSH in Packet tracer				
6	Installing and enabling IIS and FTP				
7	Creating Windows Server Boot Disk				
8	Installing Windows Server				
9	Installing and configuring Linux server				
10	Setting up and Configuring Local Print Device.				
11	Installing Active Directory and Creating AD objects				
12	Create Domain controller				
13	Create new Users and assign privileges/ Permission				
14	Modify/ Delete/ Deactivate users and groups				
15	Configure print server and backup server				
16	Identity, Segment Network Faults and troubleshoot				
17	Manage Microsoft Windows Internet Security Services (WINS)				

18	Manage Microsoft Certificate Services				
19	Manage Desktop Configuration using Group Policy and Remote Installation Services				

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## Practical 1

### **AIM: Execution of basic TCP/IP utilities and commands**

#### **1. ping**

- The ping command is a Command Prompt command used to test the ability of the source computer to reach a specified destination computer. The ping command is usually used as a simple way verify that a computer can communicate over the network with another computer or network device.
- The ping command operates by sending Internet Control Message Protocol (ICMP) Echo Request messages to the destination computer and waiting for a response.



```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\roman.rafacz>ping espn.com

Pinging espn.com [199.181.132.250] with 32 bytes of data:
Reply from 199.181.132.250: bytes=32 time=53ms TTL=248
Reply from 199.181.132.250: bytes=32 time=52ms TTL=248
Reply from 199.181.132.250: bytes=32 time=52ms TTL=248
Reply from 199.181.132.250: bytes=32 time=53ms TTL=248

Ping statistics for 199.181.132.250:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 52ms, Maximum = 53ms, Average = 52ms

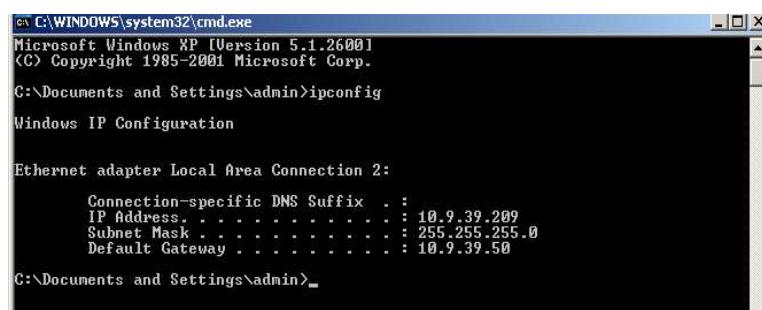
C:\Documents and Settings\roman.rafacz>

```

- For example: ping 10.9.39.60 (It will check that our system is communicate with the system which has ip address 10.9.39.60).

#### **2. ipconfig**

- ipconfig is a MS-DOS utility that can be used from MS-DOS and a MS- DOS shell to display the network settings currently assigned and given by a network. This command can be utilized to verify a network connection as well as to verify your network settings.
- ipconfig will give a quick view of you IP address, your subnet mask and default gateway.
- Through ipconfig /all we can find DNS servers, if we have DHCP enabled, MAC Address, along with other helpful information. All good things to know if we have trouble getting connected to the internet.



```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\admin>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 2:

Connection-specific DNS Suffix . :
IP Address . . . . . : 10.9.39.209
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.9.39.50

C:\Documents and Settings\admin>

```

### 3. Tracert

- A tracert is the tracking of a packet sent to a server. During its route, this packet goes through several network devices (routers, firewalls etc.) and then goes finally at the server. With the tracert, you can see the IP as well as the response time between each barrier (router, firewall...)
- We use then the tracert to check the problem between your computer and the server. We can see quickly where the problem is and fix it.
- Tracert is very similar to Ping, except that Tracert identifies pathways taken along each hop, rather than the time it takes for each packet to return (ping).

```
C:\> C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\admin>tracert google.com
Tracing route to google.com [74.125.68.139]
over a maximum of 30 hops:
  1  <1 ms    <1 ms    <1 ms  10.9.39.51
  2  <1 ms    <1 ms    <1 ms  10.9.150.45
  3  1 ms    <1 ms    <1 ms  119.160.192.193
  4  5 ms     8 ms    ? ms  121.241.90.45.static-ahmedabad.vsnl.net.in [121.241.90.45]
  5  56 ms    56 ms    55 ms  172.31.19.245
  6  *         *         * Request timed out.
  7  53 ms    52 ms    53 ms  115.114.142.137.static-Chennai.vsnl.net.in [115.114.142.137]
  8  53 ms    51 ms    51 ms  121.240.1.50
  9  51 ms    52 ms    51 ms  72.14.233.204
  10  82 ms    88 ms    78 ms  72.14.233.27
  11  85 ms    86 ms    86 ms  72.14.233.61
  12  *         *         * Request timed out.
  13  82 ms    82 ms    82 ms  74.125.68.139

Trace complete.
C:\Documents and Settings\admin>
```

### 4. Arp

- Display or manipulate the ARP information on a network device or computer.
- The ARP utility helps diagnose problems associated with the Address Resolution Protocol (ARP).
- TCP/IP hosts use ARP to determine the physical (MAC) address that corresponds with a specific IP address. Type arp with the –a option to display IP addresses that have been resolved to MAC addresses recently
- Example
- arp -a

Interface 220.0.0.80

Internet Address	Physical Address	Type
220.0.0.160	00-50-04-62-F7-23	static

- The Physical Address or MAC address as shown is the unique manufacturer identification number. This number should always be a unique address.

```
C:\> C:\WINNT\system32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\Documents and Settings\Administrator>arp -a
Interface: 192.168.250.253 on Interface 0x1000003
  Internet Address      Physical Address      Type
  192.168.250.3        00-0d-60-2a-89-e5    dynamic
  192.168.250.250       00-0d-88-d3-28-20    dynamic

Interface: 10.196.44.3 on Interface 0x1000004
  Internet Address      Physical Address      Type
  10.196.44.1           00-1c-58-1d-ee-39    dynamic
  10.196.44.18          00-21-9b-80-9c-5e    dynamic

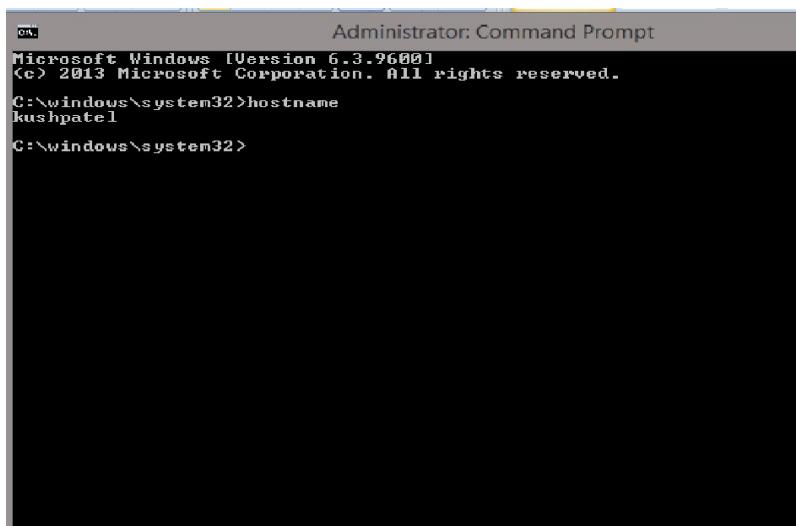
C:\Documents and Settings\Administrator>
```

## 5. whois

- The whois command available in Unix and Linux variants helps allow a user to identify a domain name. This command provides information about a domain name.
- Whois searches for an object in a WHOIS database. WHOIS is a query and response protocol that is widely used for querying databases that store the registered users of an Internet resource, such as a domain name or an IP address block.
- Example: whois google.com (It performs a whois query for the domain name google.com.)

## 6. hostname

- The hostname command displays the host name of the Windows XP computer currently logged into.



The screenshot shows a Windows Command Prompt window titled "Administrator: Command Prompt". The window displays the following text:  
Microsoft Windows [Version 6.3.9600]  
Copyright © 2013 Microsoft Corporation. All rights reserved.  
C:\Windows\system32>hostname  
kushpate1  
C:\Windows\system32>

- Examples: hostname (Running the command would display the hostname for the computer.)

## 7. Host (in Unix- Linux)

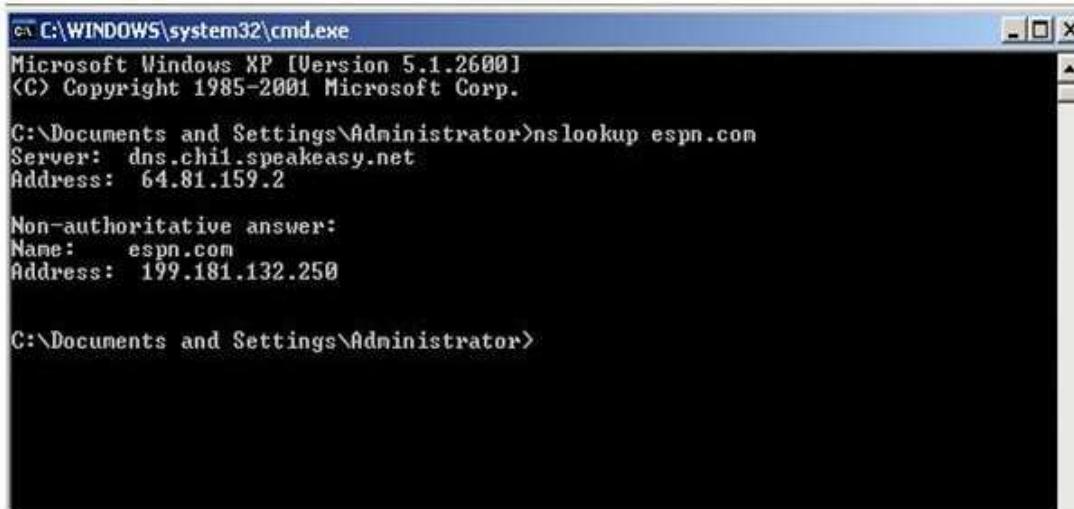
- Use host command to resolve a host name into an Internet Protocol (IP) address or an IP address into a host name.
- To show the address of a for the domain named google.com  
host google.com
- To show the domain name for the ip address  
host 10.9.39.45

## 8. netstat

- Abbreviation of network statistics, the netstat command is a command found in almost all command line environments that allow you to view the statistics of the network.
- The netstat command is used to display the TCP/IP network protocol statistics and information.
- For example: netstat.

## 9. Nslookup

- Nslookup is a command line tool included with most operating systems that allows a user to look up a network name server, as well as return IP addresses and domain names for a network server.
- Syntax: nslookup



The screenshot shows a Microsoft Windows XP Command Prompt window titled 'C:\WINDOWS\system32\cmd.exe'. The window displays the following text:

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>nslookup espn.com
Server: dns.chi1.speakeasy.net
Address: 64.81.159.2

Non-authoritative answer:
Name: espn.com
Address: 199.181.132.250

C:\Documents and Settings\Administrator>
```

## 10. FTP

- FTP (file transfer program) to transfer files to/from server.
- The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network, such as the Internet. FTP is built on client-server architecture and uses separate control and data connections between the client and the server.

```
C:\>ftp ftp.globalscape.com
Connected to ftp.globalscape.com.
```

**Questions: -**

**Practice basic TCP/IP commands.**

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## Practical-2

**AIM:** Configure a router (Ethernet & serial interface) using router commands on any network simulator.

### **CISCO PACKET TRACER ICONS USED DURING EXCERCISE**

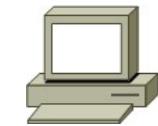
1. Router-Layer 3 Device



2. Workgroup Switch-Layer 2 Device



3. PC/Workstation



4. Serial-Icon to represent a Layer 1 or 2 cable



5. Circuit-Switched Serial



6. Ethernet-Icon to represent Layer 1 or 2 Ethernet cable





## 1. Entering User EXEC prompt on a Router, and exit

Description: This exercise, shows how to enter into privileged EXEC prompt from user mode prompt, and exit from the same.

Instructions:

1. Enter into privileged mode
2. Get back to the user mode

Command:

```
R1> R1>enable R1#disable R1>
```

## 2. Introduction to Basic User Interface

Description: This exercise helps to get familiar with the user mode, privileged mode, CLI (command-line interface) and basic commands.

Instructions:

1. Press enter to get the router prompt
2. In the user mode, type the command? Used to view all the commands in user mode
3. Enter into privileged mode
4. In the privileged mode, type the command? To view all the commands in privileged mode
5. The command show? Displays all the show commands like show access-list, show banner, show cdp, show hosts, show flash, show protocols etc.
6. The command show running config displays the running configuration
7. Press space bar to view more information
8. The command “exit or disable” logs out the router

Command:

```
R1> R1>? R1>enable R1#
```

```
R1#? R1#show ?
```

```
R1#show running-config
```

```
R1#exit Or R1#disable
```

### 3. Setting Host Name

Description: This basic exercise illustrates the steps required to set a hostname to a router.

Instructions:

1. Enter into privileged mode
2. Enter into global Configuration Mode
3. Set hostname as cisco

Command:

```
R1>enable R1#configure terminal R1(config)#hostname cisco
```

### 4. Router Interface Configuration

Description: In this exercise, you will learn to enable interfaces on a router i.e, configure Serial 0 and Ethernet 0 interfaces on a router with specified IP Address and Subnet Mask.

Instructions:

1. Enter into privileged mode
2. Enter into global Configuration Mode
3. Set IP Address of Serial 0 as 196.20.32.15 and Subnet Mask as 255.255.255.5
4. Set IP Address of Ethernet 0 as 195.20.32.10 and Subnet Mask as 255.255.255.10

Command:

```
R1>enable R1#configure terminal R1(config)#interface serial 0
```

```
R1(config-if)#ip address 196.20.32.15 255.255.255.5
```

```
R1(config-if)#exit
```

```
R1(config)#interface ethernet 0  
R1(config-if)#ip address 195.20.32.10 255.255.255.10
```

## 5. Exercises on DHCP

### 5.1 Configuring cisco router as a DHCP Server

Description: This exercise demonstrates the required commands for DHCP Server configuration on a cisco router.



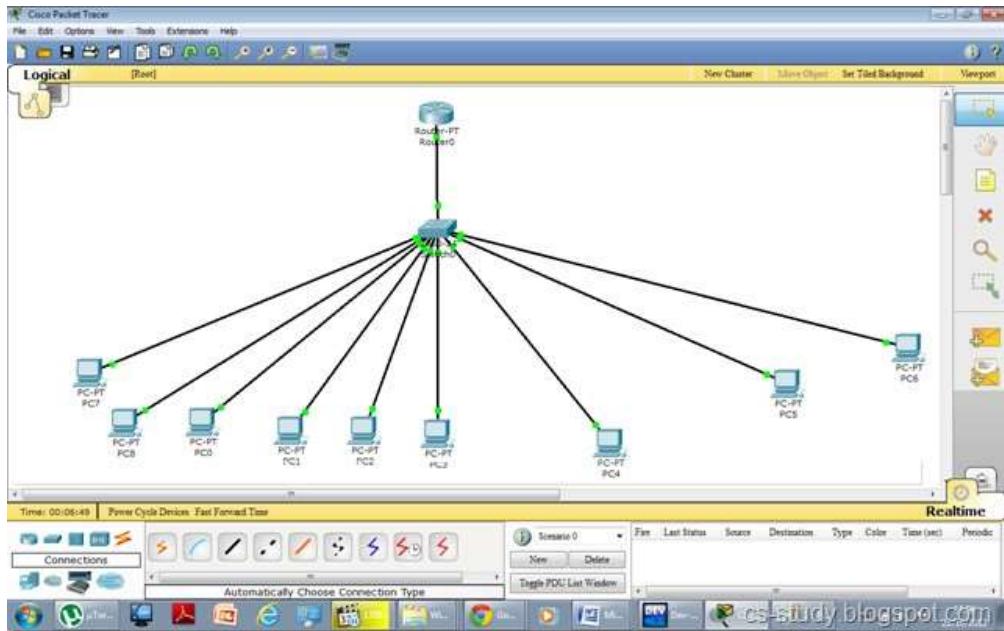
Copyright © 2010 CertExams.com

Command:

```
R1(config)#service dhcp  
R1(config)#ip dhcp pool newpool  
R1(config-dhcp)#network 192.168.2.0 255.255.255.0  
R1(config-dhcp)#domain-name xyz.com  
R1(config-dhcp)#dns-server 192.168.2.2  
R1(config-dhcp)#default-router 192.168.2.1  
R1(config-dhcp)#lease 2  
R1(config-dhcp)#exit  
R1(config)#+
```

### 5.2 DHCP on packet tracer.

First, let us make a topology with one router on which we will apply DHCP and several client PCs. More like this one,



Now, we will apply DHCP on the router. So, the commands in sequence are as follows.

```

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on interface FastEthernet0/0, changed state to
o up

Router(config-if)#exit
Router(config)#ip dhcp pool cisco
Router(config)#network 192.168.1.0 255.255.255.0
Router(config)#default-router 192.168.1.1
Router(config)#exit
Router(config)#ip dhcp ex
Router(config)#ip dhcp excluded-address 192.168.1.4 192.168.1.7
Router(config)#exit

```

In the following command “ip dhcp pool cisco”, we are creating a pool for DHCP called cisco. cisco is the name here and we can name it whatever we want.

Similarly, in the command “default-router “we are telling the DHCP about the default route to follow.

DNS address can also be assigned in DHCP by using the following command.  
dns-server 192.168.1.15.

Now, open the PC.



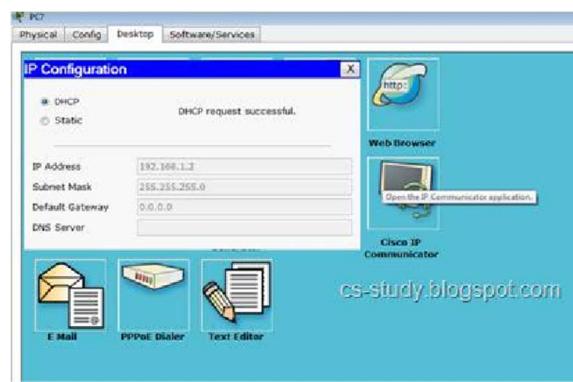
Click on IP Configuration



Select from Static to DHCP



And after DHCP request is completed you will see the following screen.



Now, after applying some IPs in sequence, DHCP will skip the IPs that we have excluded from our DHCP pool.



That is all, we have applied DHCP on packet tracer.

**Questions: -Write steps to create any one topologies**

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## **Practical-3**

### **AIM: Configure VPN components and set-up VPN.**

#### **➤ What is VPN?**

- A Virtual Private Network (VPN) is a network that uses a public telecommunication infrastructure, such as the Internet, to provide remote offices or individual users with secure access to their organization's network.
- A Virtual Private Network (VPN) is a network technology that creates a secure network connection over a public network such as the Internet or a private network owned by a service provider. Large corporations, educational institutions, and government agencies use VPN technology to enable remote users to securely connect to a private network.
- A VPN can connect multiple sites over a large distance just like a Wide Area Network (WAN). VPNs are often used to extend intranets worldwide to disseminate information and news to a wide user base. Educational institutions use VPNs to connect campuses that can be distributed across the country or around the world.

#### **➤ Protocols**

- There are a number of VPN protocols in use that secure the transport of data traffic over a public network infrastructure. Each protocol varies slightly in the way that data is kept secure.
- IP security (IPSec) is used to secure communications over the Internet. IPSec traffic can use either transport mode or tunneling to encrypt data traffic in a VPN. The difference between the two modes is that transport mode encrypts only the message within the data packet (also known as the payload) while tunneling encrypts the entire data packet. IPSec is often referred to as a "security overlay" because of its use as a security layer for other protocols.
- Secure Sockets Layer (SSL) and Transport Layer Security (TLS) use cryptography to secure communications over the Internet. Both protocols use a "handshake" method of authentication that involves a negotiation of network parameters between the client and server machines. To successfully initiate a connection, an authentication process involving certificates is used. Certificates are cryptographic keys that are stored on both the server and client.
- Point-To-Point Tunneling Protocol (PPTP) is another tunneling protocol used to connect a remote client to a private server over the Internet. PPTP is one of the most widely used VPN protocols because of its straightforward configuration and maintenance and also because it is included with the Windows operating system.
- Layer 2 Tunneling Protocol (L2TP) is a protocol used to tunnel data communications traffic between two sites over the Internet. L2TP is often used in tandem with IPsec (which acts as a security layer) to secure the transfer of L2TP data packets over the Internet. Unlike PPTP, a VPN implementation using L2TP/IPsec requires a shared key or the use of certificates.

**Questions: - Steps for setting up VPN**

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## **Practical-4**

**AIM: Design and implement small network using physical components with IP address scheme in cisco packet tracer**

➤ These steps describe how to do a simple installation:

1. Connecting to the Switch
2. Starting the Terminal-Emulation Software
3. Connecting to a Power Source
4. Entering the Initial Configuration Information

**Questions: -Write steps for implementing small network/Topology**

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## Practical-5, 6

### **AIM: Configuration of the Remote Login service-TELNET/SSH in Packet tracer. & Configuration of FTP server and accessing it via FTP Client.**

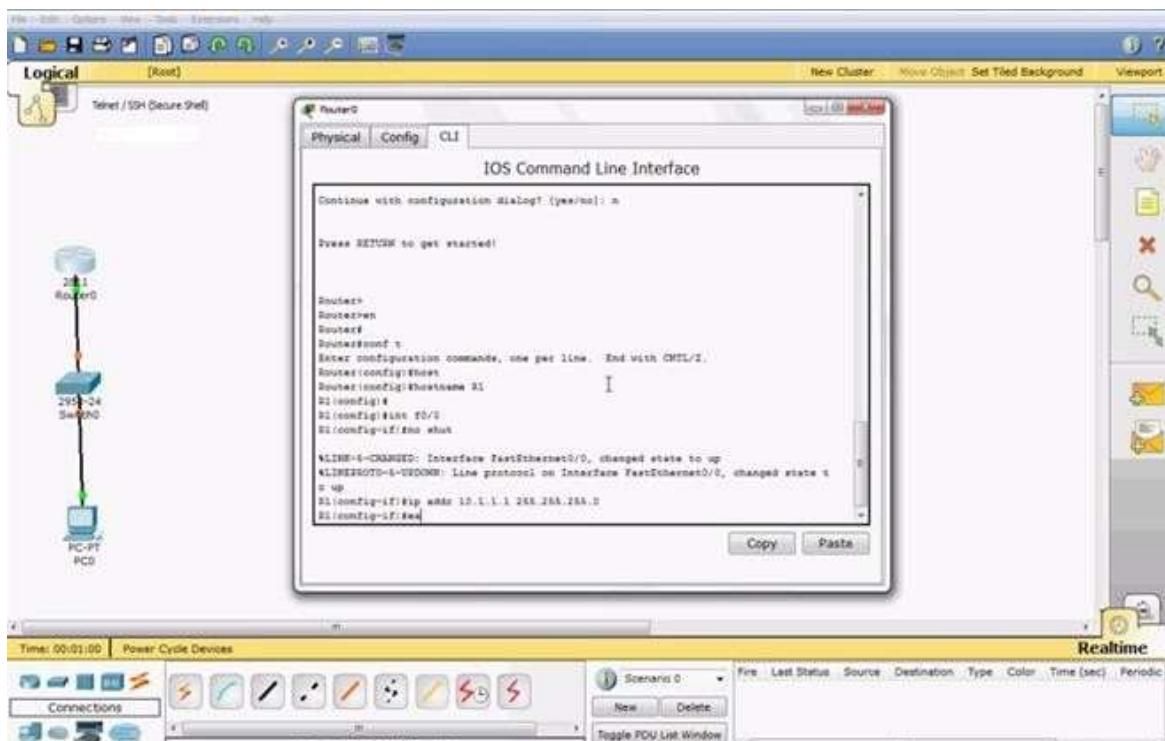
Configuration of the following

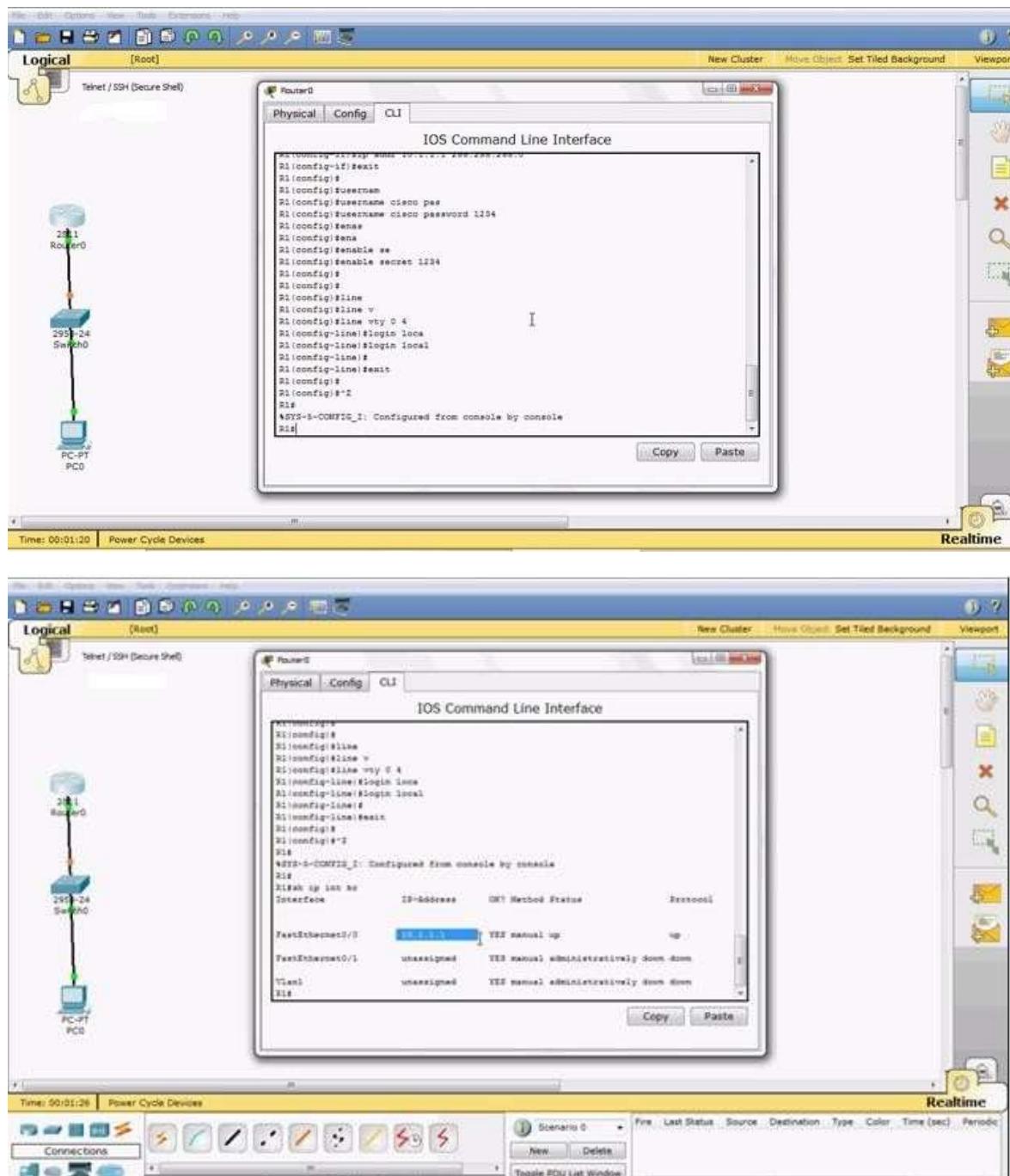
- (a) Remote Login Service – TELNET/SSH
- (b) Configuration of FTP server and accessing it via FTP Client.

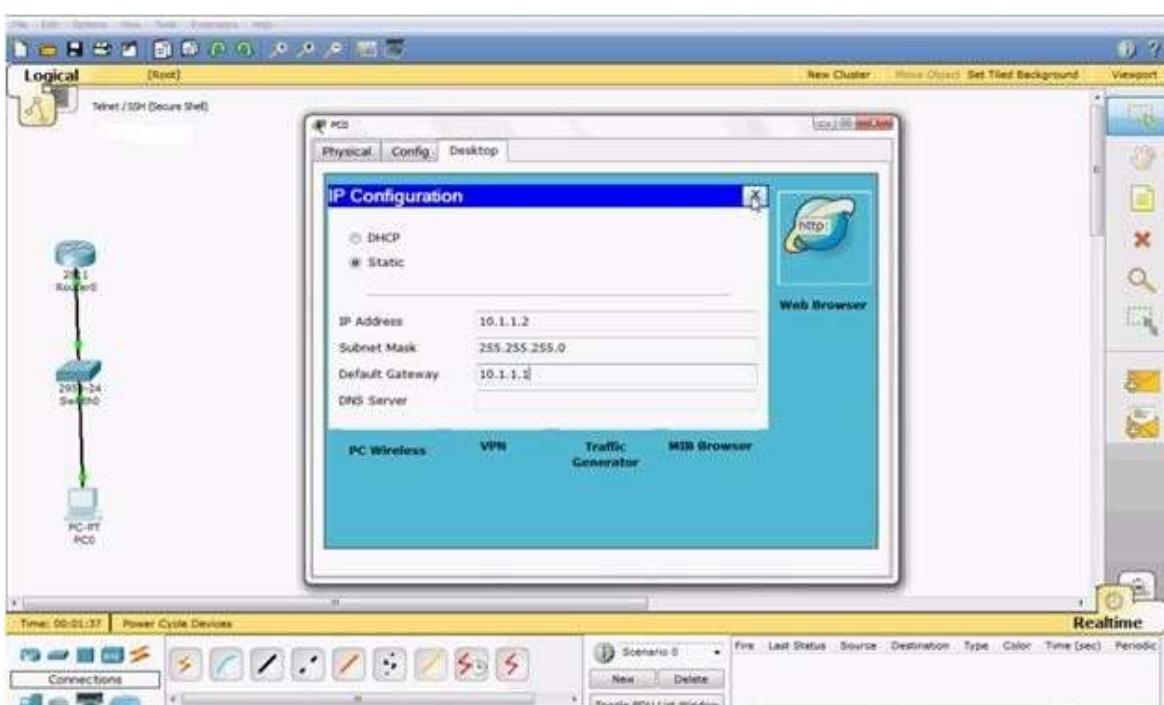
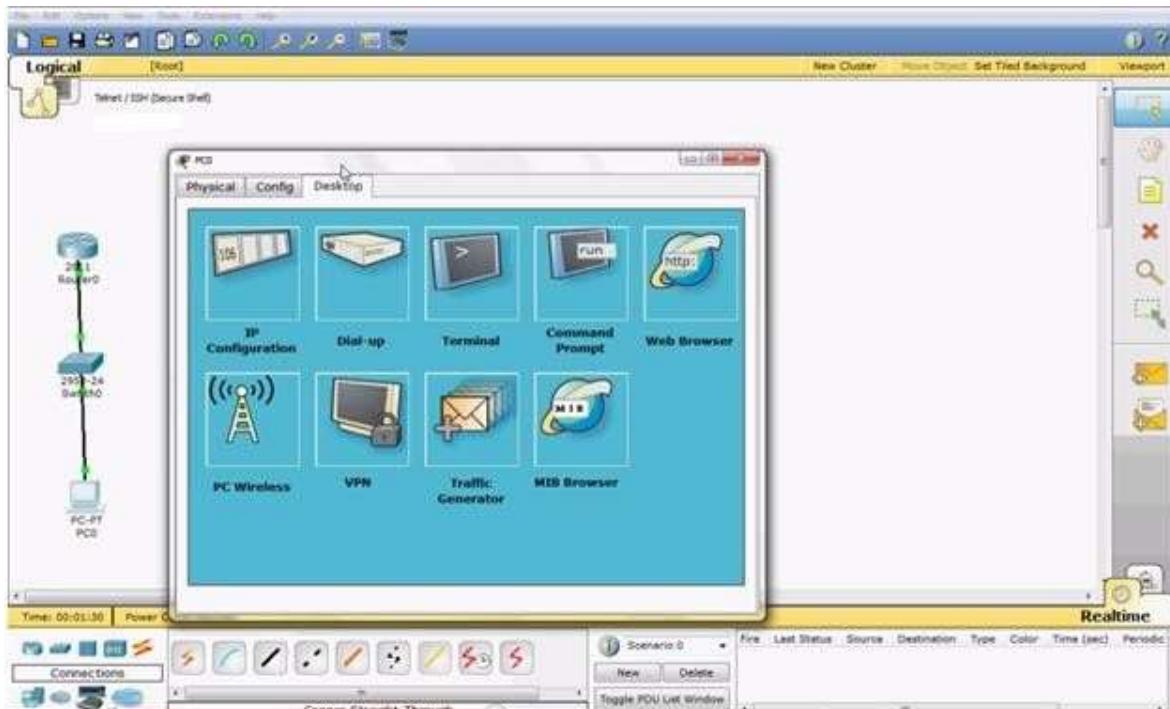
#### **(a) Remote Login Service – TELNET/SSH**

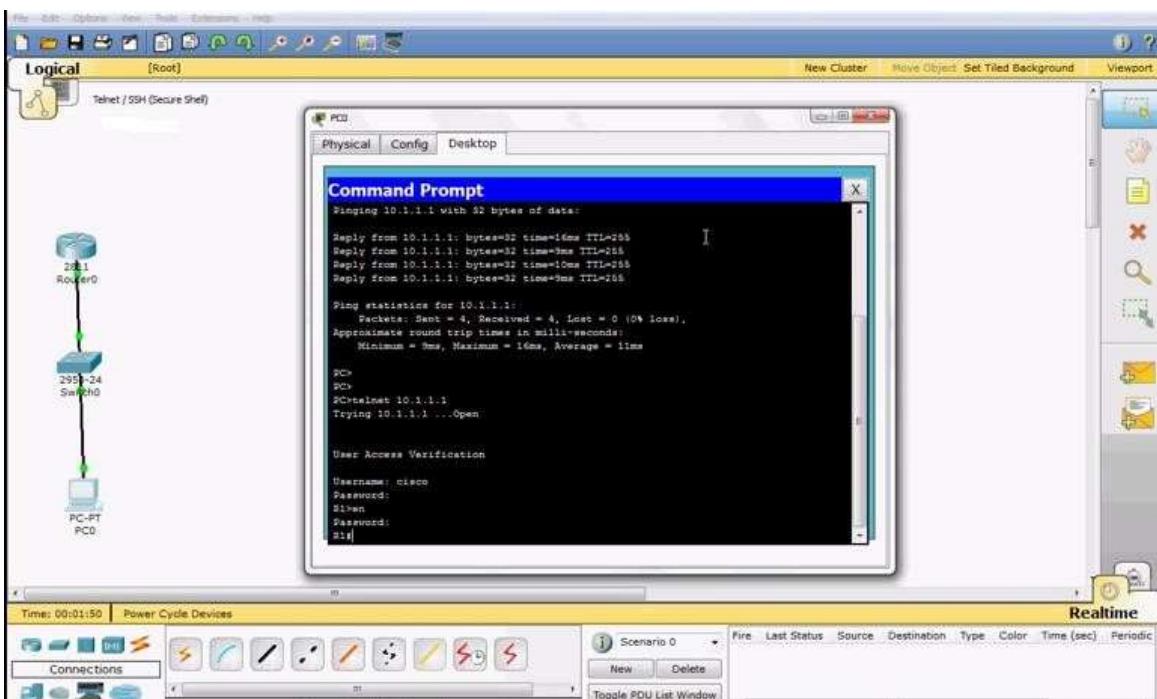
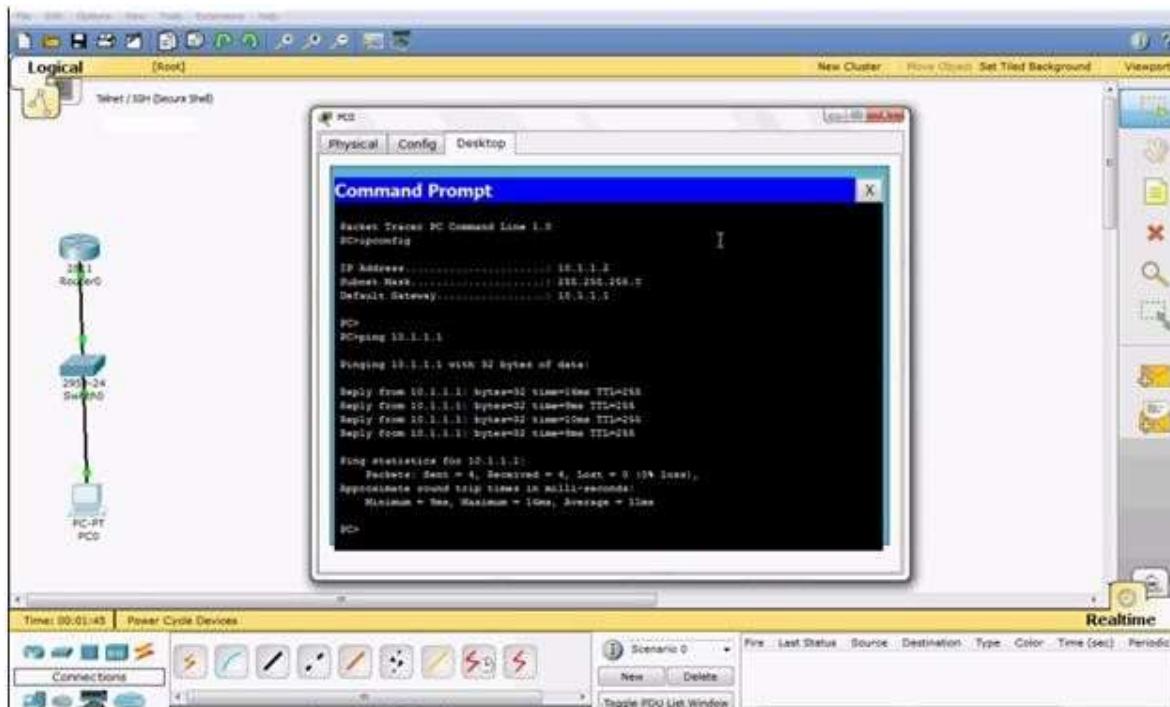
The service is implemented on network simulator, Cisco packet tracer. A simple network is created consisting of 1 router, 1 switch and a PC.

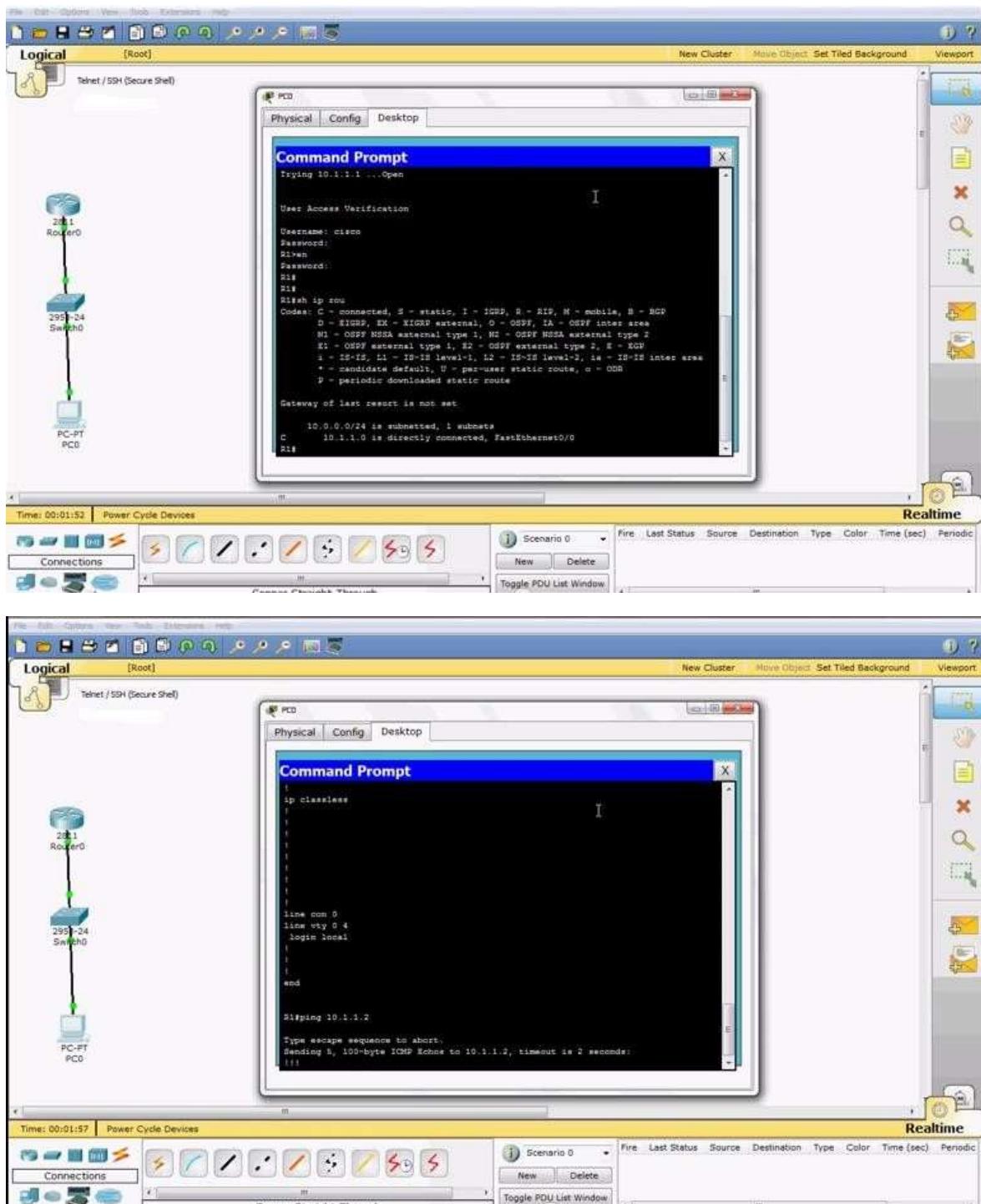
##### 1. TELNET ENABLE

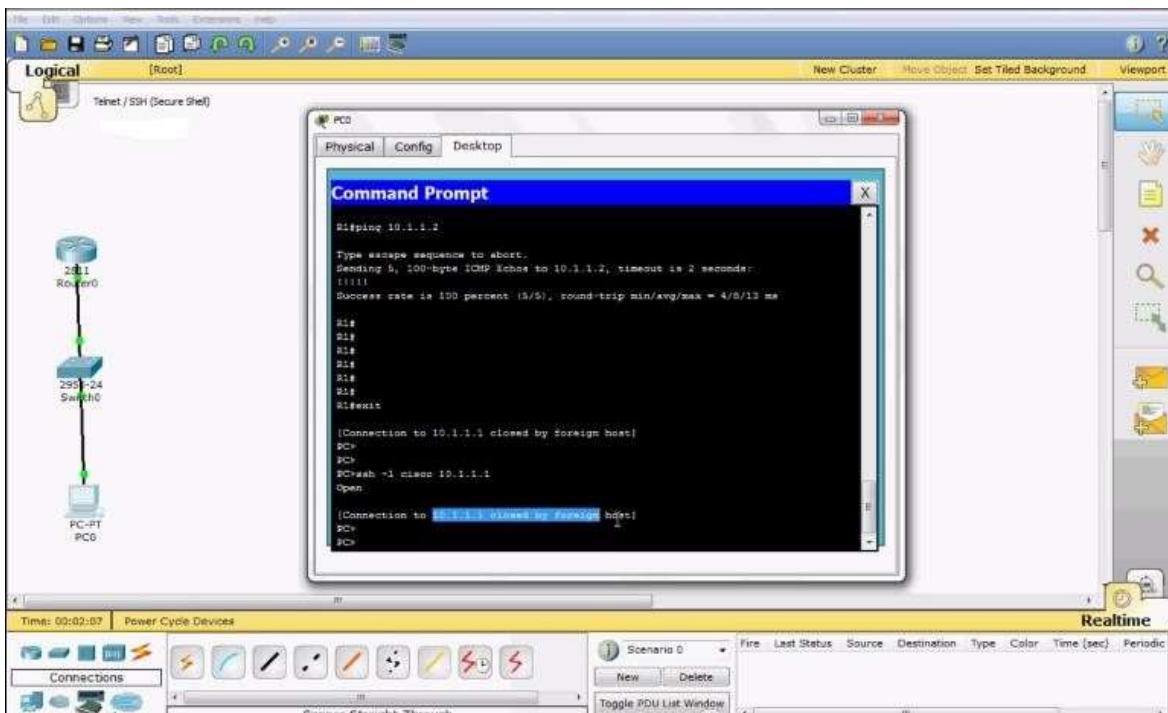






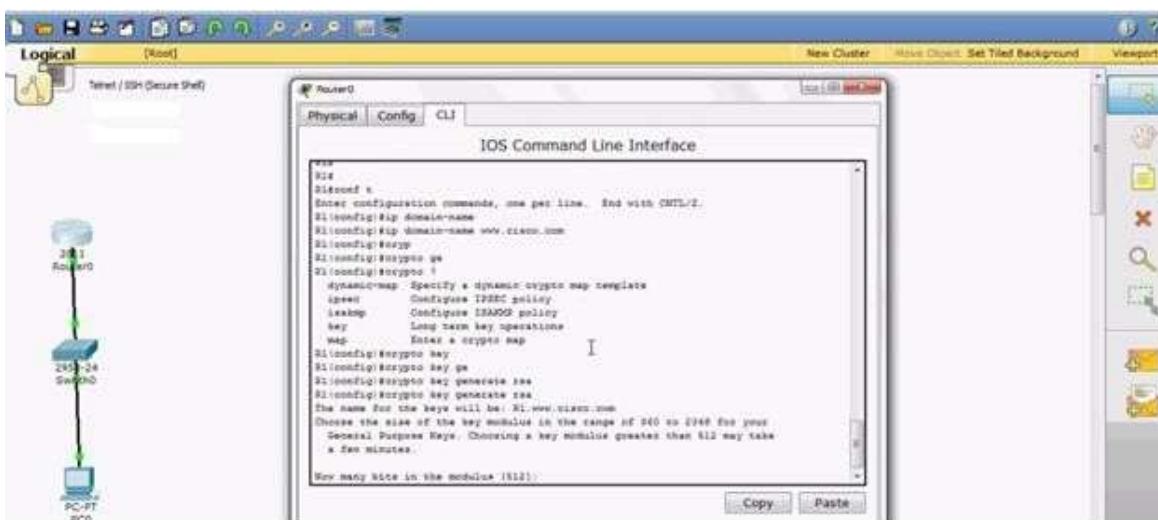




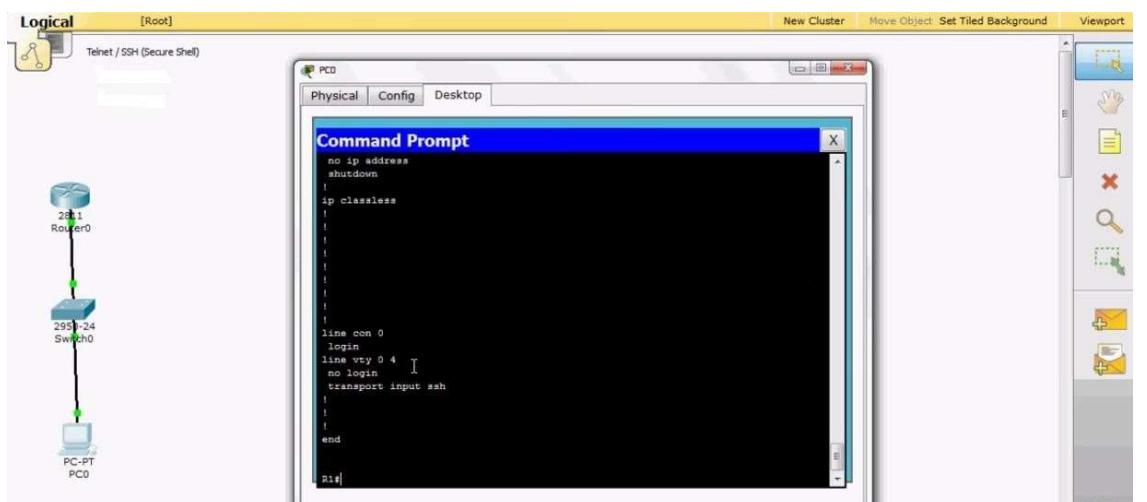
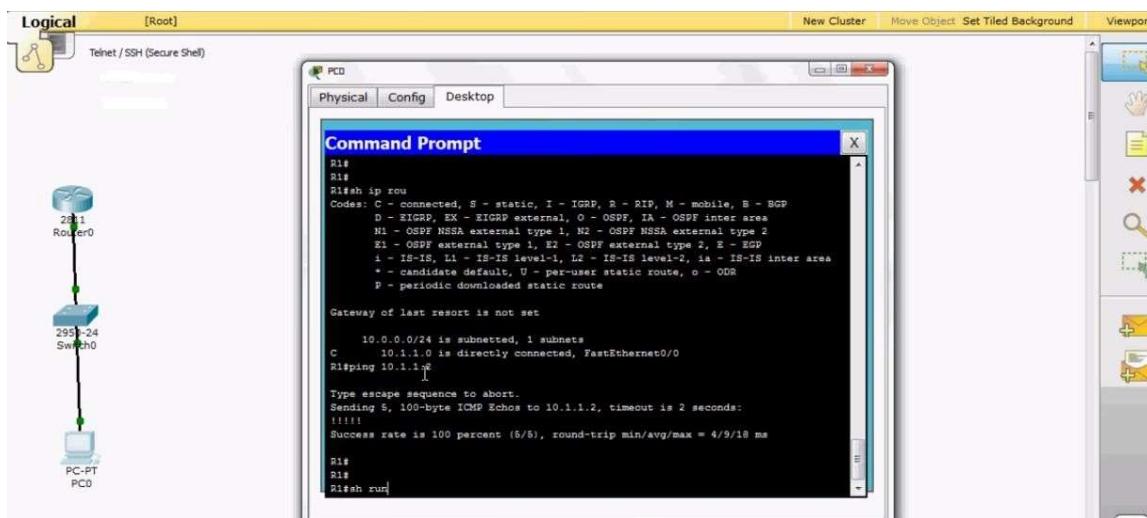
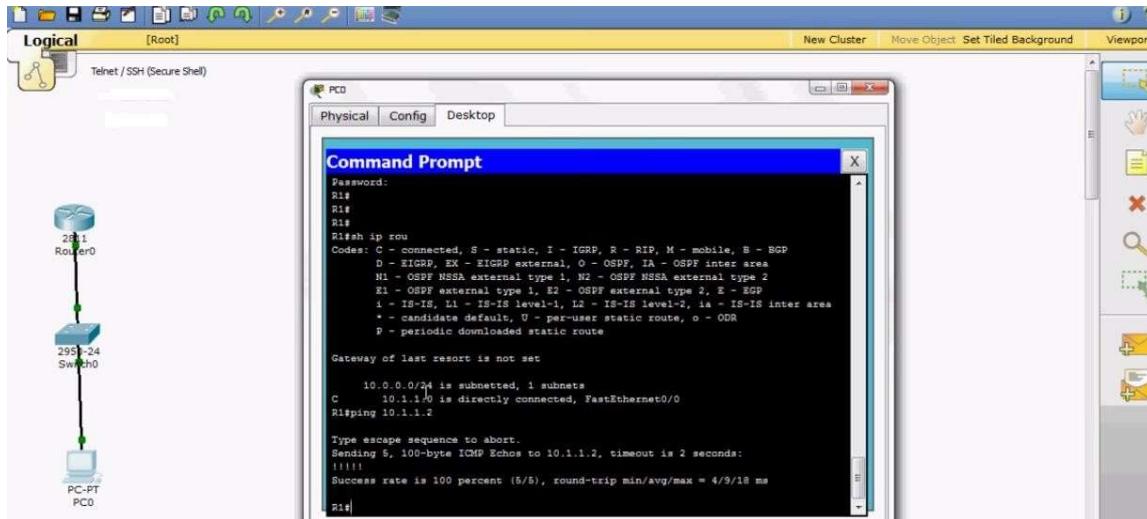


TELNET CLOSED

## 2. SSH ENABLE

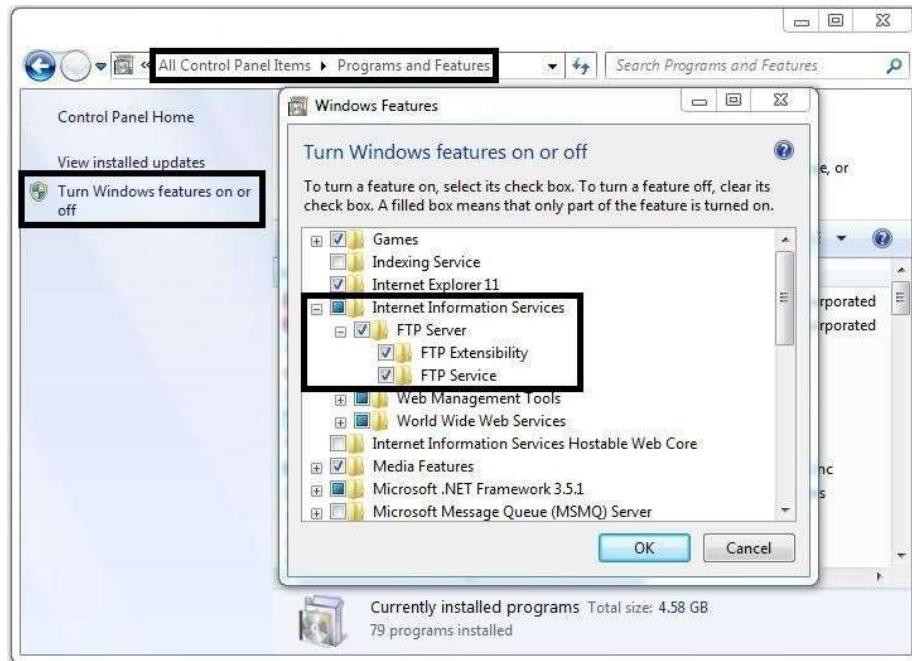




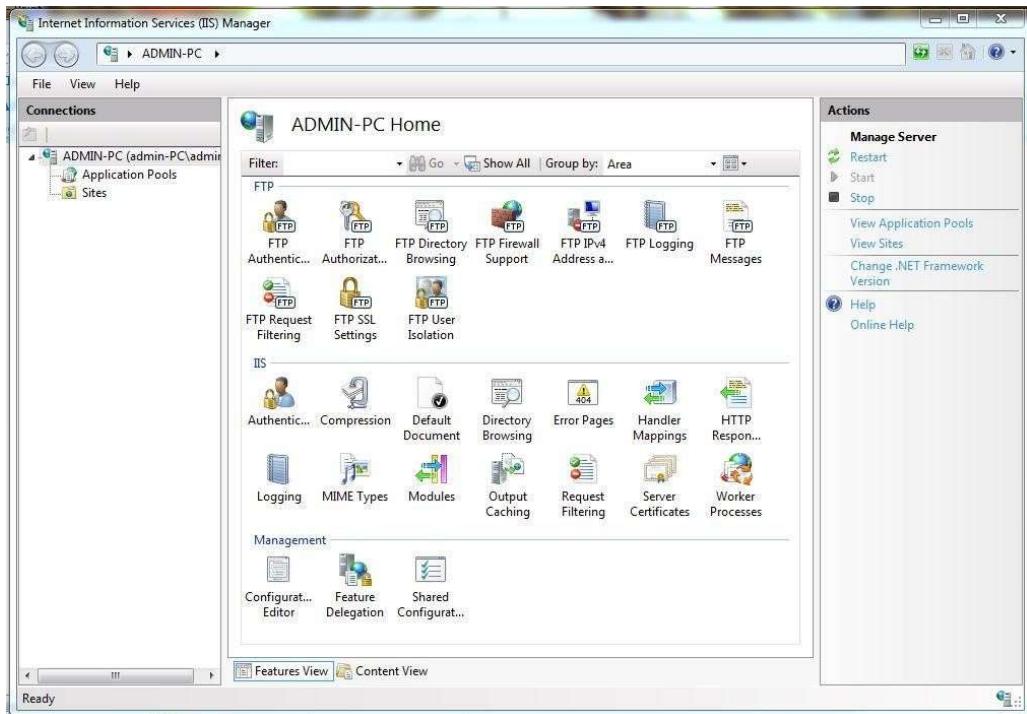


## B) Configuration of FTP server and accessing it via FTP Client.

- The FTP Server and Client used to share the data in a Network which is used all user who's connect in a Network.
- The FTP Server and Client is already installed in your Computer/Laptop but enable these two options when you are used FTP Server and Client.
- The FTP Server and Client is attached in Control Panel.
- Control Panel → Program and Features → Turn windows Features On or Off.

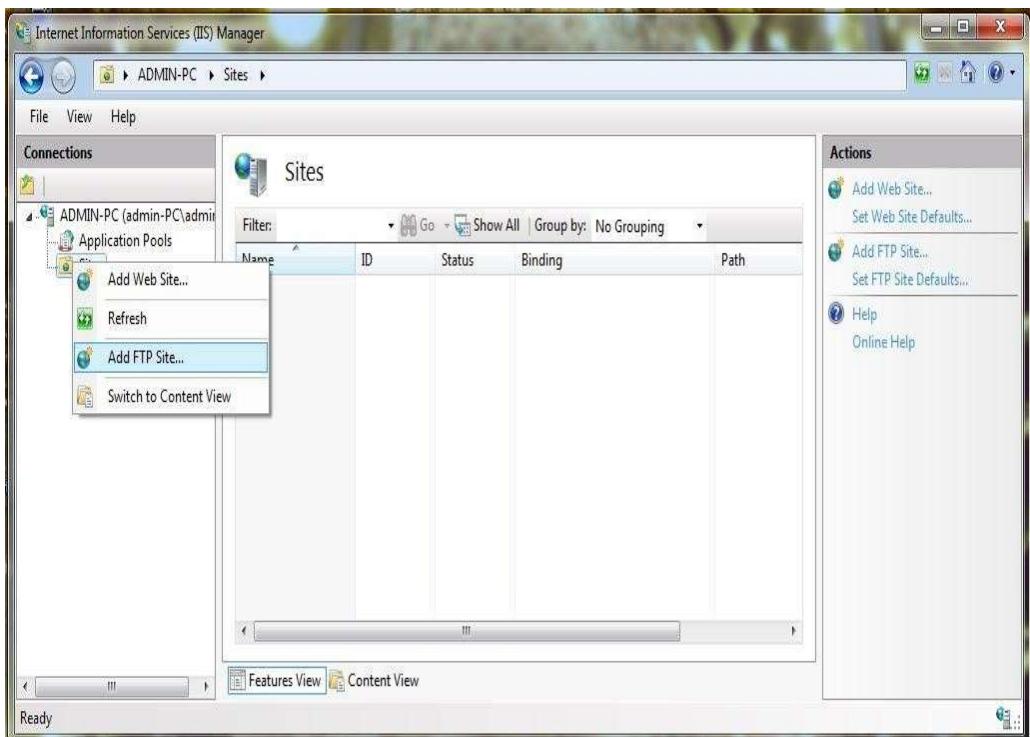


- Internet Information Service software is used in FTP Server and Client to share data in Network.

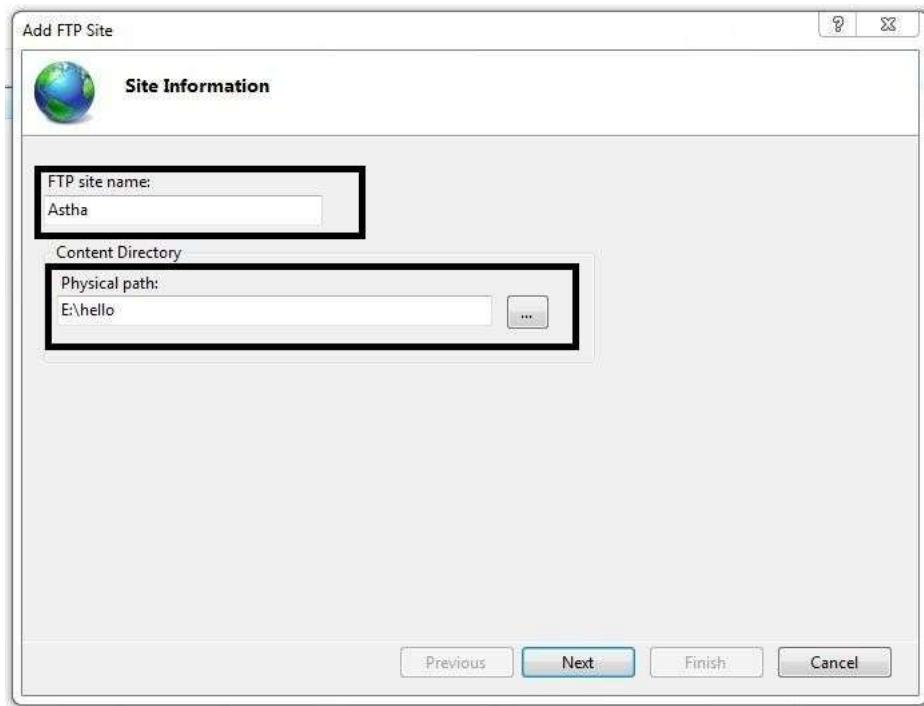


- Step of Share the data in Network using IIS:

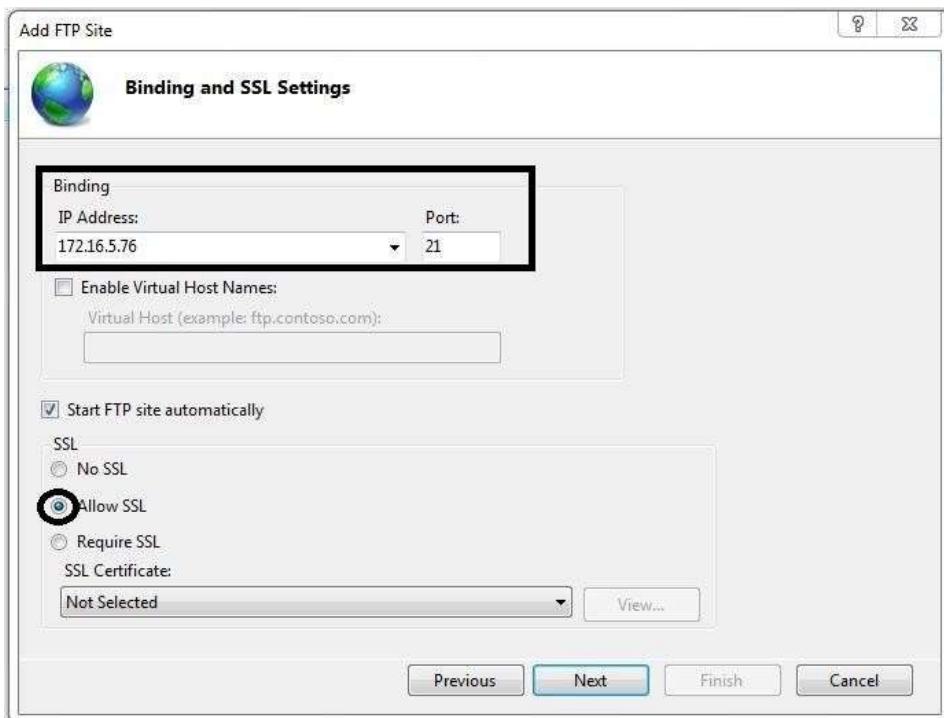
**Step 1: Create a New Site.**



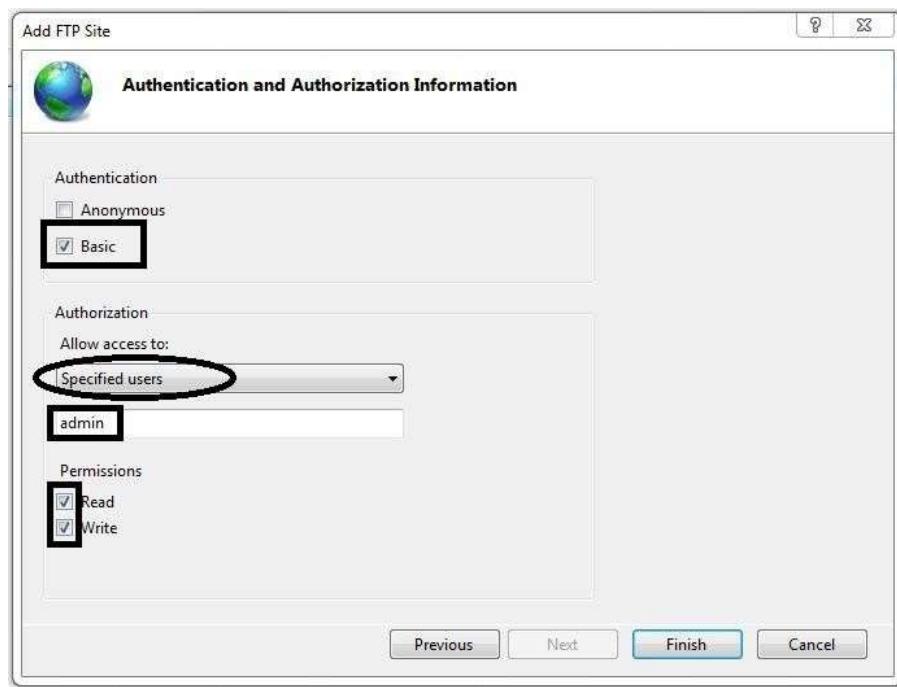
**Step 2:** Add FTP site Name and Physical path of Folder which share in a Network.



**Step 3:** Click Next to Add IP Address to Bind with Browser set setting of SSL.



**Step 4:** Click Next to Authentication and Authorization Information.



**Step 5:** Now Your Site is created. Then, Edit Permission Of user and allow all Permission for the Specific User.



**Step 5:** And of the process open The Browser and write your IP Address in URL. Like,

<ftp://172.16.5.76/>



**Questions: -**

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**Sign Of Faculty:** \_\_\_\_\_

## Practical-7

### AIM: Creating windows server boot disk

- Create a bootable USB drive which can be used to install the operating system onto your system, Transferring the installation files to a USB drive makes loading the operating system faster (21 Mb/s vs 480 Mb/s) and gives you the ability to load the operating system on devices like tablets that support USB but don't support optical media.
- You will need the installation media of the operating system you want to install, a USB drive, and administrative rights on the system used to create the bootable media. Image shows the installation files for Windows Server which will be copied to the bootable drive.

Name	Date modified	Type	Size
boot	8/29/2012 4:32 AM	File folder	
efi	8/29/2012 4:32 AM	File folder	
sources	8/29/2012 4:33 AM	File folder	
support	8/29/2012 4:30 AM	File folder	
autorun.inf	7/26/2012 3:54 AM	Setup Information	1 KB
bootmgr	7/26/2012 3:54 AM	File	389 KB
bootmgr.efi	7/26/2012 3:54 AM	EFI File	1,320 KB
setup.exe	7/26/2012 3:54 AM	Application	77 KB

- The following steps guide you on how to make the USB drive bootable and get the contents onto the drive.

1. Insert the USB drive.
2. Open a command prompt using the Run as Administrator option.
3. Start the DISKPART tool by typing DISKPART and press ENTER.
4. List all disks recognized by the system by typing list disk and pressing ENTER.

```
DISKPART> list disk
Disk ###  Status      Size     Free     Dyn  Gpt
Disk 0    Online     119 GB   0 B
Disk 1    Online     465 GB  1024 KB
* Disk 2   Online     14 GB   0 B
```

5. Select your USB drive from the list returned (Disk 2 in this example) by typing Select Disk 2 and pressing ENTER.

```
DISKPART> select disk 2
Disk 2 is now the selected disk.
```

6. Remove all data from the disk by typing clean and pressing ENTER.

```
DISKPART> clean
DiskPart succeeded in cleaning the disk.
```

```
DISKPART> create partition primary
DiskPart succeeded in creating the specified partition.
```

7. Create a primary partition by typing create partition primary and pressing ENTER.

```
DISKPART> active
DiskPart marked the current partition as active.
```

8. Create a bootable partition by typing active and pressing ENTER.
9. List all volumes recognized by the system by typing list volume and pressing ENTER.

```
DISKPART> list volume
Volume ### Ltr Label Fs Type Size Status Info
Volume 0 D Your Experience CDFS DVD-ROM 5984 KB Healthy
Volume 1 C Default NTFS Partition 119 GB Healthy System
Volume 2 G WD_500GB NTFS Partition 465 GB Healthy
* Volume 3 E RAW Removable 14 GB Healthy
```

10. Select your volume from the list (Volume 3 in this example) by typing: select volume 3 and pressing ENTER.

```
DISKPART> select volume 3
Volume 3 is the selected volume.
```

```
DISKPART> format fs=fat32 quick
100 percent completed
DiskPart successfully formatted the volume.
```

11. Quick format the disk using Fat32 by typing format fs=fat32 quick and pressing ENTER.

12. Insert your desired operating system media or mount your ISO.

13. Copy the entire contents of the installation media from the installation media to your USB drive.

14. In the root of the USB drive, open \efi\microsoft\bootdirectory.

15. Copy the directory contents up one level so the files also reside under\efi\boot.

16. Copy the bootmgfw.efi file from the root directory of the ISO or disc to the \efi\boot directory and rename it tobootx64.efi.

- You're now ready to use the USB drive as UEFI installation media on your system Just boot to the USB drive and setup will begin, or just insert the USB drive and allow setup to auto run, or open setup from a file explorer window.

**Questions: -Make Bootable device using any software.**

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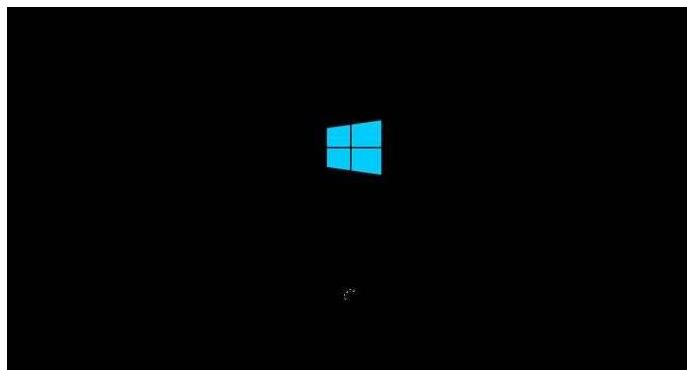
## Practical-8

### **AIM: Installation of Windows Server 2012**

1- Insert the Windows Server 2012 DVD, and once you get the following message press Enter to boot from the setup

Press any key to boot from CD or DVD.....

2- Wait for a while till the setup loads all necessary files (Depending on your machine, it will take couple of minutes)



3- Once the setup files are loaded, the setup will start with the following screen. You can change these to meet your needs (the default values should be fine for now)



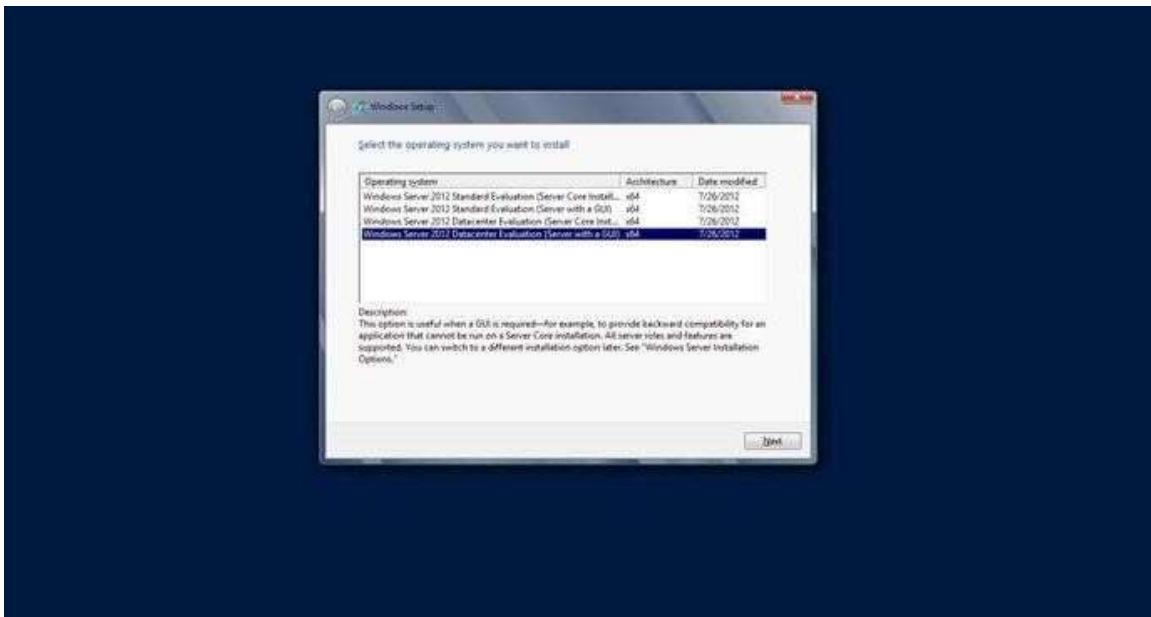
4- Once you click Next, you can start the installation, click "Install now"



5- You will see the following screen, wait until it finishes loading



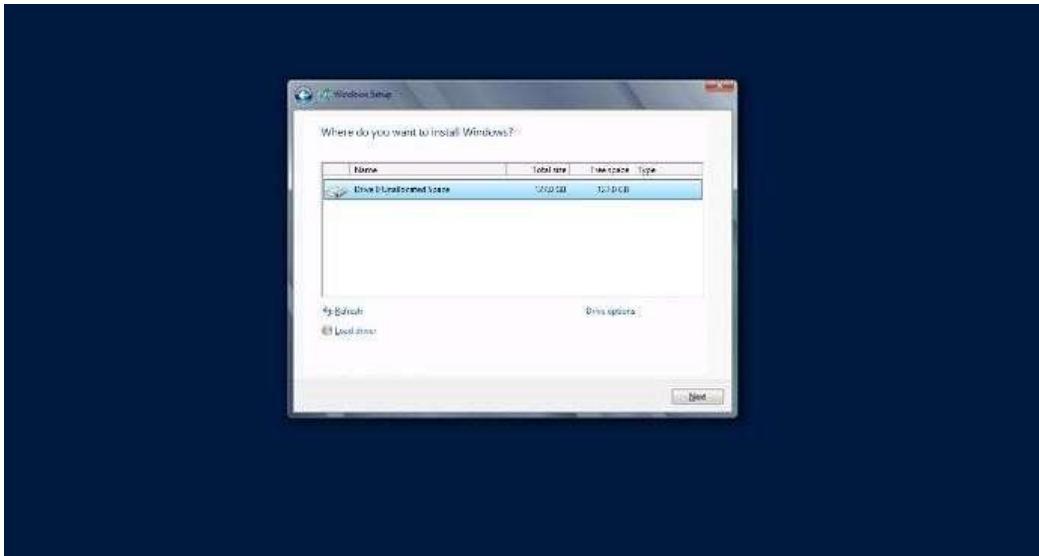
6- In the following setup screen, you will see four options. Select Windows Server 2012 DataCenter Evaluation (Server With GUI).



7- After you click Next from previous screen, Read the License terms, tick the "I accept the license terms" and click Next



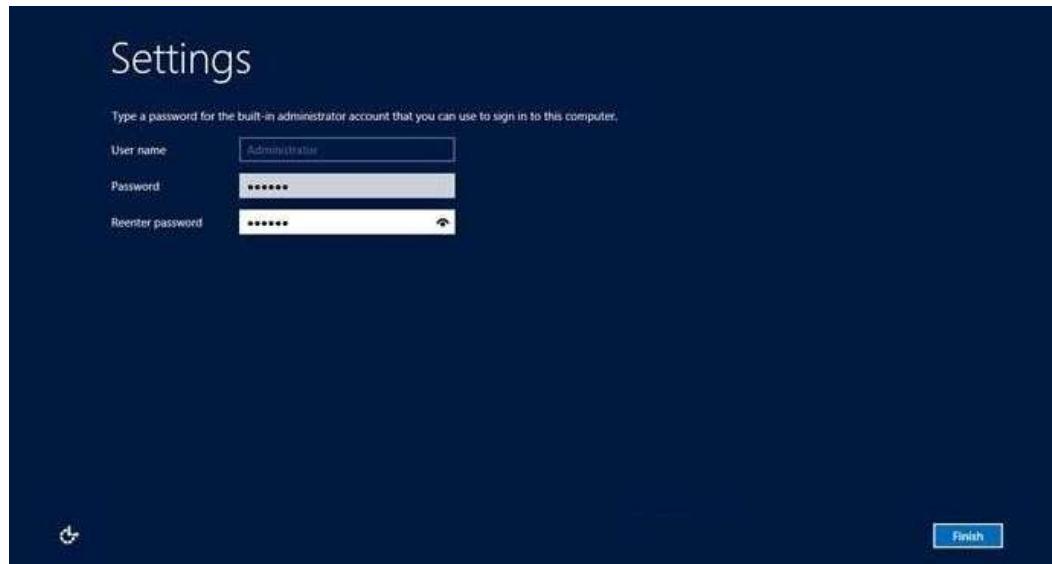
8- Now It will ask you for the drive (or partition) you want to install Windows on. Here I'm installing it on the one partition I have here. NOTE: This will remove the content of the partition. Either you create a partition to install windows on, or you can test this on a testing machine



9- Now once we picked our partition, clicking on next from previous screen will start the setup. This process might take a while.



10- Once the setup is done, it will restart and start your Windows Server 2012 for the first time. It will ask you then to set up a password for the Administrator user



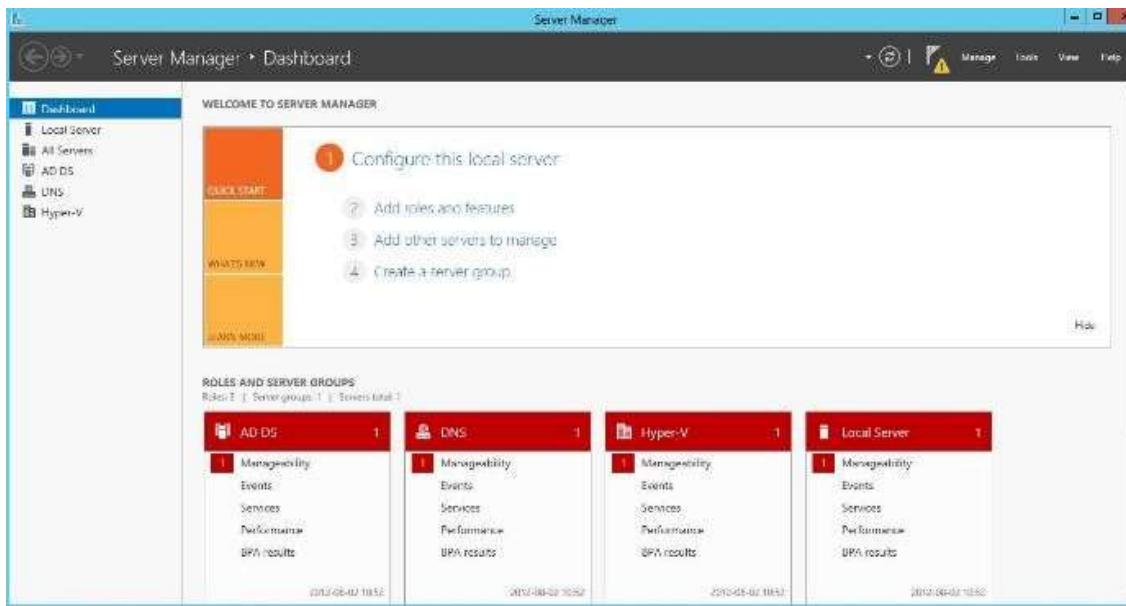
11- The setup will finalize your settings, might take a couple of minutes



12- Once the setup is done, you can log in for the first time to your Windows Server, as the screen says, press Ctrl+Alt+Delete to log in, and use the password you set in the setup process.



13 - Once you Log in, Windows Server 2012 will show the Server Manager



Congratulations! you have now Windows server 2012 Installed

**Questions: - Write installation steps of Windows server**

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## Practical-9

### **AIM: Installing and configuring Linux Server.**

#### **What's new in Fedora Server 21:**

- Framework for server role deployment allows multiple tools to deploy and configure roles at any point of time, using the same mechanism for all of them, and without any conflict.
- Domain Controller Server Role manages single sign on and authenticated access to network resources with the help of FreeIPA Cockpit Management Console provides web-interface for managing multiple servers, following can be managed using this.
  - system service management
  - Journal log viewer
  - Storage configuration including LVM
  - Basic network configuration
  - Adding and removing local users

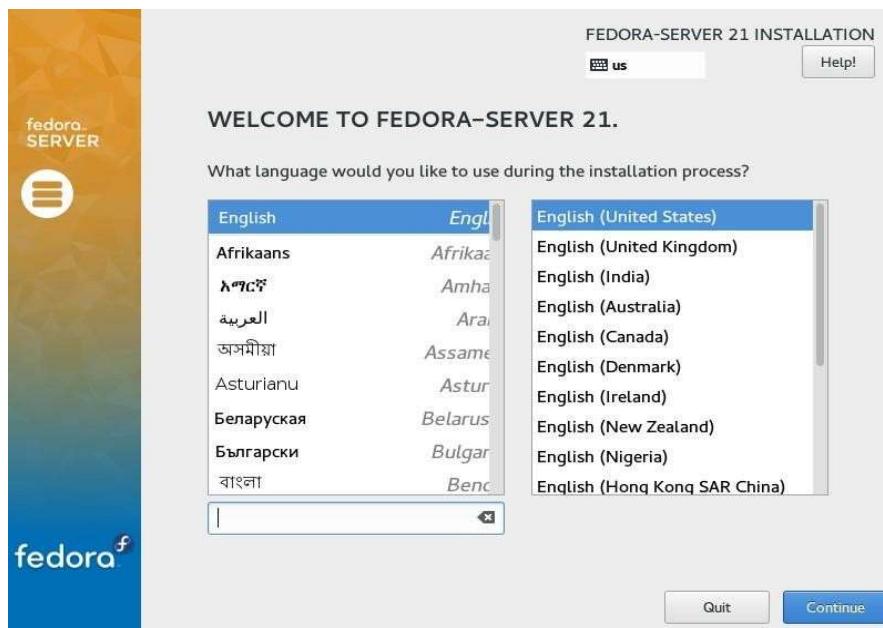
#### **System Requirements:**

- The following are the requirements for the installation,
  - 1GHz or faster processor
  - 1GB System Memory
  - 10GB unallocated drive space
  - In minimum you should at least have 768MB of RAM for the installation,

**Step 1:** For installing the Fedora, Select Install Fedora Server 21.



**Step 2:** Select the language and continue.



**Step 3:** Next step is the installation summary, you must require to give an input to clear the warning messages. Other settings are optional. If you want to change the setting, you can click on it; corresponding page will open.

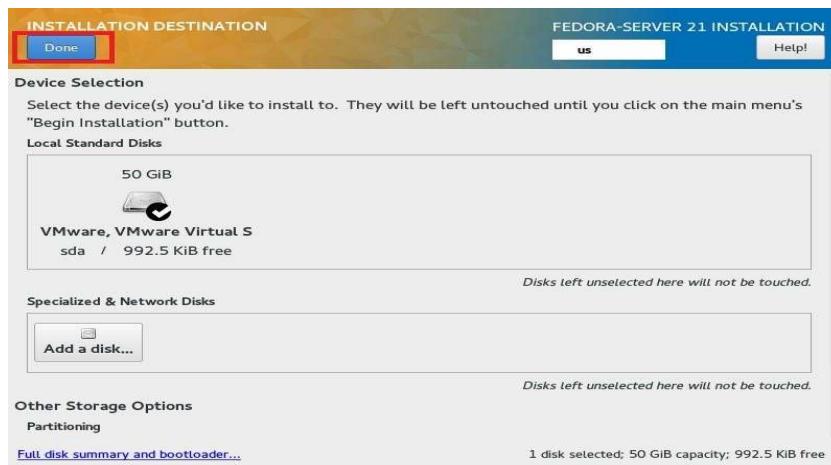


**Step 4:** As per the above screen shot, I have a warning for installation destination. I've clicked on Installation destination to create a partition for the installation.

You can choose either automatic partition or manual partition.

### Automatic Partitioning:

- Instead of creating any partition, you can click on done button to tell the system to create an automatic partition.



- Once you clicked, you will go back to installation summary where you can find the installation destination is “Automatic Partitioning Selected”
- You can skip the following step and go to step 5

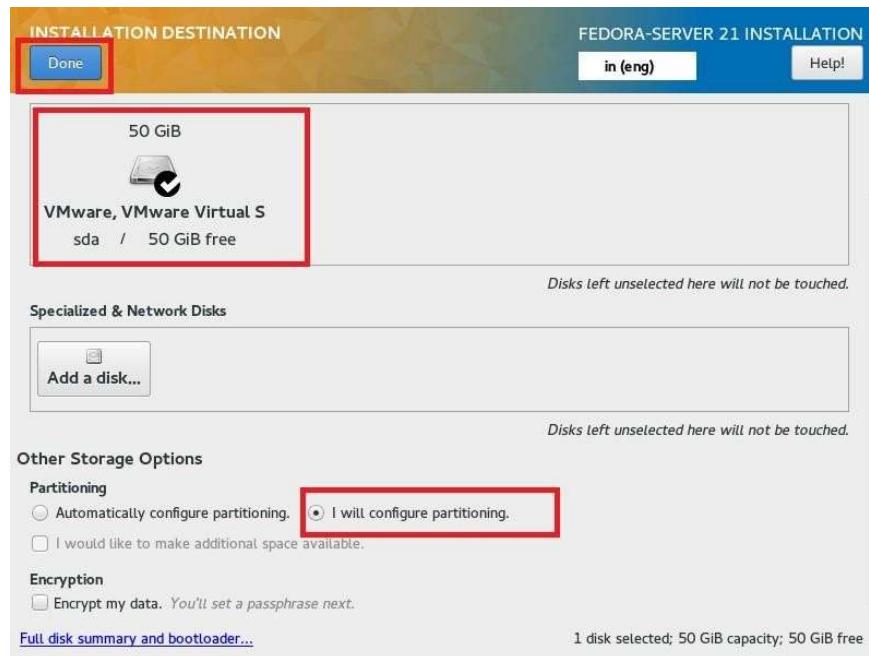
### Manual Partitioning:

- Partition scheme will be like below, / partition is with LVM.

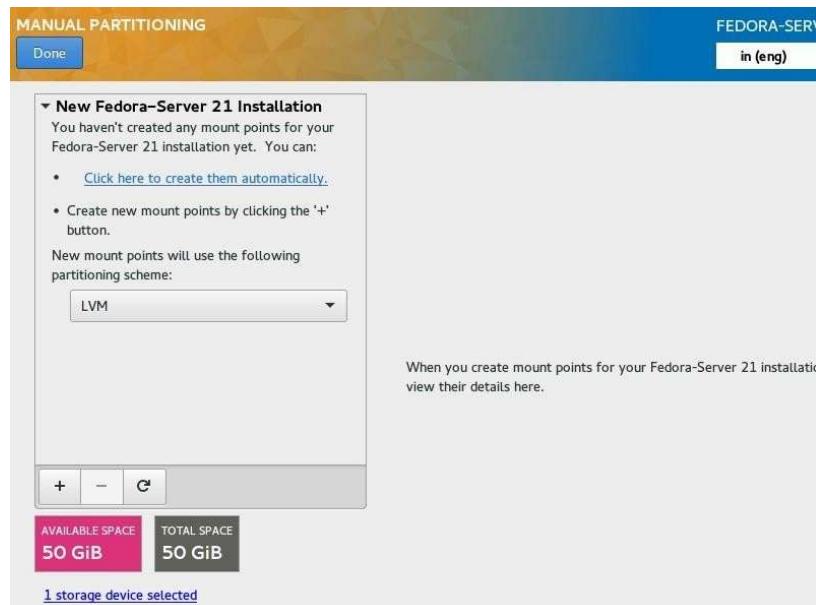
/boot – 200MB swap – 2048MB  
/remaining (45GB)



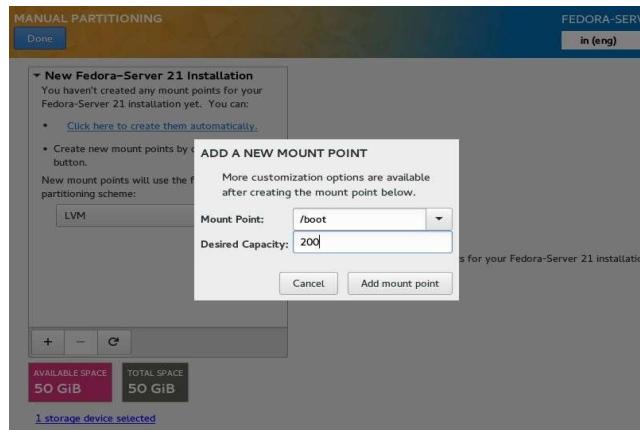
- Select hard disk and choose I will configure partitioning, and then click on done button.



- You will get the following page, where you can create partitions. By default, LVM partitioning scheme is selected, so whatever partition you are creating here will be logical instead on standard partition. You can click on scroll button (LVM) for more partitioning scheme.
- Click on sign at the bottom to create partitions. Following shows for /boot partition.

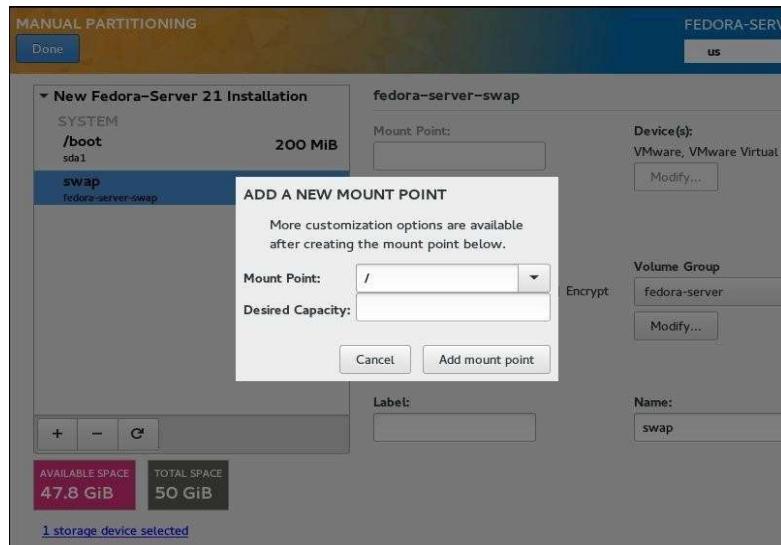


Following for swap partition, make sure you to select mount point as

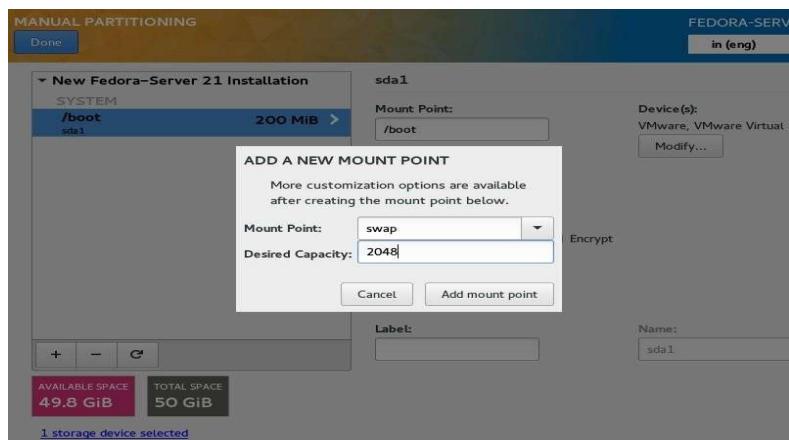


swap.

- Following for / (root) partition, if you do not enter any amount; it will take all remaining space.



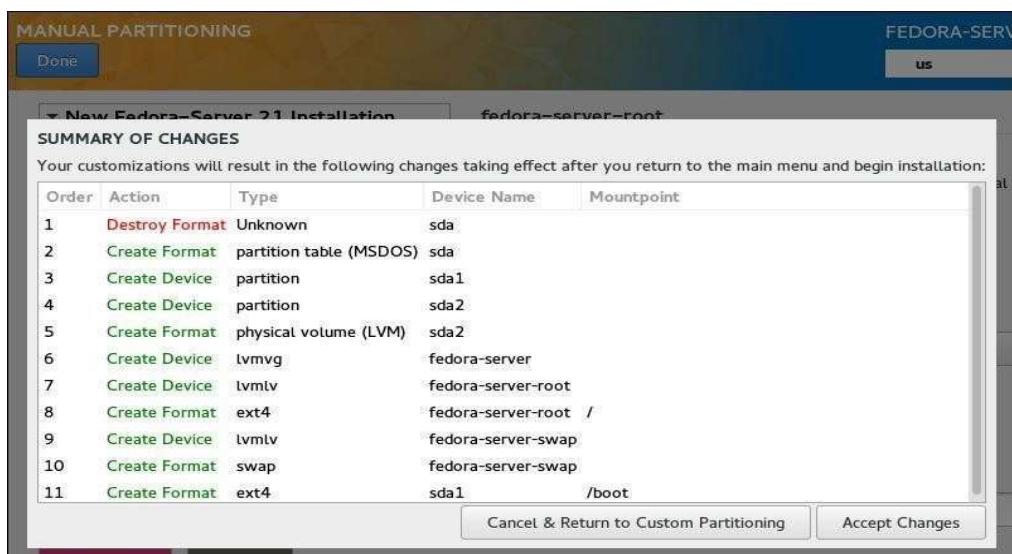
- Swap.



- The following is the summary of partitions that we had created. Click on done.



- Click on accept changes for formatting the partitions.



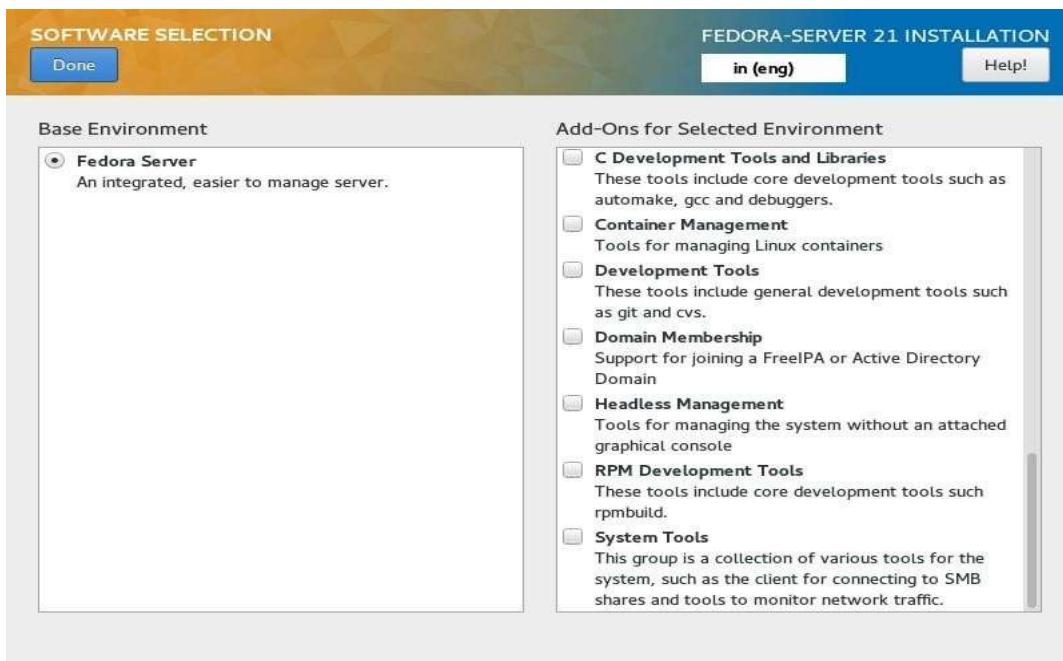
- Once you clicked, you will go back to installation summary where you can find the installation destination is “Custom Partitioning Selected”



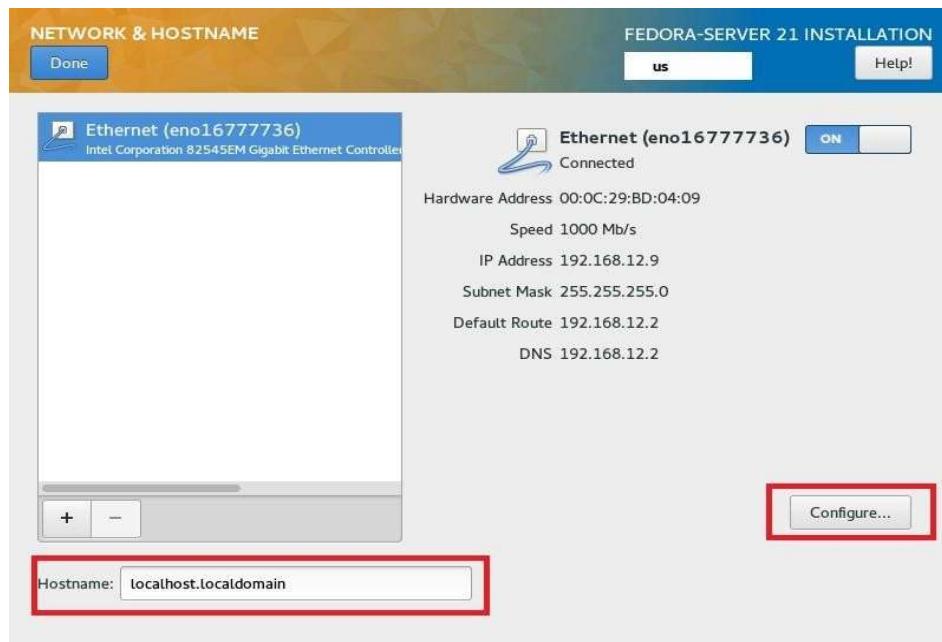
**Step 5:** If you click on Date and Time, you will get the following page to change the Date and Time / Time zone. Click on done to save.



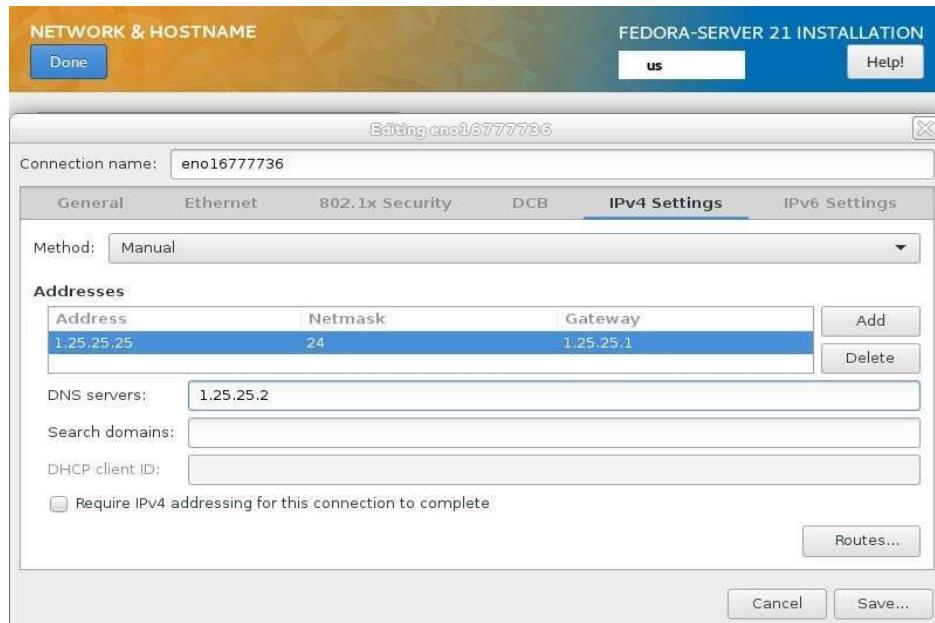
**Step 6:** If you click on Software Selection, you will get the following page to change the type of installation. Click on done to save.



**Step 7:** If you click on Network and Host name, you will get the following page to set up network and host name. Set hostname in Hostname field.



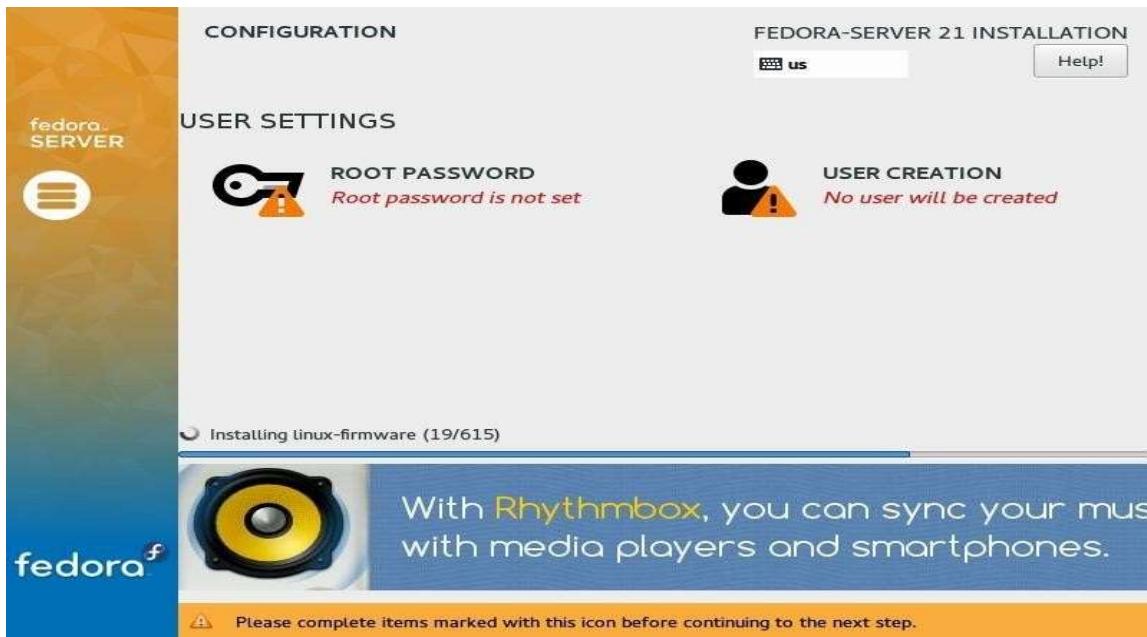
- Click on configure to set IP address. Once completed, click on save and then click on done.



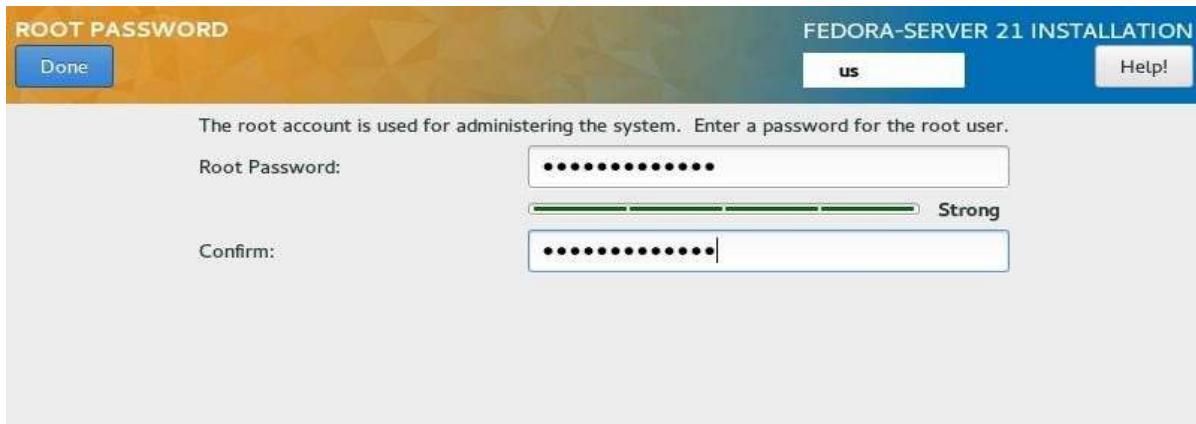
**Step 8:** Click on begin installation to start the installation.



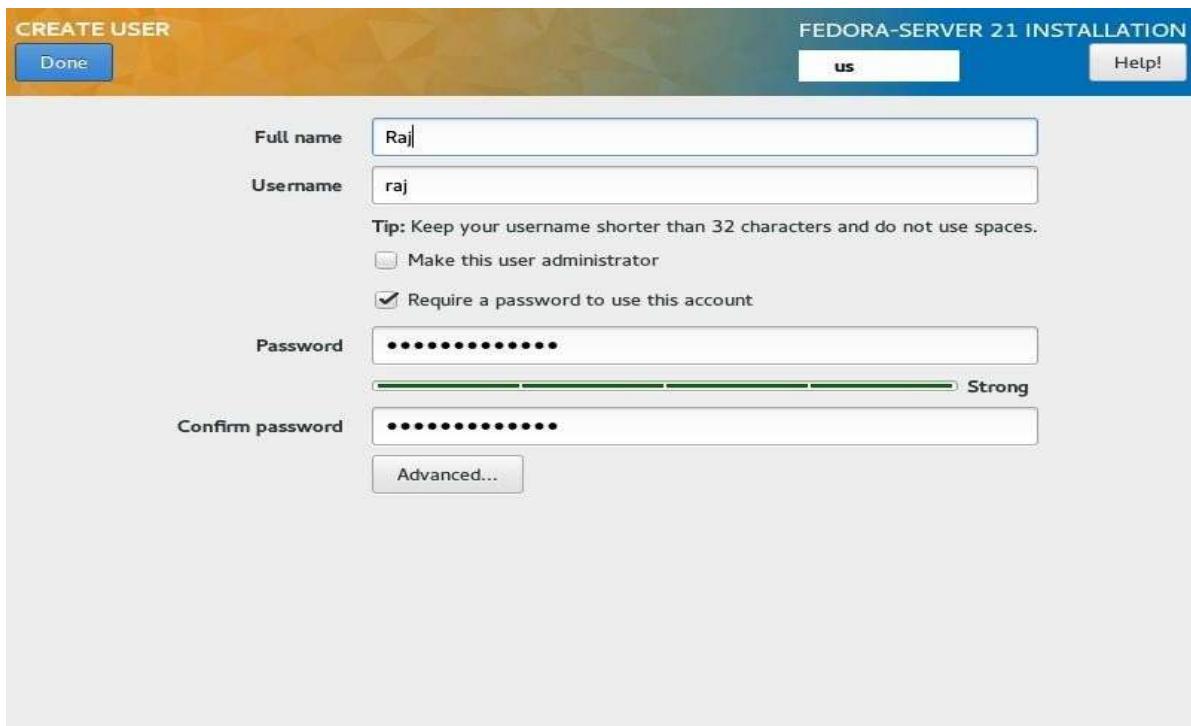
**Step 9:** Once you clicked, installer will start to install the packages. In the meantime, we need to clear the following warning.



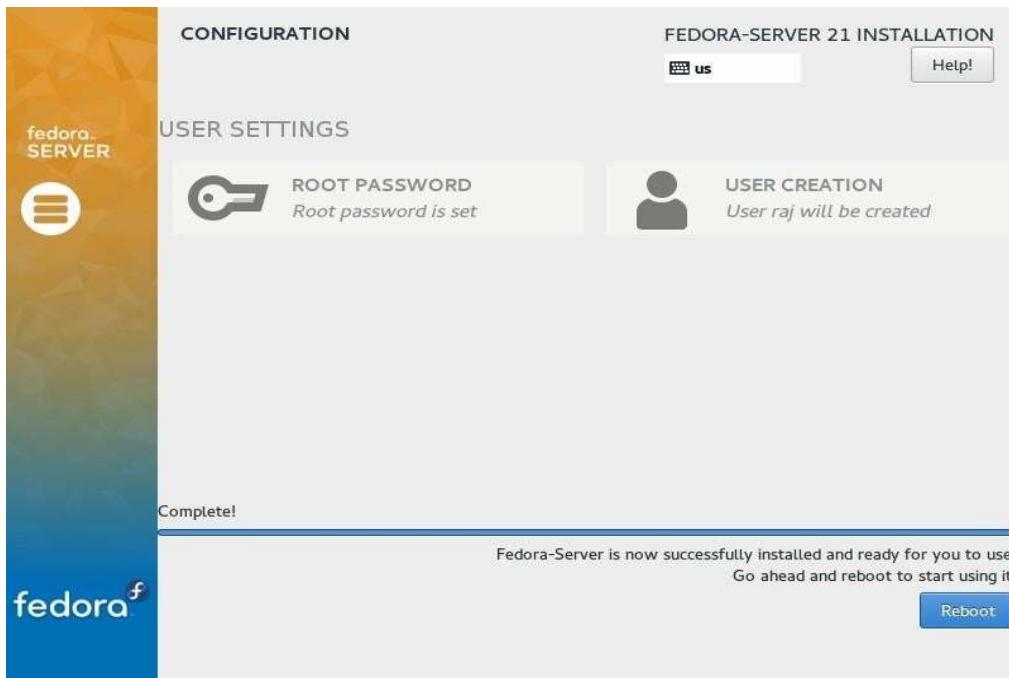
**Step 10:** Set root password by clicking on ROOT PASSWORD.



**Step 11:** Create a new user by clicking on USER CREATION.



**Step 12:** Once the installation is completed, click on reboot.



**Questions: -write installation steps of linux server**

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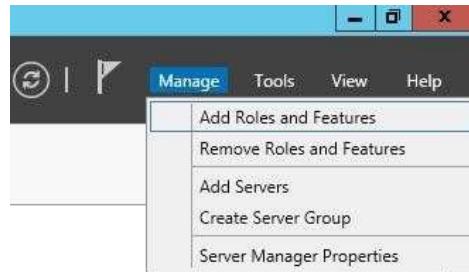
## Practical-10

### **AIM: Setting up and configuring Local Print device.**

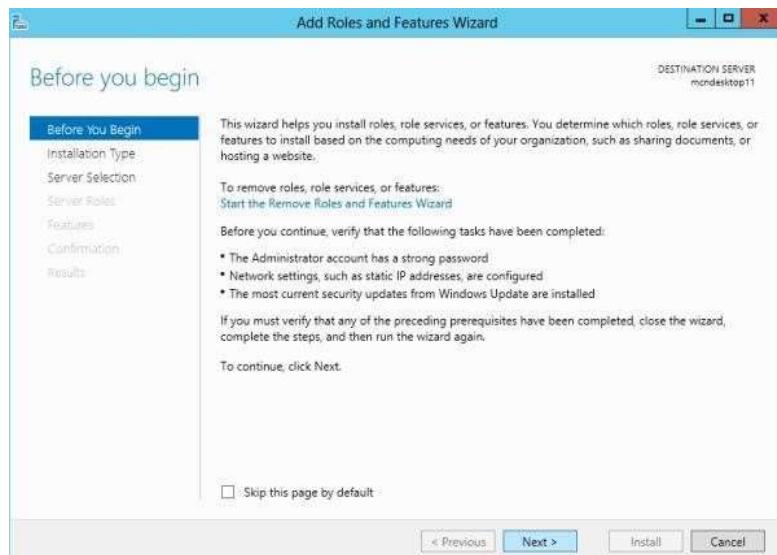
**Step 1:** First of all, login to your Windows server 2012 as an Administrator. Open Server Manager from taskbar, if not opened automatically while login completed.



Now in the Server Manager click on the "Manage" button to open the "Add Roles and Features" to add the new feature.



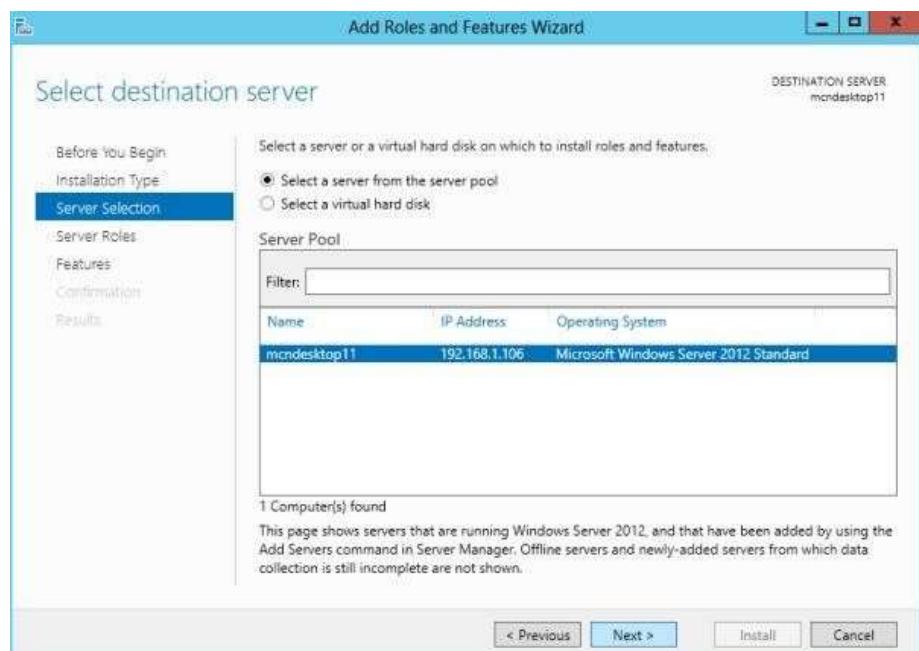
**Step 2:** Now a new window will be opened in which a few instructions are given; click on "Next".



**Step 3:** Now it will ask for the "Installation Type" from which you must select the first option and then click on "Next".

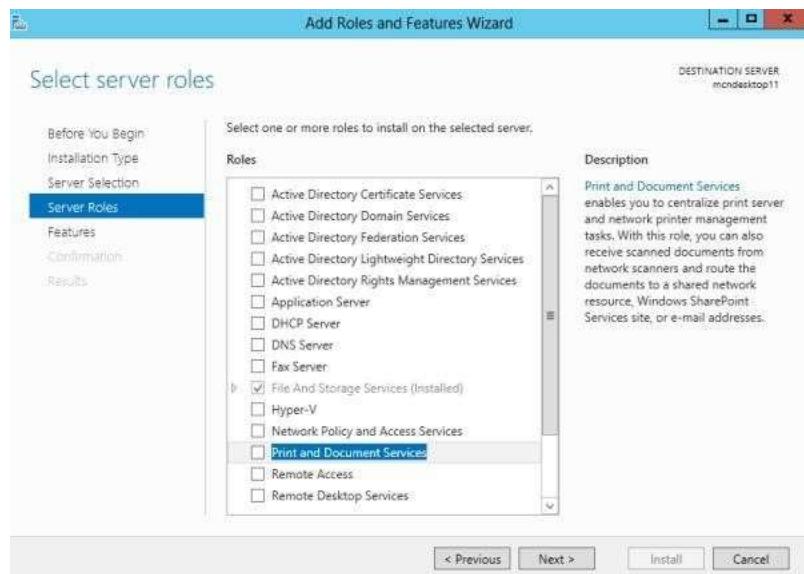


**Step 4:** Now you must select the server from the Server Pool. If you have only one server in the Server Pool, it is selected by default.



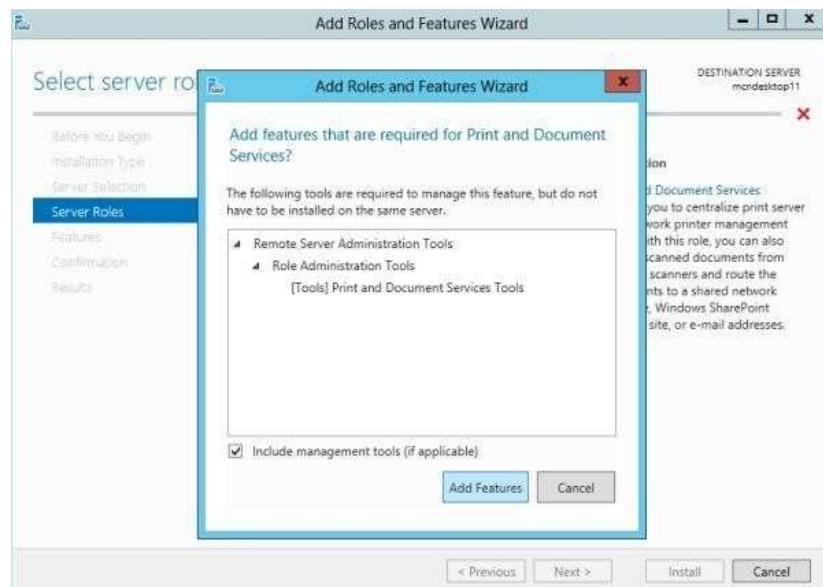
After selecting the server, click on "Next".

**Step 5:** Now a List of Rolls will appear in front of you, from this list you must select the "Print and Document Services".



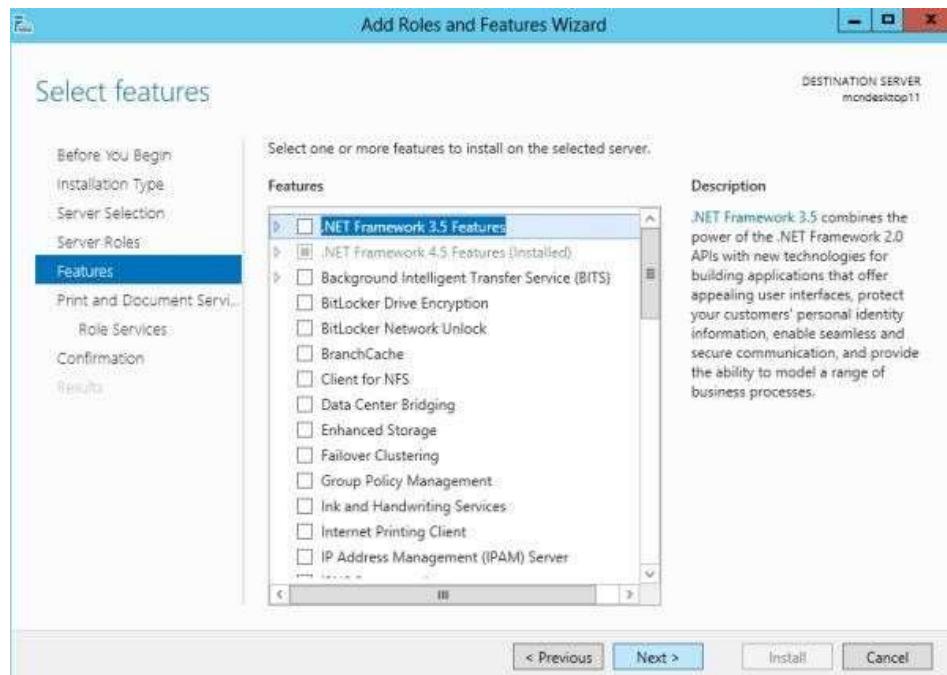
Click on Print and Document Service option.

**Step 6:** As you select the Print and Document Services a new window will be opened that will ask permission to "Add Features". Click on "Add Features" to grant it the permission.

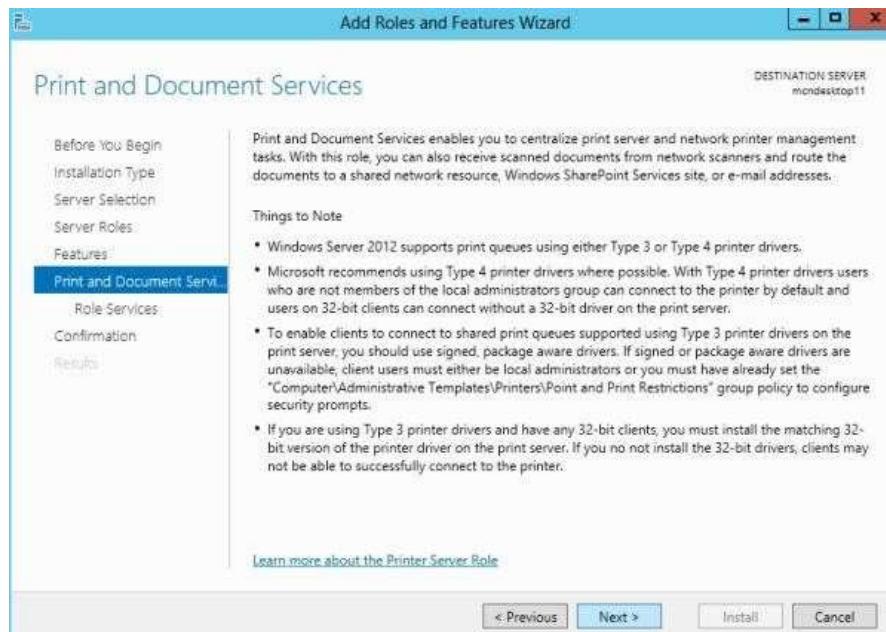


After selecting the Add Features option, you must click on the "Next" button.

**Step 7:** Now a list of features will be available for selection, you can select any feature you want to install and then click on "Next" or simply click on "Next" without selecting any feature.

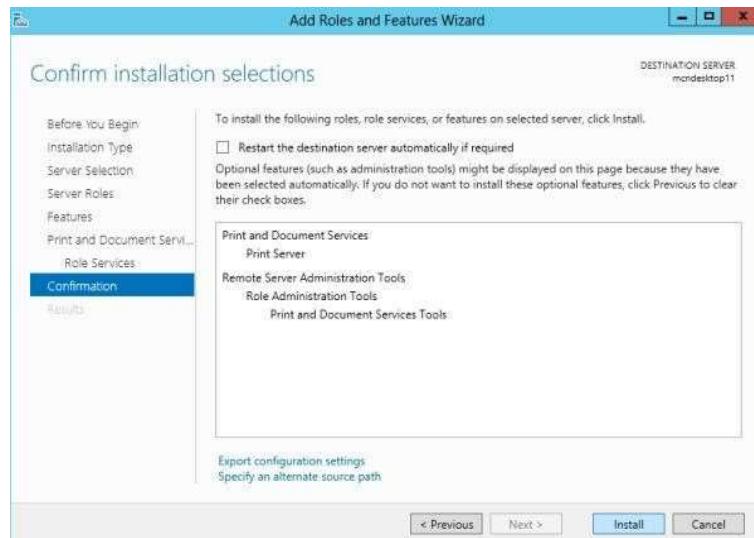


Now some information will be shown to you about this service, here also you must click on the "Next" button.

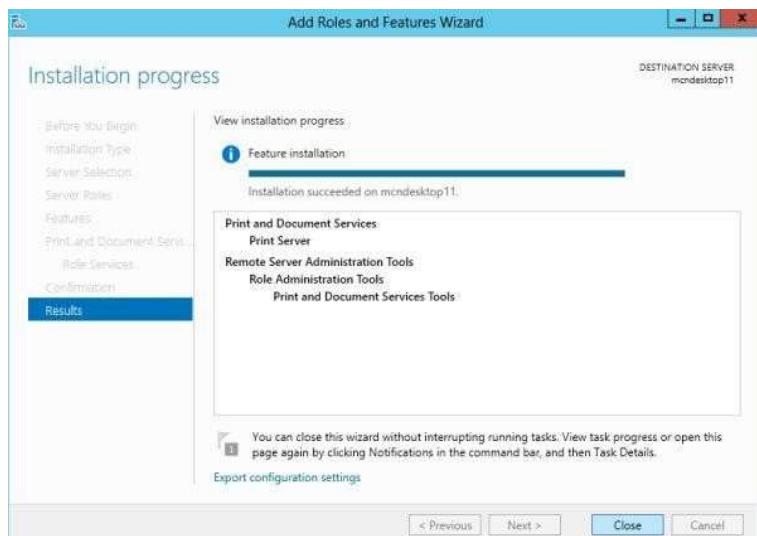


**Step 8:** Now select the "Role Services" page which will open. In this, you must select the first option i.e. "Print Server" and then click on "Next".

Now a confirmation page will be opened, where you can give permission to the server to restart if required or you can click on "Install" without giving permission to restart.



Now your installation will begin.



**Step 9:** If you had provided permission to restart then your server will first restart and then in the Server Manager you will see that your installation is successfully completed. You can get this confirmation by clicking on the Flag given on the upper right-hand corner.

**Questions: -Differentiate Local Printer and  
Network Printer**

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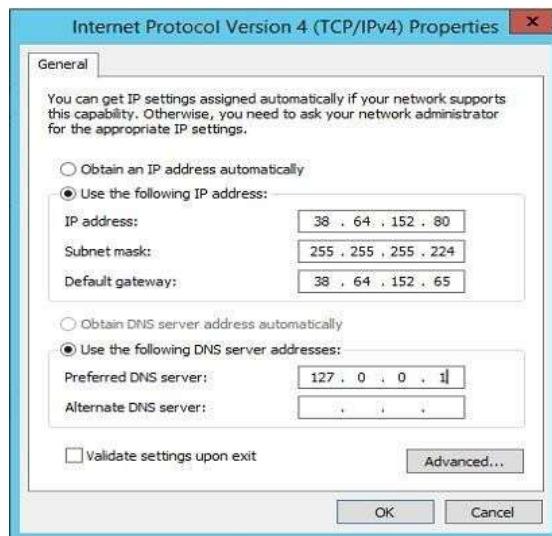
## Practical-11

### AIM: Installing Active directory and creating AD objects

- The first step is to get server 2012 install on a server. it is very similar to server 2008 install and in one of my previous posts i have describe how to do the install in detail.



- Next thing we need to do is get network interfaces configured. it is obvious to use static ip address for the server. Since the server will be act as DNS server, for DNS server field you can use local host address 127.0.0.1

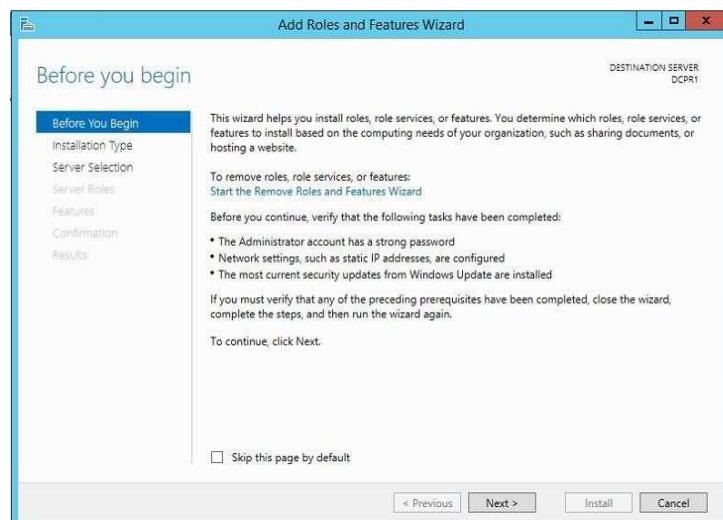
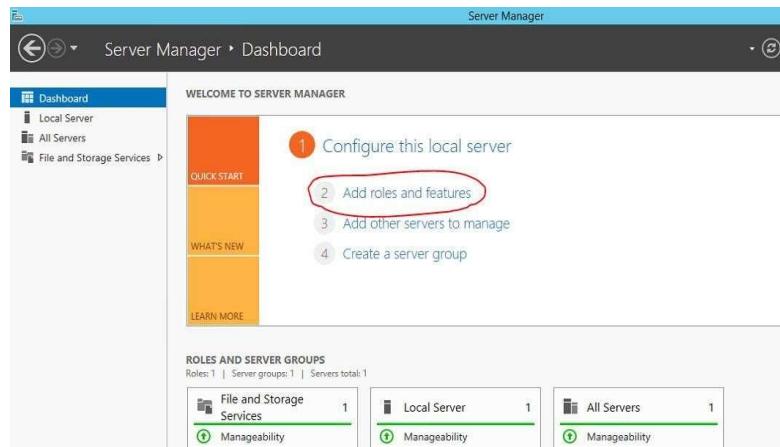




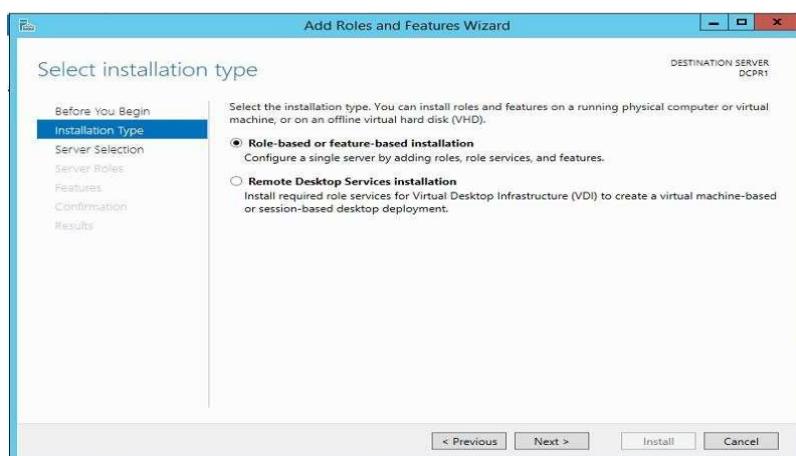
- It is recommended to use meaningful full name as the server name. In demo I renamed it as "DCPR1".
- After this we are ready to start on the AD install. As per my next step I will start DNS role install first. This is not must to do, you also can install dns during the AD install. But as per best practice I always prefer to add DNS role first.
- To do this we need to start "Server Manager" it can open using shortcut on task bar or from Start > Server Manager



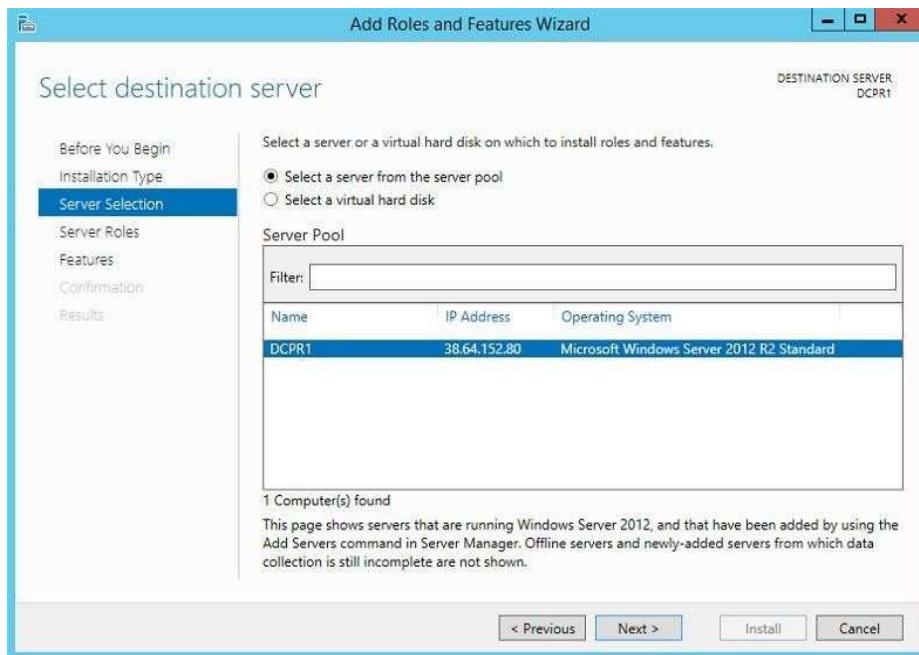
- Then in Server Manager window click on option "Add roles and features" option.
- Then it will load the "Add Role Wizard", Click next to Continue



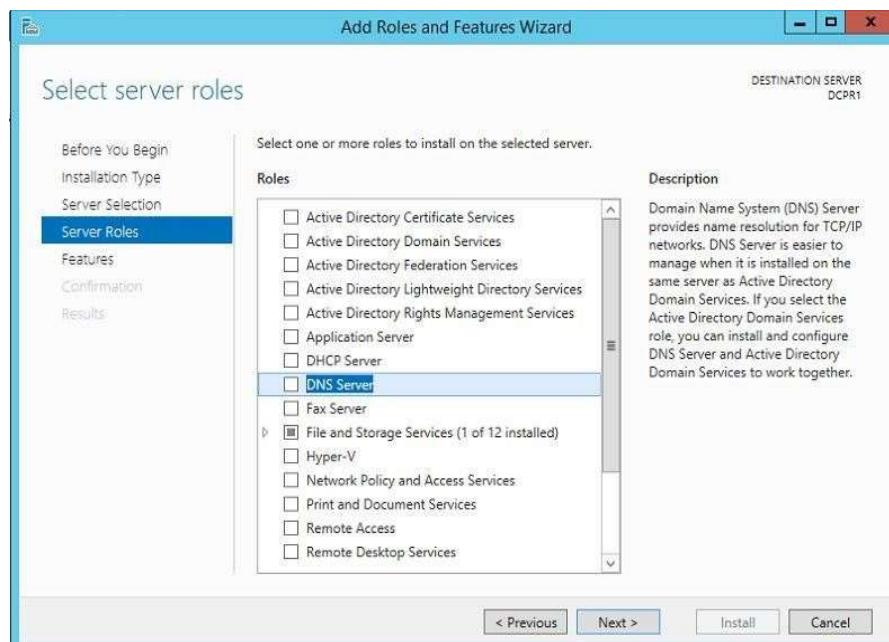
- In next window keep "Role-based or feature-based installation" default selection and click on next.



- In next window we can select which server to install role. in our case it will be local. so, keep the default selection and click on next.



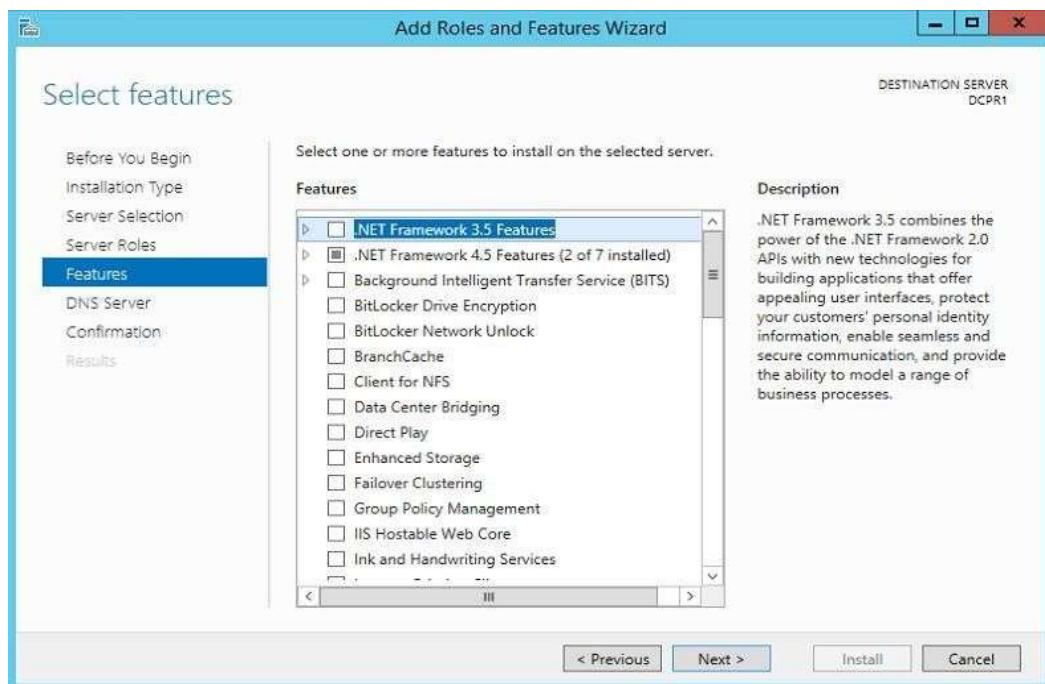
- In next window it gives option to select the roles



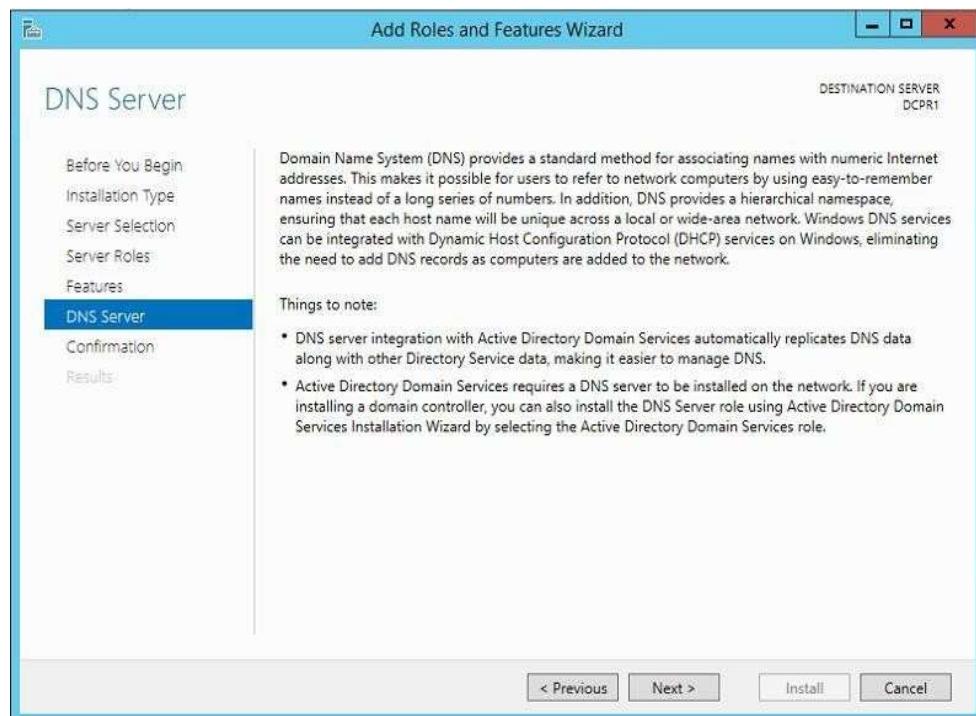
- select the "DNS Server" and click on box to tick it.
- Then it will prompt window to inform about the related additional features which DNS role need. click on "Add features" to continue.



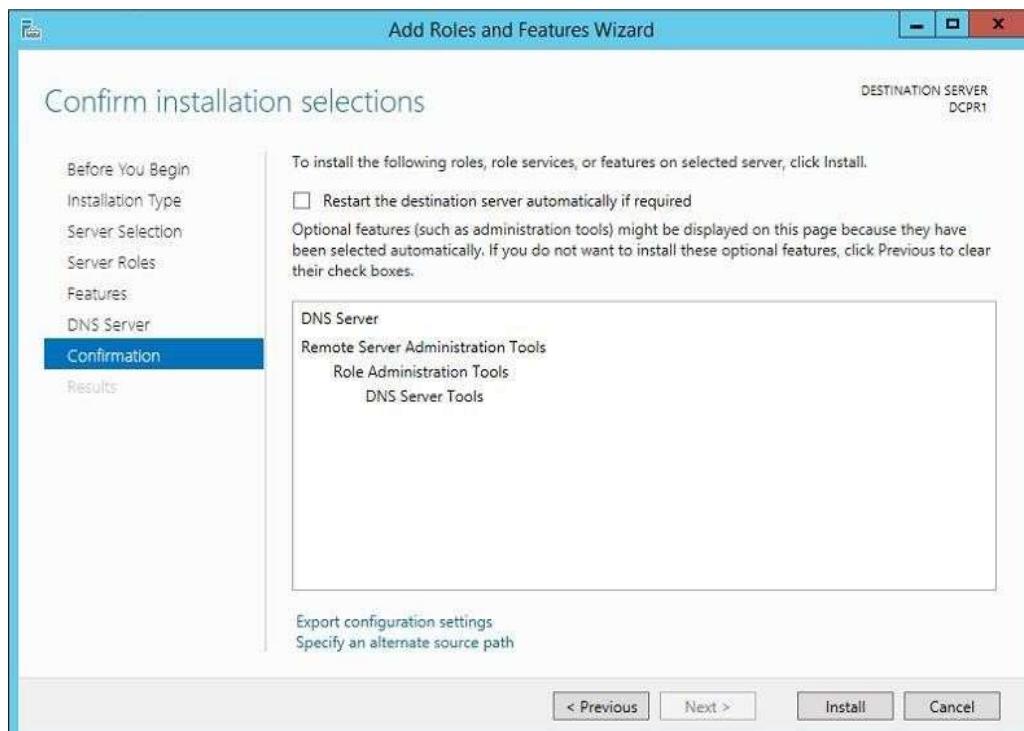
- In next window it gives option to select any additional feature, but in here i will keep it default. click on next to continue



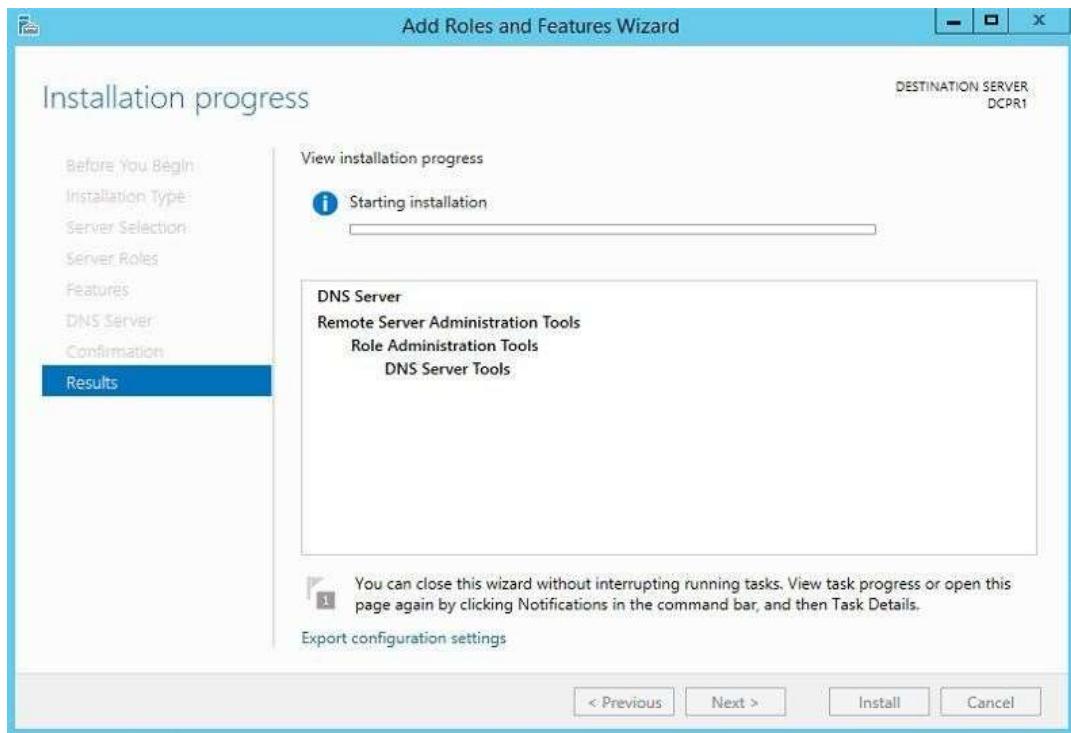
- Then it will give brief introduction about the DNS role, click on next button to continue



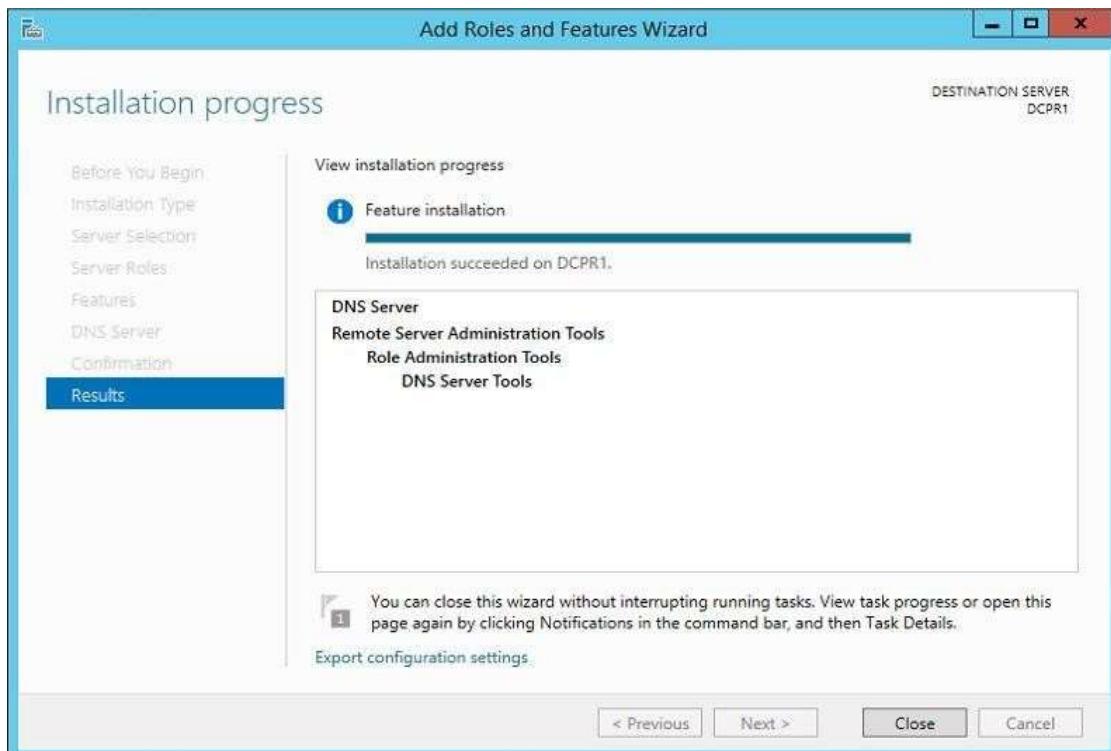
- In next window it will give details about the selected features and click on "Install" to begin the installation



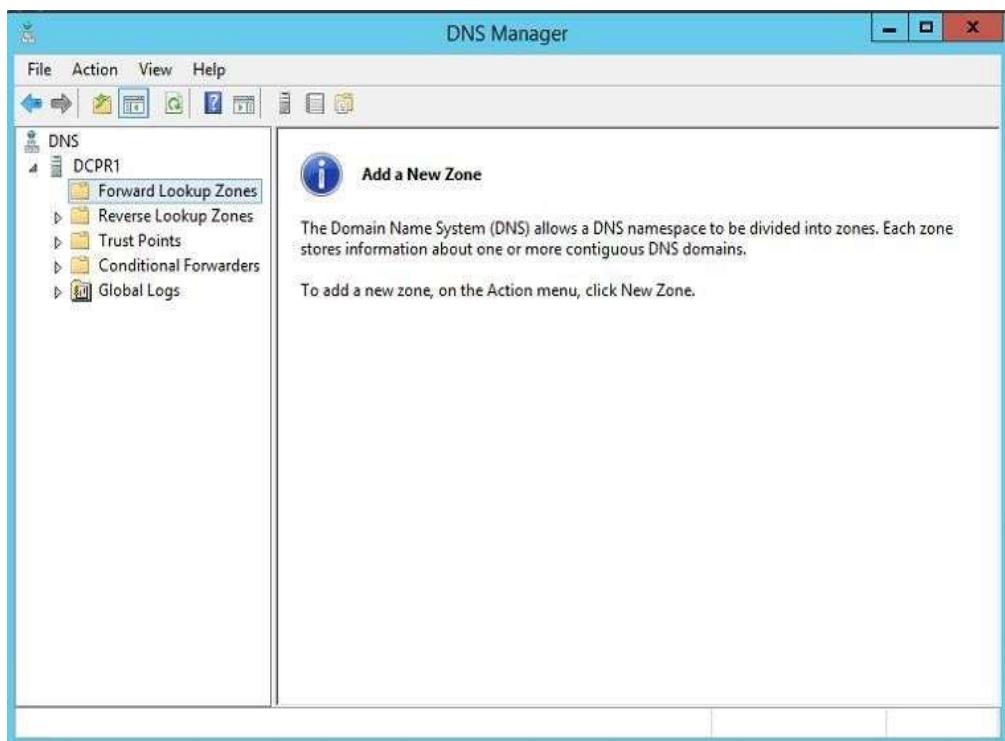
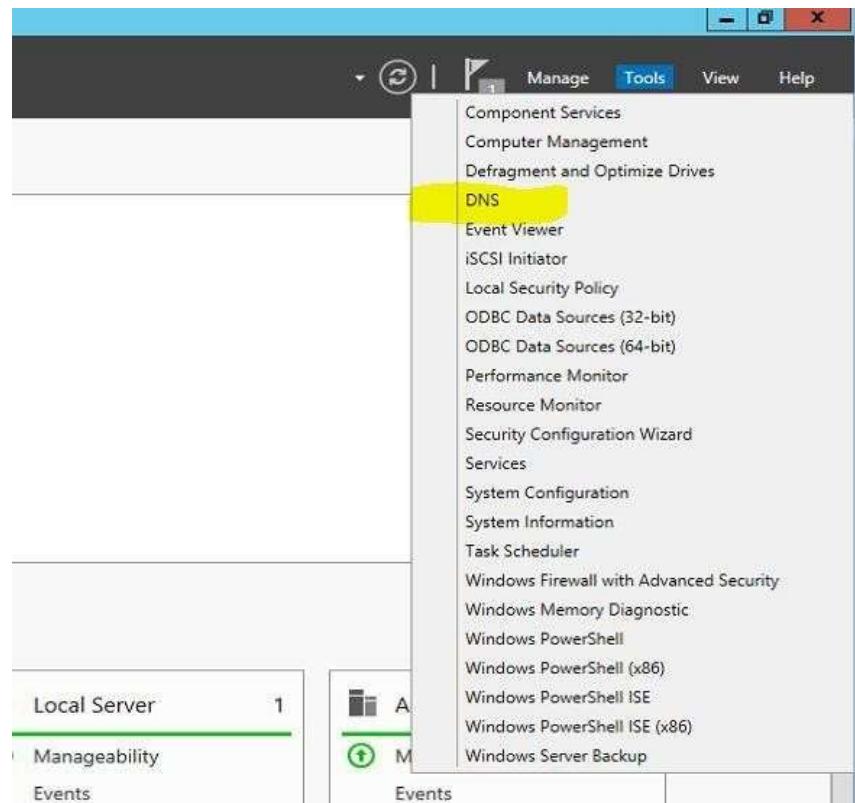
- Then it will begin the installation and we need to wait till it completes.



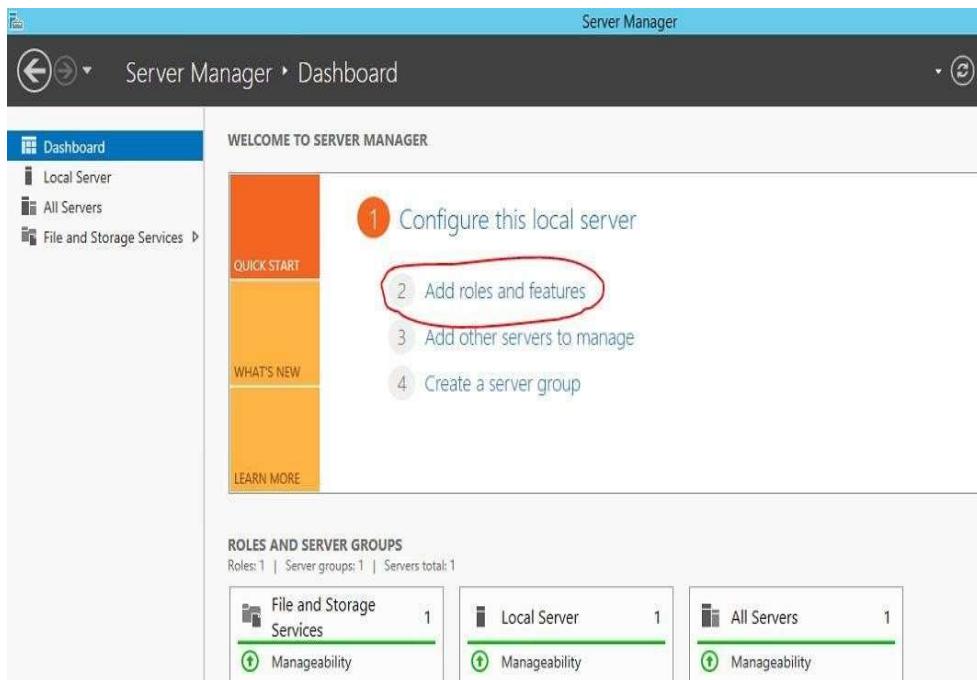
- Once it completes click on close.



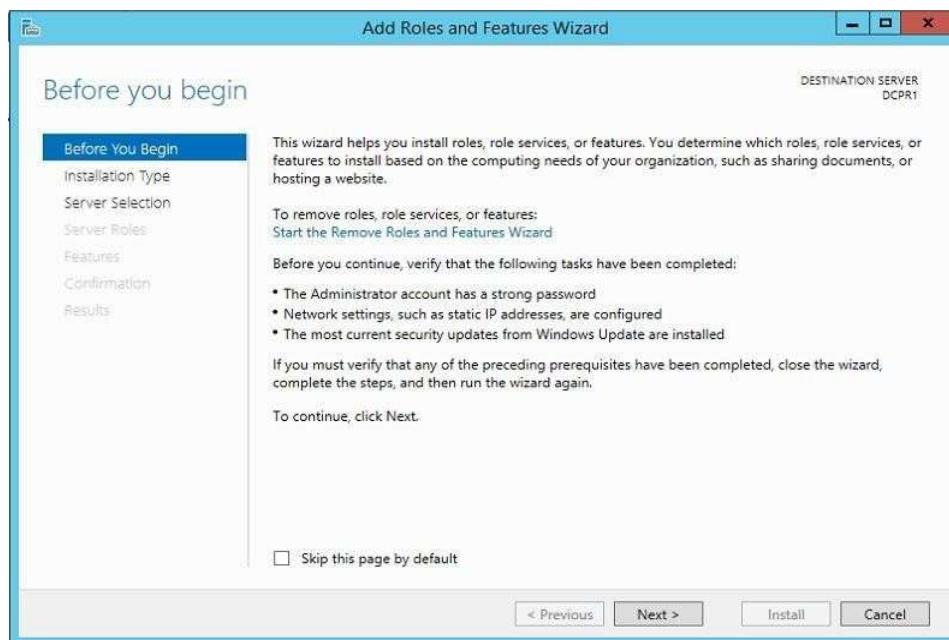
Then you can access DNS server using server manager > tools > DNS



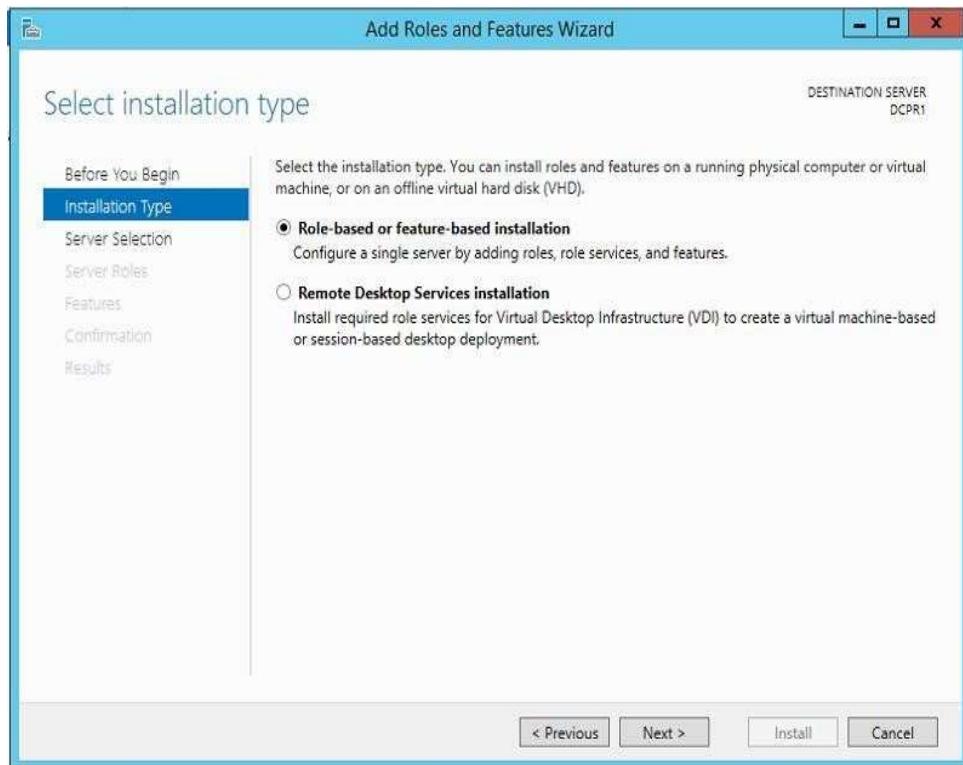
- Now we have everything ready for AD install. so, let's load server manager again and click on "Add roles and features"



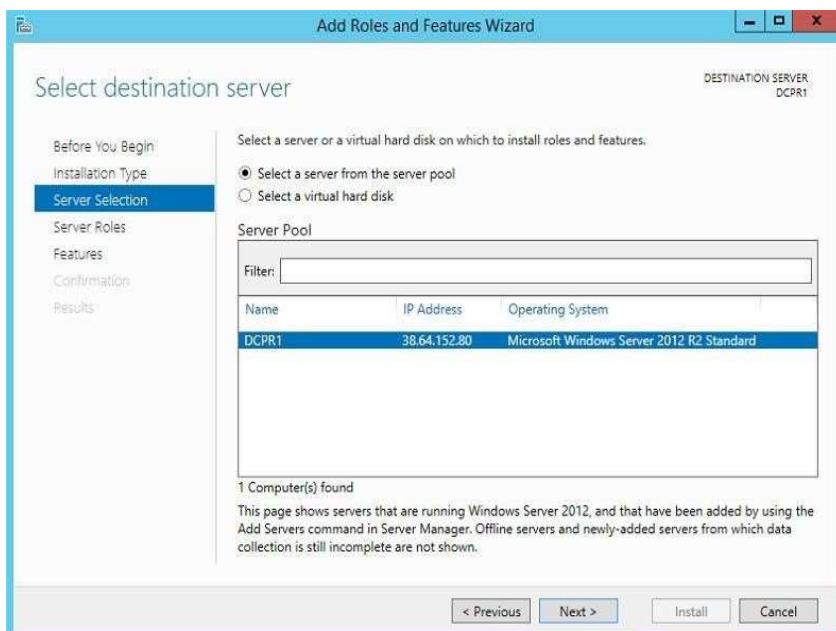
- Then it will load the "Add roles and features" wizard. click on next to continue.



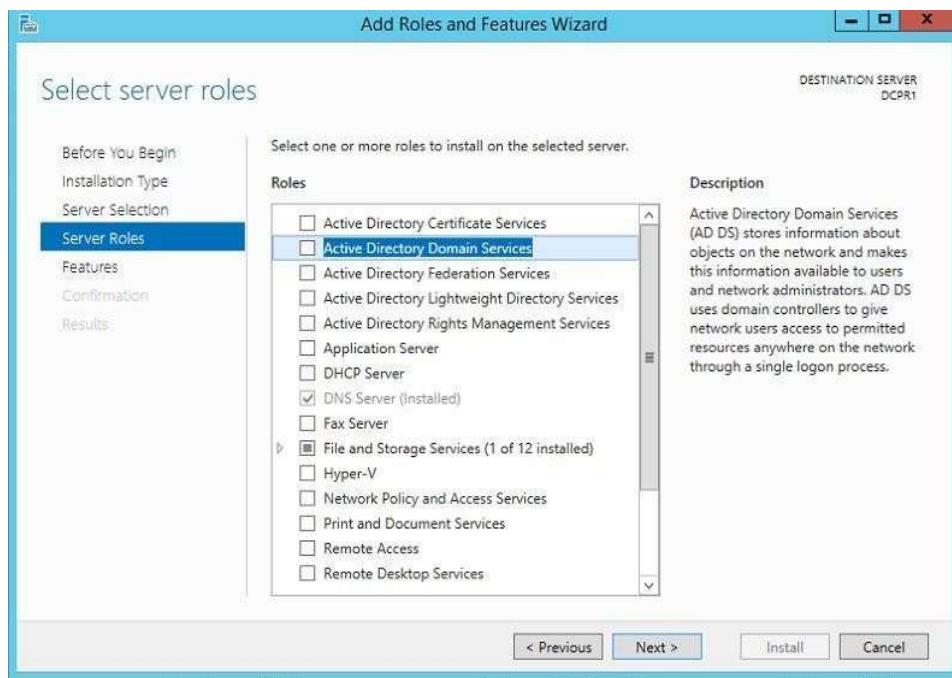
- In next window keep "Role-based or feature-based installation" default selection and click on next.



- In next window we can select which server to install role. in our case it will be local. so, keep the default selection and click on next.



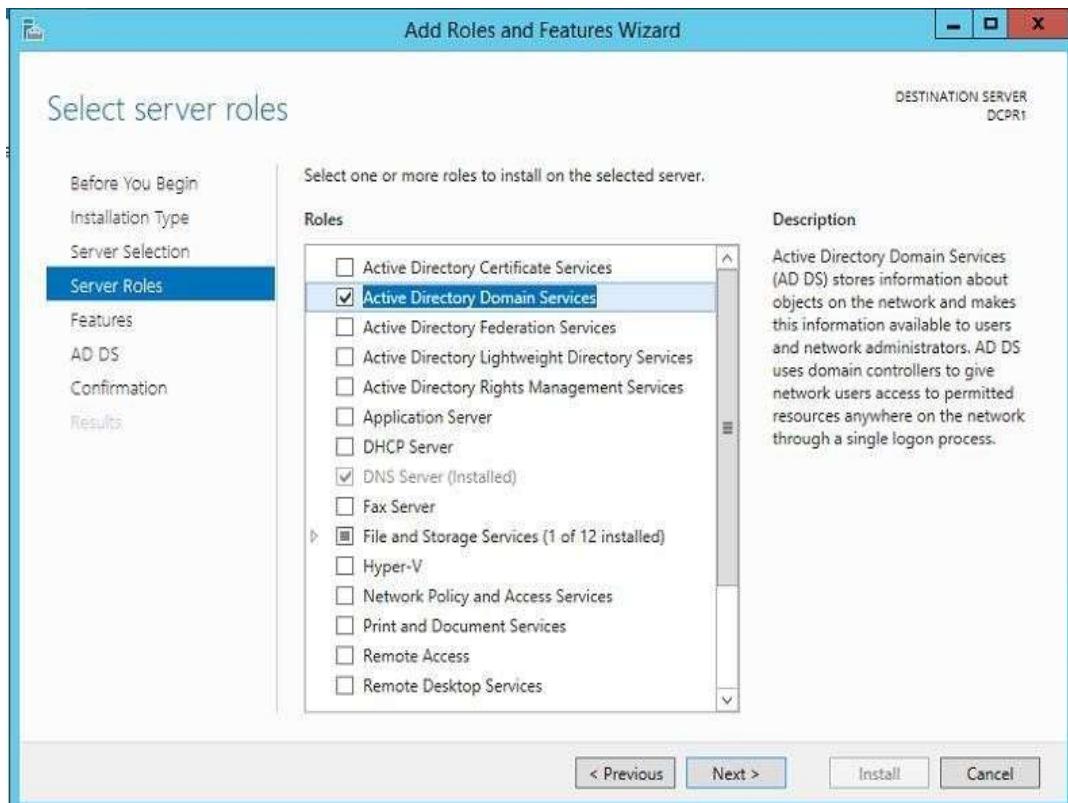
- In next window it gives option to select the roles. select and click on tick box "Active Directory Domain Services"



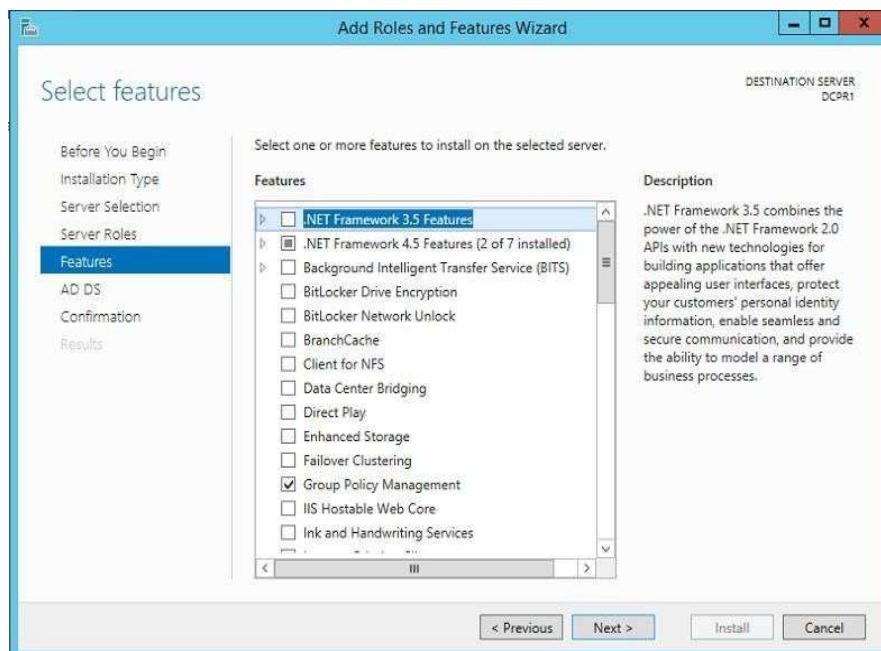
- Then it will prompt window to indicate the additional feature installations related to selected role. click on "Add Features" to continue.



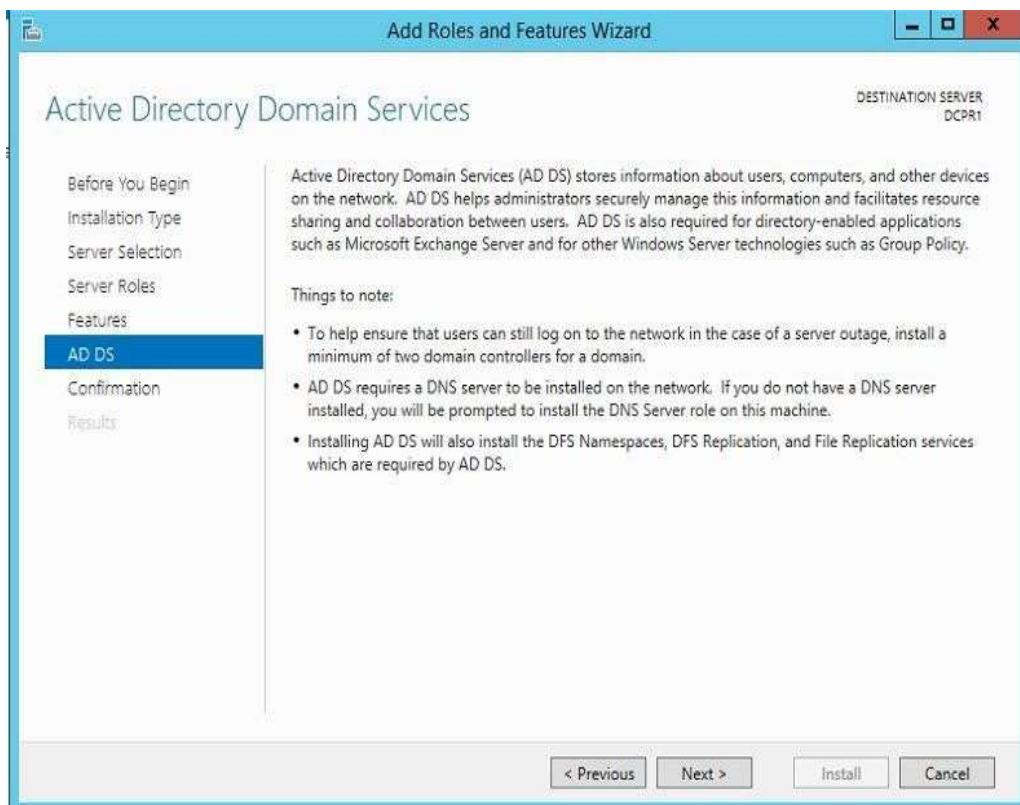
- Then in next window click on next to continue



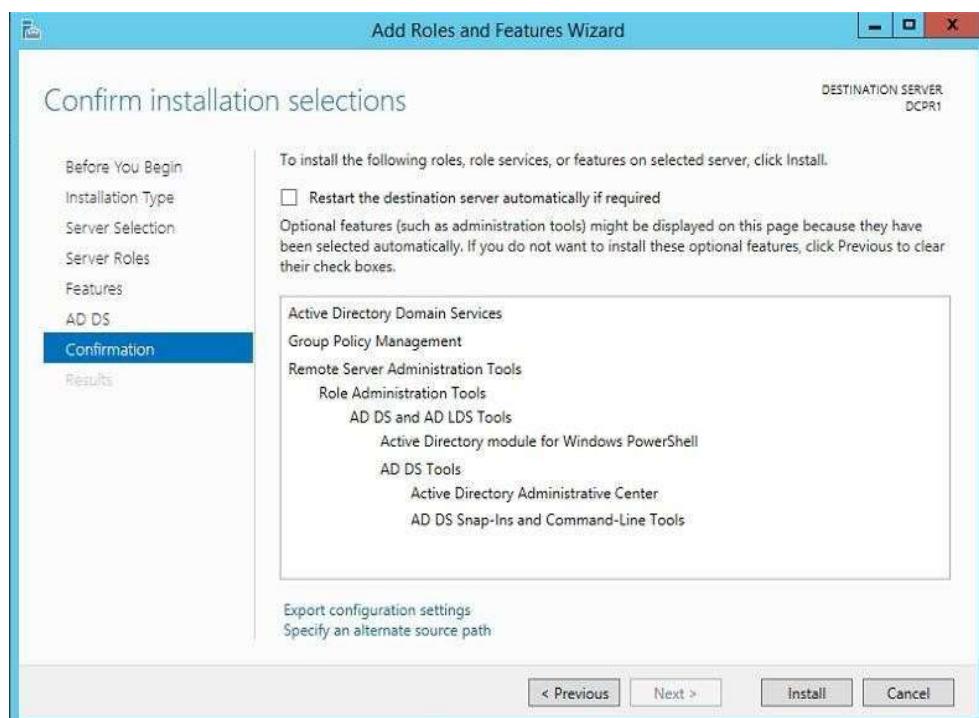
- In next window it will give option to select additional feature to install. but i will keep the default selection. click next to install.



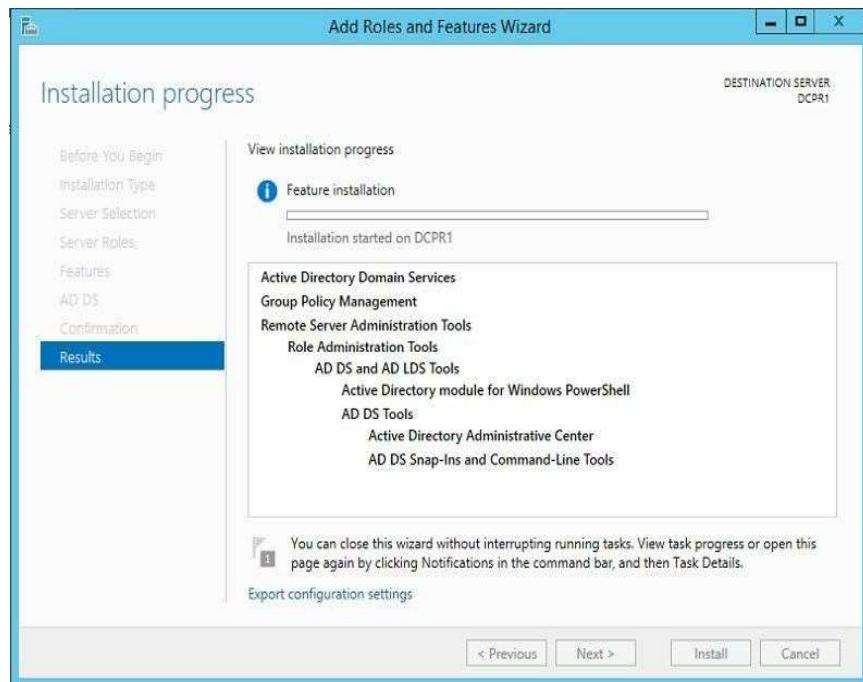
- In next window it gives brief description about the AD service. click on next to continue.



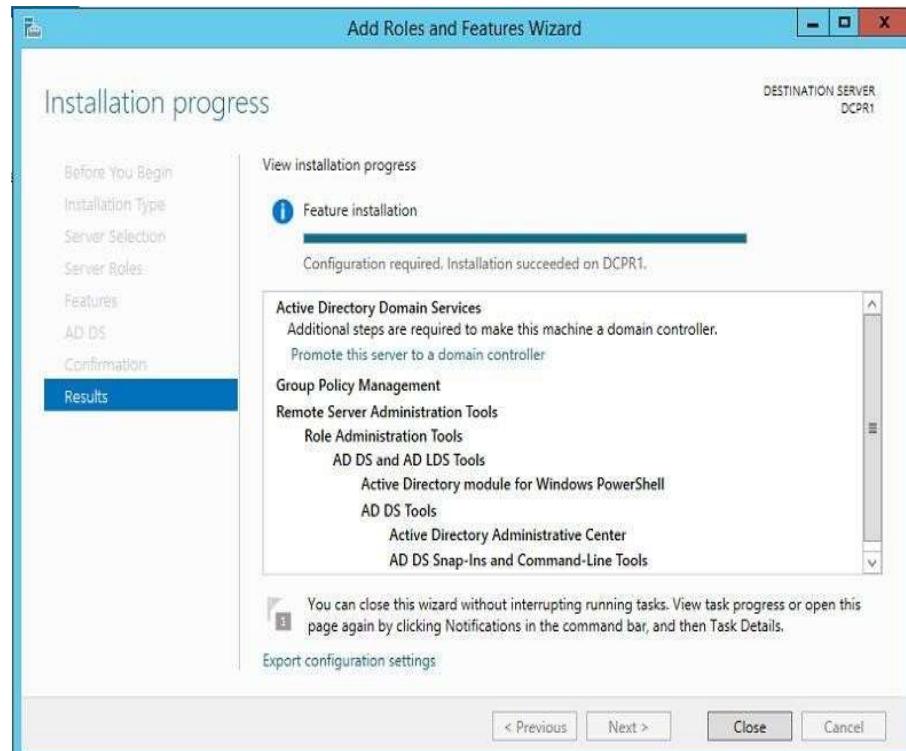
- In next window it gives brief about the installation. click on "install" to start the installation.



- In next window it will begins the service install and we have to wait till it finish.



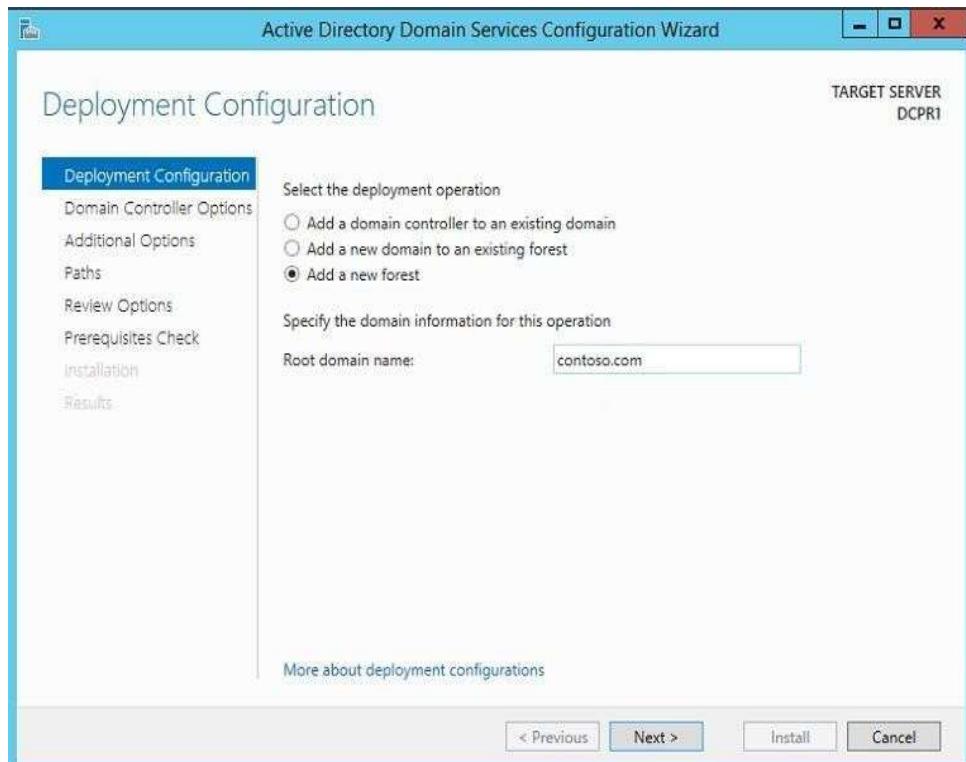
- Once it finishes click on "close" to exit from the wizard. then next step is to reboot the server to complete the installation.



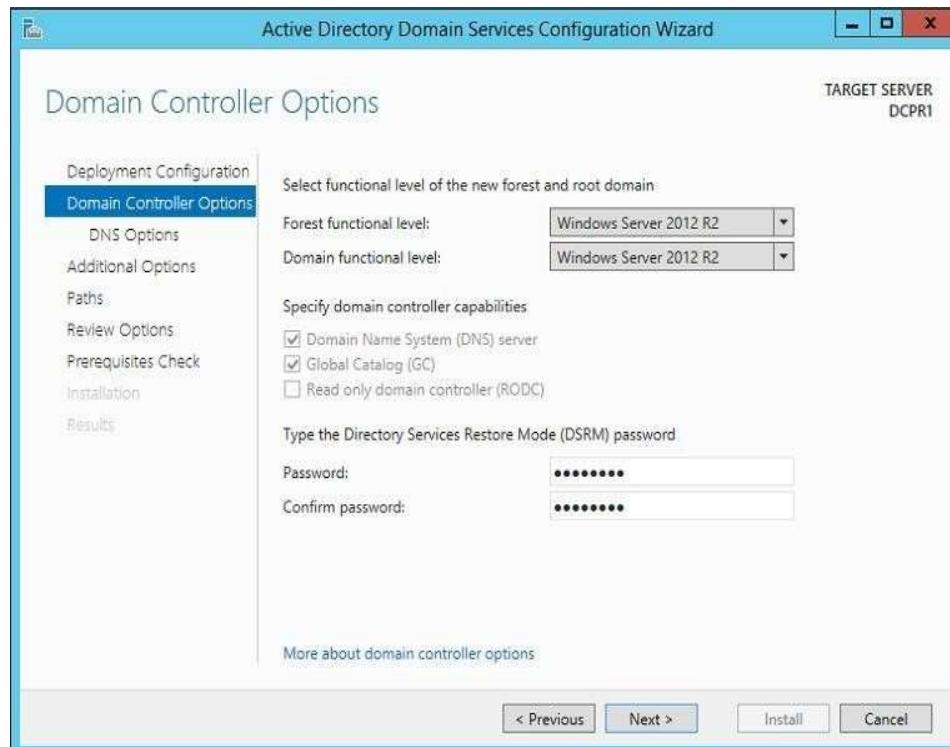
- After that completes, we need to start on the DC setup. to start that open the "Server Manager" and click Task flag on right hand corner. then it will list option as below picture. click on "promote this server to a domain controller" option (highlighted with yellow in picture)



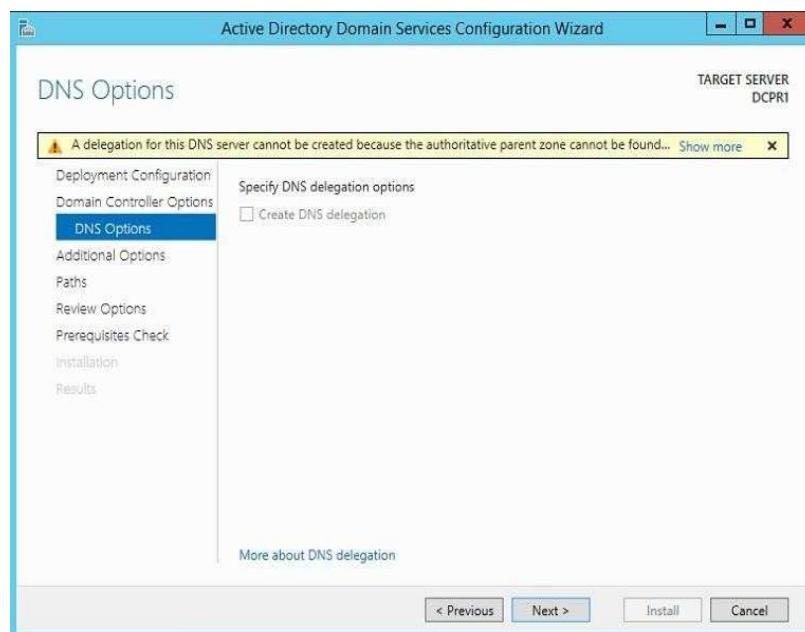
- Then it starts the DCPROMO wizard. on the first window since its going to be new forest I have selected option "Add a new forest" and i typed the domain name "contoso.com" which i will be using on the forest. once fill the info click on "next" to continue.

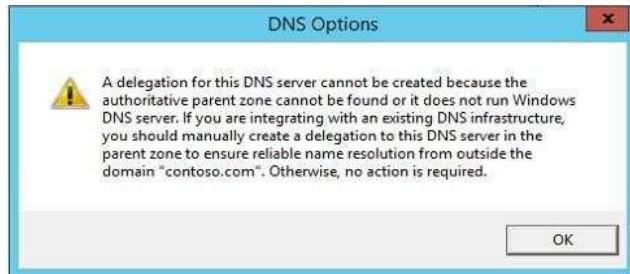


- In next window we can select the forest and domain functional levels. i will keep it default. then in domain controller capabilities its by default selected DNS server and Global Catalog as its first DC in the forest. then we need to defined password to use in DC recovery. click on next to continue.

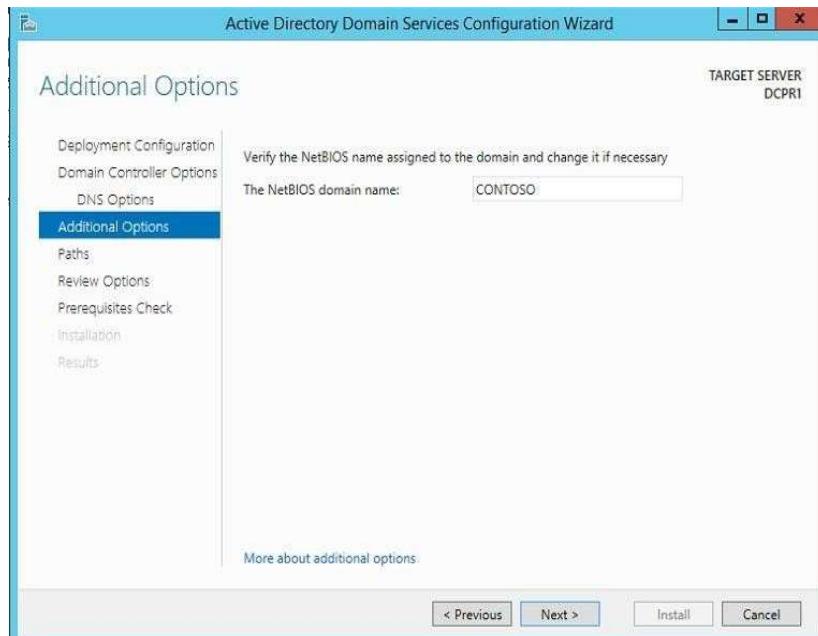


- In next window it will give following error, but it can be ignored. click on next to continue.

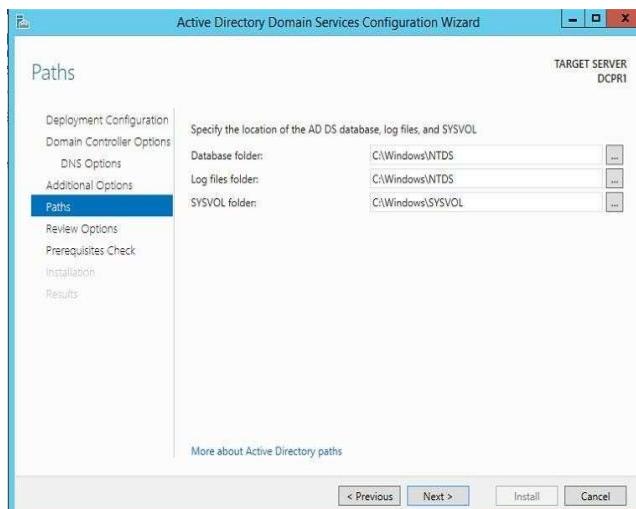




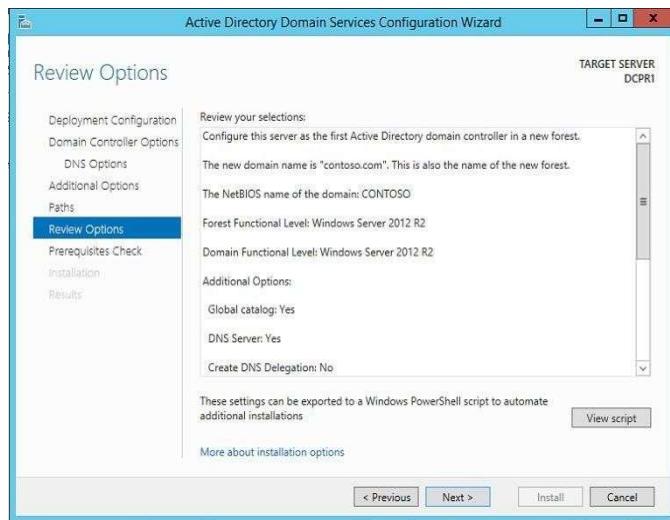
- In next window it asks for the NetBIOS name. we can keep it default and click on next to continue.



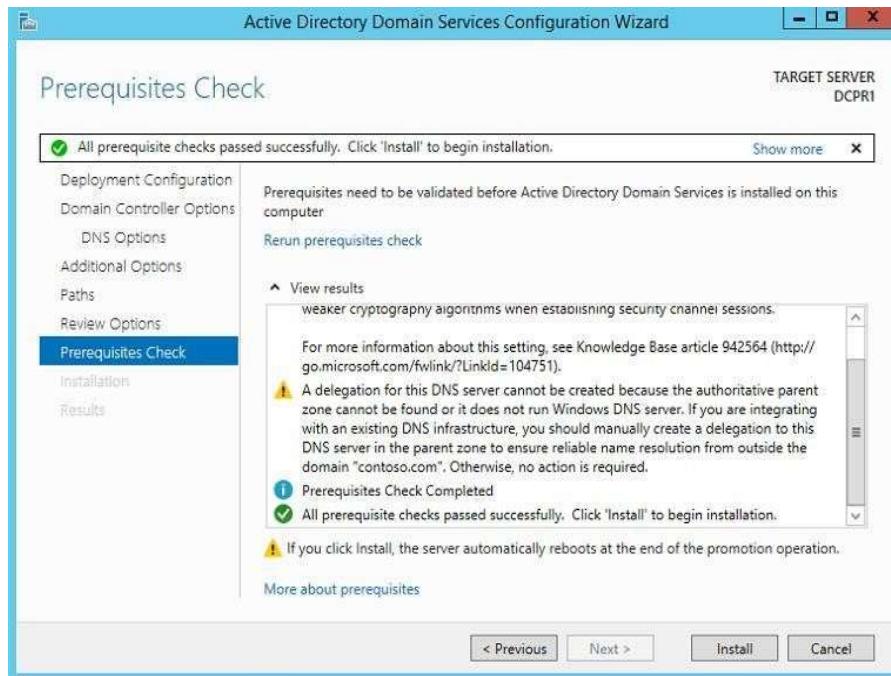
- In next window it gives option to change file paths for AD database, log files and SYSVOL files. we can change the paths or keep them defaults. once changes are done click on next to continue.

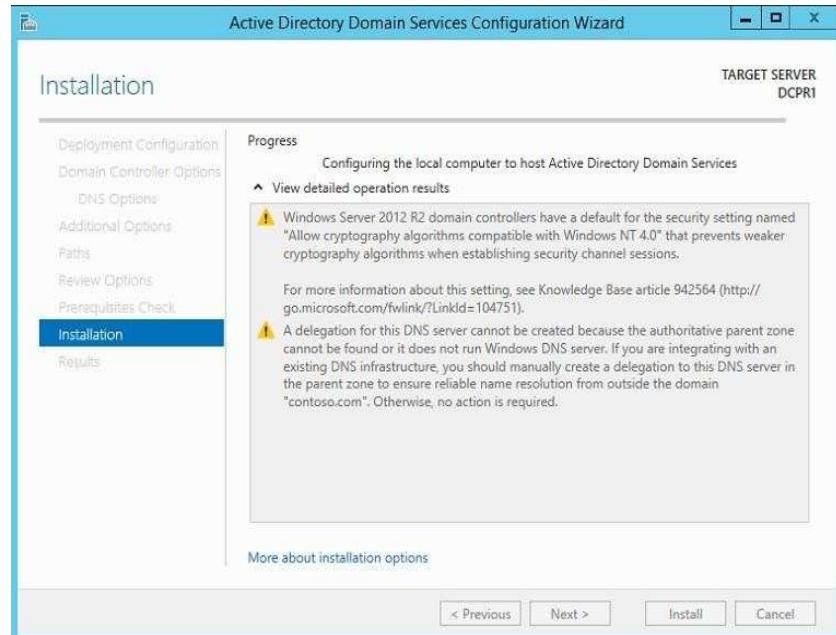


- In next window it gives description about the installation. click on next to continue.



- In next window it will run system check and verify system is compatible with the selected installation. once test completes successfully click on install button to begin the installation. if it passes any critical errors those needs to be address before the installation begin.





Once its complete the install it will automatically reboot the server.

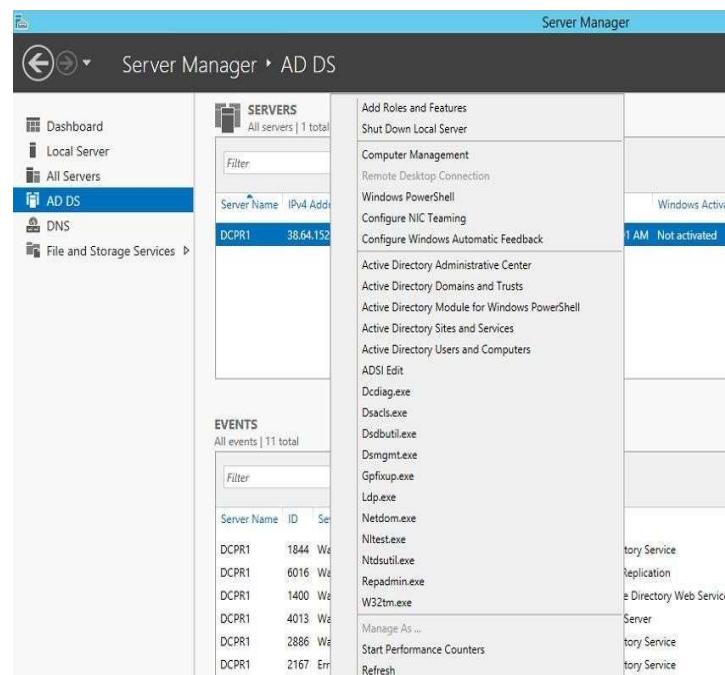
Once server is rebooted log in to server using domain admin credentials.

In our demo it will be in format of

user : contoso\Administrator

password : XXXXXXXXX

Once login, load the "Server manager" and click on "AD DS" option in right hand list. then select and right click as showed in screenshot to start with AD configuration.



Now we successfully completed with the DC setup on server 2012 R2.

**Questions: -Define Objects and interpret it's types.**

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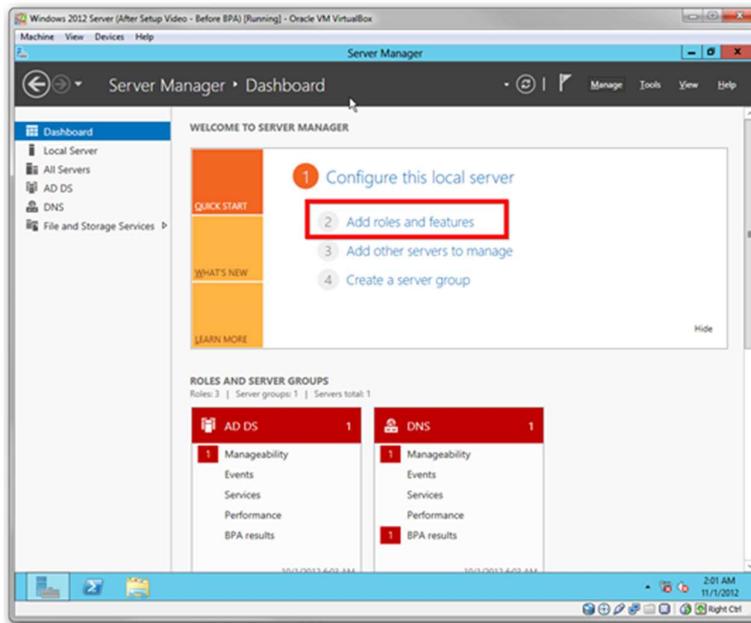
NMA (3360703)

Practical-19

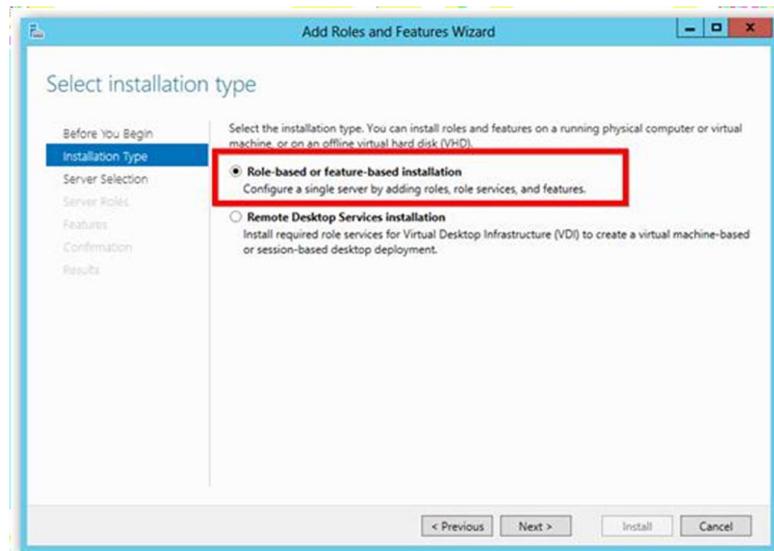
## Practical-12

### AIM: Creating Domain Controller

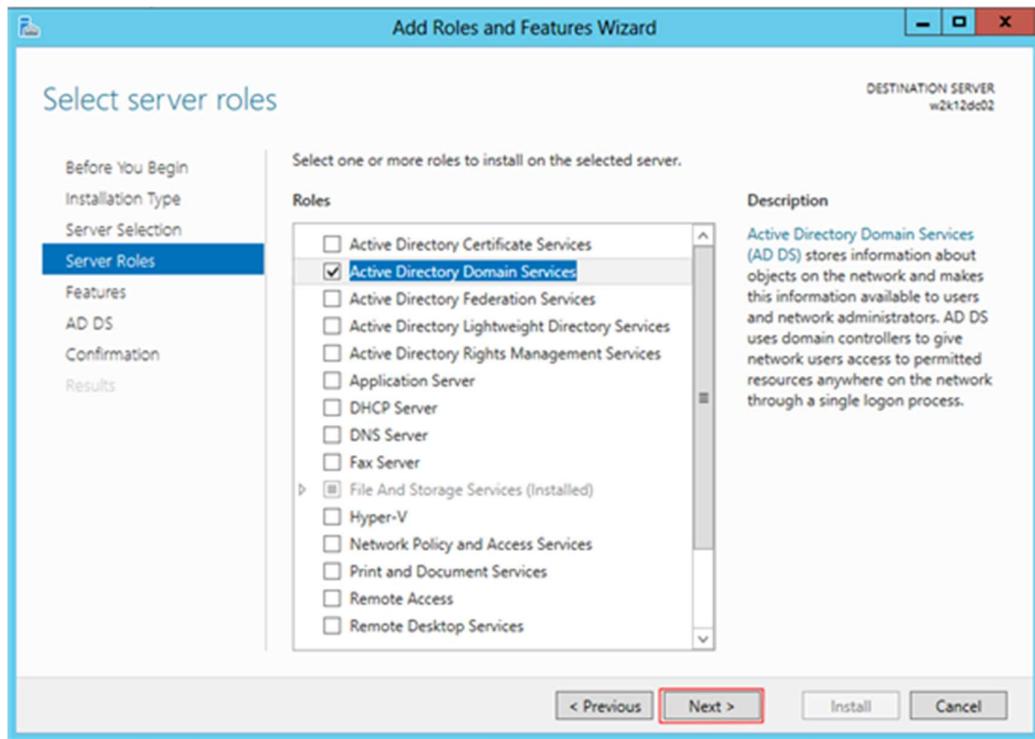
Open the Server Manager console and click on Add roles and features



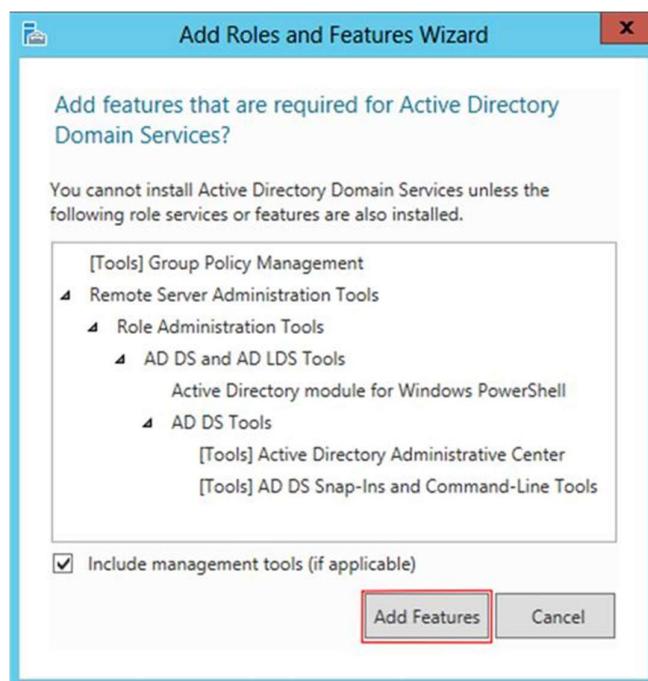
Select Role-based or feature-based installation and select 'Next'.



Select the Active Directory Services role.



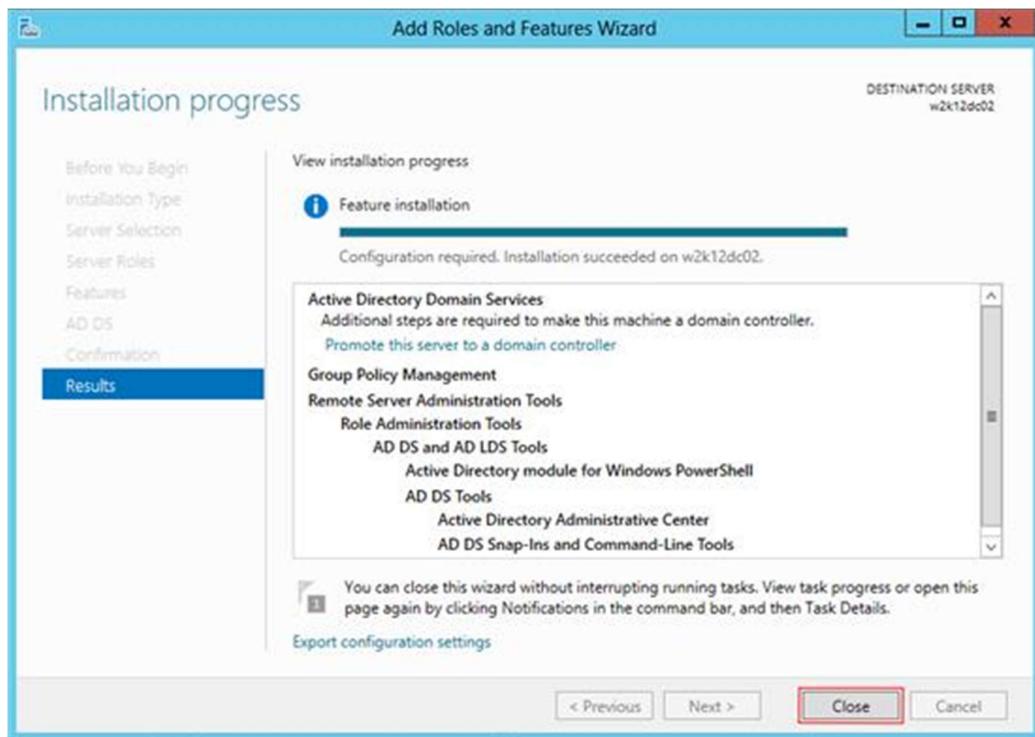
Accept the default features required by clicking the Add Features button.



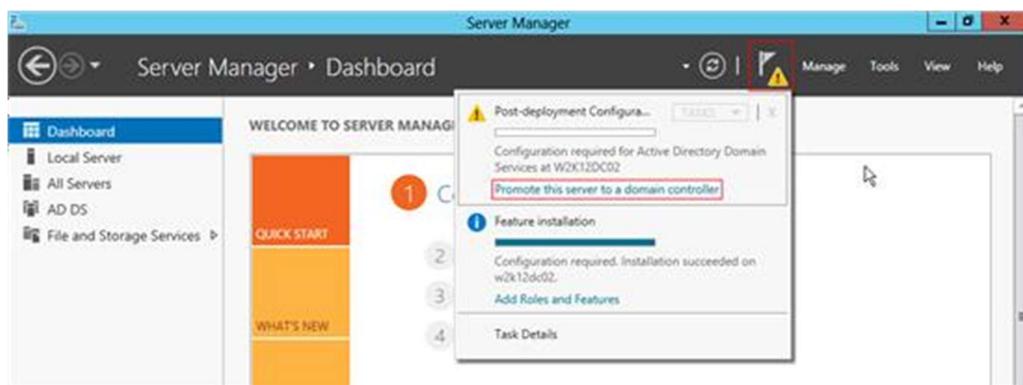
On the Confirm installation selections screen click the Install button.

NOTE: Check off the Restart the destination server automatically if required box to expedite the install should you be able to reset the target server automatically.

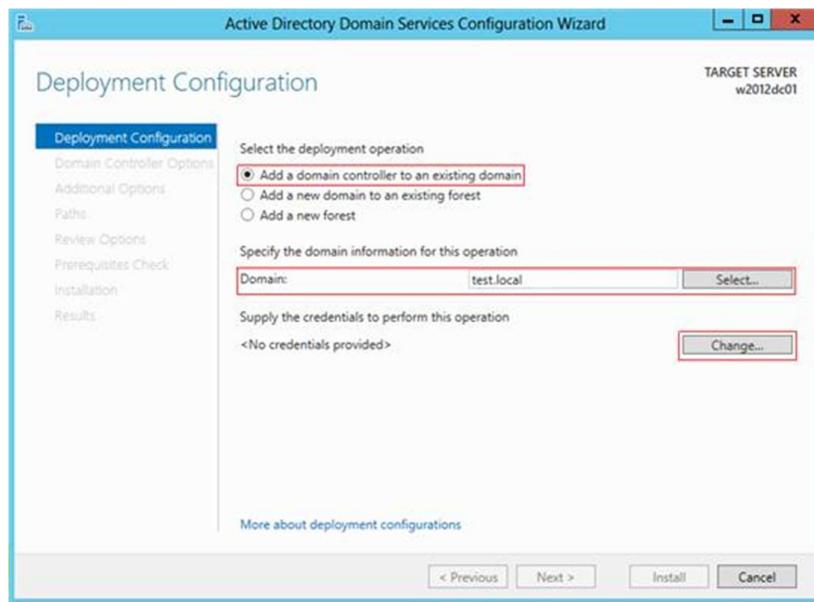
Click the Close button once the installation has been completed.



Once completed, notification is made available on the dashboard highlighted by an exclamation mark. Select it and select Promote this server to a domain controller.



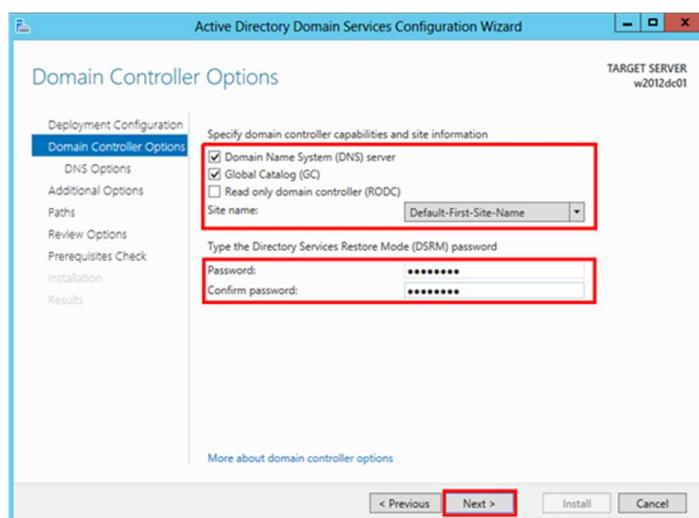
Select add a Domain Controller into existing domain



Ensure the target domain is specified. If it is not, please either Select the proper domain or enter the proper domain in the field provided.

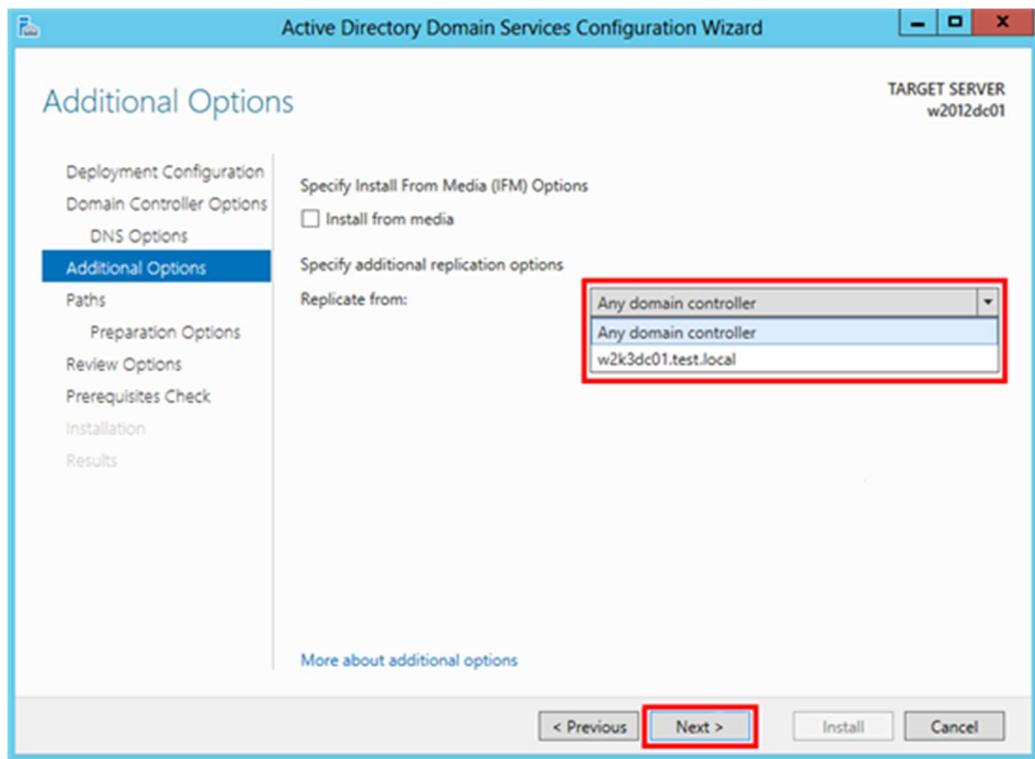
Click Change, provide the required Enterprise Administrator credentials and click the Next button.

Define if server should be a Domain Name System DNS server and Global Catalog (GC). Select the Site to which this DC belongs to and define Directory Services Restoration Mode (DSRM) password for this DC

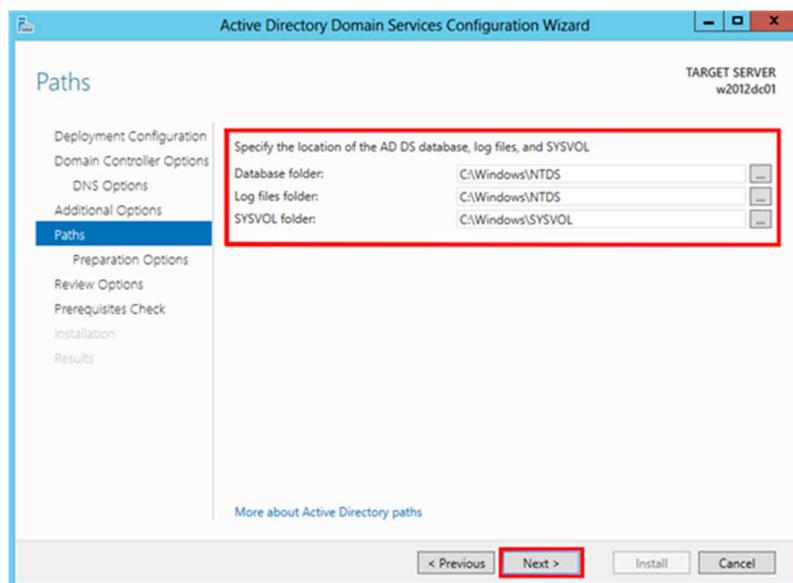


Click the Next button on the DNS options screen.

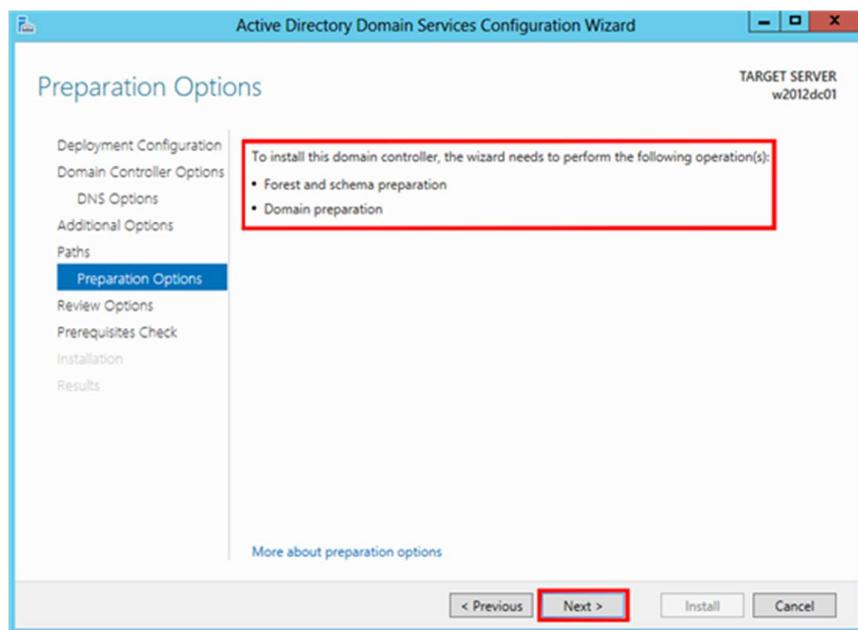
In the Additional Options screen, you are provided with the option to install the Domain Controller from Install from Media (IFM). Additionally, you are provided the option to select the point from which DC replication should be completed. The server will choose the best location for AD database replication if not specified. Click the Next button once completed.



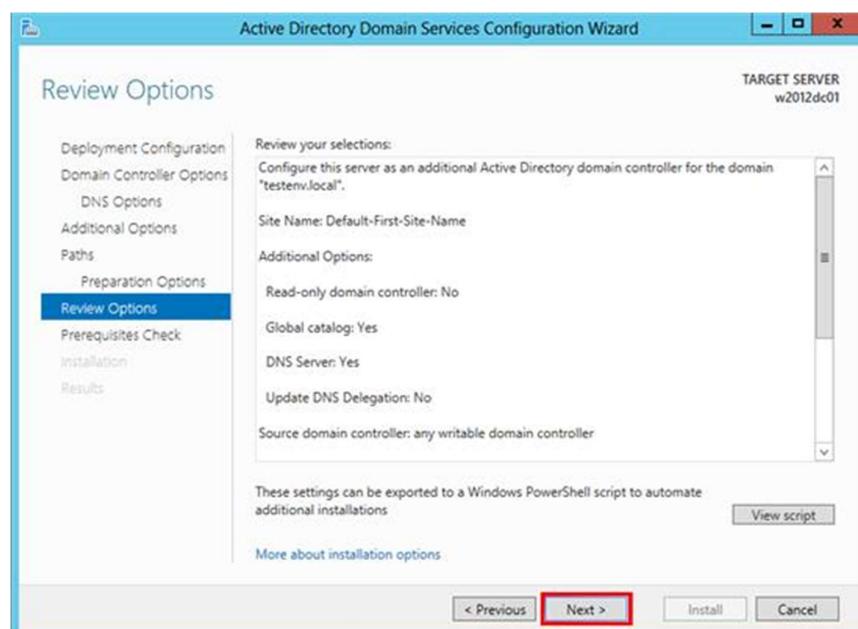
Specify location for AD database and SYSVOL and Click the Next button.



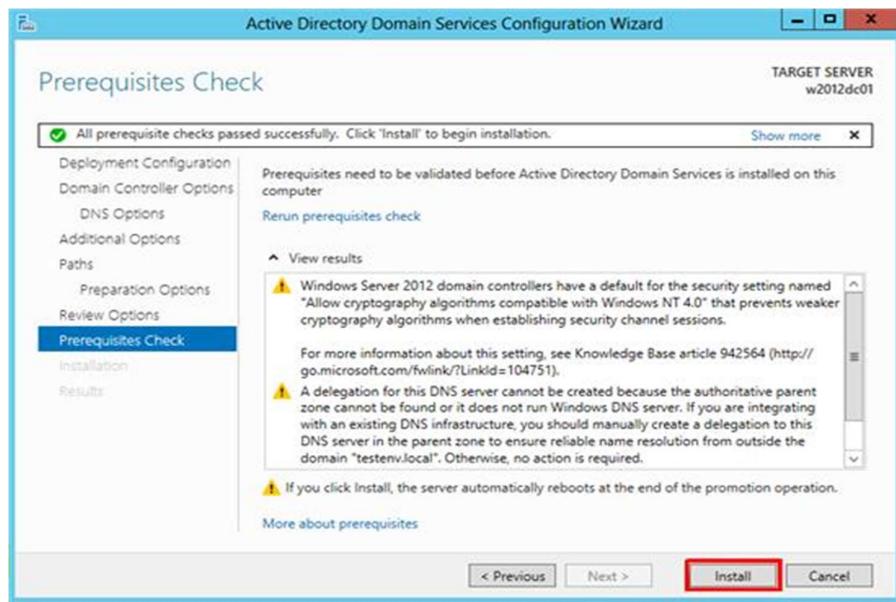
Next up is the Schema and Domain preparation. Alternately, one could run Adprep prior to commencing these steps, regardless, if Adprep is not detected, it will automatically be completed on your behalf.



Finally, the Review Options screen provides a summary of all the selected options for server promotion. As a bonus, when clicking View Script button you are provided with the PowerShell script to automate future installations. To click the Next button to continue.

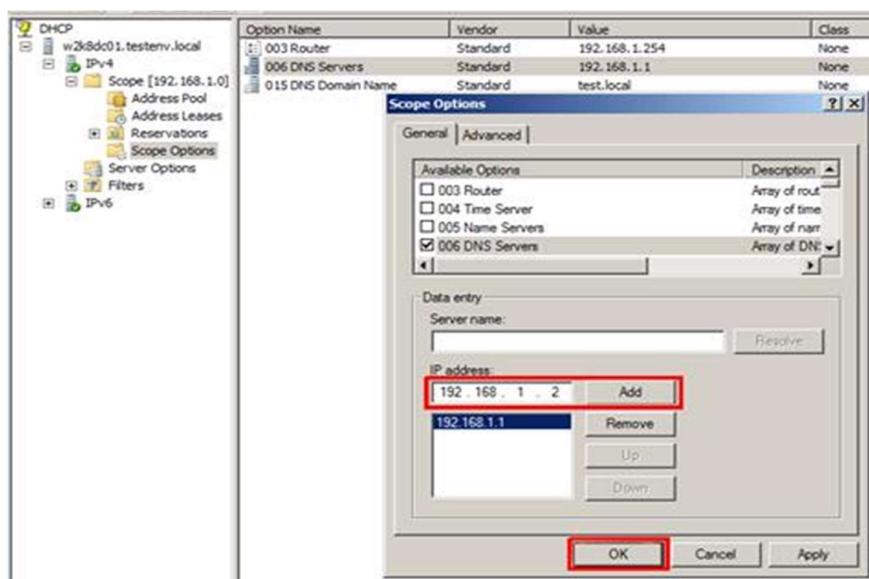


Should all the prerequisites pass, click the Install button to start the installation.



After it completes the required tasks and the server restarts, the new Windows Server 2012 Domain Controller setup is completed.

Lastly, on each server/workstation within the target domain require a NIC properties configuration update to point to the new Domain Controller. Open the DHCP management console, select Option no. 006 and under server/scope options and add the IP address of your new Domain Controller as DNS server.



**Questions: -How can we create DC in ADDS?**

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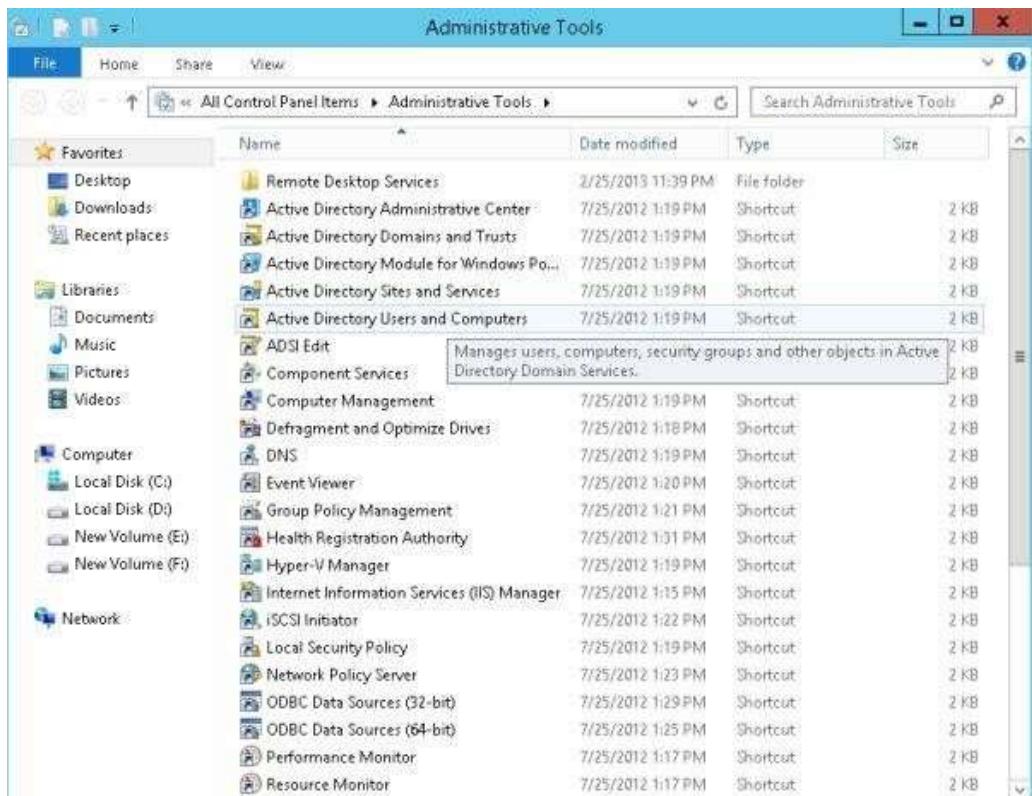
## Practical-13

### **AIM: Create new user and assign privileges/permission.**

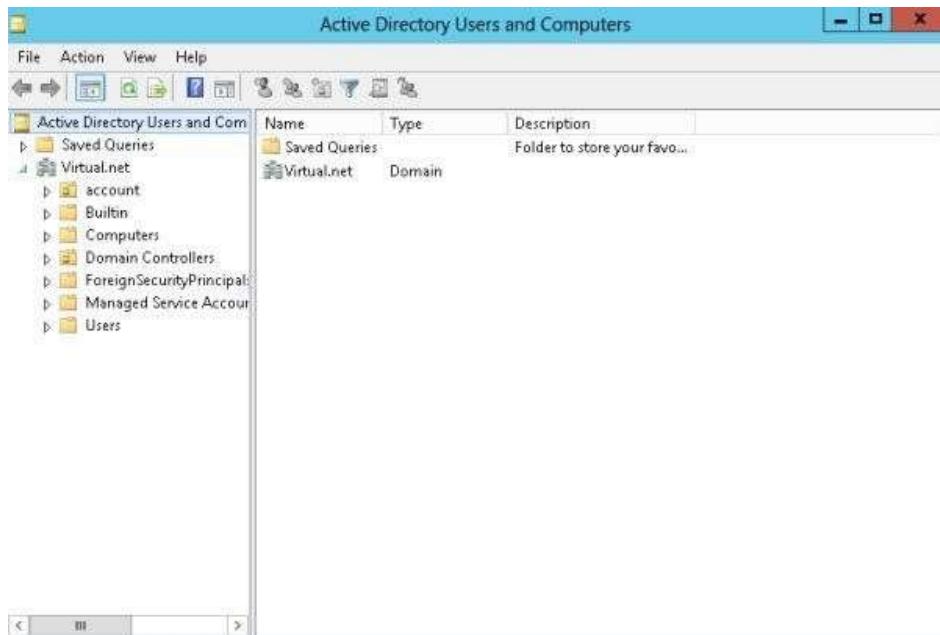
**Step-1:** First of all, logon to your Windows Server 2012. After login, open your Start Menu and click on "Administrative Tools".



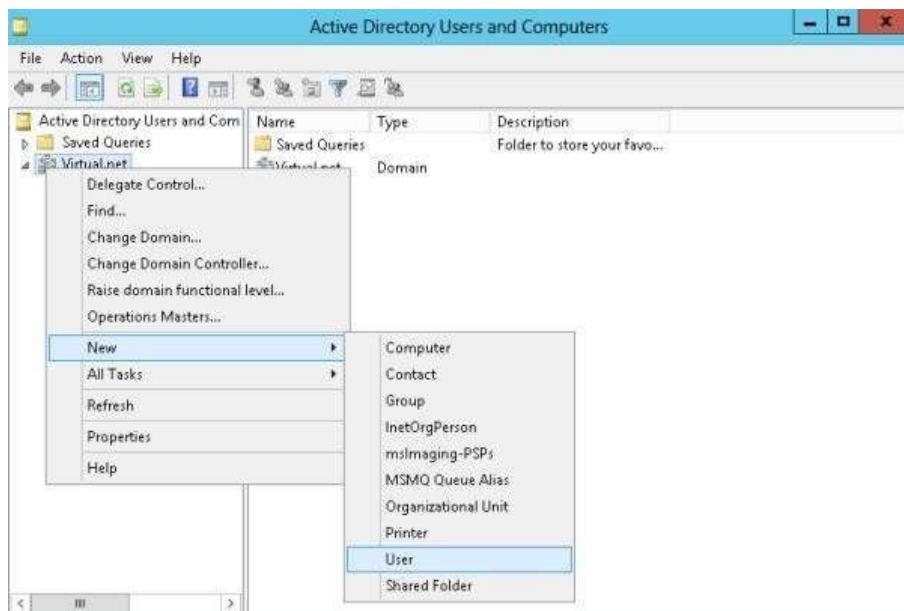
**Step-2:** A list of items will appear, now select "Active Directory Users and Computers".



**Step 3:** Now you will see that your domain exists, in this Tool and many options are available beneath it like Account, Bulletin, Computers, and Users etc.



**Step 4:** Right-click on your domain and go to "New". In New go to the "Users" to add a "New User".



**Step 5:** Now a form will be displayed, you must provide all necessary details of a new user. After that click on the "Next" button.

The screenshot shows the 'New Object - User' dialog box. At the top, it says 'Create in: Virtual.net/'. Below that is a user icon. The form fields are as follows:

- First name: Mohit
- Initials: [empty]
- Last name: Chaudhary
- Full name: Mohit Chaudhary
- User logon name: mohit @Virtual.net
- User logon name (pre-Windows 2000): VIRTUAL\mohit

At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

**Step 6:** On clicking the Next button a New Form will be opened in which you need to provide the Password for the new user. Your server will ask you to re-enter the password so that if by mistake you provide the wrong password then you can correct it.

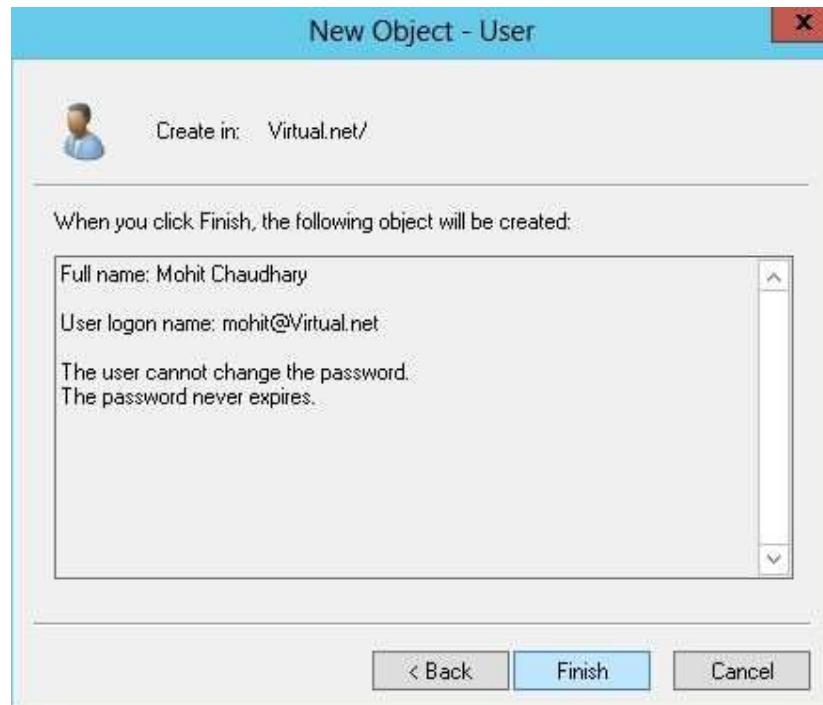
There are four other options also from which you can select whether you want to provide permission to the user to change the password on its next logon or you want to restrict him so that he can't change the password. You can also check the "Password never expires" option or you can also disable the account of the user.

The screenshot shows the 'New Object - User' dialog box with the 'Create in: Virtual.net/' setting. The 'Password' field contains a series of asterisks, and the 'Confirm password' field also contains a series of asterisks. Below these fields are four checkboxes:

- User must change password at next logon
- User cannot change password
- Password never expires
- Account is disabled

At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

**Step 7:** Now all the provided values will be shown to you and you will be asked to click on the "Finish" button to finish the work or you can go back to make any changes as required.



Now your new user has been created.

**Questions: -Write steps for creating user.**

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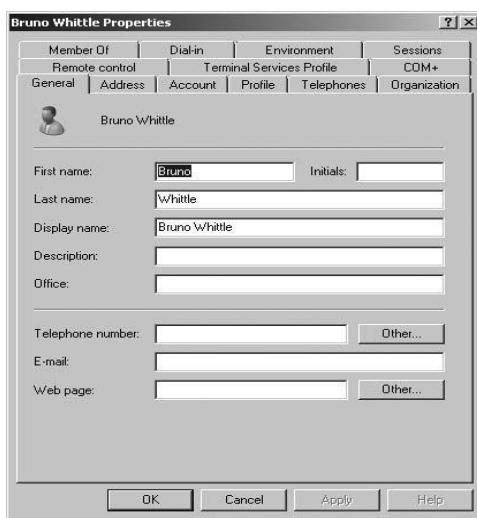
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## Practical-14

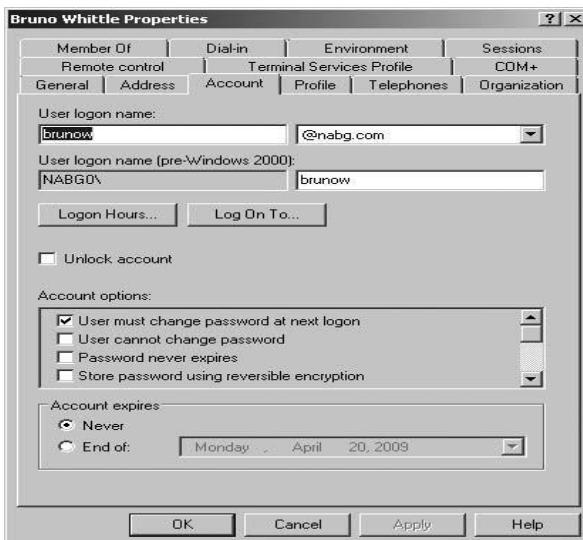
### **AIM: Modify/delete/deactivate users and groups.**

#### **Modifying a User Account**

- To modify an existing user account, right-click the user object you wish to modify and choose Properties from the pop-up menu. You then see the tabbed dialog box shown in Figure.
- In the first two tabs, General and Address, you can enter some additional information about the user, such as job title, mailing address, telephone number, e-mail account, and so forth.



- In the Account tab, shown in Figure you can set some important user account options.
- Modify user account as per your requirement and then click apply to save changes that you done.



#### Deleting or Disabling a User Account

- For delete user account:

In the left pane, select the Users folder, and then select the user in the right pane, then right-click the user and choose Delete

- For Disabling an account:

Select the user account, right-click it, and choose Disable Account.

**Questions: -How to assign policies to the user and group?**

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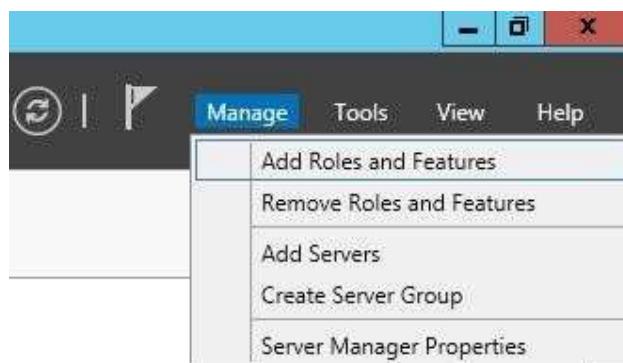
## Practical-15

### AIM: Configure print server and backup server.

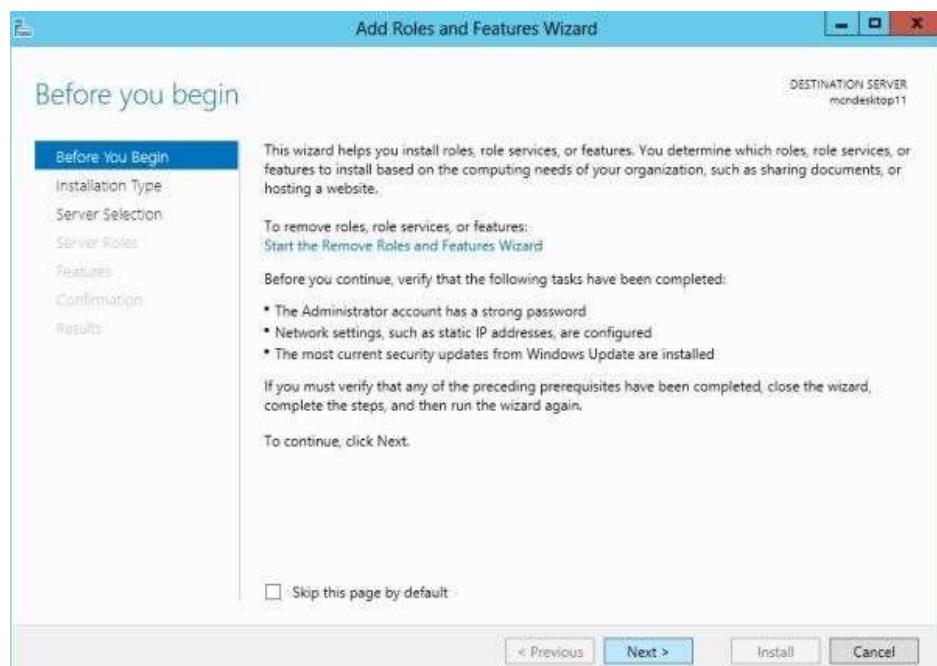
Step 1: First of all login to your Windows server 2012 as an Administrator. Open Server Manager from taskbar, if not opened automatically while login completed.



Now in the Server Manager click on the "Manage" button to open the "Add Roles and Features" to add the new feature.



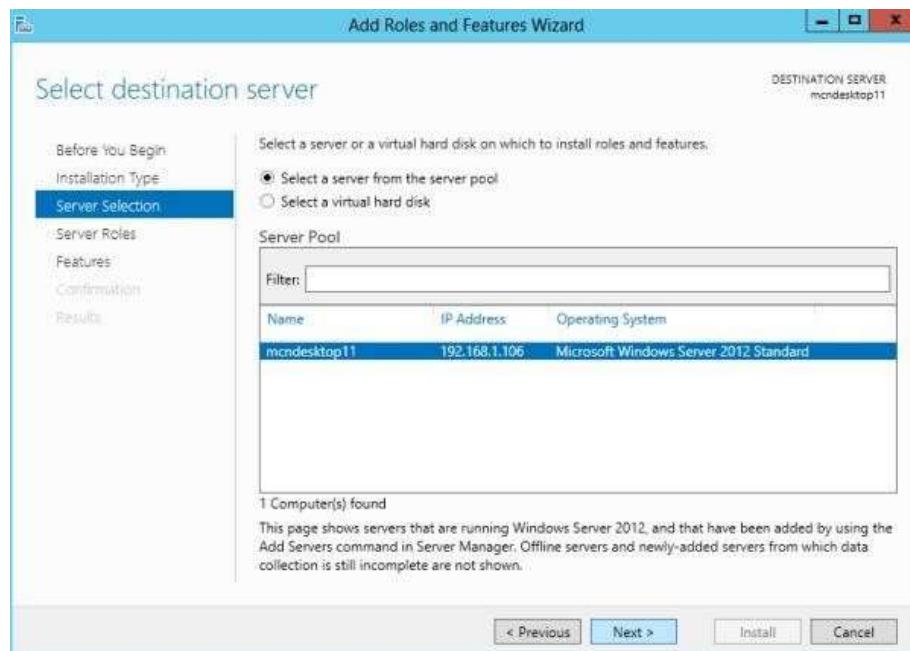
Step 2: Now a new window will be opened in which a few instructions are given; click on "Next".



Step 3: Now it will ask for the "Installation Type" from which you must select the first option and then click on "Next".

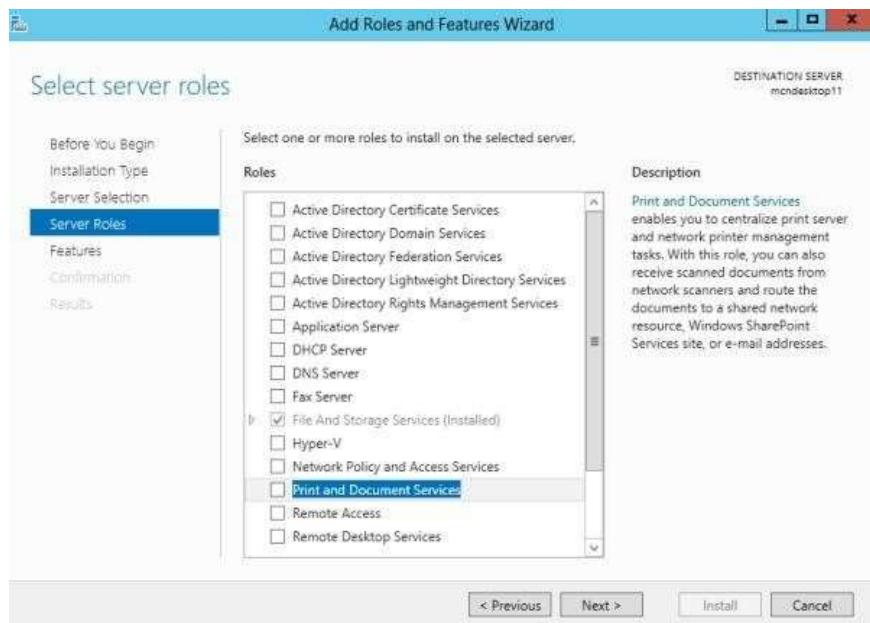


Step 4: Now you must select the server from the Server Pool. If you have only one server in the Server Pool it is selected by default.



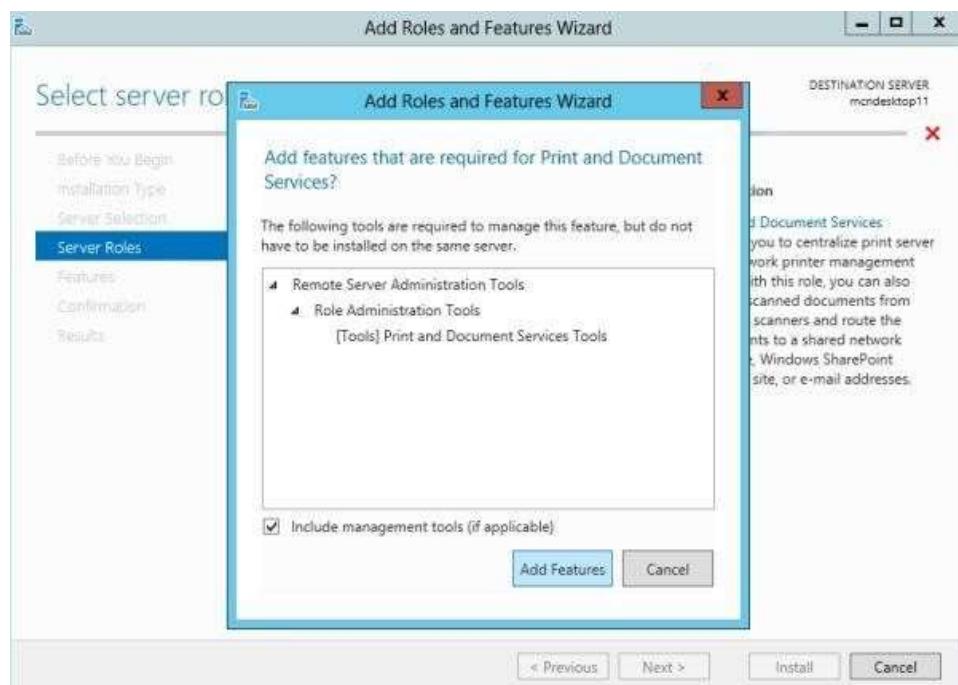
After selecting the server, click on "Next".

Step 5: Now a List of Roles will appear in front of you, from this list you must select the "Print and Document Services".



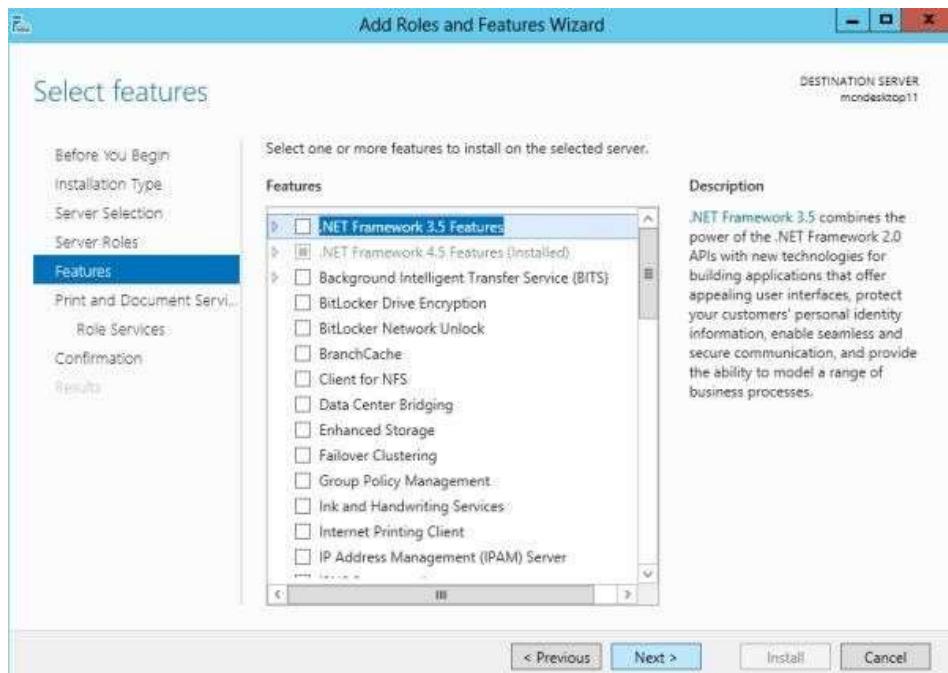
Click on Print and Document Service option.

Step 6: As you select the Print and Document Services a new window will be opened that will ask permission to "Add Features". Click on "Add Features" to grant it the permission.

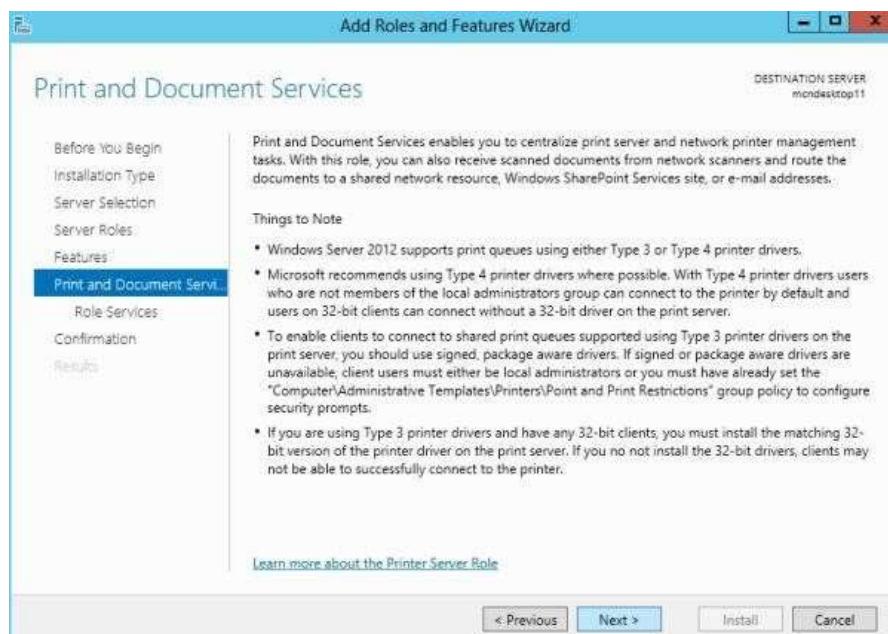


After selecting the Add Features option, you must click on the "Next" button.

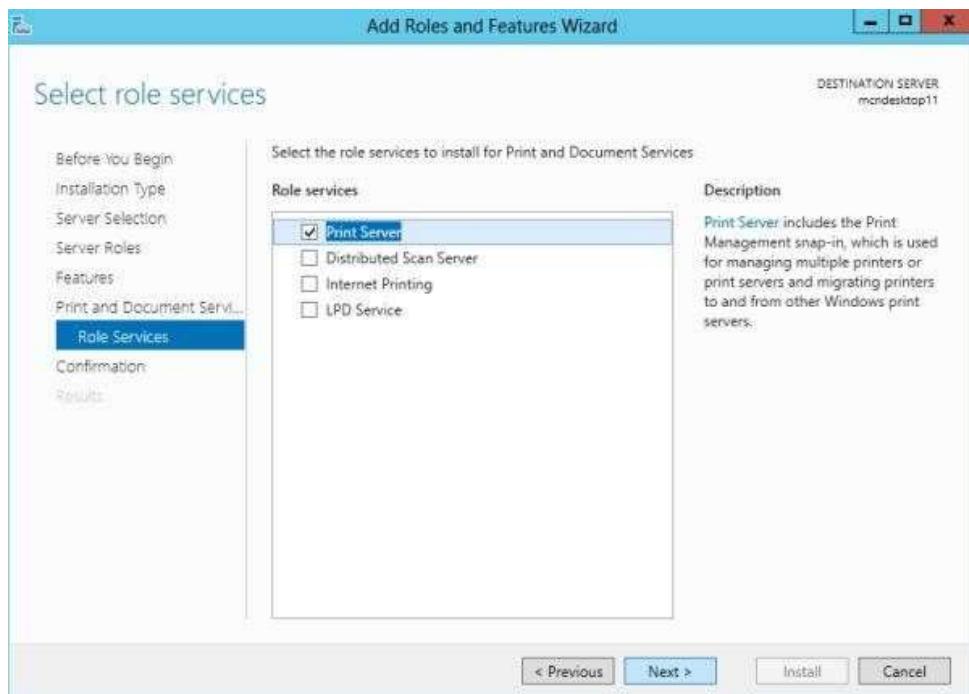
Step 7: Now a list of features will be available for selection, you can select any feature you want to install and then click on "Next" or simply click on "Next" without selecting any feature.



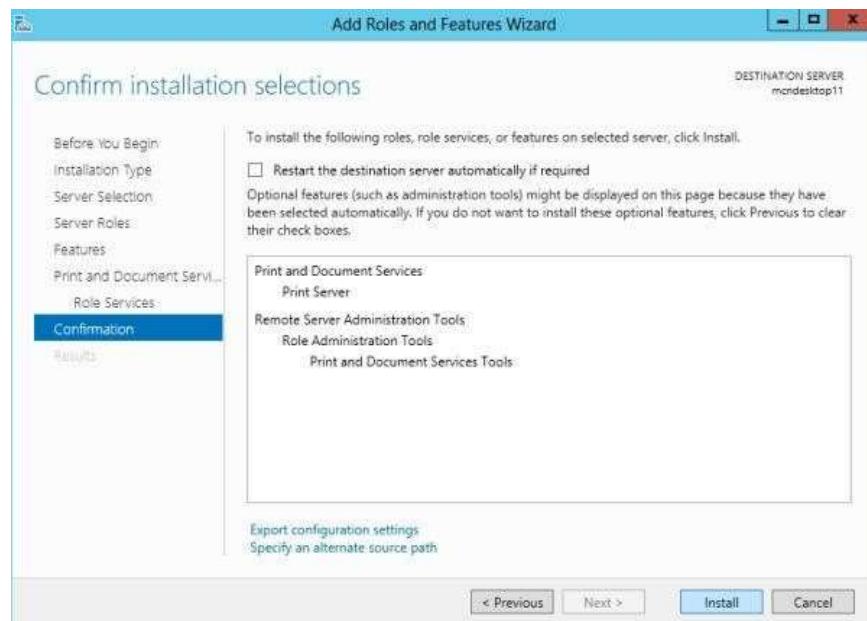
Now some information will be shown to you about this service, here also you must click on the "Next" button.



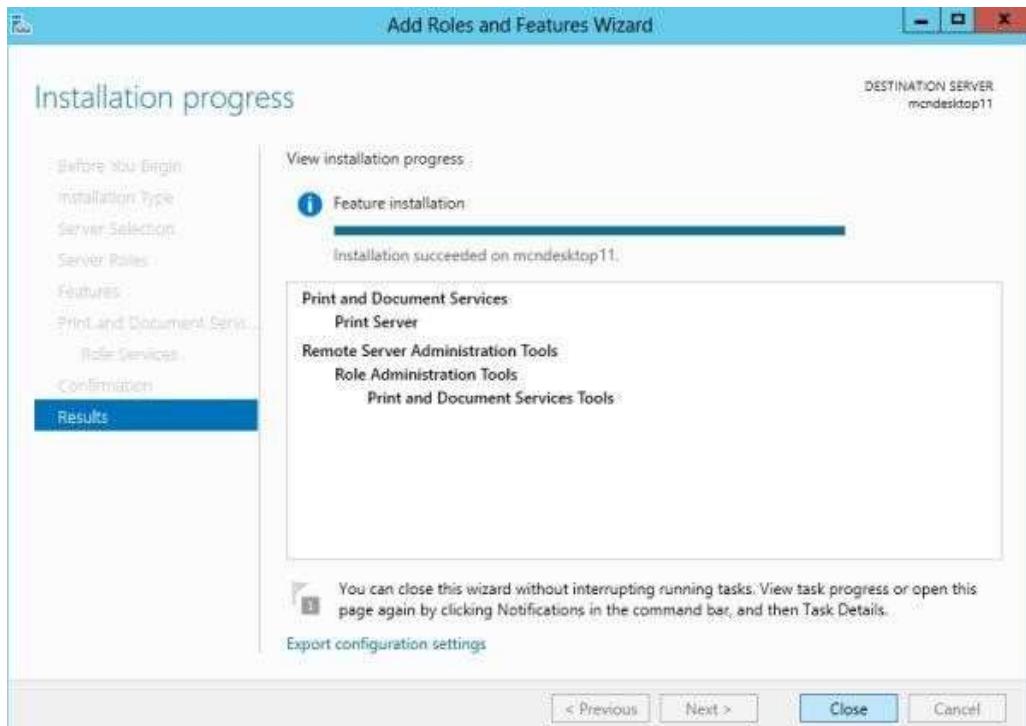
Step 8: Now select the "Role Services" page which will open. In this, you must select the first option i.e. "Print Server" and then click on "Next".



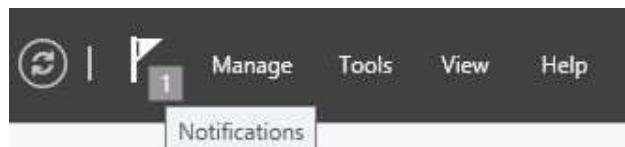
Now a confirmation page will be opened, where you can give permission to the server to restart if required or you can click on "Install" without giving permission to restart.



Now your installation will begin.



Step 9: If you had provided permission to restart then your server will first restart and then in the Server Manager you will see that your installation is successfully completed. You can get this confirmation by clicking on the Flag given on the upper right-hand corner.

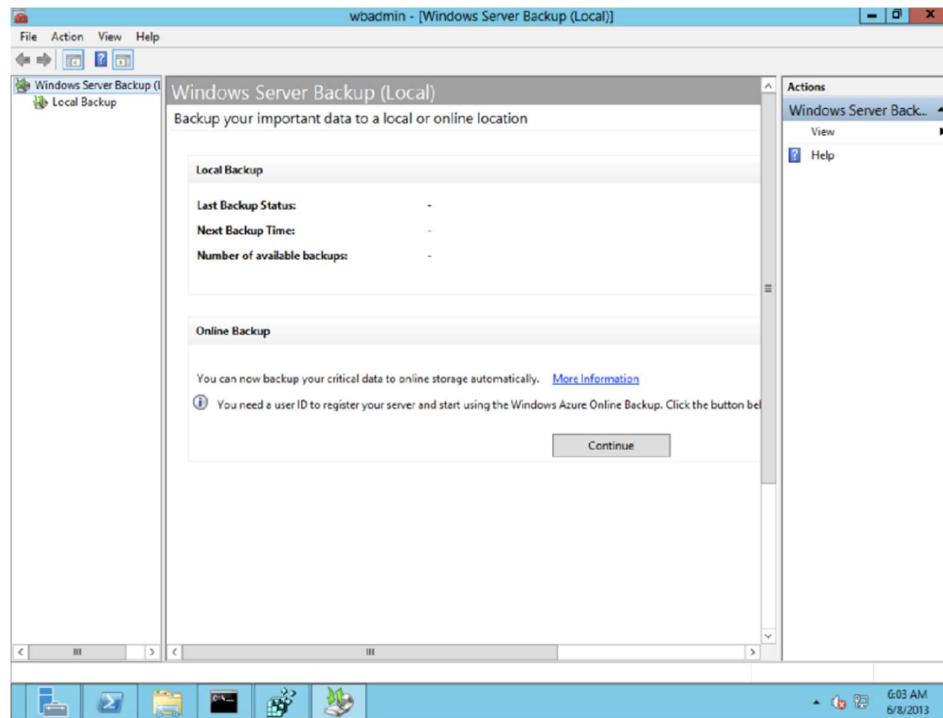


Windows Server's NetBackup tools have become easier and easier to use over time. But there's no more NetBackup. Well, there's warming, which is very similar. You can still restore data by downloading NetBackup's restore tool at :

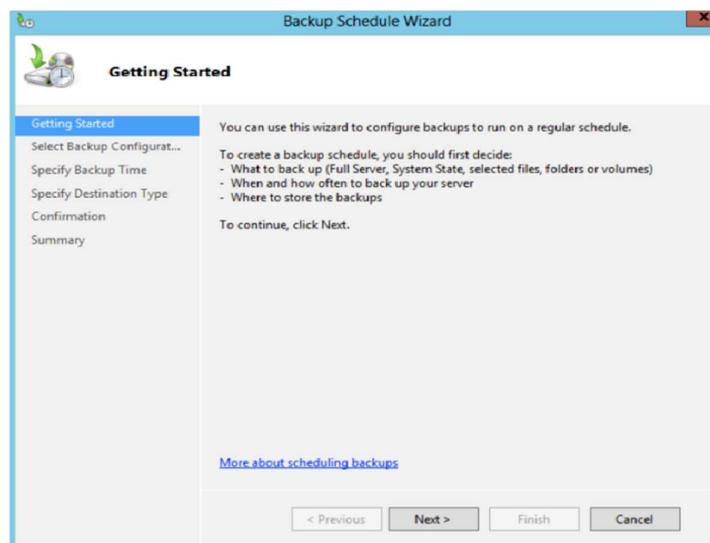
<http://support.microsoft.com/?kbid=974674>.

Windows Backup is now capable of backing up a system with the same ease of use that Apple brought to automated backups with Time Machine and Time Machine Server. In fact, providing access to only a few more options Microsoft's tools provide access to some pretty nice options, easily configured.

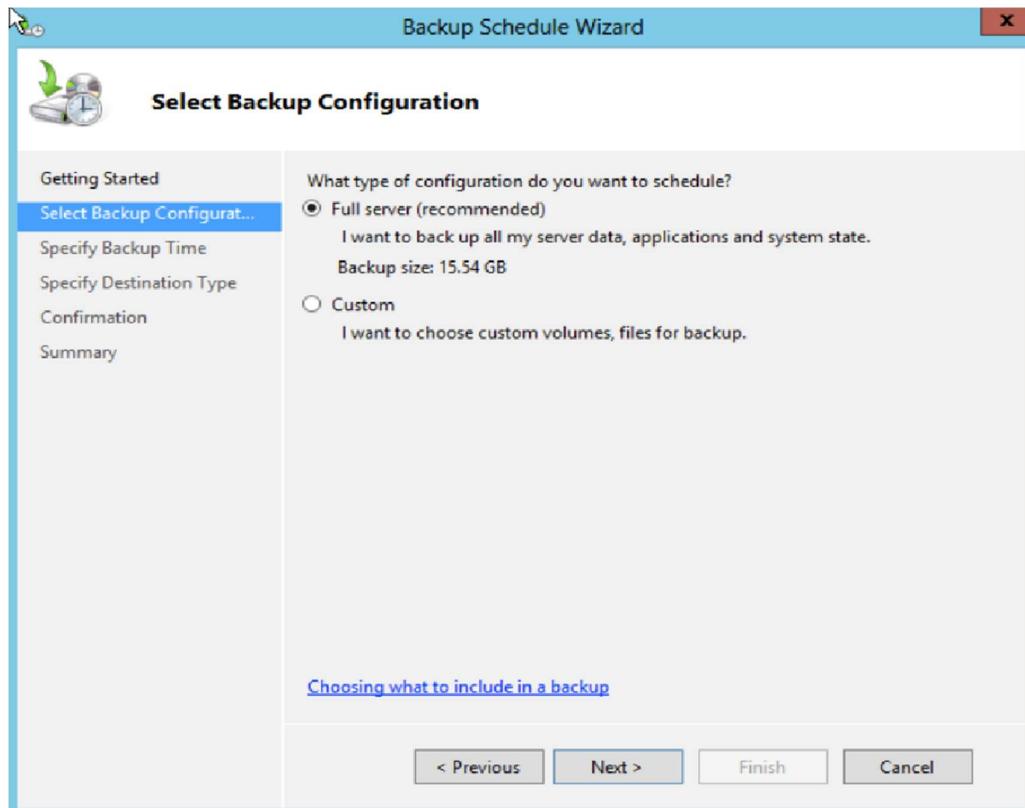
To get started, you'll first need to install the Windows Backup Role. To do so, use the Add Roles and Features Wizard in Windows Server 2012 to add the Windows Backup role. Once added, open Server Manager and then click on the Tools menu, selecting Windows Server Backup.



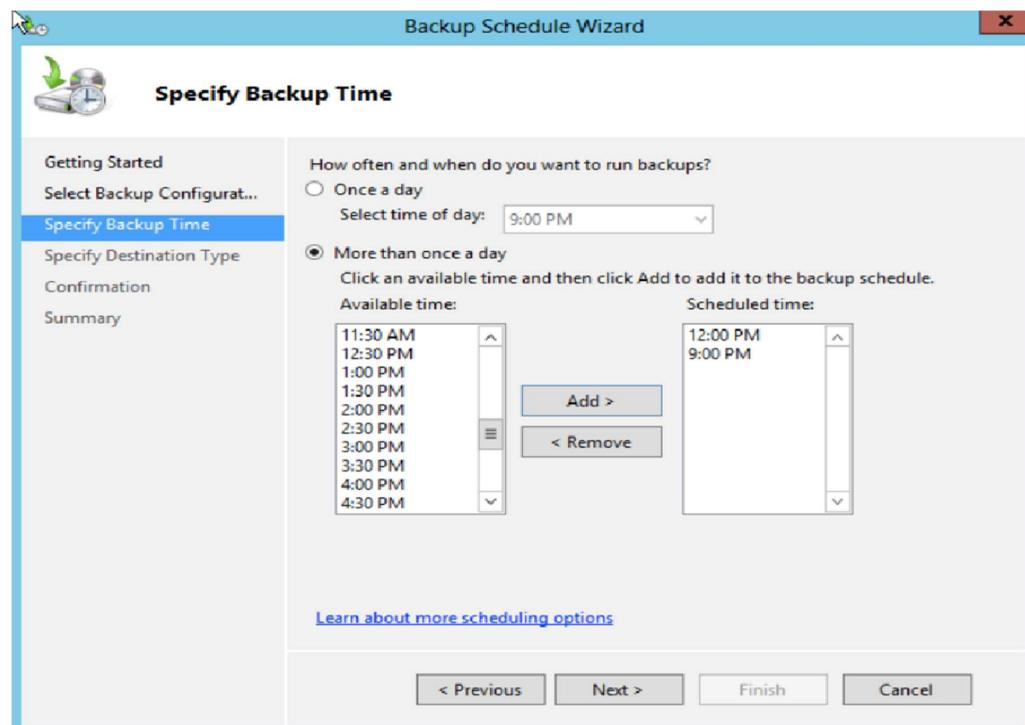
From Windows Server backup, you can enter the name of an Azure account to configure cloud-based backups. However, in this walkthrough we're going to choose local backups, which really for us means to a network share rather than the cloud, although we could back up to a USB drive or some other internal drive as well. Click Local Backup, then click Configure. Click on Backup Schedule... to bring up the Backup Schedule Wizard. At the Getting Started screen, click on the Next button.



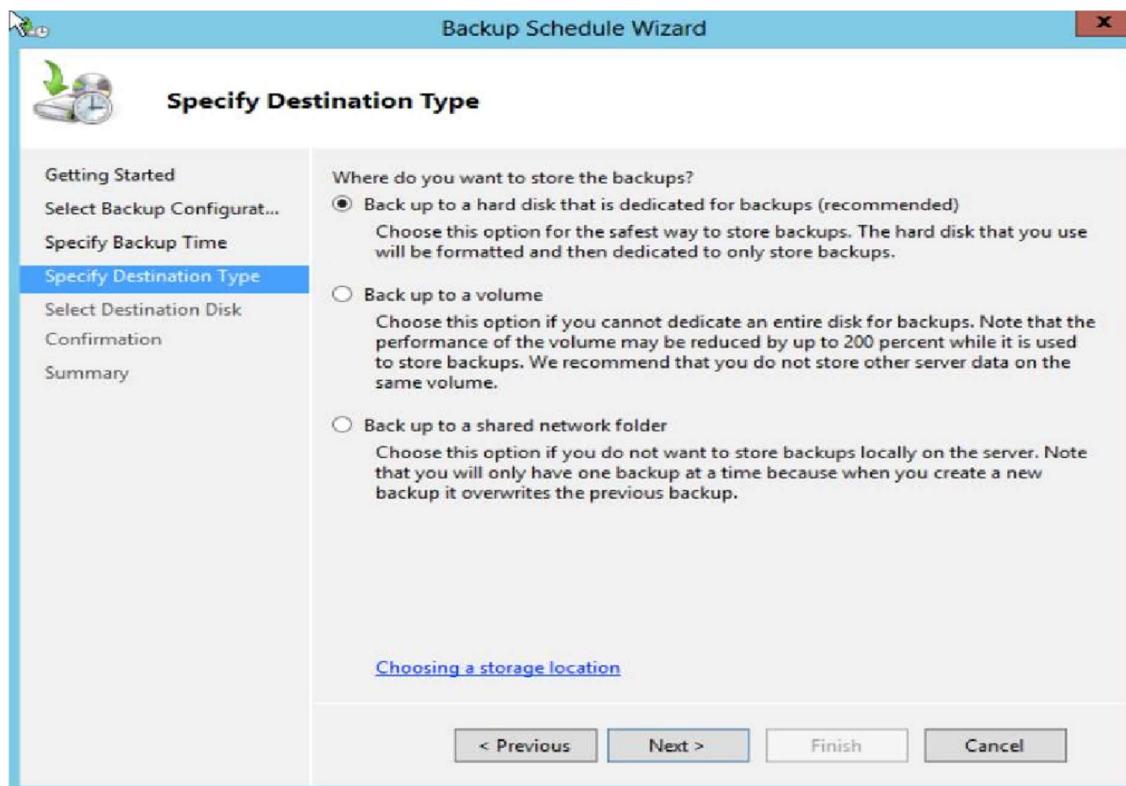
At the Server Backup Configuration screen of the Backup Schedule Wizard, choose whether to back up all the data or perform a custom backup, which allows you to define only certain files to back up. I like to back up all the data for the most part, so we're going to go with the full server and click Next.



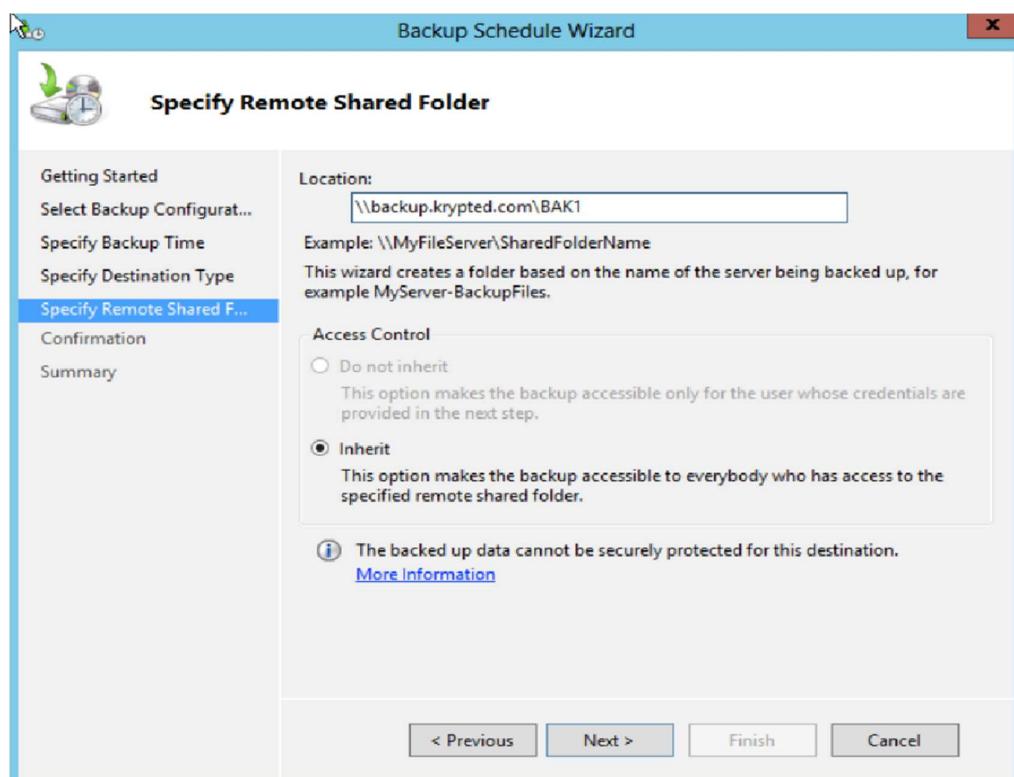
At the Specify Backup Time screen, choose the appropriate times of the day to back the server up and click on the Next button.



At the Specify Destination Type screen, choose where you'd like to back your data up to and then click on the Next button. As mentioned, we're going to back data up to a network share.



At the Specify Remote Shared Folder screen, provide a path to the network path that you'd like to back your files up to.



The backups should then be tested and validated before putting a system into long-term production. The command line tool used to manage backups is wbadmin. The wbadmin has the following verbs available to it:

- enable backup – modifies existing backups or makes new schedules
- disable backup – disables a backup schedule
- start backup – starts a one-time backup job
- stop job – stops running recovery or backup jobs that are currently in progress
- get versions – shows the details of backups for recovery
- get items – lists the contents of a backup
- start recovery – runs a recovery job
- get disks – shows online disks
- get virtual machines – shows Hyper-V VMs
- start system staterecovery – recovers the system state backup from a valid system state backup
- start system state backup – makes a system state backup
- delete system state backup – deletes a system state backup
- delete backup – deletes a backup
- delete catalog – used if a catalog gets corrupt usually, to delete a catalog of backups
- restore catalog – only use this option to attempt to fix corrupted catalogs, restores a catalog

**Questions: -what is print server? Write functions and benefits of print server?**

**What is backup server? Write advantage of it.**

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**Sign of Faculty:** \_\_\_\_\_

## **Practical-16**

### **AIM: Identify segment network faults and troubleshooting**

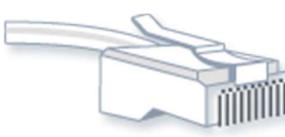
- To troubleshoot a network connection problem, try these steps first:

  1. Open Network Diagnostics by right-clicking the network icon in the notification area, and then clicking Diagnose and repair.
  2. Make sure that all cables are properly connected.
  3. If you're trying to connect to another computer, make sure that computer is on and that you have enabled file and printer sharing on your network. For more information, see networking home computers running different versions of Windows.
  4. If the problem began after you installed new software, check your connection settings to see if they have been changed.

#### **To check connection settings**

- If these steps don't solve the problem, look for a specific problem in the following table.

<b>Problems</b>	<b>Possible Solution</b>
Can't connect to other computers or share files and printers on a home network	<p>Make sure network discovery is turned on.</p> <ul style="list-style-type: none"> <li>• <b>To turn on network discovery</b></li> </ul> <p>Make sure you have shared the files or printers.</p> <ul style="list-style-type: none"> <li>• <b>To share files and printers</b></li> </ul> <p>If password protected sharing is enabled, you have two options.</p> <ul style="list-style-type: none"> <li>• <b>More information</b> <ol style="list-style-type: none"> <li>1. Make sure the computer that you want to connect to has at least one shared folder.</li> <li>2. Make sure all computers are in the same workgroup. See Join or create a workgroup.</li> <li>3. In addition to enabling file sharing, make sure you set sharing properties on the folder or printer you want to share.</li> <li>4. Go to the website of your router manufacturer to download and install the latest firmware for your router.</li> </ol> </li> </ul>

Can't connect to a home network (wireless connection)	<ol style="list-style-type: none"><li>1. Make sure the router and modem are turned on. If you're using a laptop, make sure the wireless switch on the front, side, or back edge of the laptop is turned on.</li><li>2. If Windows doesn't detect a network that you think is in range of your computer, open Help and Support and search for "Troubleshoot problems finding wireless networks."</li><li>3. Make sure the network adapter is working correctly. <b>To verify that a network adapter is working correctly</b></li></ol>
Can't connect to a home network (wired connection)	<ol style="list-style-type: none"><li>1. Make sure the router and modem are turned on.</li><li>2. Make sure that the Ethernet cable is inserted into the network adapter in your computer.</li></ol>  <ol style="list-style-type: none"><li>3. Make sure the Ethernet cable is not defective. Test this by using a different cable that you know works properly.</li><li>4. Make sure the Ethernet cable is connected to the correct port on the router.</li></ol> <b>More information</b> <ol style="list-style-type: none"><li>1. There might be problems with your network adapter. Check your local area network (LAN) connection.</li></ol> <b>To check your LAN connection</b> <ol style="list-style-type: none"><li>2. Make sure the network adapter is working correctly.</li></ol> <b>To verify that a network adapter is working correctly</b> <ol style="list-style-type: none"><li>3. Download and install the latest version of the network adapter driver from the manufacturer's website.</li></ol>
Can't remember network key	If you've forgotten your network key, and there is no one else who knows it, you'll need to set up your wireless router again.

Network connection is intermittent (periodically disconnects)	Turn off the power-saving option in the network adapter's properties.
Network connection is too slow	<ol style="list-style-type: none"> <li>1. Go to the manufacturer's website to check for more recent drivers for your network adapter.</li> <li>2. Make sure you have the latest Windows Vista service packs installed.</li> <li>3. Try turning off auto tuning.</li> </ol> <p><a href="#"><u>To turn off auto tuning</u></a></p> <ol style="list-style-type: none"> <li>1. Make sure the capacities of the router and the network adapter are compatible.</li> </ol>
Can't connect to a workplace network from home (or another location) using a VPN connection	<ol style="list-style-type: none"> <li>1. Make sure you typed the virtual private network (VPN) server name exactly as provided by your network administrator.</li> <li>2. Make sure you have an active Internet connection.</li> <li>3. If your modem is external, make sure that the modem power is turned on.</li> <li>4. Check your encryption settings.</li> </ol>
Can't set up an incoming connection	<a href="#"><u>To set up an incoming connection</u></a>
Can't share the root of a drive	<a href="#"><u>To share the root of a drive</u></a>
There's a duplicate IP address on the network	If you're receiving messages about a duplicate IP address on the network, see <a href="#"><u>Resolving Duplicate IP Address Conflicts on a DHCP Network</u></a> .

**Questions: -What is troubleshooting? Give solutions of basic problems occurring in network.**

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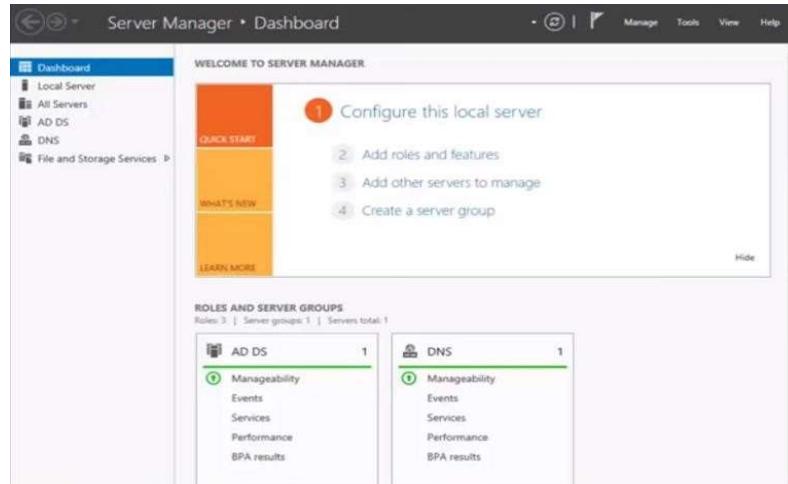
## Practical-17

### **AIM: Manage Microsoft Windows Internet Security Services (WINS).**

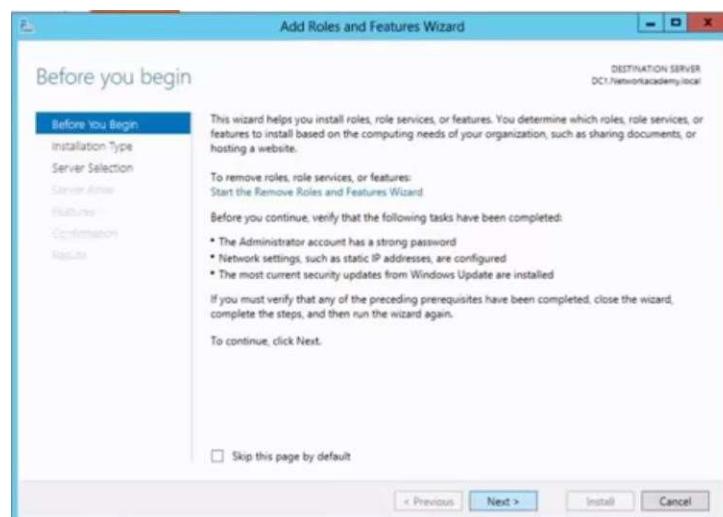
#### **Installing WINS:**

Installation of WINS on Windows Server 2012 is straightforward, and no reboot is necessary. To install and configure the WINS feature on a Windows Server 2012 computer, follow these steps:

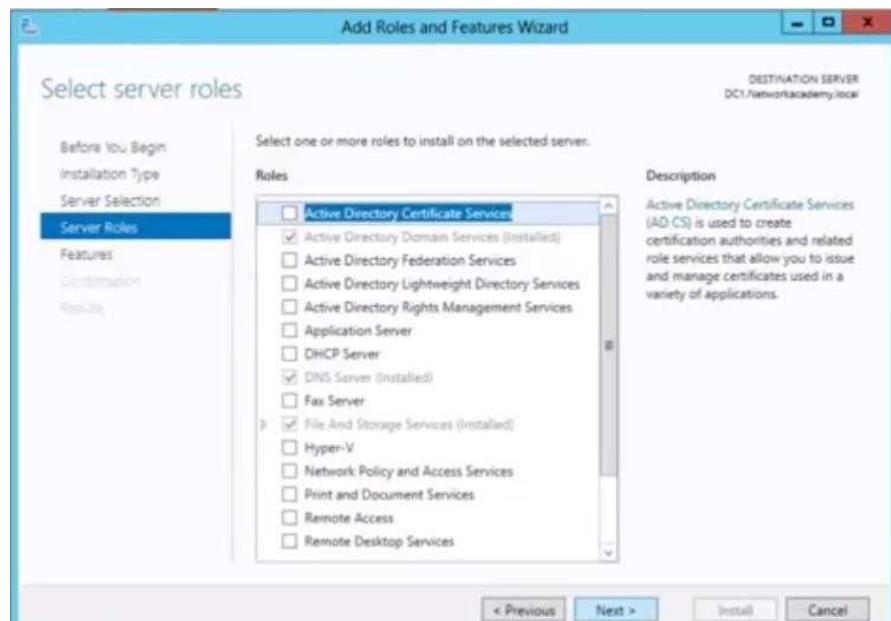
1. Launch Server Manager from a Windows 2012 server with a full GUI.
2. Select the Dashboard section and click the Add Roles and Features link.



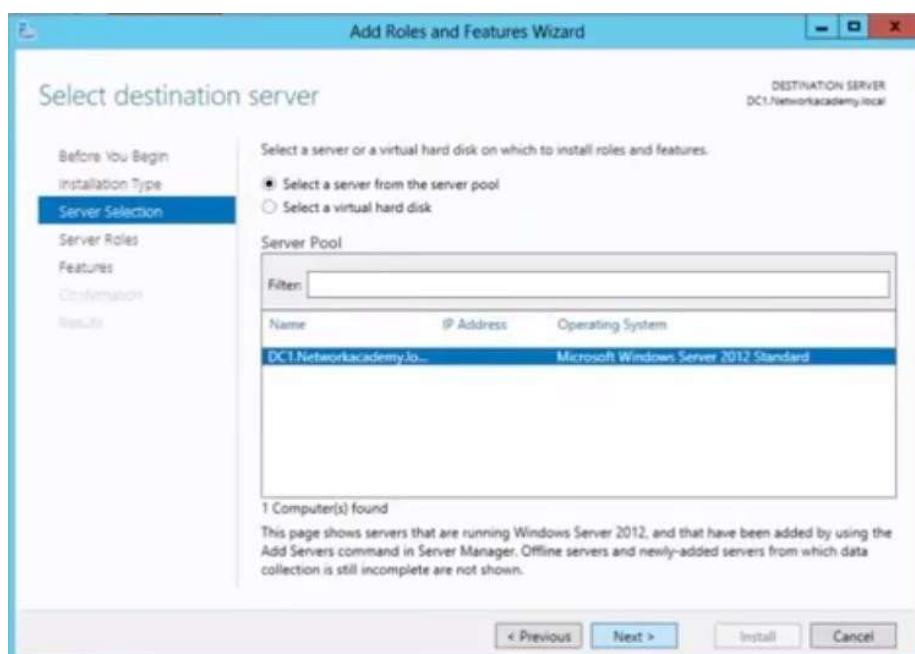
3. Click Next on the Before You Begin page.



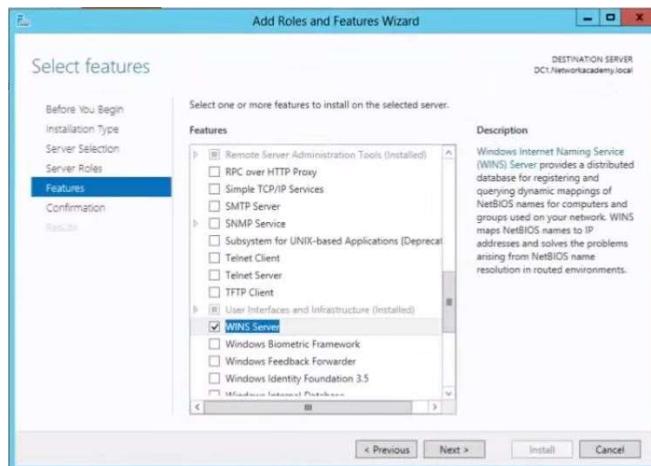
4. Leave the default selection Role-Based or Feature-Based Installation and click Next.



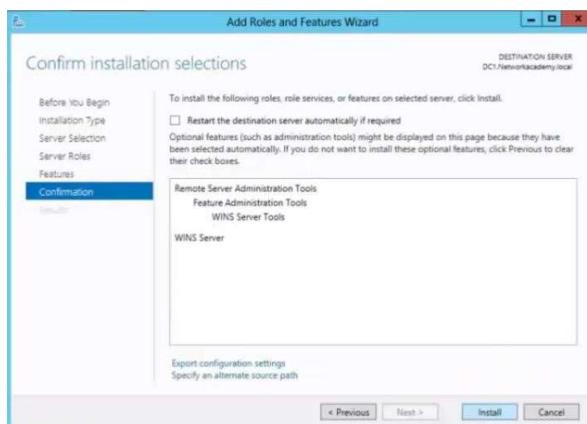
5. Select the server from the server pool to add the DNS role to and click Next.



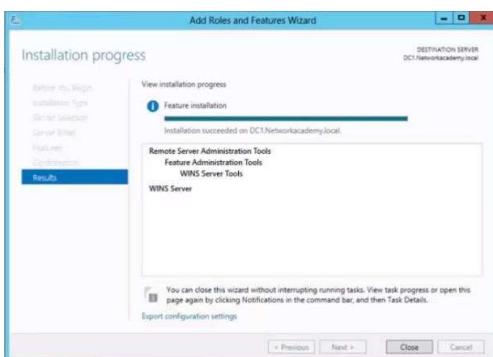
6. Select the WINS Server Feature check box, click Add Features button, and then click Next.

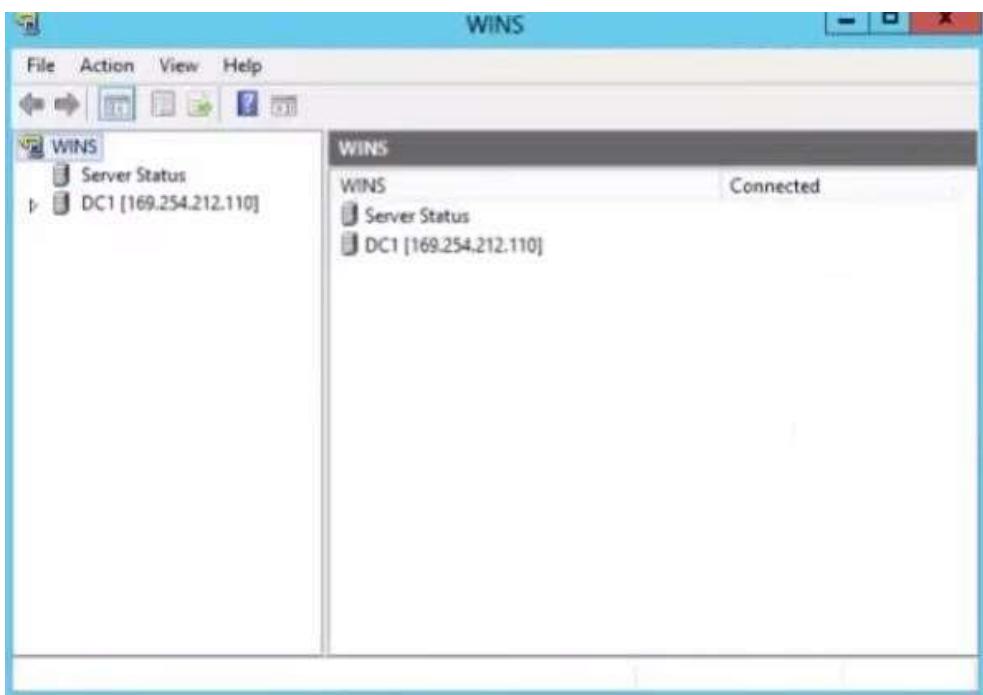
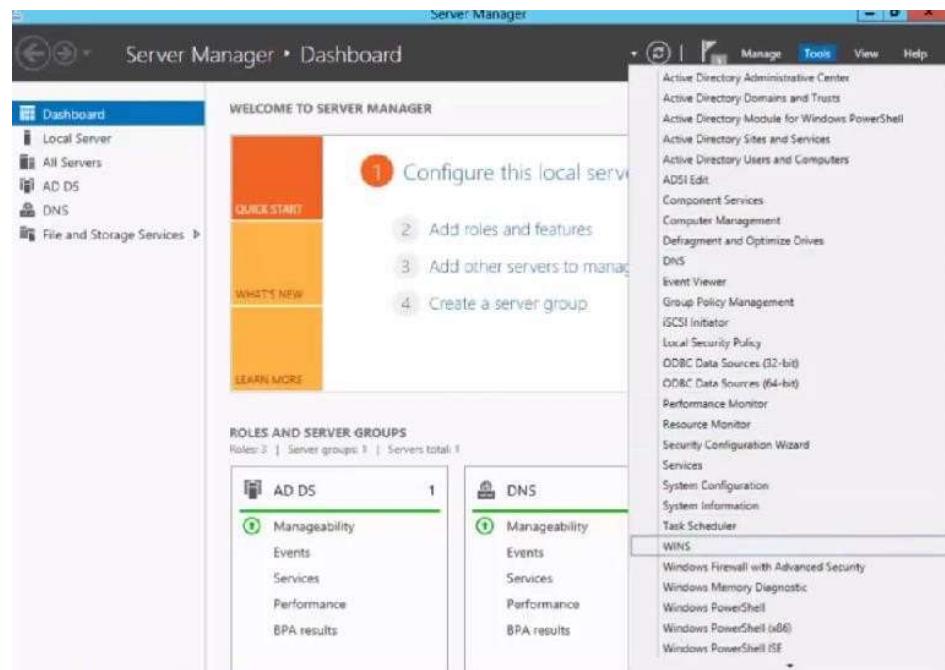


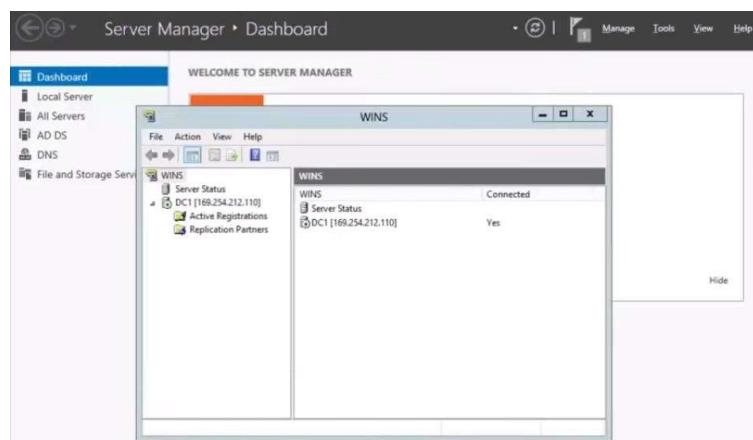
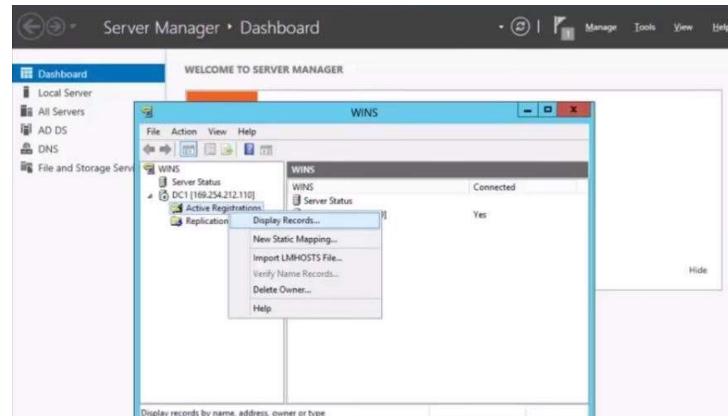
7. Click Install on the Confirmation page to install the WINS feature.



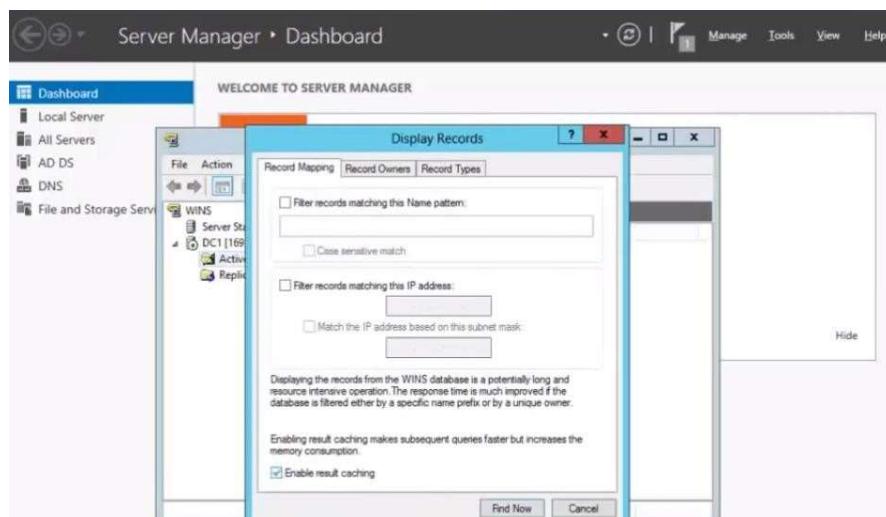
8. Click Close to exit the Add Roles and Features Wizard.



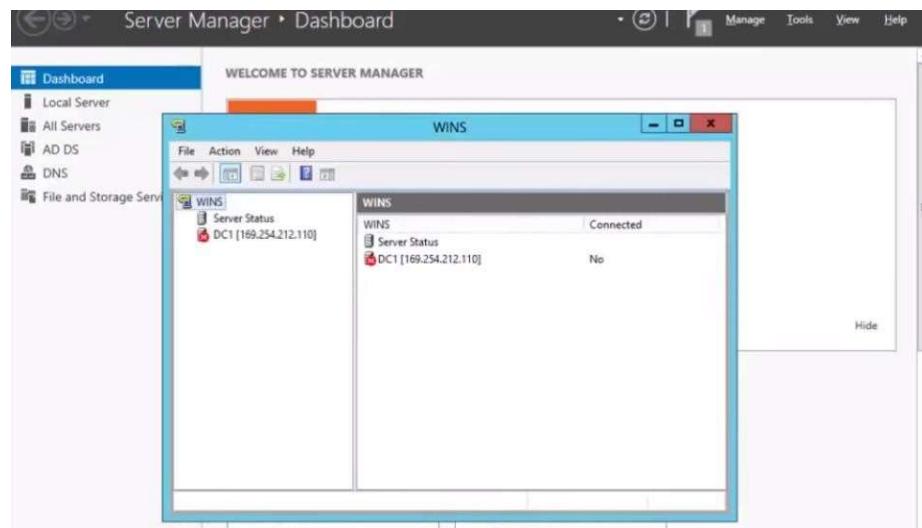
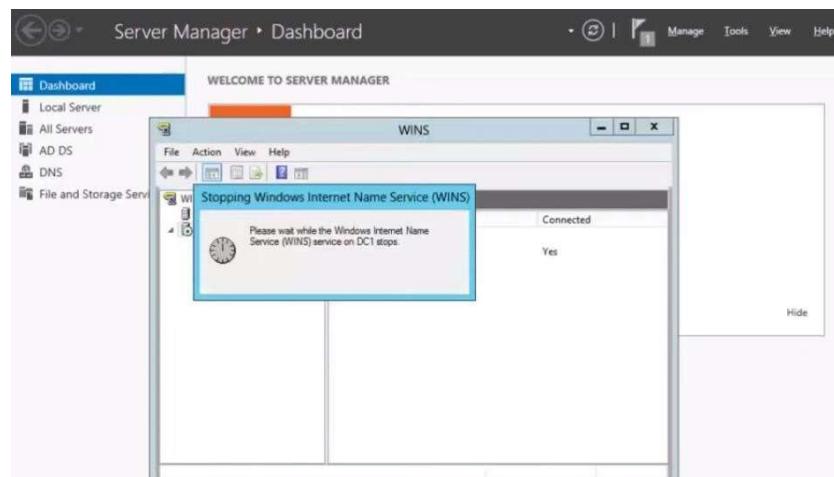
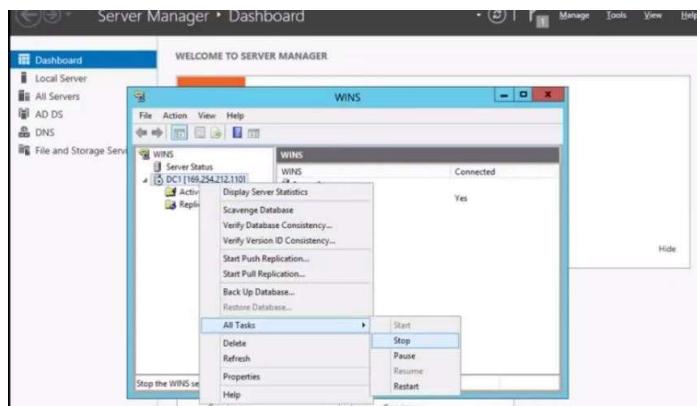


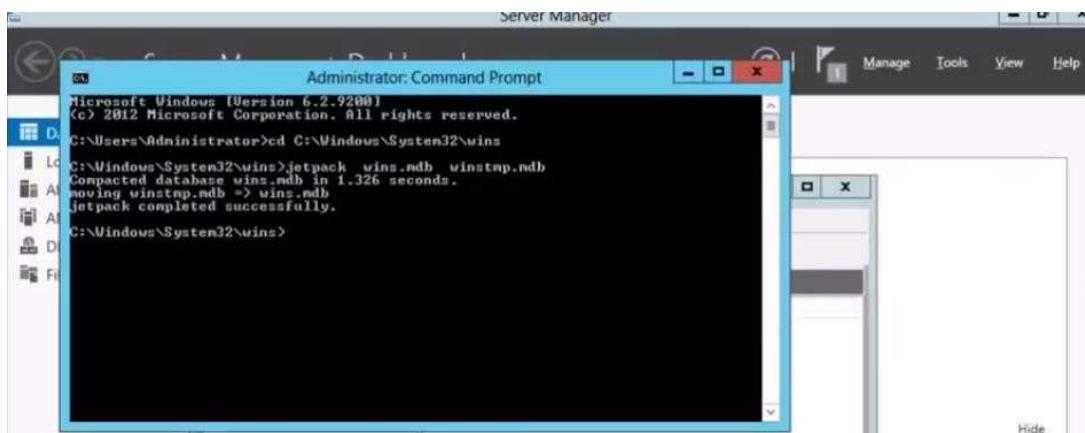
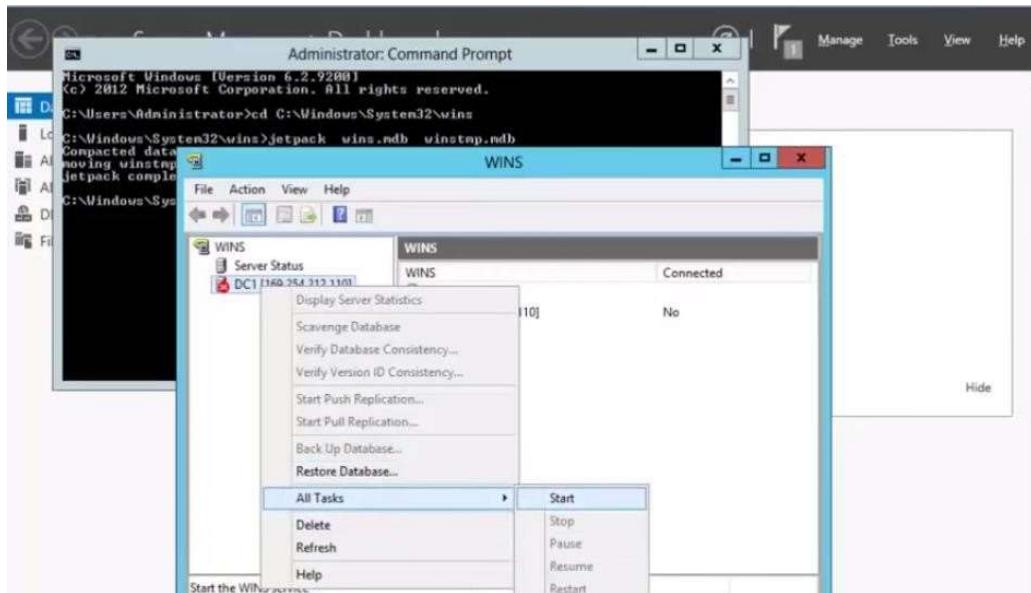


Select enable result caching



To stop WINS





### Scanning active records

Record Name	Type	IP Address	State	Static	Owner	Version	Expiration
DC1	[20h] File Server	192.168.1.4	Active	169.254.212.110	207		7.3.2013 00:01:28

**Questions: -what is WINS? write steps for managing WINS.**

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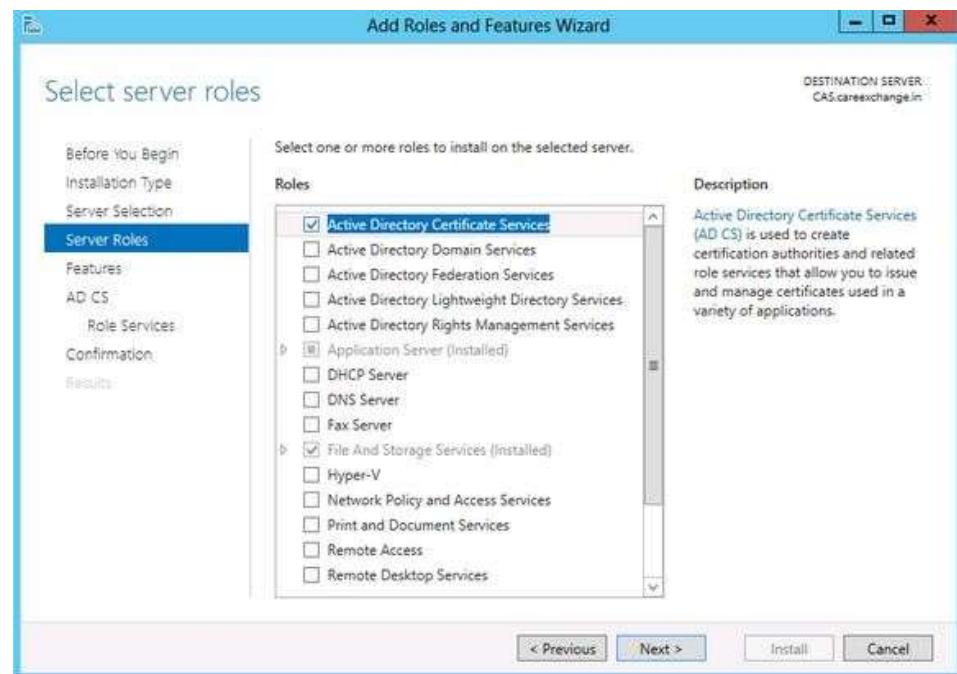
# Practical-18

## AIM: Manage Microsoft Certificate Services.

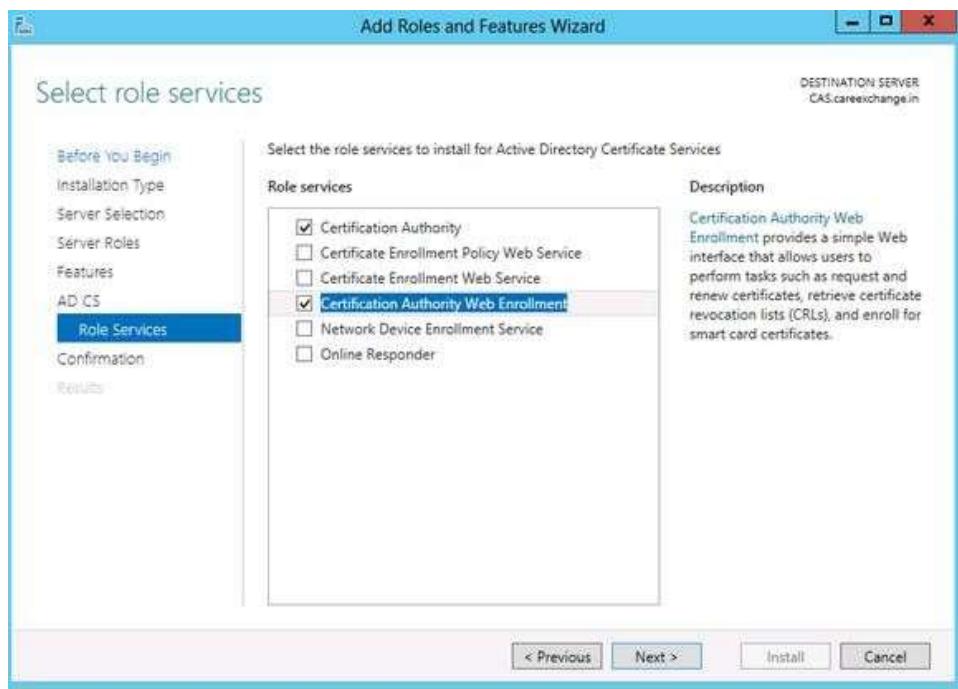
Step 1: Open Server Manager > Manage > Add Roles and Features



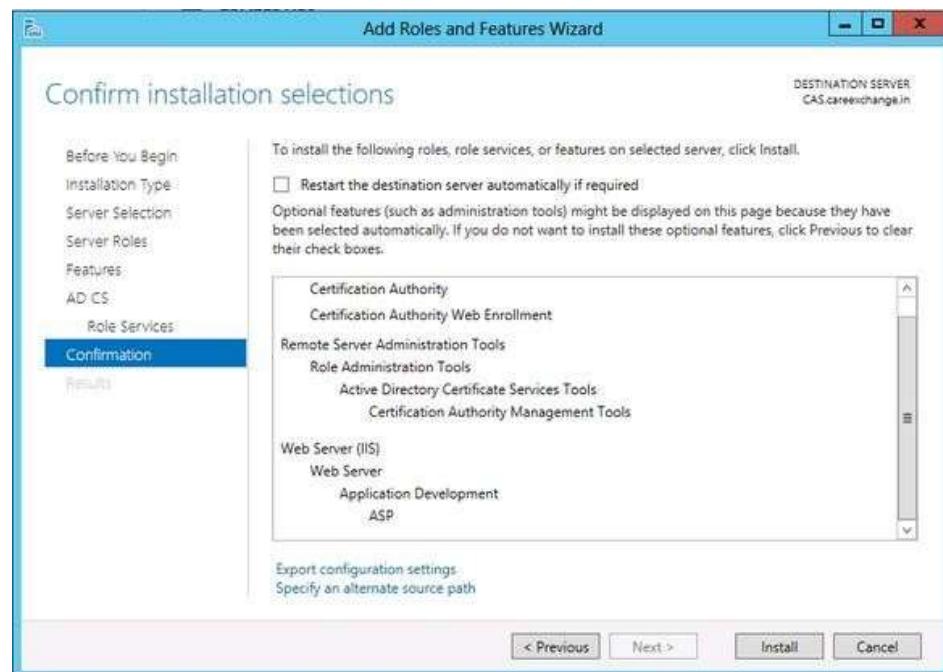
Step 2: Choose Active Directory Certificate Services and click Next.



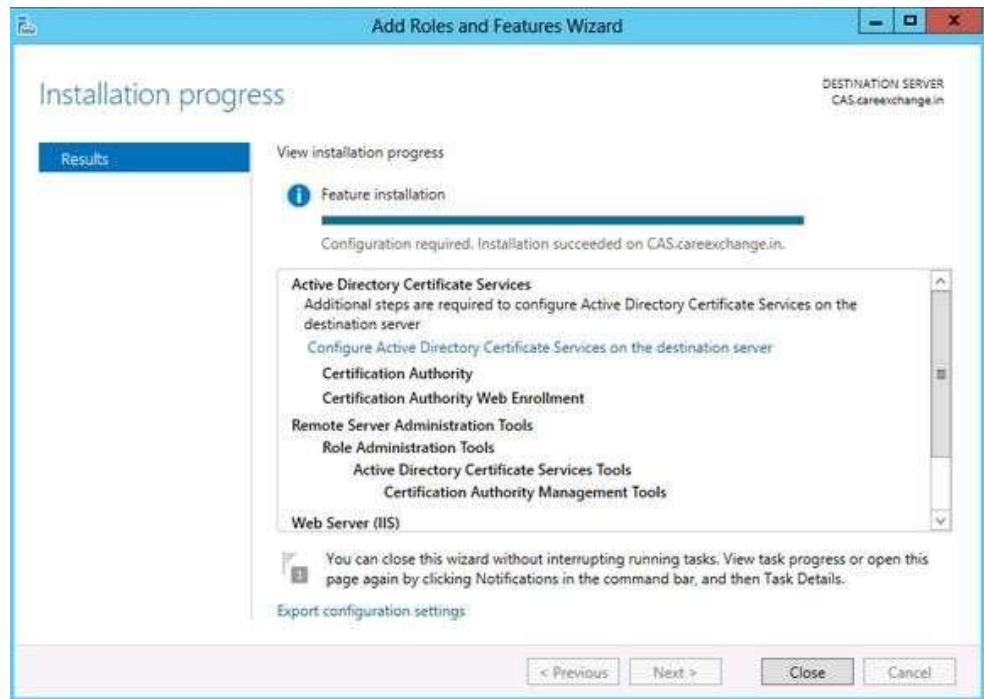
Choose **Certification Authority & Certification Authority Web Enrollment** and click **Next**



Click **Install**



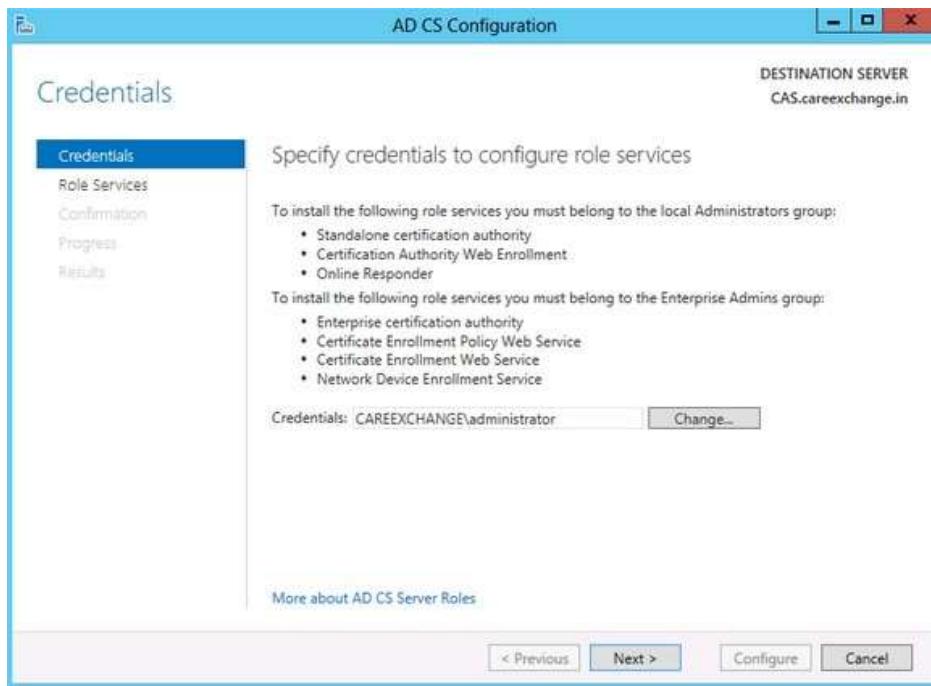
When Installation finished, click **Close**



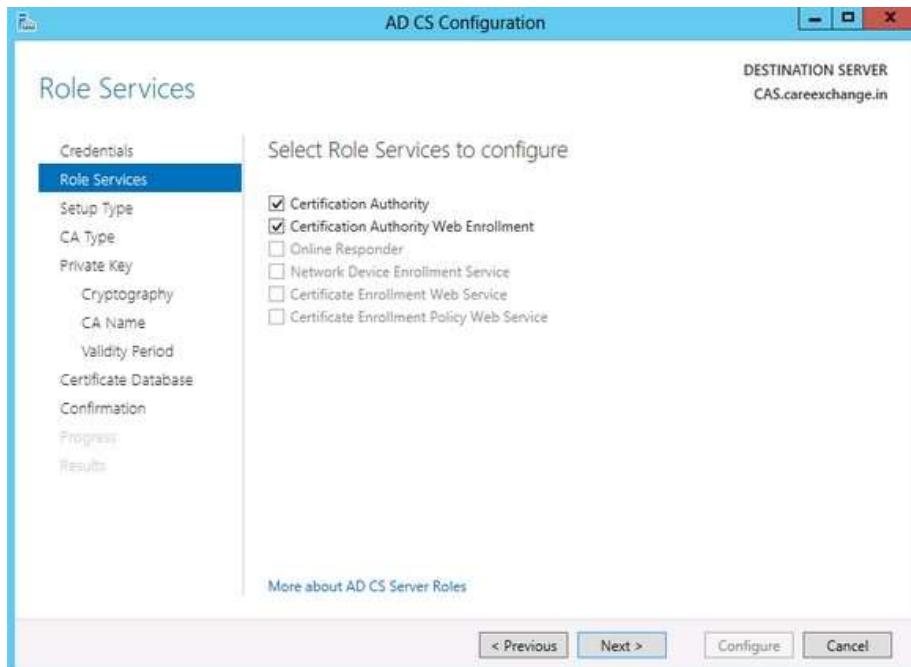
**Step 3:** To Configure Active Directory Certificate Services. Choose the Exclamation Mark on the Flag and select Configuration option.



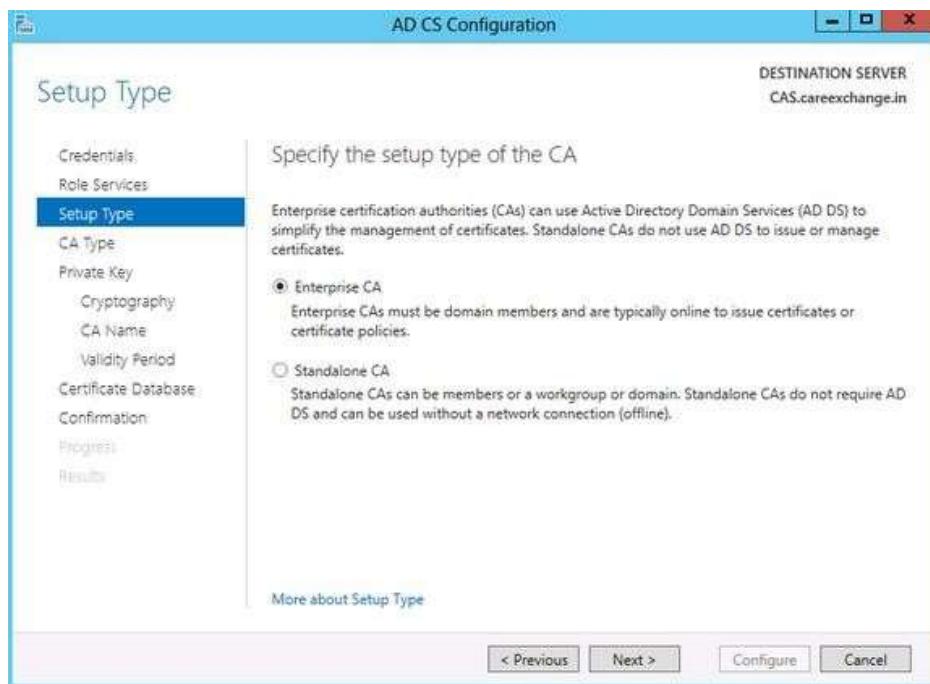
**Click Next**



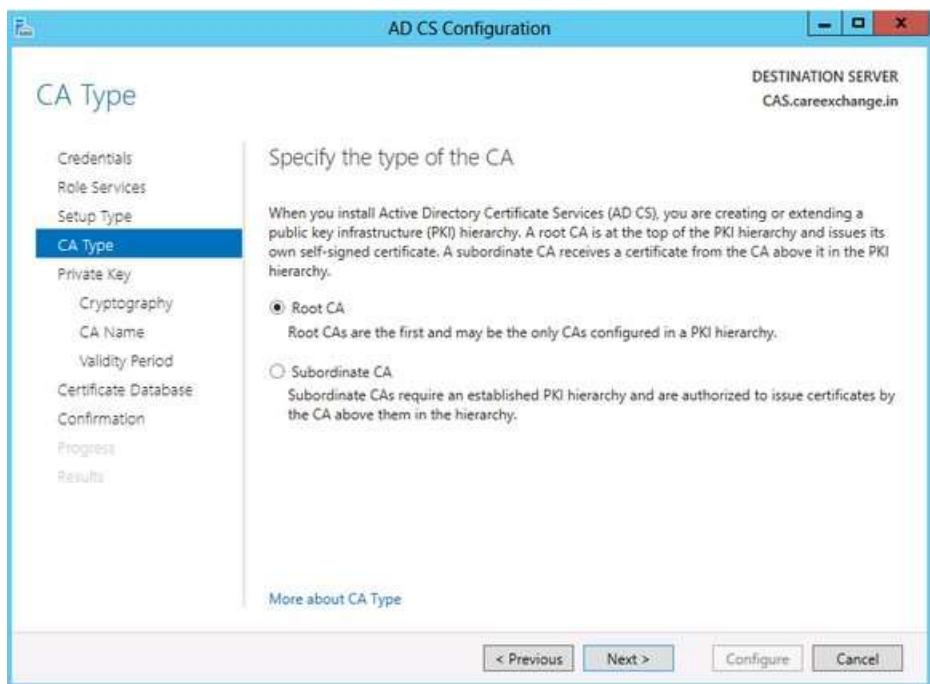
Choose Certificate Authority & Certification Authority Web Enrollment and click **Next**.

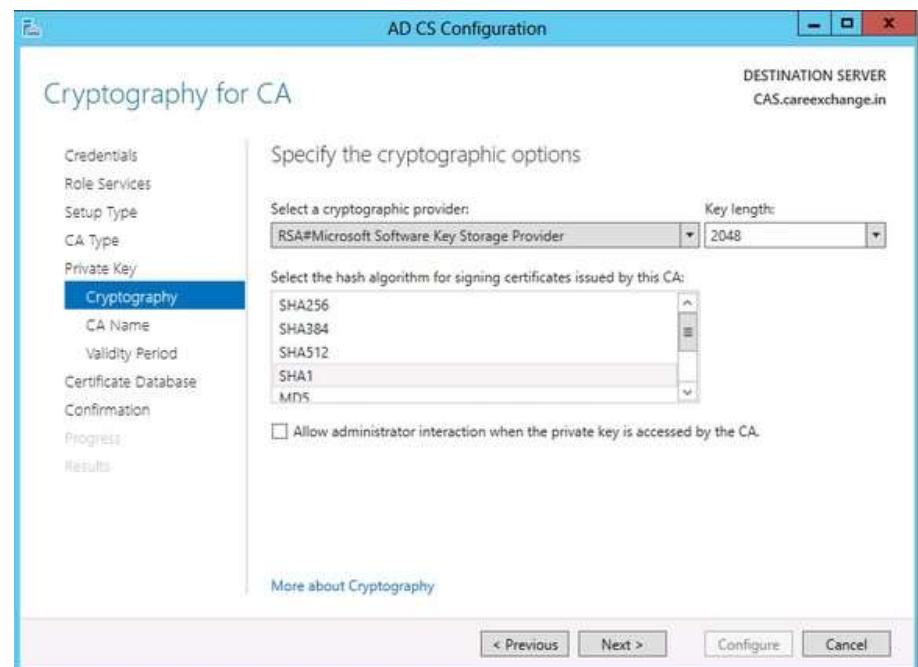


## Choose Enterprise CA

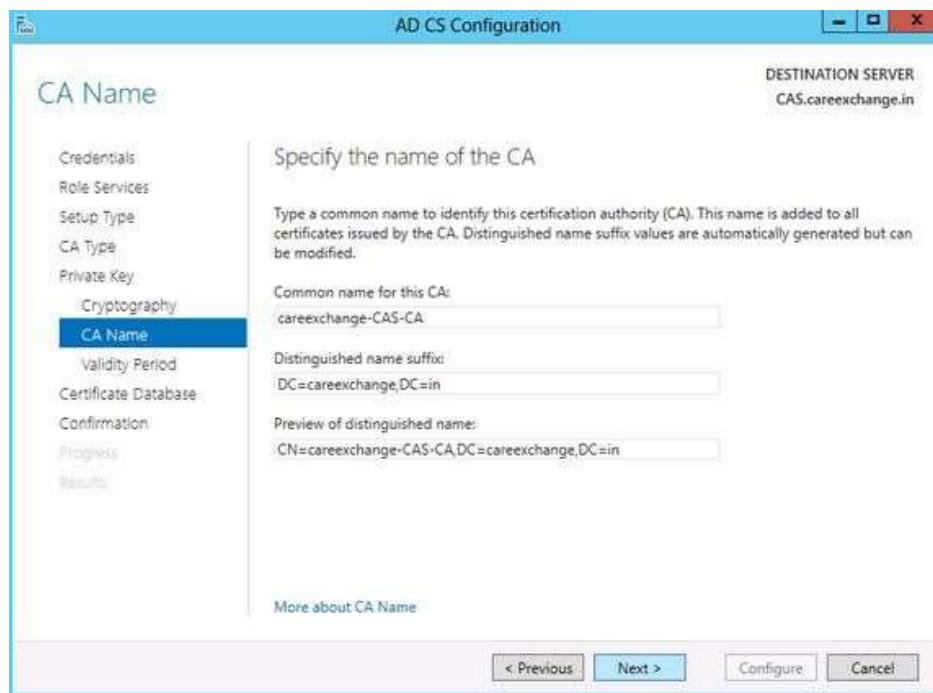


## Step 4: Choose Root CA

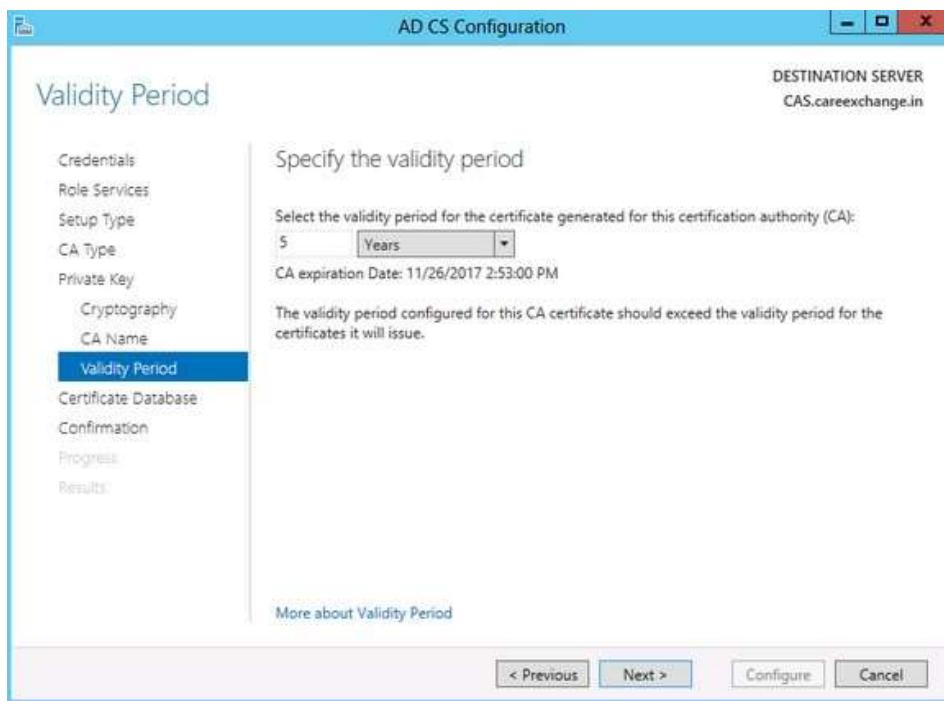


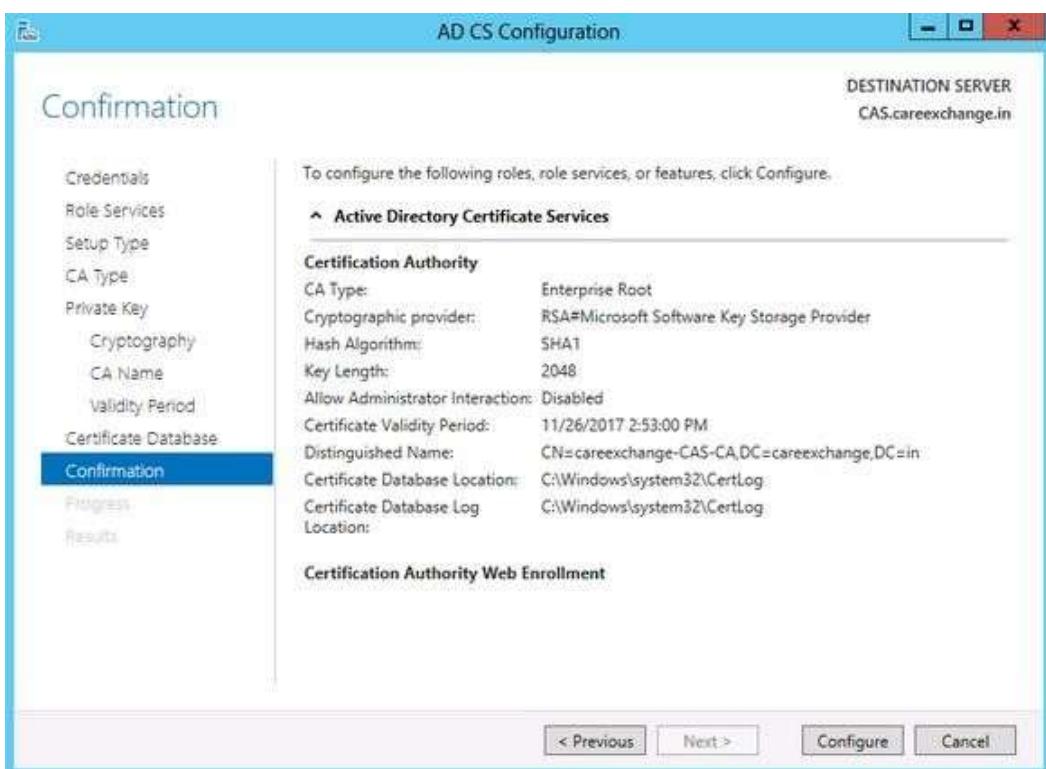
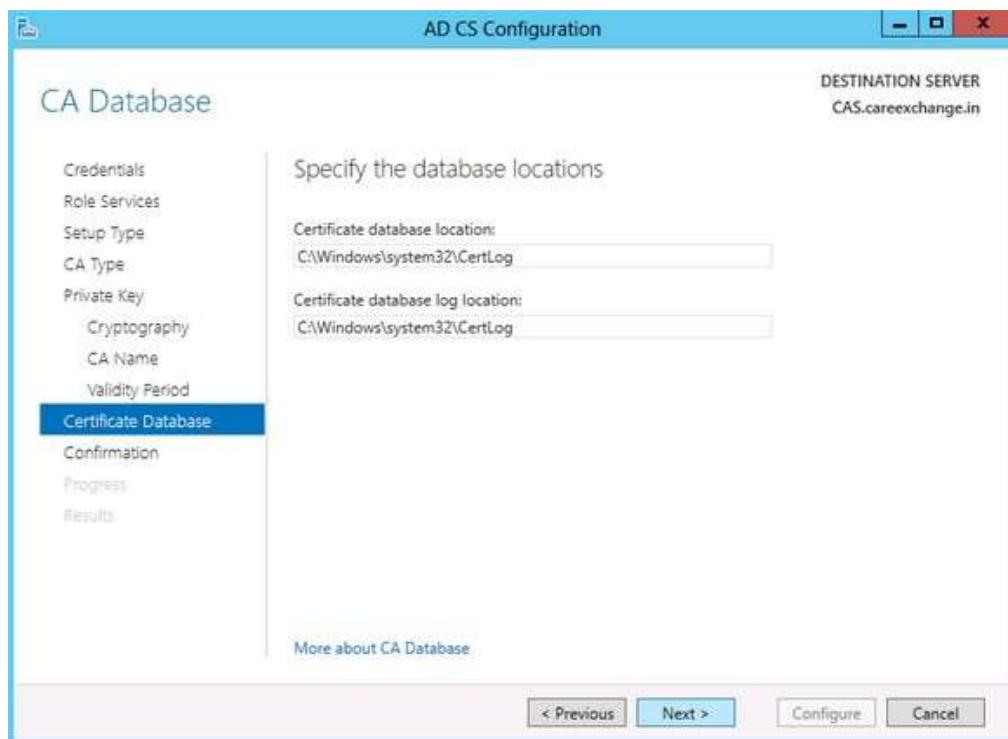
**Step 5:** Choose to create a new private key and click Next**Step 6:** Have this Default with 2048 key Character length

**Step 7:** Fill this field and click **Next**

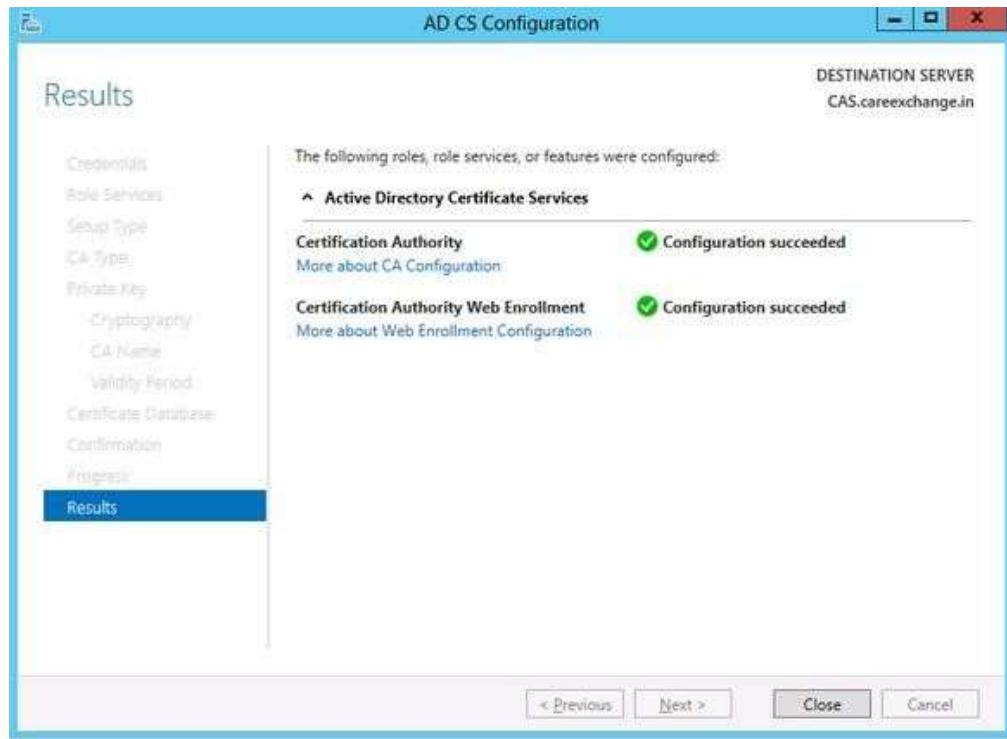


**Step 8:** By Default, Certificate is valid for 5 years, don't make any changes on it, click **Next**.



**Step 9:** Validate location and click **Next**

Click **Configure**



Installing and Configuring is Done.

**Questions: -what is Microsoft Certificate Service?**

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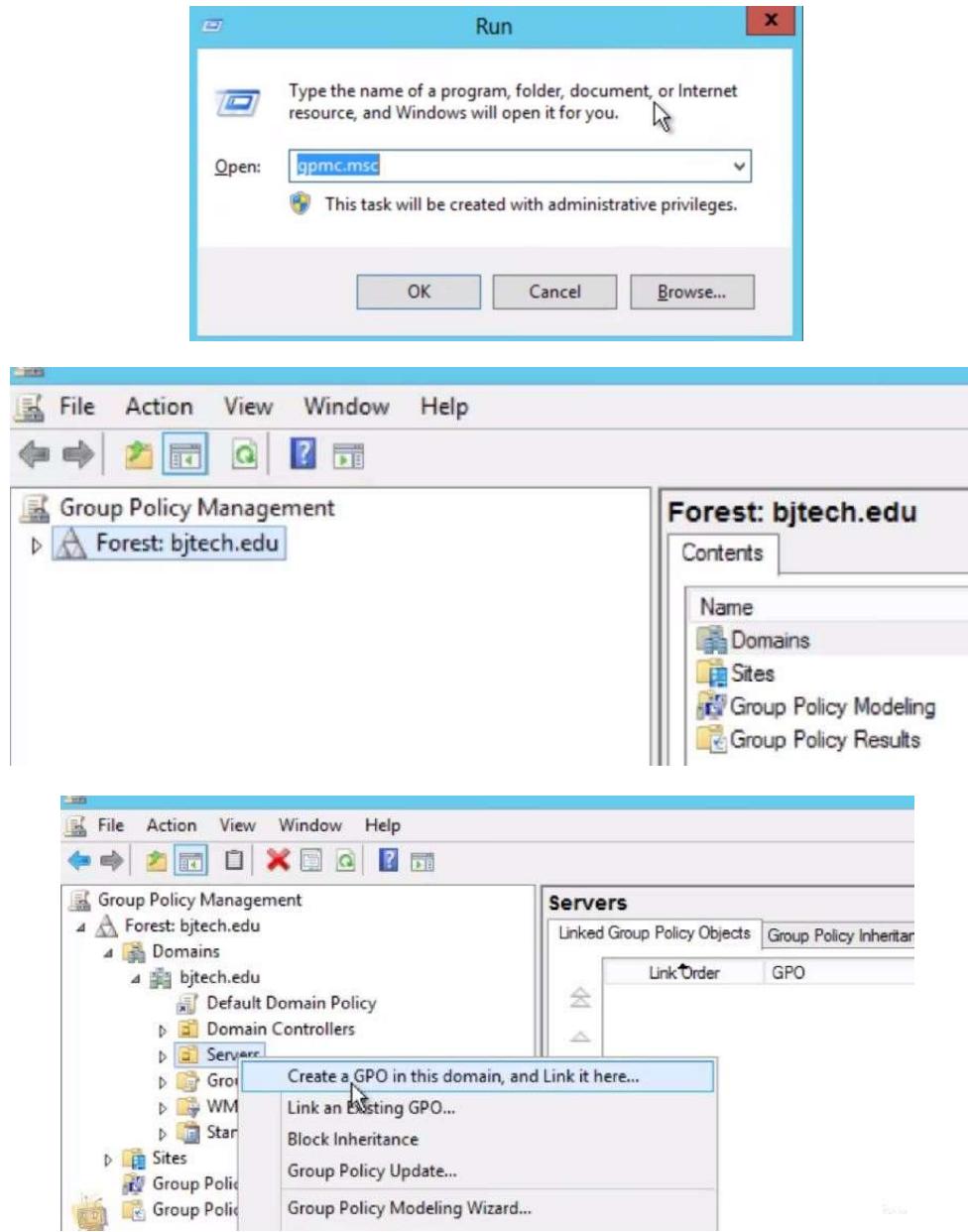
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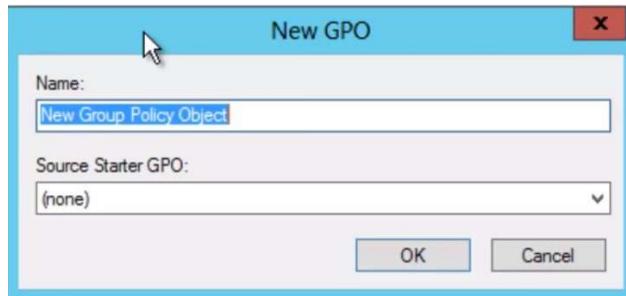
**Sign of Faculty:** \_\_\_\_\_

## Practical-19

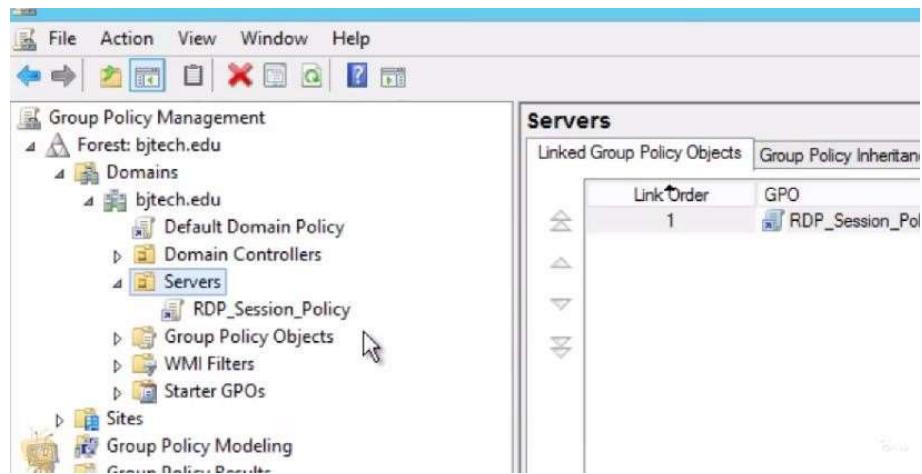
### AIM: Manage Desktop Configuration using Group Policy and Remote Installation Services.

To manage desktop configuration using group policy, perform the following steps.

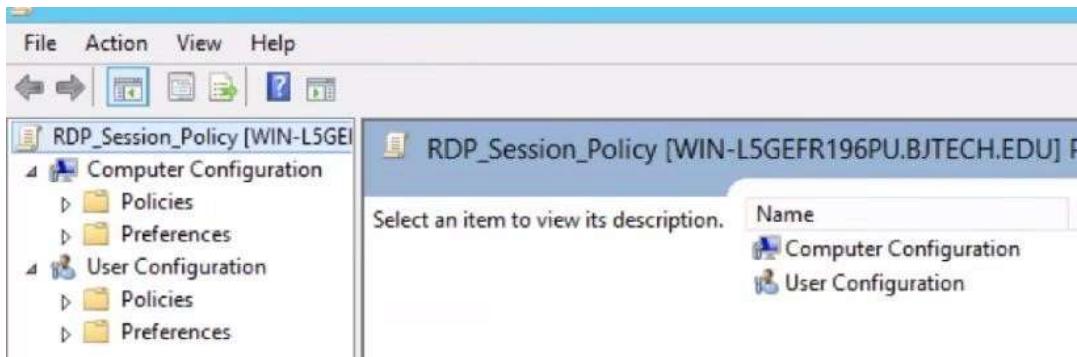


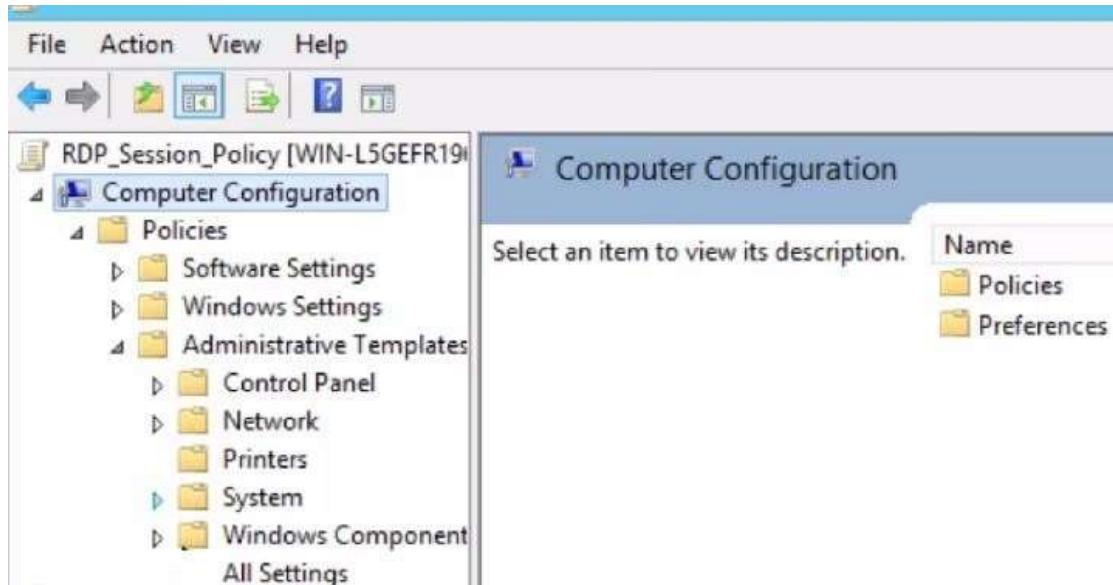


Let us suppose that new GPO is named as **RDP\_session\_Policy**

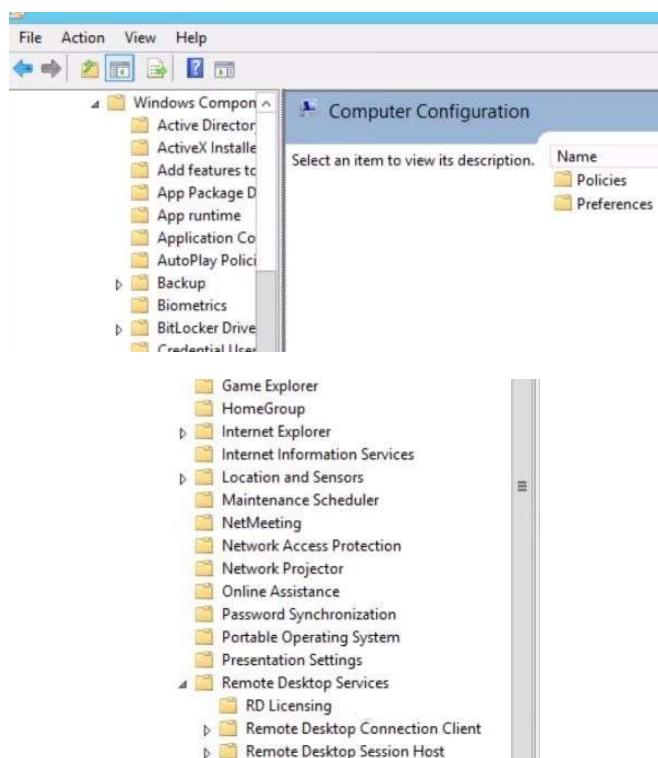


Click on **RDP\_session\_Policy**





### Select Windows Components



**Presentation Settings**

- 4 **Remote Desktop Services**
  - ▷ **RD Licensing**
  - ▷ **Remote Desktop Connection Client**
  - 4 **Remote Desktop Session Host**
    - ▷ **Application Compatibility**
    - ▷ **Connections**
    - ▷ **Device and Resource Redirection**
    - ▷ **Licensing**
    - ▷ **Printer Redirection**
    - ▷ **Profiles**
    - ▷ **RD Connection Broker**
    - ▷ **Remote Session Environment**
    - ▷ **Security**
    - ▷ **Session Time Limits**

**Connections**

Select an item to view its description.

Setting	State
<input type="checkbox"/> Automatic reconnection	Not configured
<input type="checkbox"/> Allow users to connect remotely by using Remote Desktop S...	Not configured
<input type="checkbox"/> Deny logoff of an administrator logged in to the console ses...	Not configured
<input type="checkbox"/> Configure keep-alive connection interval	Not configured
<input type="checkbox"/> Limit number of connections	Not configured
<input type="checkbox"/> Suspend user sign-in to complete app registration	Not configured
<input type="checkbox"/> Set rules for remote control of Remote Desktop Services use...	Not configured
<input type="checkbox"/> Select network detection on the server	Not configured
<input type="checkbox"/> Select RDP transport protocols	Not configured
<input type="checkbox"/> Restrict Remote Desktop Services users to a single Remote D...	Not configured
<input type="checkbox"/> Allow remote start of unlisted programs	Not configured
<input type="checkbox"/> Turn off Fair Share CPU Scheduling	Not configured

**Connections**

**Restrict Remote Desktop Services users to a single Remote Desktop Services session**

[Edit policy setting](#)

**Requirements:**  
At least Windows Server 2003

**Description:**  
This policy setting allows you to restrict users to a single Remote Desktop Services session.

If you enable this policy setting, users who log on remotely by using Remote Desktop Services will be restricted to a single session (either active or disconnected) on that

Setting	State
<input type="checkbox"/> Automatic reconnection	Not configured
<input type="checkbox"/> Allow users to connect remotely by using Remote Desktop S...	Not configured
<input type="checkbox"/> Deny logoff of an administrator logged in to the console ses...	Not configured
<input type="checkbox"/> Configure keep-alive connection interval	Not configured
<input type="checkbox"/> Limit number of connections	Not configured
<input type="checkbox"/> Suspend user sign-in to complete app registration	Not configured
<input type="checkbox"/> Set rules for remote control of Remote Desktop Services use...	Not configured
<input type="checkbox"/> Select network detection on the server	Not configured
<input type="checkbox"/> Select RDP transport protocols	Not configured
<input checked="" type="checkbox"/> Restrict Remote Desktop Services users to a single Remote D...	Not configured
<input type="checkbox"/> Allow remote start of unlisted programs	Not configured
<input type="checkbox"/> Turn off Fair Share CPU Scheduling	Not configured

**Restrict Remote Desktop Services users to a single Remote Desktop Services session**

[Previous Setting](#) [Next Setting](#)

Not Configured      Comment:

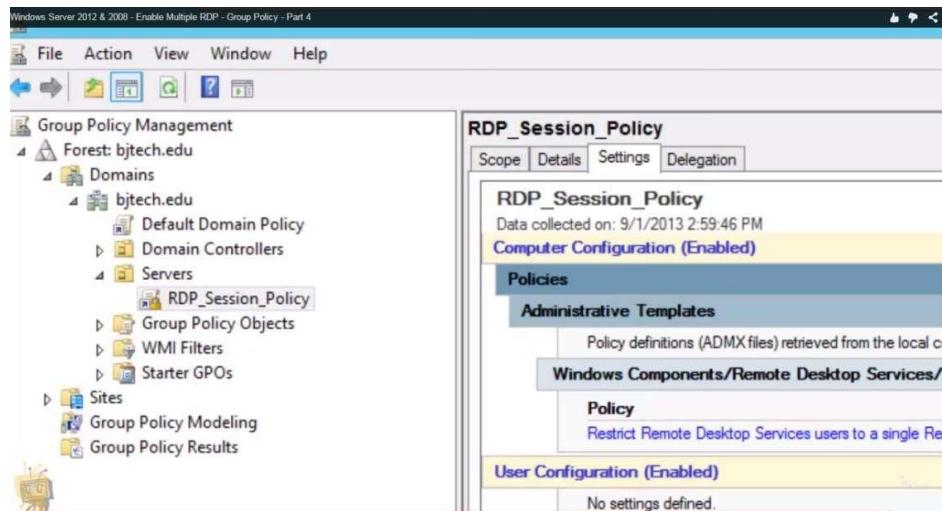
Enabled

Disabled

Supported on: At least Windows Server 2003

Options: Help:

This policy setting allows you to restrict users to a single Remote Desktop Services session.

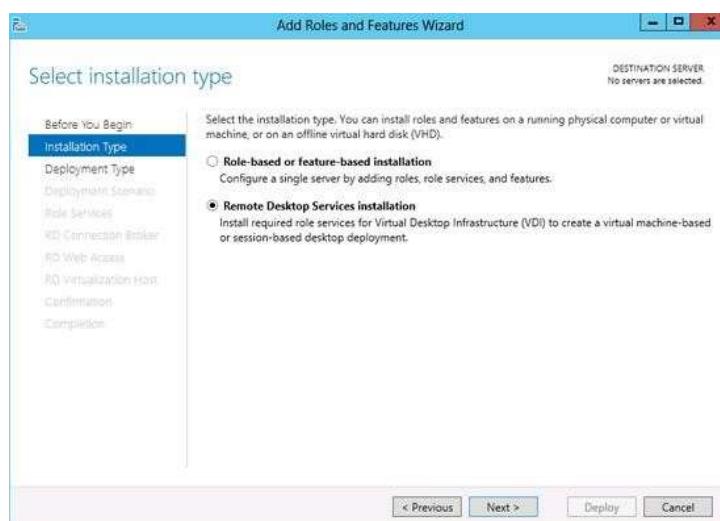


### Install Remote Services

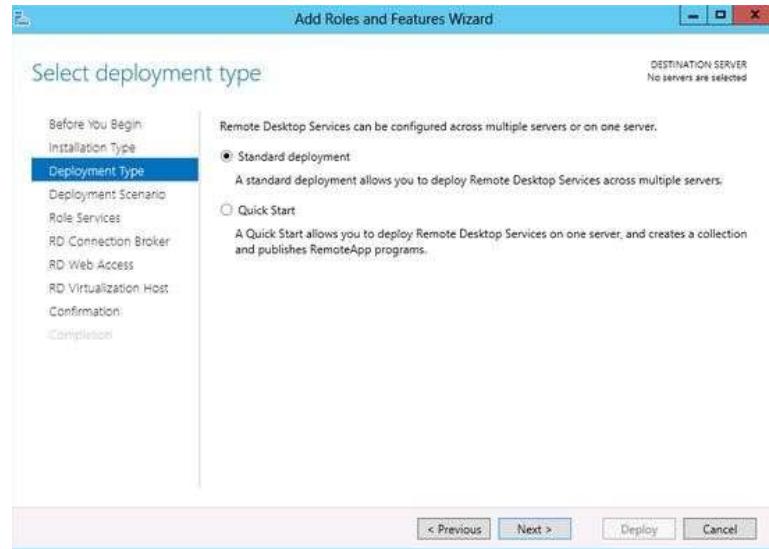
Launch Server Manager so we can install the Remote Desktop Services Role, once launched then select “Manage” from the top right-hand corner and select Add Roles and Features



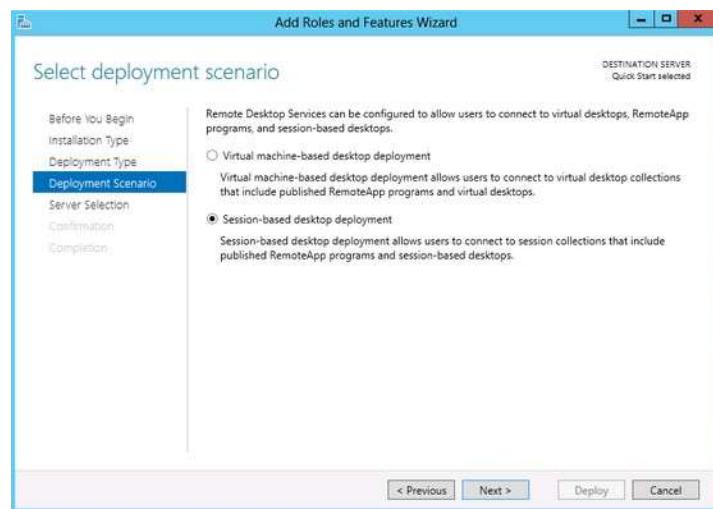
Click **Next** to continue. Select Remote Desktop Services Installation. Then click **Next**.



There is a wizard this called “Quick Start”, select this option to continue.

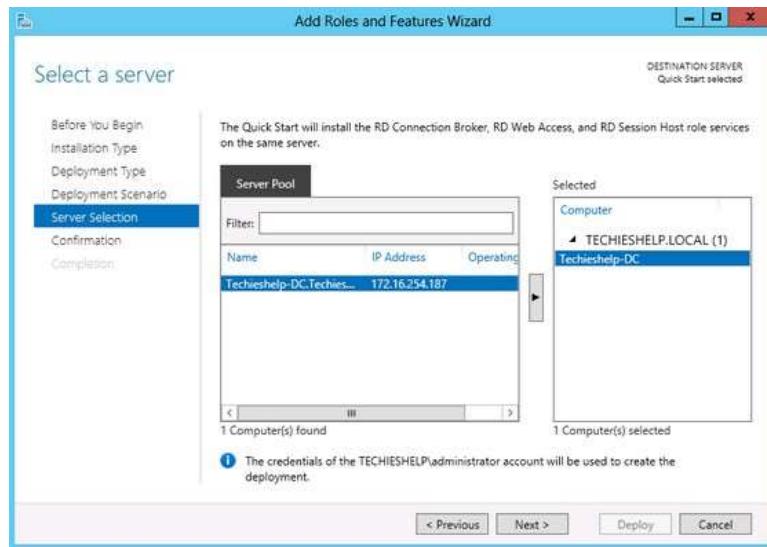


In remote desktop services 2012 you get the option of deploying full virtual desktops with their own applications or traditional session-based desktops that can be published via a webpage or via remote app. Here we are deploying a session-based environment. Select this option and continue.

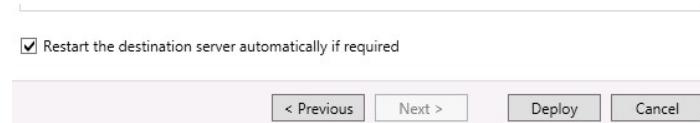


The following screen states that it will install all of the required roles on one server. In a multi-server environment, you create a pool and you can select what role is installed to each server, you can load balance etc if your environment is a large remote desktop environment. In this deployment all the roles are on one server.

Click Next.

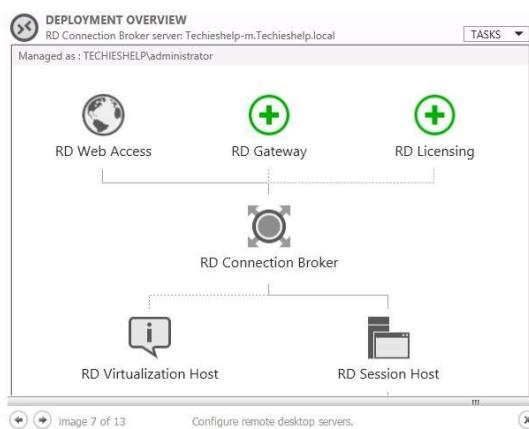


Put a tick in the box to accept the server will reboot, Do so and click deploy.



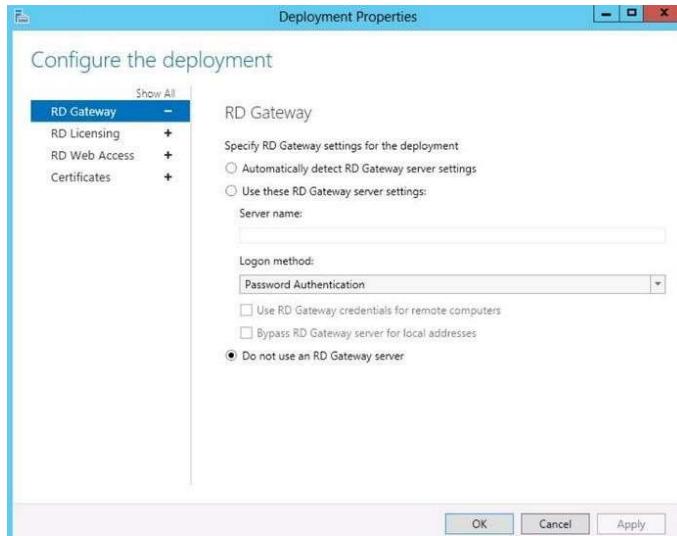
### Configure Remote Desktop Services

You will see in server manager you now have a Remote Desktop Services option. We now have a network diagram.

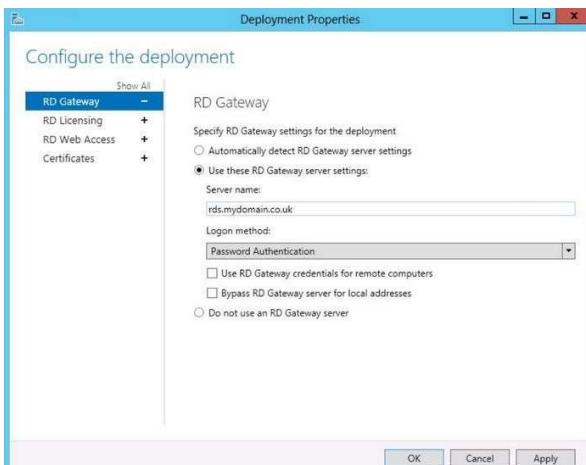


From this screen, you can configure the following Services:

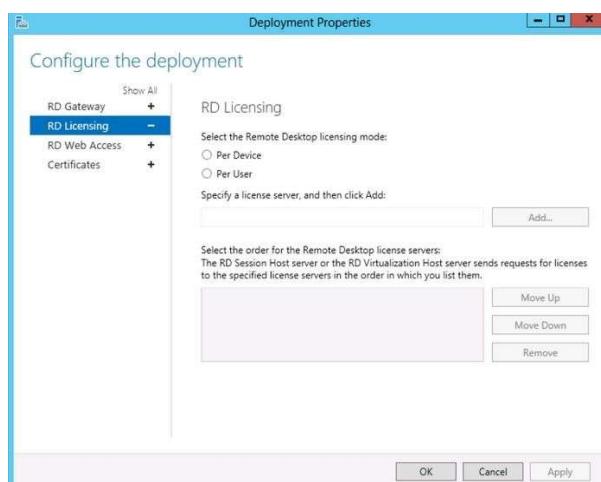
- RD Gateway
- RD Licensing
- RD Web Access
- Certificates



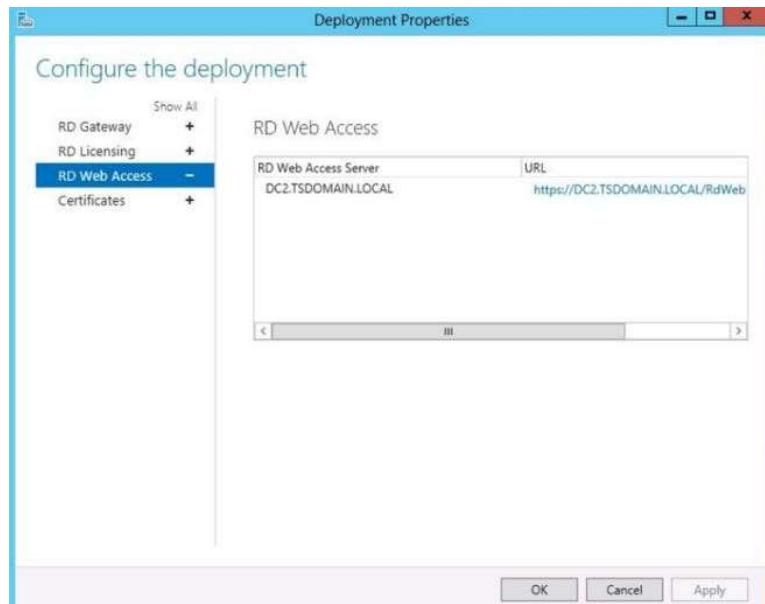
### Gateway Configuration:



### Licensing Configuration:



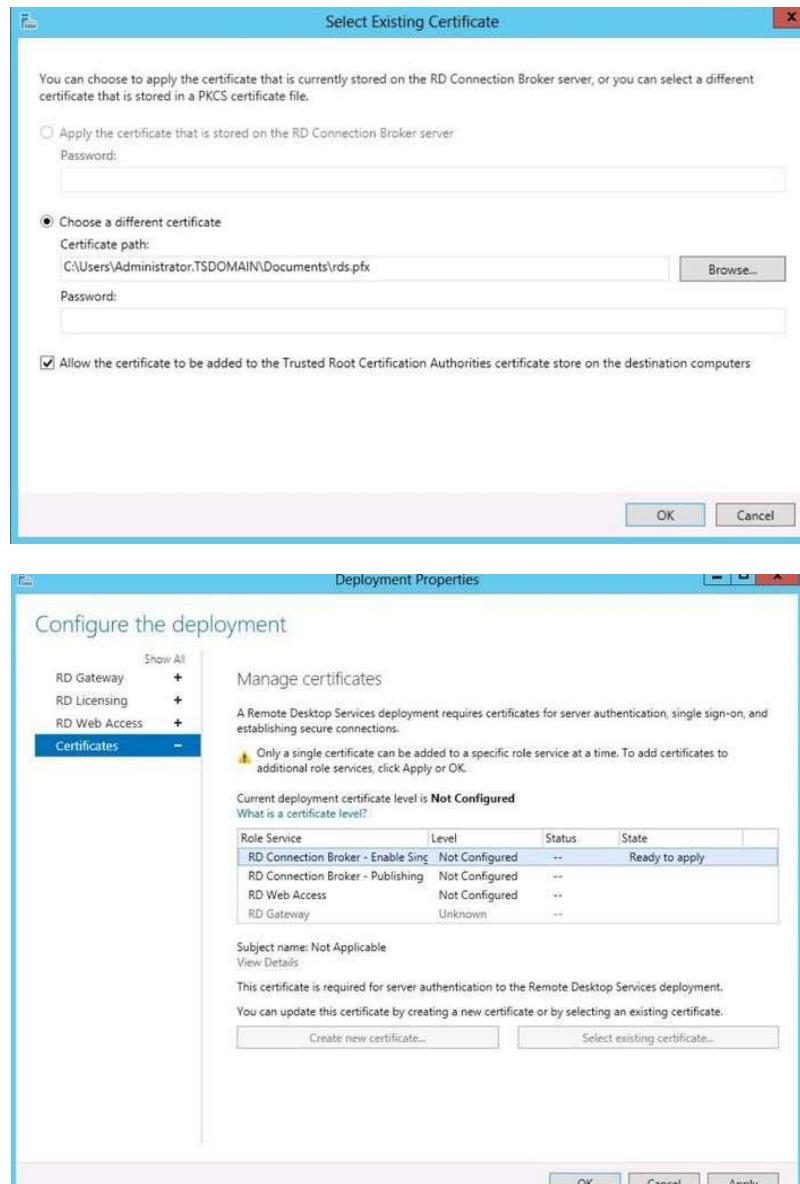
### RD Web Access Configuration:



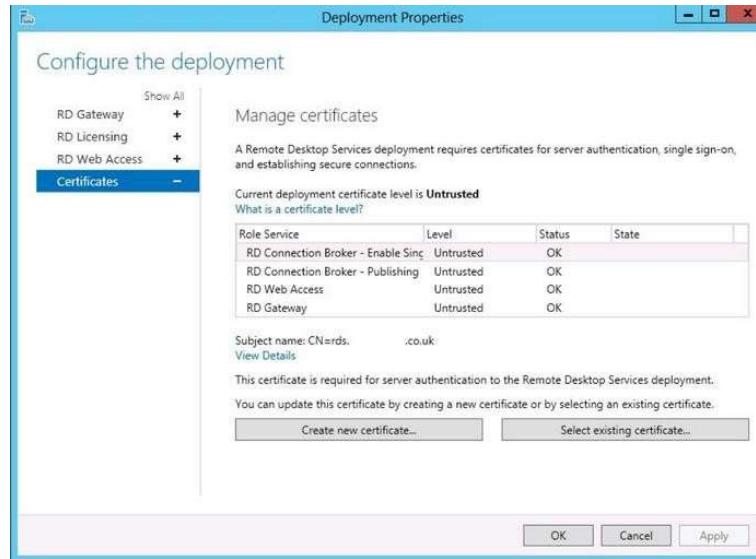
### RD Web Access Portal:



### Set-up Certificates:



Repeat for each of the Roles and Services listed, until they all have the Certificate installed.



Done.!!

**Questions: -Explain Remote Installation Service.**

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