

Windows Server® 2008

NETWORK ADMINISTRATION LABMANUAL

Student Name: _____

Faculty Name: _____

Institute Name: _____

Branch Name: _____

Batch Date : _____

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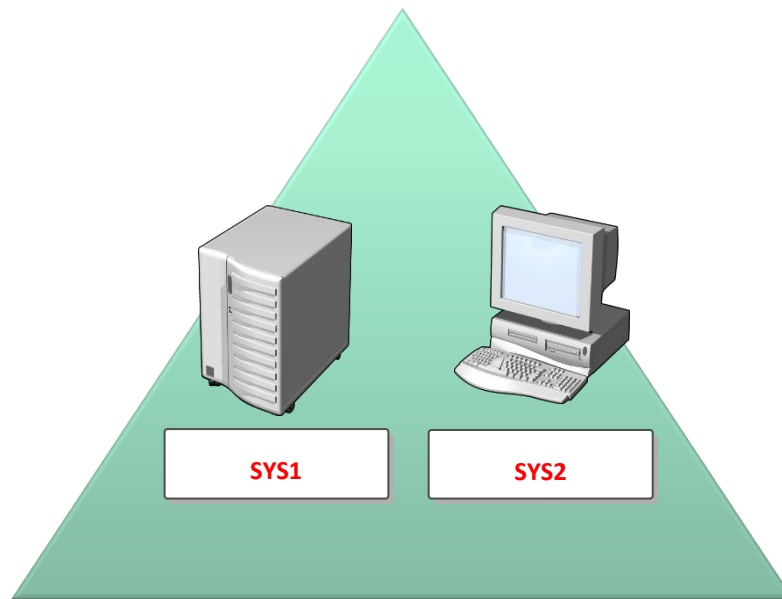
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DYNAMIC HOST CONFIGURATION PROTOCOL (DHCP)

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server or Domain Controller.
2. A computer running windows 2008 server or windows 7.



MICROSOFT.COM

SYS1

Domain Controller / DHCP Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

SYS2

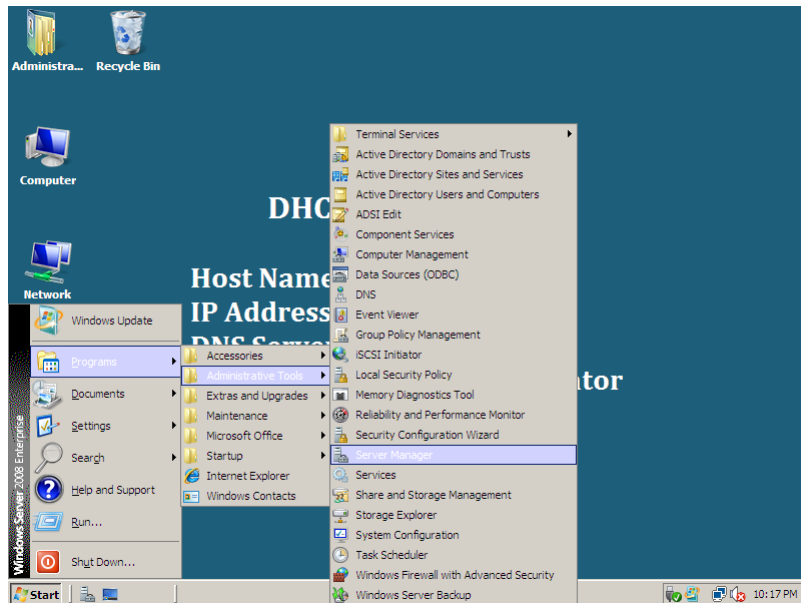
Member Server / Client

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

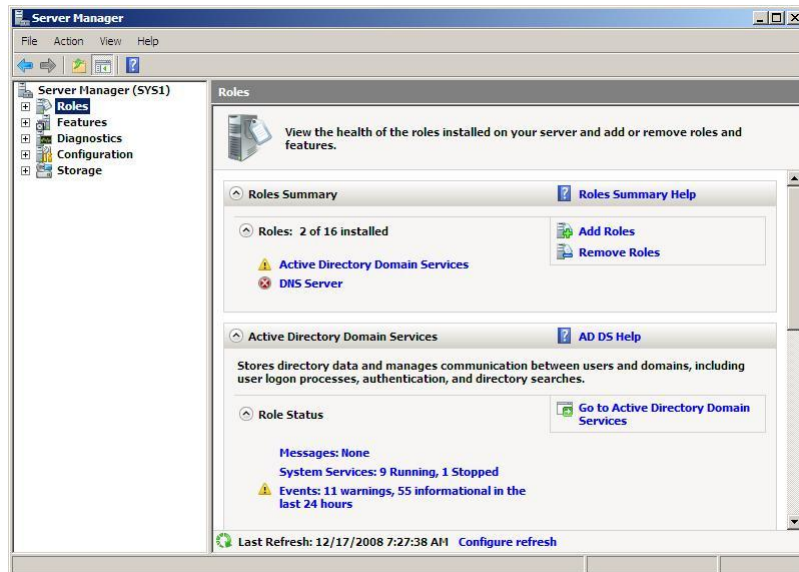
Lab – 1: Installing DHCP Service

SYS1 - CONFIGURATION

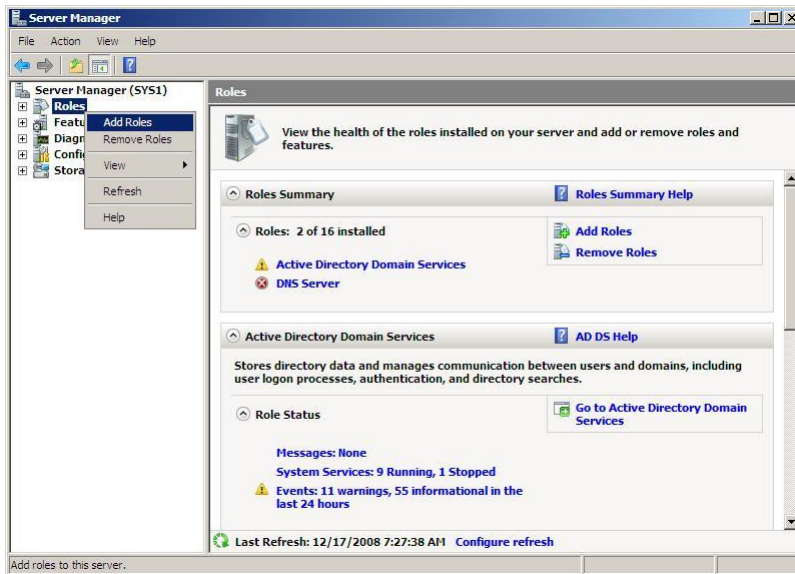
1. Select Start → Programs → Administrative Tools → **Server Manager**.



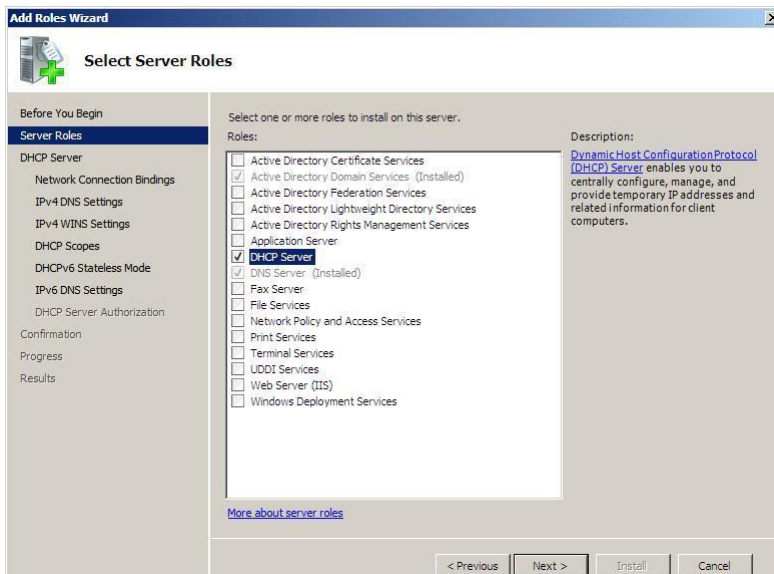
2. In the Server Manager Console, Select **Roles**



3. Right click Roles and Click **Add Roles**.



4. In **Add Roles** dialog box select the check box next to **DHCP Server** Role & click **Next**.



5. Again click **Next**, and Select the Network Interface that the DHCP Server will use to serve the Clients (By default it will be selected) and click **Next**.

The screenshot shows the 'Add Roles Wizard' window, specifically the 'Select Network Connection Bindings' step. The left sidebar lists the wizard steps: 'Before You Begin', 'Server Roles', 'DHCP Server', 'Network Connection Bindings' (selected), 'IPv4 DNS Settings', 'IPv4 WINS Settings', 'DHCP Scopes', 'DHCPv6 Stateless Mode', 'IPv6 DNS Settings', 'DHCP Server Authorization', 'Confirmation', 'Progress', and 'Results'. The main area contains instructions: 'One or more network connections having a static IP address were detected. Each network connection can be used to service DHCP clients on a separate subnet. Select the network connections that this DHCP server will use for servicing clients.' Below this is a table titled 'Network Connections:' with columns 'IP Address' and 'Type'. One entry is checked: '10.0.0.1' with 'Type' 'IPv4'. Below the table is a 'Details' section showing: 'Name: Local Area Connection 2', 'Network Adapter: Realtek RTL8139/810x Family Fast Ethernet NIC #2', and 'Physical Address: 00-13-8F-EE-89-87'. At the bottom are buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

6. Mention the Parent Domain name & DNS server IP address (By default it will be given) click **Validate** & click **Next**.

The screenshot shows the 'Add Roles Wizard' window, specifically the 'Specify IPv4 DNS Server Settings' step. The left sidebar is the same as the previous screenshot, with 'Specify IPv4 DNS Settings' selected. The main area contains instructions: 'When clients obtain an IP address from the DHCP server, they can be given DHCP options such as the IP addresses of DNS servers and the parent domain name. The settings you provide here will be applied to clients using IPv4.' Below this are two sections. The first is 'Specify the name of the parent domain that clients will use for name resolution. This domain will be used for all scopes you create on this DHCP server.' It has a text box for 'Parent Domain:' containing 'microsoft.com'. The second is 'Specify the IP addresses of the DNS servers that clients will use for name resolution. These DNS servers will be used for all scopes you create on this DHCP server.' It has two text boxes: 'Preferred DNS Server IPv4 Address:' containing '10.0.0.1' and 'Alternate DNS Server IPv4 Address:'. Each text box has a 'Validate' button next to it. At the bottom is a link 'More about DNS server settings' and buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

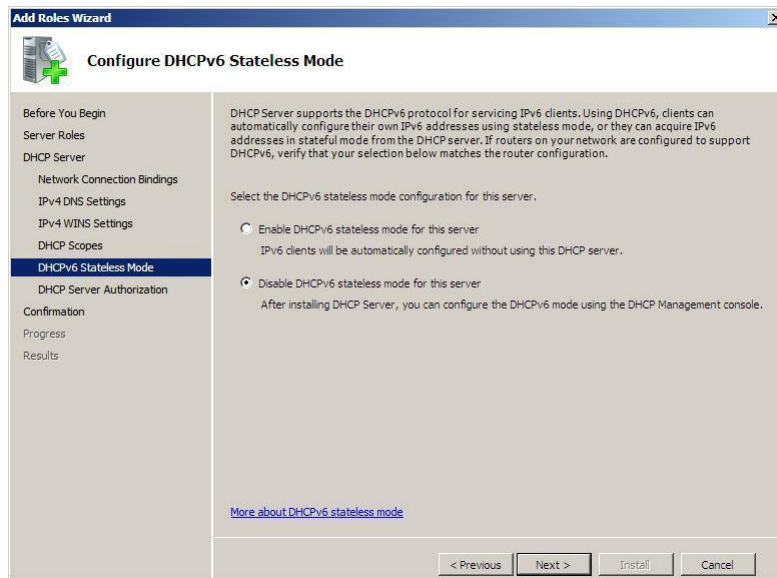
7. Select **WINS is not required** (Default) click **Next**.

The screenshot shows the 'Specify IPv4 WINS Server Settings' window. On the left, a navigation pane lists steps: 'Before You Begin', 'Server Roles', 'DHCP Server', 'Network Connection Bindings', 'IPv4 DNS Settings', 'IPv4 WINS Settings' (selected), 'DHCP Scopes', 'DHCPv6 Stateless Mode', 'IPv6 DNS Settings', 'DHCP Server Authorization', 'Confirmation', 'Progress', and 'Results'. The main area has a title bar with a plus icon and the text 'Specify IPv4 WINS Server Settings'. Below the title bar, it says: 'When clients obtain an IP address from the DHCP server, they can be given DHCP options such as the IP addresses of WINS servers. The settings you provide here will be applied to clients using IPv4.' There are two radio buttons: 'WINS is not required for applications on this network' (selected) and 'WINS is required for applications on this network'. Below the second radio button, it says: 'Specify the IP addresses of the WINS servers that clients will use for name resolution. These WINS servers will be used for all scopes you create on this DHCP server.' There are two text input fields: 'Preferred WINS Server IP Address:' and 'Alternate WINS Server IP Address:'. At the bottom, there is a link 'More about WINS server settings' and four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

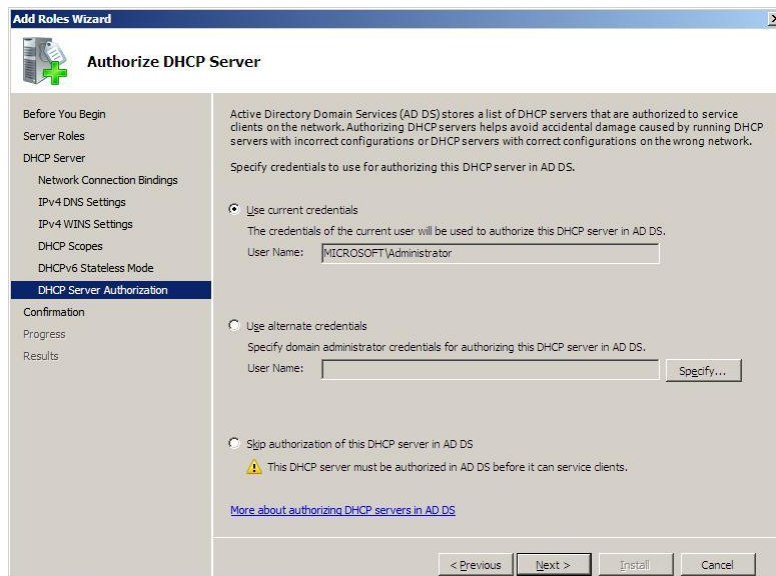
8. Add the scopes (Can be added later), click **Next**.

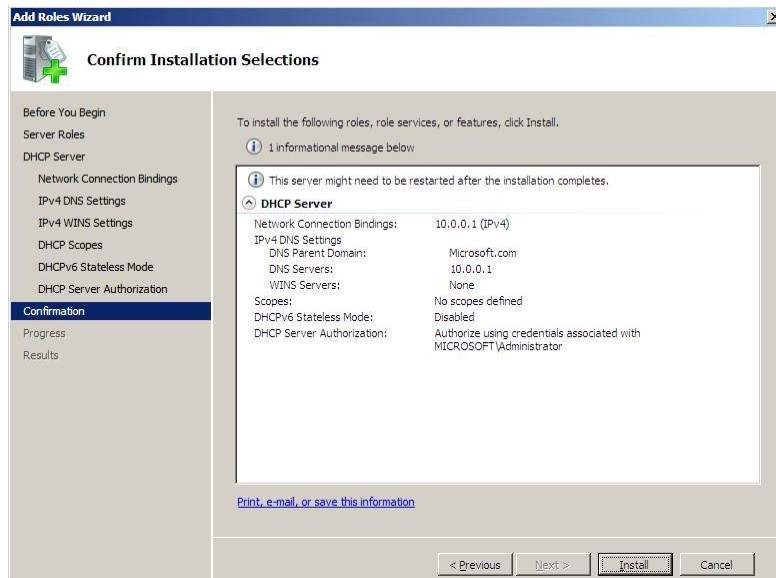
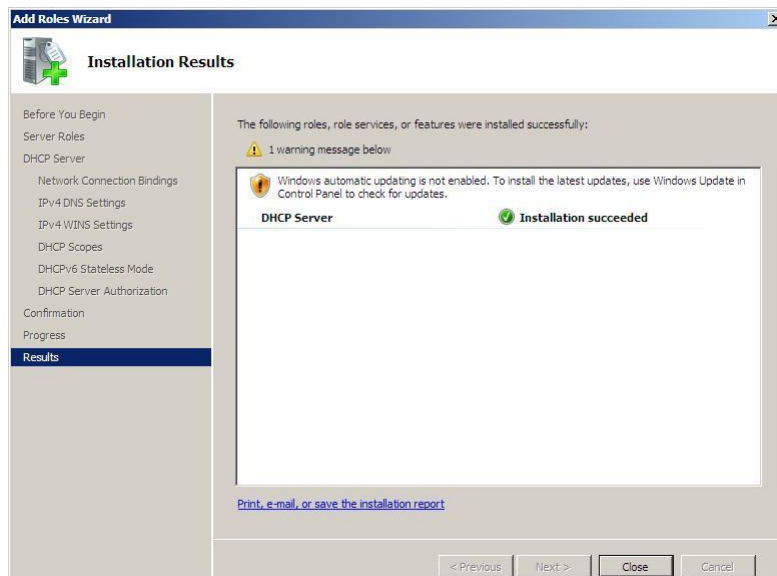
The screenshot shows the 'Add or Edit DHCP Scopes' window. On the left, a navigation pane lists steps: 'Before You Begin', 'Server Roles', 'DHCP Server', 'Network Connection Bindings', 'IPv4 DNS Settings', 'IPv4 WINS Settings', 'DHCP Scopes' (selected), 'DHCPv6 Stateless Mode', 'IPv6 DNS Settings', 'DHCP Server Authorization', 'Confirmation', 'Progress', and 'Results'. The main area has a title bar with a plus icon and the text 'Add or Edit DHCP Scopes'. Below the title bar, it says: 'A scope is the range of possible IP addresses for a network. The DHCP server cannot distribute IP addresses to clients until a scope is created.' There is a section titled 'Scopes:' with a table. The table has two columns: 'Name' and 'IP Address Range'. To the right of the table are three buttons: 'Add...', 'Edit...', and 'Delete...'. Below the table, there is a section titled 'Properties' with the text: 'Add or select a scope to view its properties.' At the bottom, there is a link 'More about adding scopes' and four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

9. Select **Disable IPv6 Stateless mode** & click **Next**.



10. To authorize the DHCP server select **Use Current Credentials** & click **Next**.

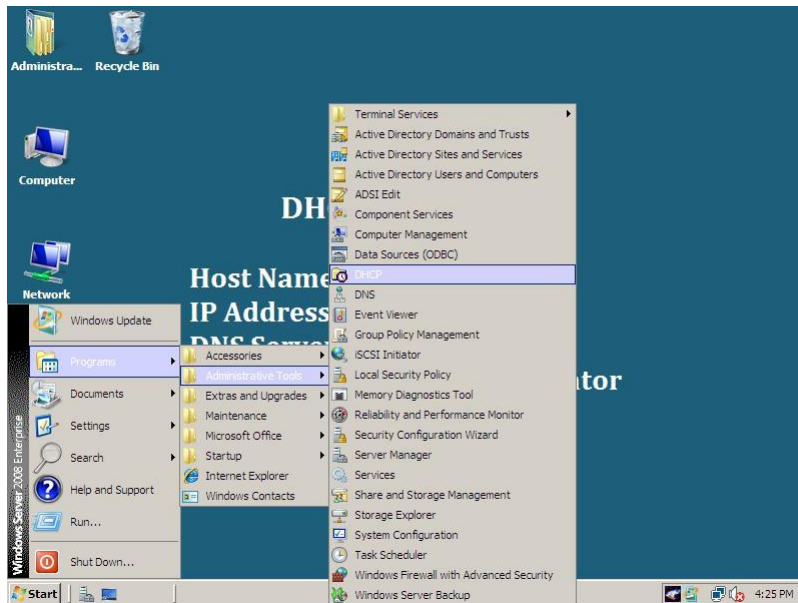


11. Confirm the Installation Selections & click **Install**.12. Installation will Start & Installation will be Succeeded, and click **Close**.

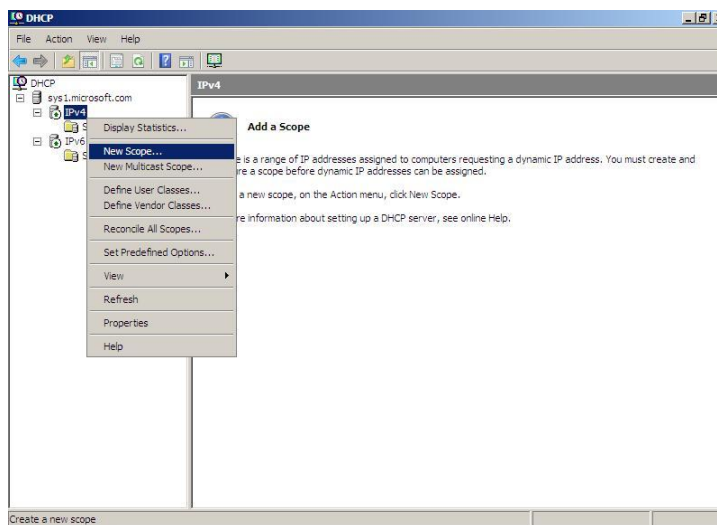
13. DHCP Server Role will be installed.

Lab – 2: Creating a scope

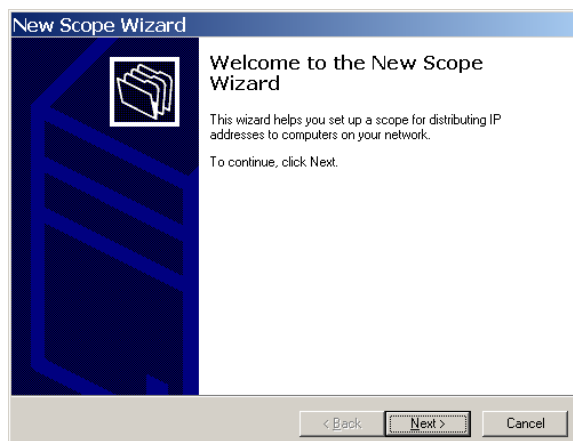
1. Select Start → Programs → Administrative Tools → DHCP.



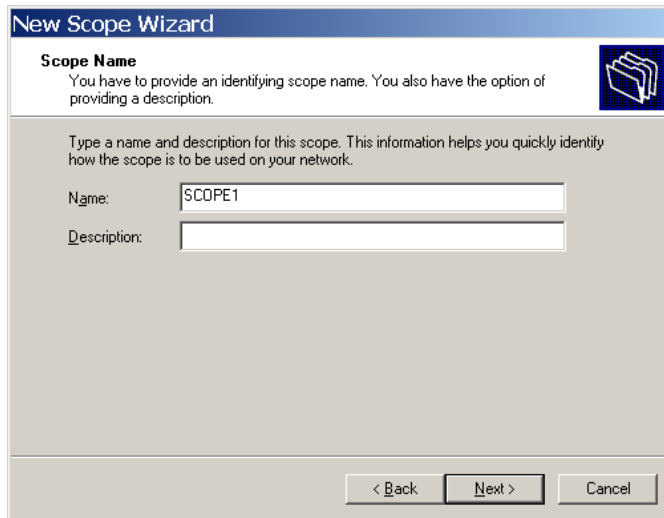
2. Expand the System name → Right click IPv4 → select **New Scope**



3. The New Scope wizard starts. click **Next**.



4. In the Scope Name screen, type in a name and a **description** for the scope in the text boxes provided. Click **Next**.



The screenshot shows the 'New Scope Wizard' window, specifically the 'Scope Name' step. The title bar reads 'New Scope Wizard'. Below the title bar, the section is labeled 'Scope Name' with a sub-instruction: 'You have to provide an identifying scope name. You also have the option of providing a description.' To the right of this text is a folder icon. The main area contains the instruction: 'Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.' There are two text input fields: 'Name:' with the value 'SCOPE1' and 'Description:' which is empty. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

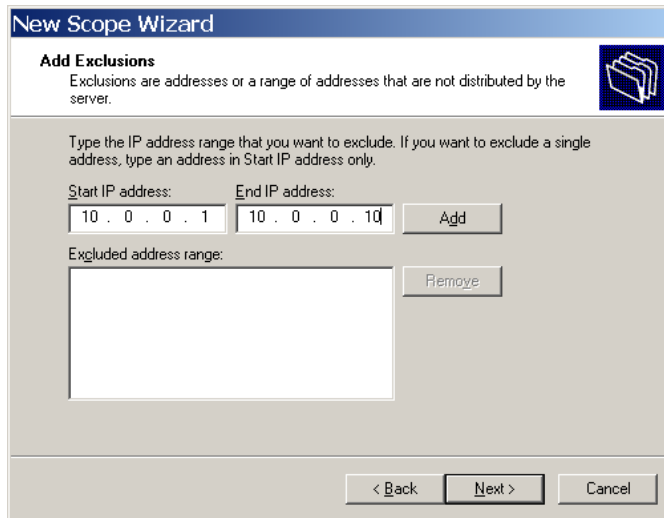
5. The IP Address Range screen appears. In the “**Start IP address**” and “**End IP address**” text boxes, enter the IP addresses that will define the range of the scope and the subnet mask. click **Next**.



The screenshot shows the 'New Scope Wizard' window, specifically the 'IP Address Range' step. The title bar reads 'New Scope Wizard'. Below the title bar, the section is labeled 'IP Address Range' with a sub-instruction: 'You define the scope address range by identifying a set of consecutive IP addresses.' To the right of this text is a folder icon. The main area contains the instruction: 'Enter the range of addresses that the scope distributes.' There are two text input fields for IP addresses: 'Start IP address:' with the value '10 . 0 . 0 . 1' and 'End IP address:' with the value '10 . 0 . 0 . 255'. Below these, there is a text input field for 'Length:' with the value '8' and a dropdown arrow. Below that is a text input field for 'Subnet mask:' with the value '255 . 0 . 0 . 0'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

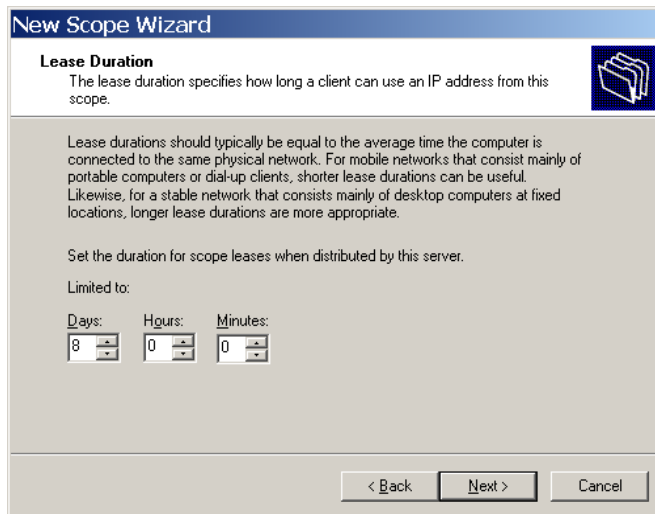
Note: Mention the scope range in the same network of DHCP server.

6. To exclude IP addresses, enter the **Start and end IP address** of the range you want to exclude and click **Add**. click **Next**.



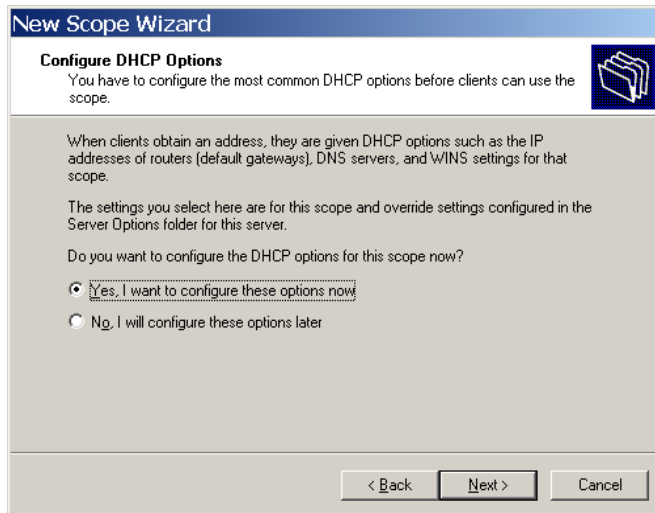
The 'New Scope Wizard' window is titled 'Add Exclusions'. It contains a description: 'Exclusions are addresses or a range of addresses that are not distributed by the server.' Below this, it instructs the user to 'Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.' There are two input fields: 'Start IP address:' with the value '10 . 0 . 0 . 1' and 'End IP address:' with the value '10 . 0 . 0 . 10'. An 'Add' button is to the right of the 'End IP address' field. Below these fields is an 'Excluded address range:' list box, which is currently empty, and a 'Remove' button to its right. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

7. In the **Lease Duration** screen, either accept the default DHCP lease duration of **eight days**, or configure custom lease duration. click Next.



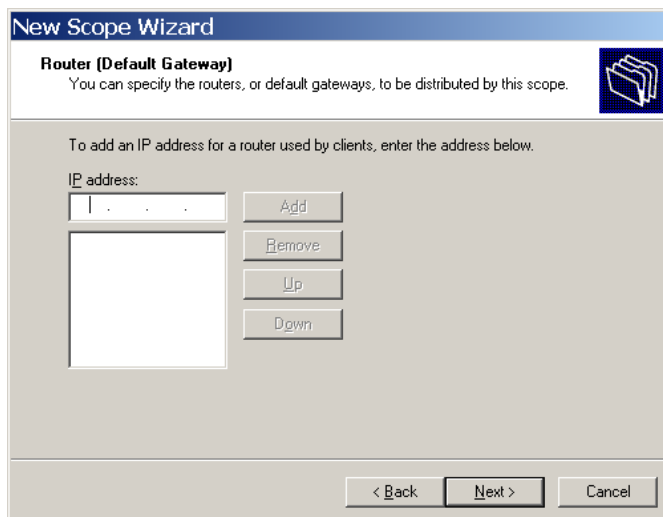
The 'New Scope Wizard' window is titled 'Lease Duration'. It contains a description: 'The lease duration specifies how long a client can use an IP address from this scope.' Below this, it provides guidance: 'Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.' It then instructs the user to 'Set the duration for scope leases when distributed by this server.' There is a 'Limited to:' section with three spinners: 'Days:' set to '8', 'Hours:' set to '0', and 'Minutes:' set to '0'. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

8. In the Configure DHCP Options screen, choose **Yes, I want to configure these options now** to configure DHCP options for this scope (such as routers, DNS, and WINS settings) now. click **Next**.



The screenshot shows the 'New Scope Wizard' window with the 'Configure DHCP Options' step. The title bar reads 'New Scope Wizard'. Below the title bar, the section is 'Configure DHCP Options' with a folder icon. The text says: 'You have to configure the most common DHCP options before clients can use the scope.' Below this, it explains: 'When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope. The settings you select here are for this scope and override settings configured in the Server Options folder for this server.' Then it asks: 'Do you want to configure the DHCP options for this scope now?'. There are two radio buttons: 'Yes, I want to configure these options now' (which is selected) and 'No, I will configure these options later'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

9. In the **Router (Default Gateway)** screen, enter the IP address of the **router** that will function as the **default gateway** for this scope clients and click **Add**. Or, if you don't have a **Router** in your network, just click **Next**.



The screenshot shows the 'New Scope Wizard' window with the 'Router (Default Gateway)' step. The title bar reads 'New Scope Wizard'. Below the title bar, the section is 'Router (Default Gateway)' with a folder icon. The text says: 'You can specify the routers, or default gateways, to be distributed by this scope.' Below this, it says: 'To add an IP address for a router used by clients, enter the address below.' There is a text box labeled 'IP address:' with a dotted line indicating where to enter the address. To the right of the text box are four buttons: 'Add', 'Remove', 'Up', and 'Down'. Below the text box is a large empty rectangular area. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

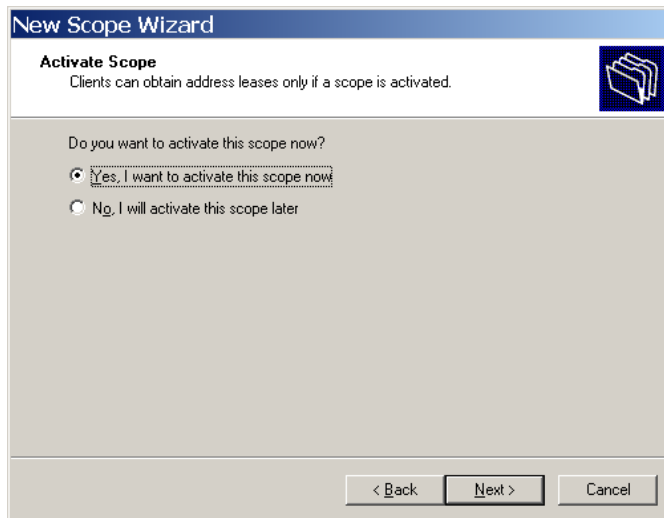
10. In the **Domain Name** and **DNS Servers** screen enter the name of the Parent Domain & IP address of the DNS server, click **Add** → click **Next**.

The screenshot shows the 'New Scope Wizard' window, specifically the 'Domain Name and DNS Servers' step. The title bar reads 'New Scope Wizard'. Below the title, the section is 'Domain Name and DNS Servers' with a sub-description: 'The Domain Name System (DNS) maps and translates domain names used by clients on your network.' The main text says: 'You can specify the parent domain you want the client computers on your network to use for DNS name resolution.' There is a text box for 'Parent domain:' containing 'Microsoft.com'. Below this, it says: 'To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.' There are two columns: 'Server name:' and 'IP address:'. Under 'Server name:', there is a text box with 'SYS1' and a 'Resolve' button. Under 'IP address:', there is a text box with '10 . 0 . 0 . 1' and an 'Add' button. To the right of the 'IP address:' column is a list box (currently empty) with 'Remove', 'Up', and 'Down' buttons. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

11. In the **WINS Servers** screen enter the IP address of the **WINS** server. Click **Add**. click **Next**. Or, if you don't have a WINS server on your network, just click **Next**.

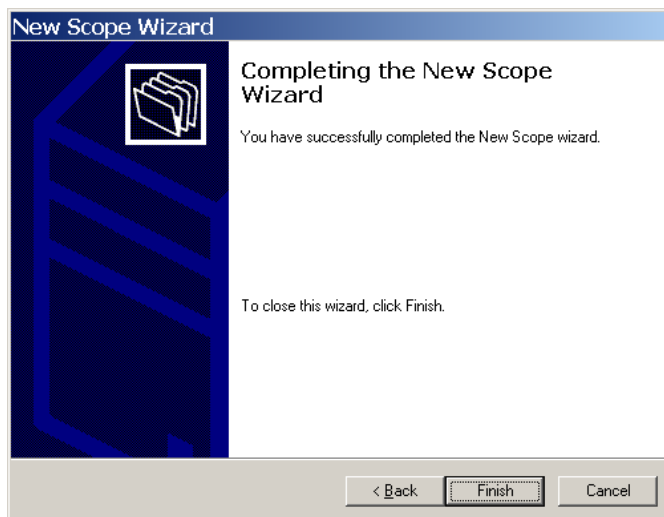
The screenshot shows the 'New Scope Wizard' window, specifically the 'WINS Servers' step. The title bar reads 'New Scope Wizard'. Below the title, the section is 'WINS Servers' with a sub-description: 'Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.' The main text says: 'Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.' There are two columns: 'Server name:' and 'IP address:'. Under 'Server name:', there is an empty text box and a 'Resolve' button. Under 'IP address:', there is an empty text box and an 'Add' button. To the right of the 'IP address:' column is a list box (currently empty) with 'Remove', 'Up', and 'Down' buttons. At the bottom, there is a note: 'To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options.' Below this are '< Back', 'Next >', and 'Cancel' buttons.

12. In the Activate Scope screen, select **YES** and click **Next**.



Note: A DHCP server can't assign IP addresses until the scope is activated.

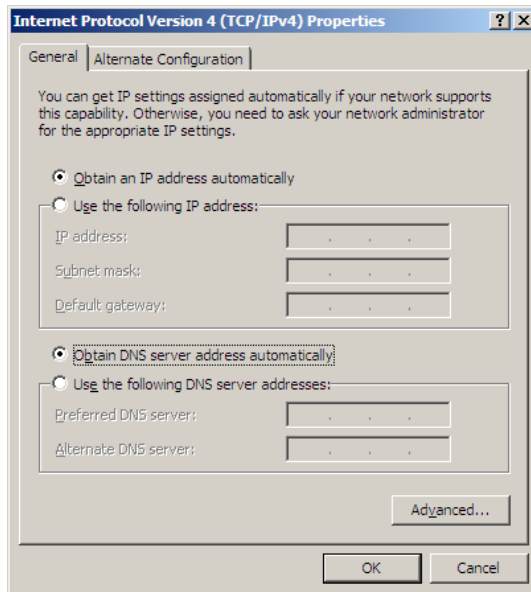
13. Click **Finish** to complete the creation of Scope.



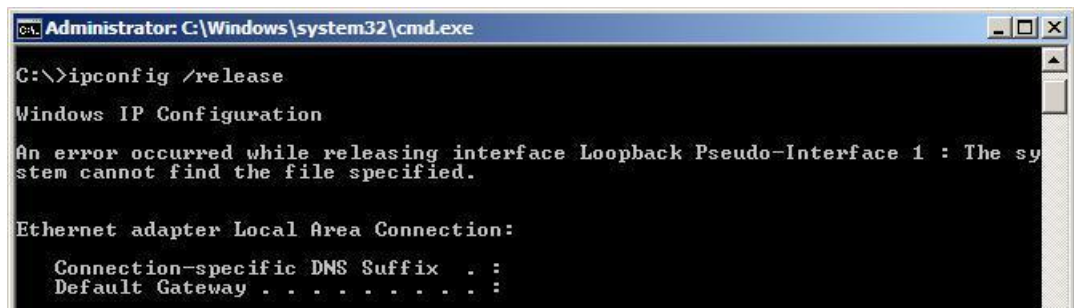
SYS2 - CONFIGURATION

Verification: In DHCP Client

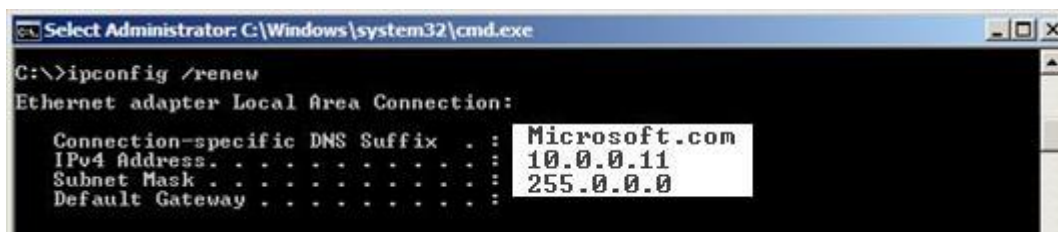
1. Right click on network Icon → Select properties → click View Status and select properties → Select Internet protocol Version 4 (TCP/IPv4) Properties and select **Obtain an IP Address automatically & Obtain an DNS Server Address Automatically** → OK



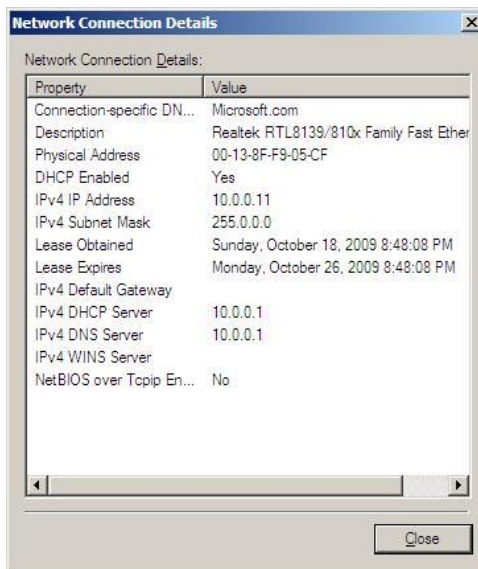
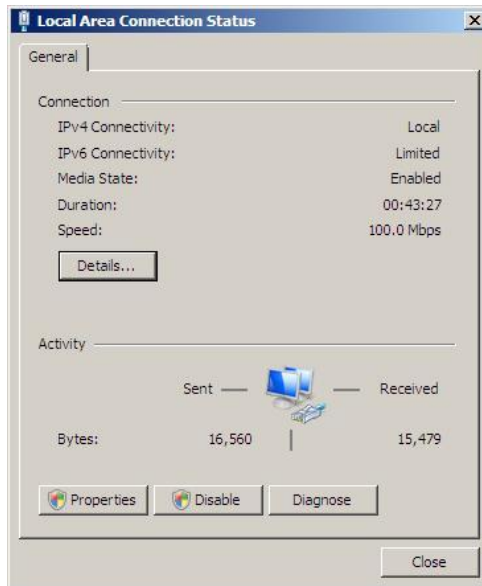
2. Open the **Command Prompt** → and type **ipconfig /release**



3. Then type **ipconfig /renew**



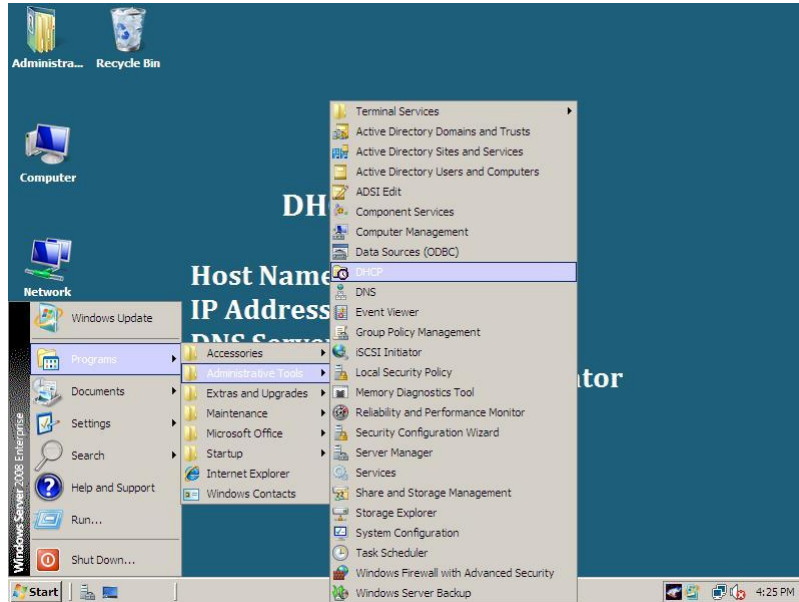
4. After that Right click on network Icon → Select properties → click View Status and click **Details** to View the IP address.



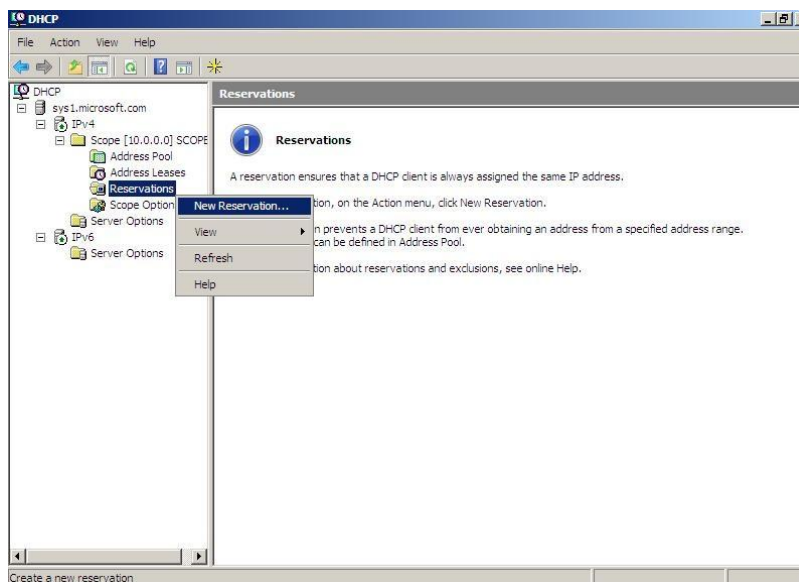
Lab – 3: Creating DHCP Reservations

SYS1 - CONFIGURATION

1. Select Start → Programs → Administrative Tools → DHCP



2. In the left pane of the DHCP dialog box, expand the scope → Right click **Reservation** → Select **New Reservation**



- Type in a name for the reservation in the **“Reservation name”** text box. Then, in the **“IP address”** text box, mention the IP address that you want to be reserved. Then, enter the MAC address of the network adapter of the computer for which the reservation is being made in the box provided →click **add** →click **close**.

Note: To Know the MAC or Physical address of the client type **ipconfig /all** or **getmac** in command prompt of client computer.

Check the output in the client computer (SYS2).

- In the command prompt type **ipconfig /release** and **ipconfig /renew**.

```

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : 
C:\Users\Administrator\SYS2.010>ipconfig /renew

Windows IP Configuration

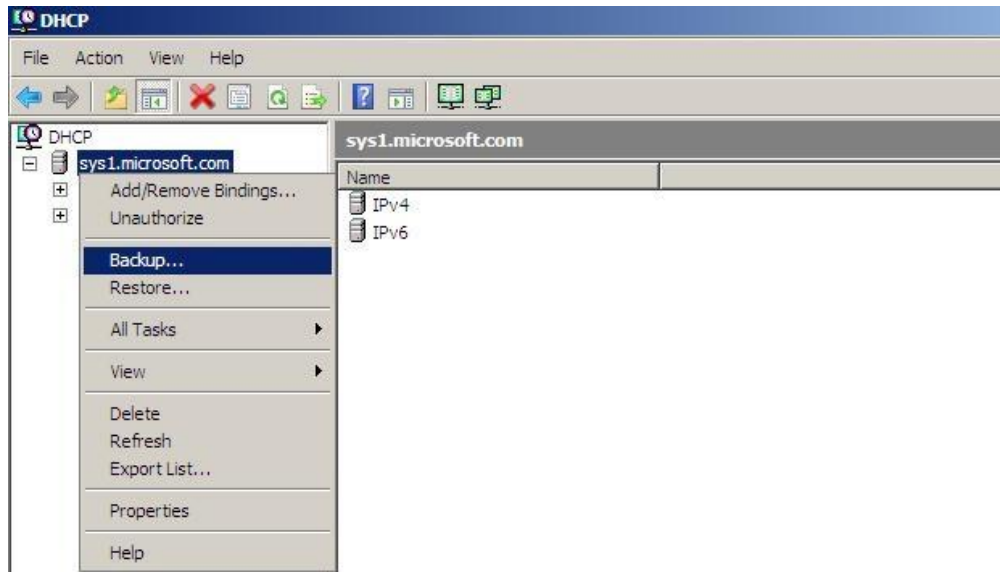
An error occurred while releasing interface Loopback Pseudo-Interface
stem cannot find the file specified.

Ethernet adapter 10.0.0.1:

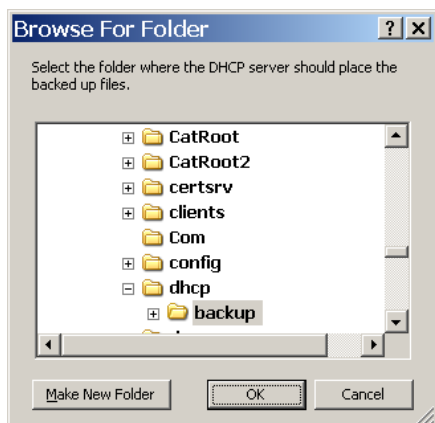
    Connection-specific DNS Suffix . : Microsoft.com
    IPv4 Address. . . . . : 10.0.0.50
    Subnet Mask . . . . . : 255.0.0.0
    Default Gateway . . . . . :
  
```

Lab – 4: DHCP Server Backup and Restore

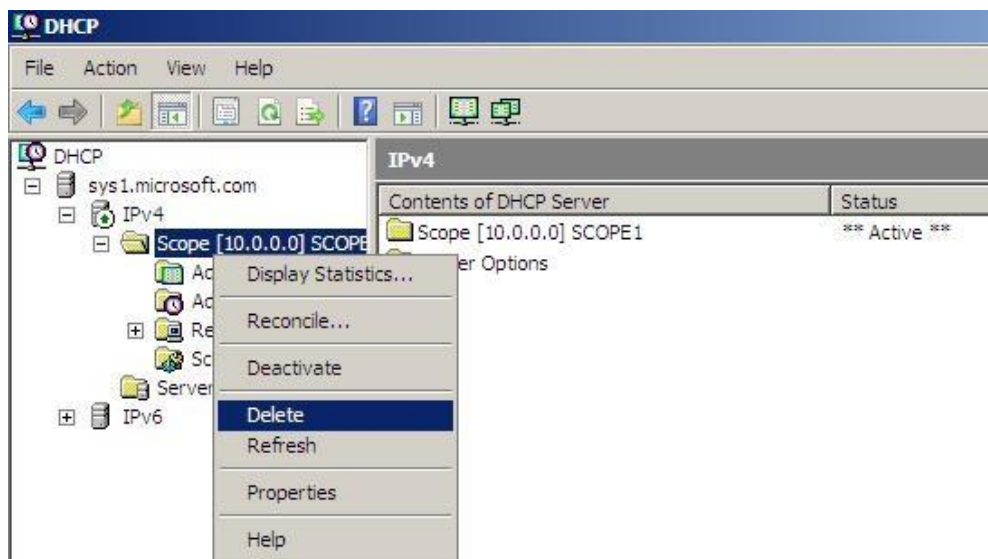
1. Open **DHCP server** → Right click the system name → select **Backup**



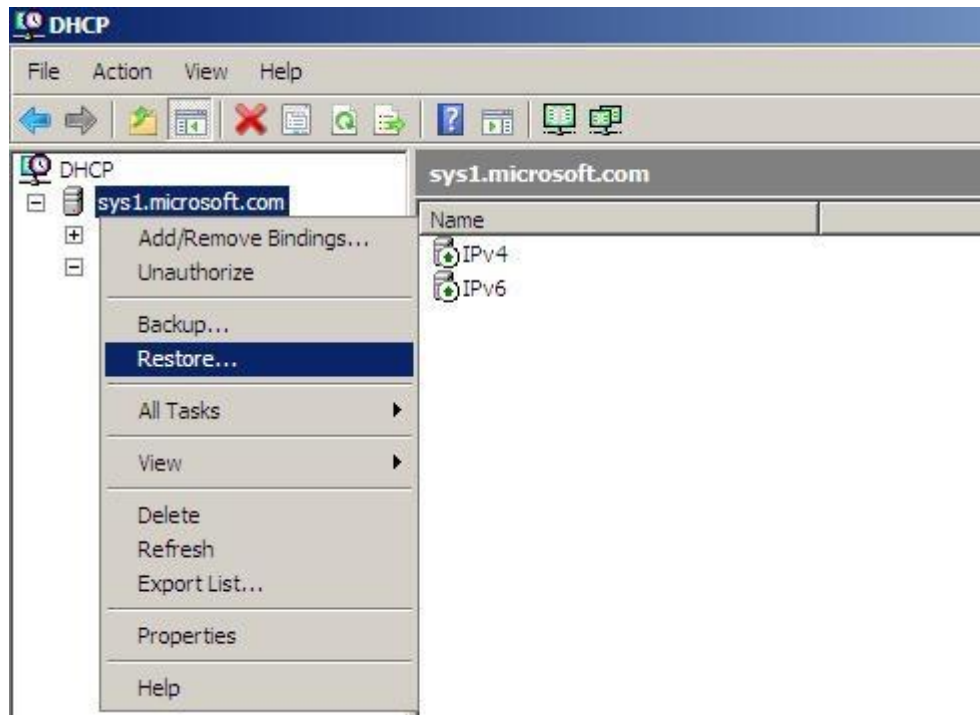
2. Select the Location to save the **backup file** → **OK**



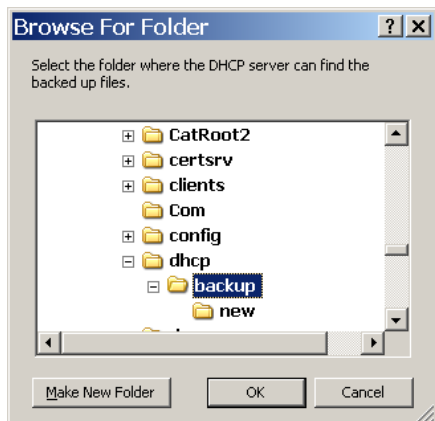
3. **Delete** the scope



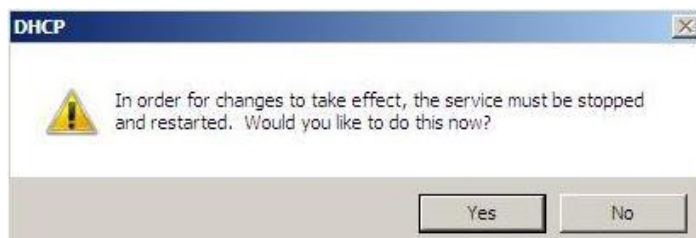
4. Open **DHCP server** → Right click the system name → select **Restore**.



5. Select the location of file for **restoring**.



6. Click **yes** in the message and **refresh**.

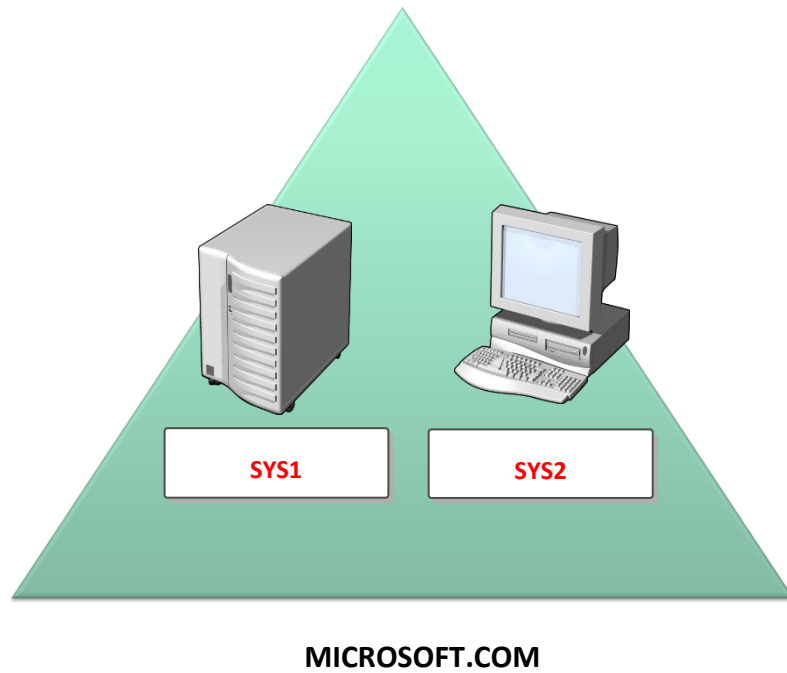


DOMAIN NAMING SYSTEM (DNS)

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server or Domain Controller.
2. A computer running windows 2008 server.



SYS1

Domain Controller / DNS Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

SYS2

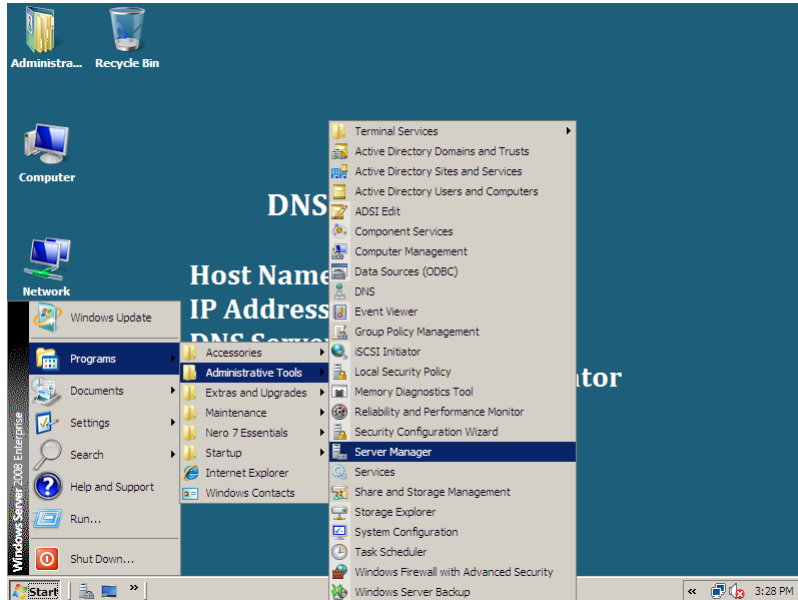
Member Server / DNS Server

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.2

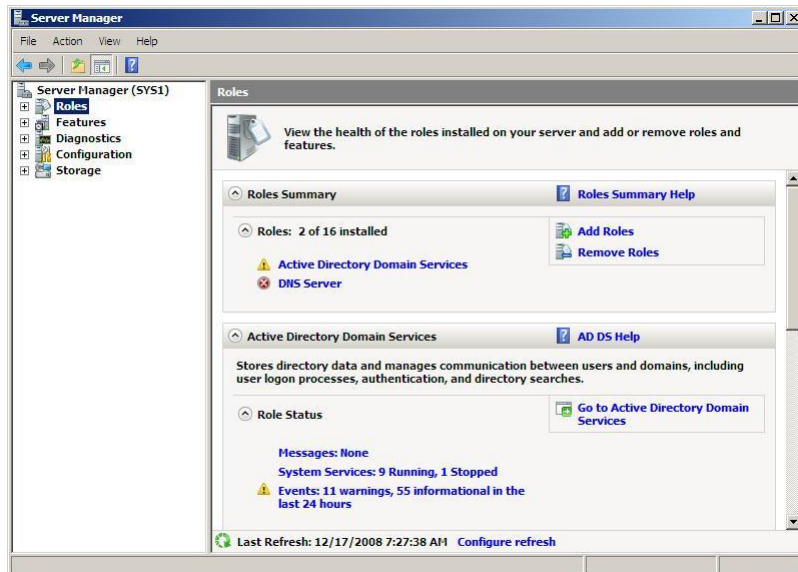
Lab – 1: Installing DNS Service

SYS1 -CONFIGURATION

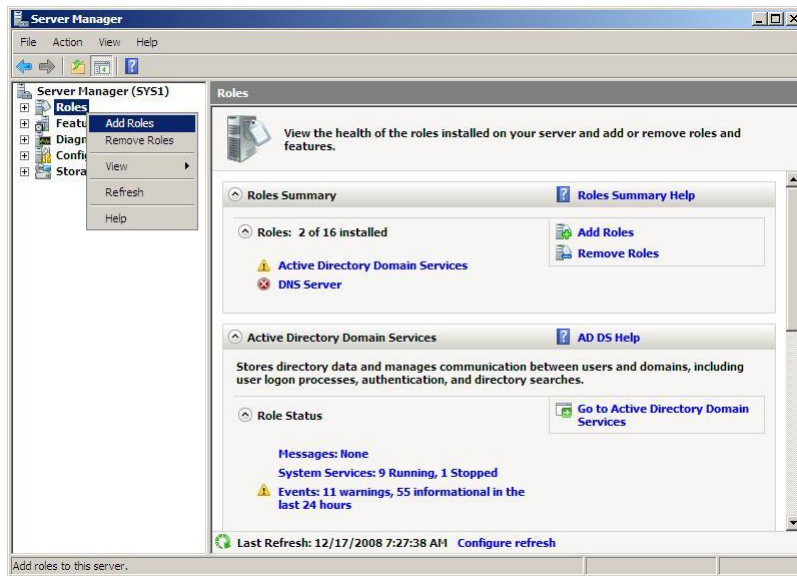
1. Select Start → Programs → Administrative Tools → **Server Manager**.



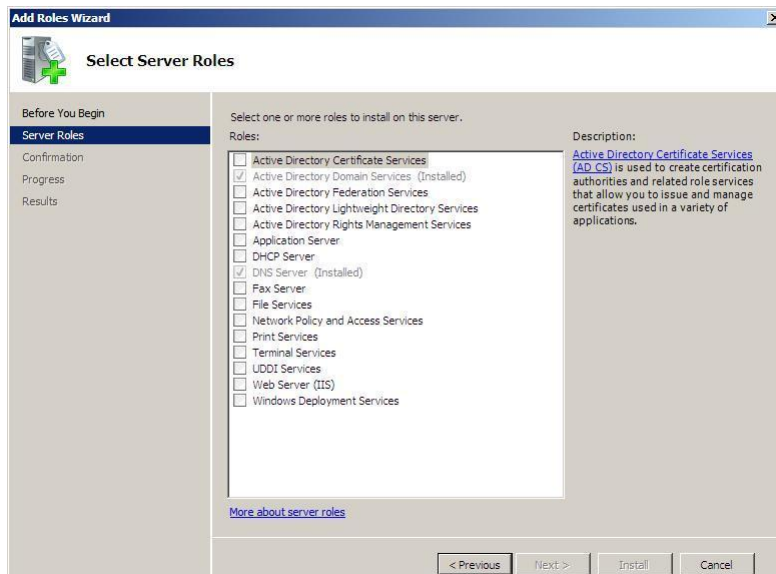
2. In the Server Manager Console, Select **Roles**



3. Right click on Roles and click **Add Roles**.



4. In **Add Roles** dialog box select the check box next to **DNS Server** Role & click **Next** → **Next** → **Install** → **Finish**.

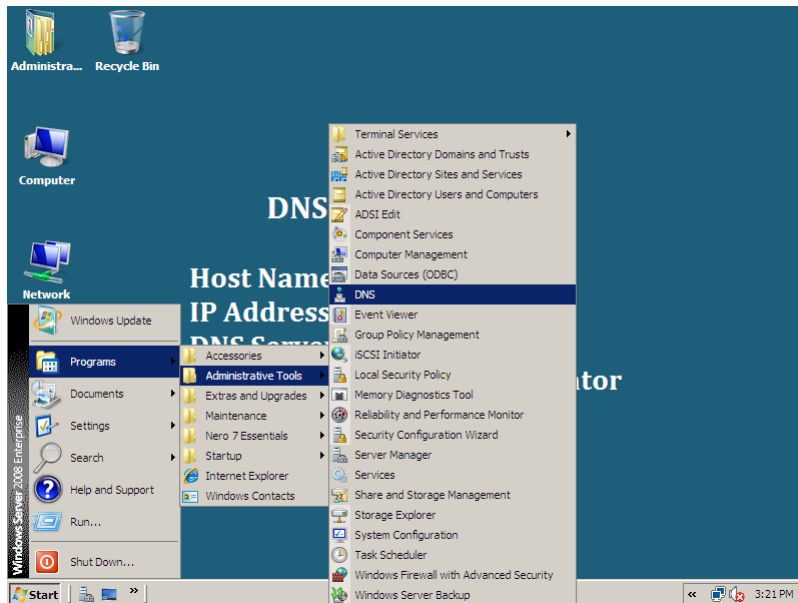


Note: On **Domain Controller**, by default DNS Server Role will be installed.

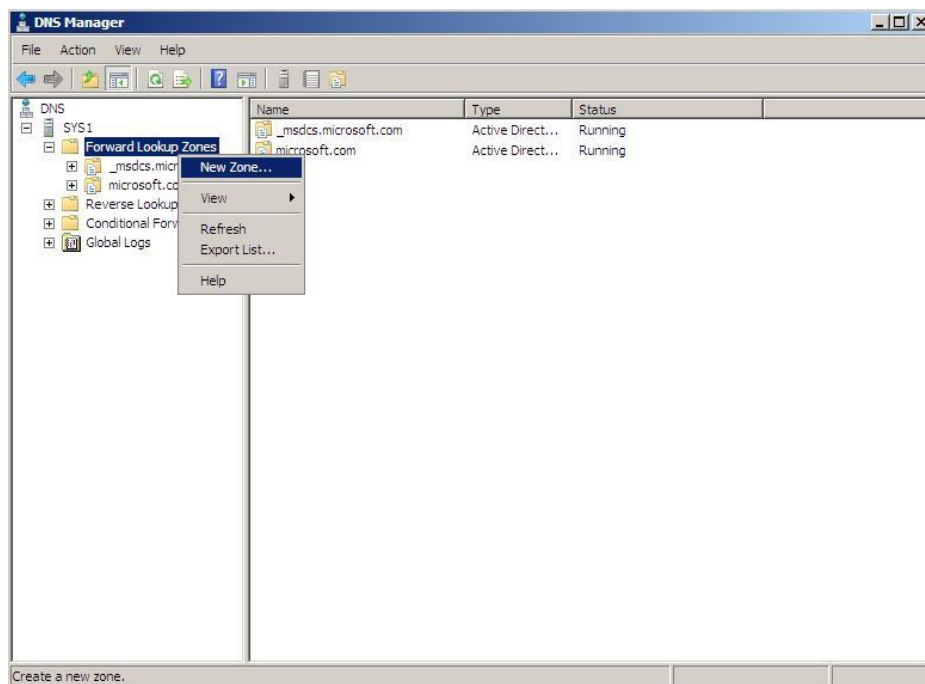
On **Member Server** we have to install the DNS Server Role Manually using the same process.

Lab – 2: Creating Standard Primary - Forward Lookup Zone

1. Select Start → Programs → Administrative Tools → DNS.



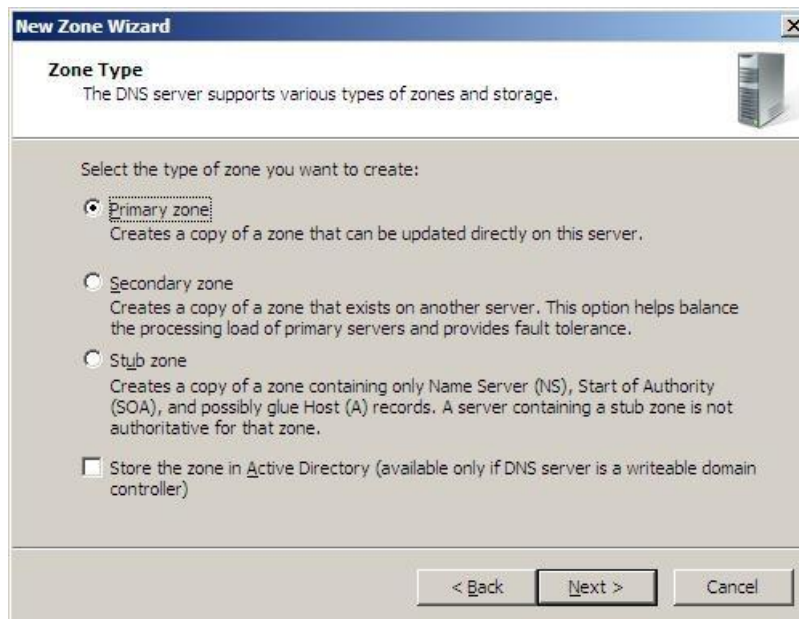
2. In the DNS dialog box, Expand the **DNS server name** in the **left pane** Right click the **Forward Lookup Zones** →select **New Zone**



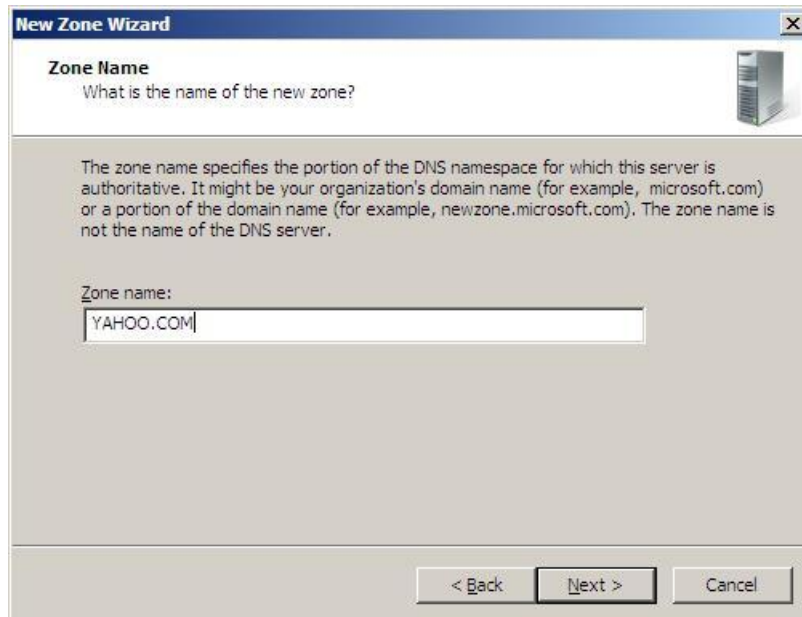
3. In the welcome to new zone wizard click **Next**



4. Select **"Primary Zone"** and Remove the check box for **"Store the zone in Active Directory"**, click **Next**.



5. In the Zone Name screen, type in the name of the zone you are creating. This name is usually the FQDN of the DNS domain that the zone will contain, such as **YAHOO.COM** → click **Next**.



The screenshot shows the 'New Zone Wizard' window with the 'Zone Name' tab selected. The title bar reads 'New Zone Wizard'. Below the title bar, the tab is labeled 'Zone Name'. The main text asks 'What is the name of the new zone?'. A descriptive paragraph explains that the zone name specifies the portion of the DNS namespace for which the server is authoritative, giving examples like 'microsoft.com' or 'newzone.microsoft.com'. Below this, there is a text box labeled 'Zone name:' containing the text 'YAHOO.COM'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

6. The Zone File screen appears. In this screen, you can either create a new zone file for the new zone, or configure the new zone to use an existing file. click **Next**.



The screenshot shows the 'New Zone Wizard' window with the 'Zone File' tab selected. The title bar reads 'New Zone Wizard'. Below the title bar, the tab is labeled 'Zone File'. The main text asks 'You can create a new zone file or use a file copied from another DNS server.'. Below this, there is a question: 'Do you want to create a new zone file or use an existing file that you have copied from another DNS server?'. There are two radio button options: 'Create a new file with this file name:' (which is selected) and 'Use this existing file:'. The first option has a text box below it containing 'YAHOO.COM.dns'. The second option has an empty text box below it. A note at the bottom states: 'To use this existing file, ensure that it has been copied to the folder %SystemRoot%\system32\dns on this server, and then click Next.'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

7. In dynamic Update Select "**Allow both non-secure and secure dynamic update**"→click **Next**.



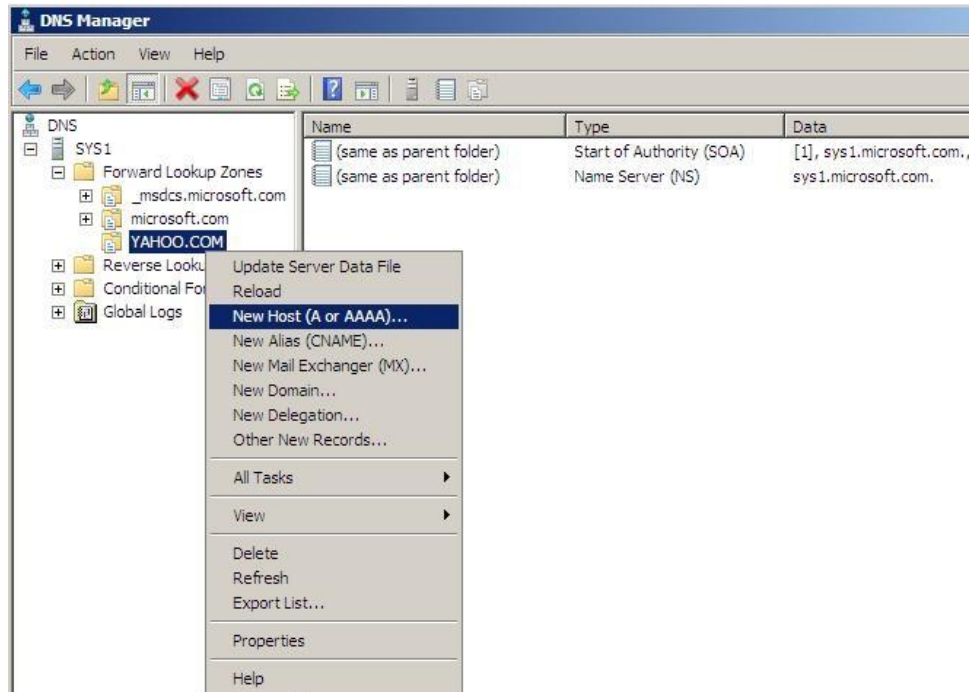
8. The Completing the New Zone Wizard screen appears. Click **Finish**.



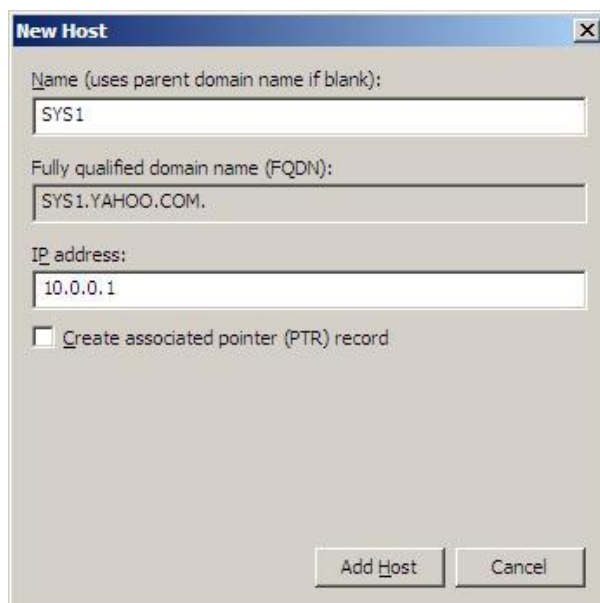
9. In the DNS Console, the new zone you created appears in the right pane.

Creating Host Records for the standard primary zone

1. Select Start → Programs → Administrative Tools → DNS.
2. Right click the zone and select **New Host**.

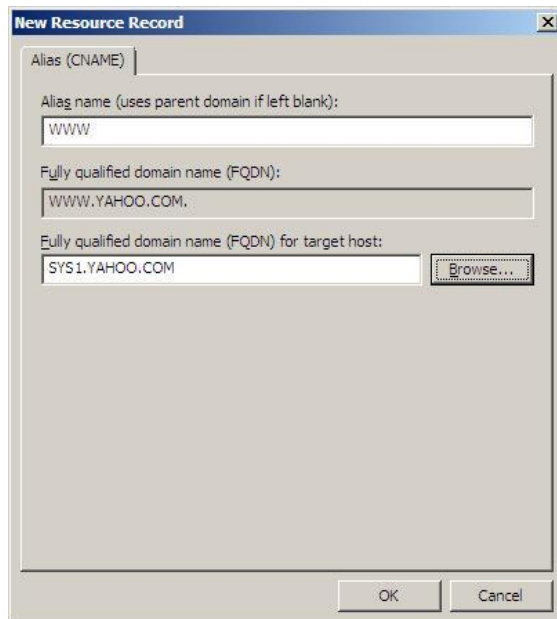


3. In the host name dialog box enter the **Host name** for which you are configuring the record Ex: **SYS1** & enter the **corresponding IP address of the host** → click 'Add Host' → OK → Done.



Creating an Alias record for the host record

1. Select Start → Programs → Administrative Tools → DNS.
2. Right click the zone and select **New Alias**.
3. Enter the name in the '**Alias Name**' dialog box Ex: www
4. Click Browse → Double click system name → double click Forward Lookup Zone → double click the zone name → select the host name → click **OK** → **OK**



VERIFICATION:

1. Open **Command Prompt** → type **ping FQDN** (Fully Qualified Domain Name)
Ex: Ping SYS1.YAHOO.COM (or) Ping WWW.YAHOO.COM
2. Name should be resolved into IP Address.

```
C:\> Administrator: C:\Windows\system32\CMD.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator\SYS1.000>PING WWW.YAHOO.COM

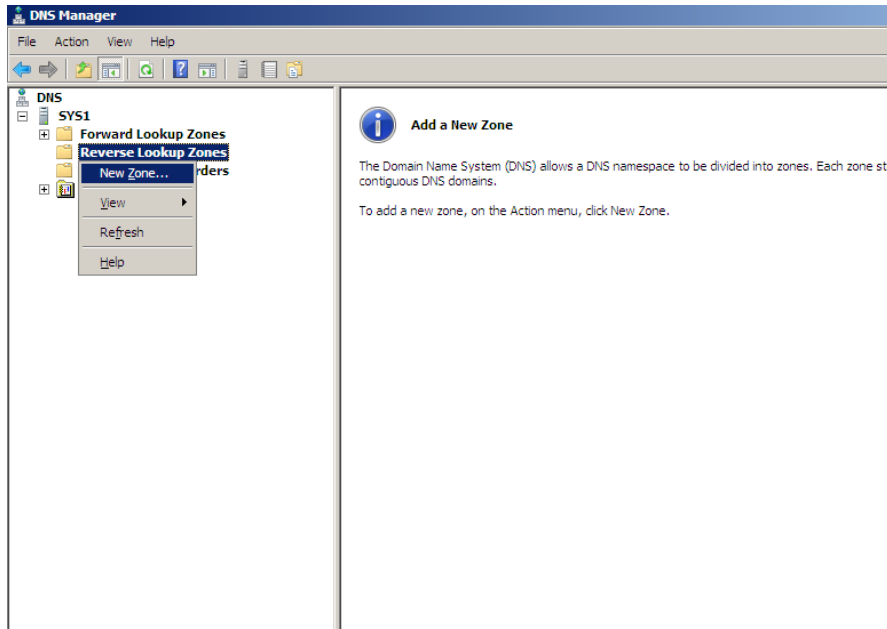
Pinging sys1.YAHOO.COM [10.0.0.1] with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator\SYS1.000>
```

Lab – 3: Creating Standard Primary - Reverse Lookup Zone

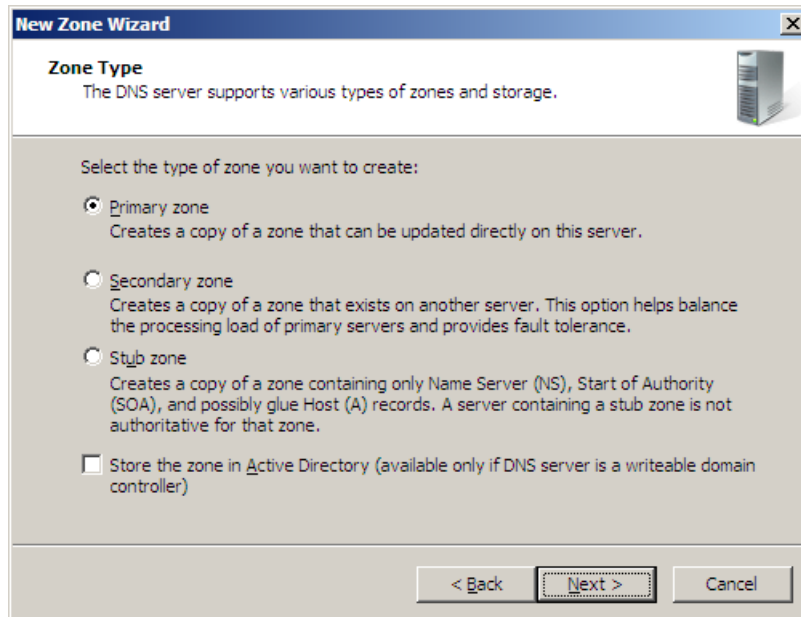
1. Select Start → Programs → Administrative Tools → DNS.
2. In the DNS dialog box, Expand the **DNS server's name** in the **left pane** Right click the **Reverse Lookup Zones** → Select **New Zone**.



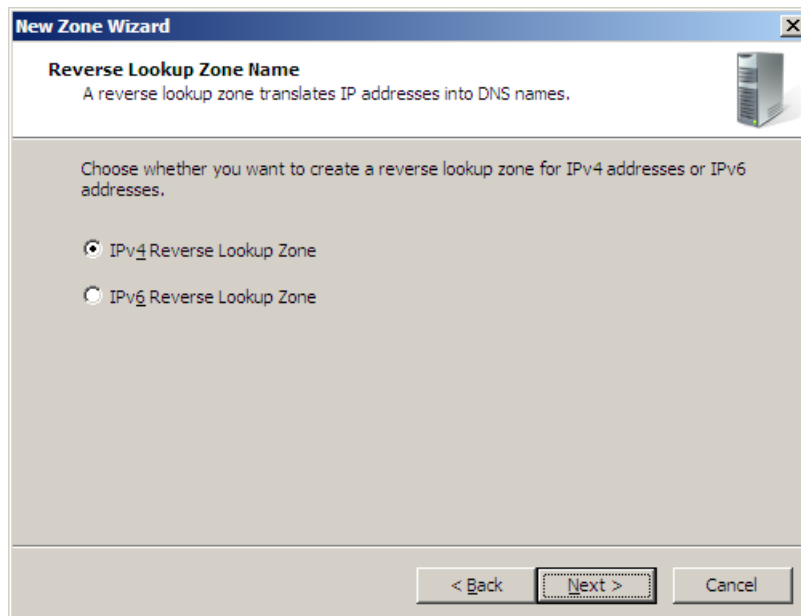
3. Click **Next**



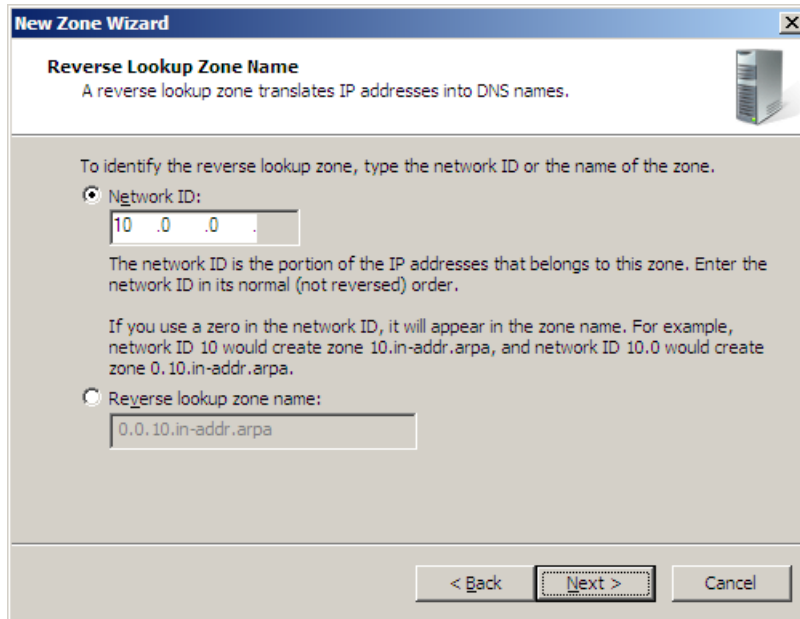
4. Select **"Primary Zone"** and Remove the check box for **"Store the zone in Active Directory"**, click **Next**.



5. Check **IPv4 Reverse Lookup Zone**



6. In the network ID give the first three octets Ex: 10.0.0→**Next**



New Zone Wizard

Reverse Lookup Zone Name
A reverse lookup zone translates IP addresses into DNS names.

To identify the reverse lookup zone, type the network ID or the name of the zone.

☒ **Network ID:**
10 .0 .0 .0

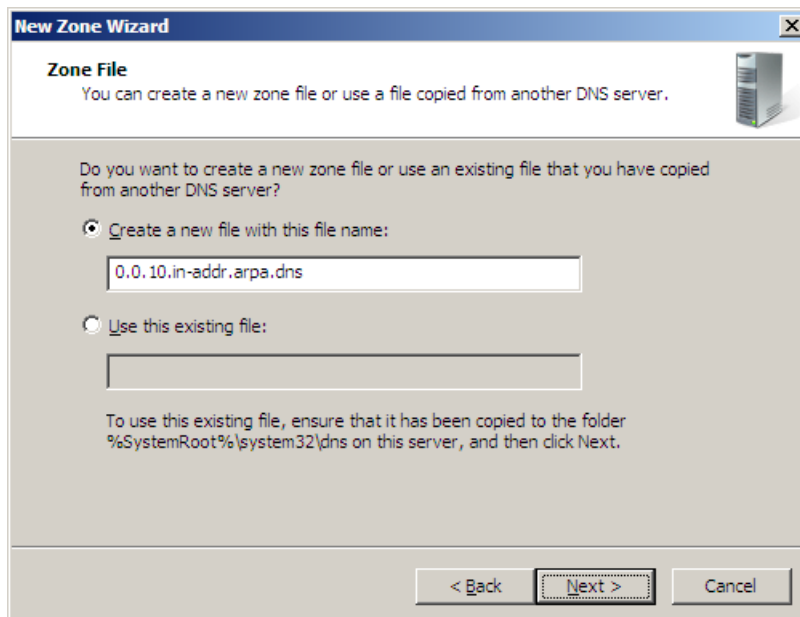
The network ID is the portion of the IP addresses that belongs to this zone. Enter the network ID in its normal (not reversed) order.

If you use a zero in the network ID, it will appear in the zone name. For example, network ID 10 would create zone 10.in-addr.arpa, and network ID 10.0 would create zone 0.10.in-addr.arpa.

☐ **Reverse lookup zone name:**
0.0.10.in-addr.arpa

< Back Next > Cancel

7. Click **Next**



New Zone Wizard

Zone File
You can create a new zone file or use a file copied from another DNS server.

Do you want to create a new zone file or use an existing file that you have copied from another DNS server?

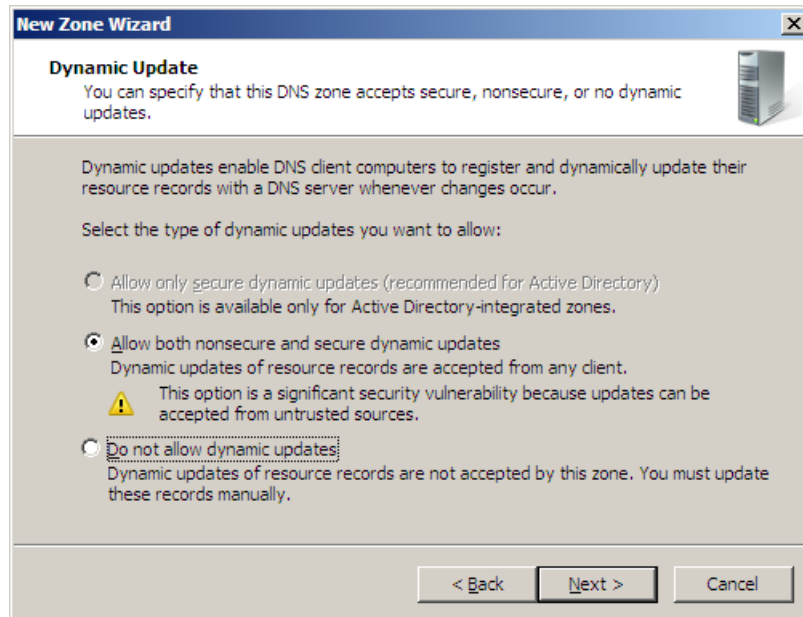
☒ **Create a new file with this file name:**
0.0.10.in-addr.arpa.dns

☐ **Use this existing file:**
[Empty text box]

To use this existing file, ensure that it has been copied to the folder %SystemRoot%\system32\dns on this server, and then click Next.

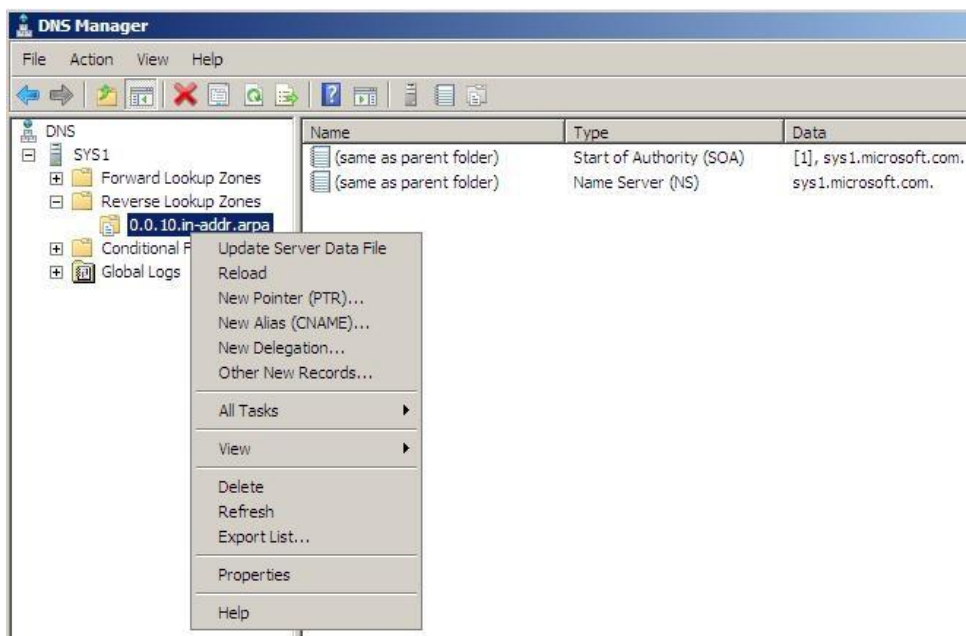
< Back Next > Cancel

8. In dynamic Update Select "**Allow both non-secure and secure dynamic update**" → click **Next** → **Finish**

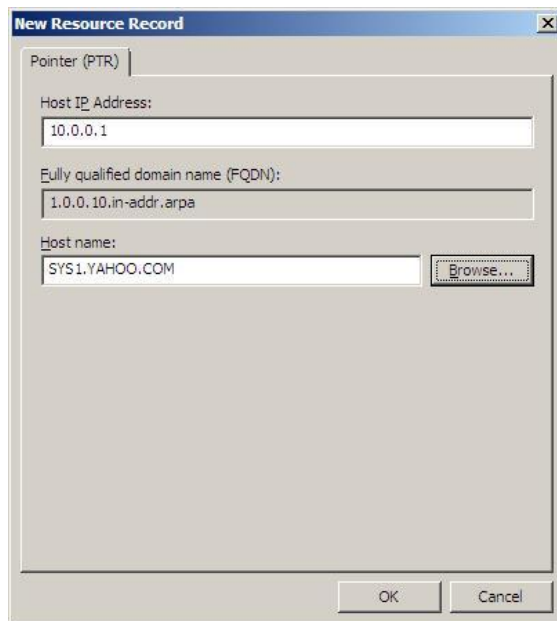


Creating pointer record

1. Select Start → Programs → Administrative Tools → DNS
2. Expand Reverse lookup zone and Right click the zone → select **New Pointer**

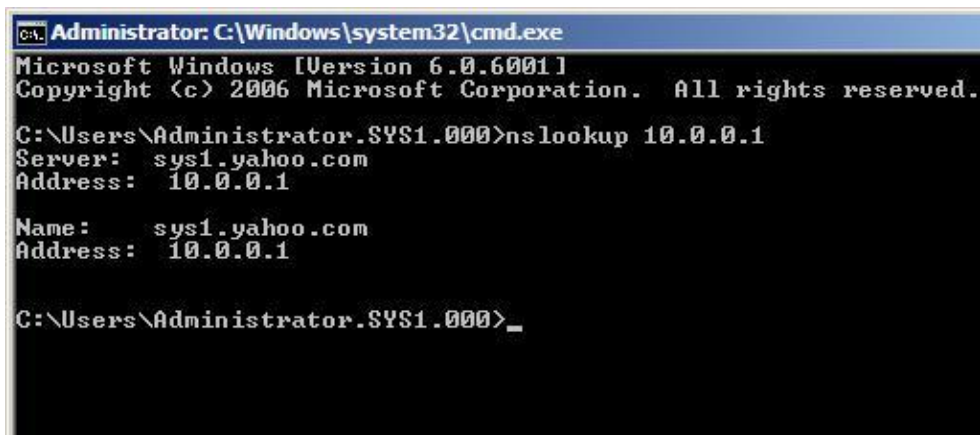


3. In the pointer record give the fourth octet →click browse →double click server name (SYS1) →double click Forward Lookup Zone →double click the zone name(Yahoo.com) →double click the host name (SYS1) →OK



Verification:

1. Open the command prompt and type **nslookup 10.0.0.1**



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator\SYS1.000>nslookup 10.0.0.1
Server: sys1.yahoo.com
Address: 10.0.0.1

Name: sys1.yahoo.com
Address: 10.0.0.1

C:\Users\Administrator\SYS1.000>_
```

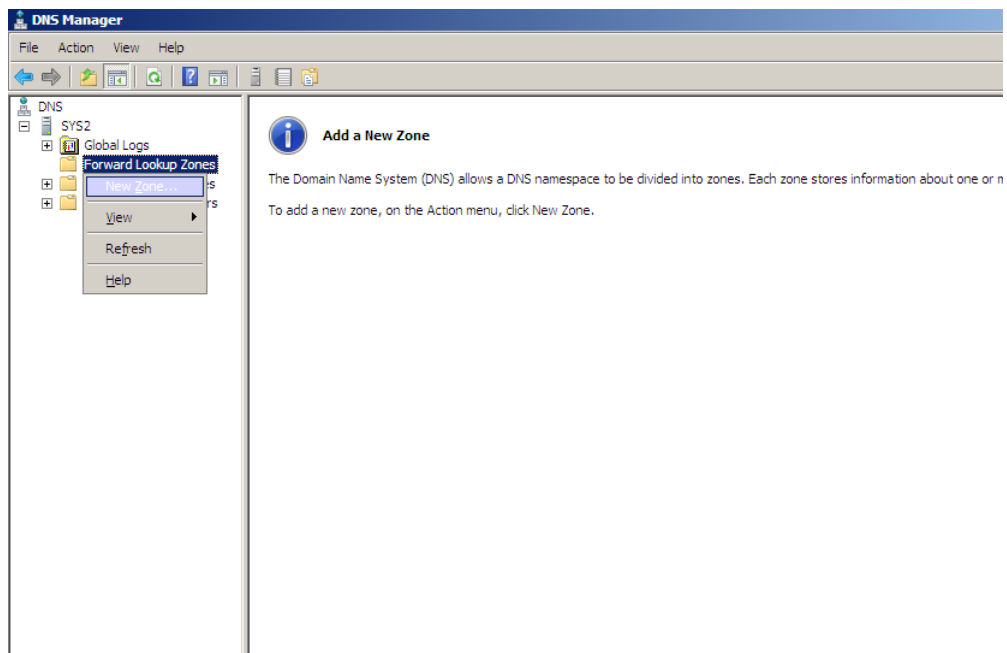
Lab – 4: Creating secondary zone

SYS1 - CONFIGURATION

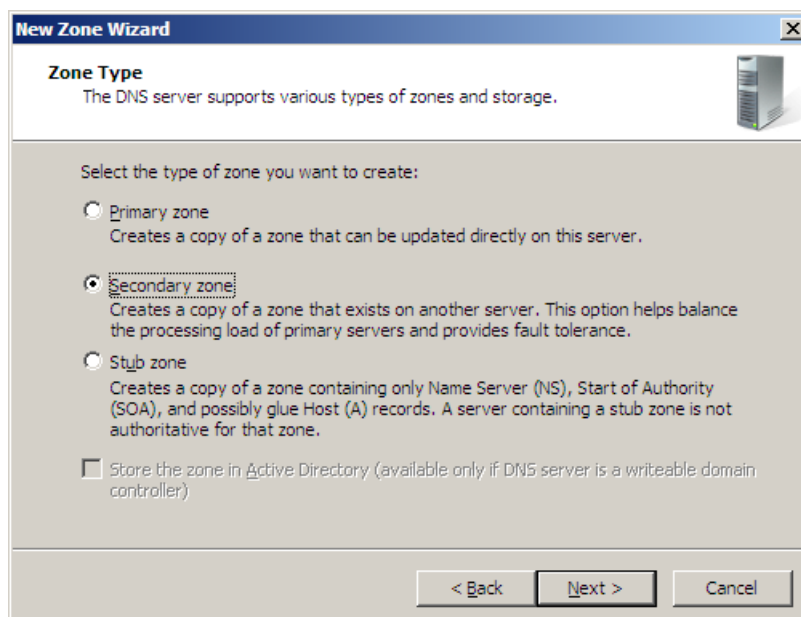
1. In **SYS1** one primary zone should be present. E.g.: Yahoo.com

SYS2 - CONFIGURATION

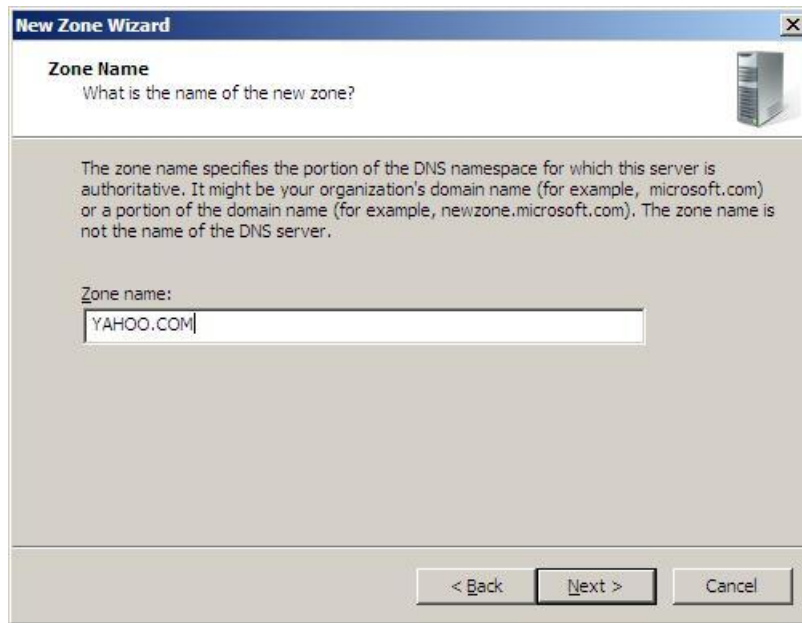
2. Select Start → Programs → Administrative Tools → **DNS**.
3. In the DNS dialog box, Expand the DNS server's name in the left pane.
4. Right click **Forward Lookup Zones** → select **new zone** → Next



5. Select **Secondary zone** → Next



6. Give the name of **primary zone** → click **Next**.



The screenshot shows the 'New Zone Wizard' window at the 'Zone Name' step. The title bar says 'New Zone Wizard'. The main heading is 'Zone Name' with a subtext 'What is the name of the new zone?'. Below this is an explanatory paragraph: 'The zone name specifies the portion of the DNS namespace for which this server is authoritative. It might be your organization's domain name (for example, microsoft.com) or a portion of the domain name (for example, newzone.microsoft.com). The zone name is not the name of the DNS server.' A text box labeled 'Zone name:' contains the text 'YAHOO.COM'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

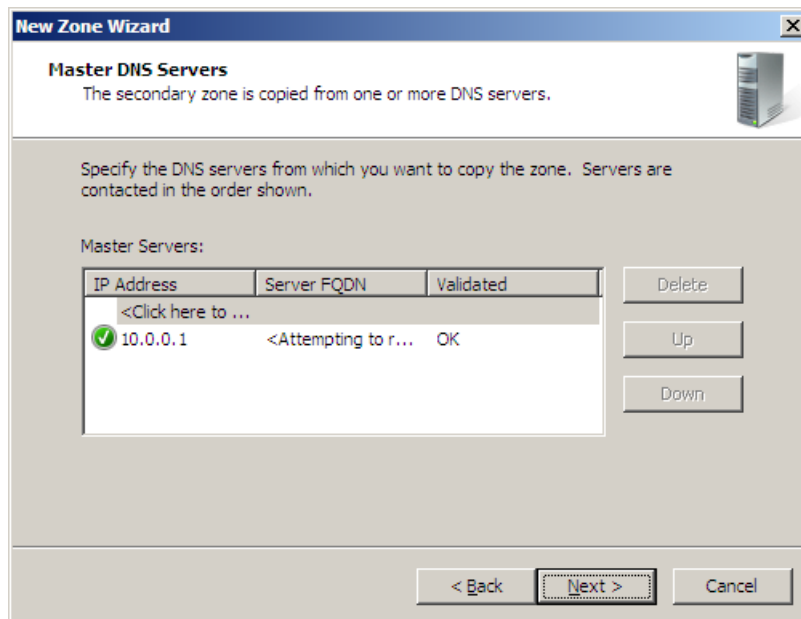
Zone Name
What is the name of the new zone?

The zone name specifies the portion of the DNS namespace for which this server is authoritative. It might be your organization's domain name (for example, microsoft.com) or a portion of the domain name (for example, newzone.microsoft.com). The zone name is not the name of the DNS server.

Zone name:
YAHOO.COM

< Back Next > Cancel

7. Give the **IP address of primary zone** Ex: 10.0.0.1 → click **Next**.



The screenshot shows the 'New Zone Wizard' window at the 'Master DNS Servers' step. The title bar says 'New Zone Wizard'. The main heading is 'Master DNS Servers' with a subtext 'The secondary zone is copied from one or more DNS servers.' Below this is an explanatory paragraph: 'Specify the DNS servers from which you want to copy the zone. Servers are contacted in the order shown.' A table titled 'Master Servers:' has three columns: 'IP Address', 'Server FQDN', and 'Validated'. The first row has a green checkmark in the 'Validated' column, the IP '10.0.0.1' in the 'IP Address' column, and '<Attempting to r... OK' in the 'Server FQDN' column. To the right of the table are three buttons: 'Delete', 'Up', and 'Down'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Master DNS Servers
The secondary zone is copied from one or more DNS servers.

Specify the DNS servers from which you want to copy the zone. Servers are contacted in the order shown.

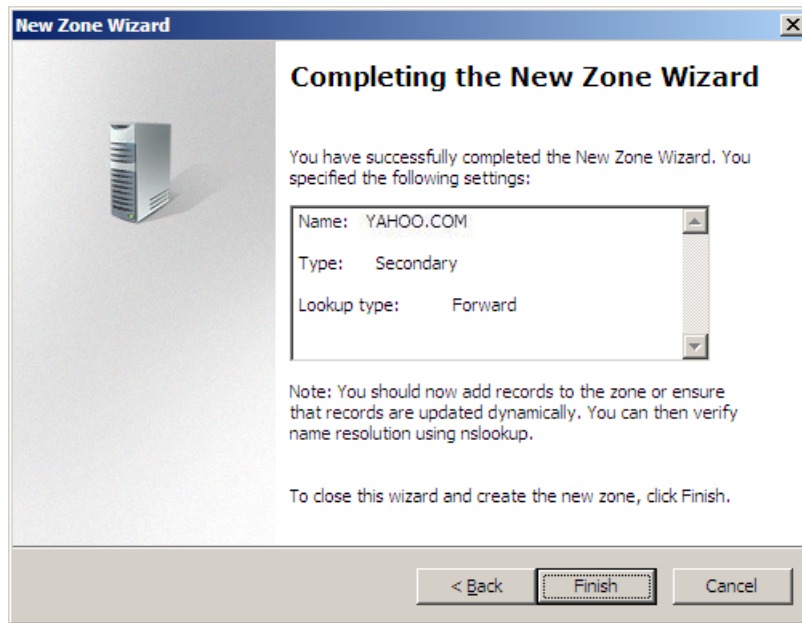
Master Servers:

IP Address	Server FQDN	Validated
<Click here to ...		
10.0.0.1	<Attempting to r...	OK

Delete
Up
Down

< Back Next > Cancel

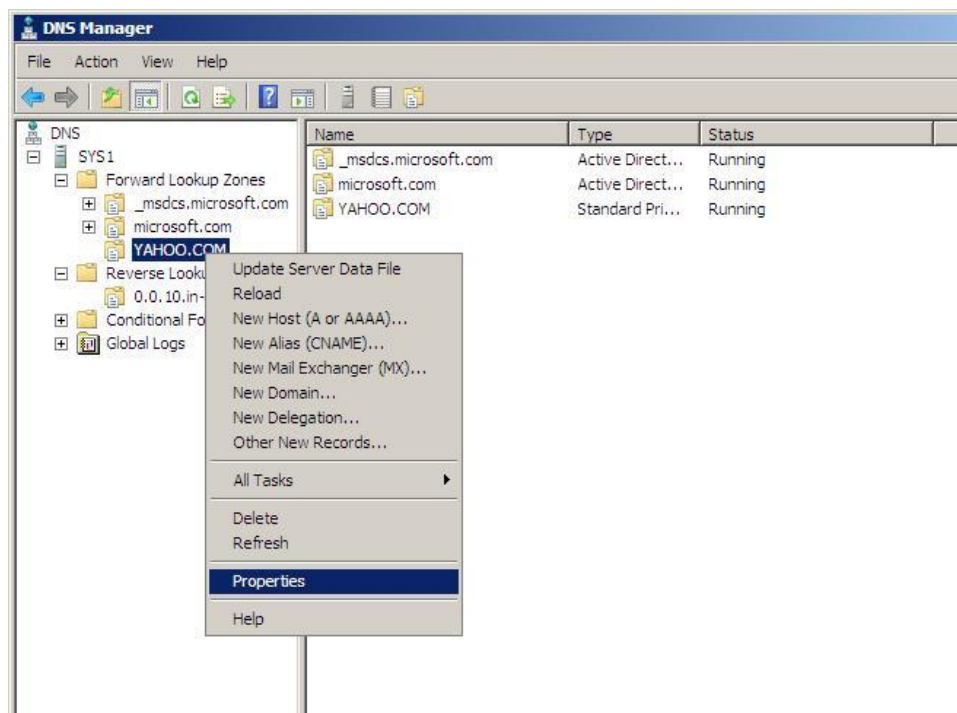
8. Click **Next** → **Finish**.



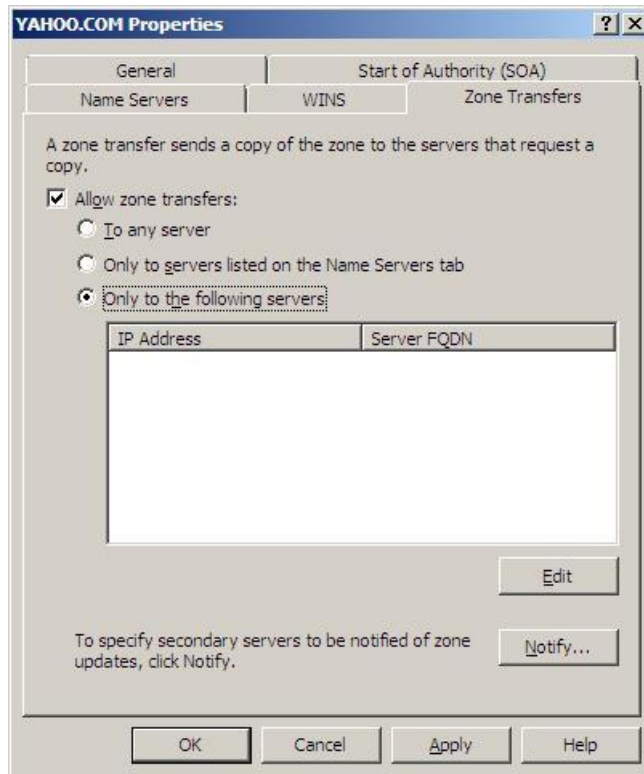
Allow zone transfers to secondary zone

SYS1-CONFIGURATION

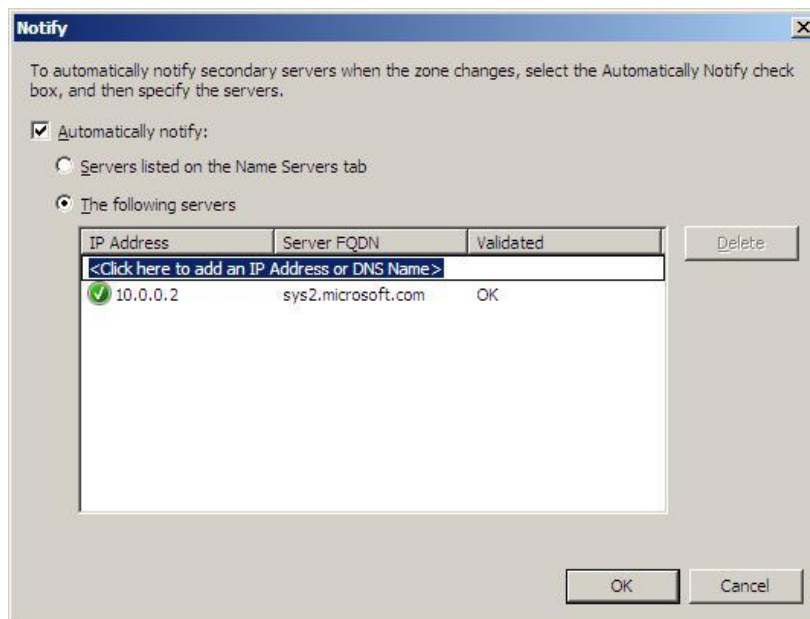
1. Select Start → Programs → Administrative Tools → **DNS**.
2. In the DNS dialog box, Expand the DNS server's name in the left pane → Expand Forward Lookup Zone → Right click **primary zone** → select properties.



3. Select **zone transfers** Tab → check the box for **Allow zone transfers** → select **only to the following servers**.



4. Click **Edit** and mention the **Computer IP address of secondary zone**. Click **Notify** → Select **to the following servers** → and mention the **Computer IP address of secondary zone**.



5. Click **Apply** → **OK** → Again Click **Apply** → **OK**.

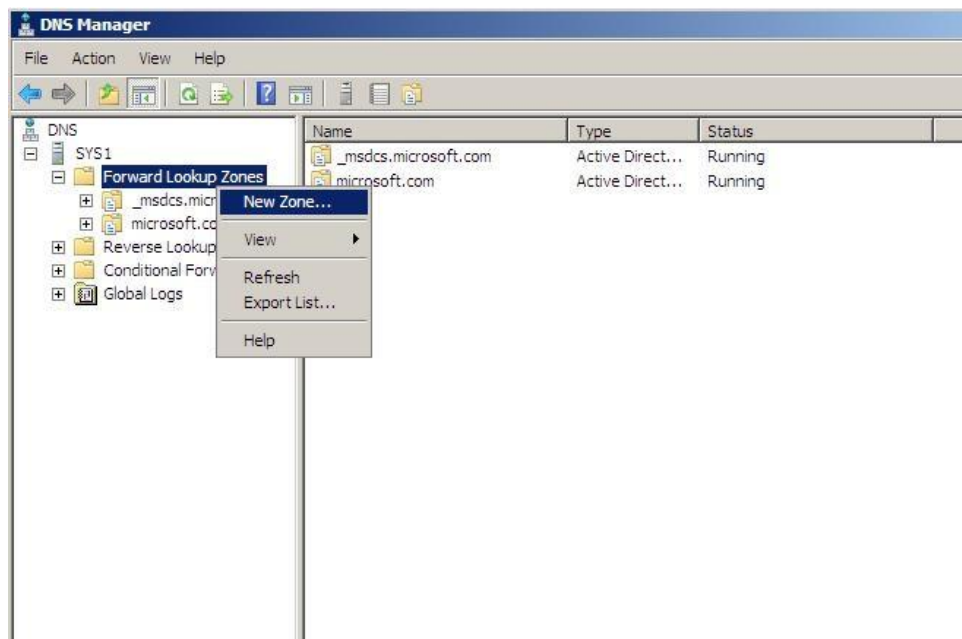
Lab – 5: Creating Stub zone

SYS1-CONFIGURATION

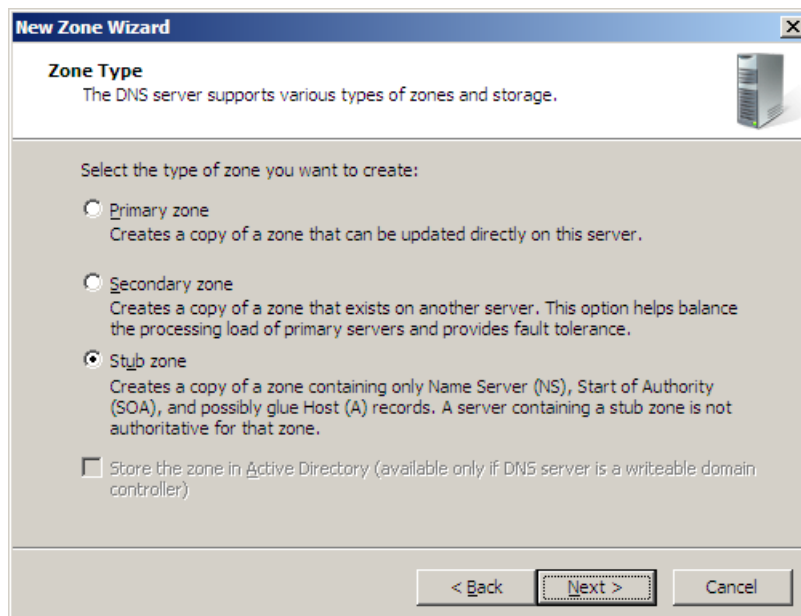
1. Log on to **SYS1** and create a primary zone **Msn.com** along with host and alias records.

SYS2-CONFIGURATION

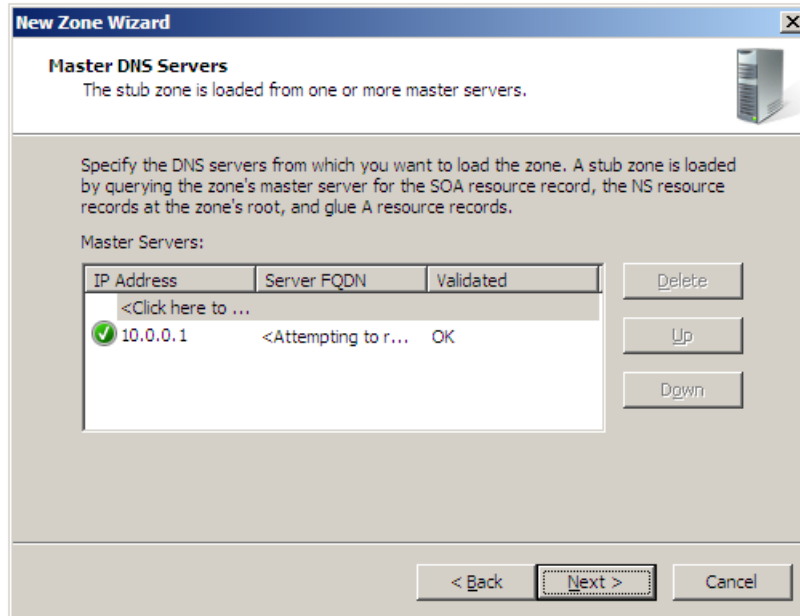
1. Log on to **SYS2** and Select Start → Programs → Administrative Tools → **DNS**.
2. In the DNS dialog box, Expand **DNS server name** in the left pane Right click **Forward Lookup Zones** → Select **new zone** → **Next**



4. Select **Stub zone** → **Next**



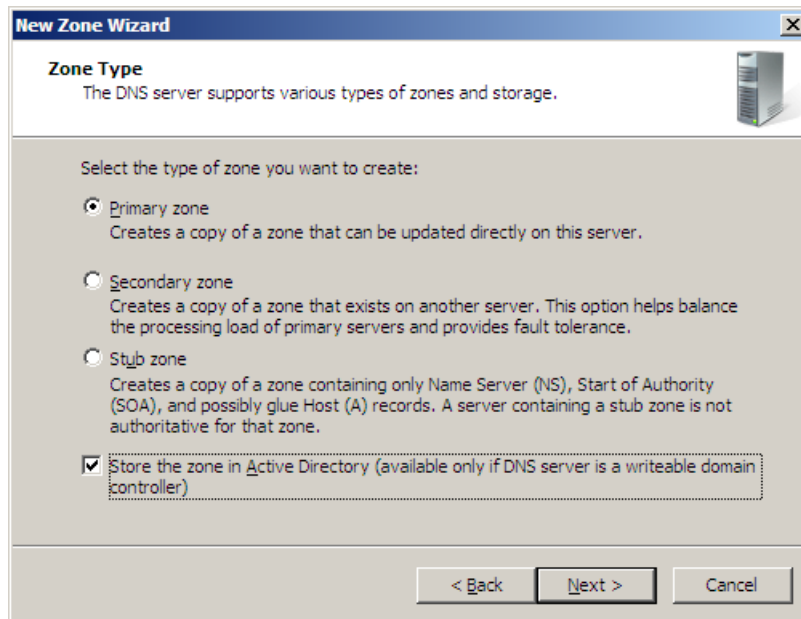
5. Give the name of **primary zone (Msn.com)** →click **Next**.
6. Give the **IP address of primary zone** Ex: 10.0.0.1→click **Next**.



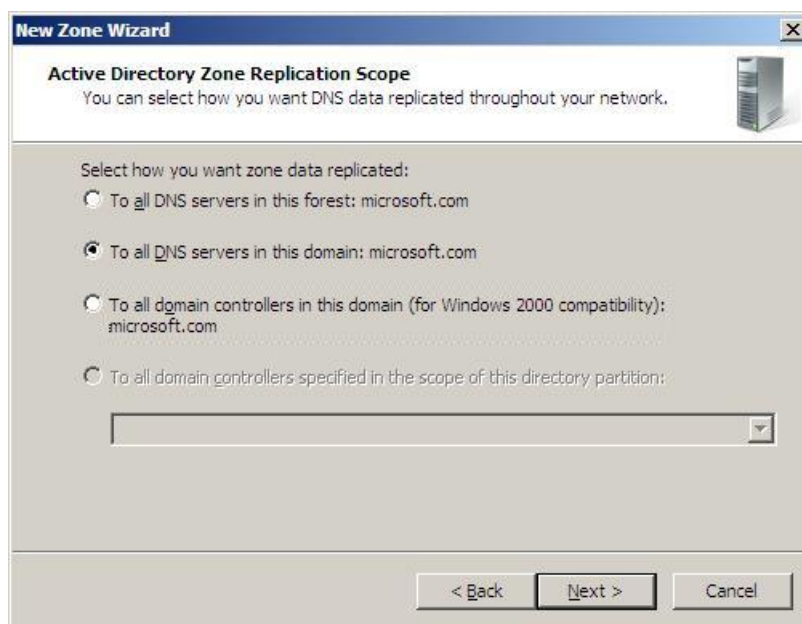
9. Click Next →**Finish**.
10. **Refresh the stub zone** and verify for records.

Lab – 6: Creating Active Directory Integrated Primary zone

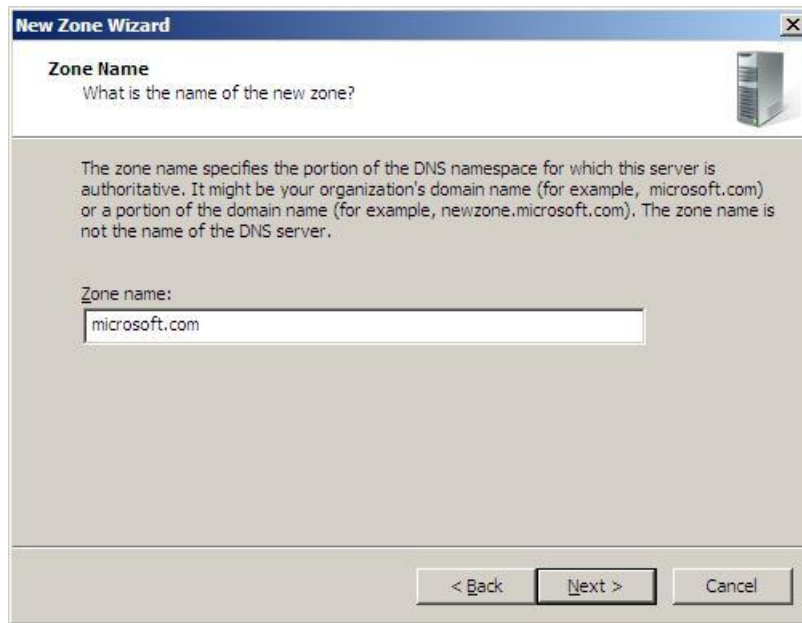
1. Select Start → Programs → Administrative Tools → DNS.
2. In the DNS dialog box, expand the DNS server's name in the left pane Right click **Forward Lookup Zones** →select **new zone**
3. Click Next → Accept the default option of “**Primary Zone**” and Select the check box for “**Store the zone in Active Directory**” →click **Next**.



4. In AD Zone Replication Scope, Select the “**To all DNS servers in Active directory domain**”→click **Next**.

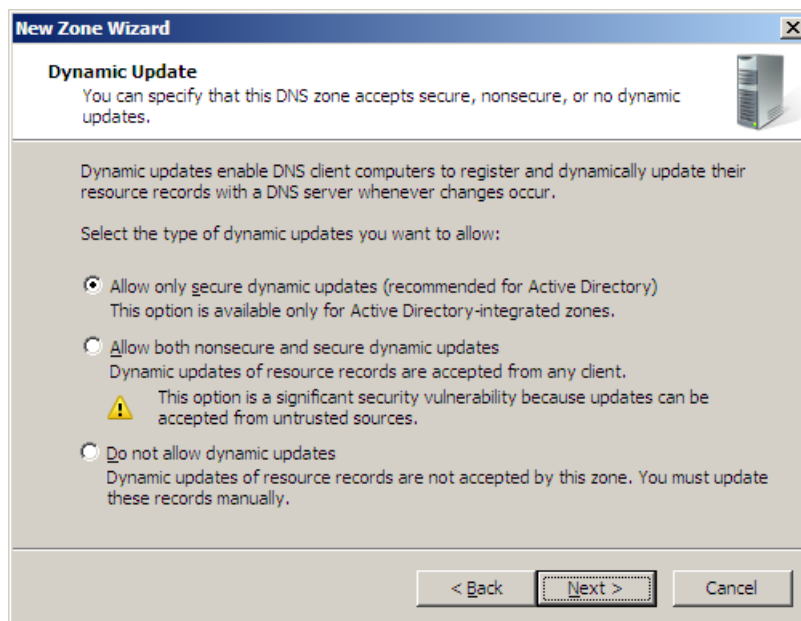


5. Give the Zone Name same as the **domain name** (Ex: Microsoft.com) click **Next**.



The screenshot shows the 'New Zone Wizard' window at the 'Zone Name' step. The title bar says 'New Zone Wizard'. The main heading is 'Zone Name' with a subtext 'What is the name of the new zone?'. Below this is an explanatory paragraph: 'The zone name specifies the portion of the DNS namespace for which this server is authoritative. It might be your organization's domain name (for example, microsoft.com) or a portion of the domain name (for example, newzone.microsoft.com). The zone name is not the name of the DNS server.' A text box labeled 'Zone name:' contains the text 'microsoft.com'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

6. Select **“Allow only secure and dynamic update”** → click **Next** → **Finish**.



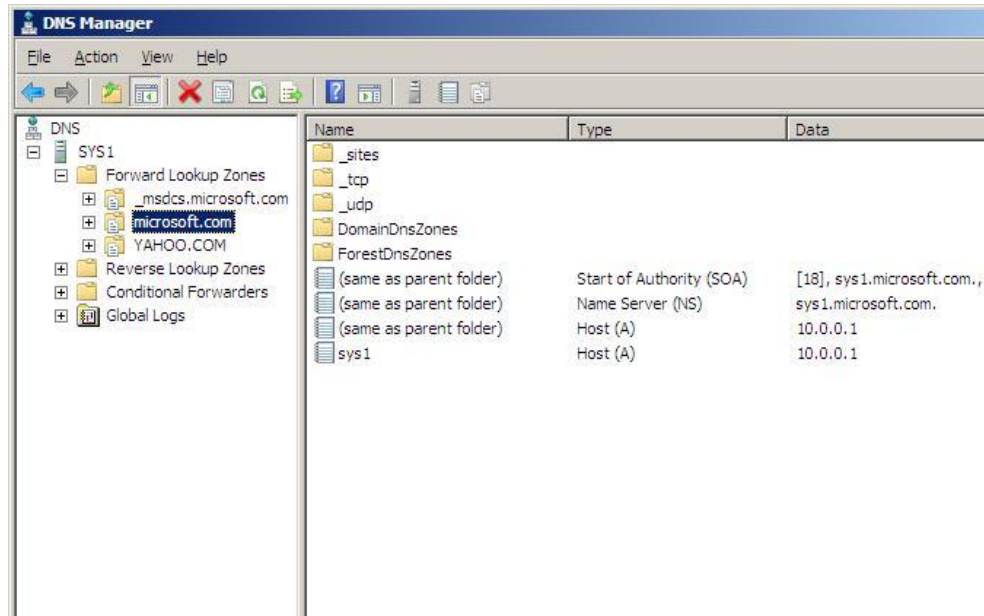
The screenshot shows the 'New Zone Wizard' window at the 'Dynamic Update' step. The title bar says 'New Zone Wizard'. The main heading is 'Dynamic Update' with a subtext 'You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.' Below this is an explanatory paragraph: 'Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur.' Then it says 'Select the type of dynamic updates you want to allow:'. There are three radio button options: 1. 'Allow only secure dynamic updates (recommended for Active Directory)' with a note 'This option is available only for Active Directory-integrated zones.' 2. 'Allow both nonsecure and secure dynamic updates' with a note 'Dynamic updates of resource records are accepted from any client.' and a warning icon with text 'This option is a significant security vulnerability because updates can be accepted from untrusted sources.' 3. 'Do not allow dynamic updates' with a note 'Dynamic updates of resource records are not accepted by this zone. You must update these records manually.' At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Verification:

1. Verify for the Service records in Microsoft.com zone.

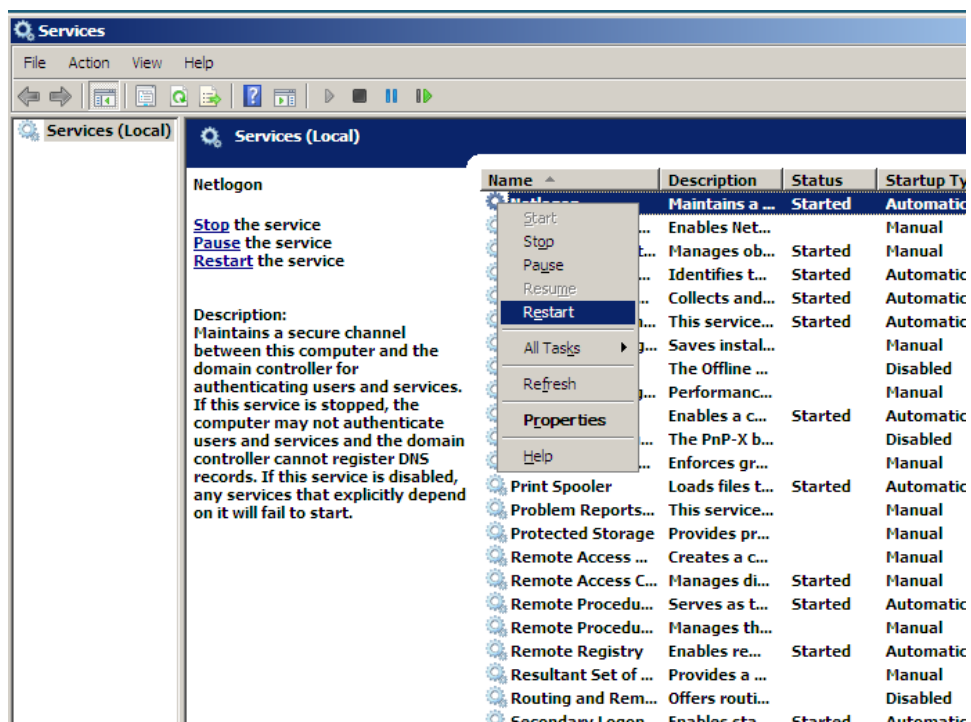
NOTE: Service records are available only for the zone with the domain name.

2. In **DC** by default the service records are created in the DNS server in the zone with domain name.



Note: To get the missing records restart the services **Netlogon** and **DNS Server**.

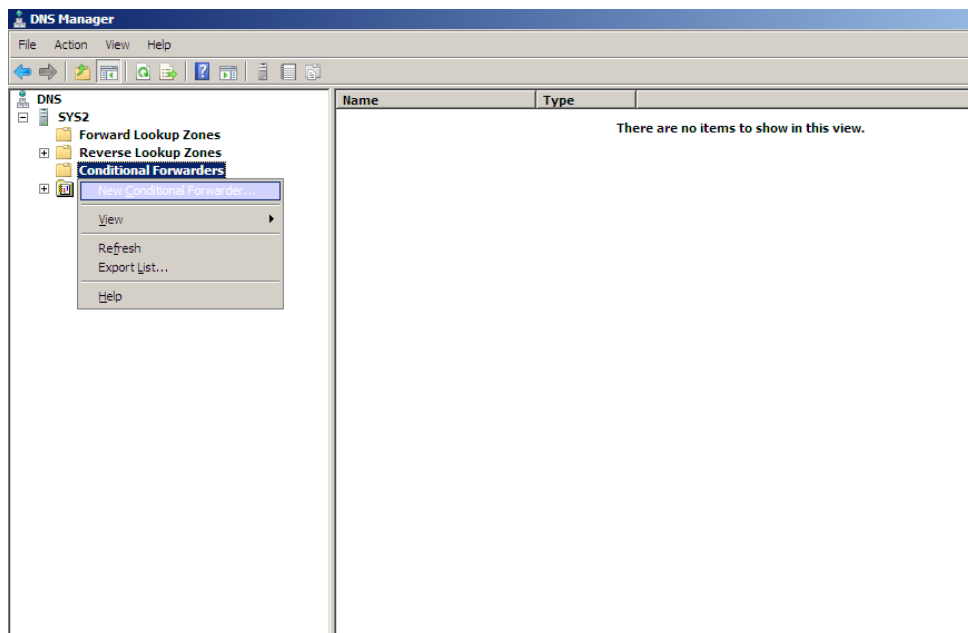
3. Select Start → Programs → Administrative Tools → Services → Right click on **Netlogon** and click **restart**, Right click on **DNS Server** and click **restart**.



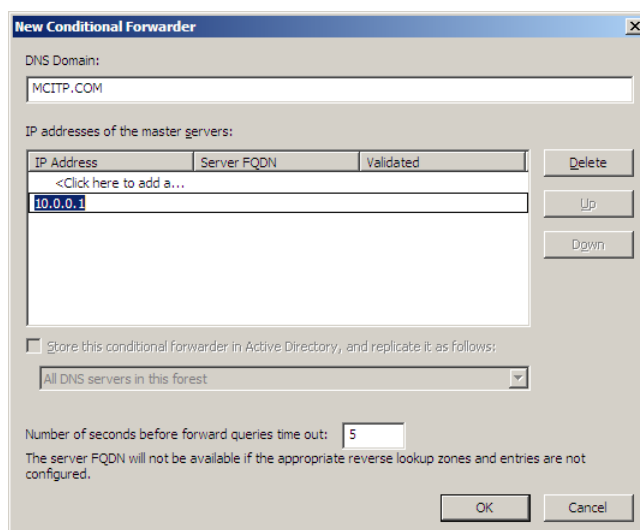
Lab – 7: Conditional Forwarders

1. In **SYS1** create a zone with the name Ex: **MCITP.COM** with host and alias records.
2. In **SYS1** open the command prompt and type ping www.MCITP.COM
3. There will be a reply from 10.0.0.1
4. In **SYS2** assign the **IP Address** and **Preferred DNS** as **10.0.0.2**
5. In **SYS2** open the command prompt and type ping www.MCITP.COM
6. There will not be any reply because the information is in 10.0.0.1
7. If **SYS2** has to resolve the query then configure forwarders in **SYS2** properties.
8. Go to DNS dialog box in **SYS2** → Right click on **conditional forwarders** → select

New conditional forwarders



9. Mention the DNS Domain as **MCITP.COM** and add the IP address of primary zone.

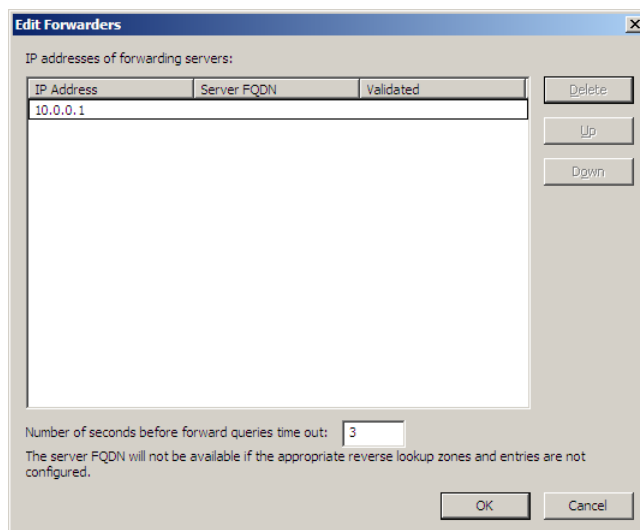


10. In **SYS2** open the command prompt and type ping www.MCITP.COM
11. There will be a reply from 10.0.0.1

Note: Only MCITP.COM names can be resolved with the above process.

Lab – 8: Forwarders

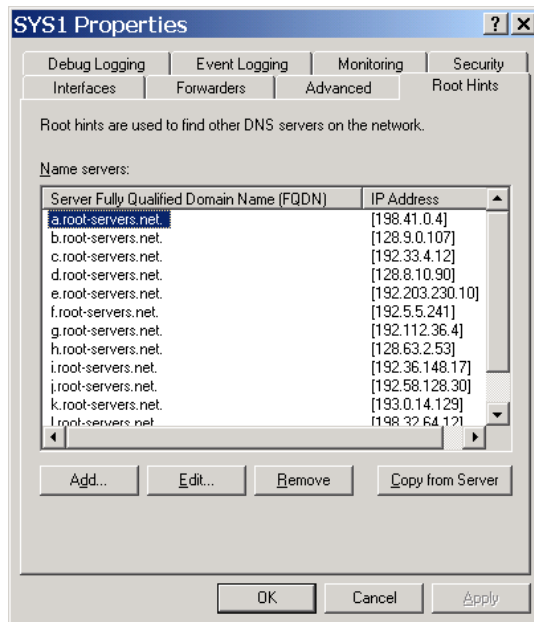
1. In **SYS1** create a zone with the domain name Ex: **Microsoft.com** with host and alias records.
2. In **SYS1** open the command prompt and type ping www.Microsoft.com
3. There will be a reply from 10.0.0.1
4. In **SYS2** assign the **IP Address** and **Preferred DNS** as **10.0.0.2**
5. In **SYS2** open the command prompt and type ping www.Microsoft.com
6. There will not be any reply because the information is in 10.0.0.1
7. If **SYS2** has to resolve the query then configure forwarders in **SYS2** properties.
8. Open DNS in **SYS2** → Right click **SYS2** → select properties → select forwarders → click Edit.
9. Mention the IP address of primary zone → click **OK** → click **OK**.



10. In **SYS2** open the command prompt and type ping www.Microsoft.com
11. There will be a reply from 10.0.0.1

Lab – 9: Root Hints

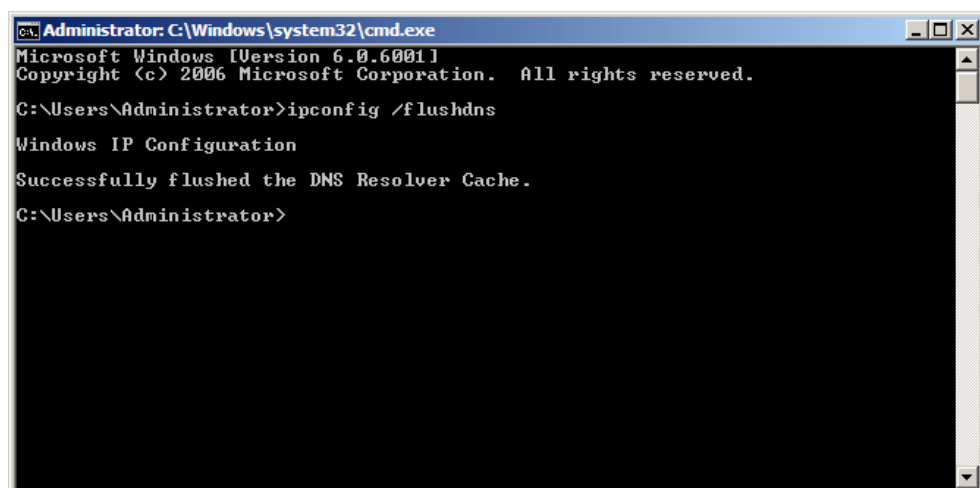
1. Root hints contain the information of 13 root servers
2. Open DNS → Right click the system name → select properties → select root hints



Lab – 10: Cache server

1. To see the information present in the cache type the command
"Ipconfig /displaydns"
2. To clear the cache information type the command

"Ipconfig /flushdns"

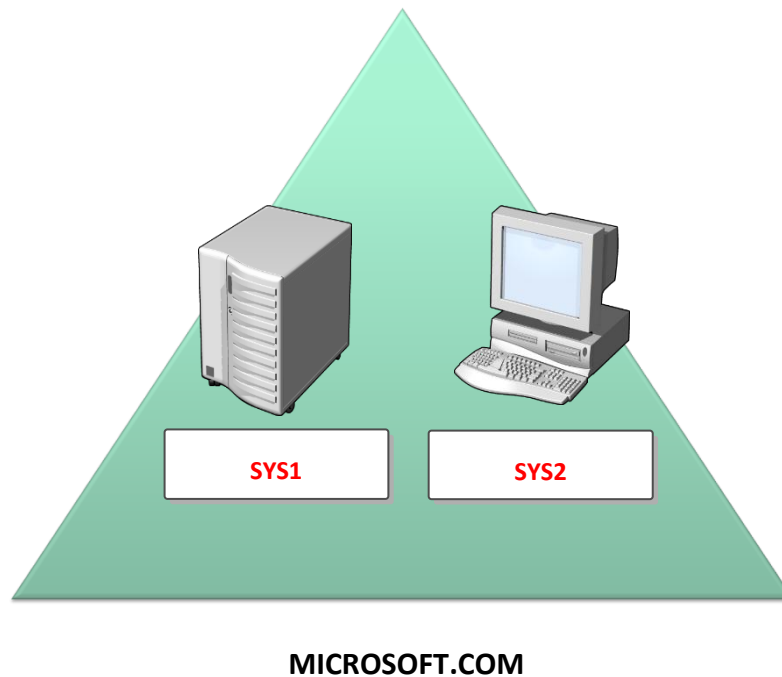


INTERNET INFORMATION SERVICES (IIS) - WEB SERVER

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server or Domain Controller.
2. A computer running windows 2008 server or Windows 7.



SYS1

Domain Controller/DNS/Web Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

SYS2

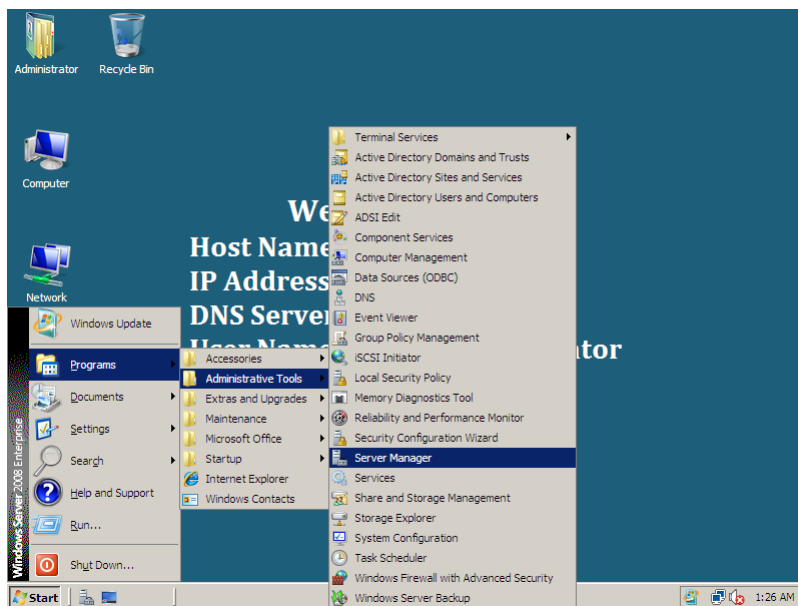
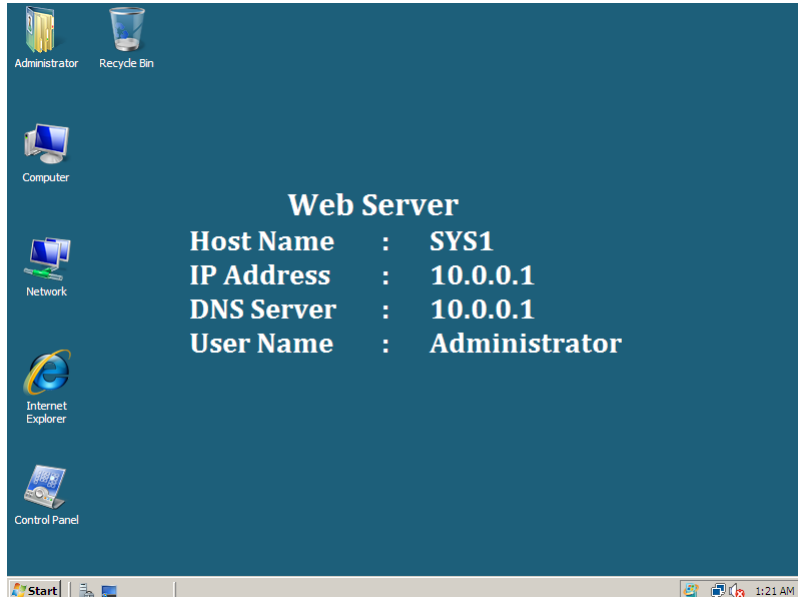
Member Server / Client

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

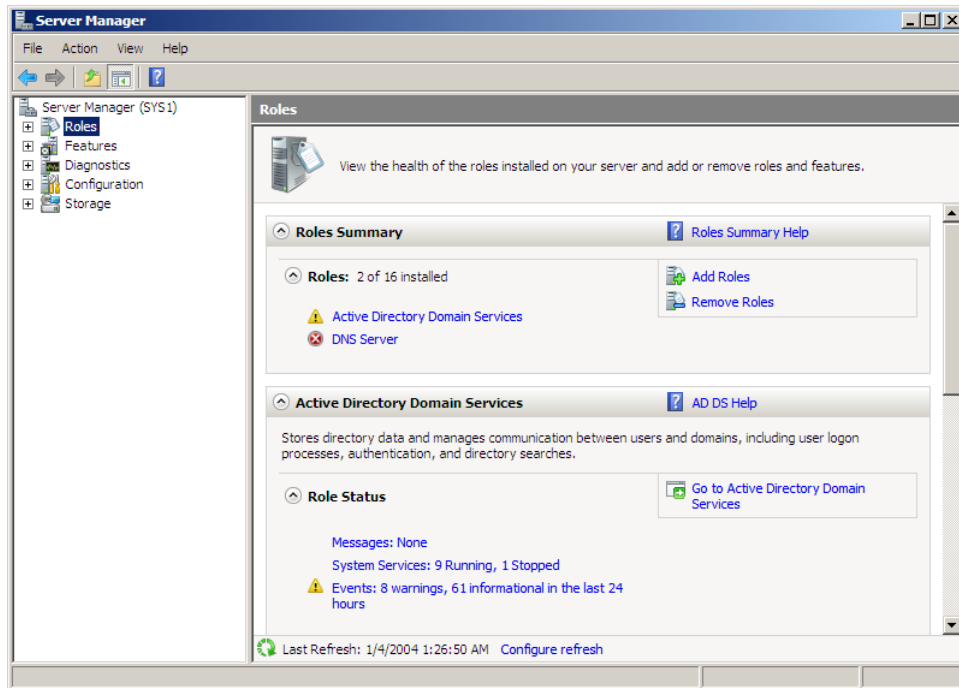
Lab – 1: Installing Internet Information Services - Web Server

SYS1- CONFIGURATION

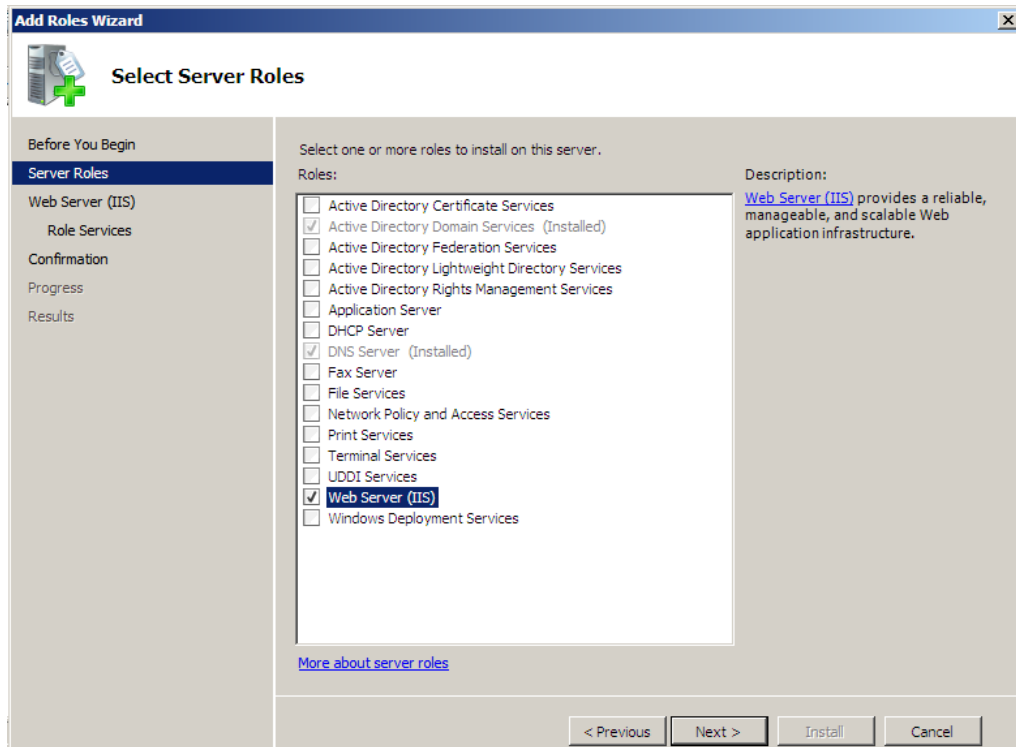
1. Go to Start → Programs → Administrative Tools → **Server Manager**.

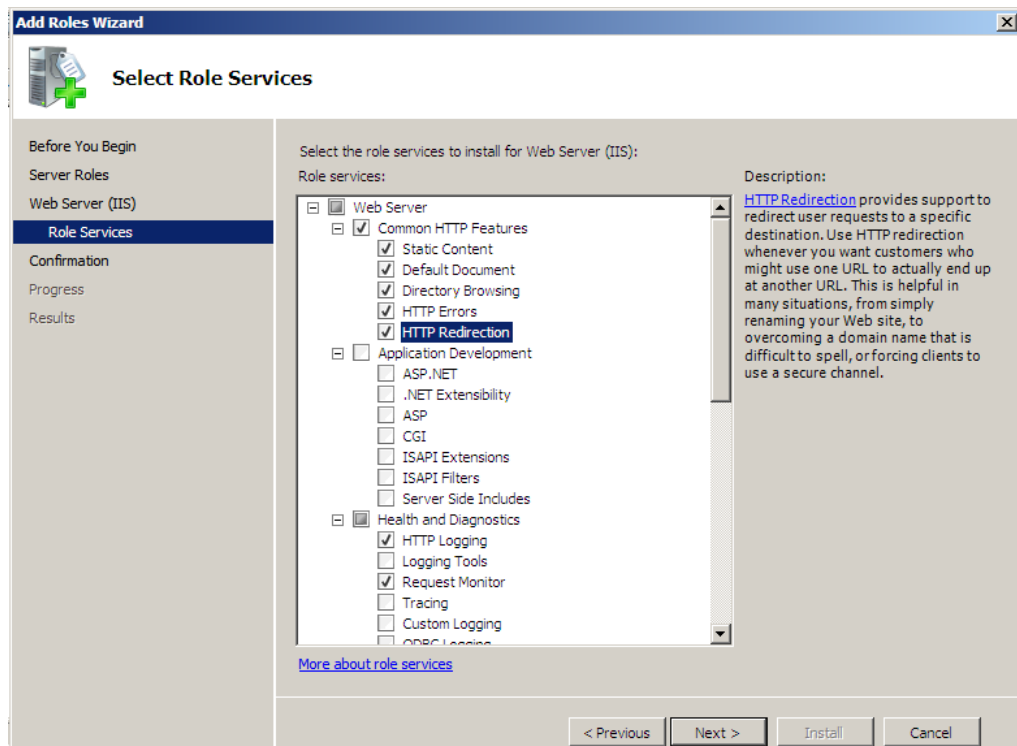
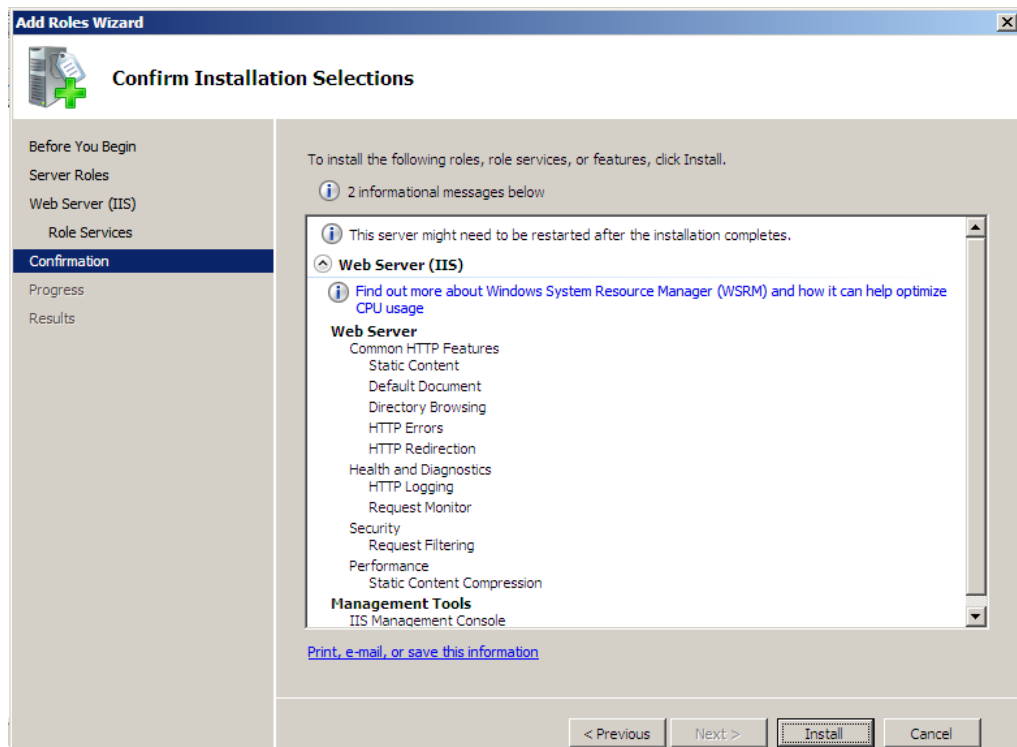


2. In the Server Manager → Select **Roles** and select **Add Roles**.



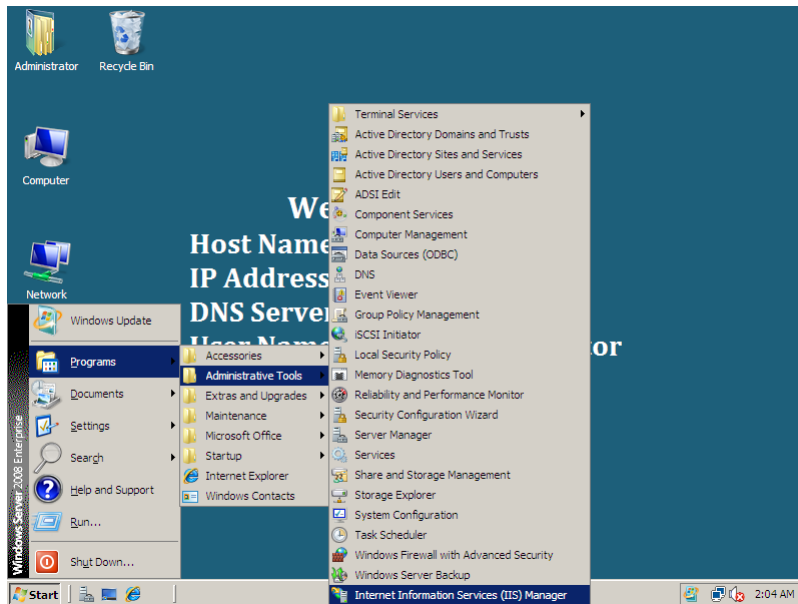
3. In the **Add Roles wizard** → select the Check box for **Web Server (IIS)**.



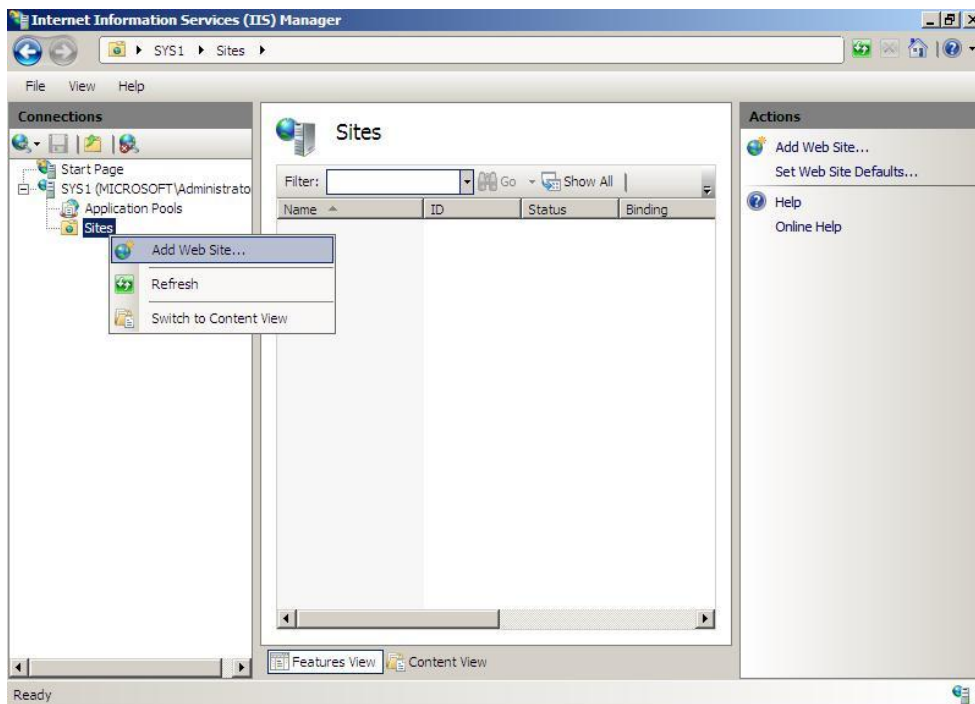
4. Select the Check box for **HTTP Redirection**.5. Click **Next** and click **Install**.7. Click **Finish**.

Lab – 2: Creating a Web Site

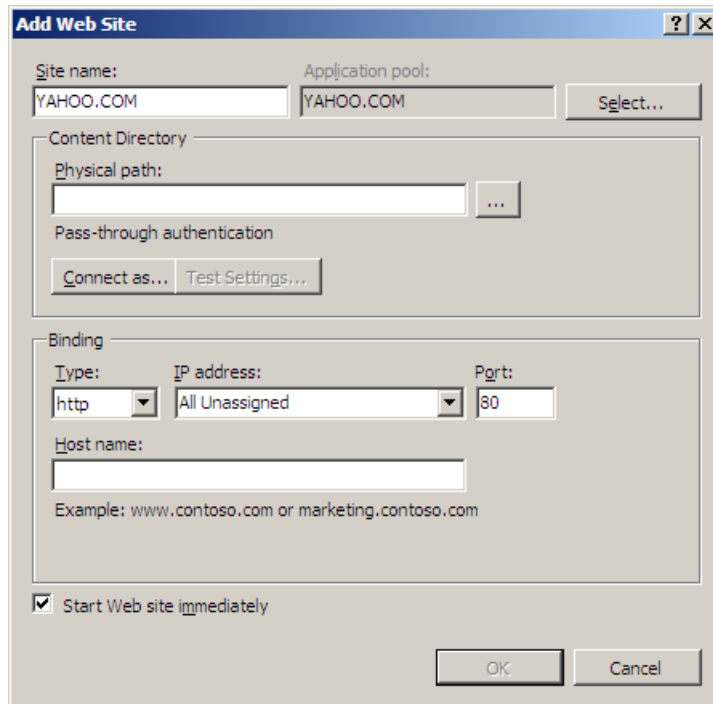
1. Select Start→Programs→Administrative Tools→Internet Information Services Manager.



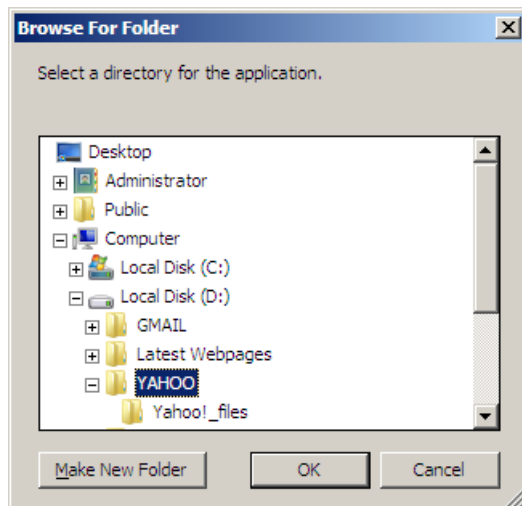
2. In the left pane of the **Internet Information Services**, Expand the server →Right click on sites and select **Add Web Site**.



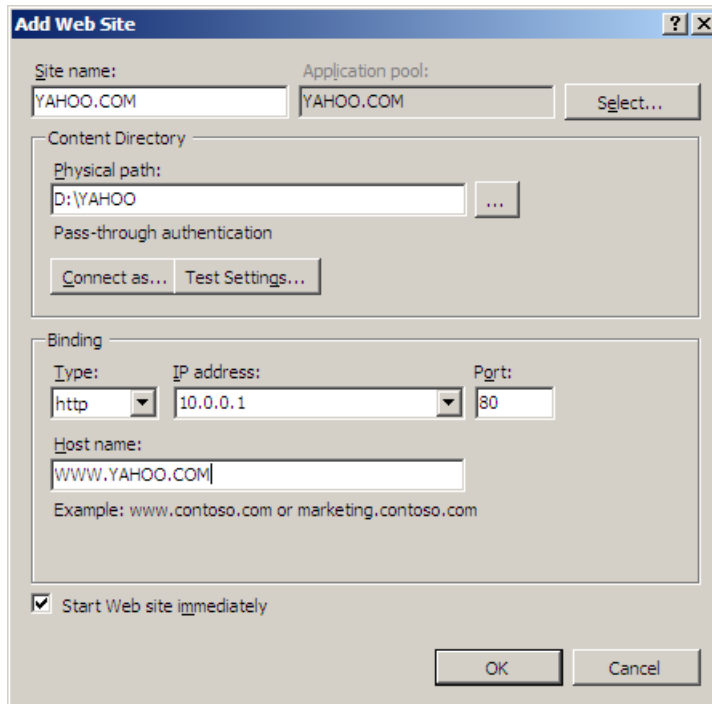
3. **Add Web Site** wizard opens → In the Site name type a **Name for the Website**
Ex:YAHOO.COM



4. In Physical path, browse and select the location of **Home Directory (webpage)**



5. Select one **IP address (10.0.0.1)** from the drop-down list.
6. Specify the Host name Ex: WWW.YAHOO.COM & click **OK**.

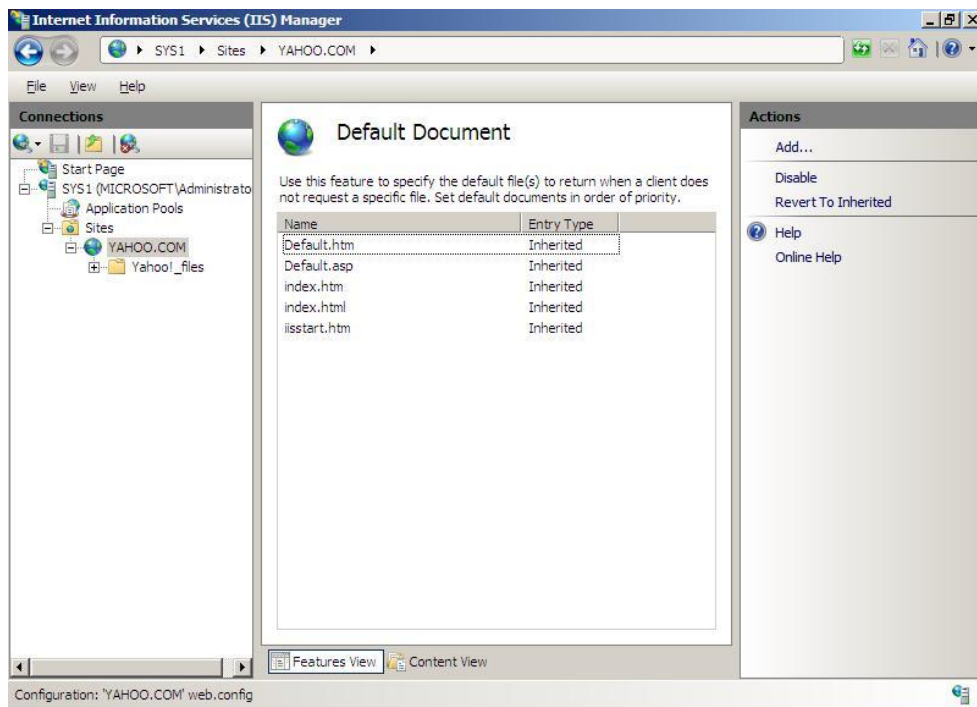
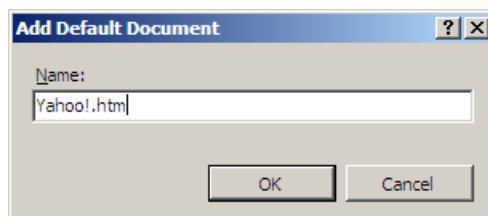


7. **Web Site** will be successfully added.

Adding the Default Document for the website

1. Open IIS → expand sites → select website → on **Actions** pane → click **Explore** → Select the **Webpage** → Right click & select **Rename** → **Copy the webpage name**
2. In IIS → expand sites → select website → Open **Default Document** feature.



3. Click **Add**4. Mention (Paste) the html file name (with Extension of file) Ex: Yahoo!.htm → click **OK**.

Enable Directory Browsing for the web site

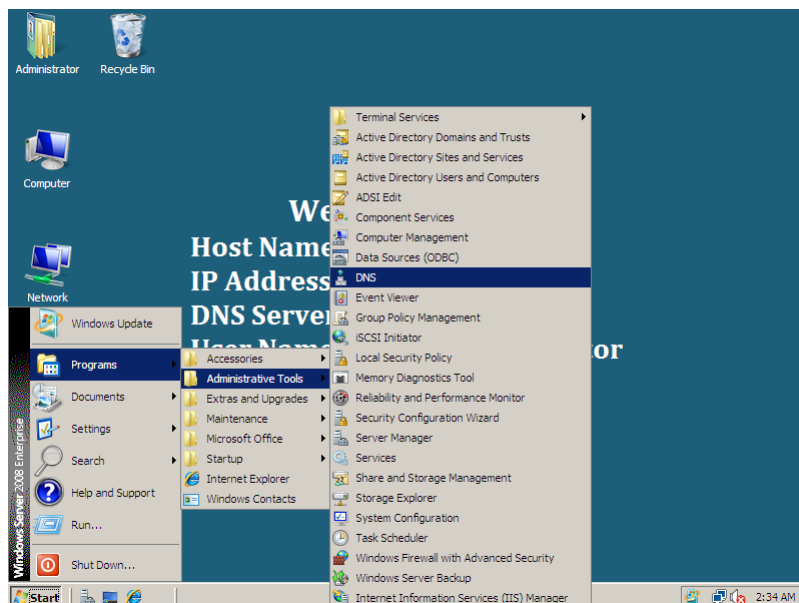
1. Open IIS → expand sites and select the website (YAHOO.COM)



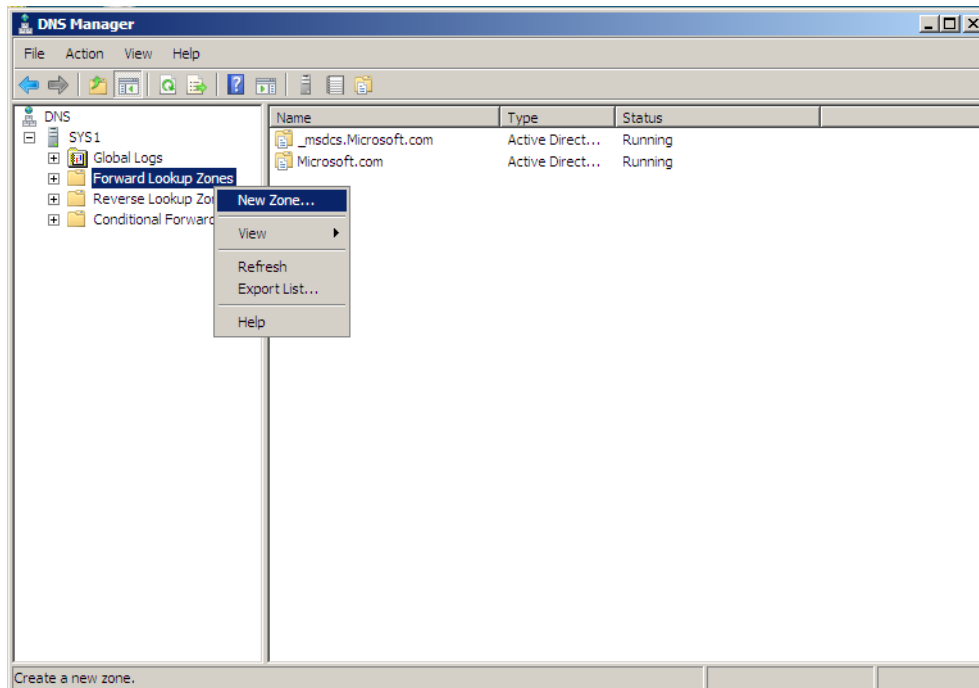
2. Open **Directory Browsing Feature** → and click **Enable**. (on Actions pane)

DNS Configuration for the Website

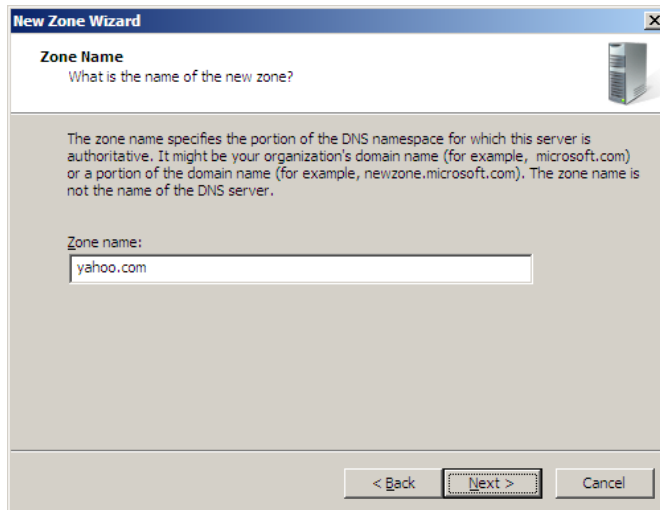
1. Select Start → Programs → Administrative Tools → DNS



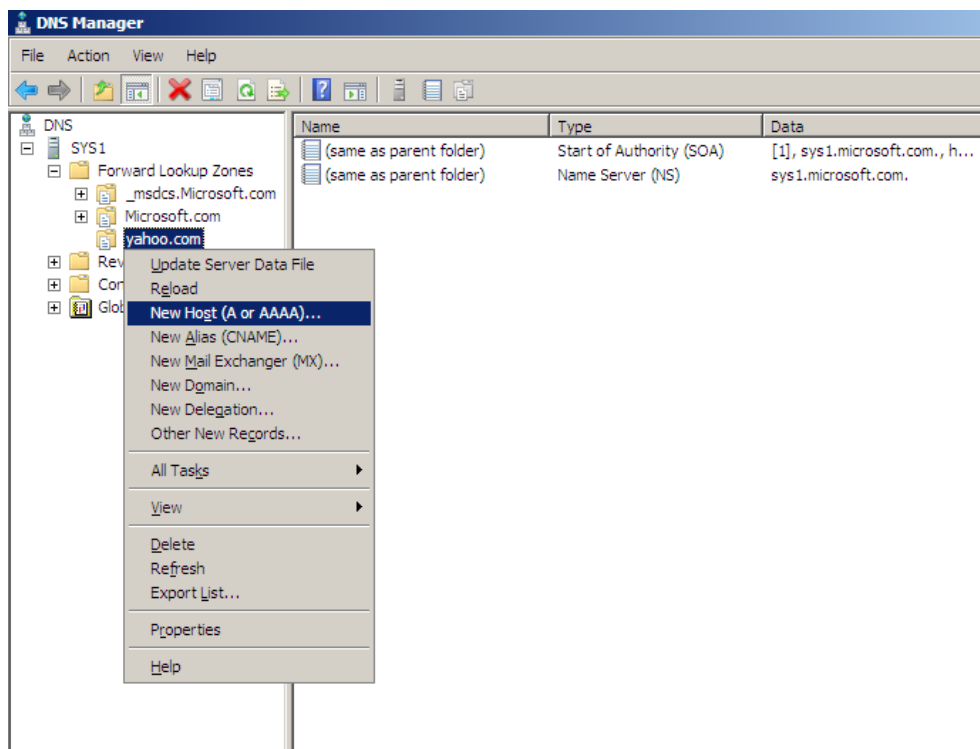
2. Select **forward lookup zone** → Right click select **new zone**



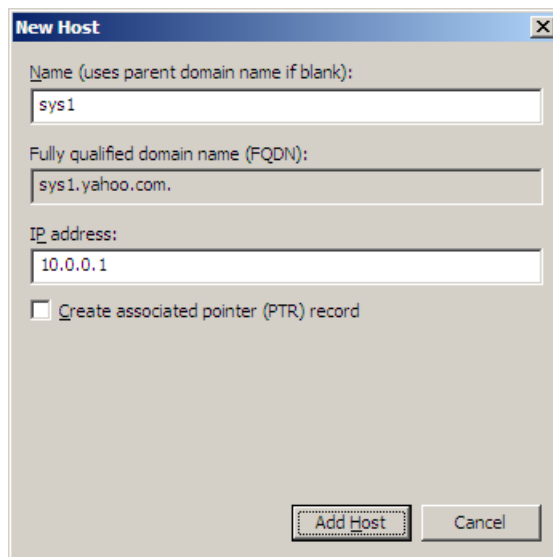
3. Create a new primary zone in **forward lookup zone** & mention the website **domain name** (Ex:YAHOO.COM)



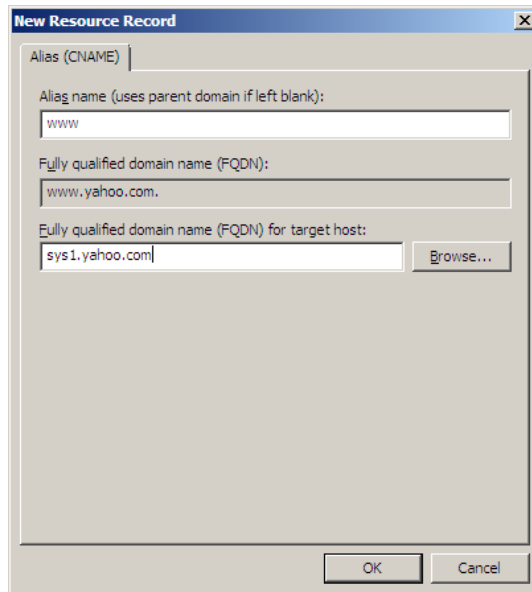
4. Select the zone → Right click select **New Host**



5. Mention the **Web Server** name and IP Address → Add Host → OK → Done.

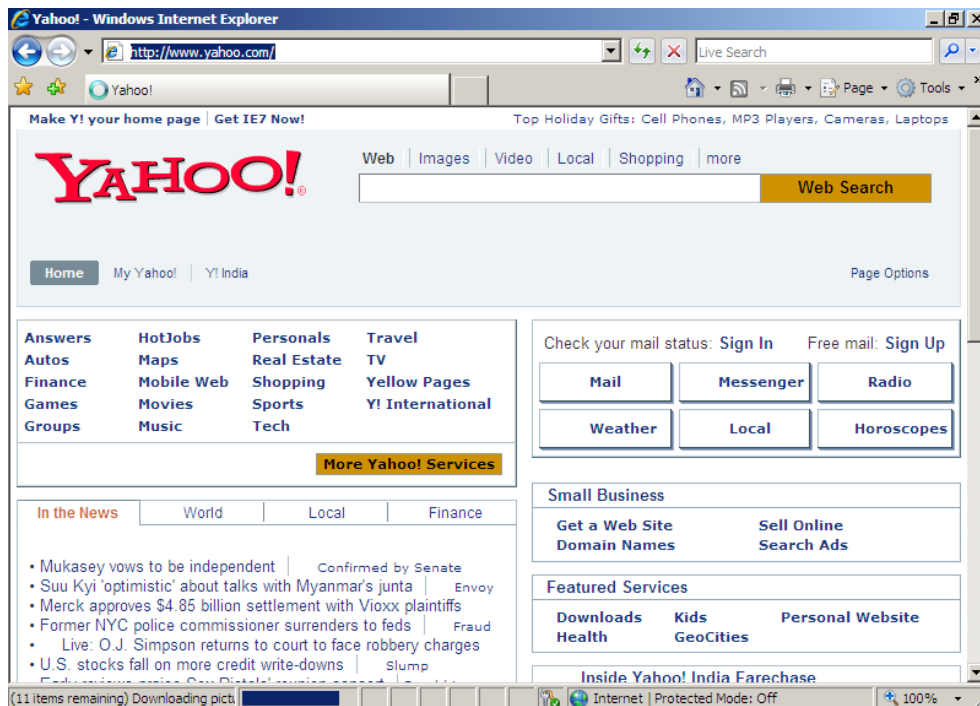


6. Select the zone → Right click select **New Alias** & Create an **Alias** (E.g.: www) for the host, which you specified in the host header for the site → click **OK**.



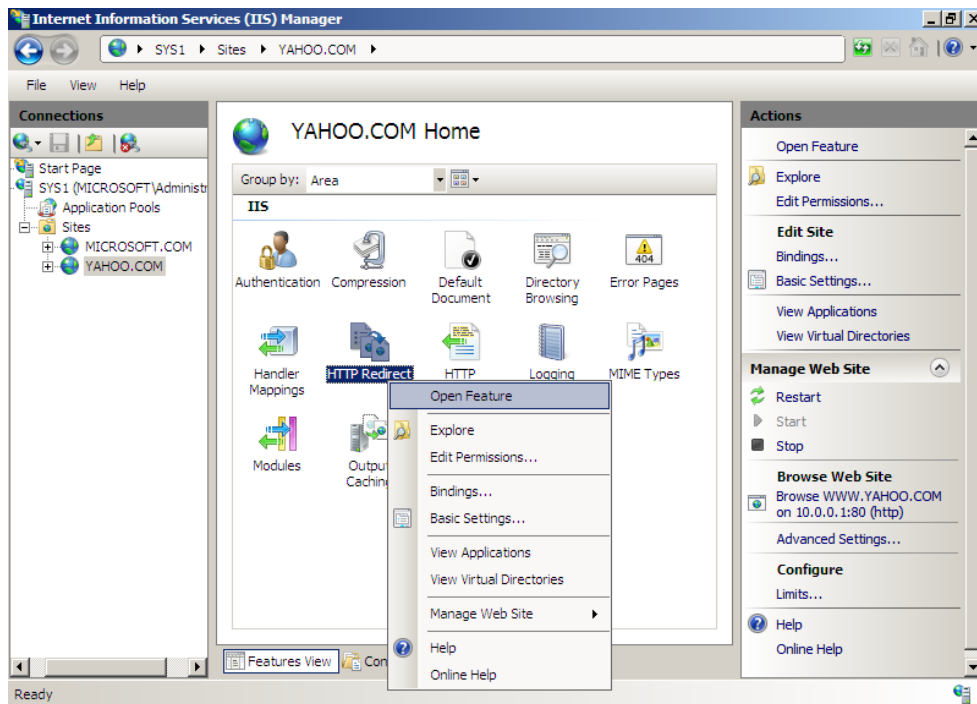
VERIFICATION:

1. Open **Internet Explorer** or any browser and access the **website**

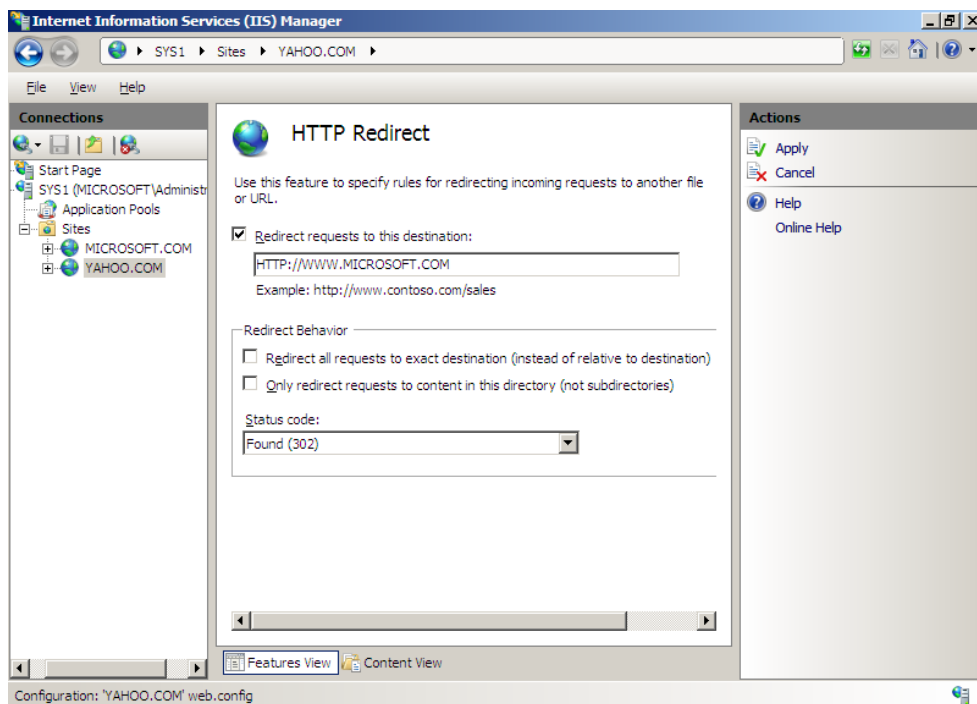


Lab – 3: Configuring redirection of Websites

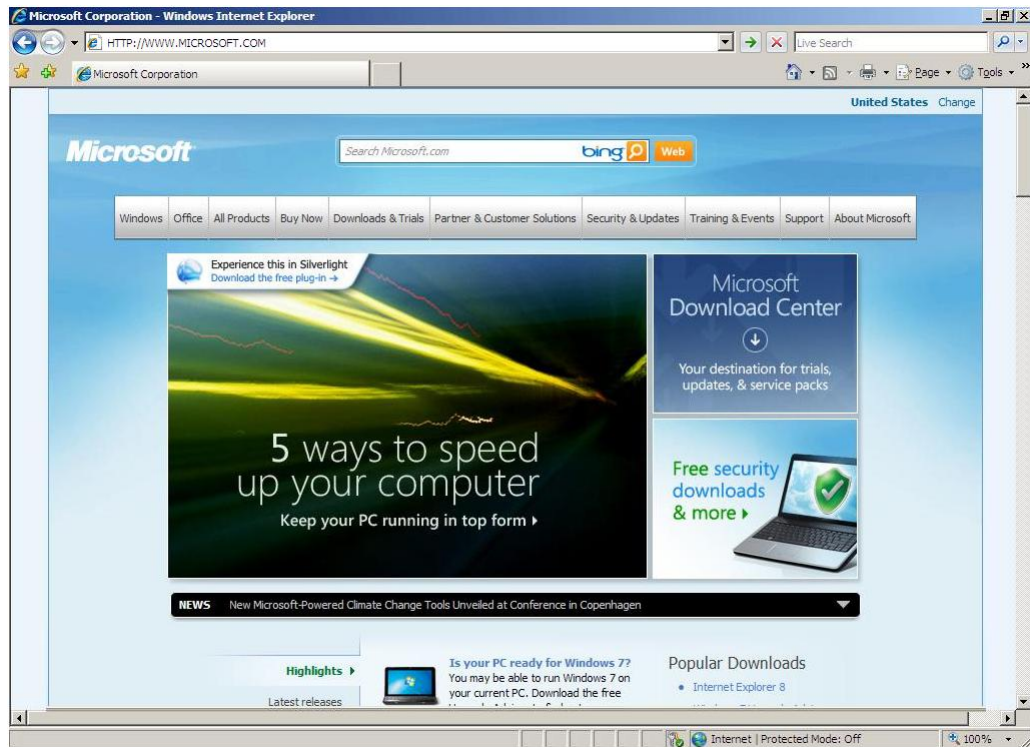
1. Select Start → Programs → Administrative Tools → **Internet Information Services Manager**, Create **two websites**, Ex: **YAHOO.COM** and **MICROSOFT.COM**
2. If YAHOO has to be redirected to MICROSOFT then Select **YAHOO.COM** → Open **HTTP Redirect** feature



3. Select the check box **Redirect requests to this destination** give the destination as <http://www.MICROSOFT.com> & click **Apply** in the actions Pane.



4. Open Internet Explorer or any browser and access Yahoo (www.yahoo.com) and it will be automatically redirected to MICROSOFT (www.MICROSOFT.com).

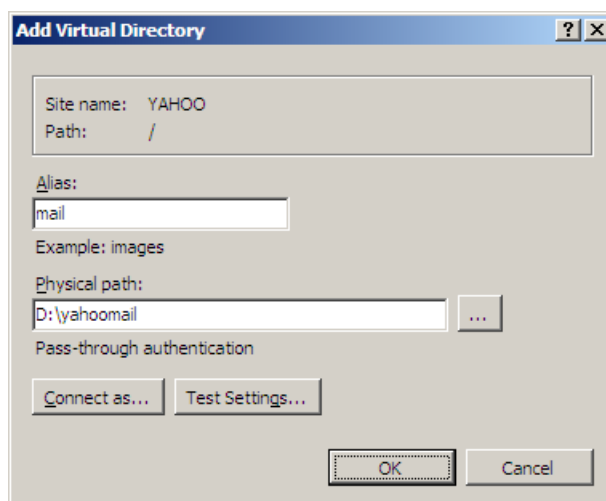


Lab – 4: Creating virtual directory

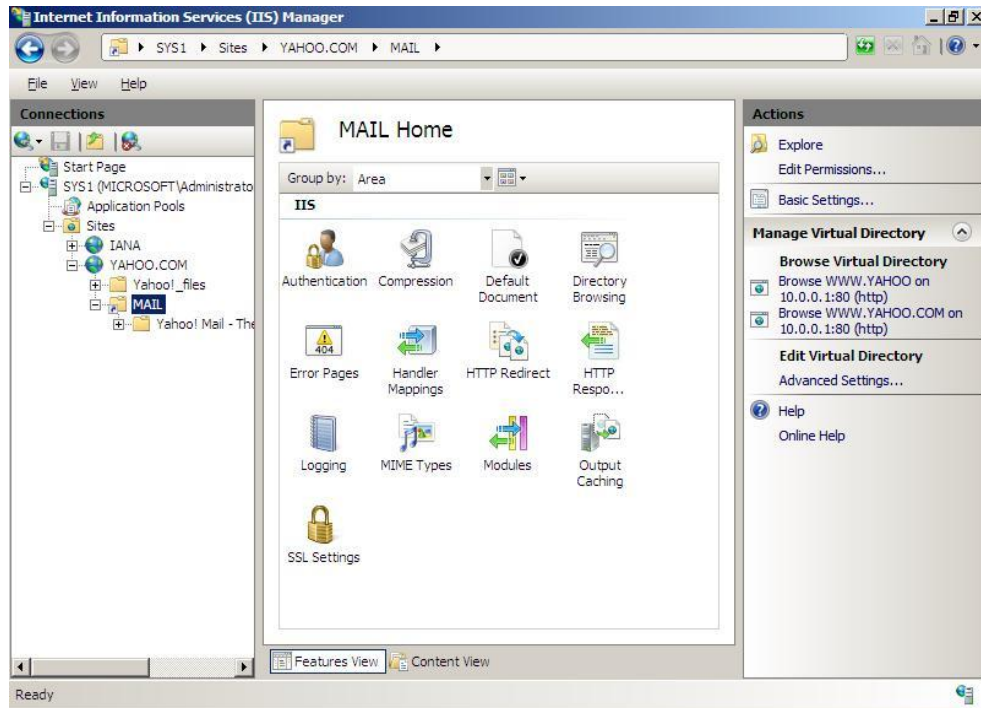
1. Select Start → Programs → Administrative Tools → Internet Information Services Manager.
2. Expand the system name, Select the Web Site (Yahoo) for which you want to create Virtual Directory → Right click and select **Add Virtual Directory**.



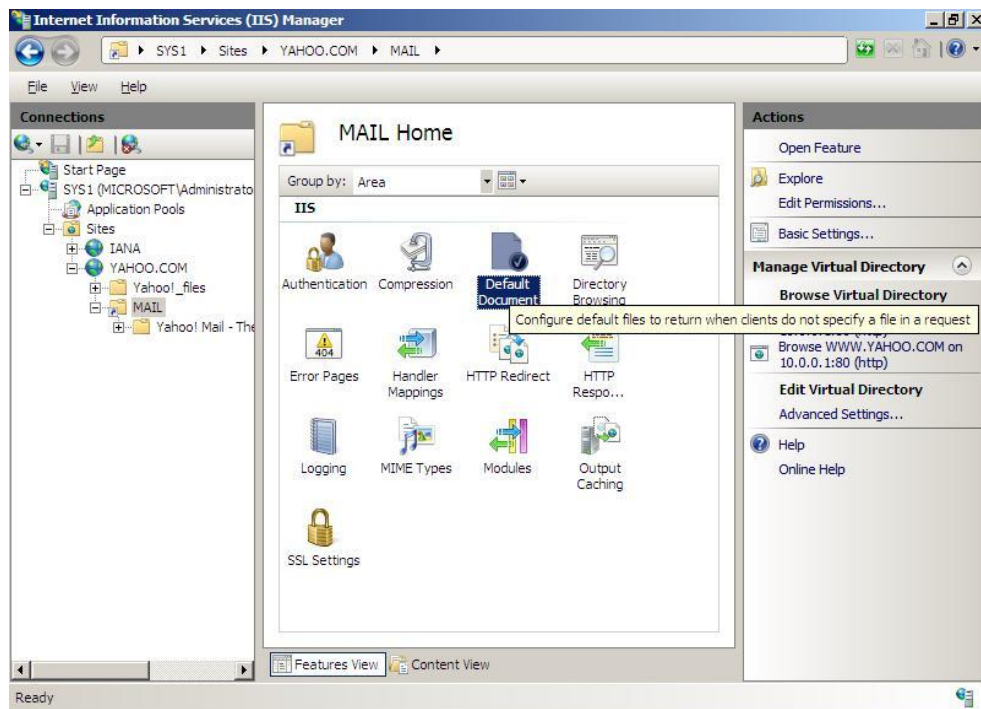
3. Specify the **Alias** name to the **virtual directory** (Ex: mail), and **Browse** to select the physical path Ex:(D:\Yahoomail) → click **OK**.



4. Virtual Directory will be created.



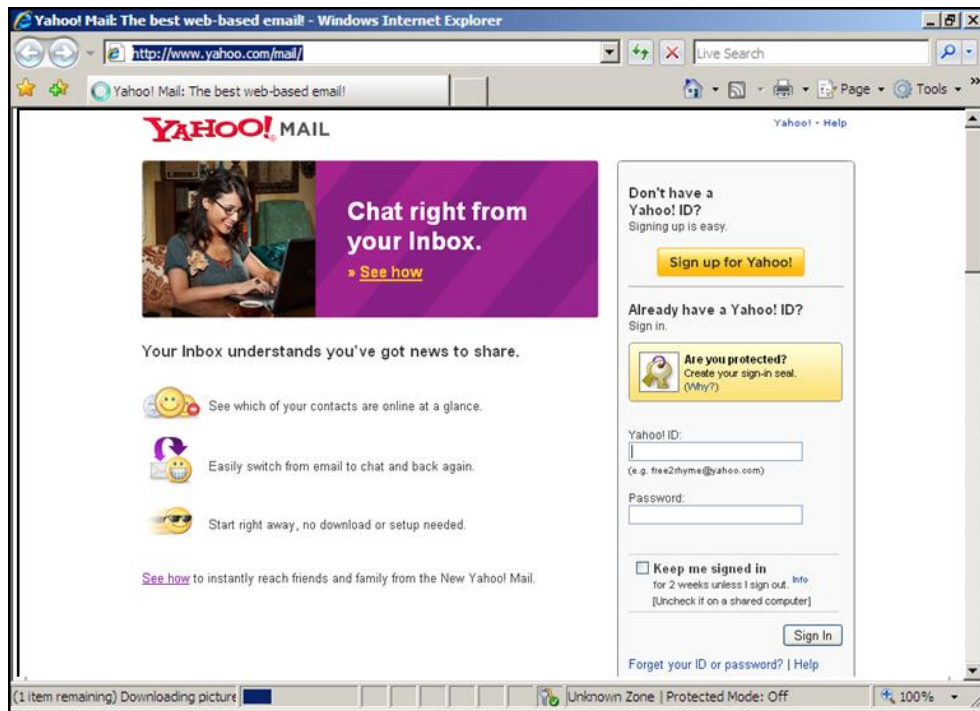
5. Add the **Default Document** for the **Virtual Directory** → OK



6. To access the virtual directory specify the syntax in Internet Explorer

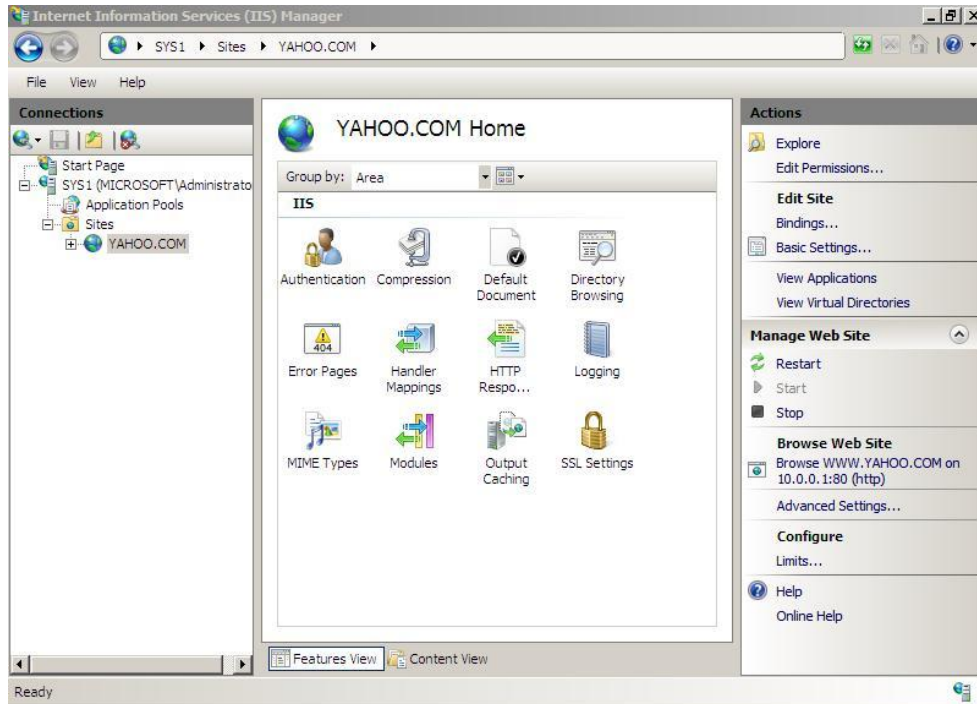
<http://website/virtualdirectory>

Ex: <http://www.Yahoo.com/mail>



Lab – 5: Changing the Web Site IP address or Port no

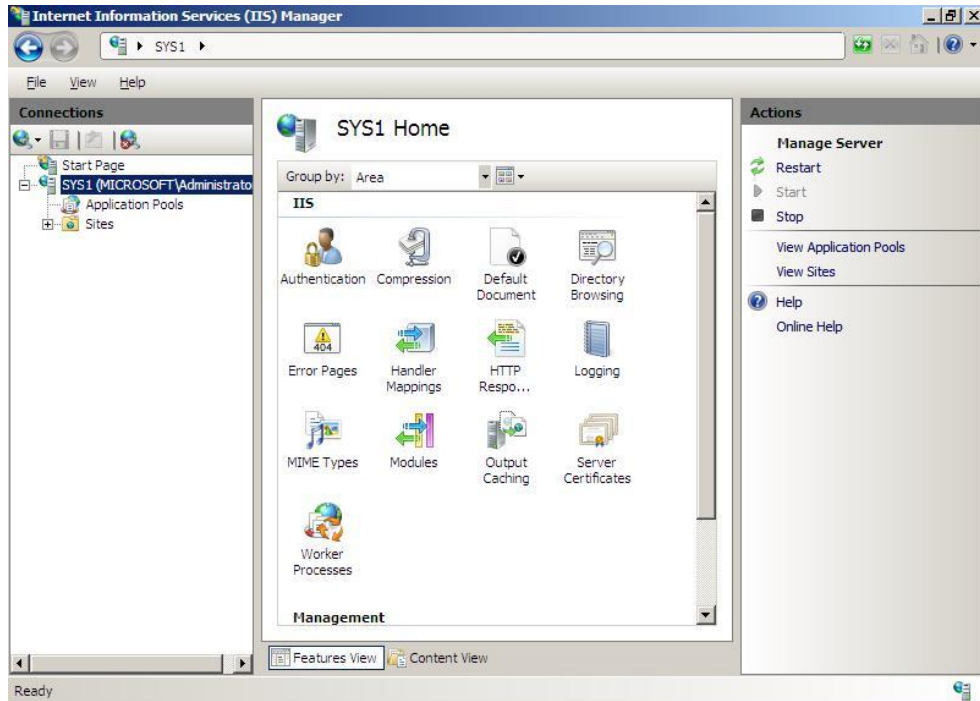
1. Select Start → Programs → Administrative Tools → **Internet Information Services Manager**.
2. Select the Web site → and click **Bindings** in the Actions Pane.



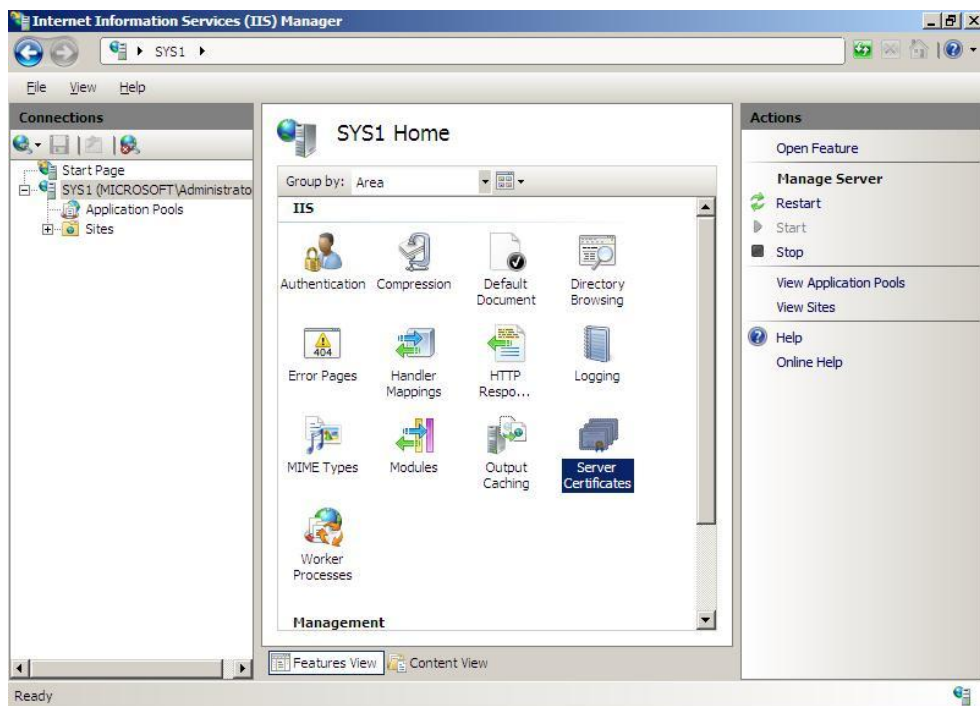
3. Click **edit** and change the **IP address or port number or host name**.
4. If the port number is changed then the website can be accessed only by specifying the port number http://www.yahoo.com:port_number

Lab – 6: Creating Self-Signed Certificate for HTTPS Website

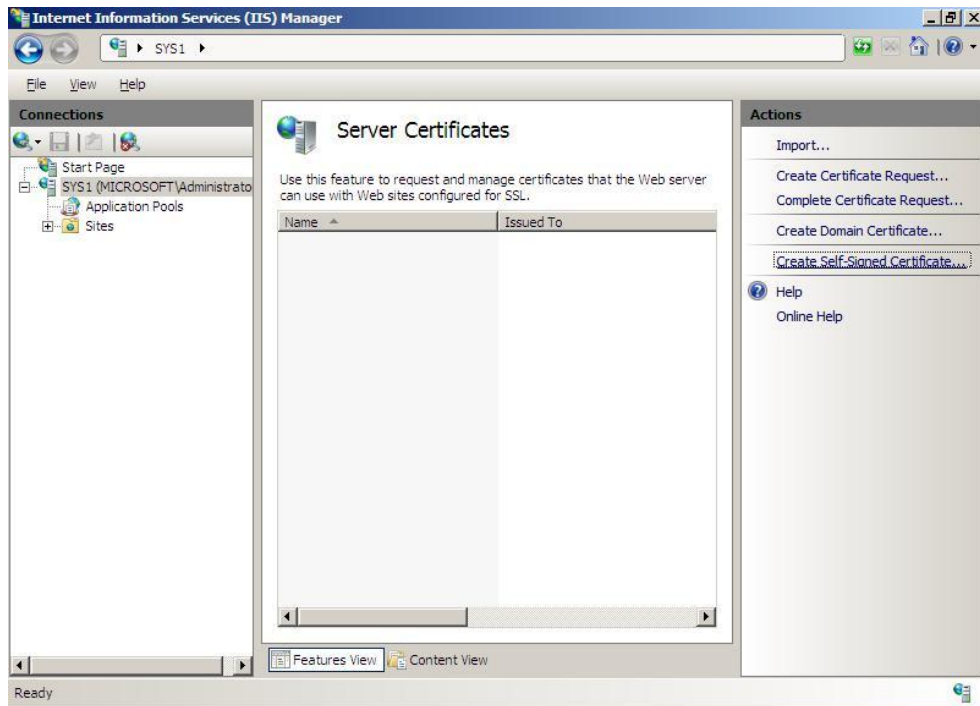
1. Select Start → Programs → Administrative Tools → Internet Information Services Manager.
2. Select the system name



3. Double-click on “Server Certificates”



4. Click “Create Self-Signed Certificate”

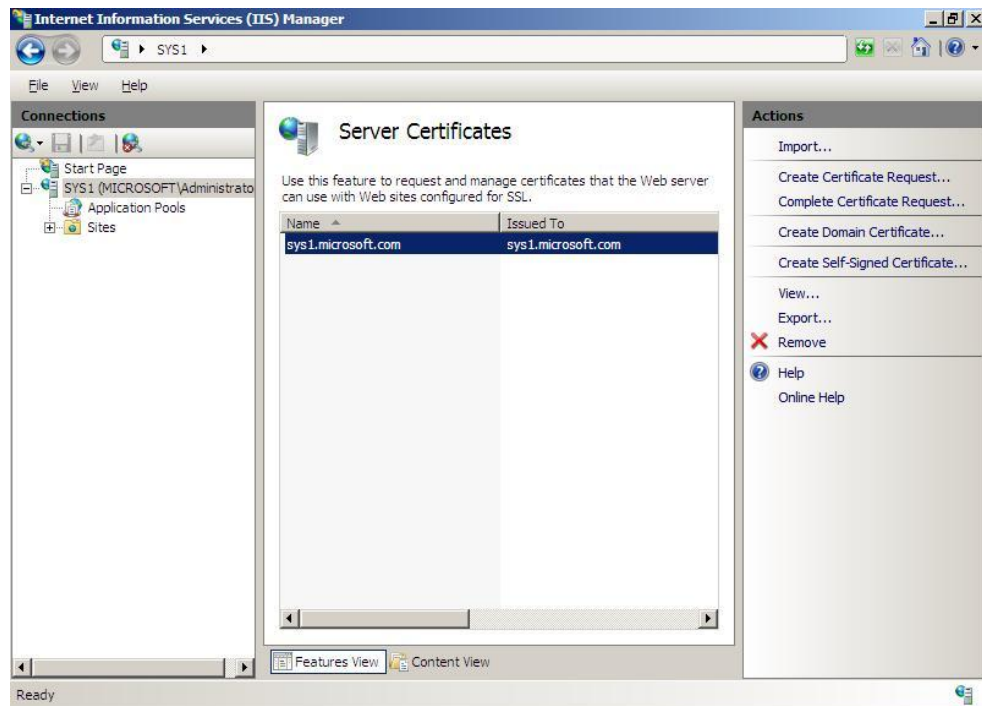


5. Mention the Certificate name E.g.: Sys1.Microsoft.com (FQDN of Web server)



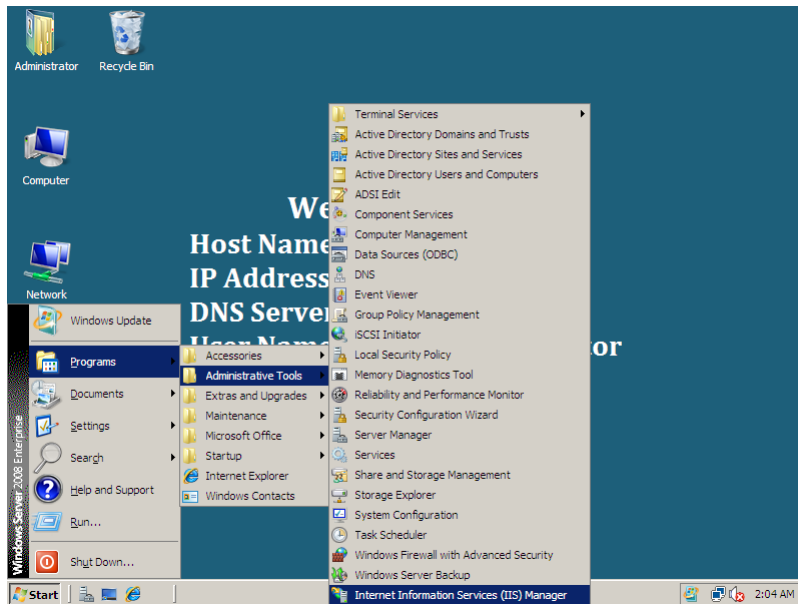
6. Click OK.

7. Certificate is created

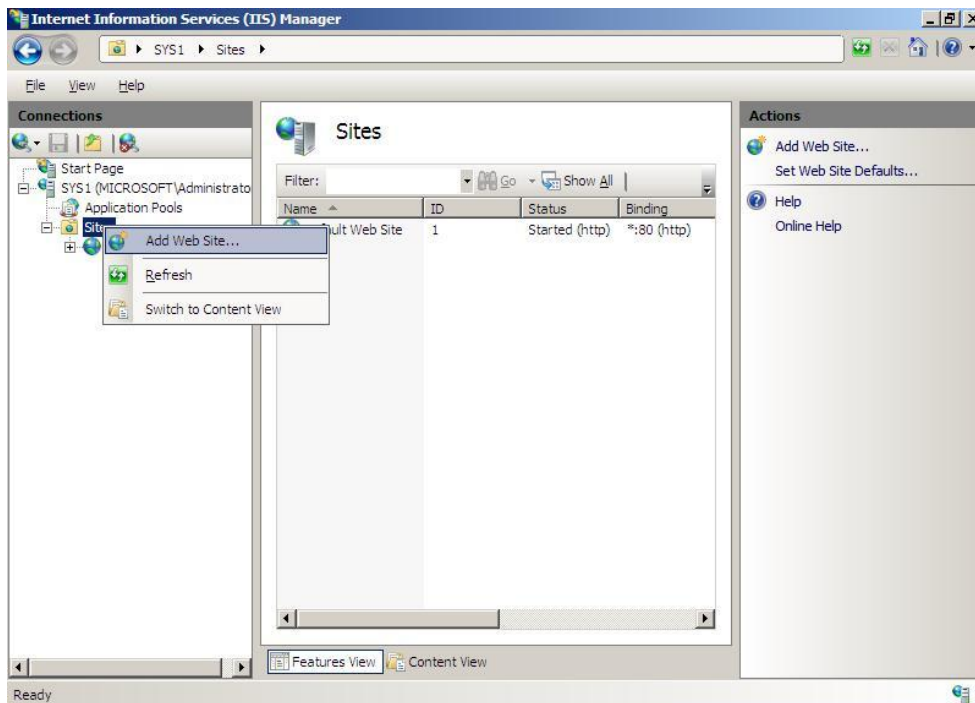


Lab – 7: Creating a HTTPS Web Site

1. Select Start → Programs → Administrative Tools → Internet Information Services Manager.

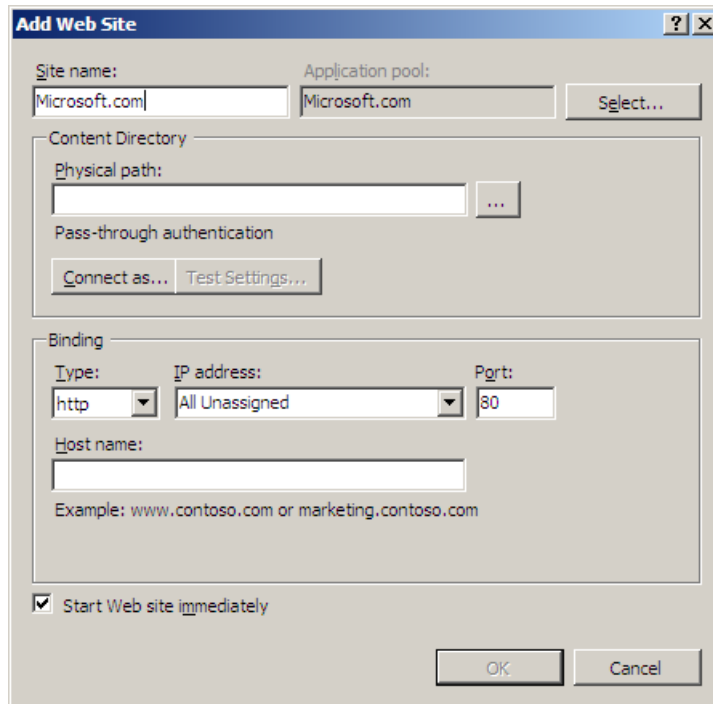


2. In the left pane of the **Internet Information Services**, Expand the server → Right click on sites and select **Add Web Site**.



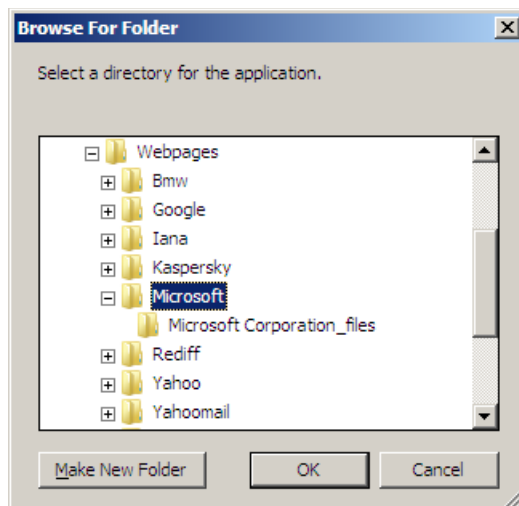
3. **Add Web Site** wizard opens → In the Site name type a **Name for the Web site**

Ex: **Microsoft.com**



The 'Add Web Site' dialog box is shown. It has a title bar with a question mark and a close button. The 'Site name' field contains 'Microsoft.com'. The 'Application pool' field also contains 'Microsoft.com' and has a 'Select...' button next to it. Below these is the 'Content Directory' section, which includes a 'Physical path' field with a browse button ('...'). There are also 'Pass-through authentication' options with 'Connect as...' and 'Test Settings...' buttons. The 'Binding' section has 'Type' set to 'http', 'IP address' set to 'All Unassigned', and 'Port' set to '80'. There is a 'Host name' field with an example: 'www.contoso.com or marketing.contoso.com'. At the bottom, the 'Start Web site immediately' checkbox is checked. 'OK' and 'Cancel' buttons are at the bottom right.

4. In Physical path, browse and select the location of **Home Directory (Webpage's Folder)**



5. Select the protocol as **HTTPS**

The 'Add Web Site' dialog box is shown with the following settings:

- Site name:** Microsoft.com
- Application pool:** Microsoft.com
- Content Directory:**
 - Physical path:** D:\Webpages\Microsoft
 - Pass-through authentication:** (unchecked)
- Binding:**
 - Type:** https (selected from a dropdown menu showing http, https, and an empty field)
 - IP address:** All Unassigned
 - Port:** 80
- Example:** www.contoso.com or marketing.contoso.com
- Start Web site immediately:** (checked)

Buttons: OK, Cancel

6. Select one **IP address** from the drop-down list box.

The 'Add Web Site' dialog box is shown with the following settings:

- Site name:** Microsoft.com
- Application pool:** Microsoft.com
- Content Directory:**
 - Physical path:** D:\Webpages\Microsoft
 - Pass-through authentication:** (unchecked)
- Binding:**
 - Type:** https
 - IP address:** 10.0.0.1 (selected from a dropdown menu)
 - Port:** 443
 - Host name:** (empty text box)
 - SSL certificate:** Not selected (selected from a dropdown menu)
- Example:** www.contoso.com or marketing.contoso.com
- Start Web site immediately:** (checked)

Buttons: OK, Cancel

7. Select the SSL Certificate, Ex: [SYS1.MICROSOFT.COM](https://sys1.microsoft.com).

The screenshot shows the 'Add Web Site' dialog box. The 'Site name' field contains 'Microsoft.com' and the 'Application pool' dropdown is set to 'Microsoft.com'. The 'Physical path' is 'D:\Webpages\Microsoft'. The 'Binding' section has 'Type' set to 'https', 'IP address' set to '10.0.0.1', and 'Port' set to '443'. The 'SSL certificate' dropdown is set to 'sys1.microsoft.com'. The 'Start Web site immediately' checkbox is checked. The 'OK' button is highlighted.

8. Click **OK**.

This screenshot is identical to the previous one, showing the 'Add Web Site' dialog box with the same settings. The 'OK' button is highlighted.

9. **Web Site** will be successfully added.
10. Enable **Directory Browsing**. (Repeat the process of Directory Browsing)
11. Apply **Default Document**. (Repeat the process of Default Document)

Accessing the HTTPS site from the Web Server

SYS1 – CONFIGURATION

1. Open the browser and type <https://certificate-name>

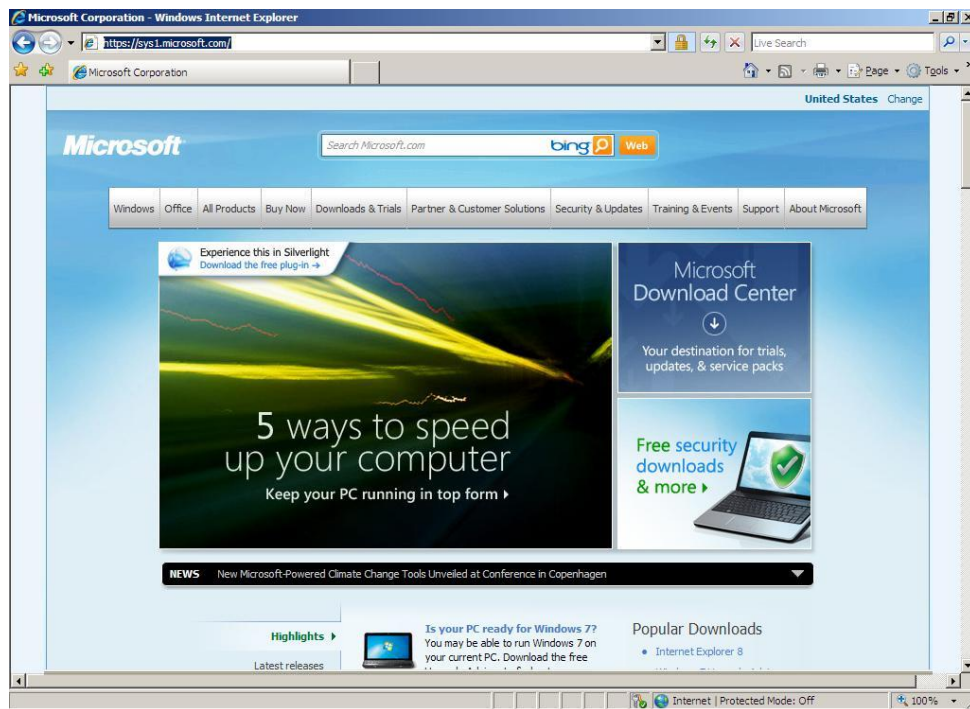
Ex: <https://sys1.microsoft.com>



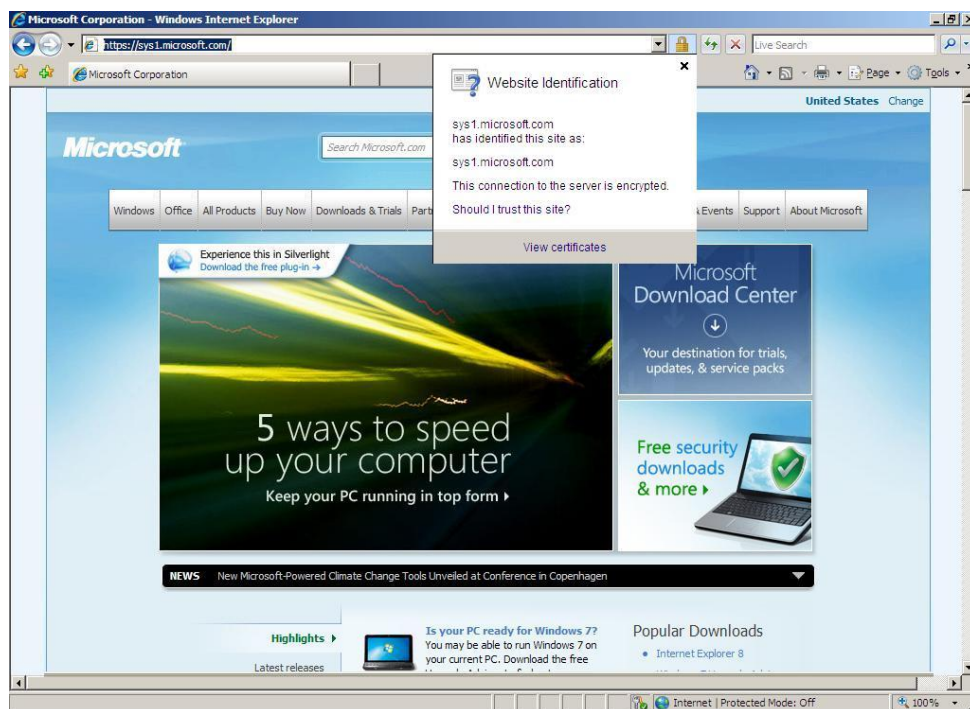
2. An warning will be given, click OK to proceed



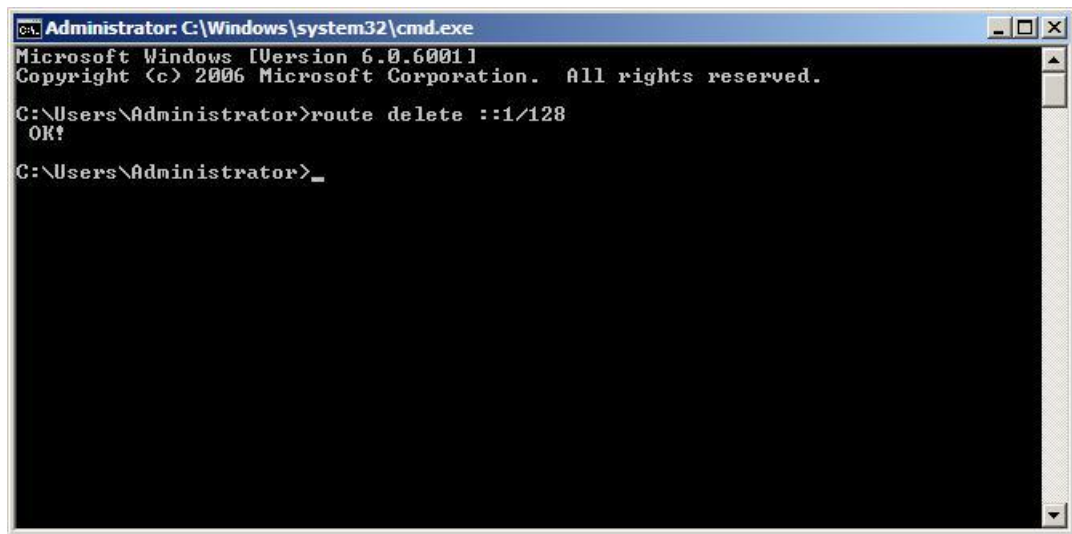
3. Web site is displayed



4. Click on the Yellow Lock beside Address bar, to see the website security status.



5. Sometimes Website will not be displayed. If it is not displayed, then go to cmd and type **Route Delete ::1/128**



```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>route delete ::1/128
OK!

C:\Users\Administrator>_
```

Accessing the HTTPS site from the Client Computer

SYS2 – CONFIGURATION

1. Open the browser and type <https://certificate-name>

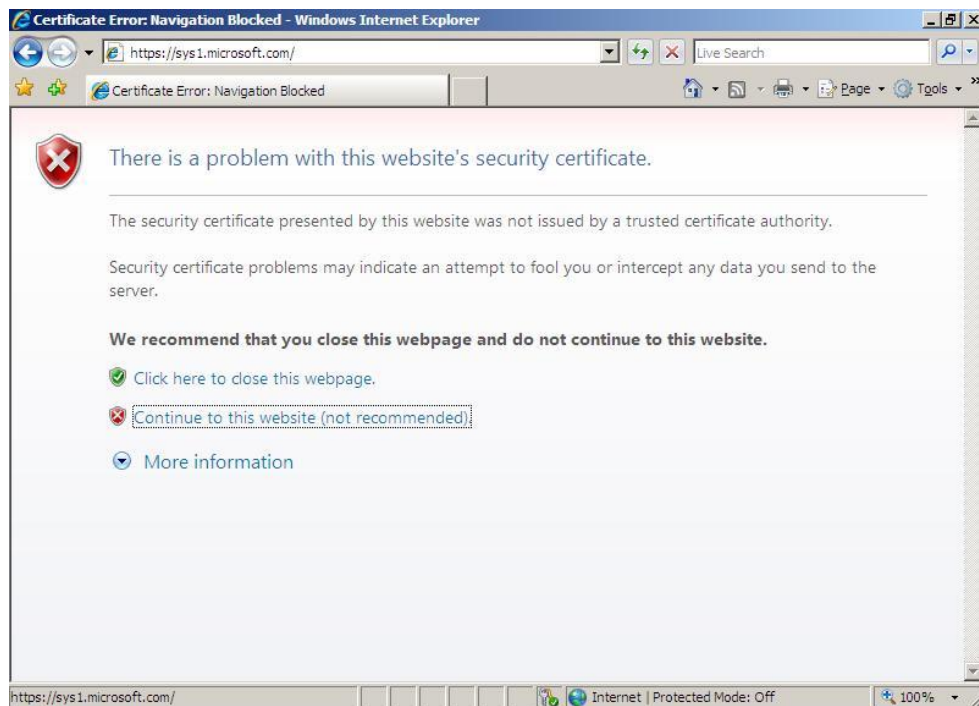
Ex: <https://sys1.microsoft.com>



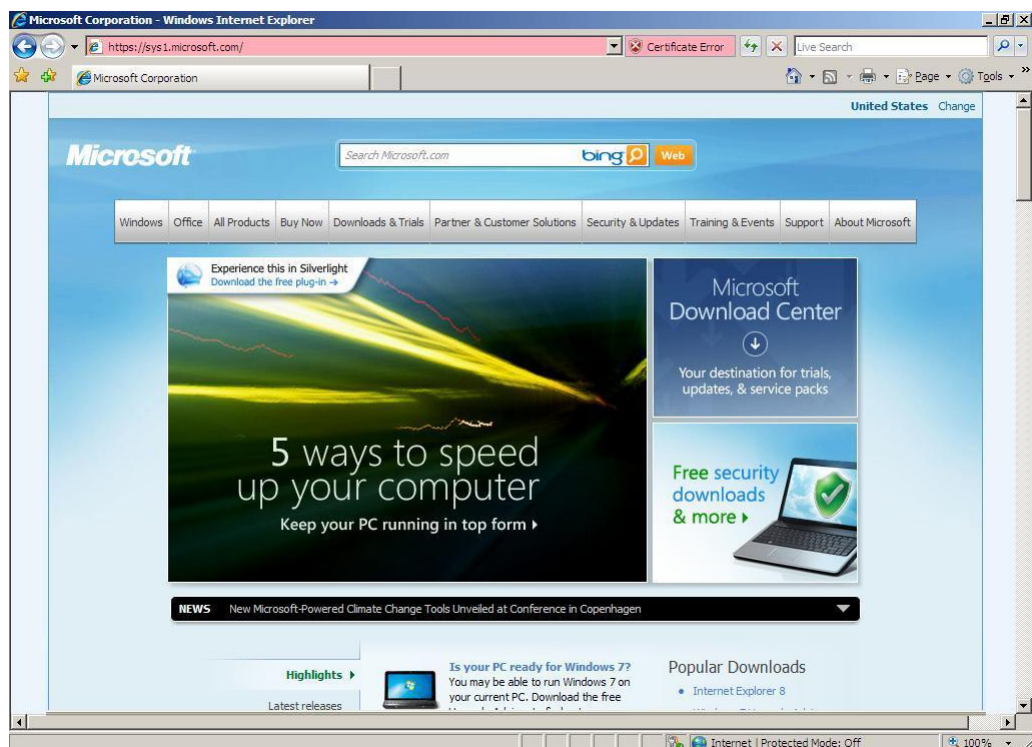
2. An warning will be given, click OK to proceed

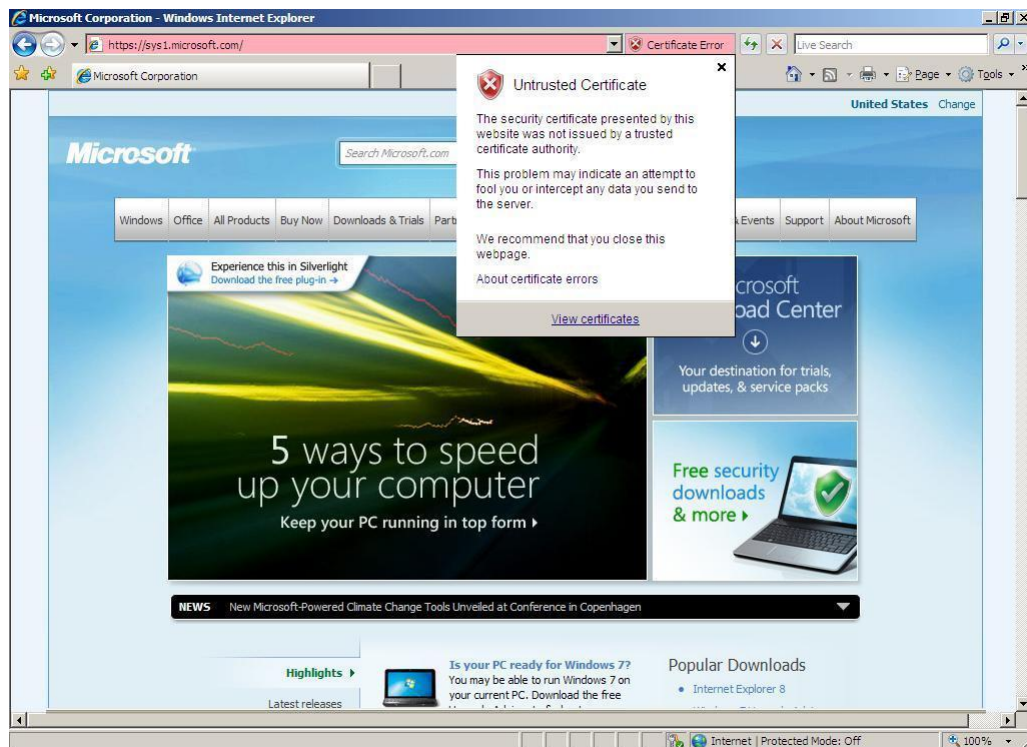
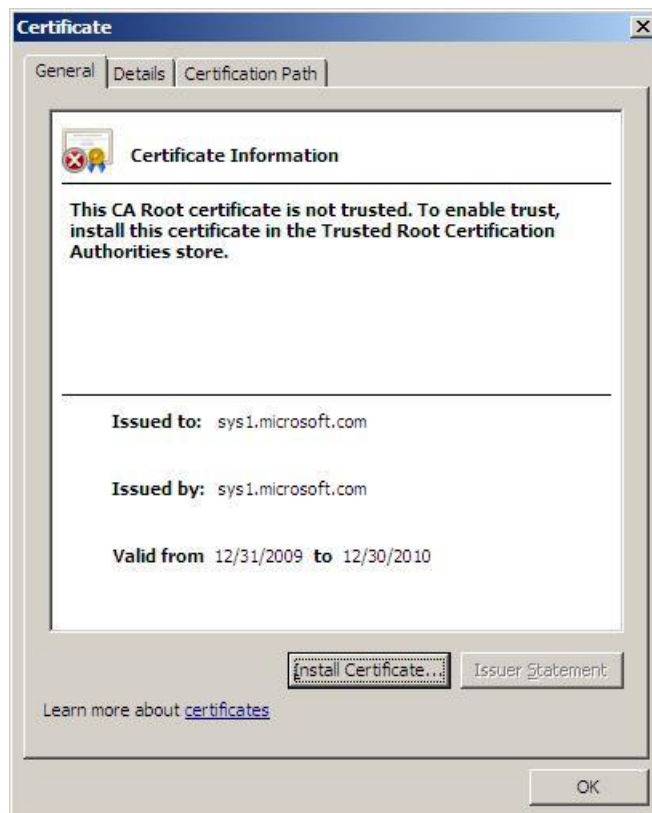


3. There is a problem with Website's Security Certificate (The Security Certificate presented by website was not issued by a Trusted Certification Authority), Click on **Continue to this Web site (Not Recommended)**

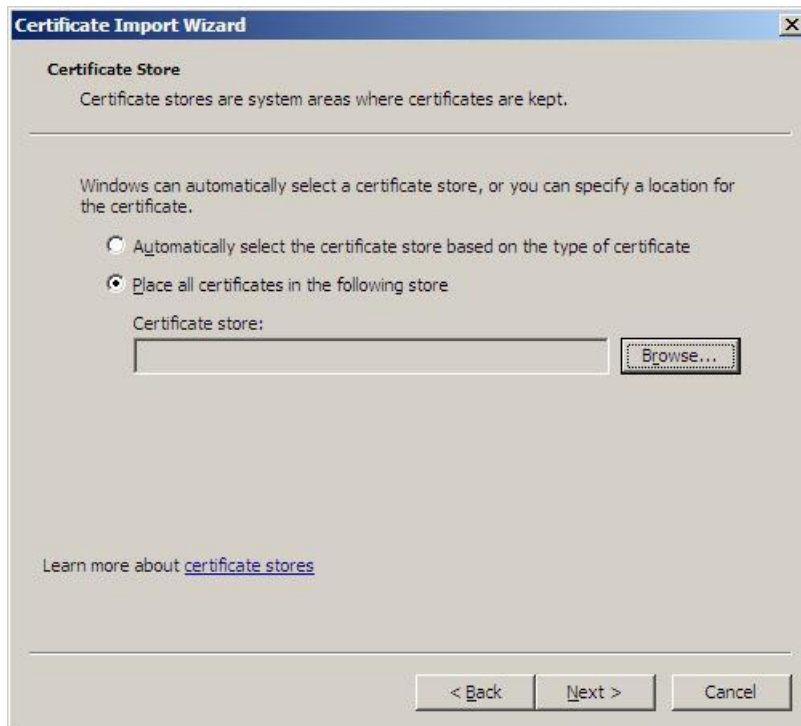


4. Web site is displayed but there is a **Certificate Error**



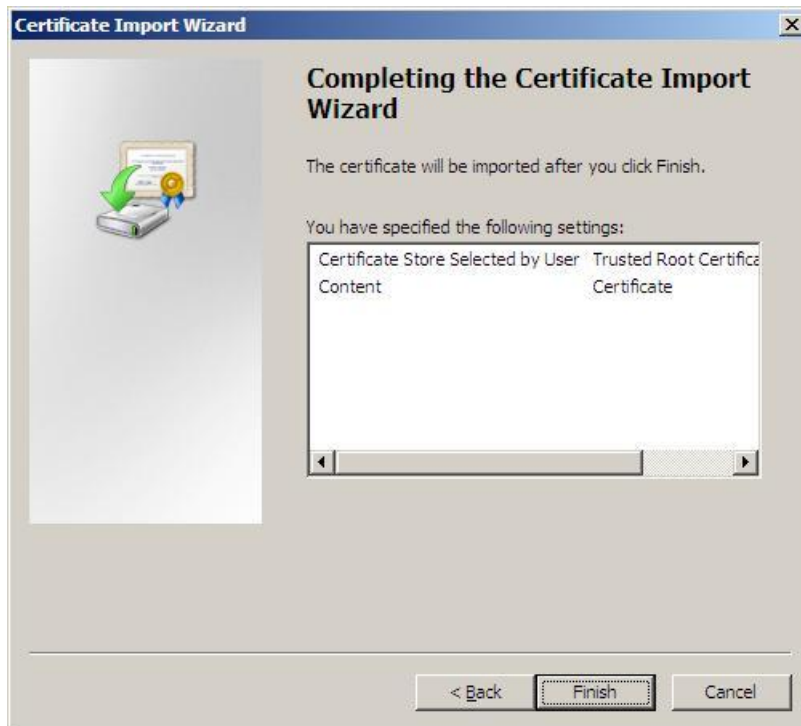
5. Click on **Certificate Error** and Click on **View Certificates**6. Click on **Install Certificate**

7. Click Next → Select **Place all certificates in the following store** → Click **Browse**.

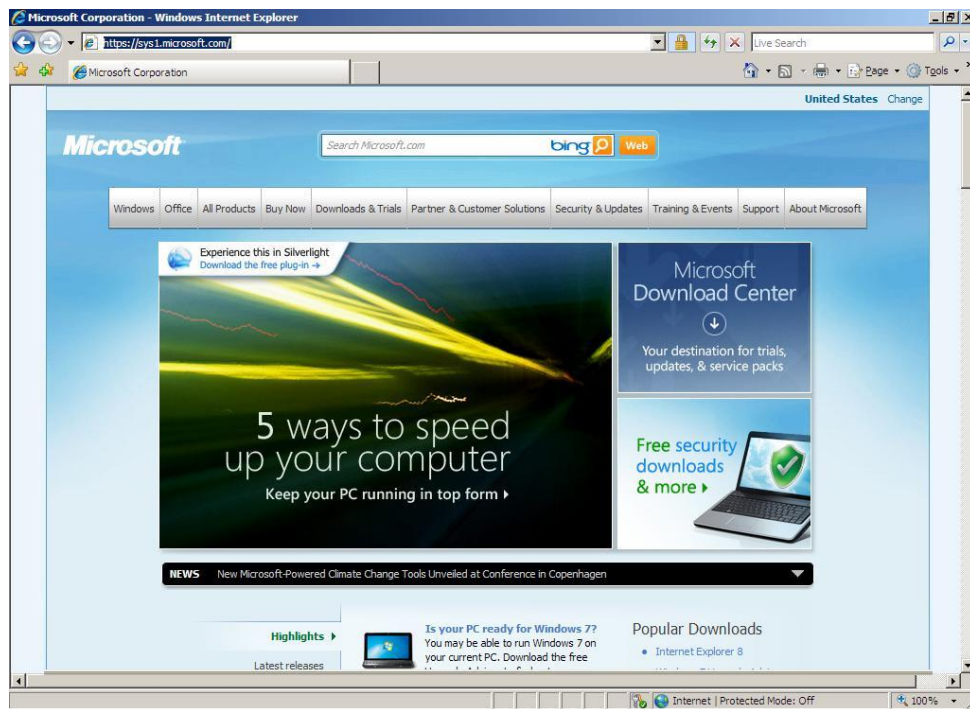


8. Select **Trusted Root Certification Authority** → Click **OK** → Click **Next**

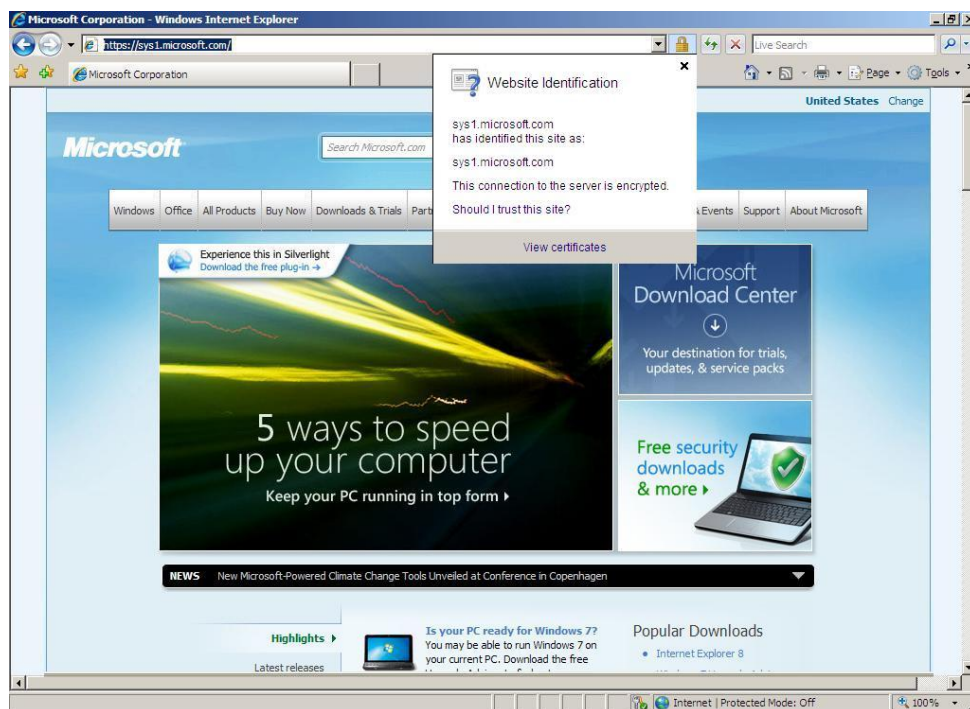


9. Click **Finish**10. Click **Yes** → Click **OK** → Click **OK**.

11. Web site is displayed



12. Click on the Yellow Lock beside Address bar, to see the website security status.

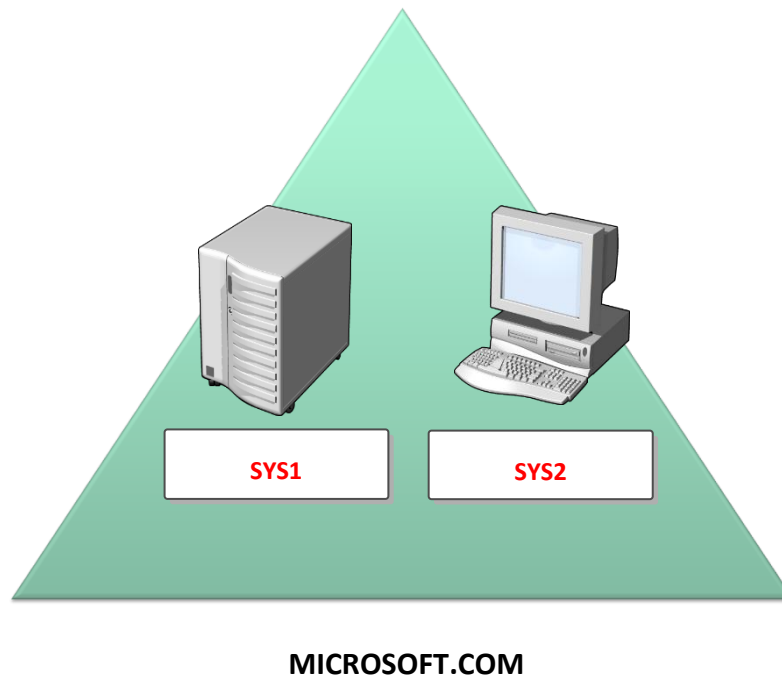


INTERNET INFORMATION SERVICES (IIS) - FTP SERVER

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server or Domain Controller.
2. A computer running windows 2008 server or windows 7.



SYS1

Domain Controller/FTP Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

SYS2

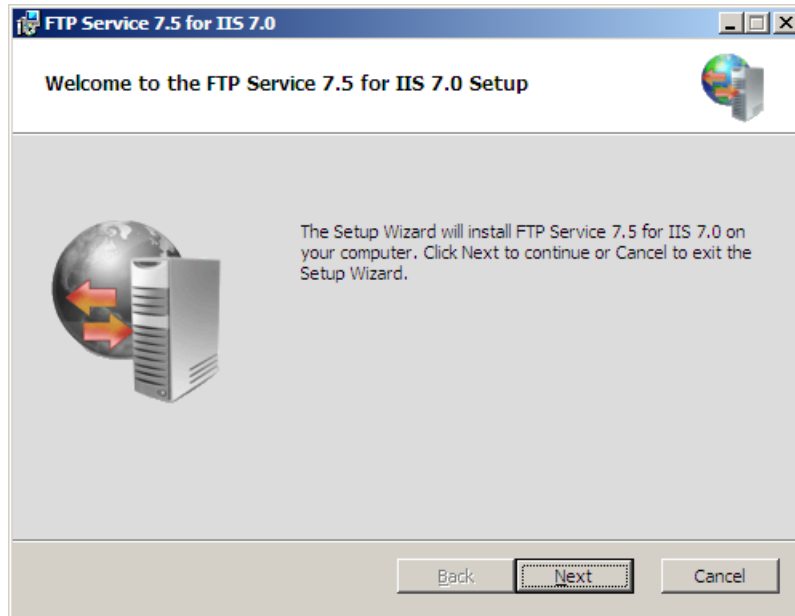
Member Server / Client

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

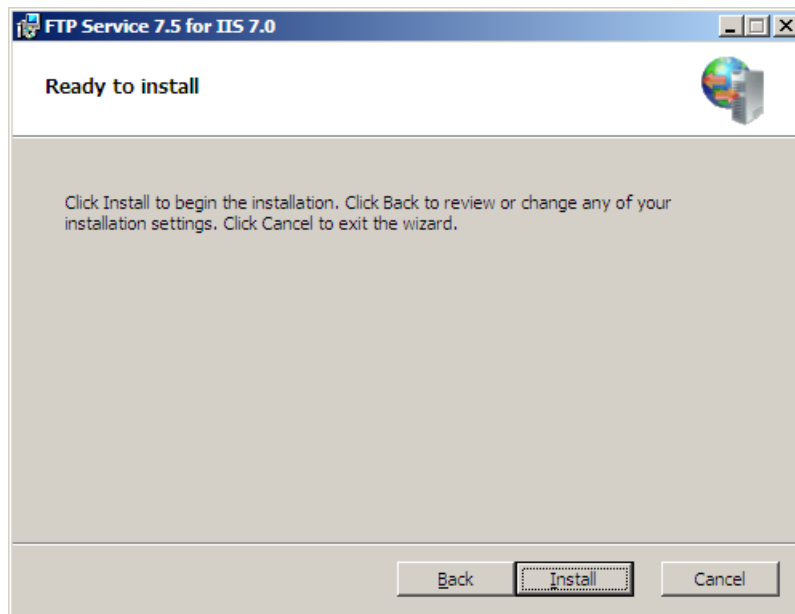
Lab – 1: Installing Internet Information Services - FTP Server

SYS1- CONFIGURATION

1. Web server (IIS) should be installed.
2. Open any Drive **Ex:- D:** and install the FTP Application (ftp7).



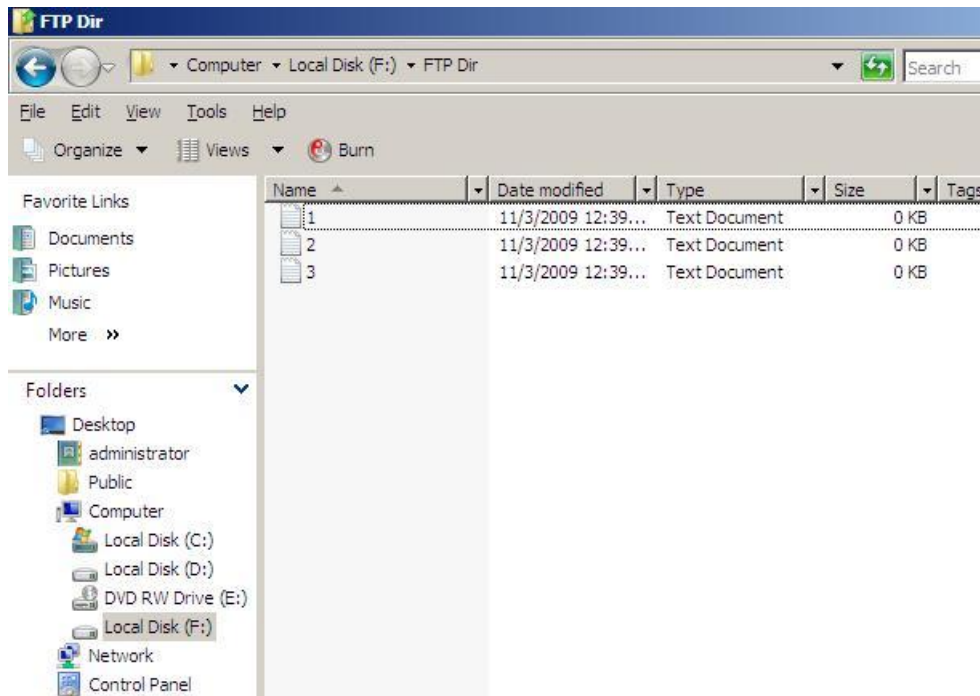
3. Click Next → Check the box “I accept the license terms” → Click Next → Click Next → Click Install



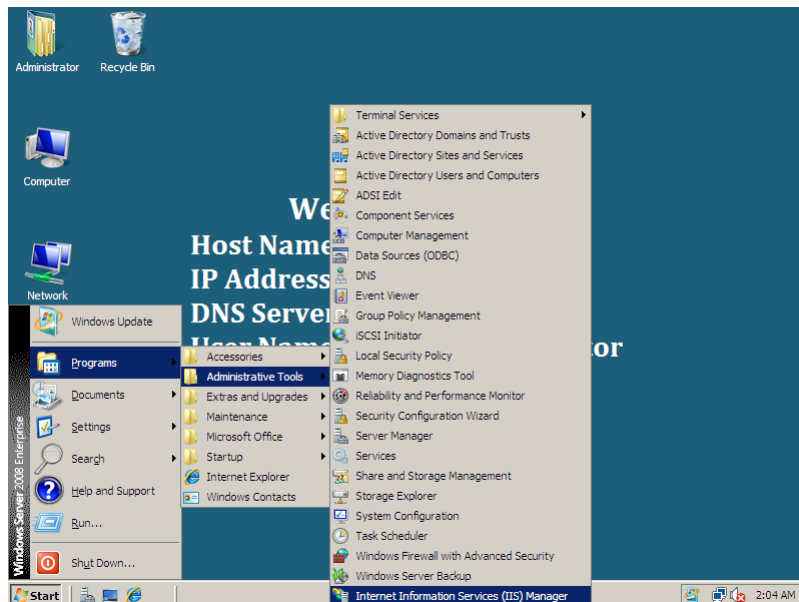
4. Click Finish.

Lab – 2: Creating Do not Isolate user FTP Site

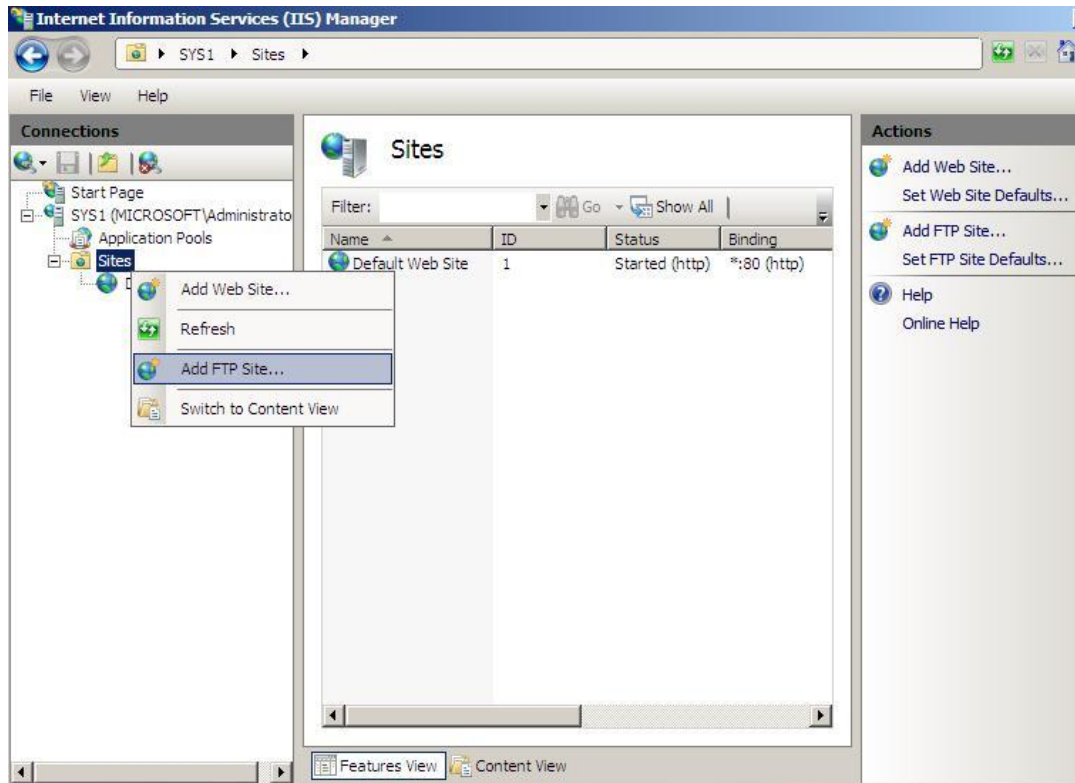
1. Open any drive and **create a folder (Ex: FTP Dir)** → Open the folder and **create some files Ex: 1.txt, 2.txt, 3.txt**.



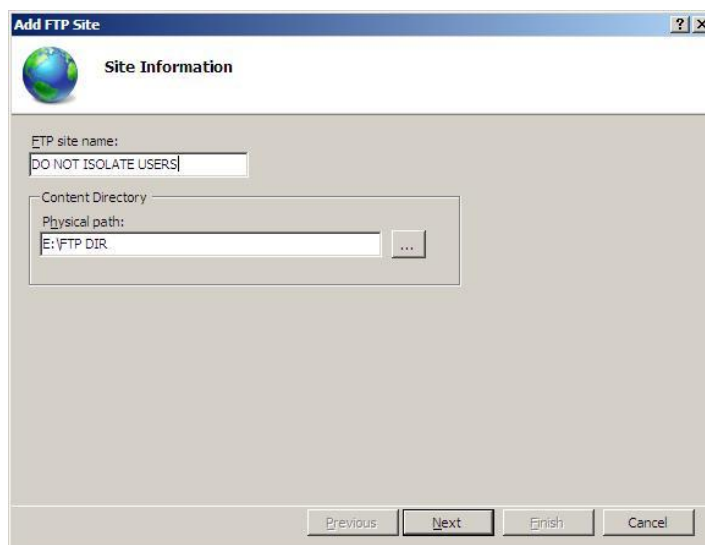
2. Select **Start** → **Programs** → **Administrative Tools** → **Internet Information Services (IIS) Manager**.



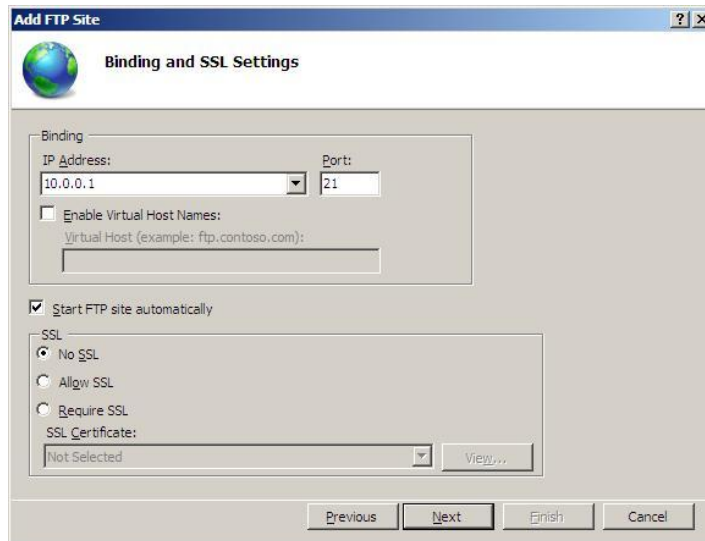
3. In the left pane of the **Internet Information Services** dialog box → Expand the server → Right click on **Sites** and select **ADD FTP Site**



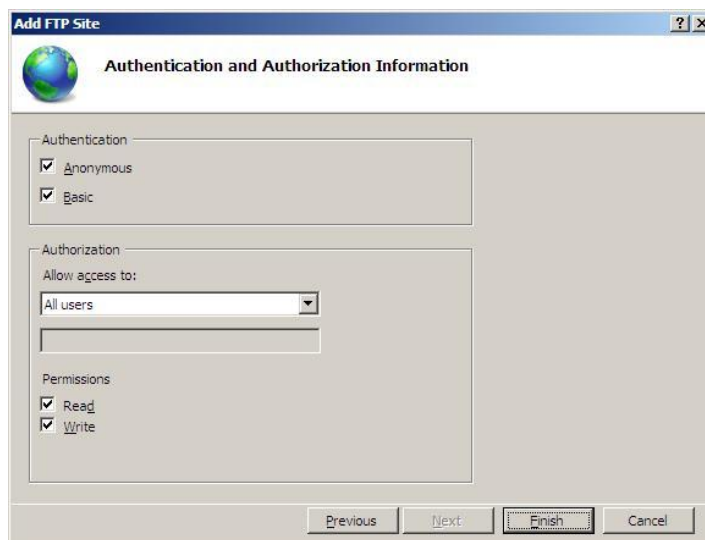
4. In Site Information screen, enter the FTP site name, and enter the path to the home folder (Content Directory) you want to assign to this FTP site. This can be either a local path or a UNC path of the shared folder → you can **browse for this folder** if you need to → click **Next**.



5. In the **Bindings and SSL Settings** dialog box select the IP address and port no. and select **“NO SSL”**.



6. In Authentication and Authorization Information dialog box Check the box for **Anonymous and Basic**, Select **All Users**, Check the box for **Read and Write** → click **Finish**.

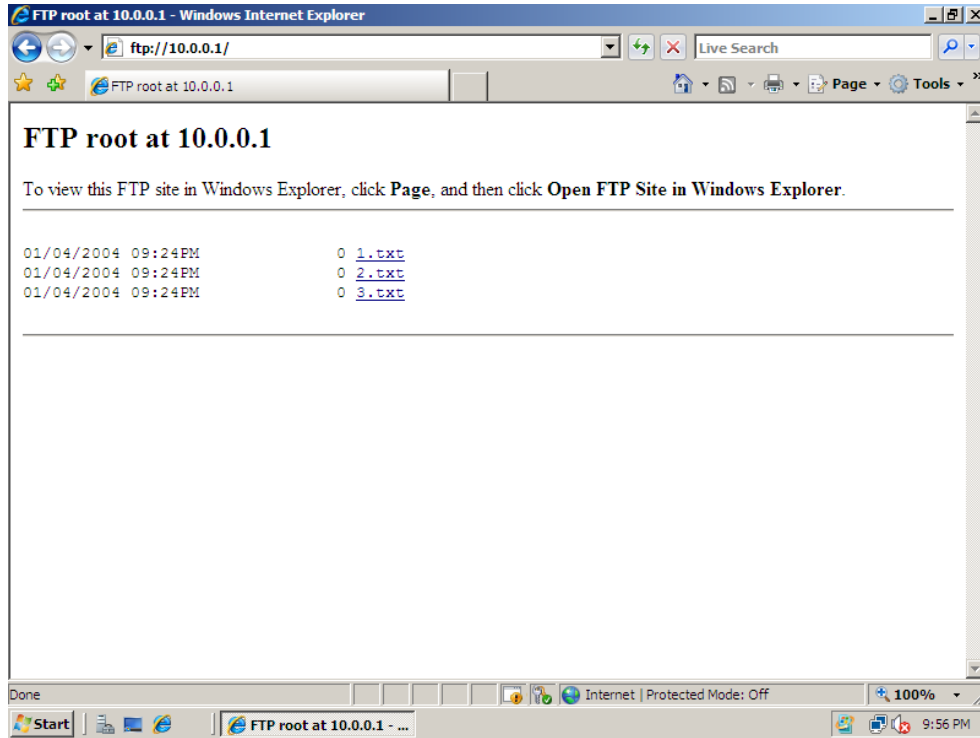


Accessing the FTP site from the Client systems

SYS2 – CONFIGURATION

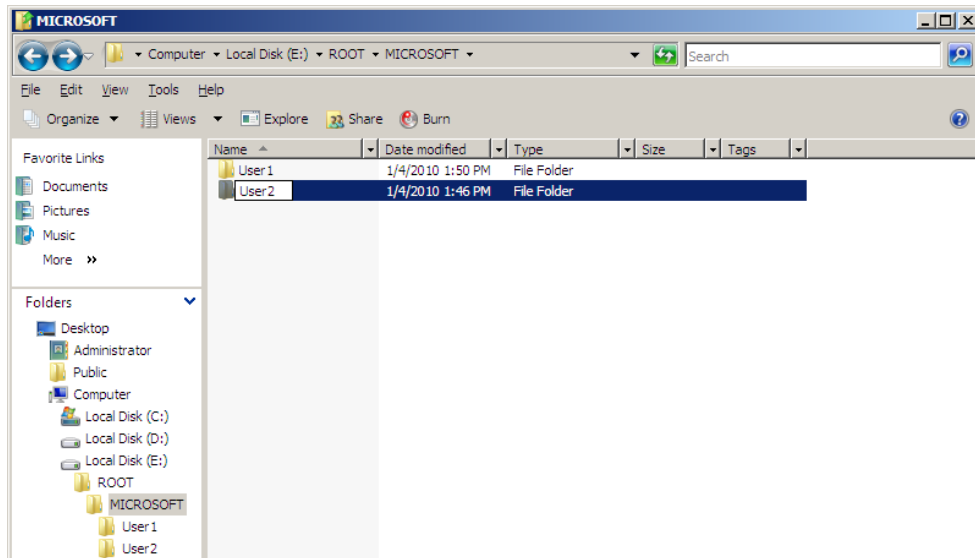
Go to any Computer → Open Internet Explorer and type ftp://ftp_ip_address and Press Enter.

Ex: <ftp://10.0.0.1>

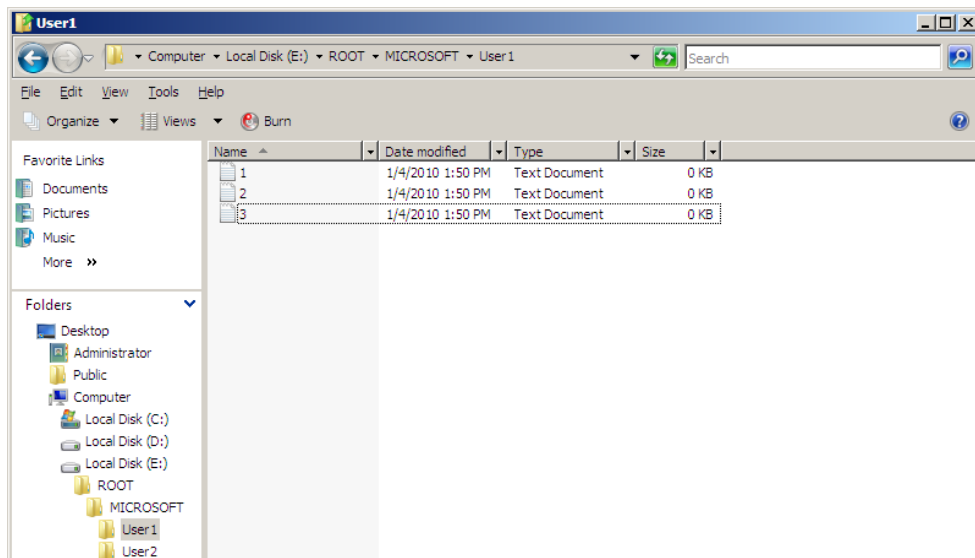


Lab – 3: Creating Isolate user FTP site**SYS1 –CONFIGURATION**

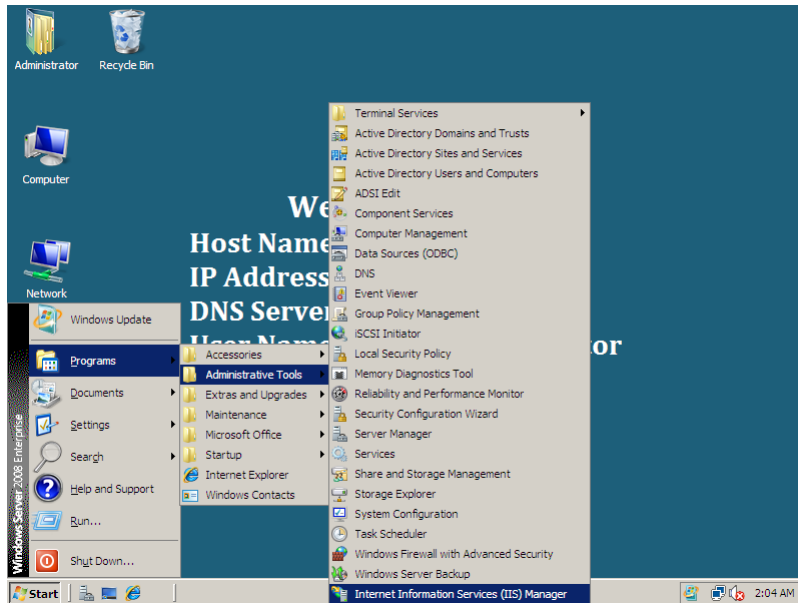
1. Open Active directory users and computers and create users (Ex: **User1, User2**).
2. In any Drive create a folder named **Root**.
3. Open root and create a folder with the domain's NetBIOS name **MICROSOFT**.
4. Open the folder **MICROSOFT** and create folders with user names **User1, User2**.



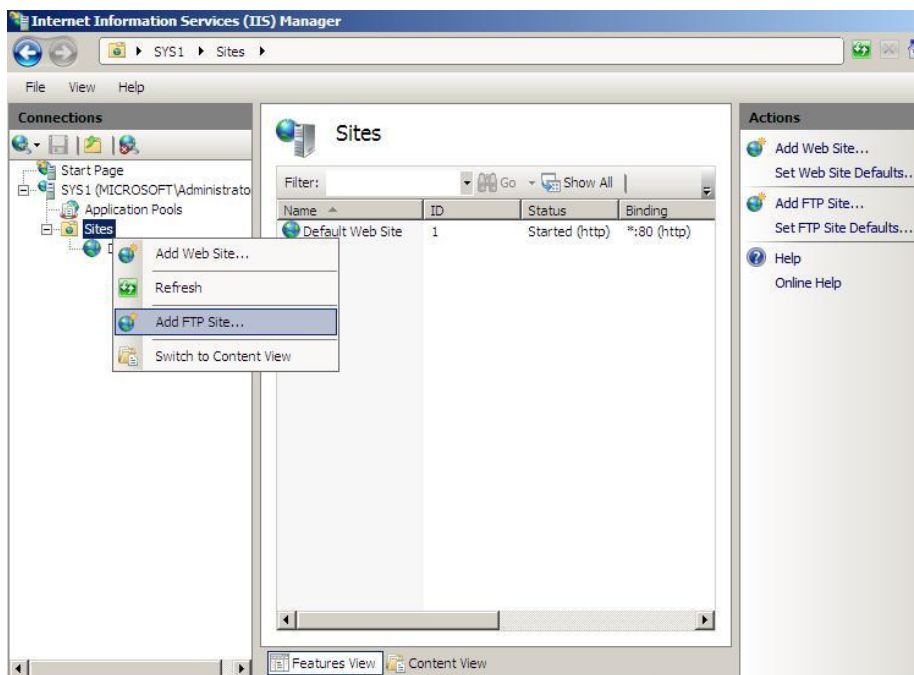
5. Open user name folders and create some files.



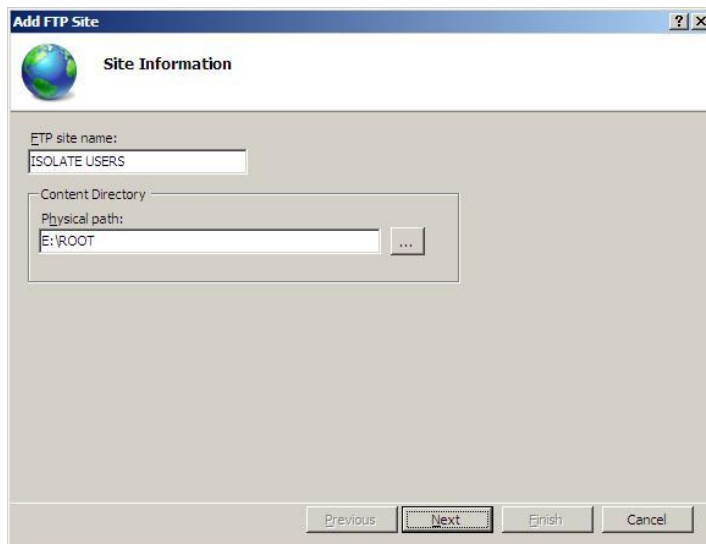
6. Select Start → Programs → Administrative Tools → Internet Information Services (IIS) Manager.



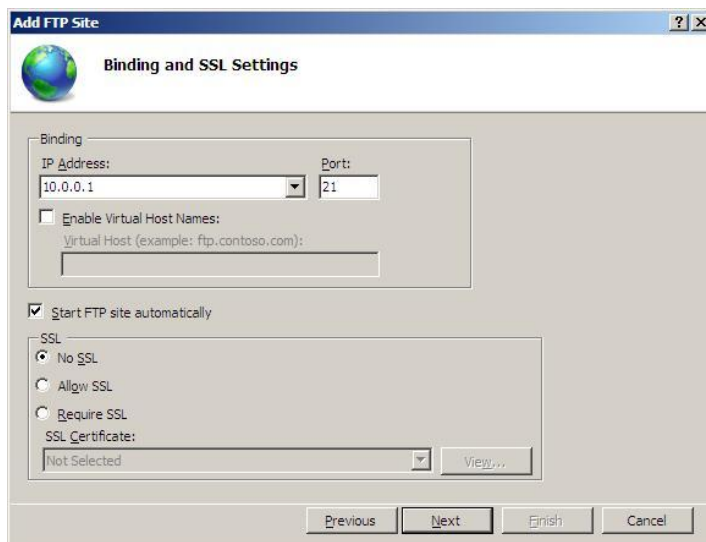
7. In the left pane of the Internet Information Services dialog box → Expand the server → Right click on Sites and select ADD FTP Site



8. In Site Information screen, enter the FTP site name, and enter the path to the home folder (Content Directory) you want to assign to this FTP site. This can be either a local path or a UNC path of the shared folder → you can **browse for this folder** if you need to → click **Next**.

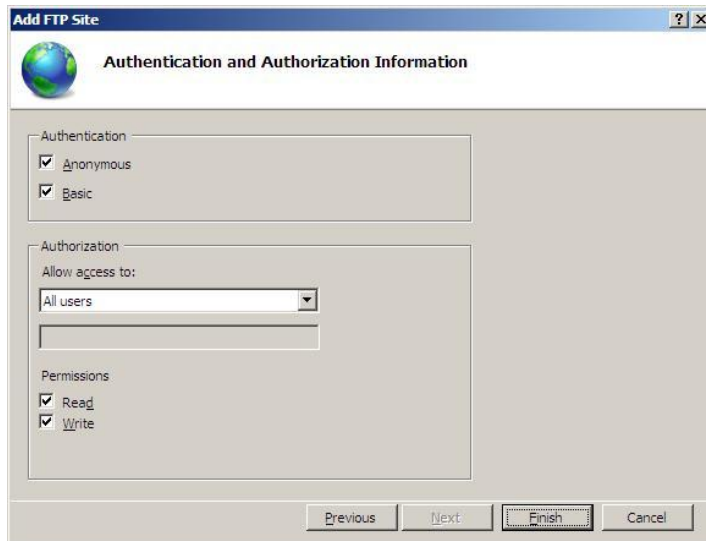


9. In the **Bindings and SSL Settings** dialog box select the IP address and port no. and select **“NO SSL”**.

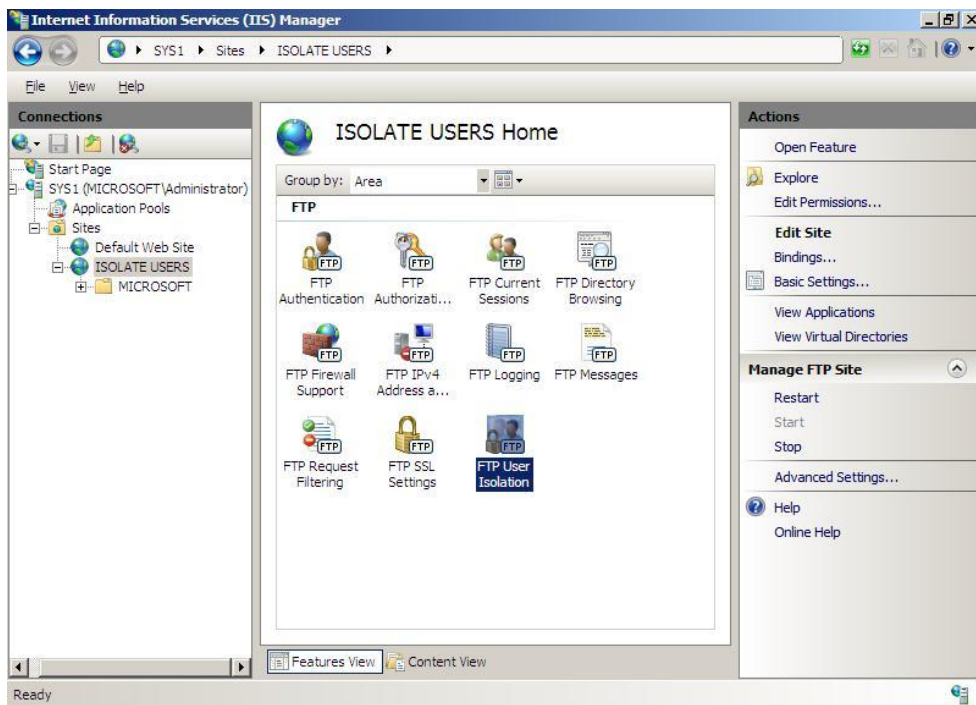


Note: In one computer we cannot run 2 ftp sites on the same IP address & on the same port number. Any one should be changed.

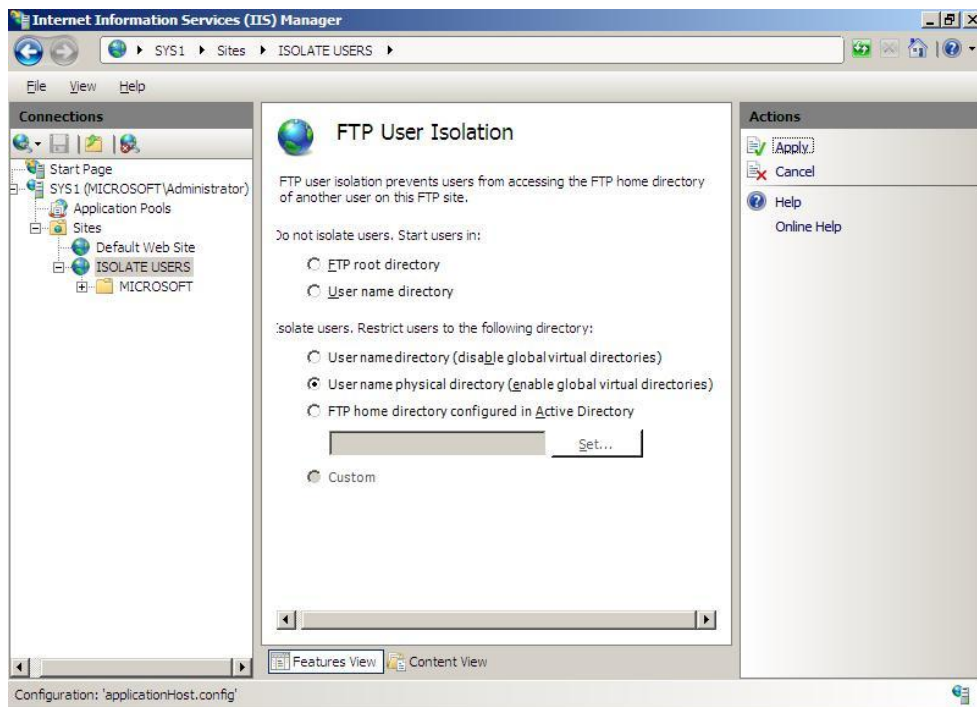
10. In Authentication and Authorization Information dialog box Check the box for **Anonymous and Basic**, Select **All Users**, Check the box for **Read and Write** → click **Finish**.



11. Select the **FTP Site** and select **FTP User Isolation** Option



12. Select the option “User name Physical Directory” → click **Apply**.

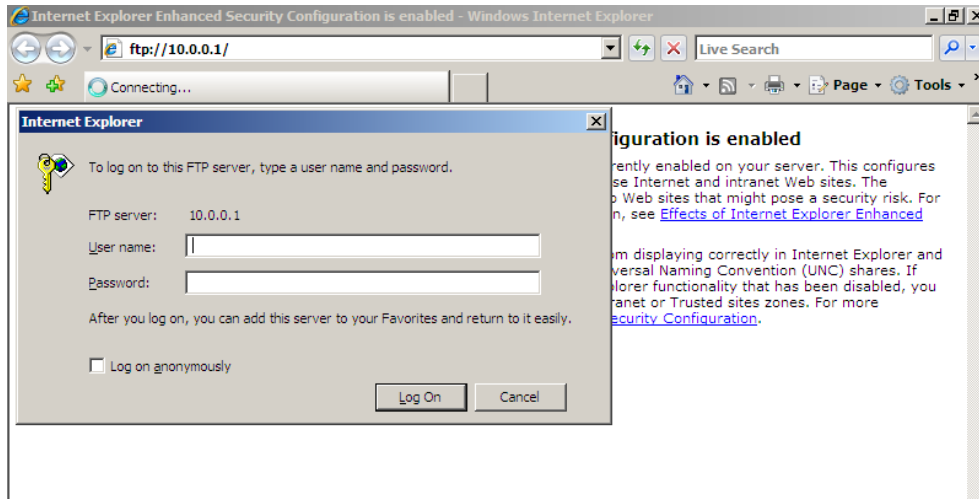


Accessing the FTP site from the Client systems

SYS2 – CONFIGURATION

1. Open the browser and type ftp://ftp_ip_address:port number (If the ftp site port is not default (21))

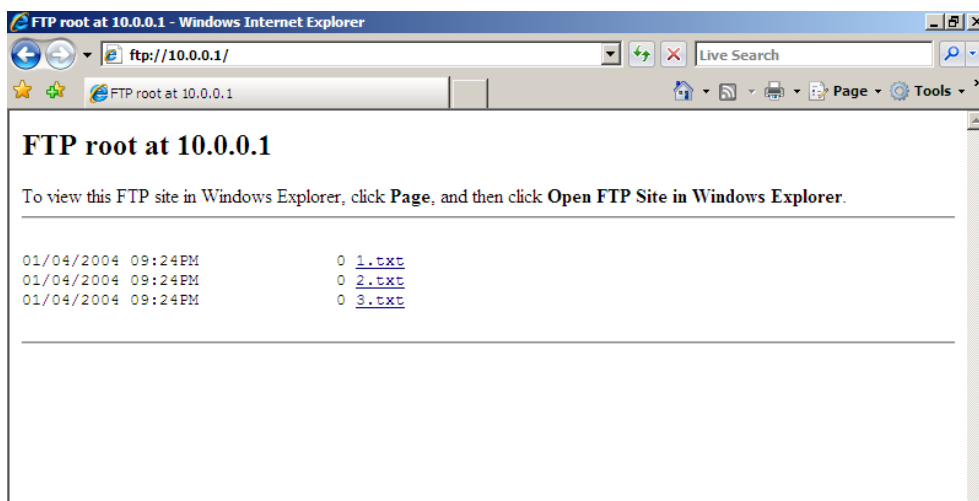
Ex: <ftp://10.0.0.1:2100> or <ftp://10.0.0.1>



2. Give the **username** and the **password**.



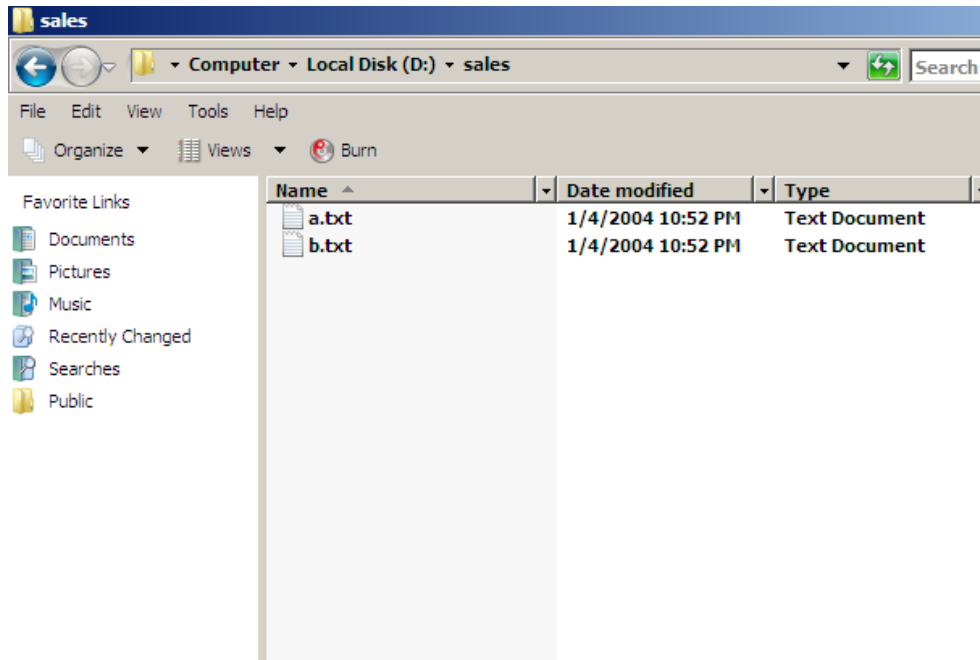
3. User Home Directory will be displayed.



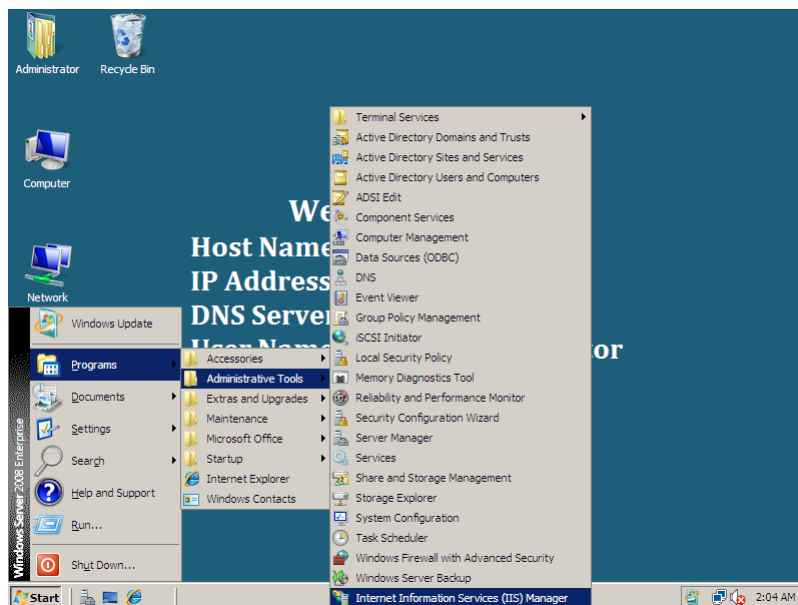
Lab – 4: Creating Isolate user using Active Directory FTP site

SYS1 –CONFIGURATION

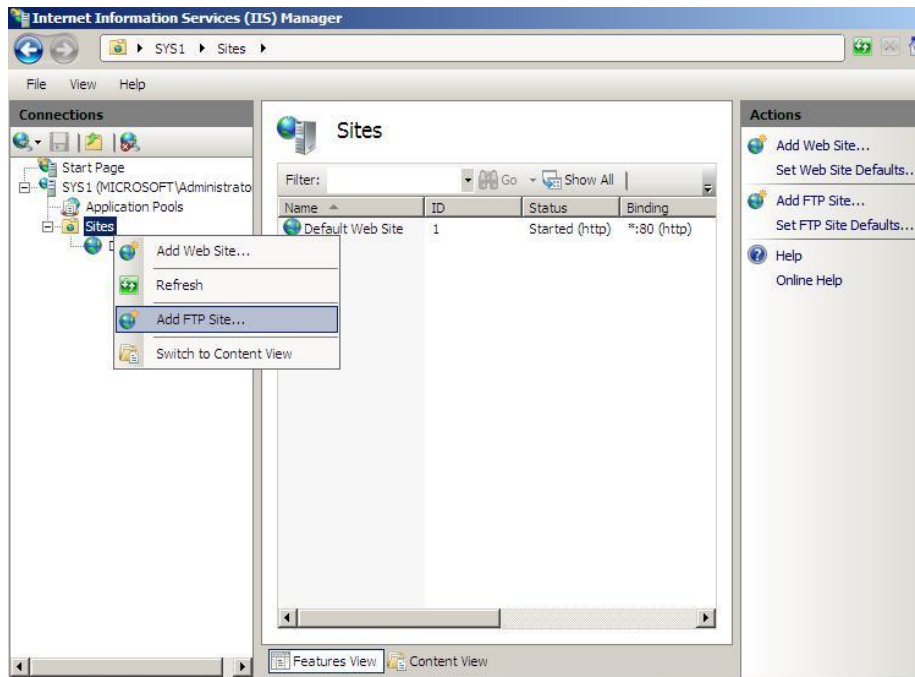
1. Open any drive (Ex: D:\) and create a folder (Ex: Sales) → Open the folder and create some files (Ex: a.txt, b.txt).



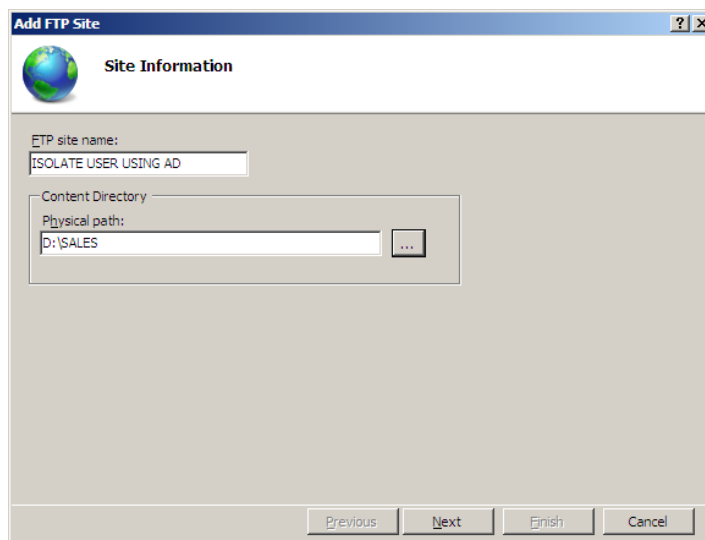
2. Select Start → Programs → Administrative Tools → Internet Information Services (IIS) Manager.



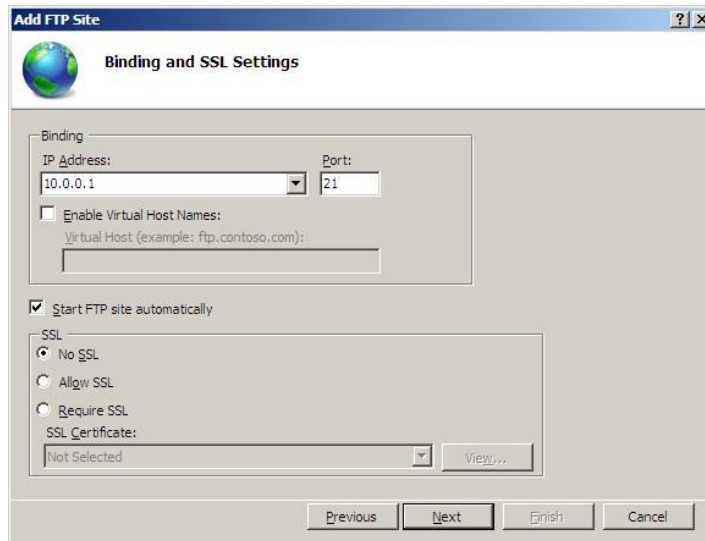
3. In the left pane of the **Internet Information Services** dialog box → Expand the server → Right click on **Sites** and select **ADD FTP Site**



4. In Site Information screen, enter the FTP site name, and enter the path to the home folder (Content Directory) you want to assign to this FTP site. This can be either a local path or a UNC path of the shared folder → you can **browse for this folder** if you need to → click **Next**.

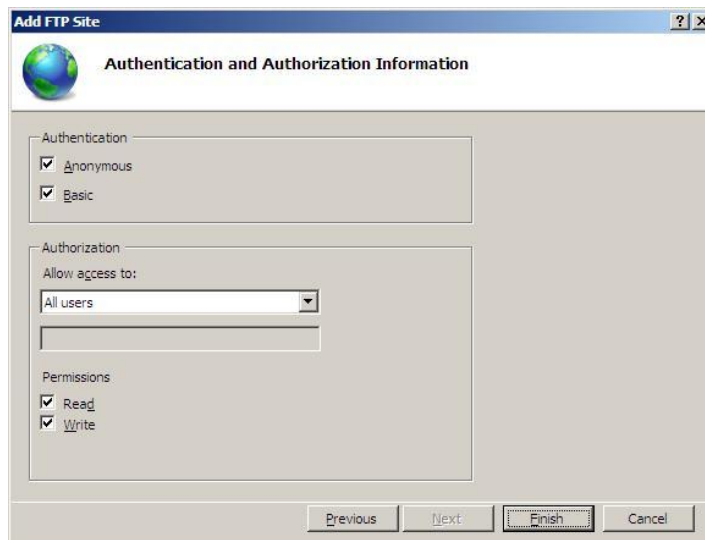


5. In the **Bindings and SSL Settings** dialog box select the IP address and port no. and select **"NO SSL"**.

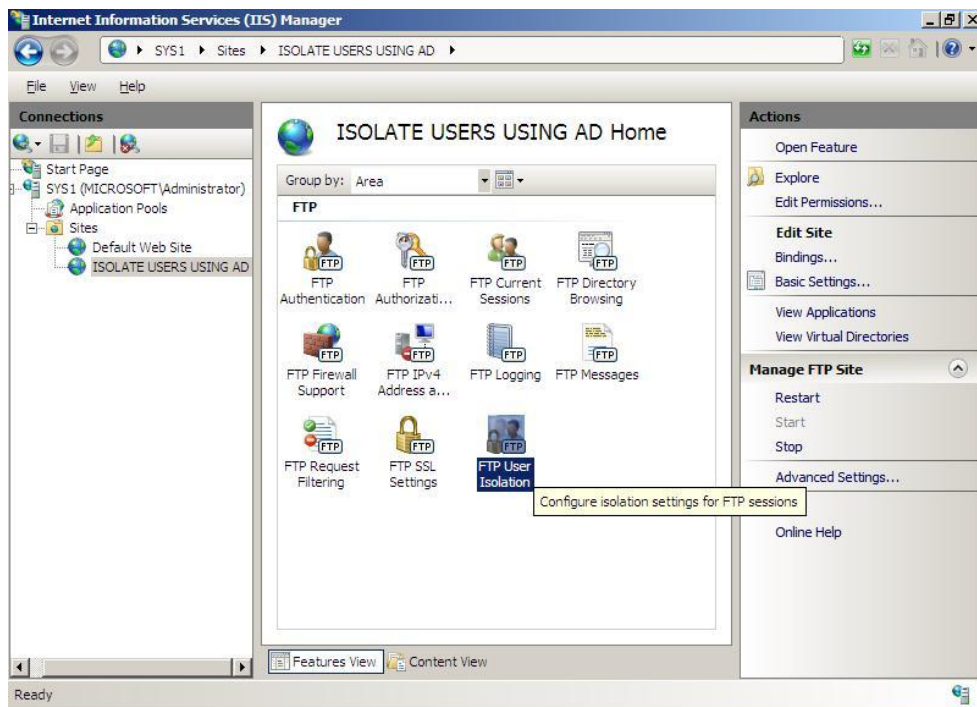


Note: In one computer we cannot run 2 ftp sites on the same IP address & on the same port number. Any one should be changed.

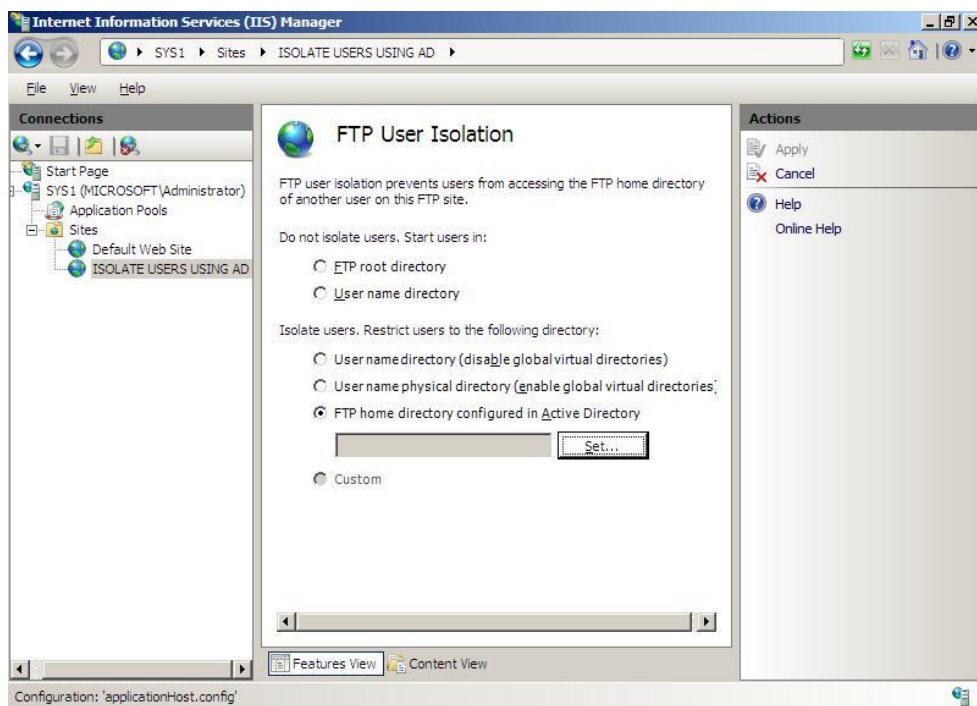
6. In Authentication and Authorization Information dialog box Check the box for **Anonymous and Basic**, Select **All Users**, Check the box for **Read and Write** → click **Finish**.



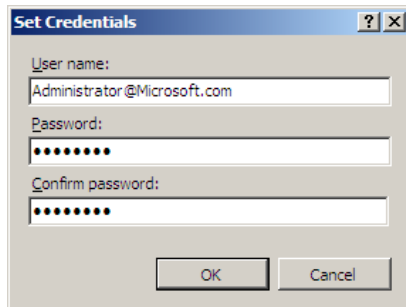
7. Select the FTP Site and select FTP User Isolation Option



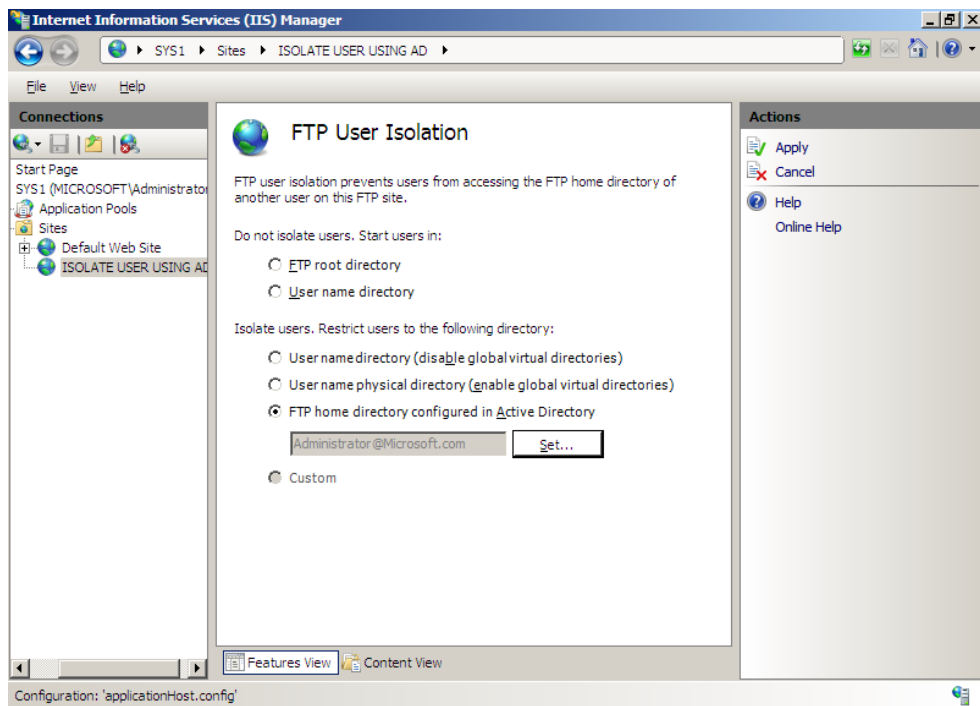
8. Select "FTP home directory configured in Active Directory" → click Set.



9. Mention the User name as Administrator@Microsoft.com, provide the password and confirm the password → Click **OK**

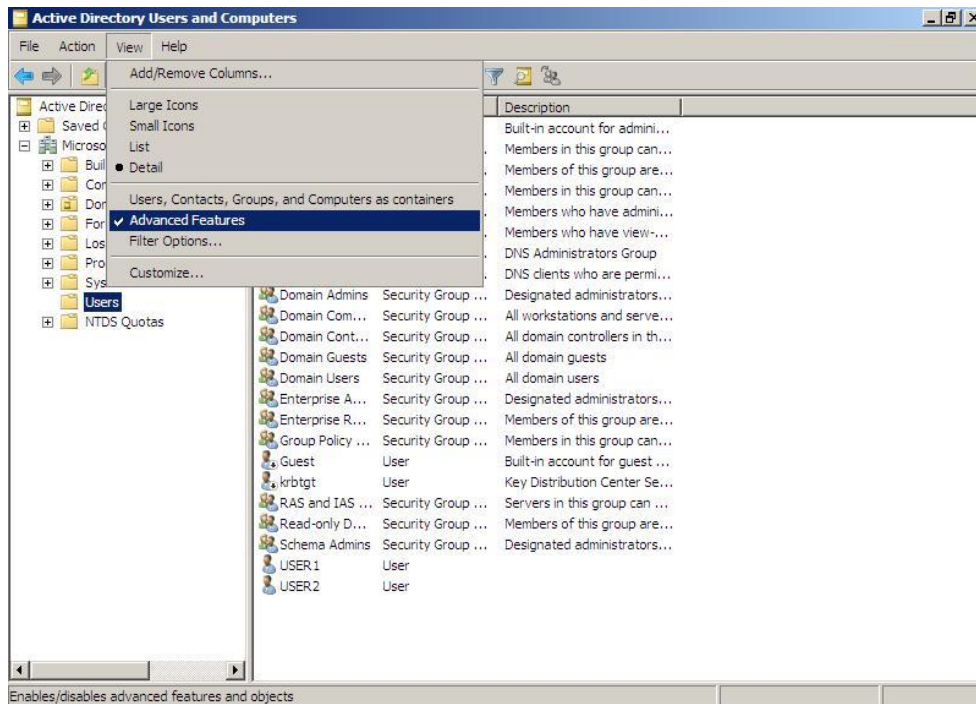


The 'Set Credentials' dialog box is shown. It has three input fields: 'User name:' containing 'Administrator@Microsoft.com', 'Password:' with masked characters, and 'Confirm password:' also with masked characters. At the bottom are 'OK' and 'Cancel' buttons.

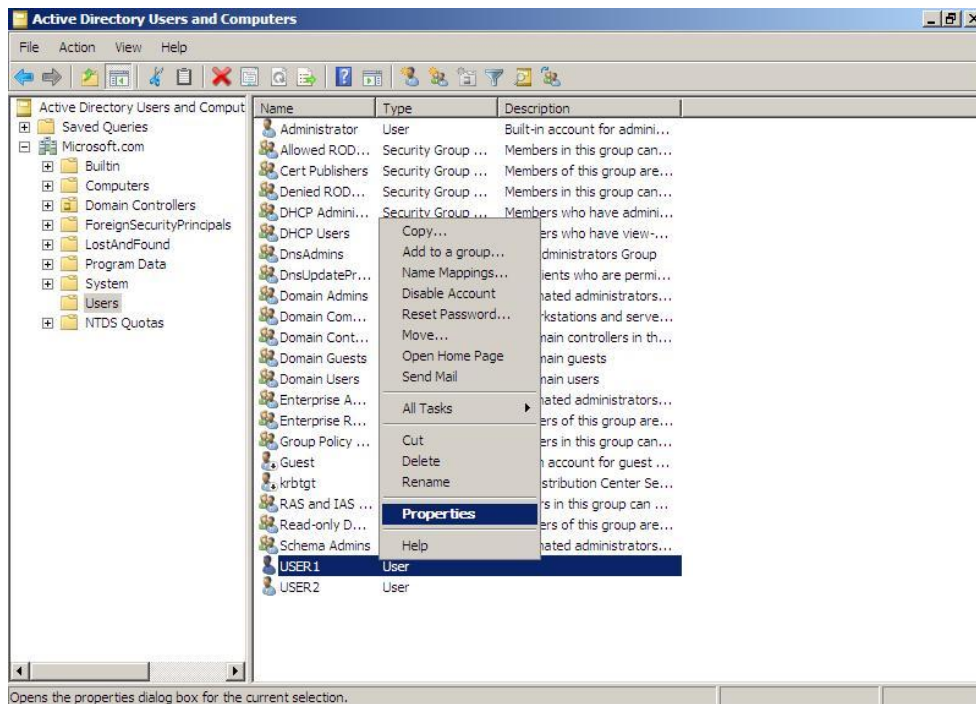


How to set Active Directory properties

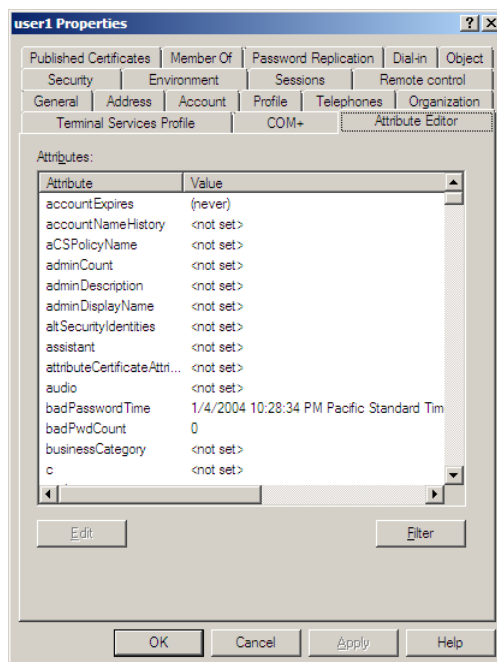
1. Open **Active Directory Users and computers** → click **View** → Select **Advanced Features**



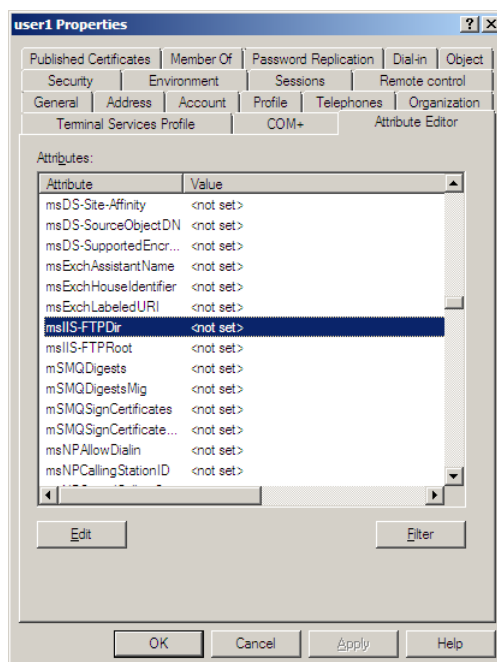
2. Right click on the User account (Ex: **User1**) → Select **Properties**



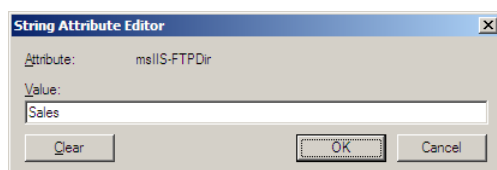
3. Select Attribute Editor



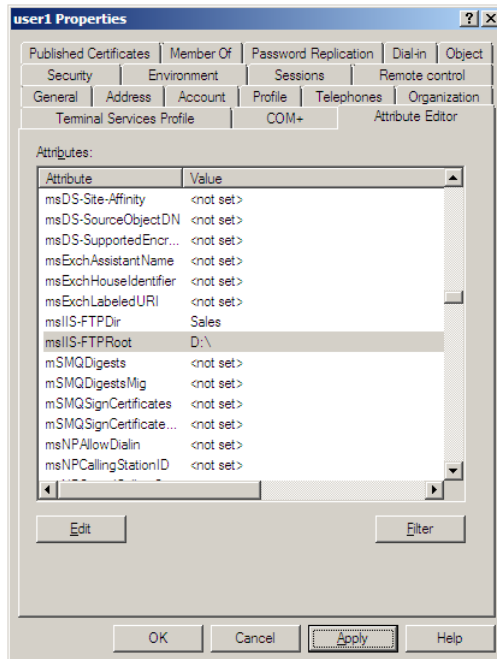
4. Select msIIS-FTPDDir



5. Click Edit and Mention the Folder name (Ex: Sales) → click OK.



6. Select **msIIS- FTPRoot** → click **Edit** and Mention the **Path of the Directory**
(Ex: **D:**) → click **OK**.
7. Verify the values given → click **Apply & OK**.

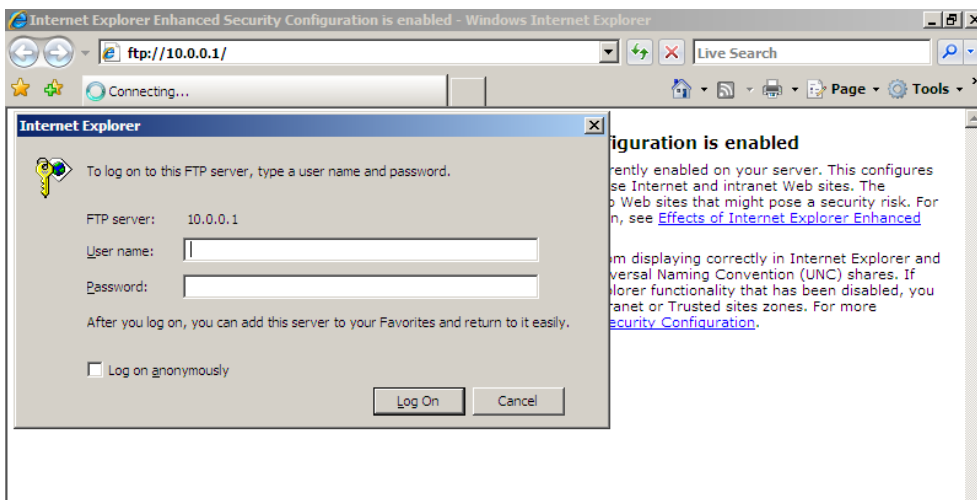


Accessing the FTP site from the Client systems

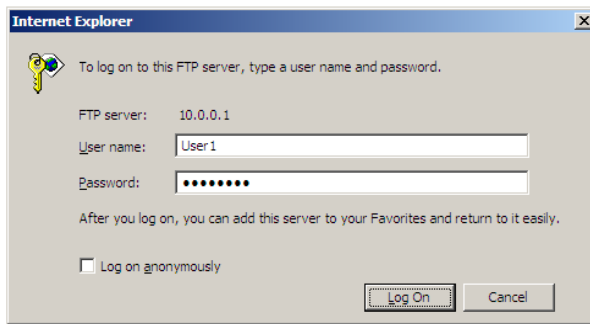
SYS2 – CONFIGURATION

1. Open the browser and type ftp://ftp_ip_address:port number (If the ftp site port is not default (21))

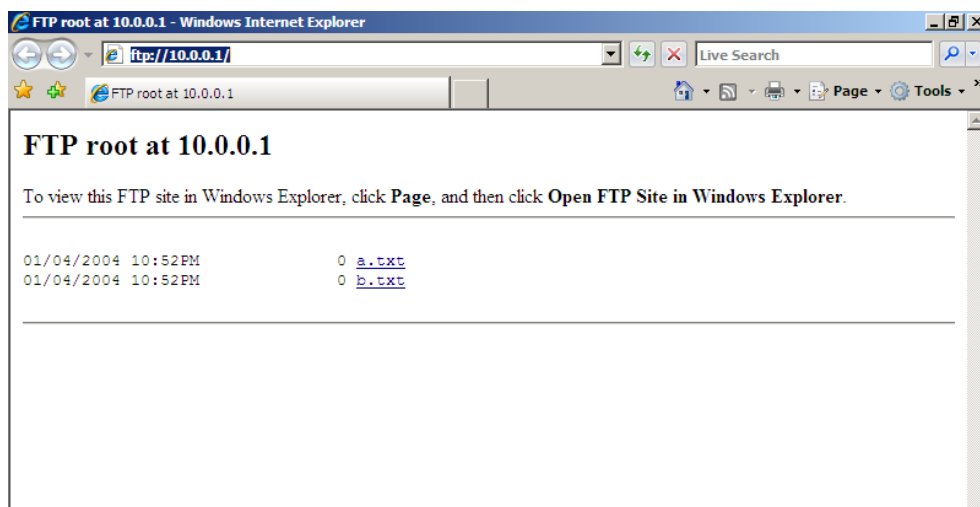
Ex: <ftp://10.0.0.1:2110> or <ftp://10.0.0.1>



2. Give the **username** and the **password**.



3. **User Home Directory** will be displayed.

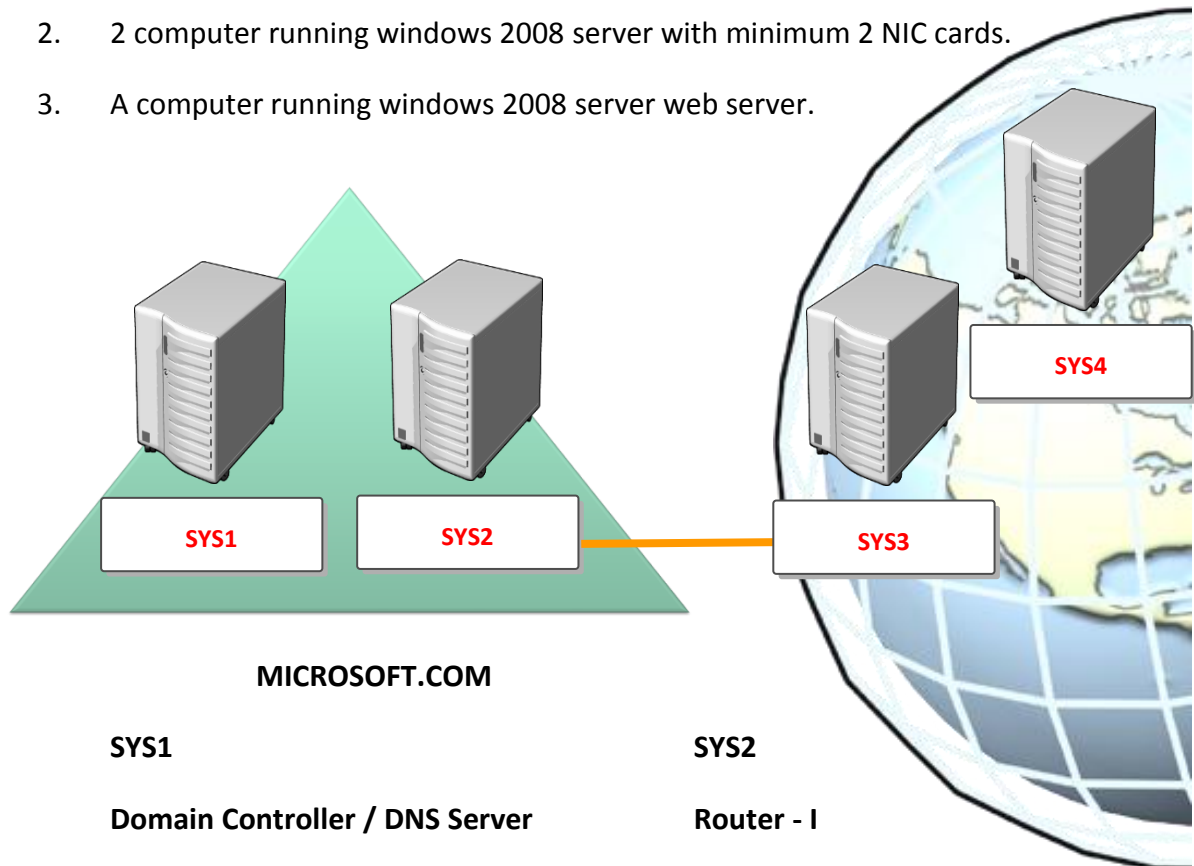


ROUTING

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server Domain Controller.
2. 2 computer running windows 2008 server with minimum 2 NIC cards.
3. A computer running windows 2008 server web server.



SYS1

Domain Controller / DNS Server

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Gateway	10.0.0.1
DNS Server	10.0.0.2, 12.0.0.2

SYS3

Router – II

IP Address	11.0.0.2, 12.0.0.1
Subnet Mask	255.0.0.0
Gateway	-----
DNS Server	12.0.0.2

SYS2

Router - I

IP Address	10.0.0.1, 11.0.0.1
Subnet Mask	255.0.0.0
Gateway	-----
DNS Server	10.0.0.2

SYS4

Web server / DNS Server

IP Address	12.0.0.2
Subnet Mask	255.0.0.0
Gateway	12.0.0.1
DNS Server	12.0.0.2, 12.0.0.1

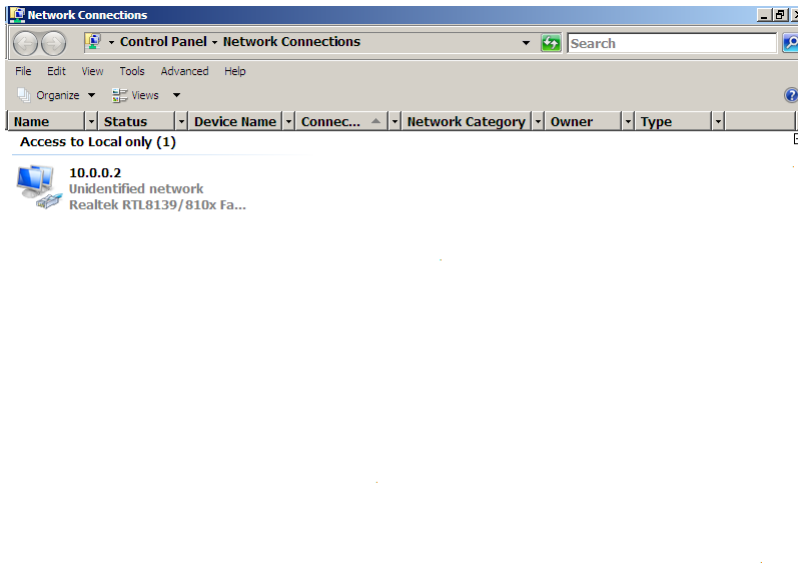
Lab – 1: Assigning the IP Address to Configure Routing**ON PRIVATE:**

1. Logon to **Private**.

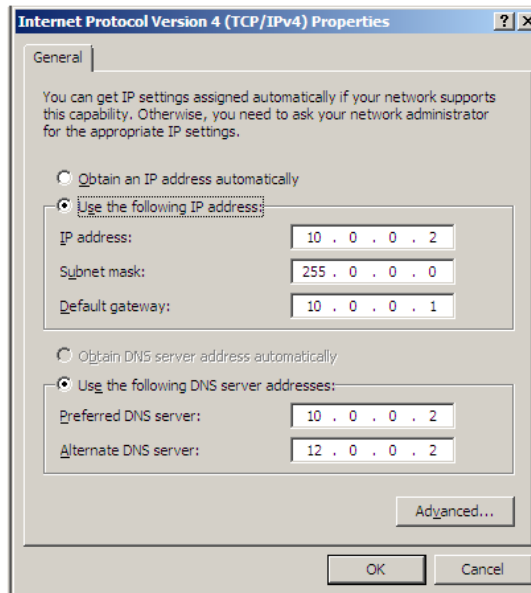


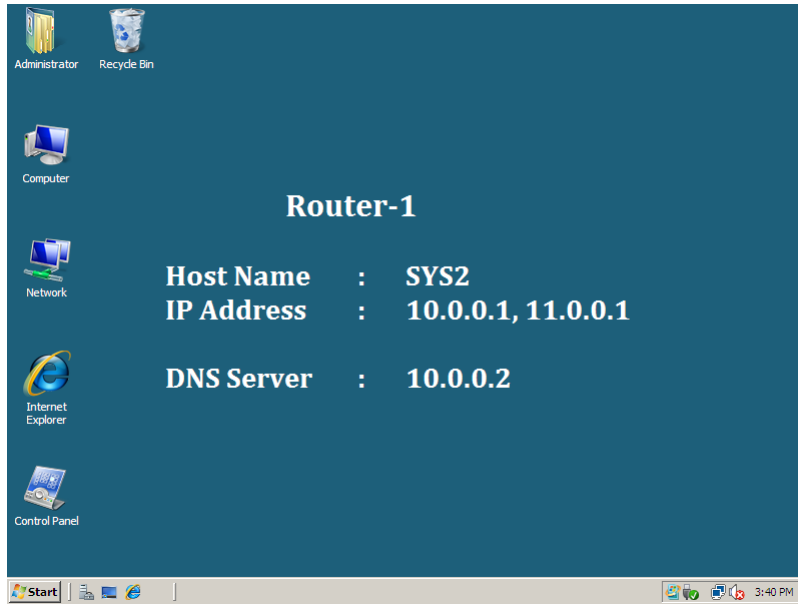
2. **Check the IP settings:**

Right click on **network icon** → click **Manage Network Connections** → Right click **NIC card** → click **properties**

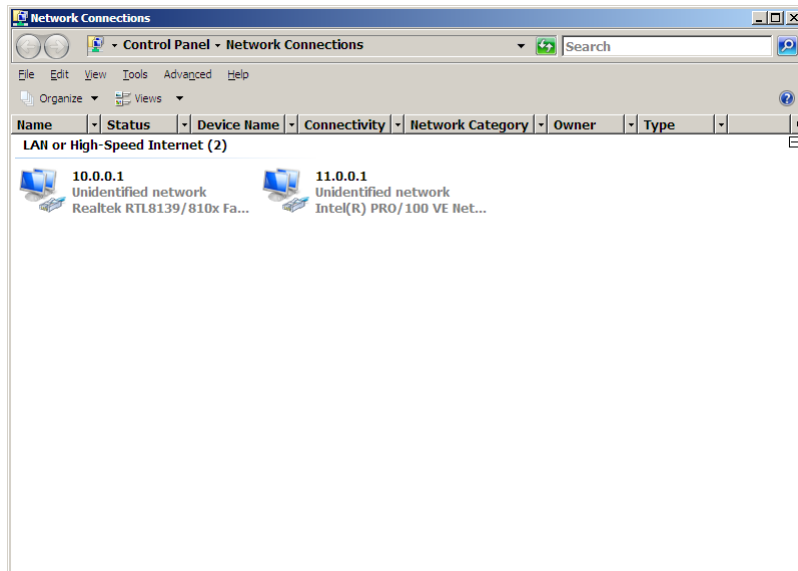


3. Right click on **NIC card** → click **properties** → **Internet Protocol Version 4 (TCP/IPv4)** → **properties** → Define the IP address as mentioned below.



ON ROUTER 1:**1. Logon to Router1****2. Check the IP settings:**

Right click on **network icon** → click **Manage Network Connections** → Right click **NIC card** → click **properties** → **Internet Protocol Version 4 (TCP/IPv4)** → **properties** → Define the IP address as mentioned below.



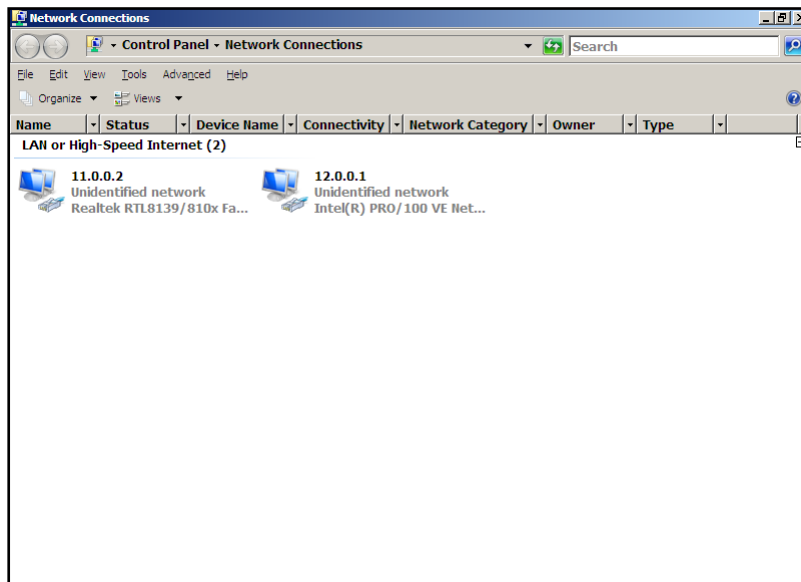
On ROUTER 2:

1. Log on to **Router2**



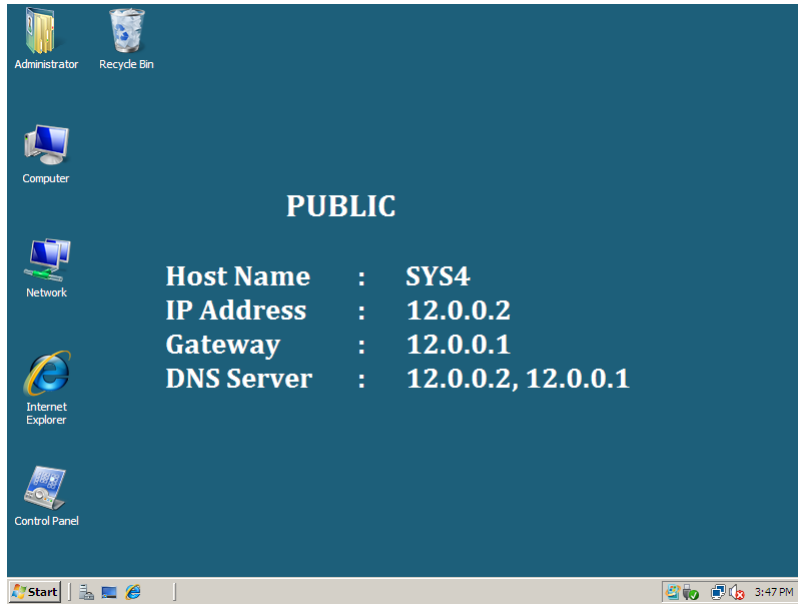
2. **Check the IP settings:**

Right click on **network icon** → click **Manage Network Connections** → Right click **NIC card** → click **properties** → **Internet Protocol Version 4 (TCP/IPv4)** → **properties** → Define the IP address as mentioned below.



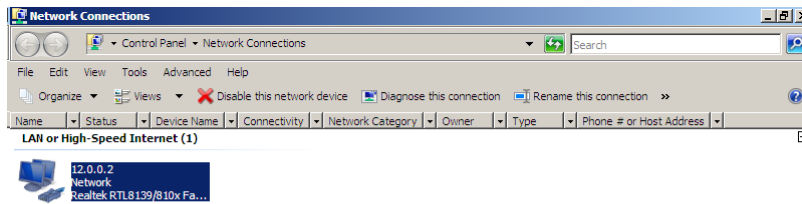
On PUBLIC:

1. Logon to **Public**

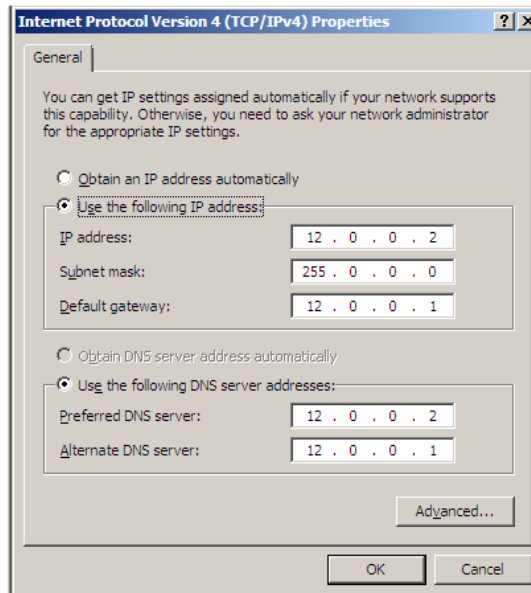


2. **Check the IP settings:**

Right click on **network icon** → click **Manage Network Connections**.



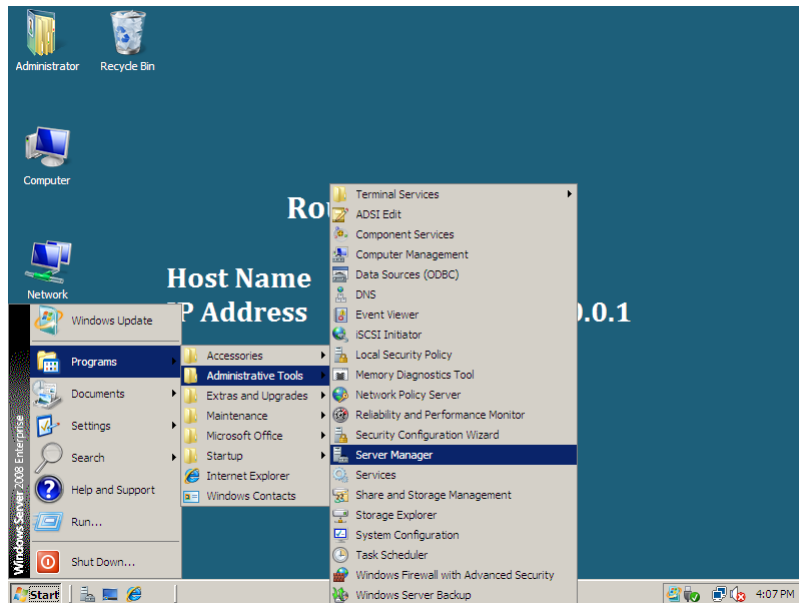
3. Right click on **NIC card** → click **properties** → **Internet Protocol Version 4 (TCP/IPv4)** → **properties** → Define the IP address as mentioned below.



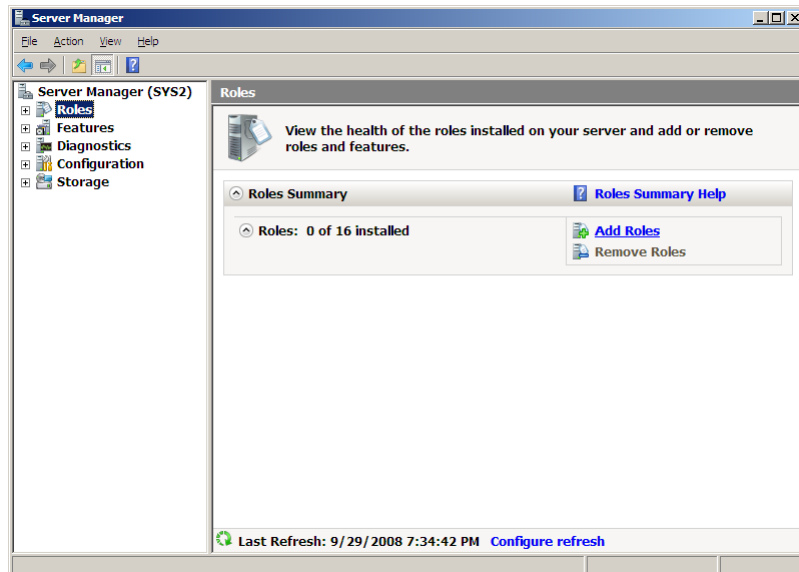
Lab – 2: Installing Routing Service on Router1 & Router2

SYS2– CONFIGURATION

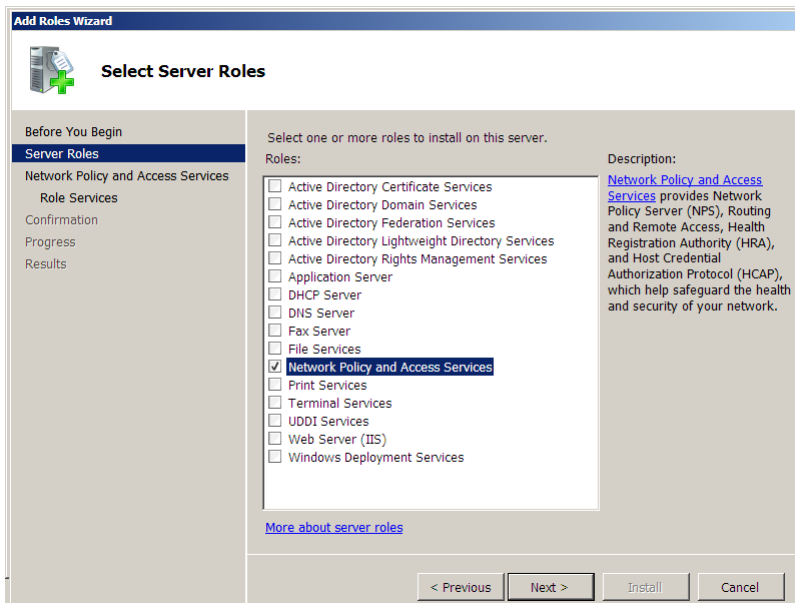
1. Click Start → Programs → Administrative Tools → **Server Manager**



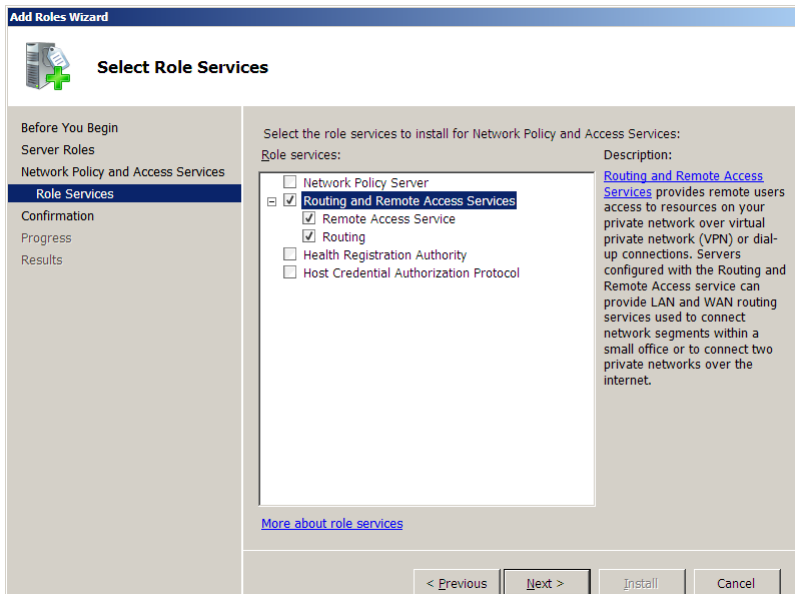
2. Select **Roles** → click **Add Roles**



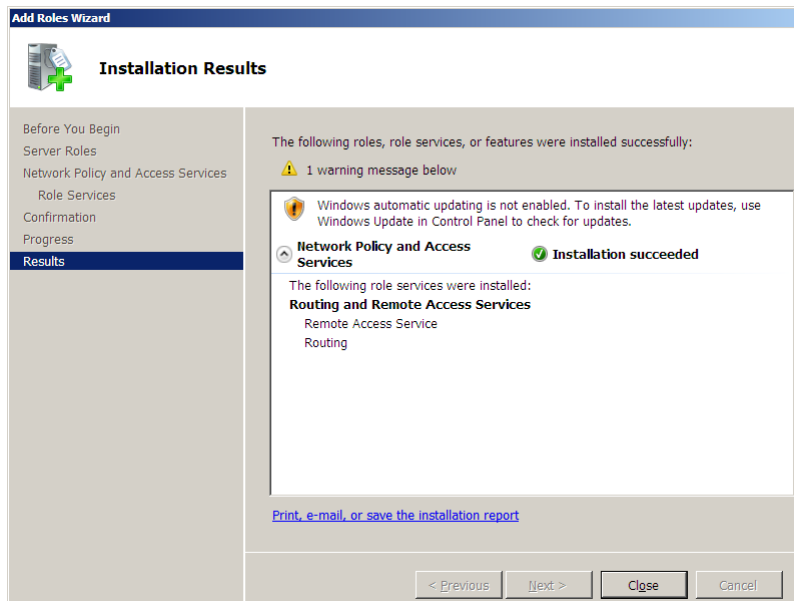
3. Select the Check Box for **Network policy And Access Services** →click **Next**



4. Select the Check Box for **Routing And Remote Access Services** →click **Next**
→click **Install**



5. Installation will be Completed → click **Close**

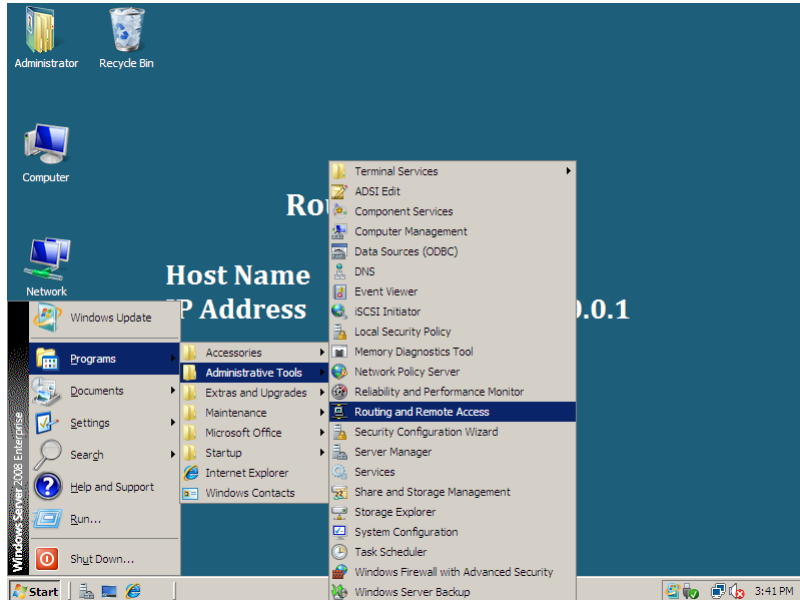


Note: - Repeat the process of LAB2 on Router-2 (SYS3) also.

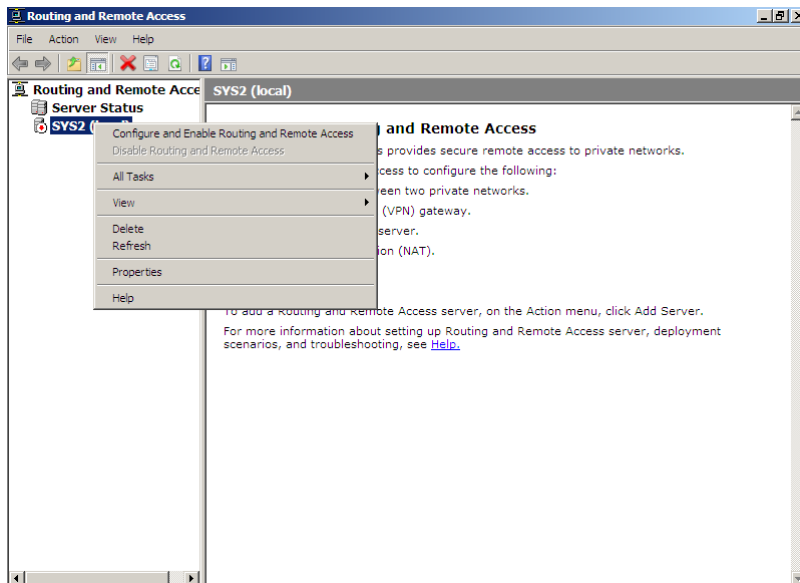
Lab – 3: Enabling Routing on Router1 & Router2

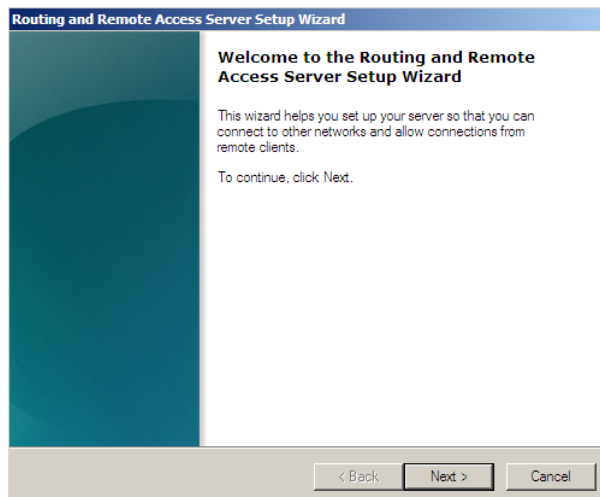
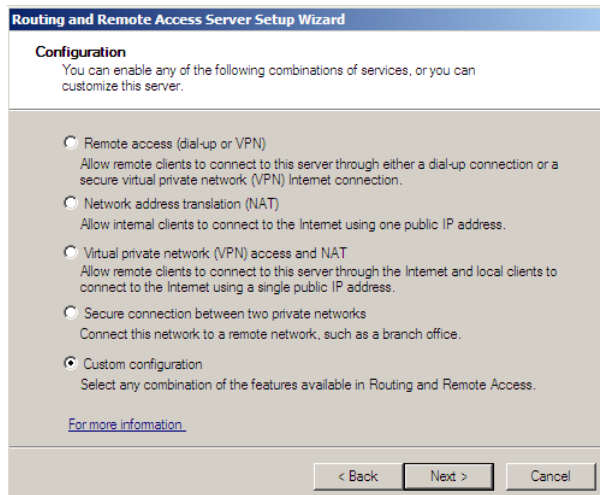
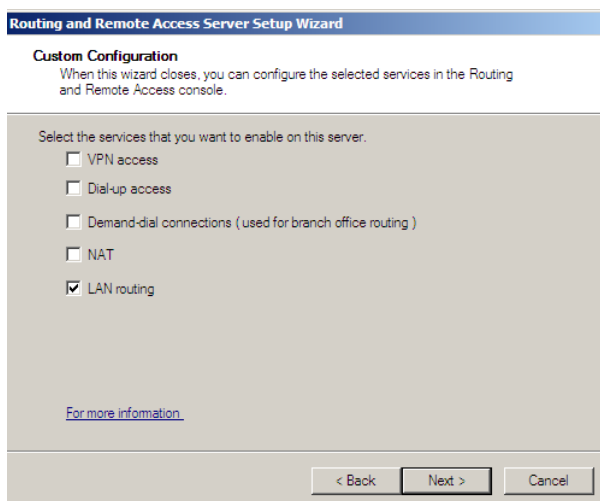
SYS2 – CONFIGURATION

1. Click Start → Programs → Administrative Tools → Routing And Remote Access

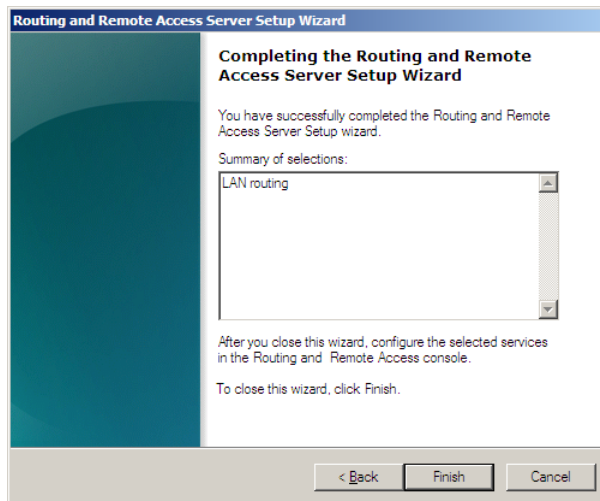


2. Right click on system name **Configure & Enable Routing and Remote Access**

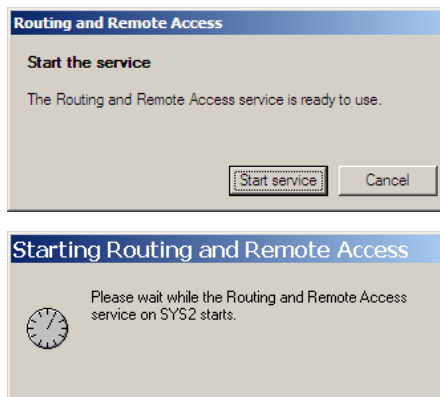


3. Click **Next**4. Select **Custom configuration** → click **Next**.5. Select **LAN routing** → **Next**

6. Click **Finish**



7. Click **Start service**



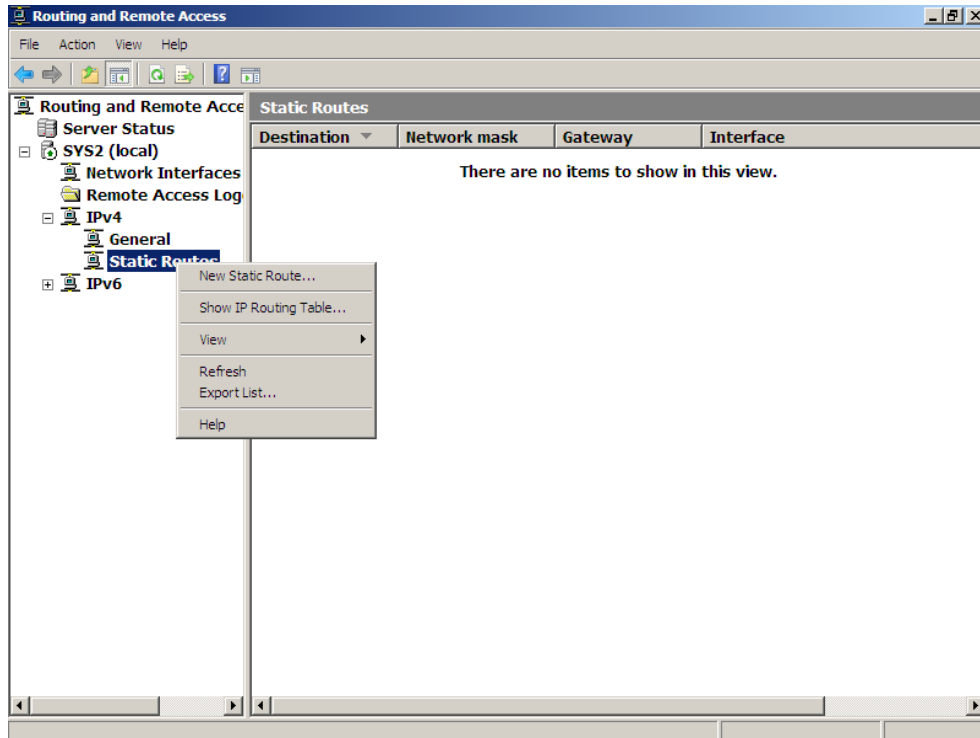
Note: - Repeat the process of LAB3 on Router-2 (SYS3) also.

Lab – 4: Configuring Static Routes

SYS2 – CONFIGURATION

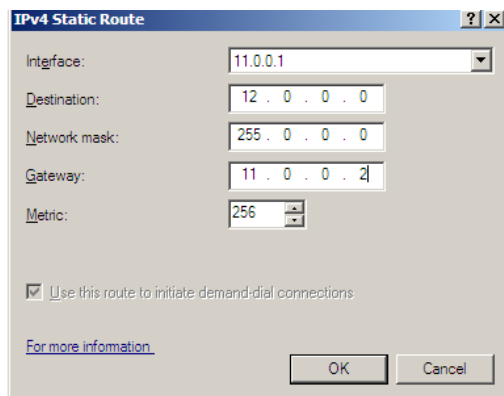
ON ROUTER 1:

1. Go to Routing and Remote access → Expand System name → Expand **IPv4** → Select **Static Routes** → Right click **New Static Route**



2. Define the static route as mentioned below → click **OK**.

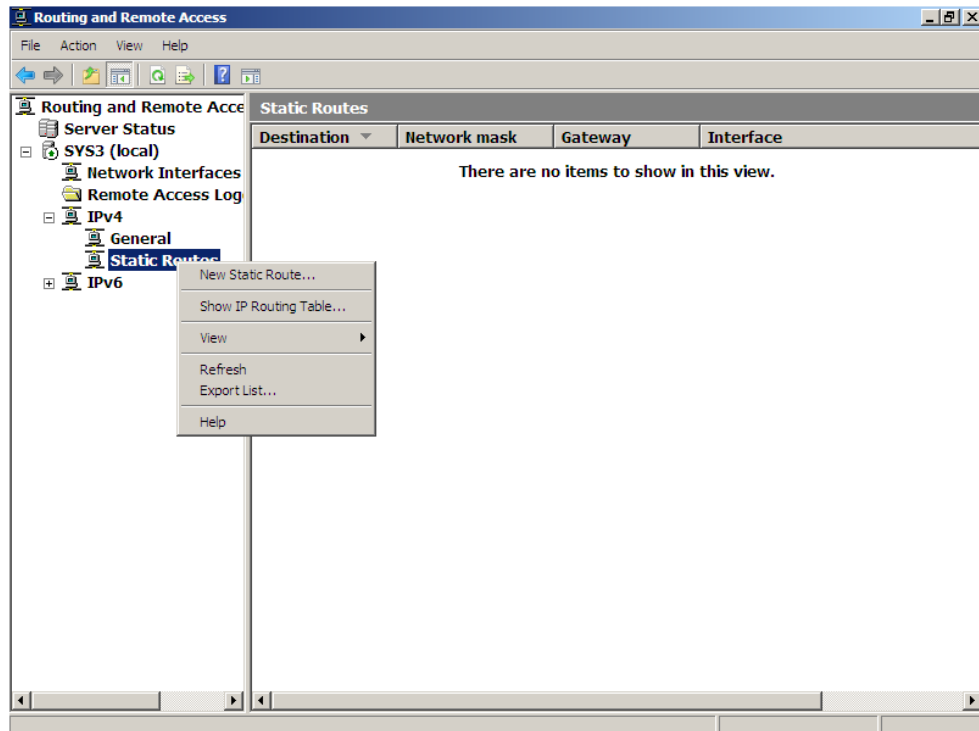
Interface 11.0.0.1
 Destination 12.0.0.0
 Network Mask 255.0.0.0
 Gateway 11.0.0.2
 Metric 256



SYS3 – CONFIGURATION

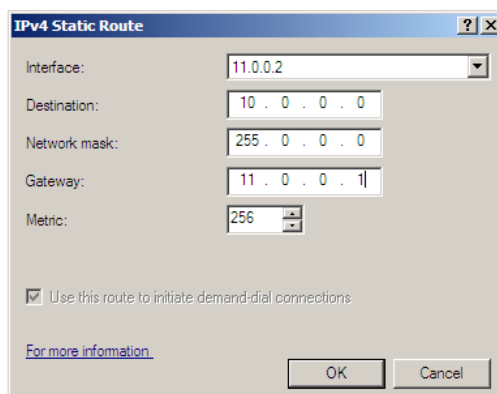
ON ROUTER 2:

1. Go to Routing and Remote access → Expand System name → Expand **IPv4**
→ Select **Static Routes** → Right click **New Static Route**



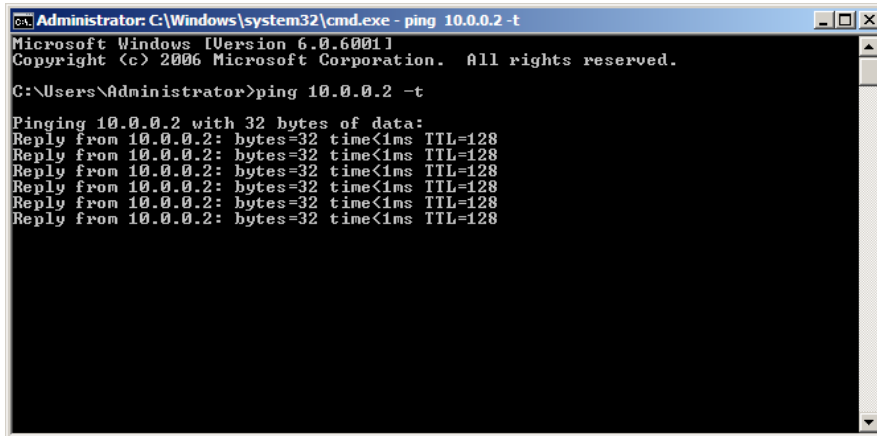
2. Define the static route as mentioned below → click **OK**.

Interface 11.0.0.2
 Destination 10.0.0.0
 Network Mask 255.0.0.0
 Gateway 11.0.0.1
 Metric 256



Verification:

1. Check the connectivity between 10.0.0.0 and 12.0.0.0 Networks.
2. Log on to **SYS4**(12.0.0.2) → Go to Start → Run → CMD → Ping **10.0.0.2 -t** and verify for reply

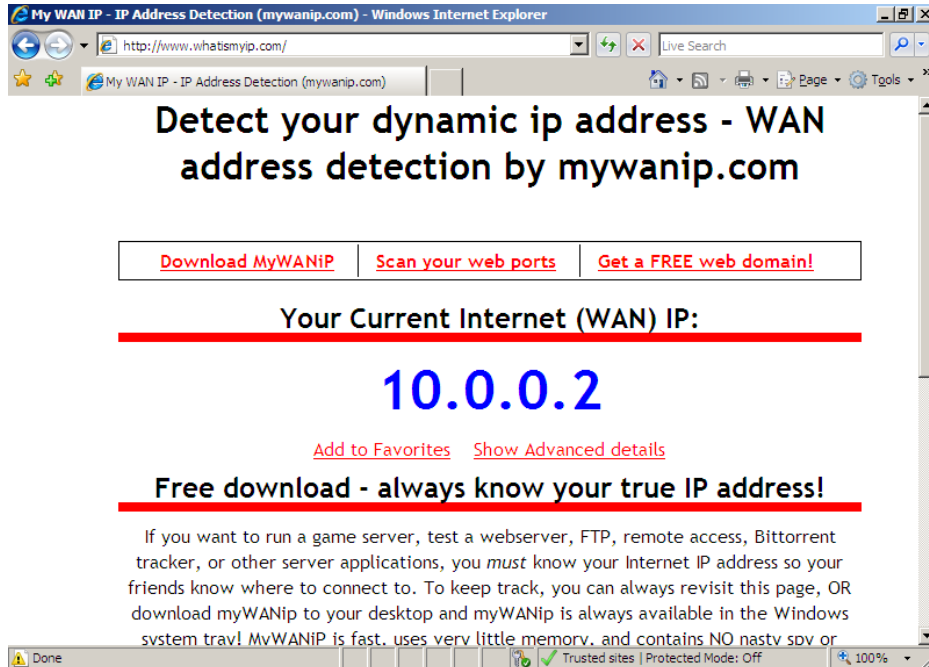


```
Administrator: C:\Windows\system32\cmd.exe - ping 10.0.0.2 -t
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ping 10.0.0.2 -t

Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
```

3. Log on to **SYS1** (10.0.0.2) → Open the Internet Explorer & access <http://www.whatismyip.com> (Website is present on 12.0.0.2), so communication is there between both networks

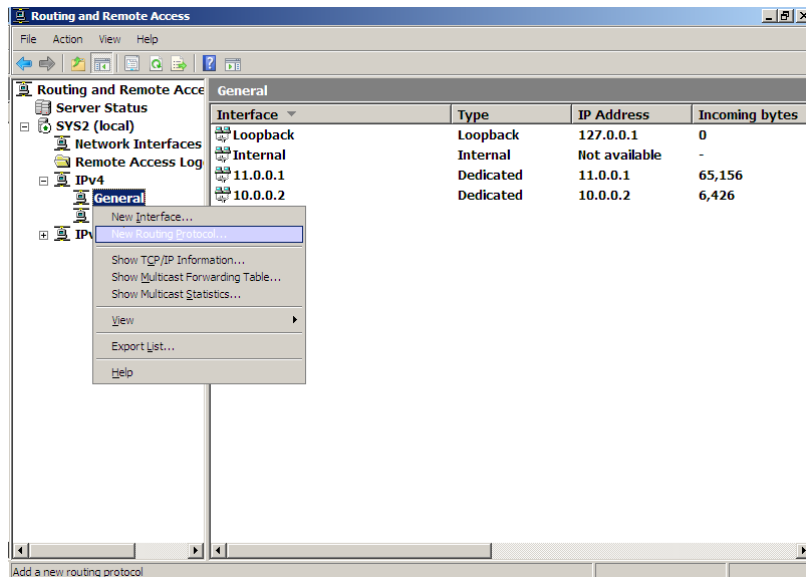


Lab – 5: Configuring Network Address Translation

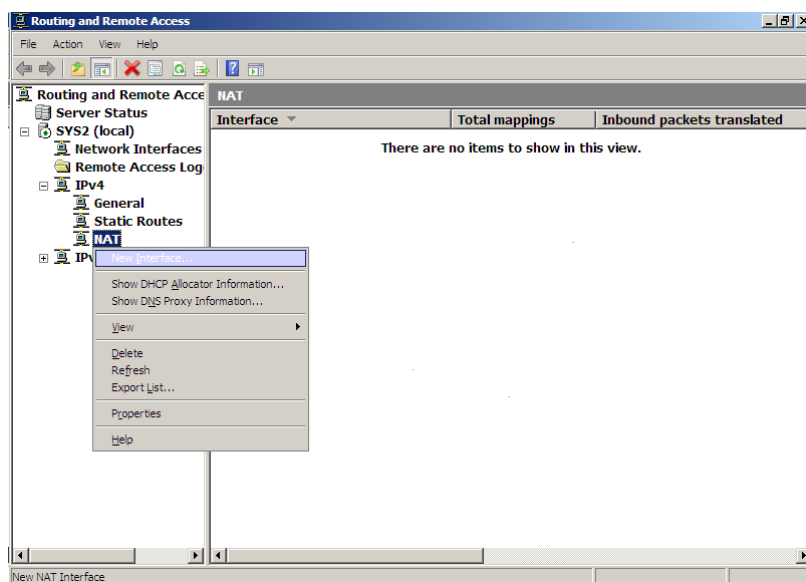
SYS2 – CONFIGURATION

OnROUTER1:

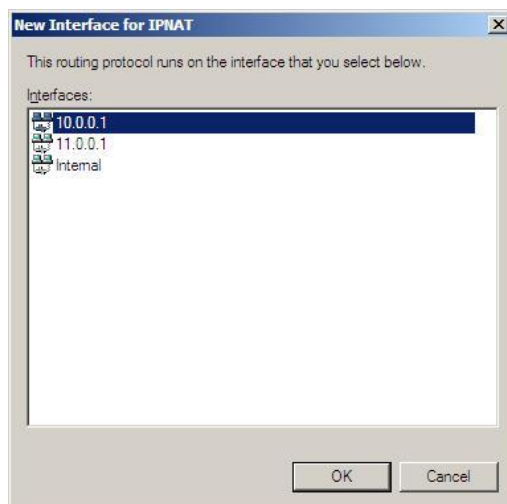
1. Go to Routing and Remote access → Expand System name → Expand **IPv4**
2. Right click on **General** → Select **New Routing Protocol**



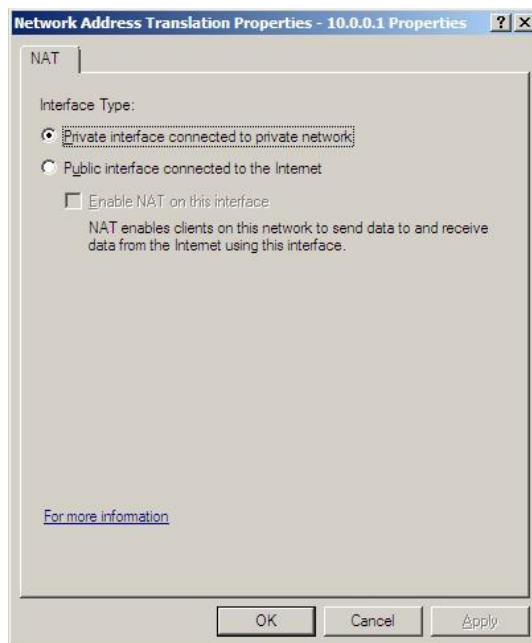
3. Select **NAT** → click **OK**
4. Right click on **NAT** → Select **New interface**



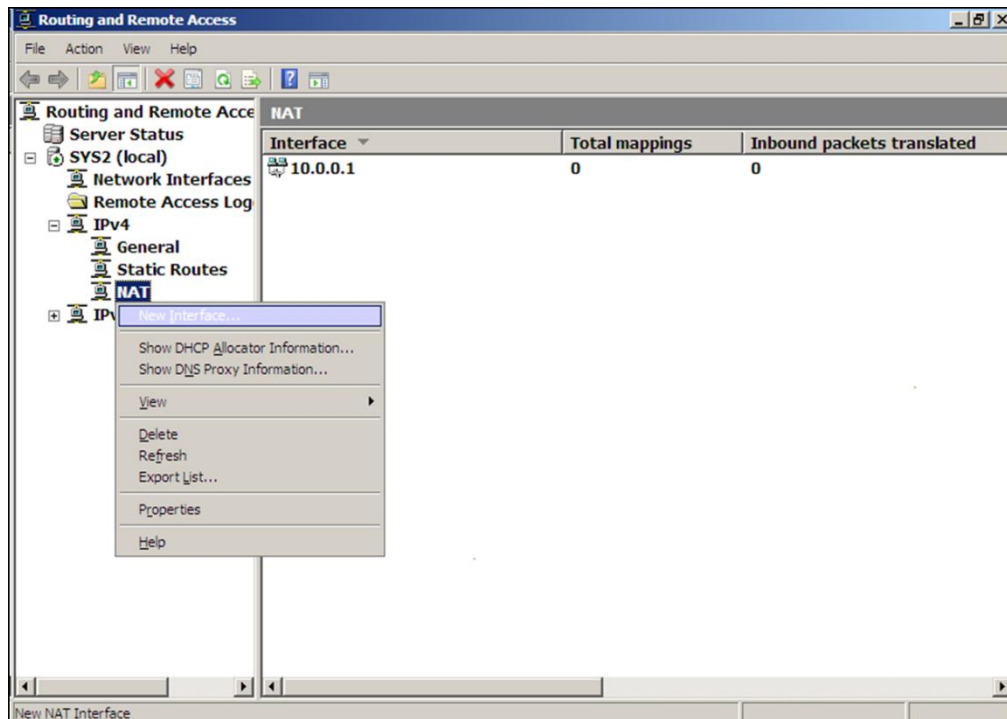
5. Select **LAN** interface → click **OK**



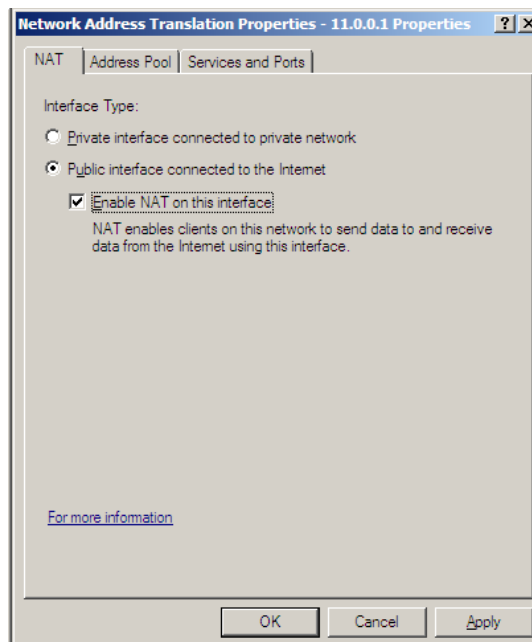
6. Select **Private** interface → click **OK**.



7. Again Right click on **NAT** → Select **New interface**



8. Select **WAN** Interface (11.0.0.1) → click **OK**
9. Select **Public interface**, & Select **Enable NAT** → click **OK**.

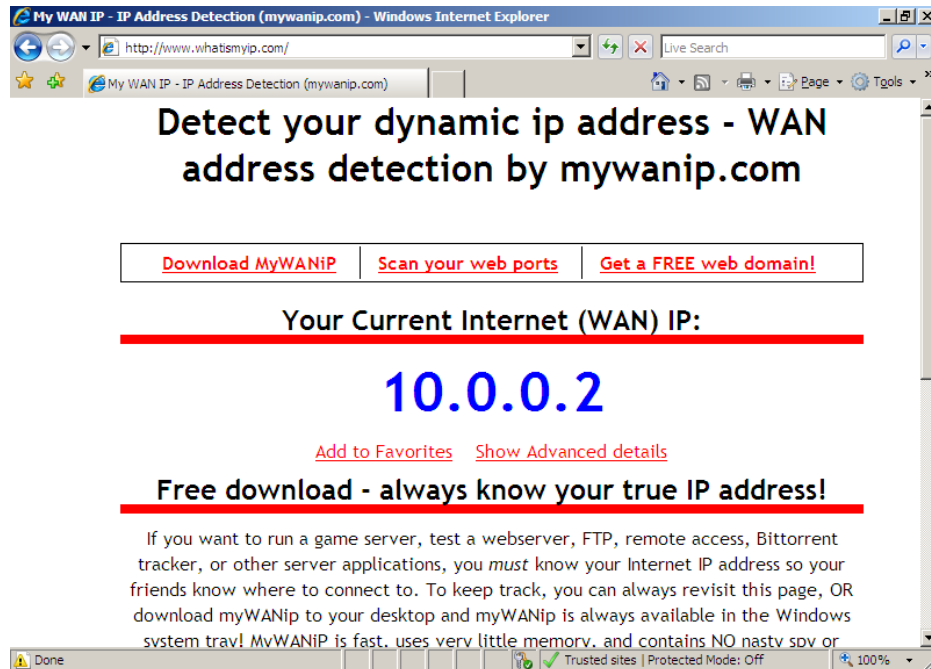


Verification:

Before Natting:

On Private → Open Internet Explorer & access <http://www.whatismyip.com>

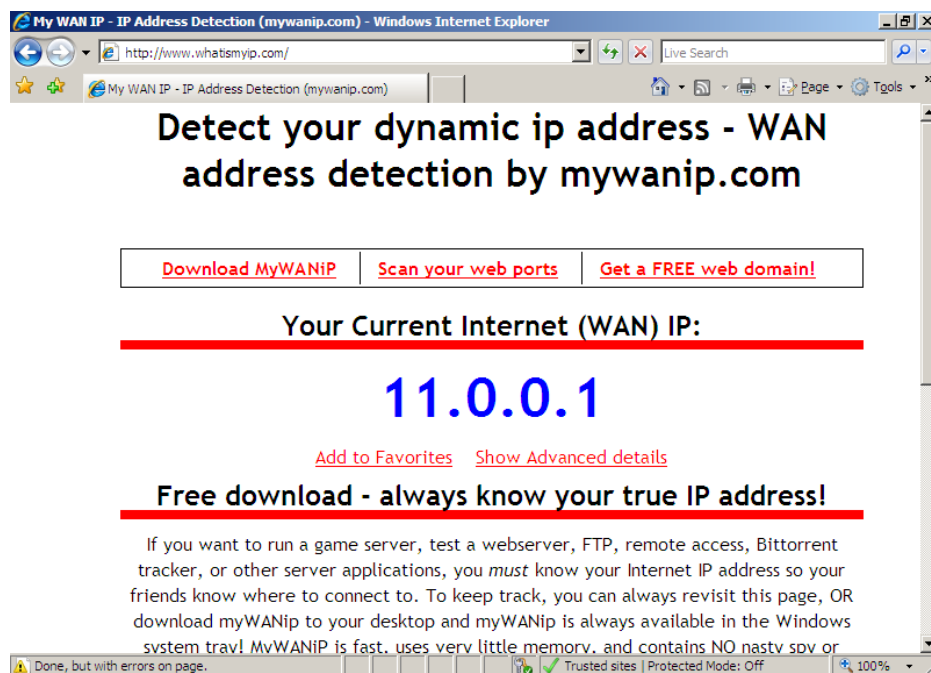
the IP address is shown as 10.0.0.2 Private IP.



After Natting:

On Private → Open Internet Explorer & access <http://www.whatismyip.com>

the IP address is shown as 11.0.0.1 Public IP.



Lab – 6: Configuring DHCP Relay Agent

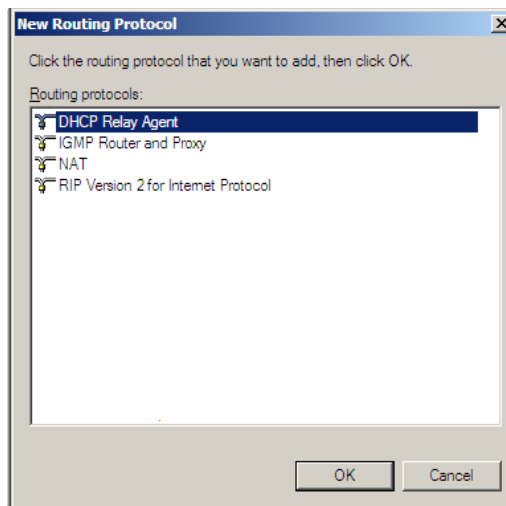
SYS1-CONFIGURATION

Note: Install DHCP service and create a scope with 12.0.0.10 to 12.0.0.100 with the router IP as 12.0.0.1.

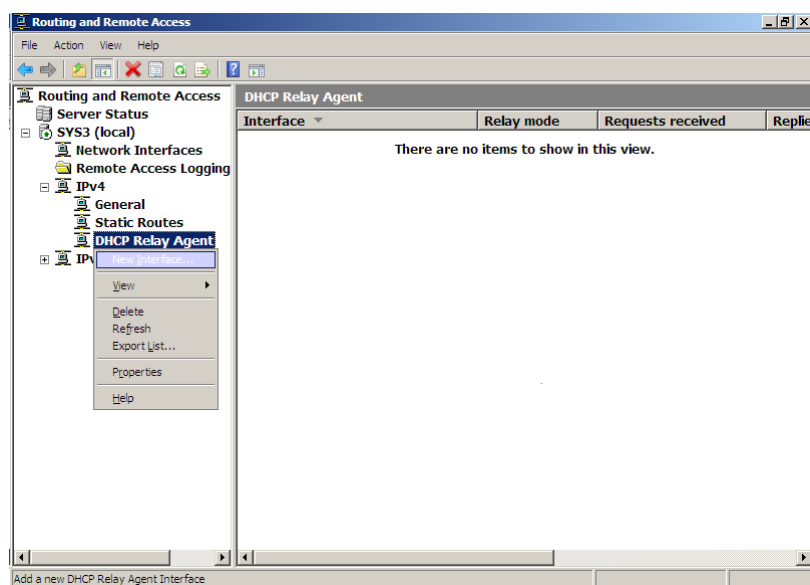
On Router2

SYS3-CONFIGURATION

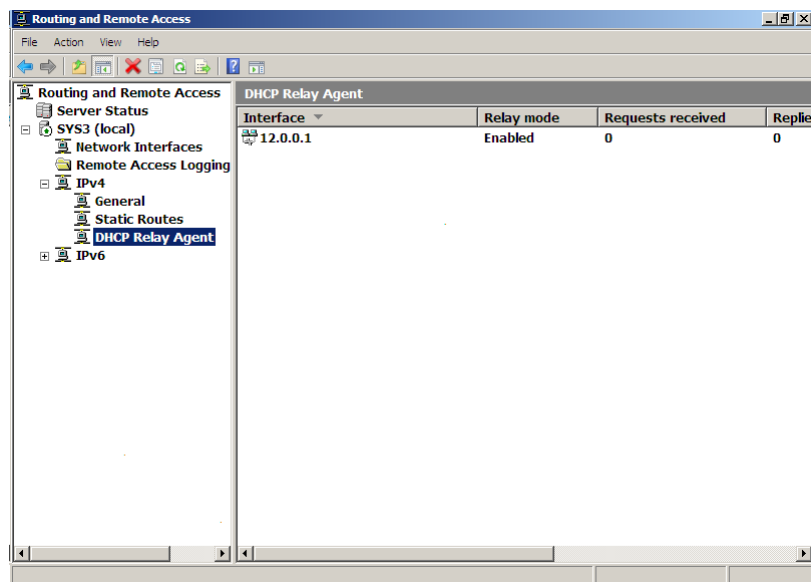
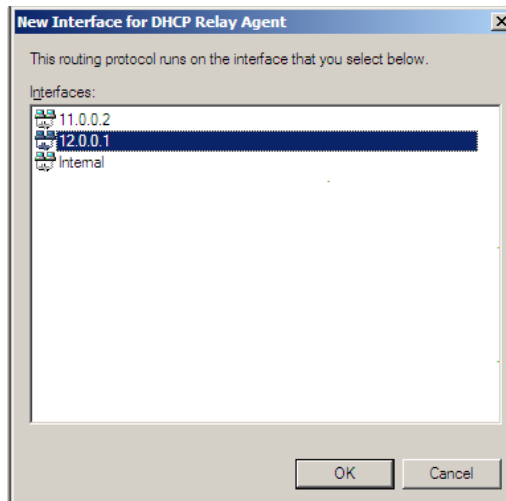
1. Go to **Routing and Remote Access** → Expand **System name** → Expand **IPv4**
2. Right click **General** → Select **New Routing Protocol**
3. Select **DHCP Relay agent** → click **OK**.



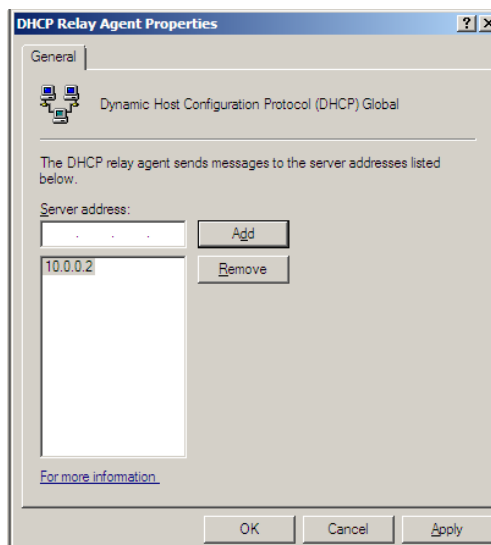
4. Right click on **DHCP Relay Agent**, Select **New Interface**.



5. Select **12.0.0.1 Interface** → click **OK** → and click **OK**.



6. Right click on **DHCP Relay Agent** → **Properties** → Enter the IP Address of **DHCP Server (10.0.0.2)** → click **Add** → **Apply** and **OK**



Verification:

SYS4-CONFIGURATION

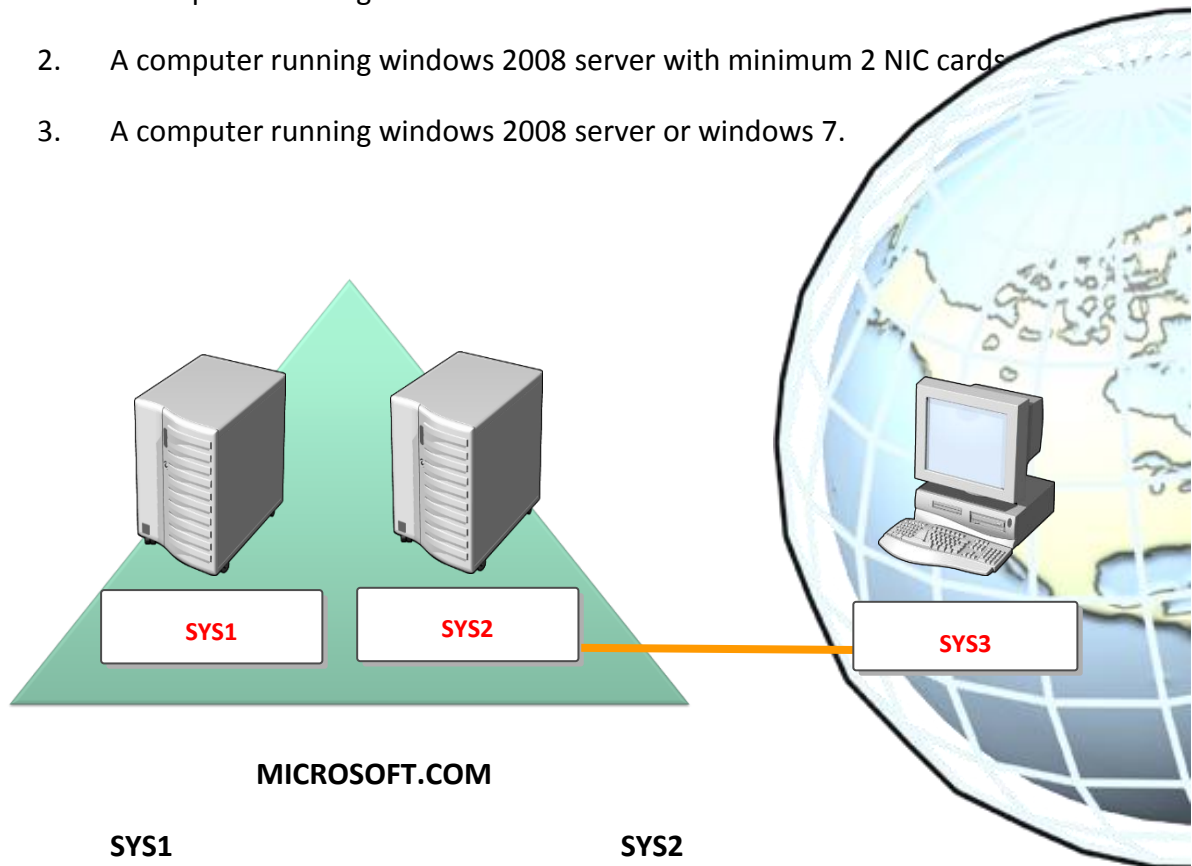
1. Log on as **Administrator** to DHCP Client (**SYS4**) and set the IP address to **obtain the IP address automatically**.
2. Start → Run → Cmd → **ipconfig /release**.
3. Type **ipconfig /renew**.
4. An IP address will be assigned by DHCP server.
5. Check the IP Address by typing **ipconfig /all**.

REMOTE ACCESS SERVICES (RAS)

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server Domain Controller.
2. A computer running windows 2008 server with minimum 2 NIC cards
3. A computer running windows 2008 server or windows 7.



SYS1

Domain Controller / DNS Server

IP Address 10.0.0.2
Subnet Mask 255.0.0.0
Preferred DNS 10.0.0.2

SYS2

RAS Server / VPN Server

IP Address 10.0.0.1
Subnet Mask 255.0.0.0
Preferred DNS 10.0.0.2

SYS3

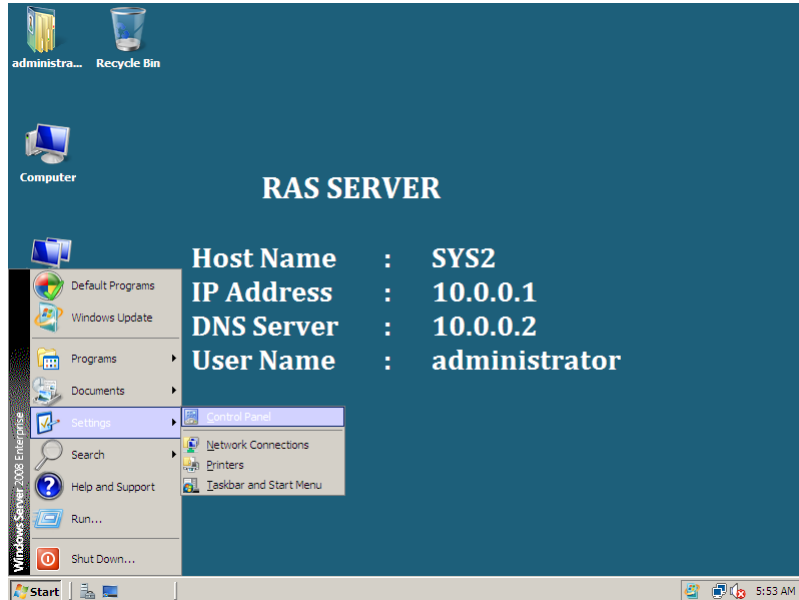
RAS Client (PPP Dial-in Interface)

IP Address -----
Subnet Mask -----
Preferred DNS -----

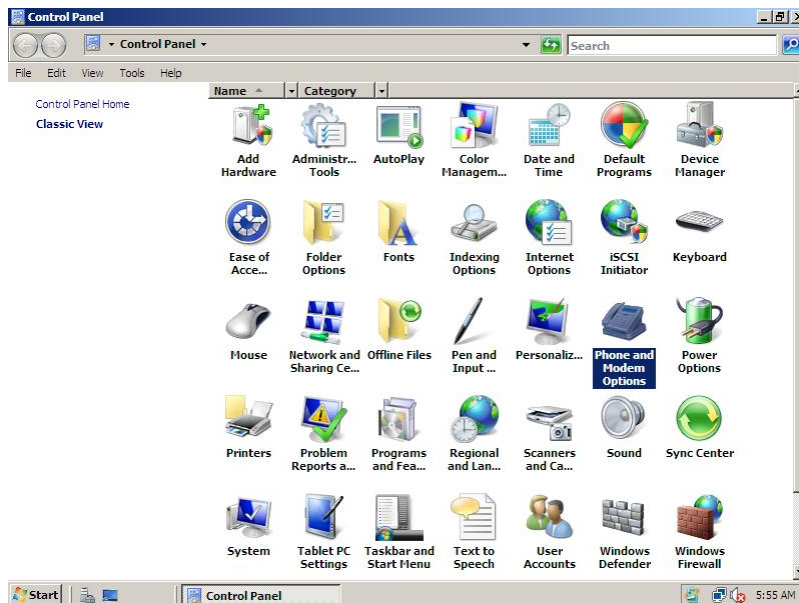
Lab – 1: Configuring MODEM on RAS Server and RAS Client

SYS2 – CONFIGURATION

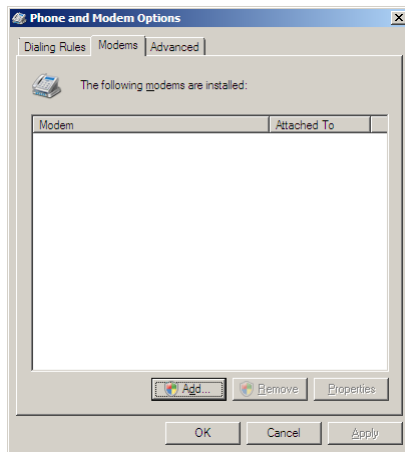
1. Select Start → Settings → Control Panel



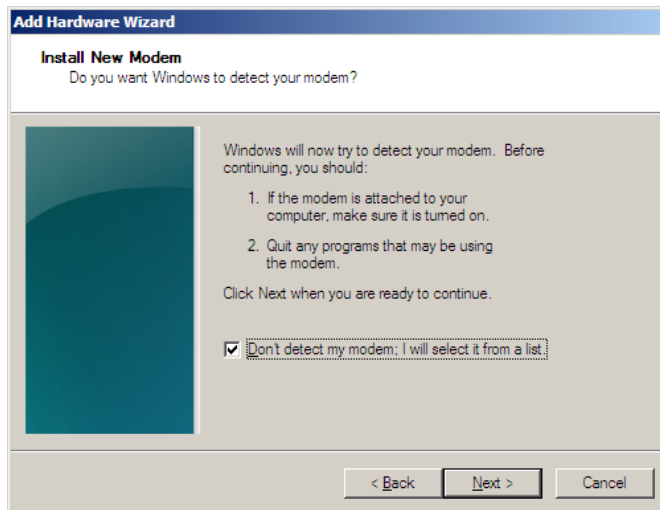
2. A Control Panel wizard will appear → Double click **Phone and Modem**.



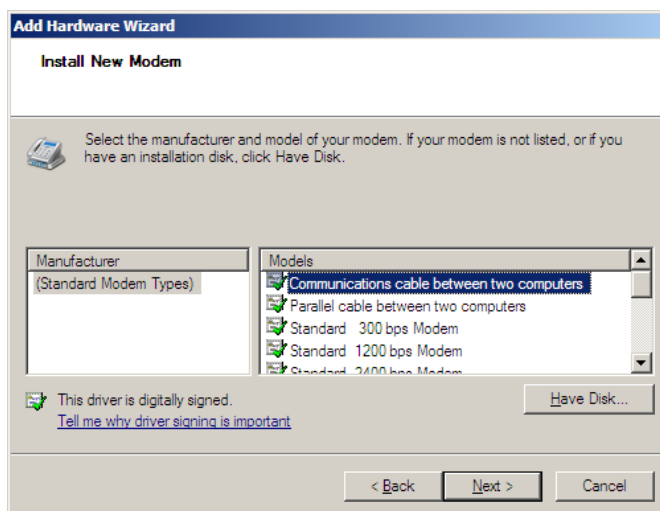
3. A Phone and Modem option wizard appears, go to **MODEMS** tab →click **ADD**.



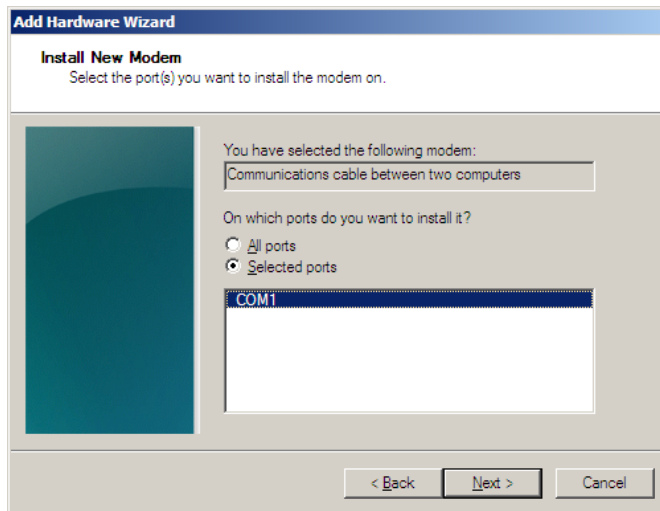
4. Select **“Don’t detect my modem: I will select it from a list”** →click **Next**.



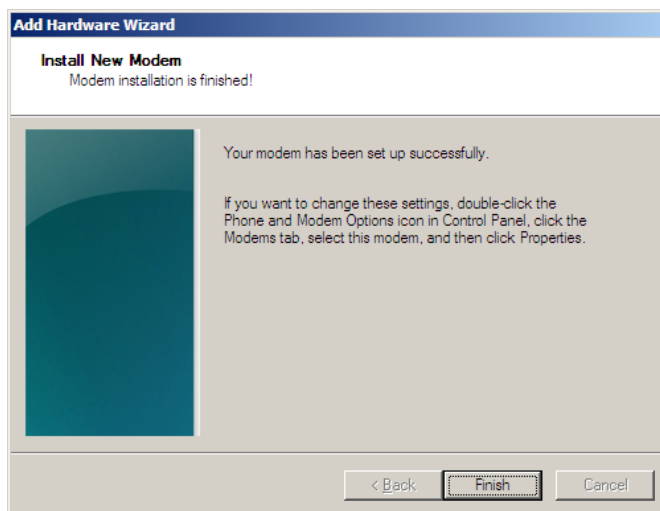
5. For Lab→ Select **“Communication cable between two computers”** →click **Next**.



6. Select the **COM1** port (Default) and click **Next**.



7. A modem installation complete wizard appears → click **Finish**.

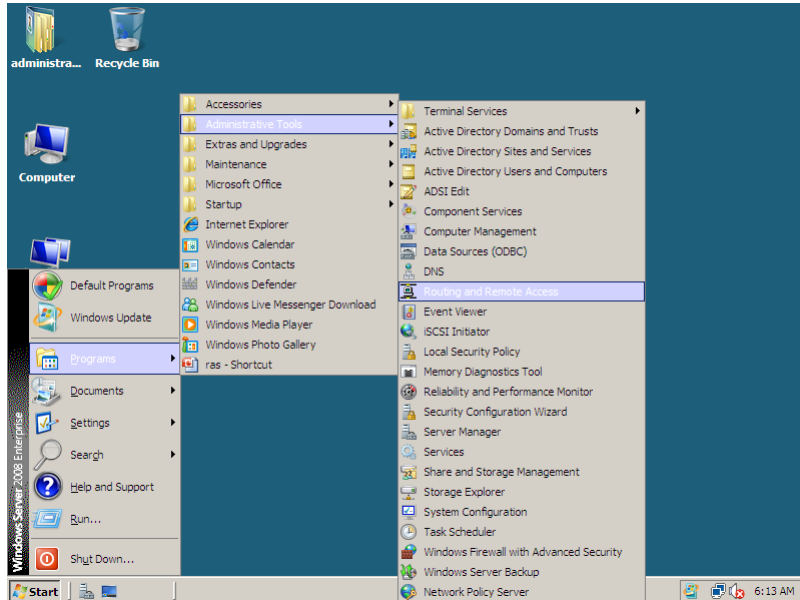


Note: - Repeat the process of LAB1 on RAS Client (SYS3) also.

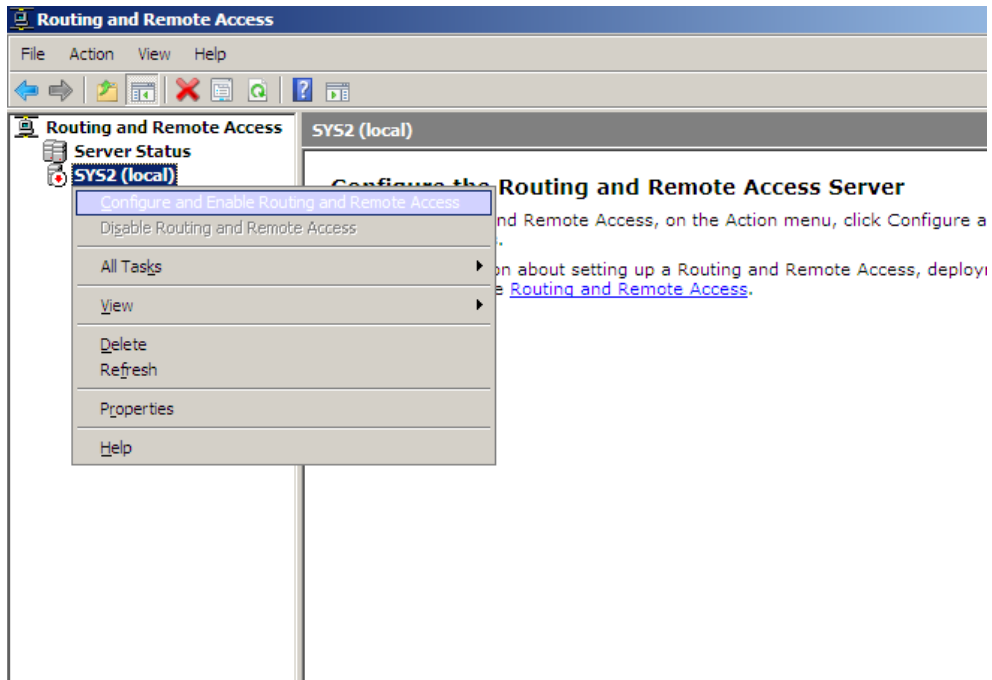
Lab – 2: Configuring Remote Access Service

SYS2 – CONFIGURATION

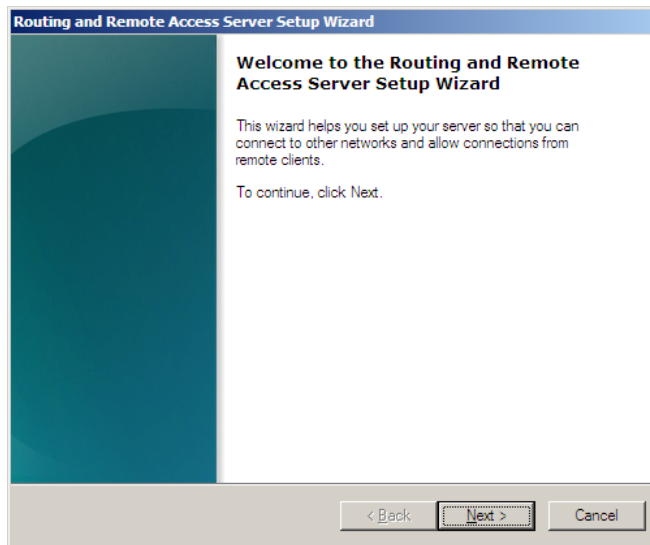
1. Go to Start → Programs → Administrative Tools → Routing & Remote Access.



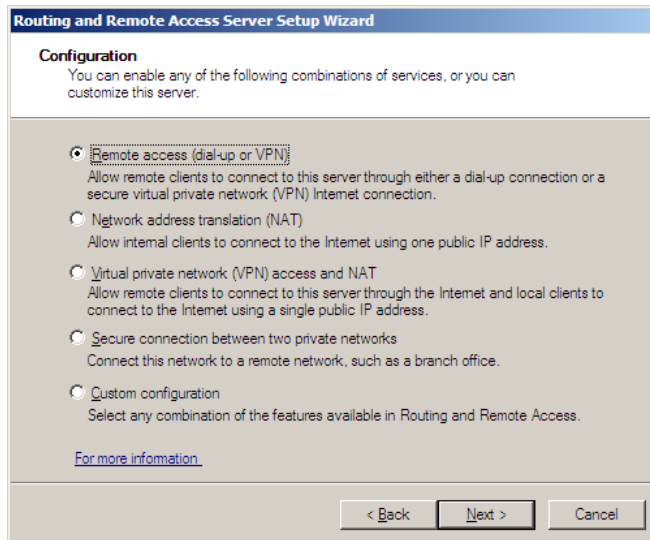
2. Right click on the **server name** → Configure and Enable Routing and Remote access.



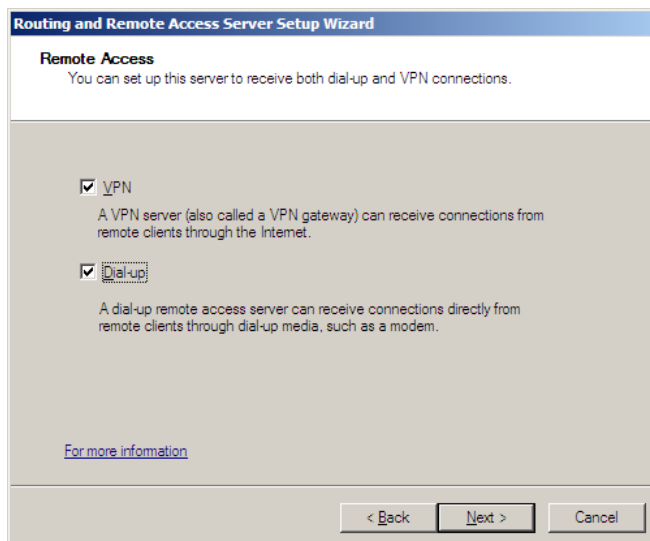
3. Click **Next**.



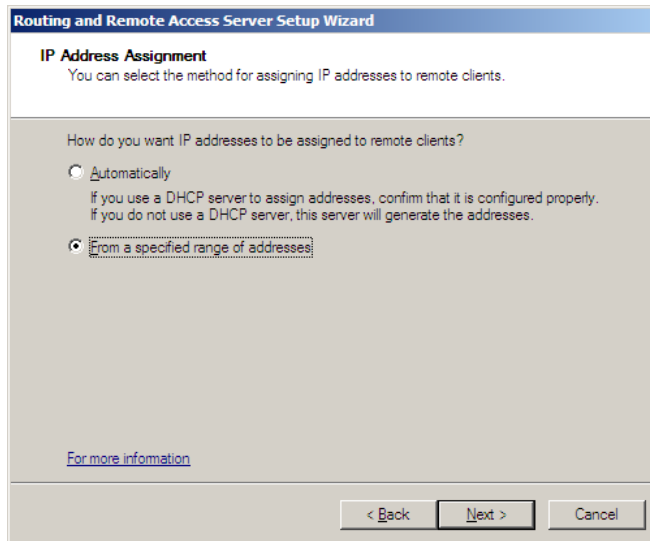
4. Select **Remote access**.



5. Select **Dial-up and VPN** → click **Next**.



6. Select the **Internet (Public) Interface** i.e., **11.0.0.1** and remove the check box for **Enable Security** → click **Next**
7. Select **from a Specified range** and click **Next**.



Routing and Remote Access Server Setup Wizard

IP Address Assignment
You can select the method for assigning IP addresses to remote clients.

How do you want IP addresses to be assigned to remote clients?

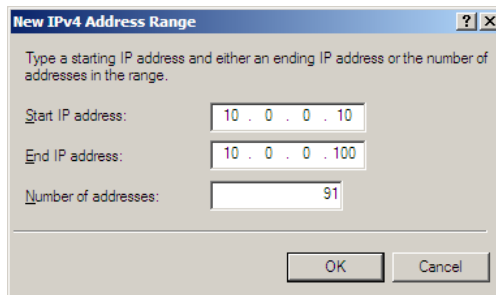
☐ Automatically
If you use a DHCP server to assign addresses, confirm that it is configured properly.
If you do not use a DHCP server, this server will generate the addresses.

☒ From a specified range of addresses

[For more information](#)

< Back Next > Cancel

8. Click **New** to specify the address range that this it will assign to the Remote Clients & Specify the IP address range from: **10.0.0.10 to 10.0.0.100** → click **OK**.



New IPv4 Address Range

Type a starting IP address and either an ending IP address or the number of addresses in the range.

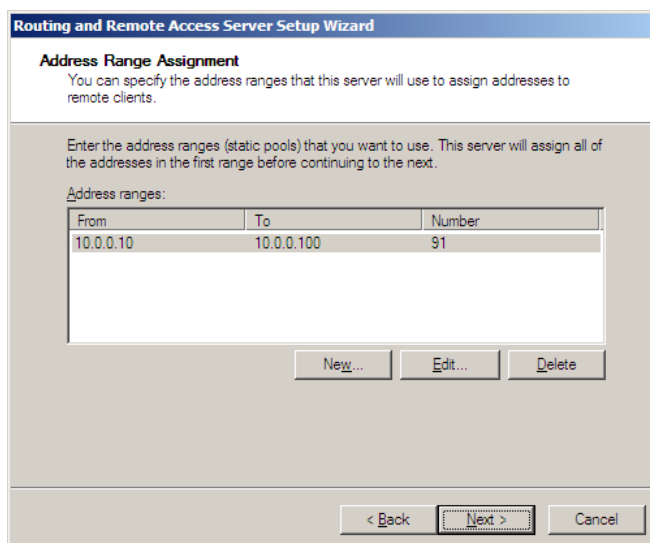
Start IP address: 10 . 0 . 0 . 10

End IP address: 10 . 0 . 0 . 100

Number of addresses: 91

OK Cancel

9. Click **Next**.



Routing and Remote Access Server Setup Wizard

Address Range Assignment
You can specify the address ranges that this server will use to assign addresses to remote clients.

Enter the address ranges (static pools) that you want to use. This server will assign all of the addresses in the first range before continuing to the next.

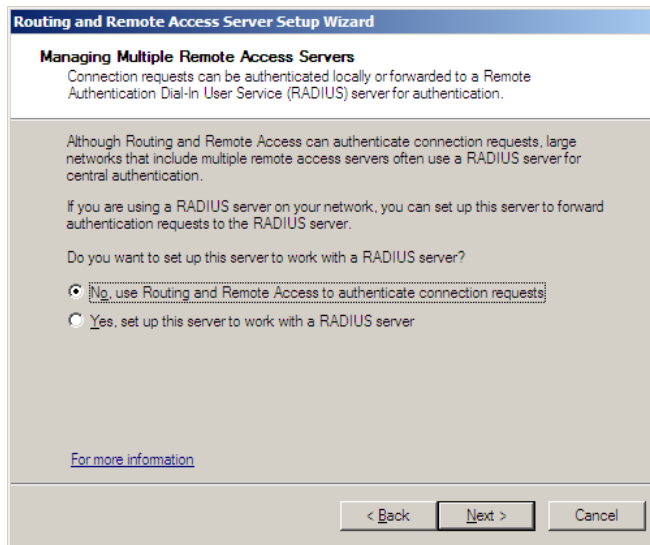
Address ranges:

From	To	Number
10.0.0.10	10.0.0.100	91

New... Edit... Delete

< Back Next > Cancel

10. Select **No**, use Routing and Remote Access to authenticate → click **Next**.



Routing and Remote Access Server Setup Wizard

Managing Multiple Remote Access Servers
Connection requests can be authenticated locally or forwarded to a Remote Authentication Dial-In User Service (RADIUS) server for authentication.

Although Routing and Remote Access can authenticate connection requests, large networks that include multiple remote access servers often use a RADIUS server for central authentication.

If you are using a RADIUS server on your network, you can set up this server to forward authentication requests to the RADIUS server.

Do you want to set up this server to work with a RADIUS server?

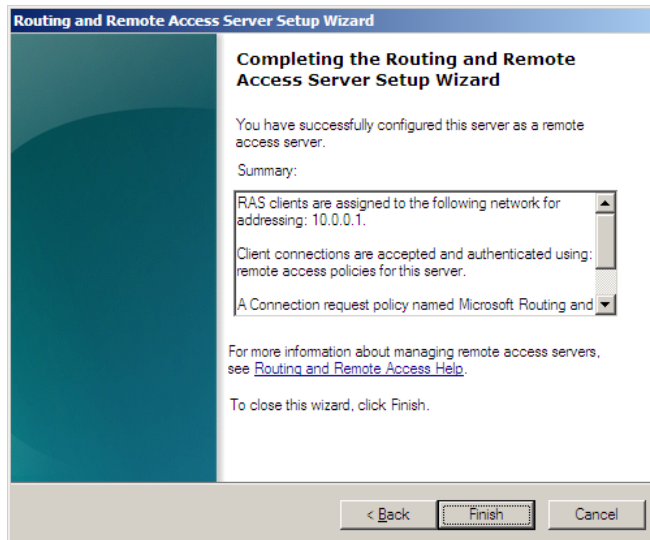
☒ **No**, use Routing and Remote Access to authenticate connection requests

☐ **Yes**, set up this server to work with a RADIUS server

[For more information](#)

< Back Next > Cancel

11. Click **Finish**.



Routing and Remote Access Server Setup Wizard

Completing the Routing and Remote Access Server Setup Wizard

You have successfully configured this server as a remote access server.

Summary:

RAS clients are assigned to the following network for addressing: 10.0.0.1.

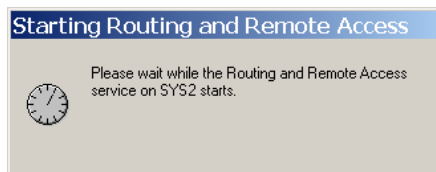
Client connections are accepted and authenticated using: remote access policies for this server.

A Connection request policy named Microsoft Routing and

For more information about managing remote access servers, see [Routing and Remote Access Help](#).

To close this wizard, click Finish.

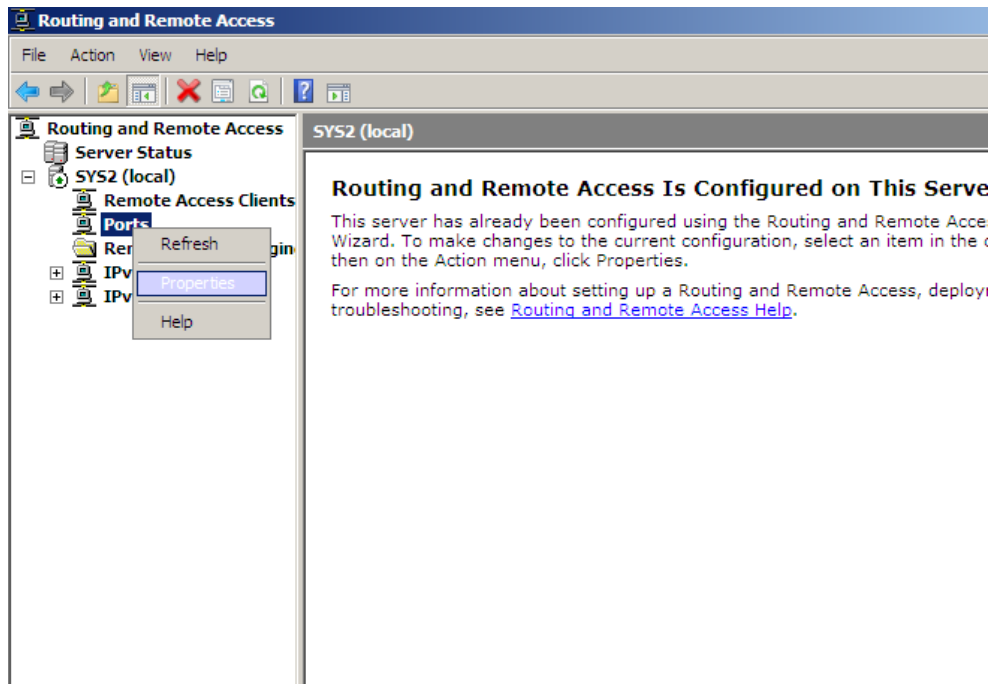
< Back Finish Cancel



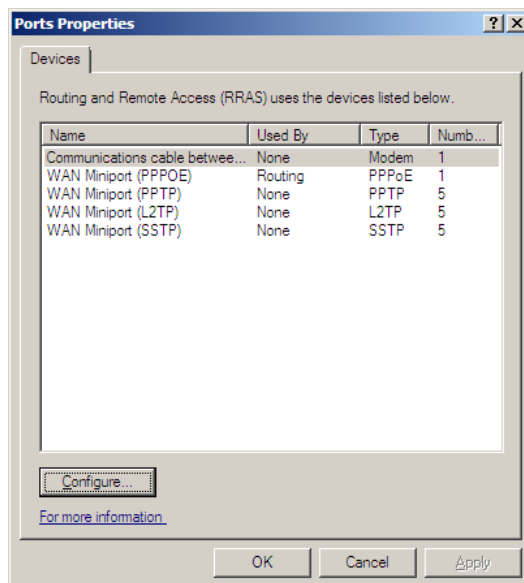
Starting Routing and Remote Access

Please wait while the Routing and Remote Access service on SYS2 starts.

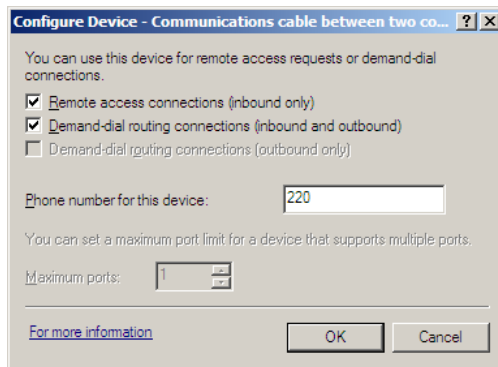
12. Right click on **Ports** and select **Properties**



13. Select **Communications cable between two computers** and click **Configure**



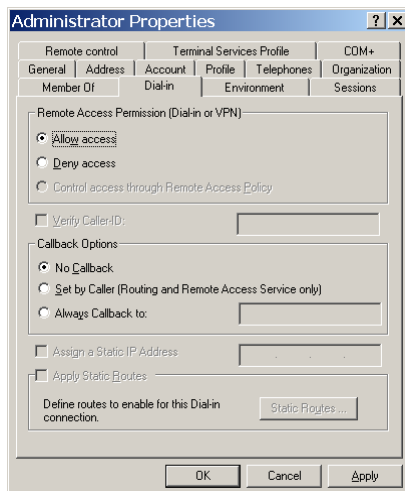
14. Select the Check box **Remote access Connections** → specify any **phone number**.



Lab – 3: Giving permission to user

SYS1 – CONFIGURATION

1. On **Domain Controller** login as **Administrator**
2. Go to **Active Directory Users and computers** → Select the user **U1** or **Administrator** → Right click → **Properties** → Select **Dial-in** tab → Select **Allow access** → **Apply** → **OK**.

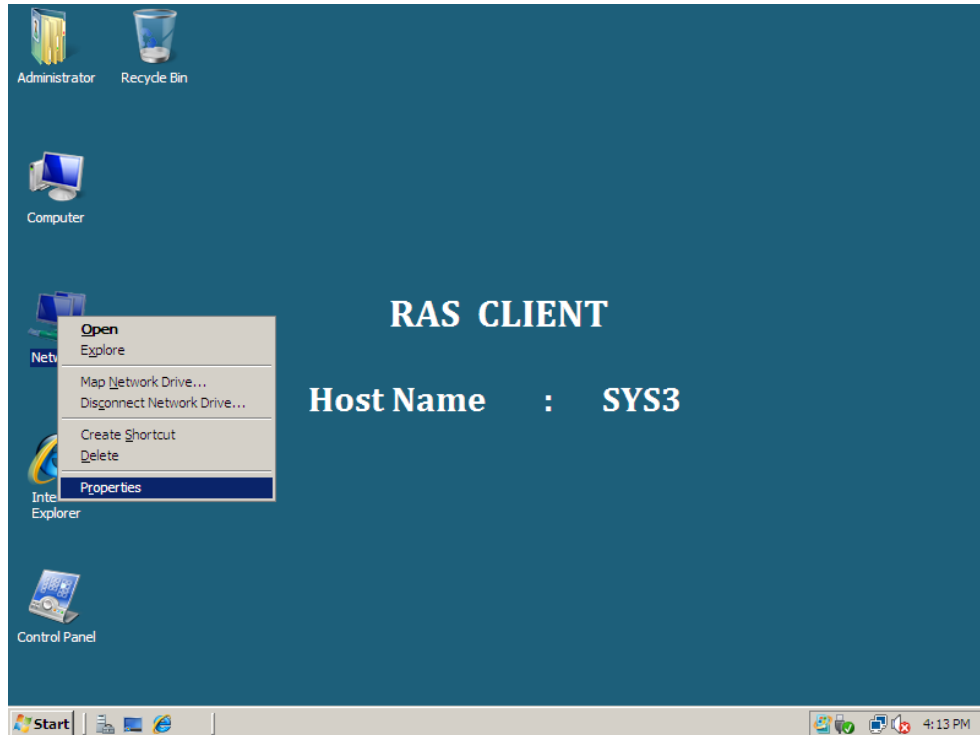


Lab – 4: Establishing Dial-up connection from RAS Client

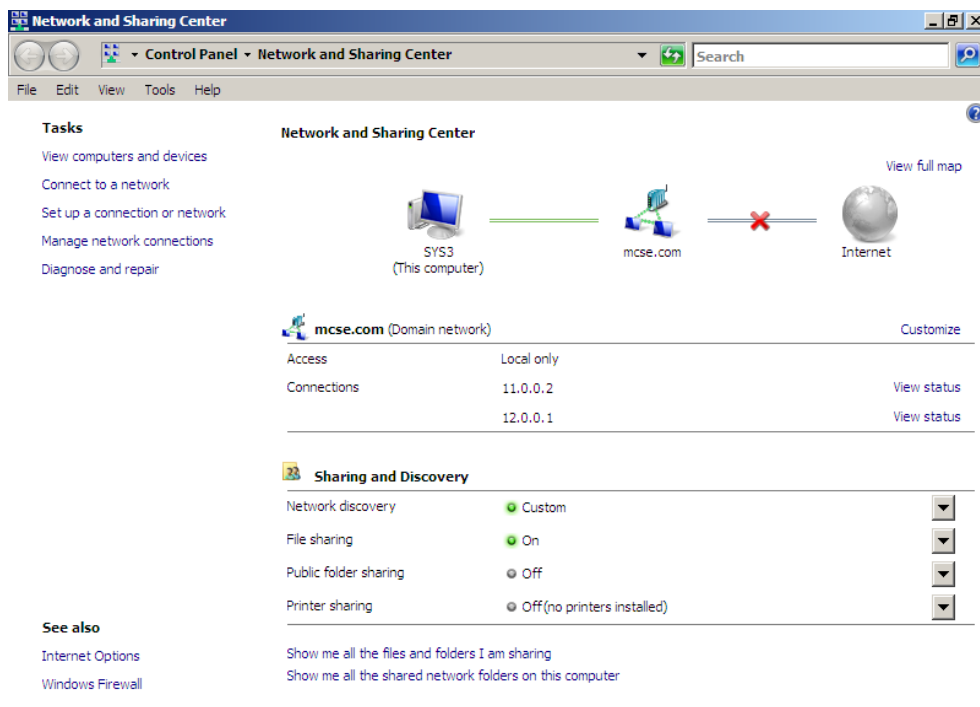
Note: Configure the Modem in **RAS Client** also as in **RAS Server**

SYS3 – CONFIGURATION

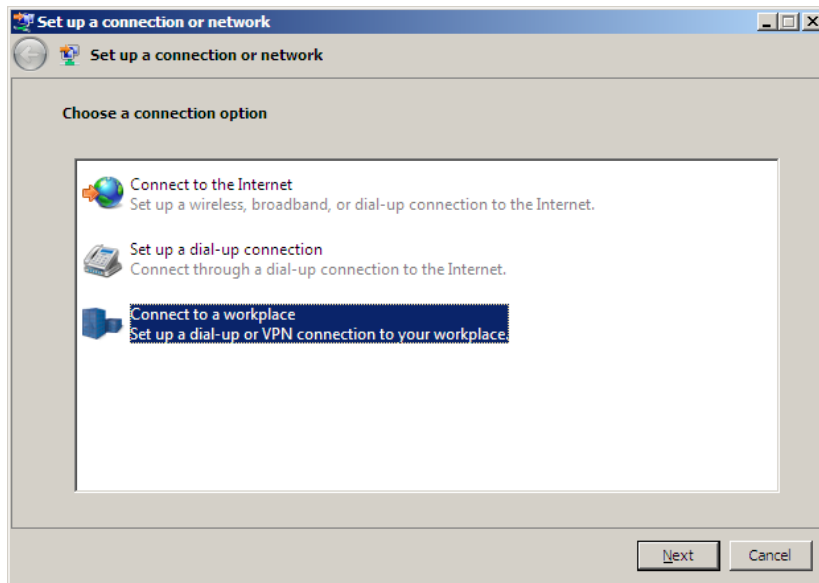
1. Log on to **RAS Client (SYS3)**, Right click on **Network icon** → **Properties**.



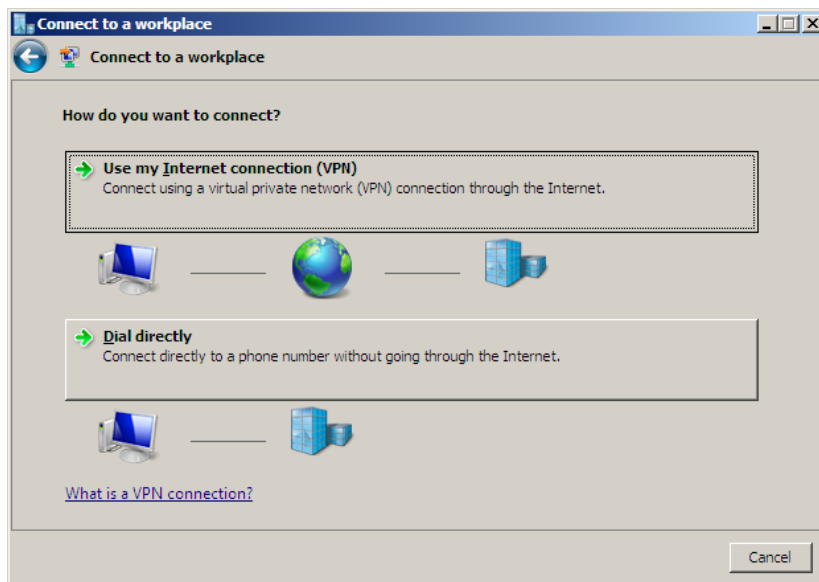
2. Select **Set up a Connection or network**



3. Select **Connect to a workplace** → click **Next**.



4. Select **Connect Directly** → click **Next**.



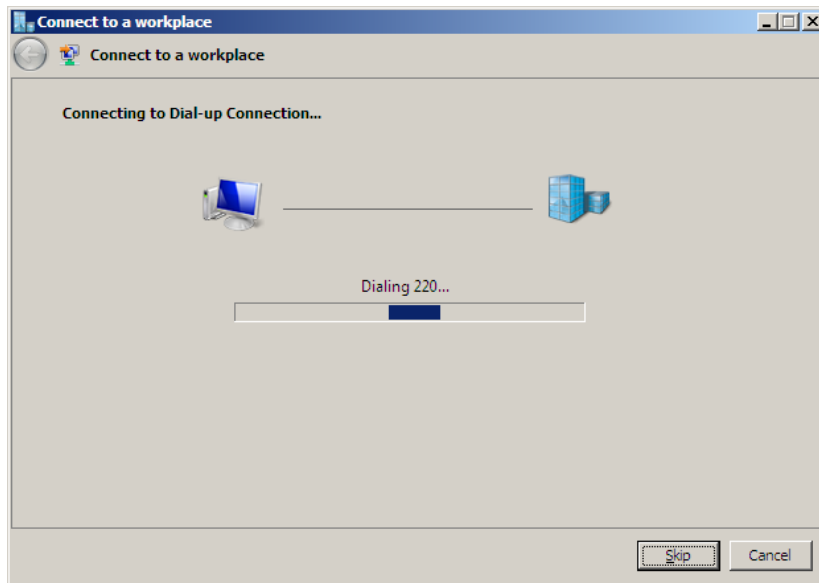
5. Mention the **Telephone Number** (Server Phone Number) → click **Next**.

The screenshot shows the 'Connect to a workplace' dialog box. The title bar says 'Connect to a workplace'. Below the title bar is a navigation pane with a back arrow and a 'Connect to a workplace' icon. The main area is titled 'Type the telephone number to connect to'. Below this is a note: 'Your network administrator can give you this information.' There are two text input fields: 'Telephone number:' with the value '220' and 'Destination name:' with the value 'Dial-up Connection'. To the right of the 'Telephone number' field is a link labeled 'Dialing Rules'. Below the input fields are three checkboxes: 'Use a smart card' (unchecked), 'Allow other people to use this connection' (unchecked) with a sub-note 'This option allows anyone with access to this computer to use this connection.', and 'Don't connect now; just set it up so I can connect later' (unchecked). At the bottom right are 'Next' and 'Cancel' buttons.

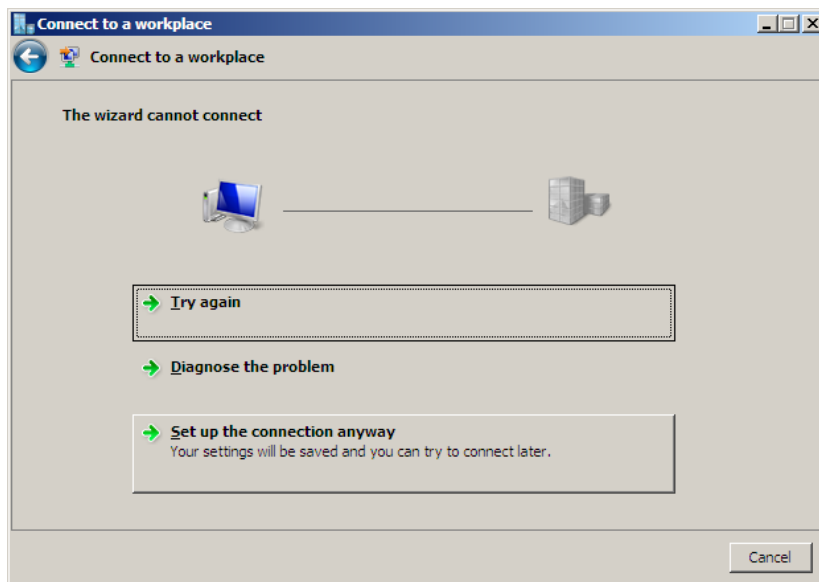
6. Mention the **User or Administrator Credentials** → click **Connect**.

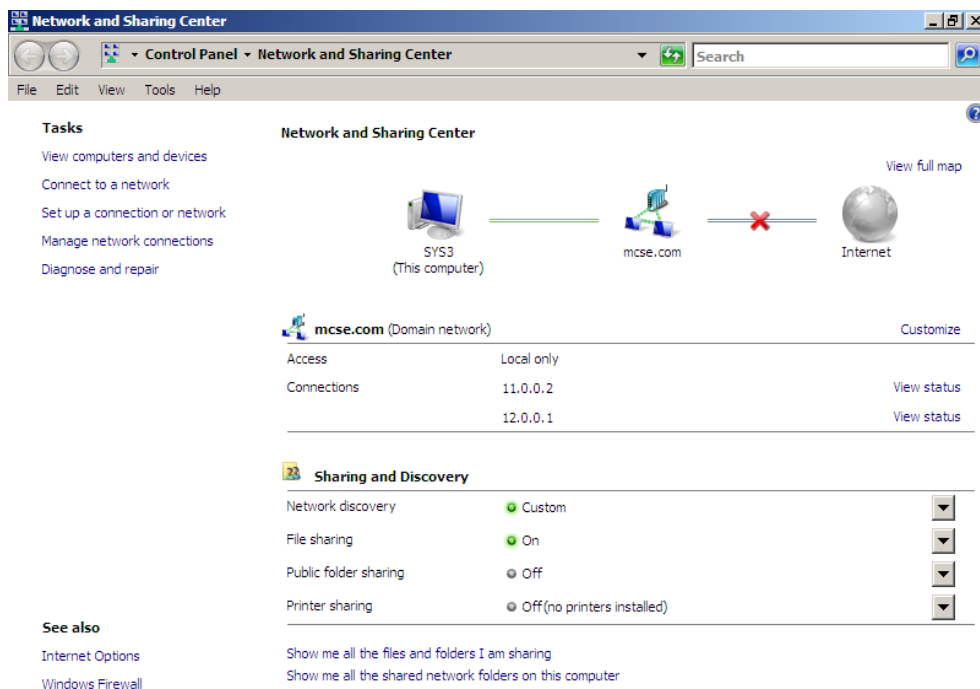
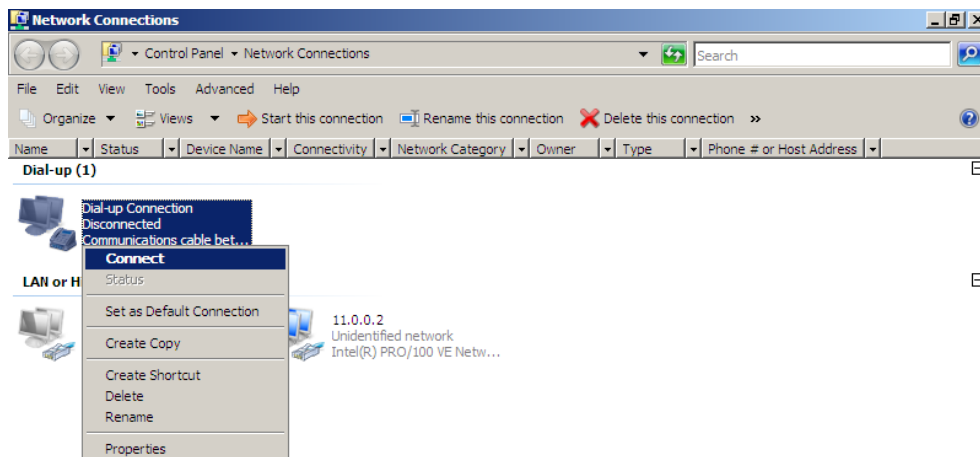
The screenshot shows the 'Connect to a workplace' dialog box. The title bar says 'Connect to a workplace'. Below the title bar is a navigation pane with a back arrow and a 'Connect to a workplace' icon. The main area is titled 'Type your user name and password'. There are two text input fields: 'User name:' with the value 'Microsoft\Administrator' and 'Password:' with masked characters '••••••••'. To the right of the 'Password' field are two checkboxes: 'Show characters' (unchecked) and 'Remember this password' (unchecked). Below the input fields is a text input field for 'Domain (optional):'. At the bottom right are 'Create' and 'Cancel' buttons.

7. Wizard is **dialing the connection** to the mentioned phone number.

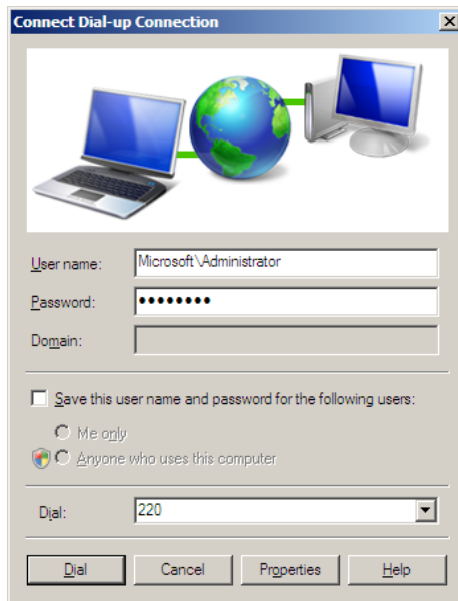


8. If the wizard cannot connect → click **Set up the connection anyway**.

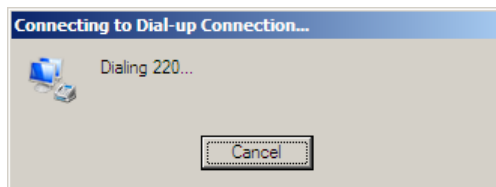


9. Click **Manage Network Connections**.10. Right click on **Dial-up Connection**, →click **Connect**.

11. Mention the **User or Administrator Credentials** → click **Dial**.



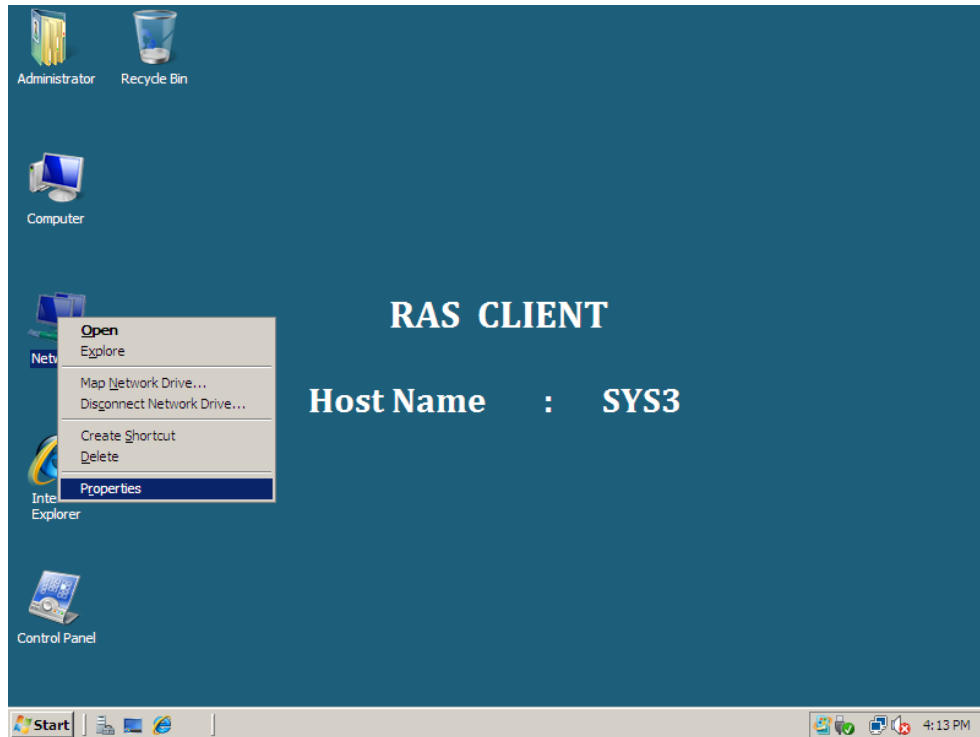
12. Windows is **dialing** the connection → **Client will be connected to RAS Server**.



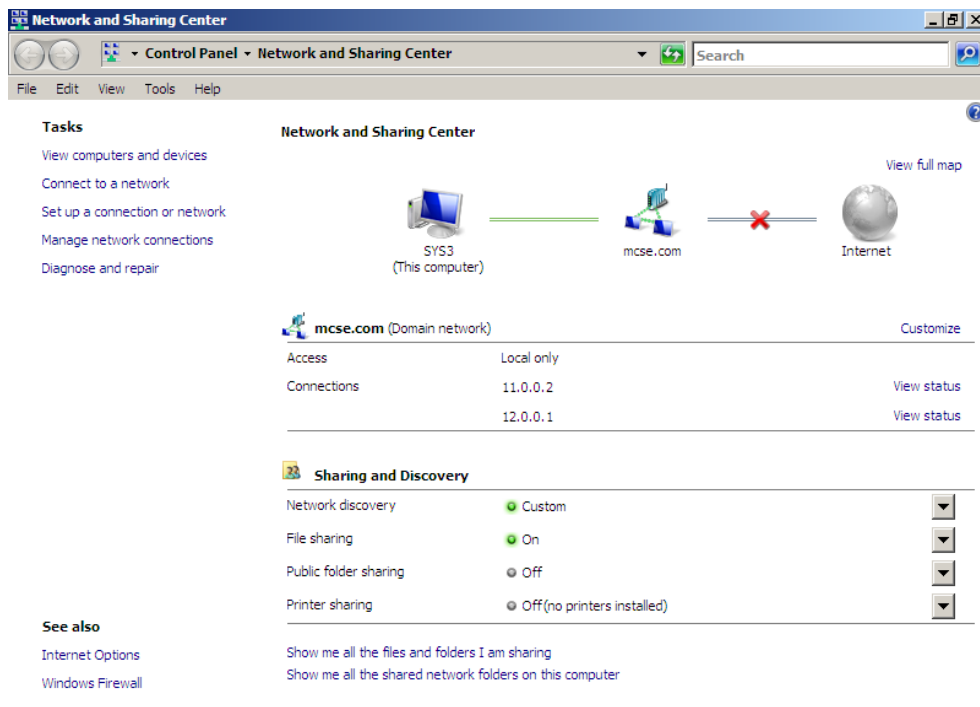
Lab – 5: Establishing VPN Connections

SYS3 – CONFIGURATION

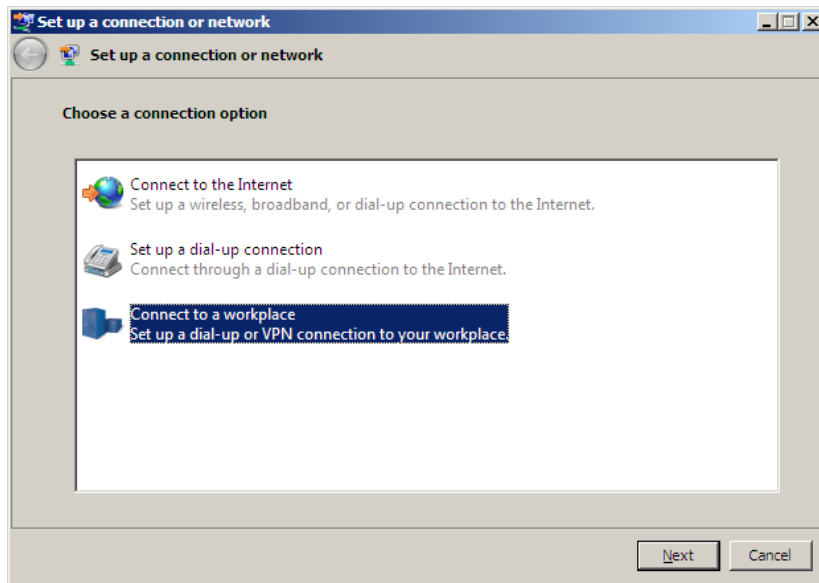
1. Log on to **RAS Client (SYS3)**, Right click on **Network icon** → **Properties**.



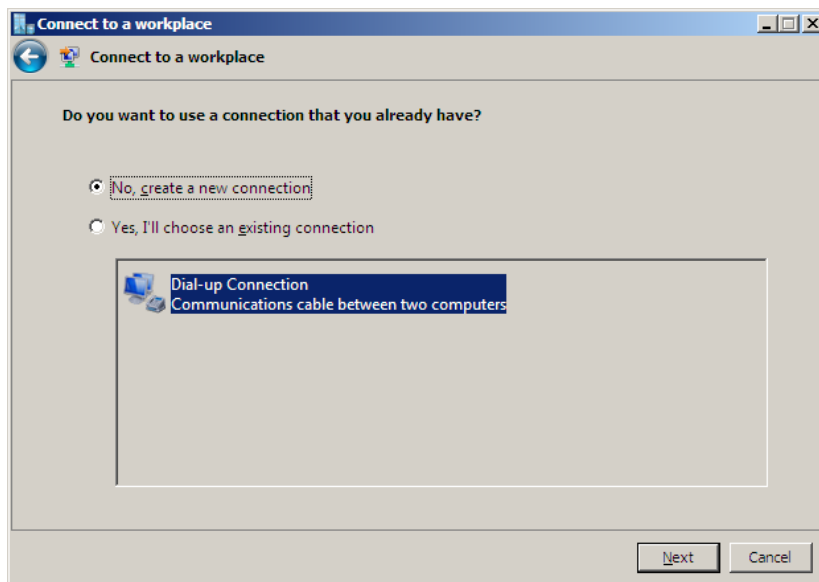
2. Select **Set up a Connection or network**



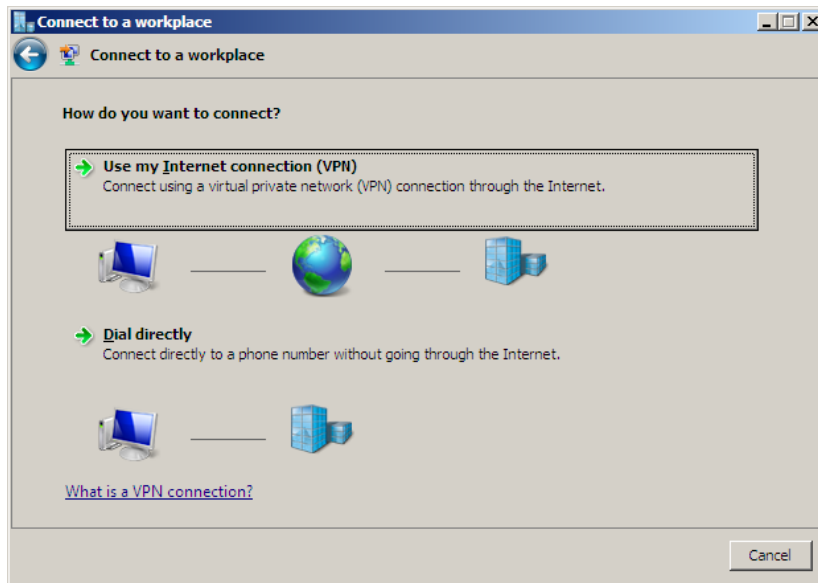
3. Connect to a workplace → click **Next**.



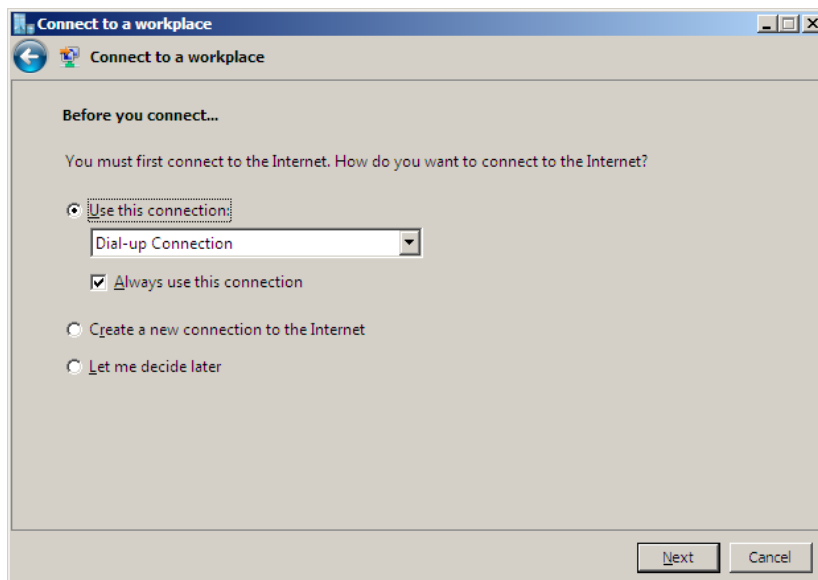
4. Select **No**, Create a new connection click **Next**.



5. Select **Use my Internet connection (VPN)** → click **Next**.



6. Select **Use this Connection** → click **Next**.



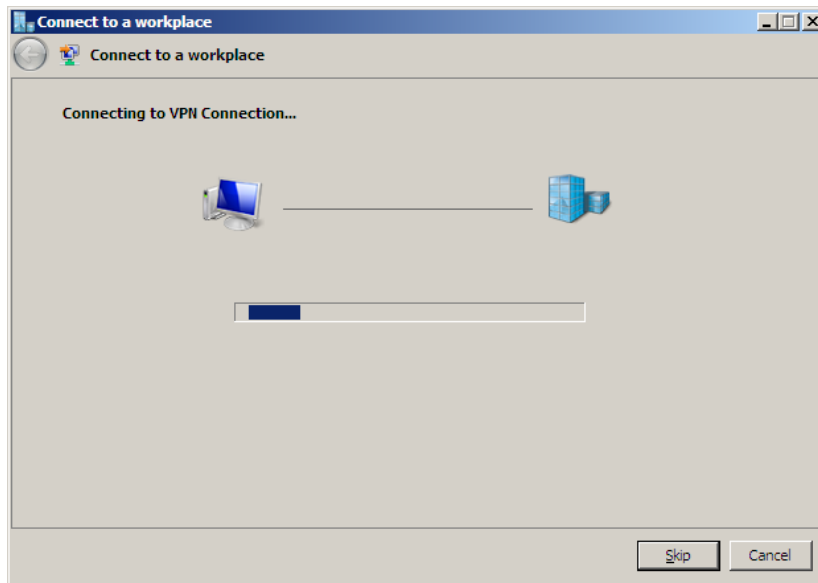
7. Mention the IP Address of VPN Server → click **Next**

The screenshot shows the 'Connect to a workplace' dialog box. The title bar says 'Connect to a workplace'. Below the title bar is a back arrow icon and the text 'Connect to a workplace'. The main area has the heading 'Type the Internet address to connect to' and a subtext 'Your network administrator can give you this address.' There are two text input fields: 'Internet address:' with the value '10.0.0.10' and 'Destination name:' with the value 'VPN Connection'. Below these are three checkboxes: 'Use a smart card' (unchecked), 'Allow other people to use this connection' (unchecked) with a subtext 'This option allows anyone with access to this computer to use this connection.', and 'Don't connect now; just set it up so I can connect later' (unchecked). At the bottom right are 'Next' and 'Cancel' buttons.

8. Mention the User or Administrator Credentials → click **Connect**.

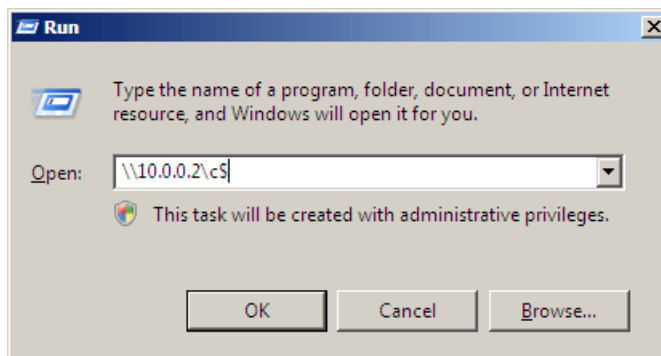
The screenshot shows the 'Connect to a workplace' dialog box, Step 2. The title bar says 'Connect to a workplace'. Below the title bar is a back arrow icon and the text 'Connect to a workplace'. The main area has the heading 'Type your user name and password'. There are three text input fields: 'User name:' with the value 'Microsoft\Administrator', 'Password:' with masked characters '••••••••', and 'Domain (optional):' which is empty. Between the password and domain fields are two checkboxes: 'Show characters' (unchecked) and 'Remember this password' (unchecked). At the bottom right are 'Create' and 'Cancel' buttons.

9. Wizard is **dialing the connection** to the **VPN Server**.



10. Connection is created successfully.
11. Go to **Command prompt & type Ipconfig /all** to view the IP Address of the Client computer.
12. **Now try to access the LAN Network.**
13. Go to Start → Run → type [\\LAN computer IP address\Drive\\$](#) or Share folder name

Ex: [\\10.0.0.2\c\\$](#)

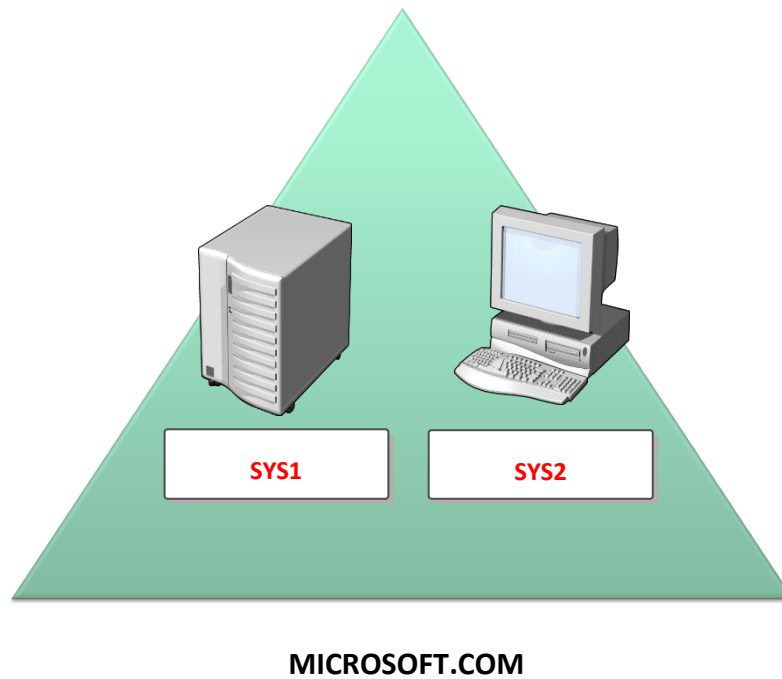


TERMINAL SERVICES (T S)

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server or Domain Controller.
2. A computer running windows 2008 server or windows 7.



SYS1

Domain Controller / Terminal Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

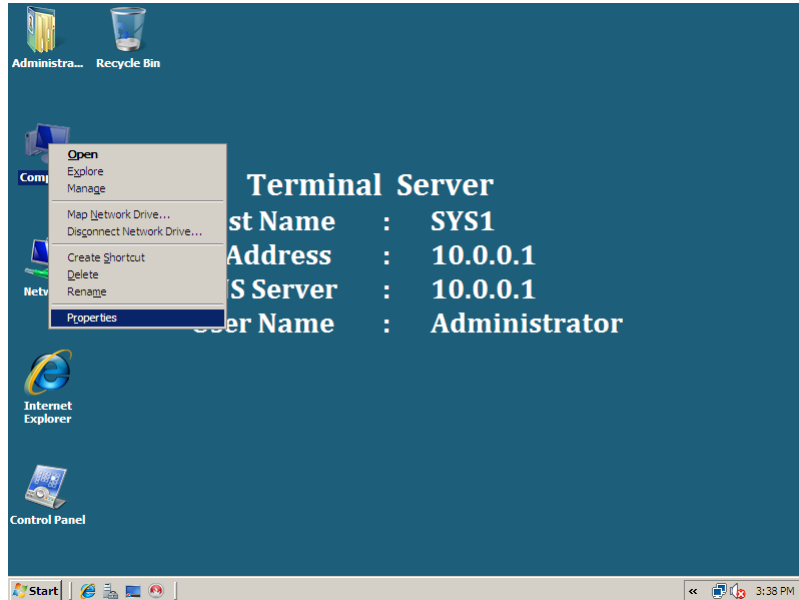
SYS2

Member Server / Client

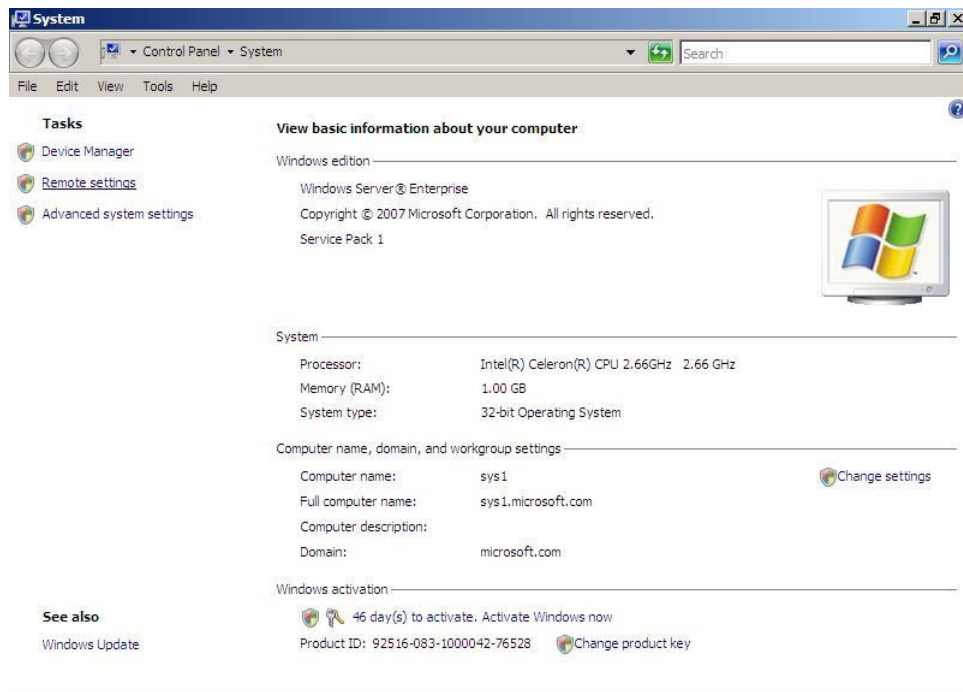
IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

Lab – 1: Configuring Terminal Server in Remote Administration mode**SYS1 – CONFIGURATION**

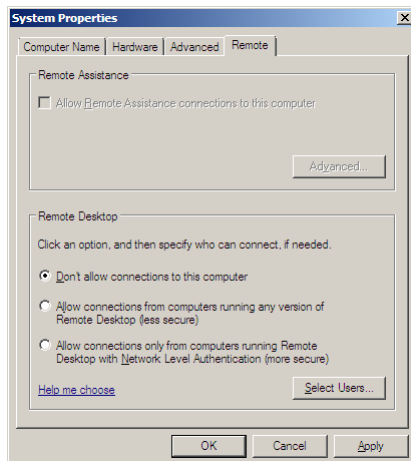
1. Right click on Computer → Properties



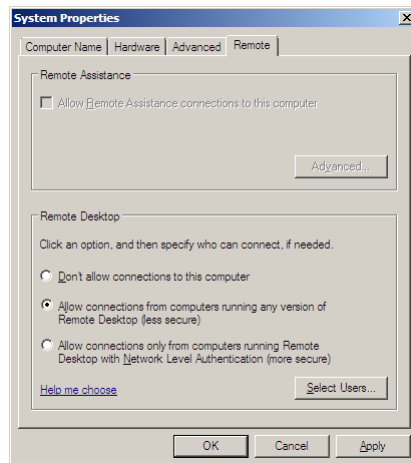
3. Select **Remote Settings**.



4. Check the box **“Allow Connections from computers running any version”**.

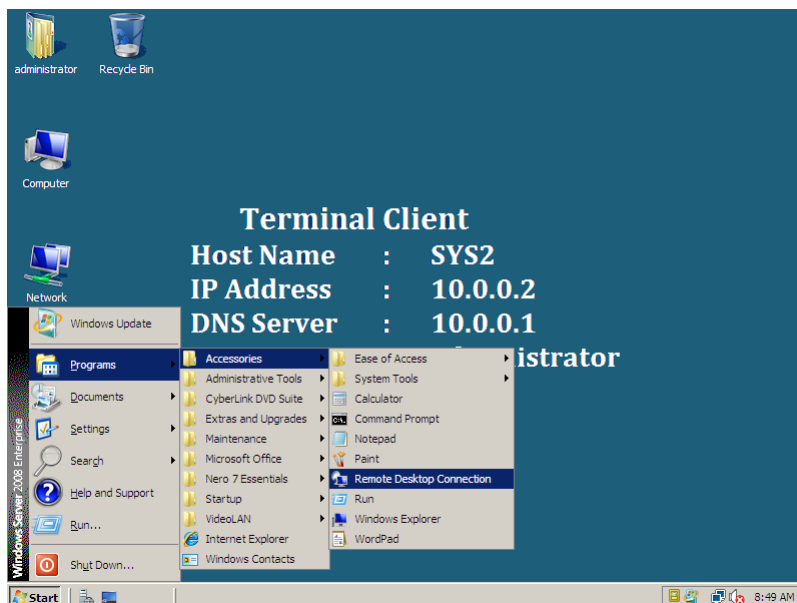


5. Click **Apply** → **OK**.



Go to Terminal Client (SYS2)

1. Start → Program → Accessories → **Remote Desktop Connection**
(OR) Start → Run → type **MSTSC**



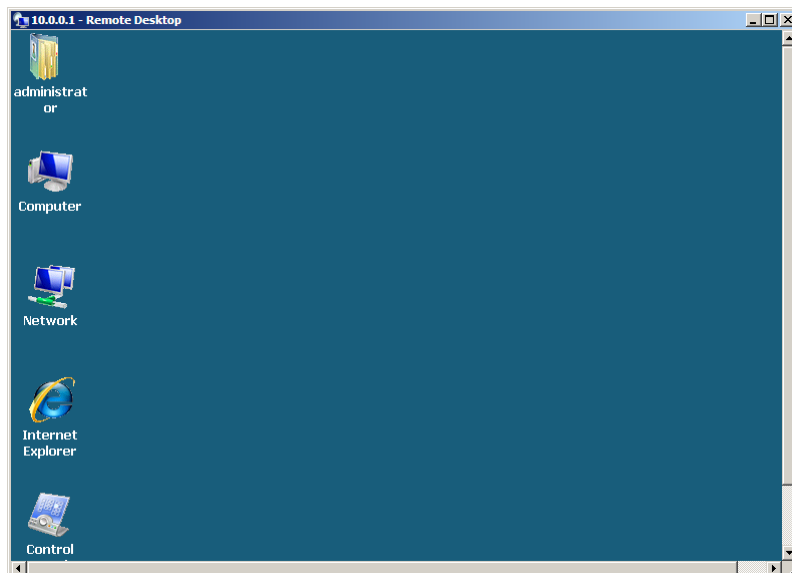
- Specify the IP Address 10.0.0.1 or computer name of terminal server →click **Connect**.



- Specify username as **Administrator** and type the password. →click **OK**

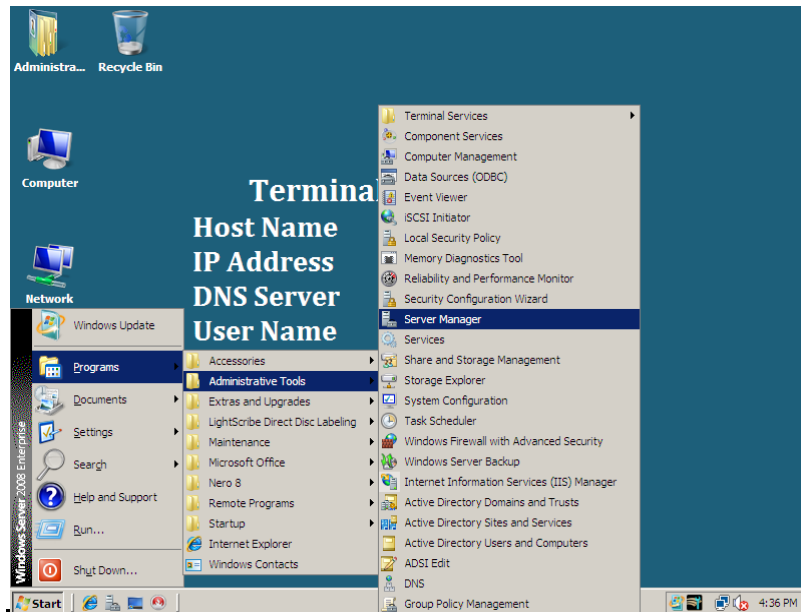


- The **Administrator** will connect to the Terminal Server Remotely.

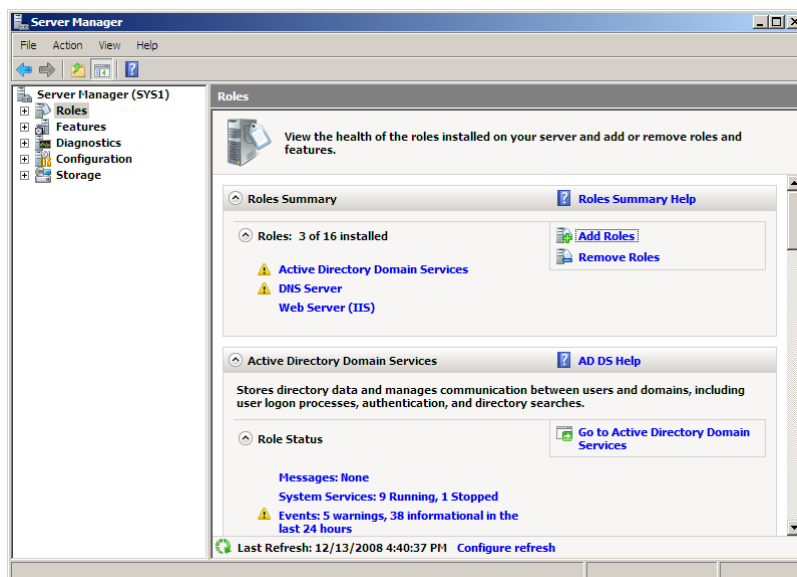


Lab – 2: Configuring Terminal Server in Application Server Mode

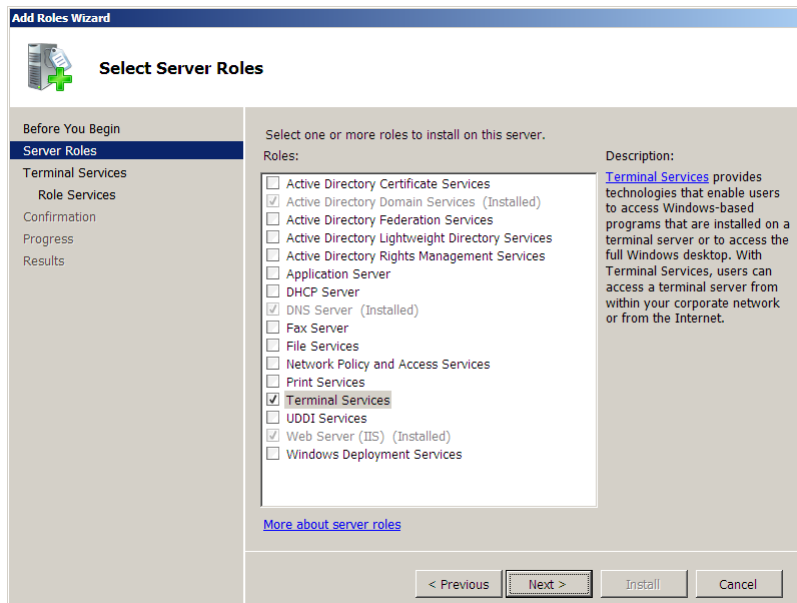
1. Go to **SYS1** → Select **Start** → **Administrative Tools** → **Server Manager**.



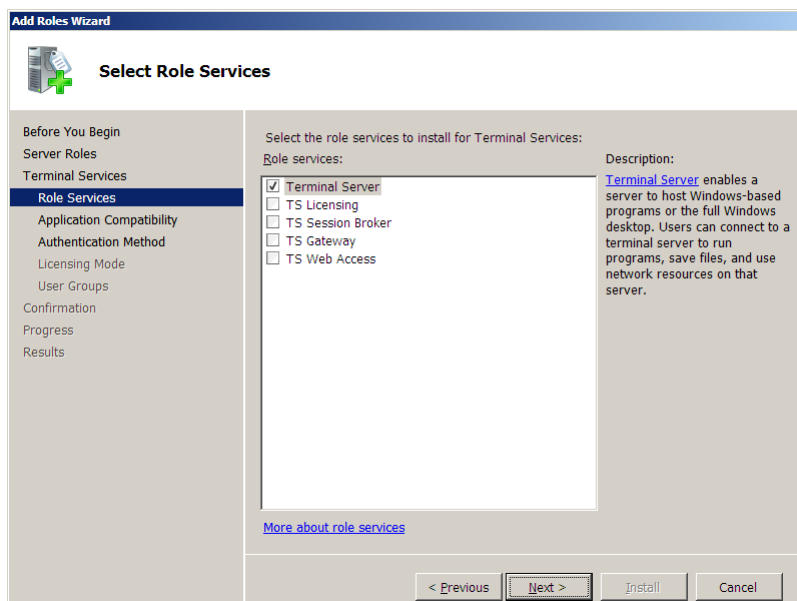
2. In **Server manager** Console, Select **Roles** → Select **Add roles**.



3. In the Add roles wizard, select the check box for **Terminal Services** → click **Next**.



4. Click **Next** → Select the Check box for **Terminal Server** → Select Install Terminal Server anyway (If prompted) → click **Next** → click **Next**.



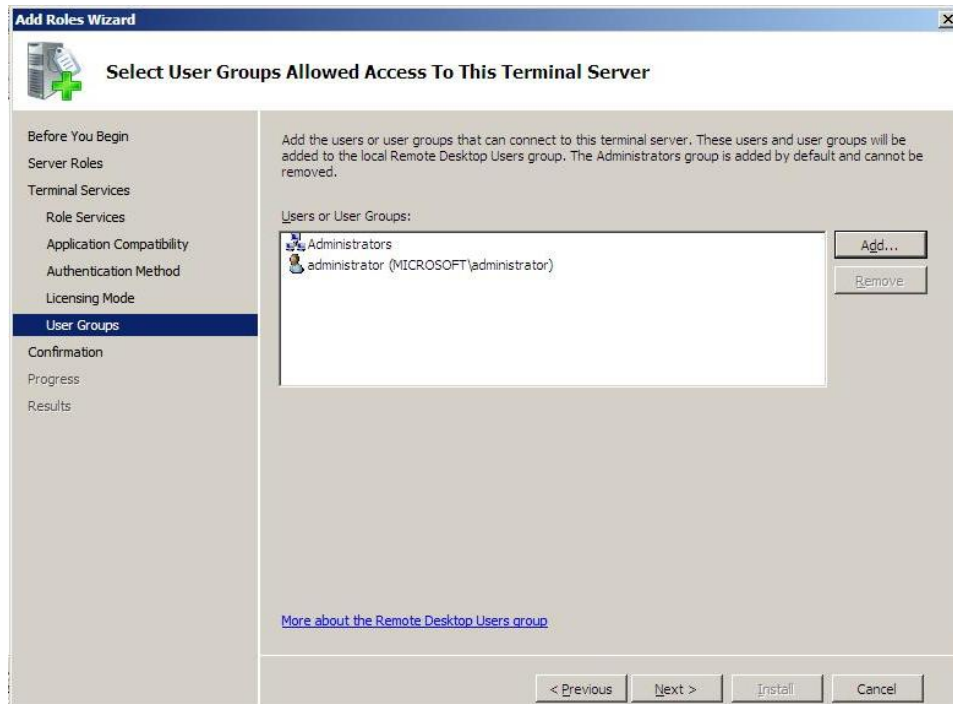
5. Select **Do not require Network Level Authentication** → click **Next**.

The screenshot shows the 'Add Roles Wizard' window, specifically the 'Specify Authentication Method for Terminal Server' step. The left-hand navigation pane lists the following steps: 'Before You Begin', 'Server Roles', 'Terminal Services', 'Role Services', 'Application Compatibility', 'Authentication Method' (which is currently selected and highlighted in blue), 'Licensing Mode', 'User Groups', 'Confirmation', 'Progress', and 'Results'. The main content area on the right is titled 'Specify Authentication Method for Terminal Server'. It contains a paragraph explaining Network Level Authentication, followed by the instruction 'Specify whether Network Level Authentication is required.' There are two radio button options: 'Require Network Level Authentication' and 'Do not require Network Level Authentication'. The 'Do not require' option is selected. Below these options is a warning icon and text stating that this option is less secure. At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. The 'Next >' button is highlighted.

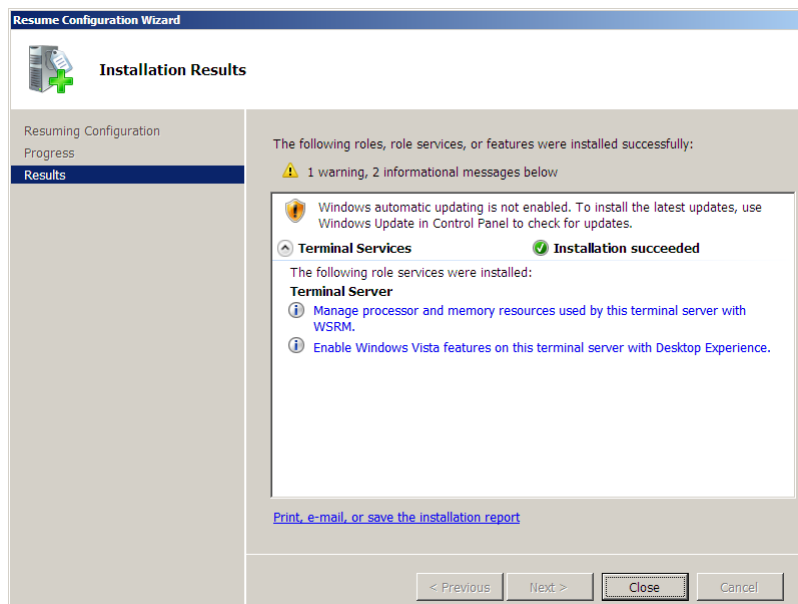
6. Select **Configure later** → click **Next**

The screenshot shows the 'Add Roles Wizard' window, specifically the 'Specify Licensing Mode' step. The left-hand navigation pane lists the following steps: 'Before You Begin', 'Server Roles', 'Terminal Services', 'Role Services', 'Application Compatibility', 'Authentication Method', 'Licensing Mode' (which is currently selected and highlighted in blue), 'User Groups', 'Confirmation', 'Progress', and 'Results'. The main content area on the right is titled 'Specify Licensing Mode'. It contains a paragraph explaining the Terminal Services licensing mode, followed by the instruction 'Specify the Terminal Services licensing mode that you want this terminal server to use.' There are three radio button options: 'Configure later', 'Per Device', and 'Per User'. The 'Configure later' option is selected. Below these options are two additional options: 'Per Device' and 'Per User', each with a brief description of the licensing mode. At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. The 'Next >' button is highlighted.

7. Add the users who should access the Terminal Server (Can be added later). Leave it **Default** →click **Next** →click **Next** →click **Install**



8. Restart the server (If prompted) →click **close** → **Installation completed.**



Verification:

SYS1 - CONFIGURATION

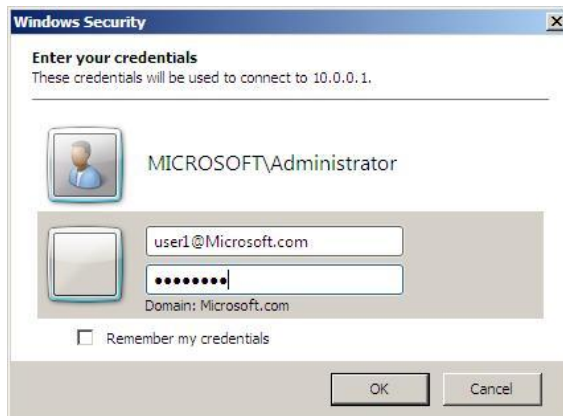
1. Log on as **Administrator** go to **Active Directory Users and Computers**.
2. Create Some **User Accounts** (Ex: **User1**).

SYS2 - CONFIGURATION

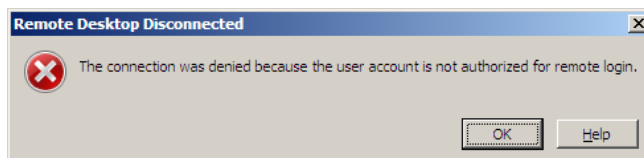
1. Go to Terminal Client → go to Run → **MSTSC** → click **OK**.
2. Specify the IP Address or computer name of terminal server → click **Connect**.



3. Specify username and type the password. → click **OK**

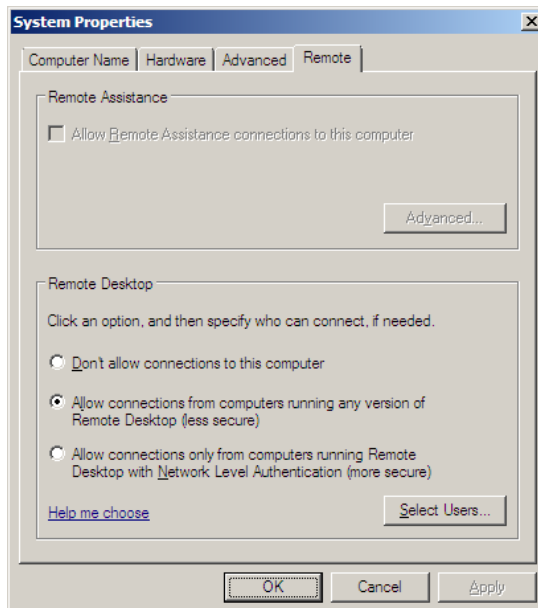


4. **Message:** The Connect was denied because the user accounts is not authorized.

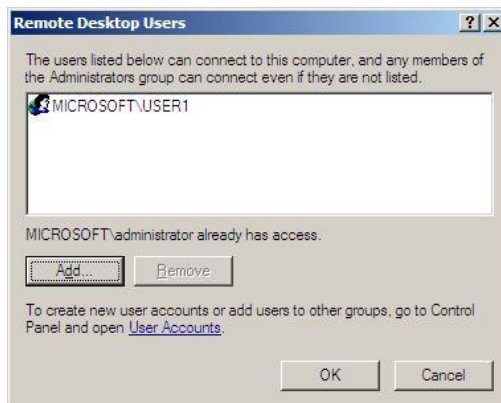


SYS1 - CONFIGURATION

5. **To authorize the User:** On Terminal Server → Right click on Computer icon → **Properties** → **Select Remote Settings** → click **Select Users**



6. Click **Add** → and **Add the users** → click **OK**.

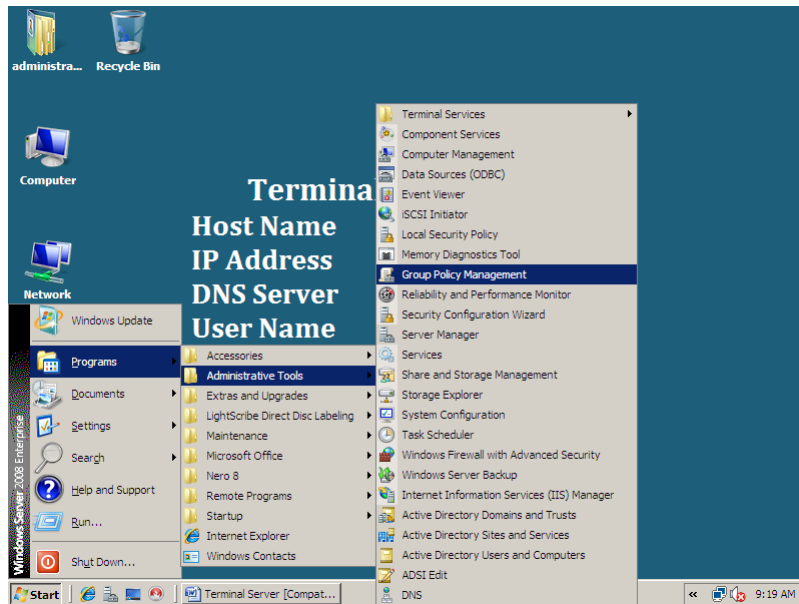


SYS2 - CONFIGURATION

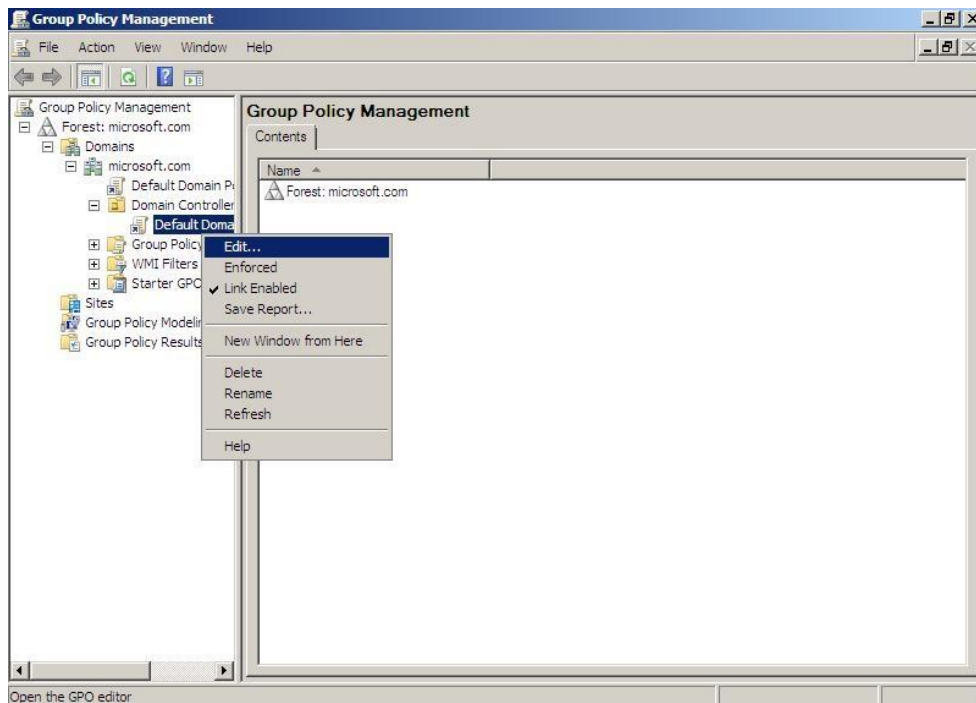
7. Go to Terminal Client → go to Run → **MSTSC** → click **OK**.
8. Specify the IP Address or computer name of terminal server → click **Connect**.
9. Specify username and type the password. → click **OK**
10. **Error Message:** To Logon to this computer you must be granted the allow logon through Terminal Services right.

SYS1 - CONFIGURATION

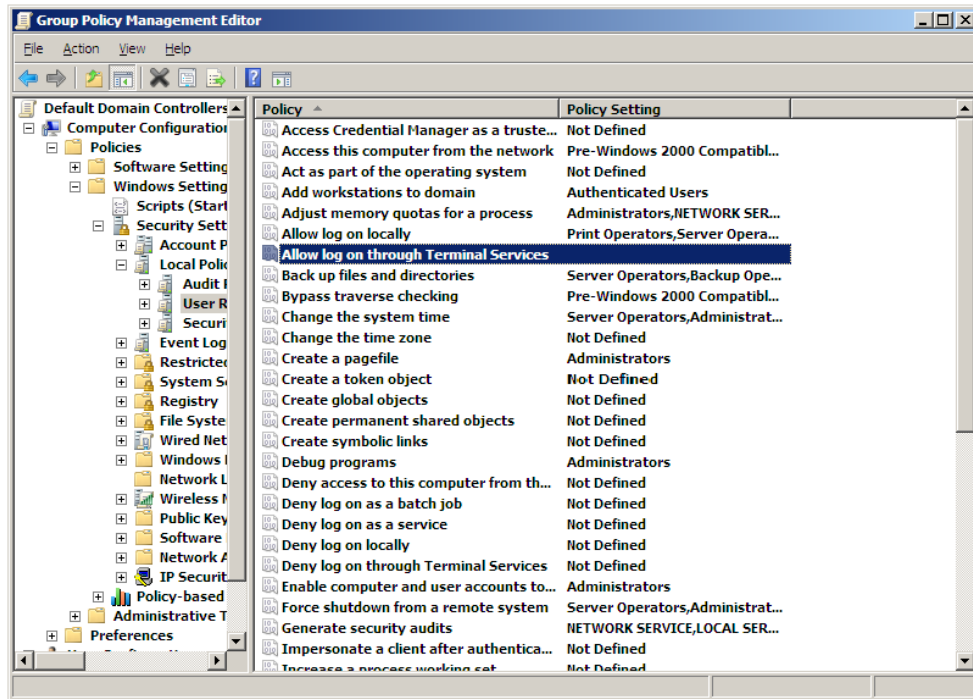
11. To Allow the User to Login to Terminal Server: Go to Terminal Server (SYS1) Go to Start → Program → Administrative Tools → Group Policy Management



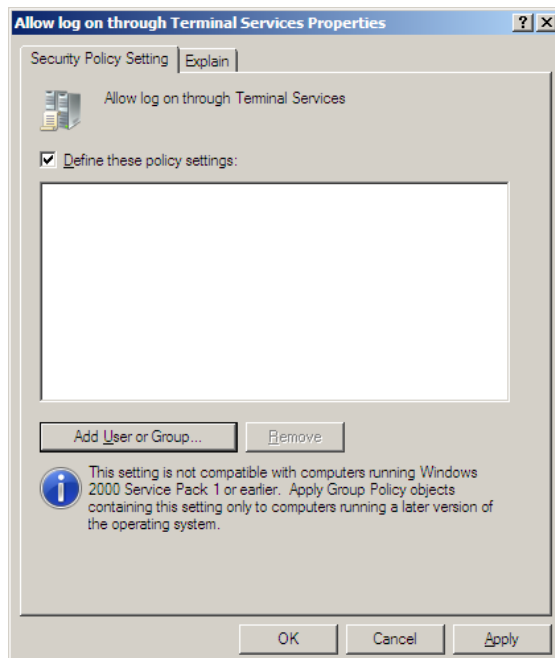
12. Expand **Domains** → Expand **Domain name (Microsoft.com)** → Expand **Domain Controllers** → Right click **Default Domain Controllers Policy** and Select **Edit**



13. In **Computer Configuration** Policies → Expand **Policies** → Expand **Windows Settings** → Expand **Security Settings** → Select **Local policies** → Select **User Rights Assignment** → Right click **Allow Log on Through Terminal Services** → **Properties**



14. Click **Add User or Group** → **Add** the appropriate user → **OK**



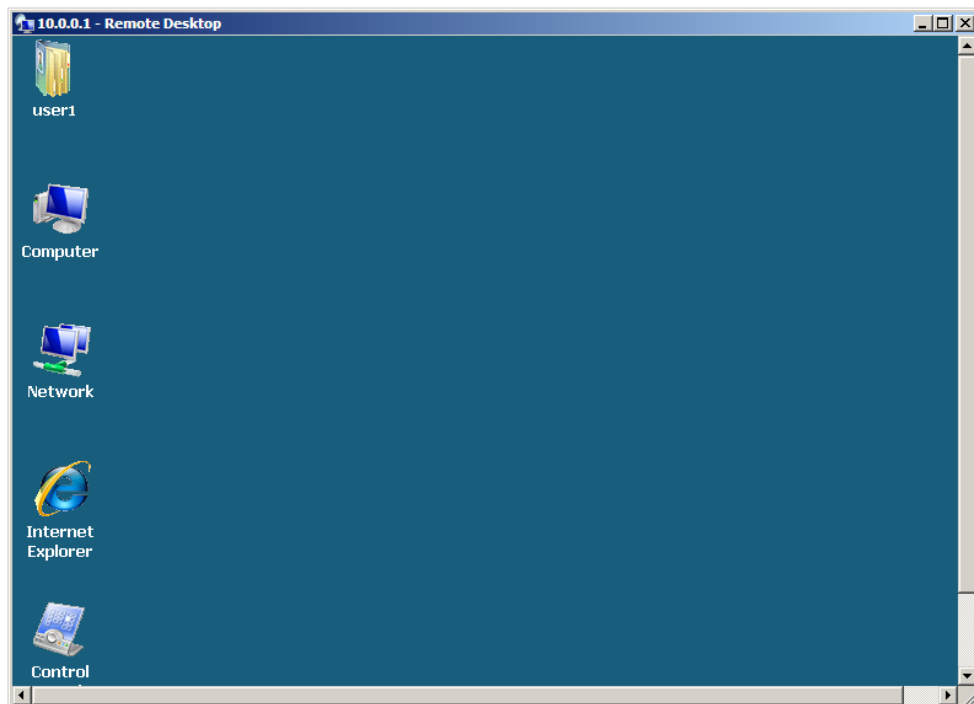
15. Click **Start** → **Run** → type **GPUPDATE**

SYS2 - CONFIGURATION

16. Go to Terminal Client → go to Run → **MSTSC** → click **OK**.
17. Specify the IP Address or computer name of terminal server → click **Connect**.
18. Specify username and type the password. → click **OK**



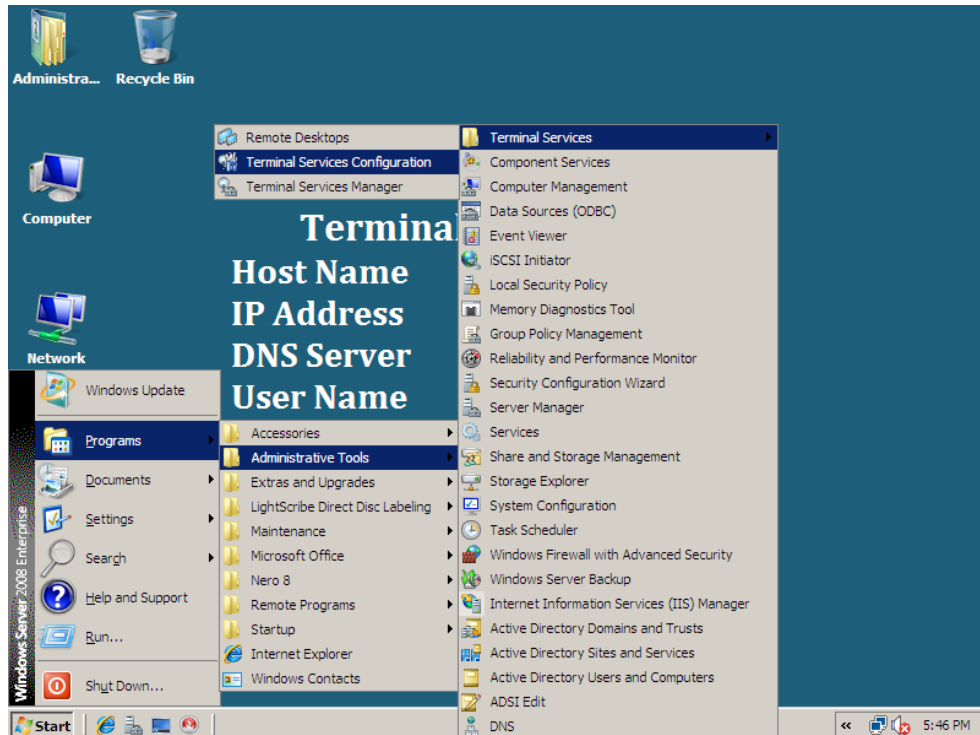
19. Now the user can also logon to Terminal server



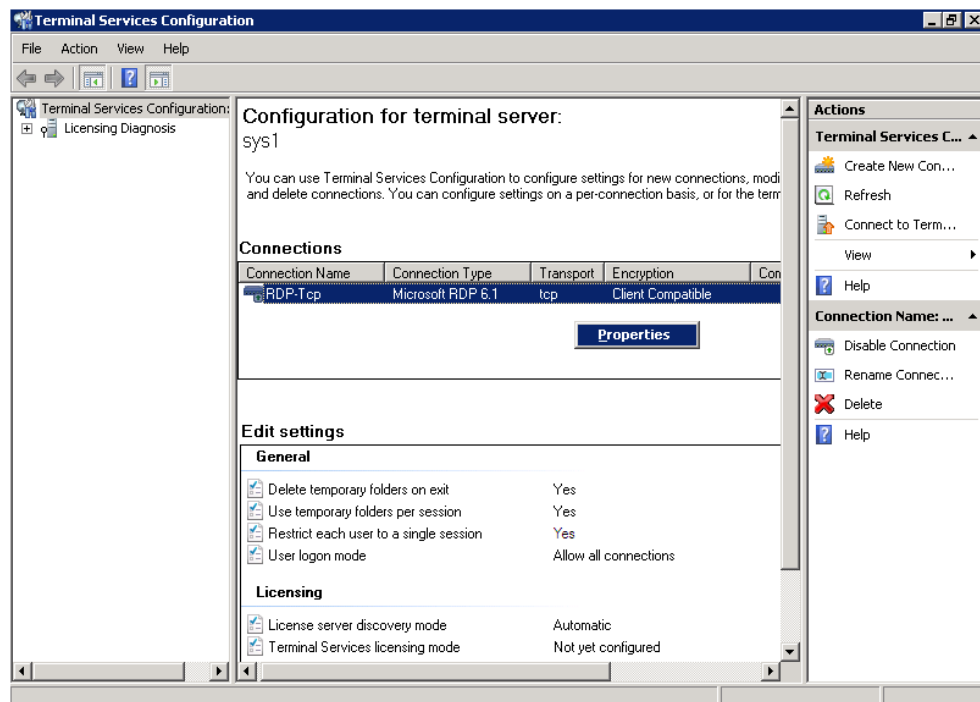
Lab – 3: Monitoring Terminal Services Sessions

Level of Controls: **View the Session** and **Interact with the Session**.

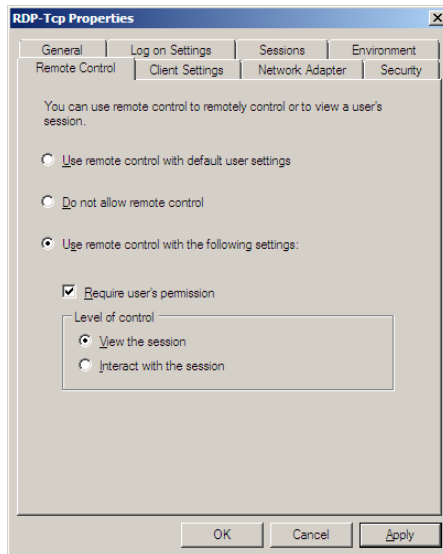
1. On Terminal Server Start → Programs → Administrative Tools → Terminal Services → **Terminal Services Configuration**.



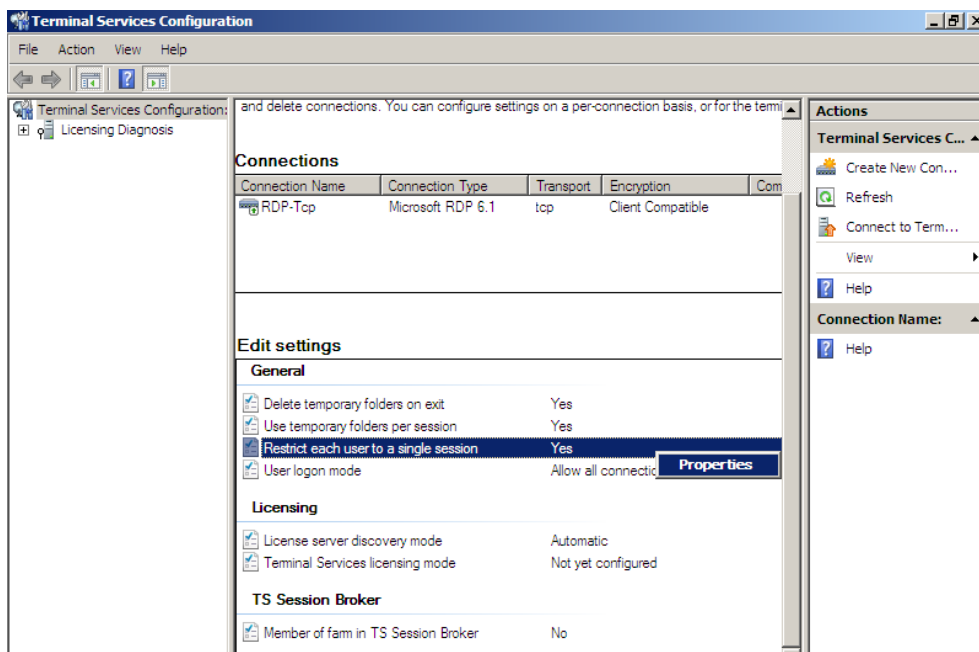
2. Right click **RDP-Tcp** → Select **Properties**.



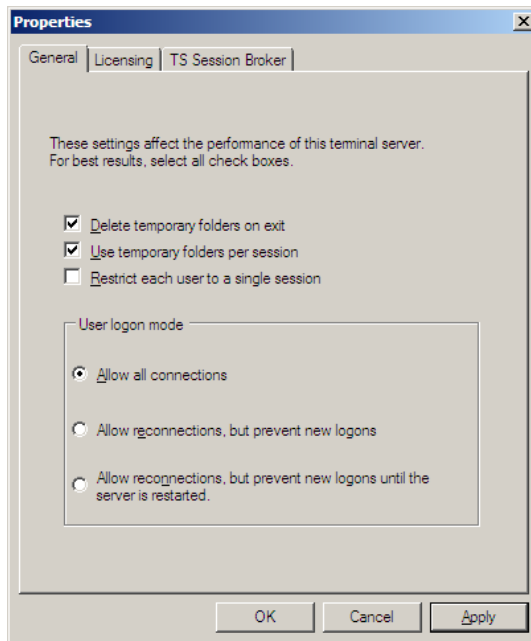
3. Select **Remote Control** Tab → Select **Use remote control with the following settings** → Check the box **Requires User's Permission** → In level of Control Select **View the session** → click **Apply** → click **OK**.



4. To monitor user Session Log in as an **Administrator** on Terminal Server using **Remote Desktop Connection**.
5. **Note:-** By default **Administrator** cannot access the remote desktop of Terminal server from Terminal Server itself. To allow **Administrator**
6. Go to Start → Programs → Administrative Tools → Terminal Services → **Terminal Services Configuration**
7. Right click **Restrict each user to single session** → **properties**



8. Uncheck the box **Restrict each user to a single session** → click **Apply** → click **OK**.



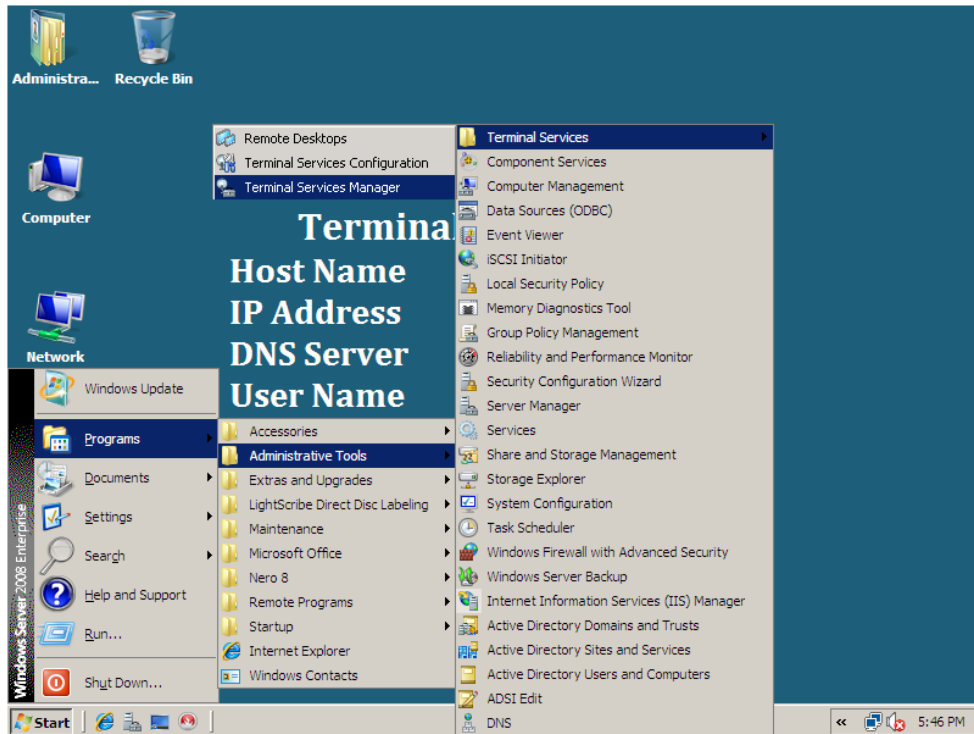
9. To monitor user Session Log in as an **Administrator** on Terminal Server using **Remote Desktop Connection**



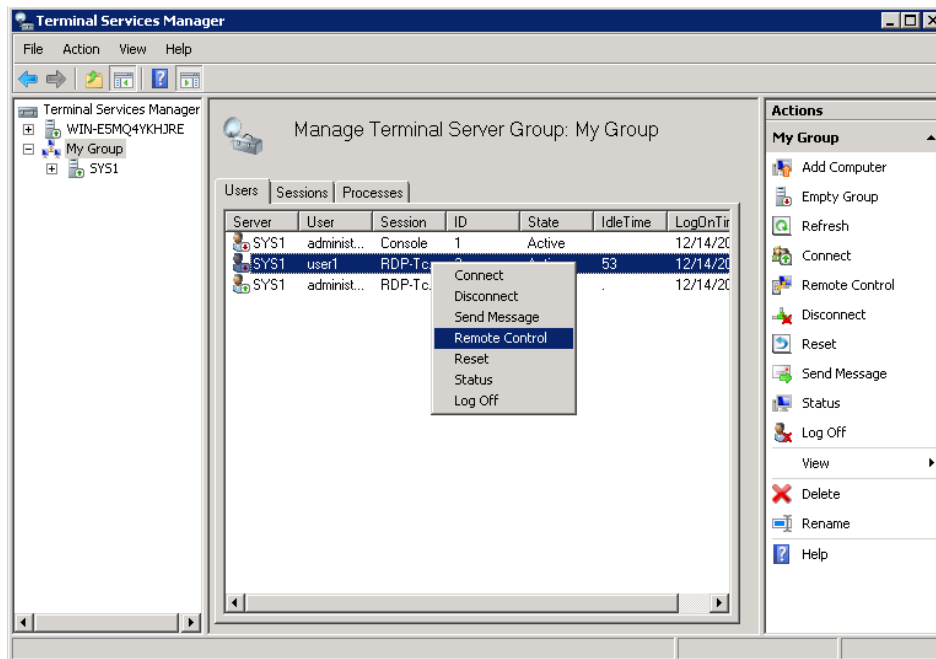
10. Mention the **Administrator Credentials** → click **OK**.



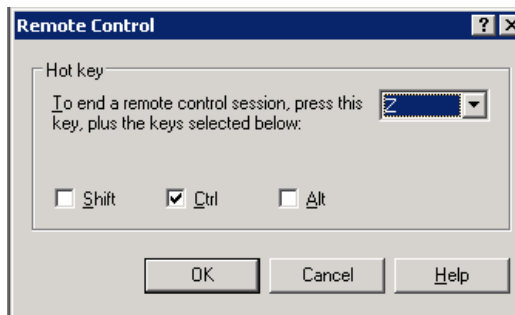
11. **To monitor the Users:** now go to Start (**From remote Desktop**) → Programs → Administrative Tools → Terminal Services → Terminal Services Manager.



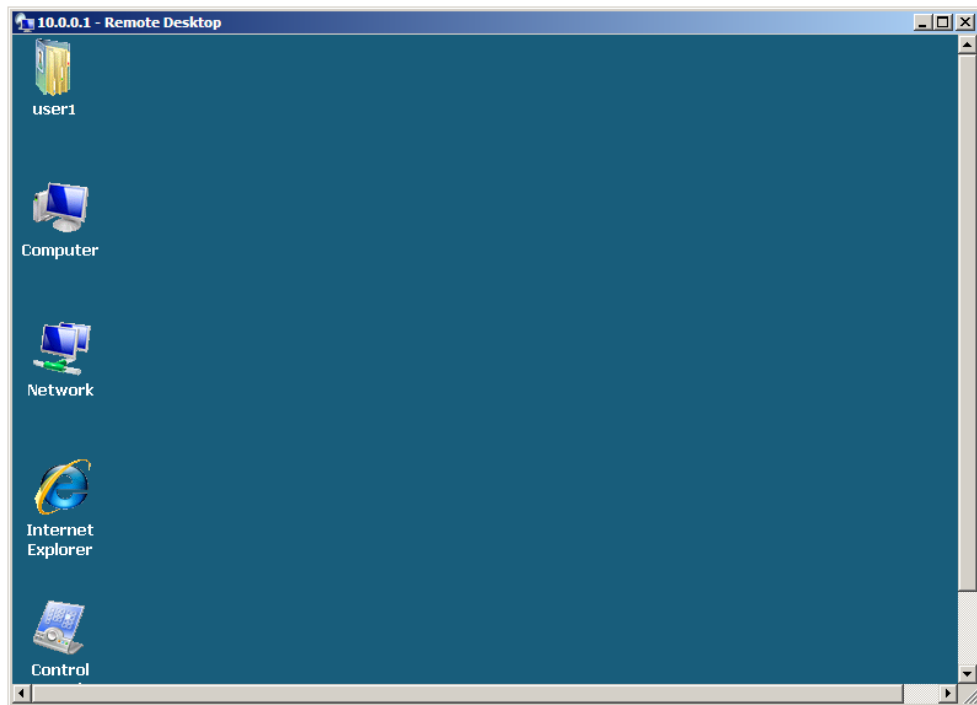
12. Right click the **User session** → Select **Remote Control**



13. Select the hot keys → **OK**



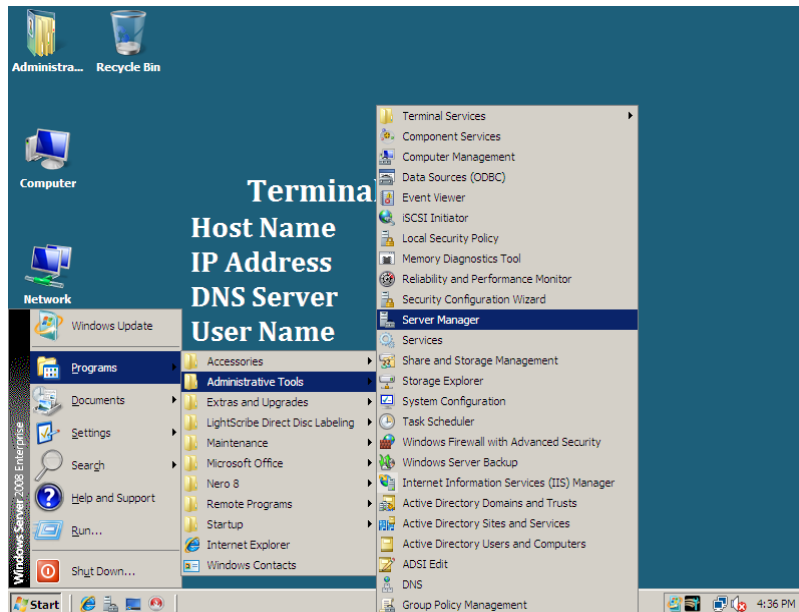
14. Now **Administrator** is connected to user's session.



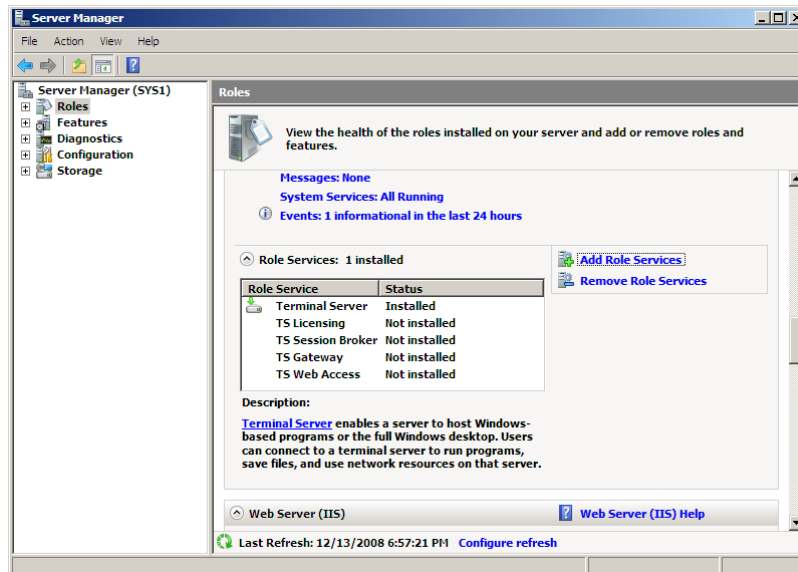
Lab – 4: Installing Terminal Services Web Access

SYS1 - CONFIGURATION

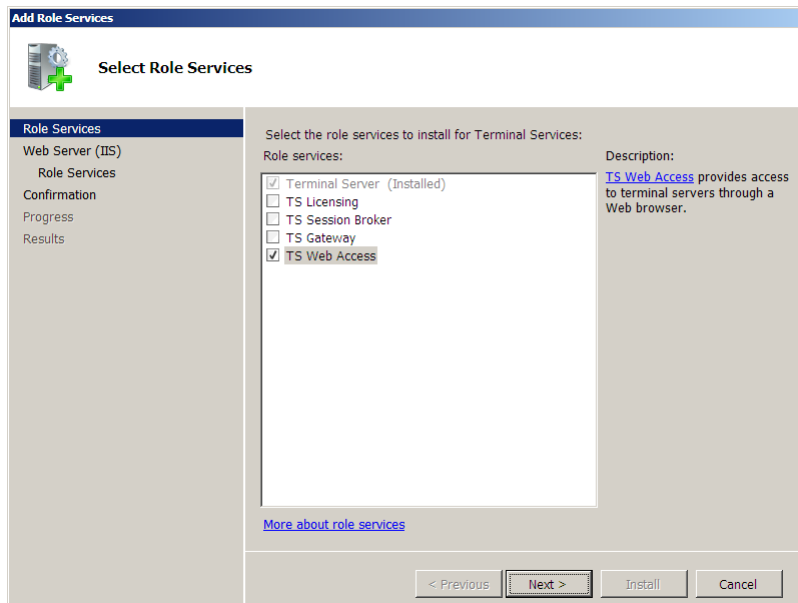
1. Go to **SYS1** → Select **Start** → **Programs** → **Administrative Tools** → **Server Manager**.



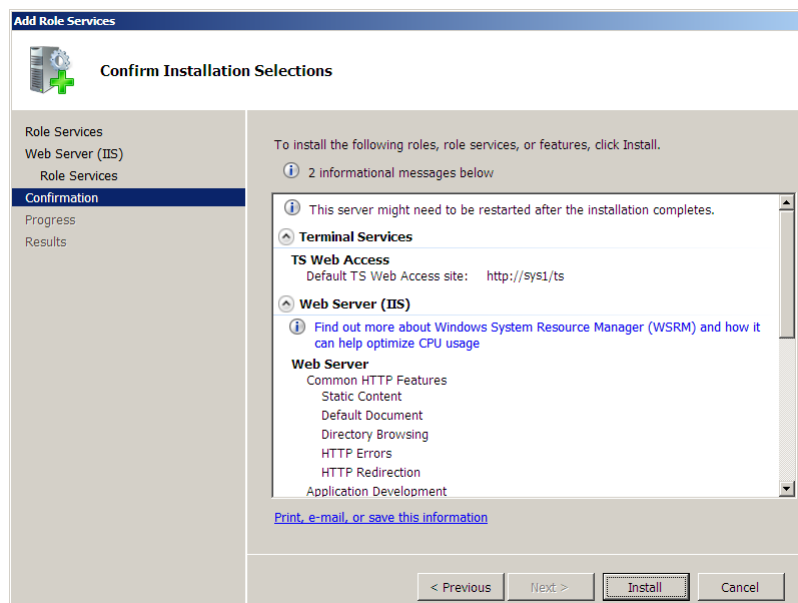
2. In **Server manager** Console, Select **Roles** → Select **Terminal Services** → click **Add role services**.



3. Select the check box for **TS Web Access** → click **Next** → click **Next**.



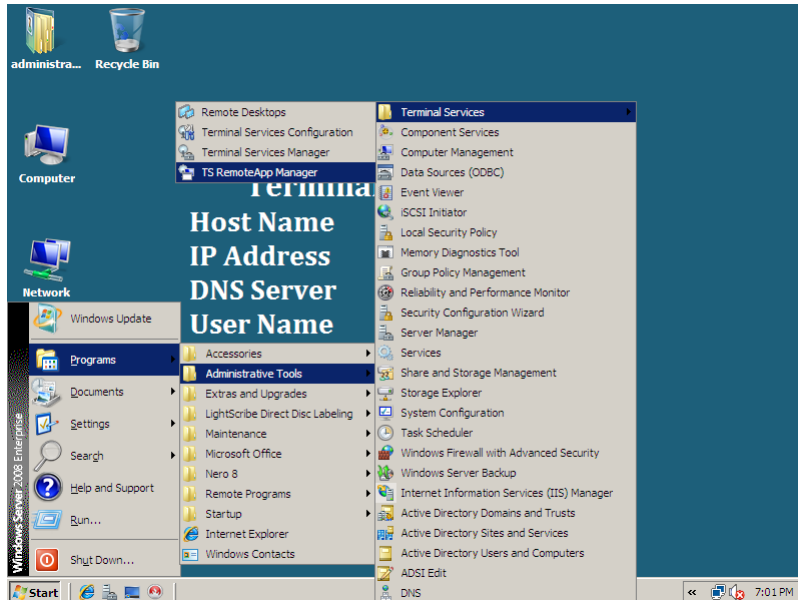
4. Click **Next** → click **Next** → click **Install** → click **Close**.



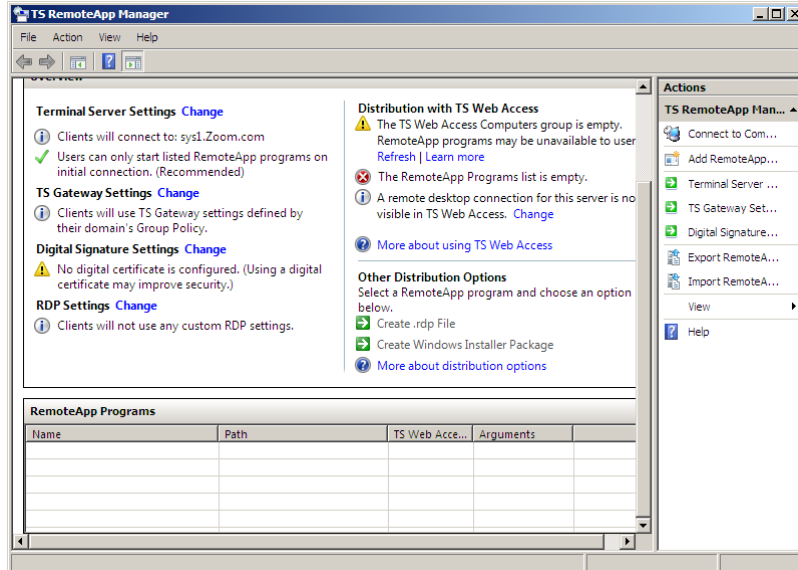
Lab – 5: Configuring Terminal Services RemoteApp Programs

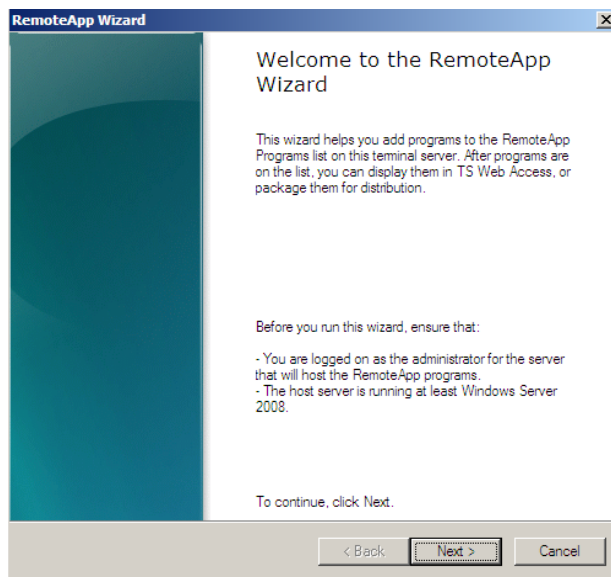
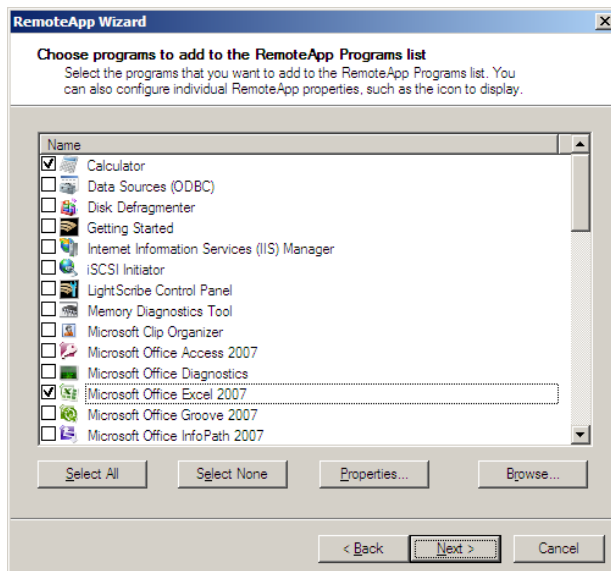
SYS1 - CONFIGURATION

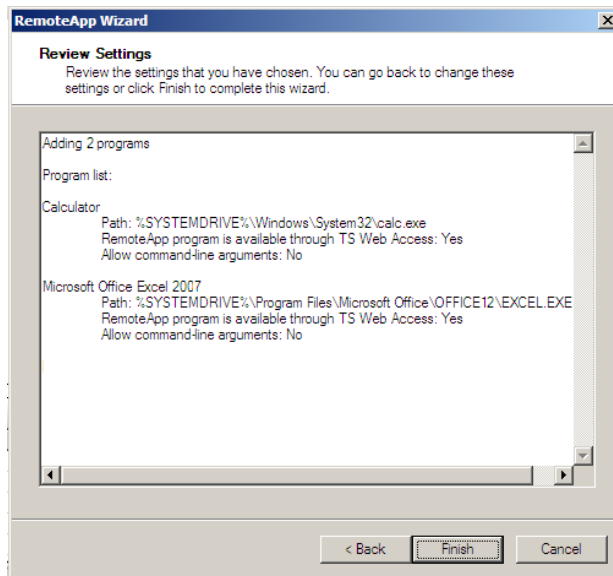
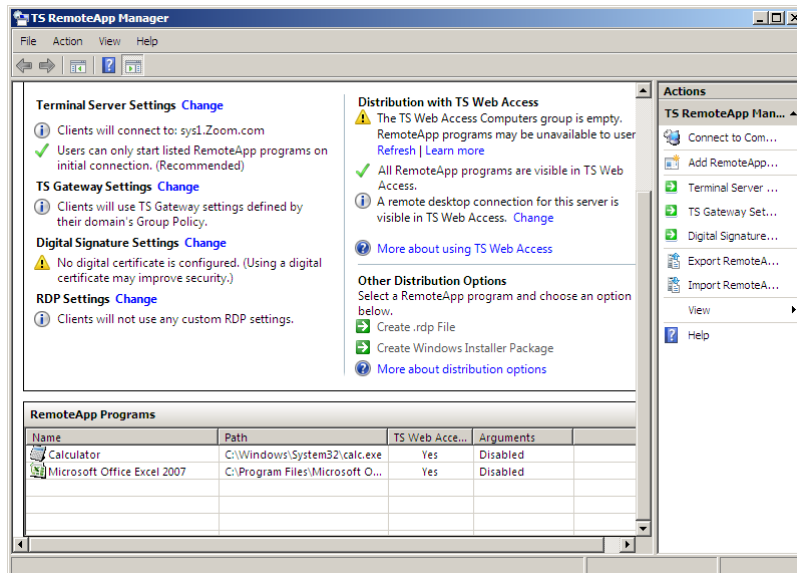
1. Select Start → Programs → Administrative Tools → Terminal Services → TS RemoteApp Manager.



2. In the left pane **Actions** → click **Add RemoteApp Programs**.



3. Click **Next**.4. Select the **Programs** that you want to add and click **Next**.

5. Click **Finish**.6. Verify that **RemoteApp programs** are **added** at the last of the window.

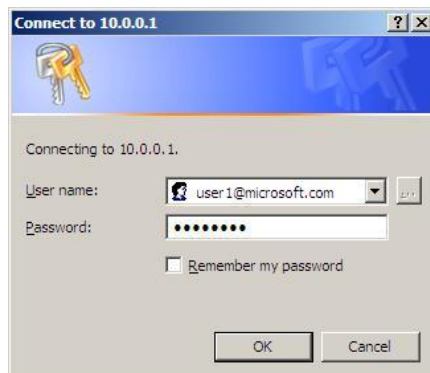
Accessing the Terminal Server from the Client systems

SYS2 – CONFIGURATION

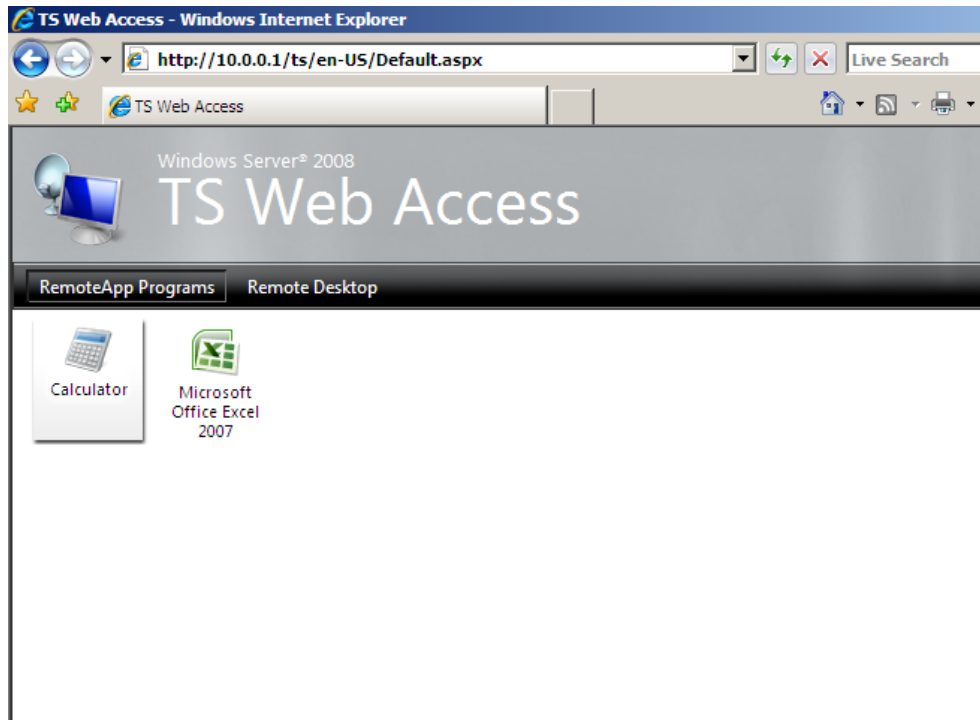
1. Go to any Computer → Open Internet Explorer and type
[Http://Terminal_server_ip_address/ts](http://Terminal_server_ip_address/ts) and Press Enter
2. Ex: <http://10.0.0.1/ts>



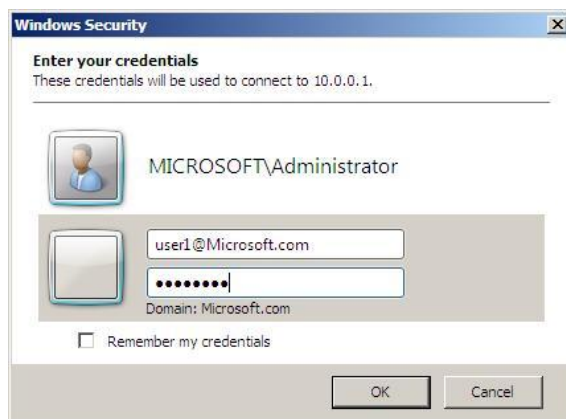
3. Mention the **user name and password** → click **OK**



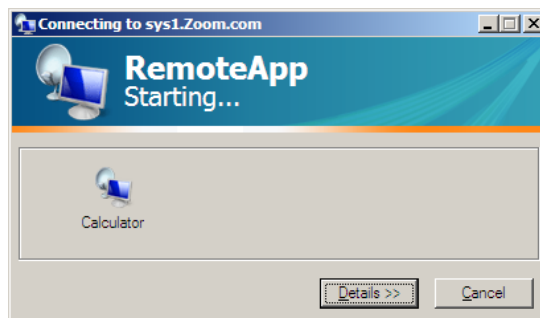
4. **TS Web access Website** will be displayed.
5. Click on the **Application** which u want to access (Ex: **Calculator**).



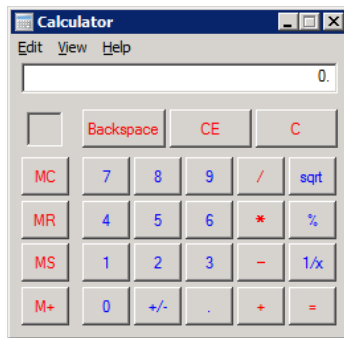
6. Click **Connect** → Mention the **user credentials** → click **OK**.



7. **RemoteApp** program will be starting.



8. **RemoteApp** program will start.

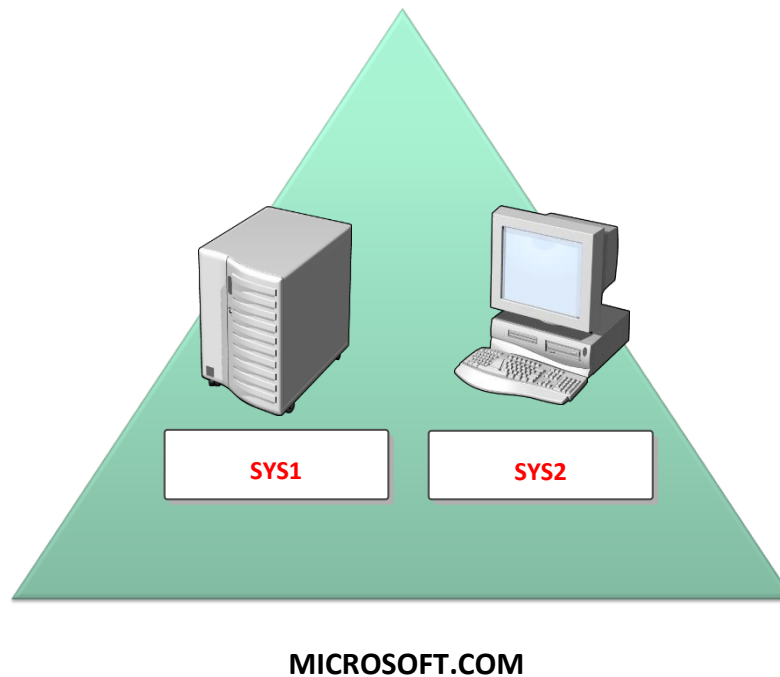


WINDOWS DEPLOYMENT SERVICES (WDS)

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server Domain Controller, DHCP with Scope, DNS with Services records.
2. A computer with or without any Operating system.



SYS1

Domain Controller / WDS Server

IP Address 10.0.0.1
Subnet Mask 255.0.0.0
Preferred DNS 10.0.0.1

SYS2

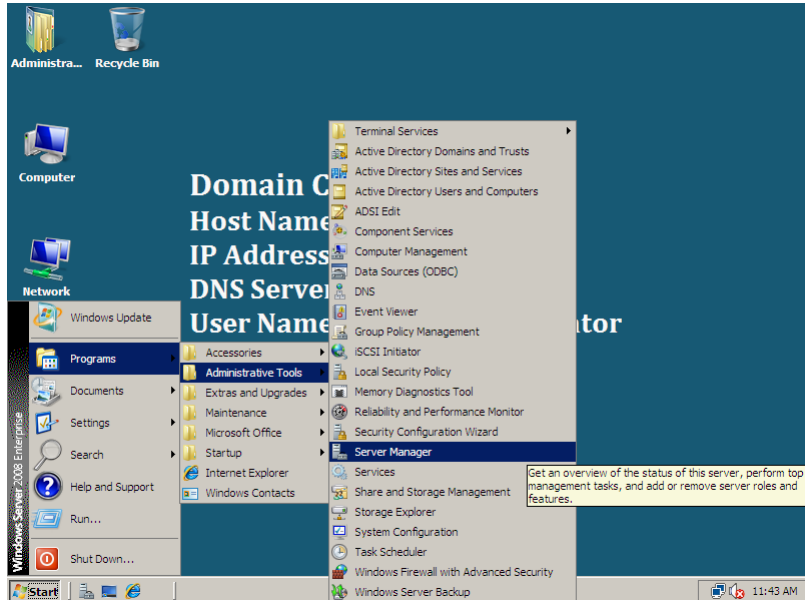
WDS Client

IP Address -----
Subnet Mask -----
Preferred DNS -----

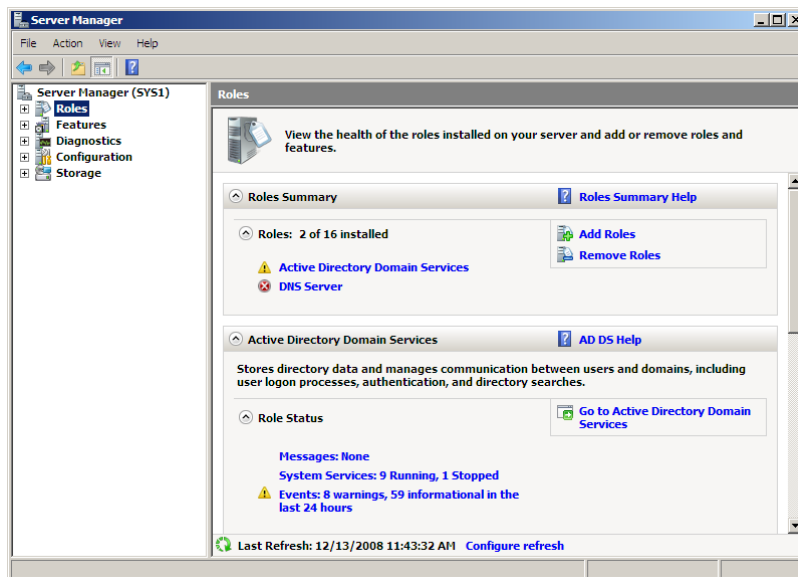
Lab – 1: Installing Windows Deployment Services

SYS1 – CONFIGURATION

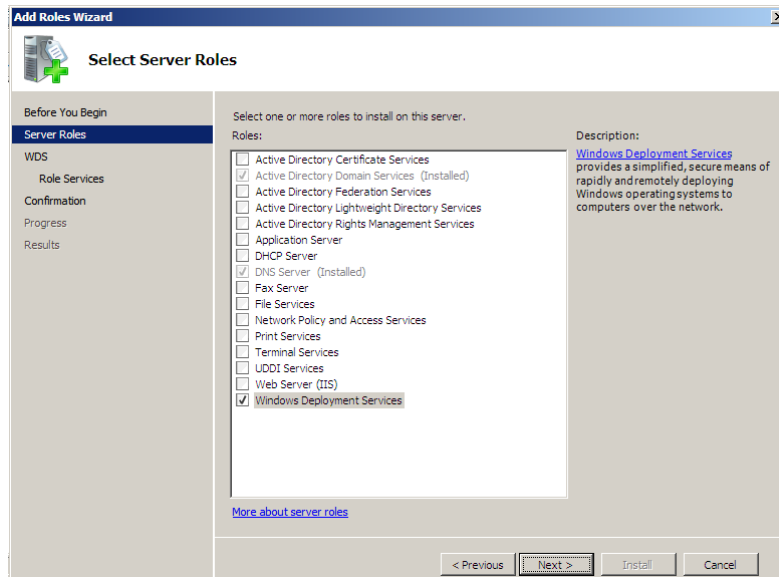
1. Select Start → Programs → Administrative Tools → Server Manager



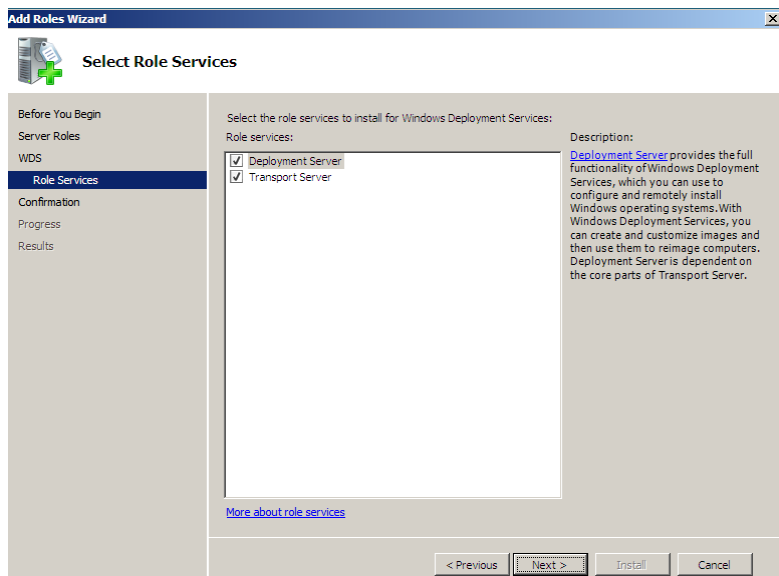
2. In the Server Manager Select **Roles** and Select **Add Roles**.



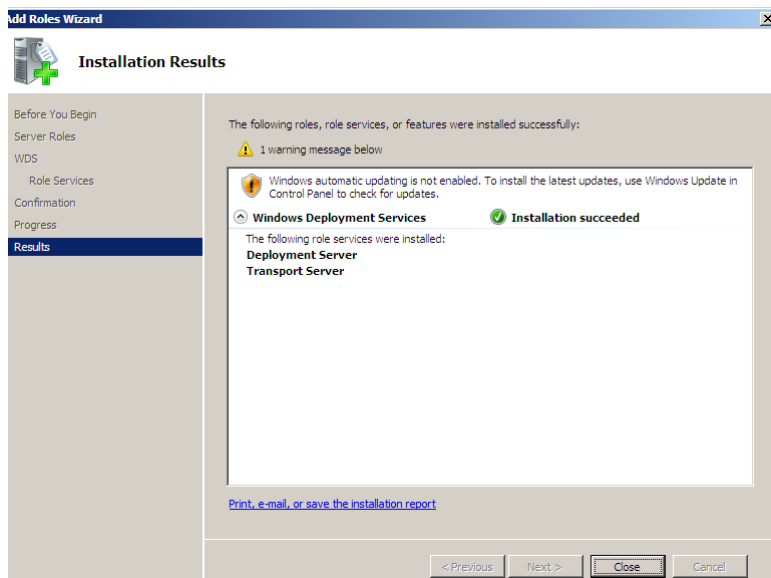
3. In the Select **Server Roles** Wizard check the box **Windows Deployment Services** and click **Next**→ **Next**.



4. Check the box **Deployment Server** and **Transport Server**, click **Next**.



5. Click **Install** → click **Close**.



Note: SYS1 – CONFIGURATION

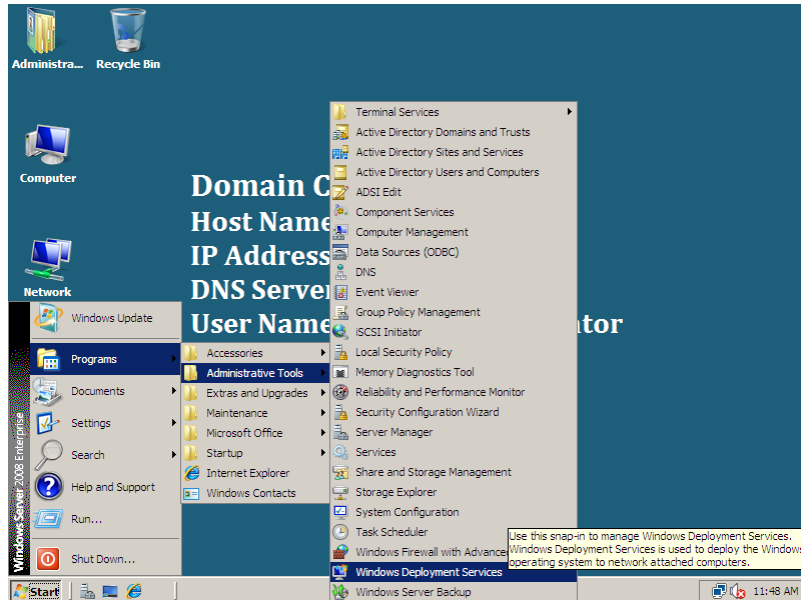
Install the DHCP Service (If not installed) and create a scope in the DHCP.

Give the range (10.0.0.10 – 10.0.0.100), and in the DHCP scope options mention the Domain name (Microsoft.com) and mention the DNS server IP address (10.0.0.1).

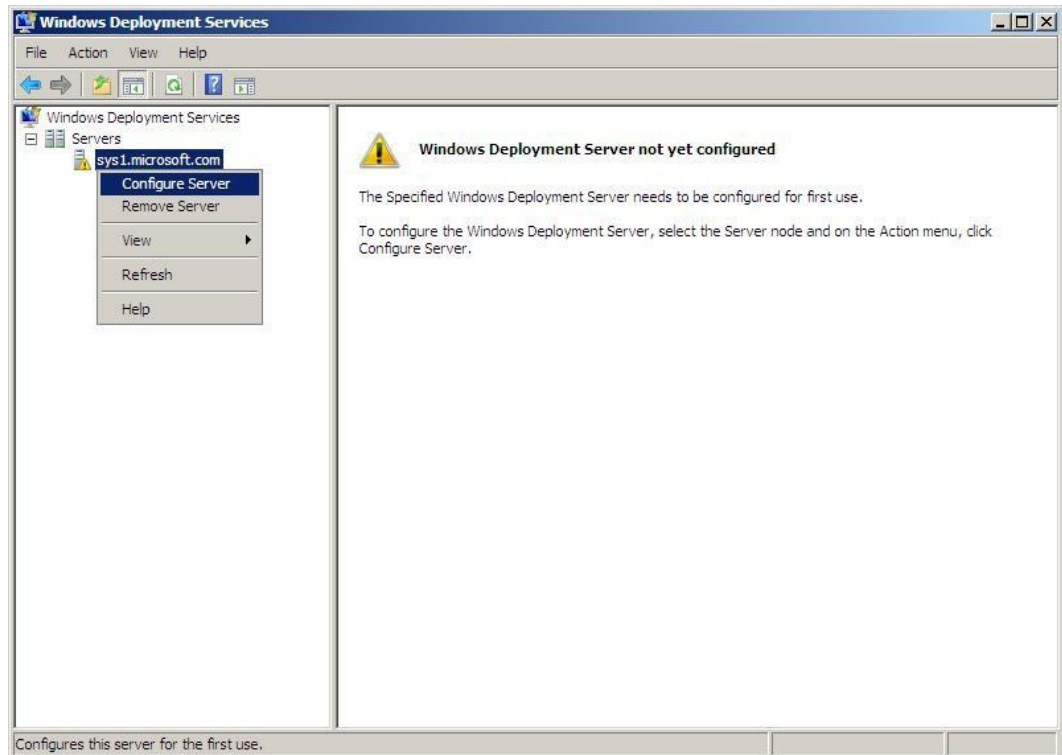
Lab – 2: Configuring Windows Deployment Services

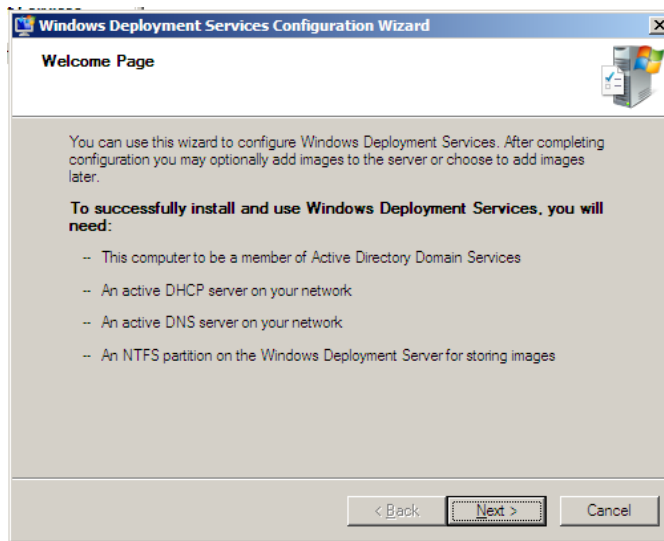
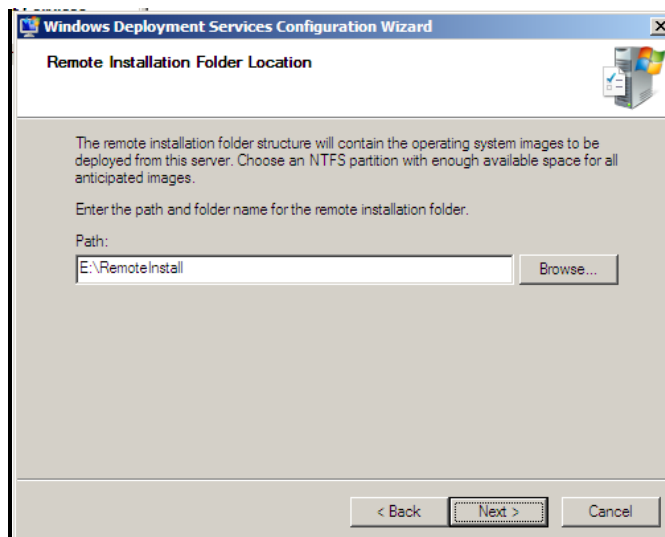
SYS1 – CONFIGURATION

1. Select Start → Programs → Administrative Tool → **Windows Deployment Services**.



2. Right click **Server Name** Select **Configure Server**.

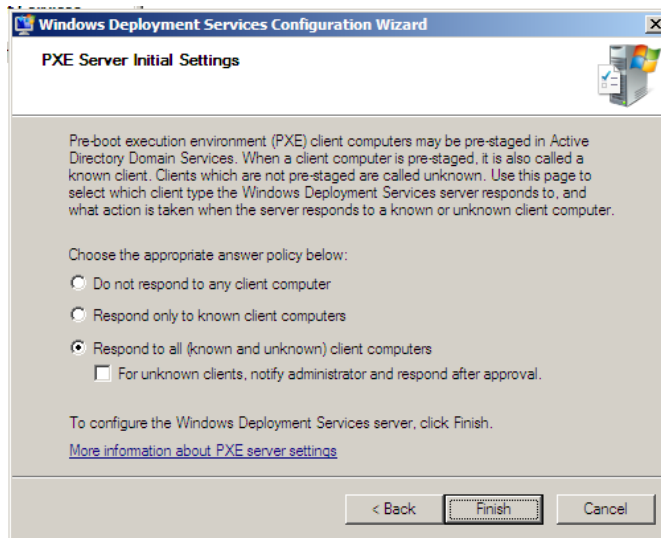


3. Click **Next**.4. Browse and select any empty drive to store **Image Folder** (or) change the Drive letter **click Next**.

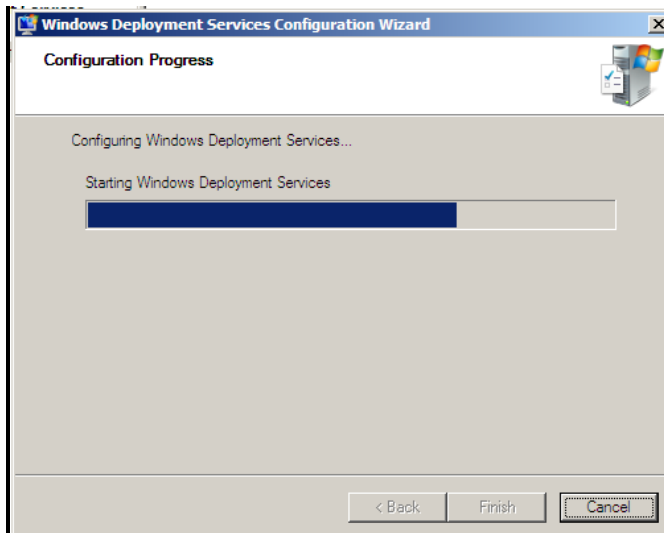
Note: If the WDS server is a DHCP server also then one more wizard will be displayed indicating that the WDS service should not listen on port 67.

So, we have to check the boxes, **Do not listen on port 67** and **Configure DHCP option tag 60 in all DHCP scope options to PXE Client**.

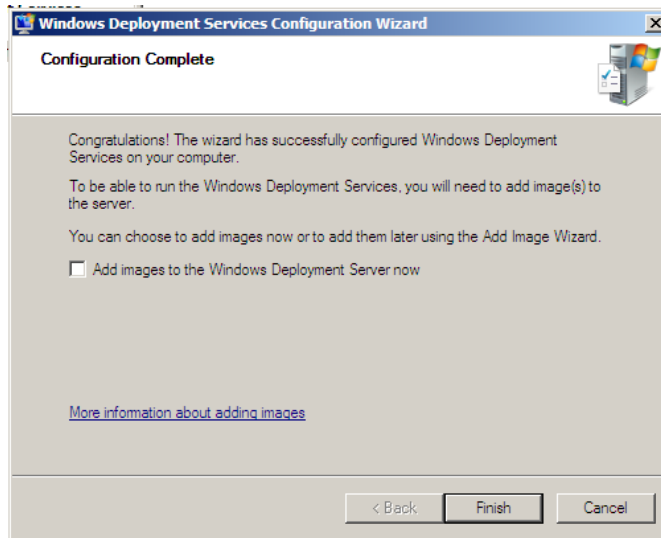
5. Select **Respond to all Known and Unknown Client Computers**, and click **Next**.



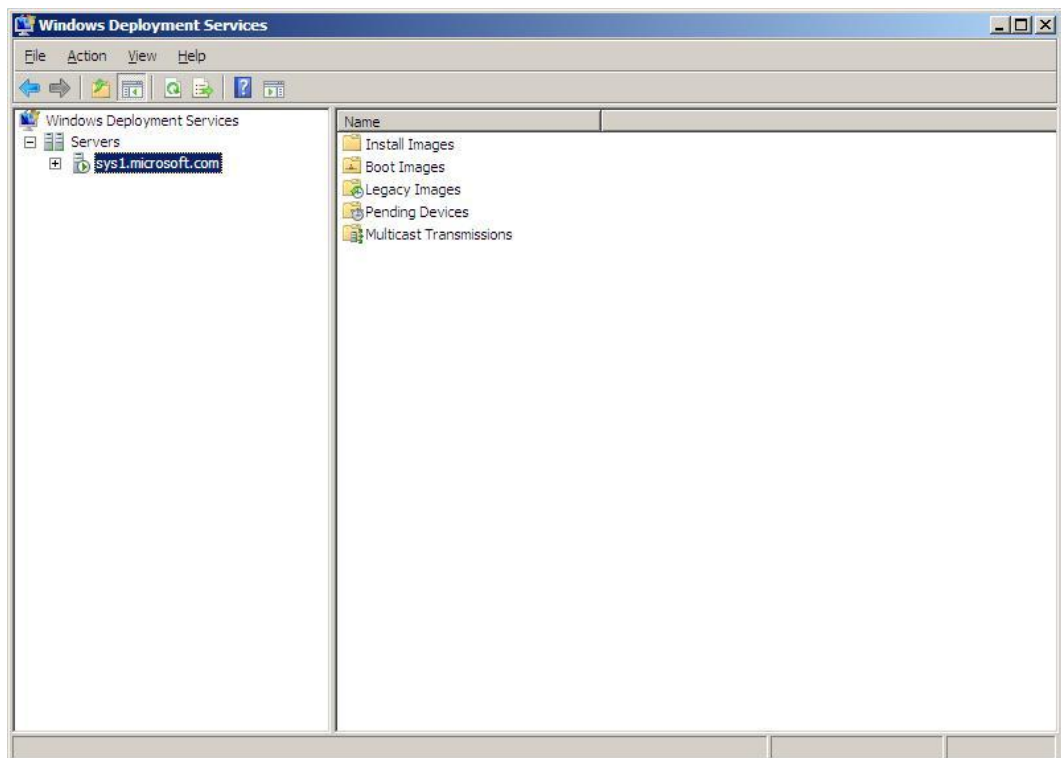
6. Wizard will Configure the **WDS Server**



7. Uncheck the box **Add Images** to Windows Deployment Server now, and click **Finish**.

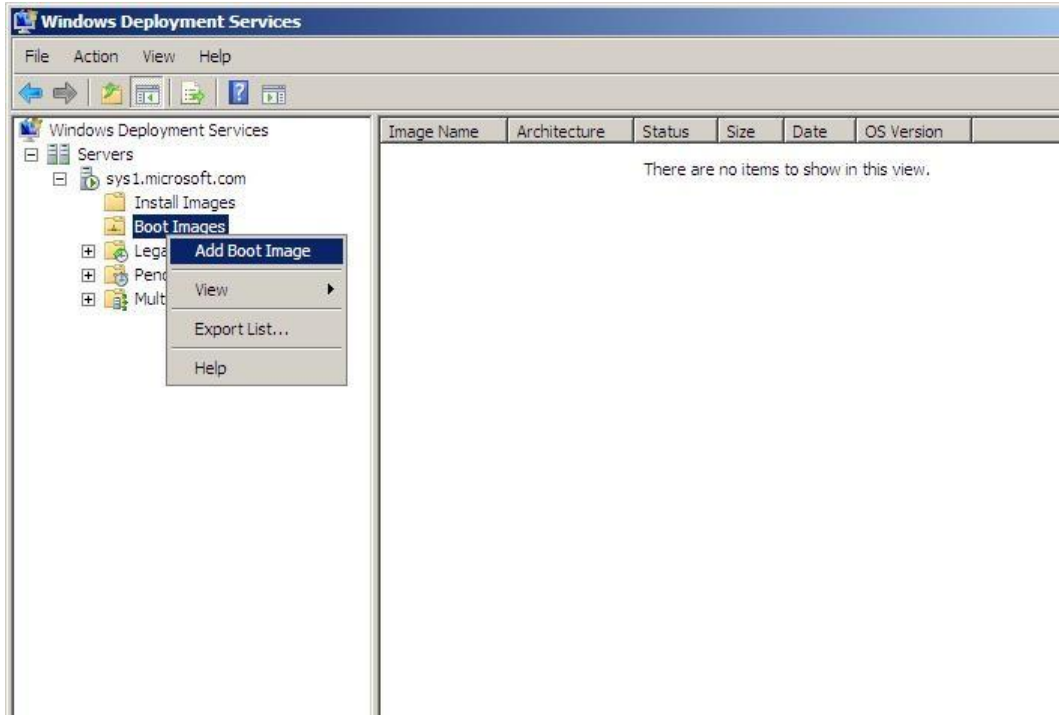


8. **WDS** Server Service Configured Successfully and started.

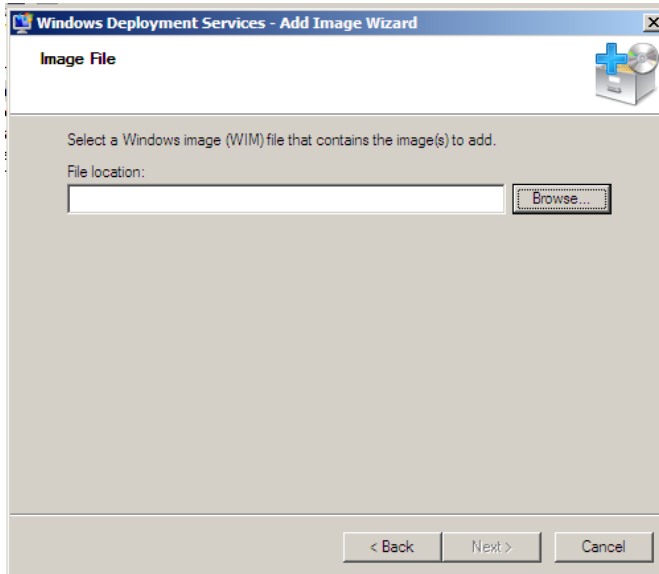


Lab – 3: Adding Windows 2008 Boot Image to WDS Server

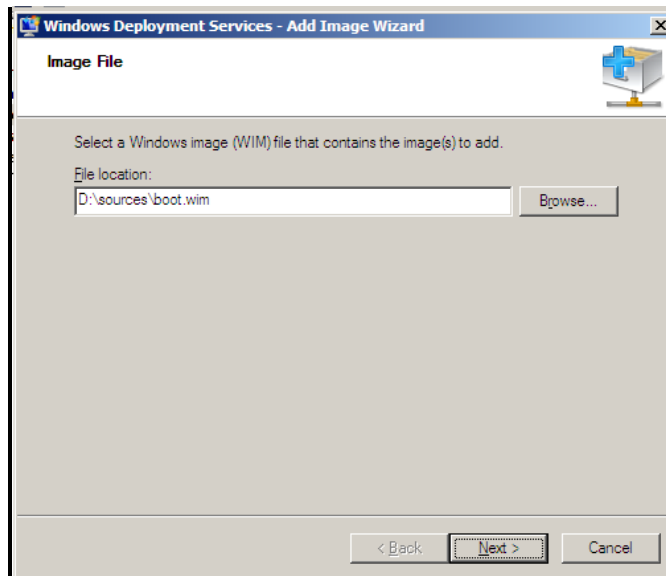
1. Right click Boot Images Select **Add Boot Image**.



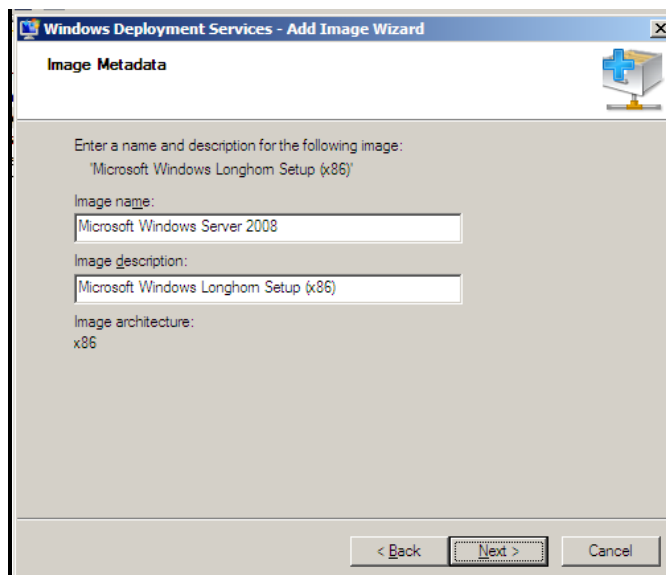
2. Browse and Select **boot.wim** file from 2008 OS DVD (Ex: **D:\Sources\boot.wim**)



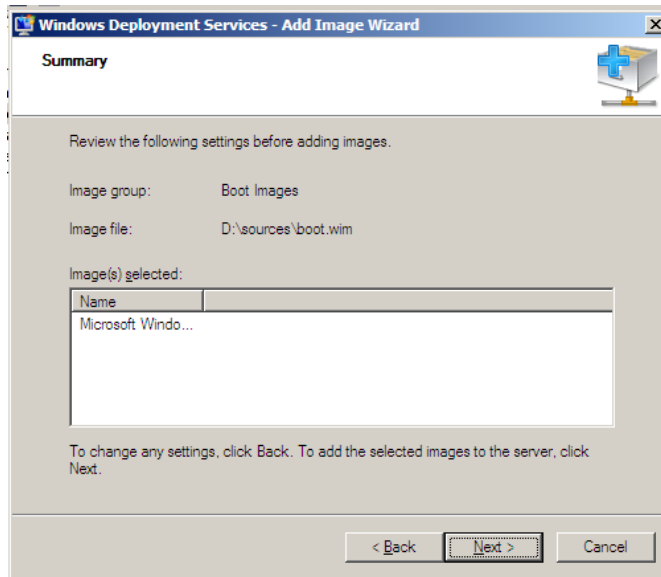
3. Click **Next**.



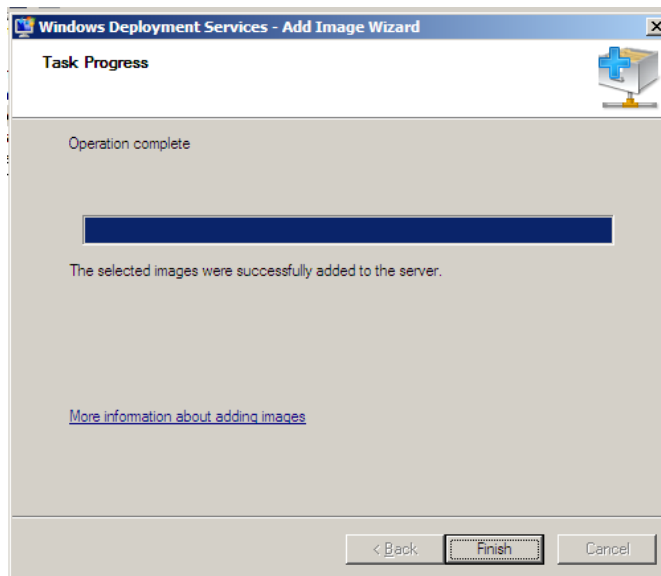
4. Give Name to image Ex: **Windows Server 2008**.



5. Click **Next**.

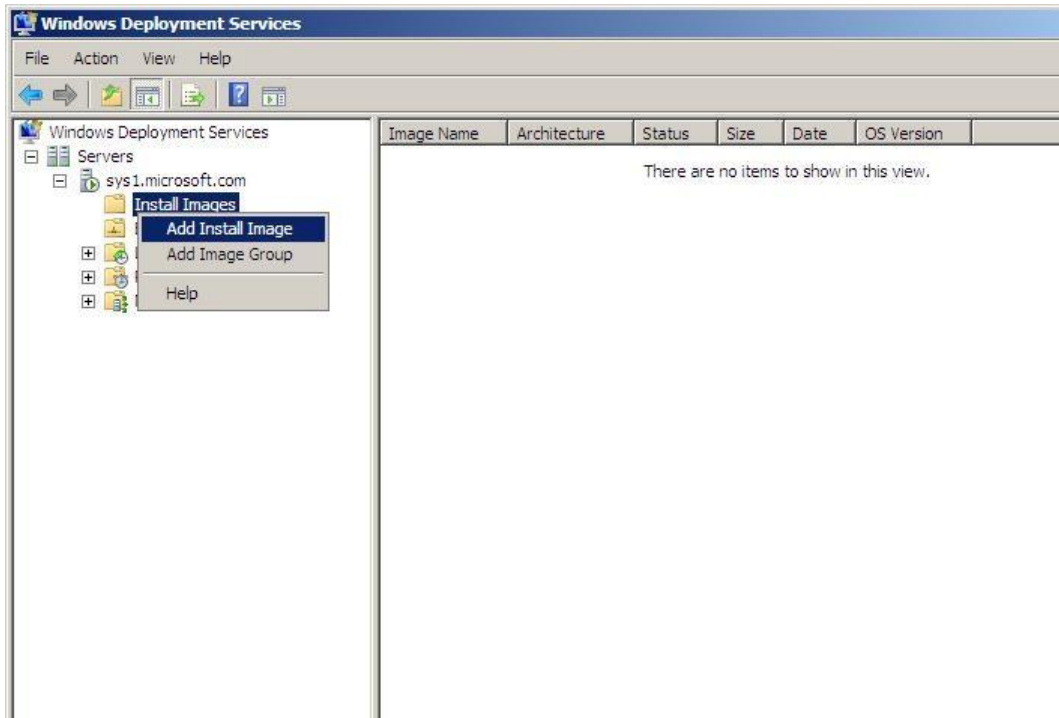


6. Image will be added → click **Finish**.

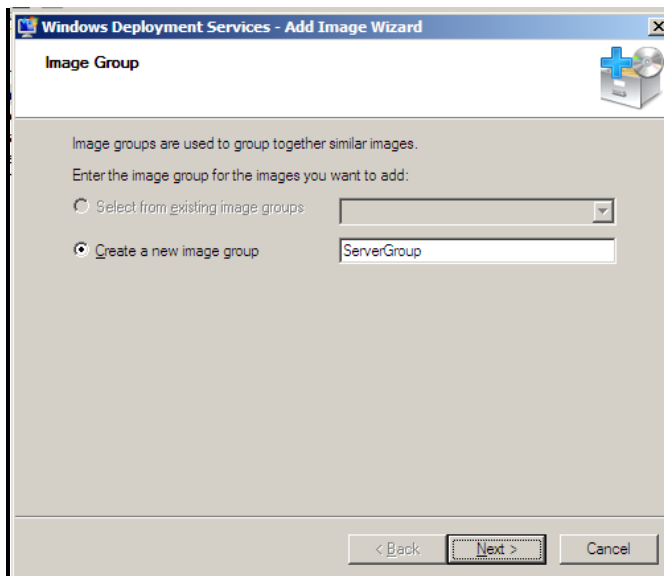


Lab – 4: Adding Windows 2008 Install Image to WDS Server

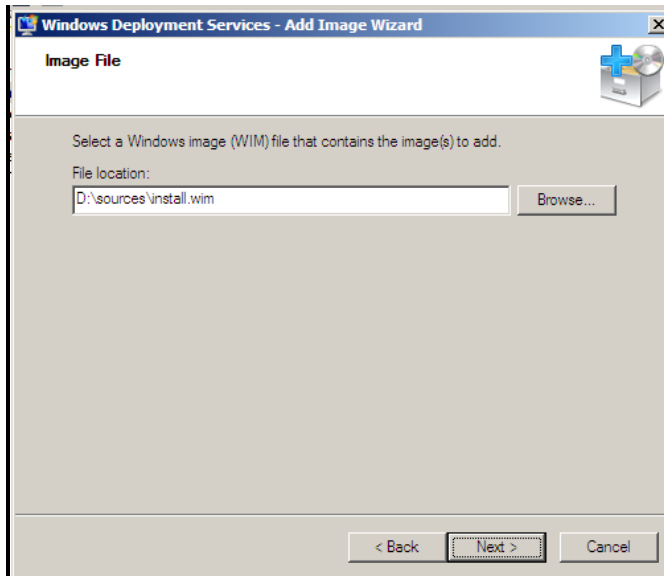
1. Right click Install Images Select **Add Install Image**.



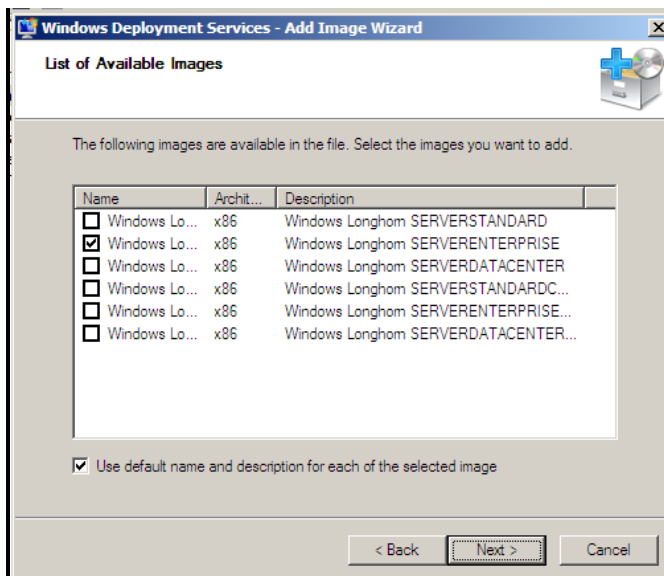
2. Give Name to Image Group Ex: **Server Group** and click **Next**.



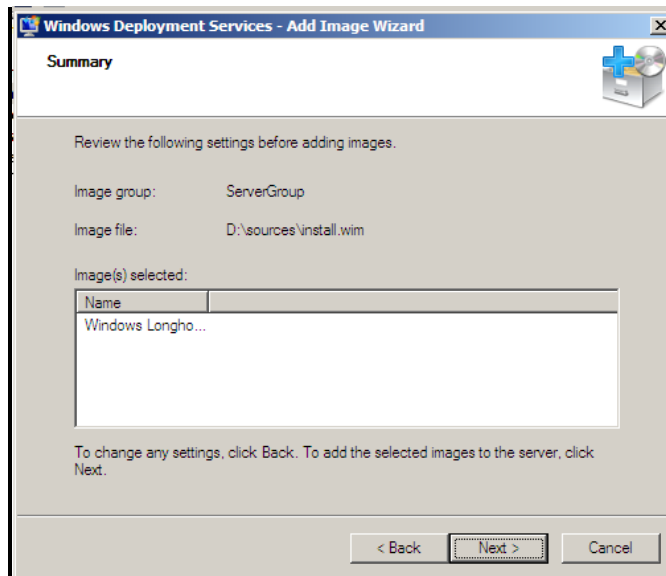
3. Browse and select **Install.wim** file from 2008 OS DVD (Ex: D:\Sources\install.wim)
→ click **Next**.



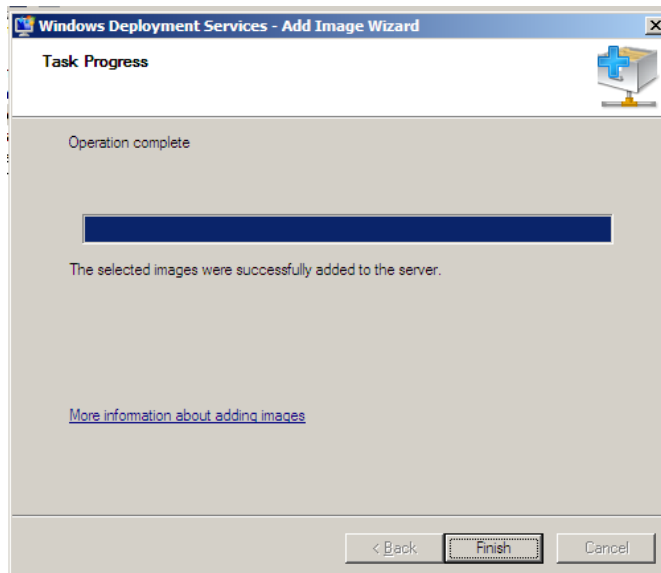
4. Select **Windows Server Enterprise** and click **Next**.



5. Click **Next**



6. Click **Finish**.



Verification:

1. Boot the **Client system** with **PXE NIC Card**
2. Press **F12**key when prompted to start the **Installation**.
3. Then mention the **Administrator** Credential.
4. Select the Operating System which you want to install.
5. Select the Partition to install the O.S and follow the instructions.

DISK MANAGEMENT

Prerequisites:

Before working on this lab, you must have

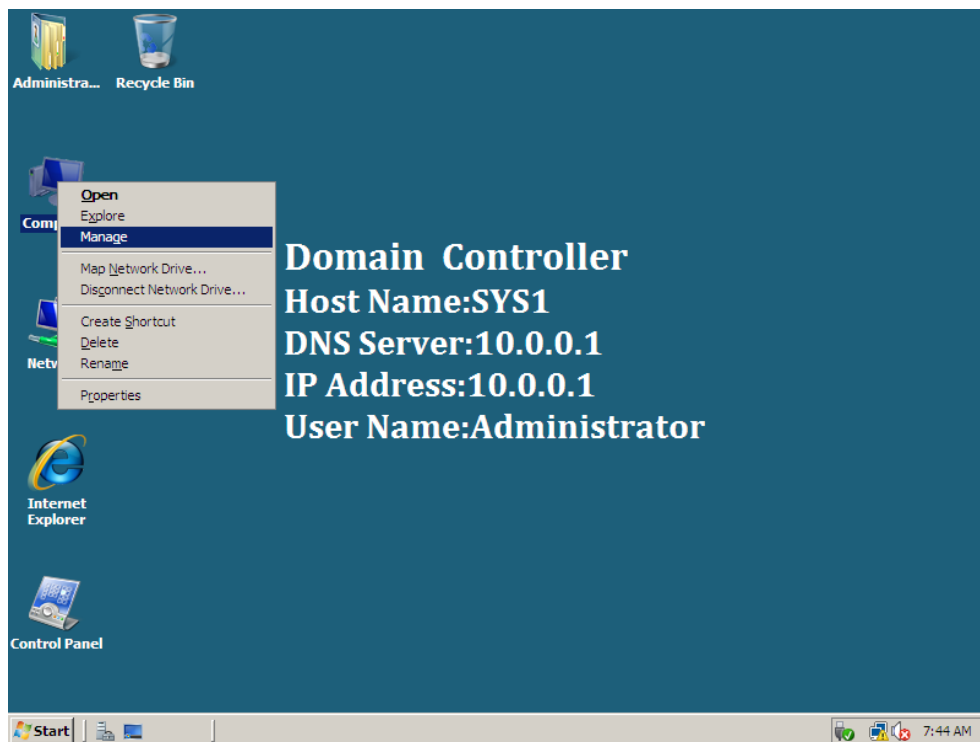
1. A computer running windows 2008 server with at least 3 Hard disks.



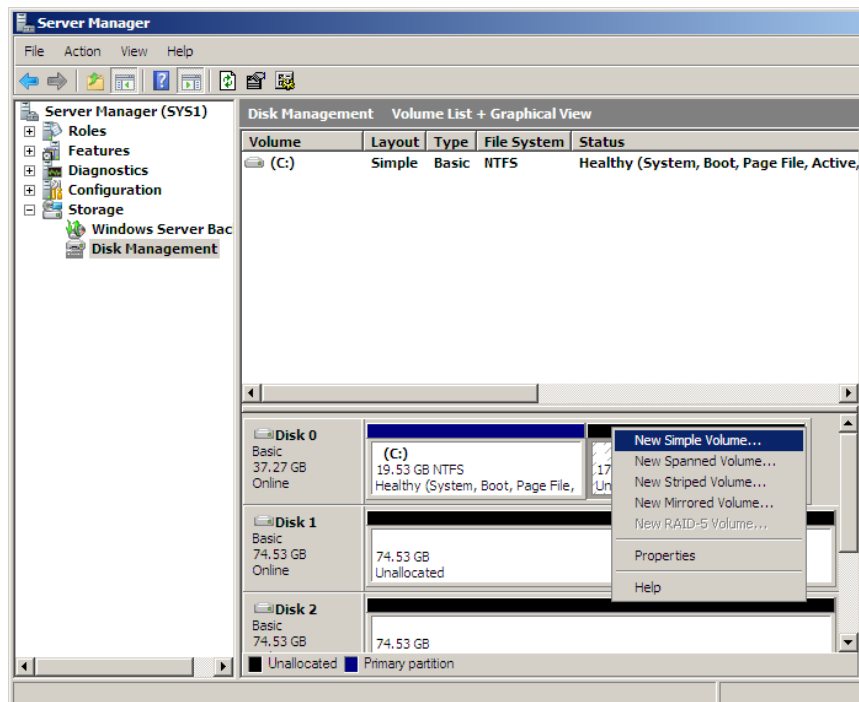
SYS1

Lab – 1: Creating Primary Partitions

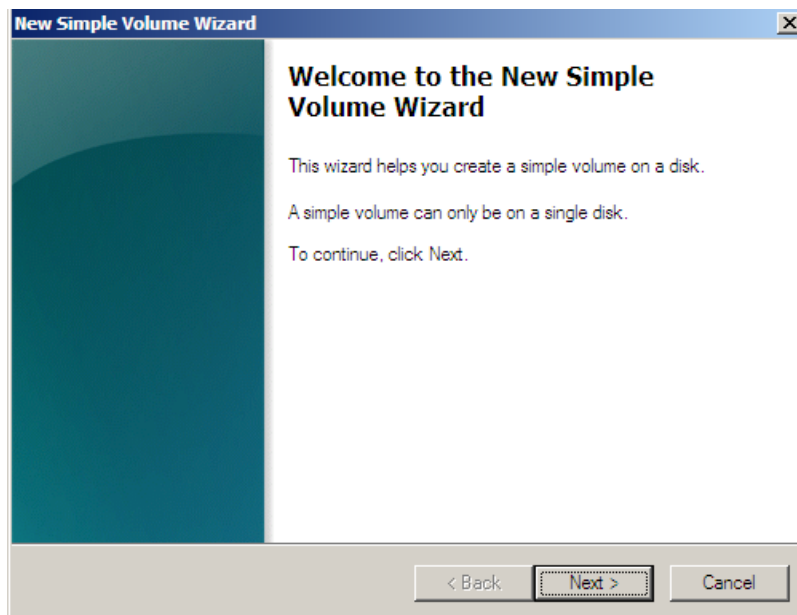
1. Right click **Computer** → **Manage**



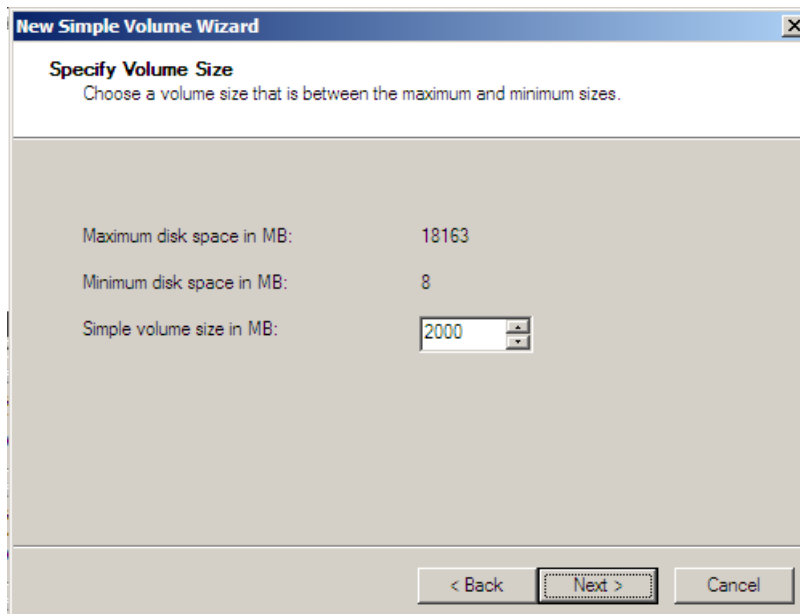
2. Expand Storage, Select **Disk Management**, on **Basic Disk** Right click on **Unallocated Space** to create primary partition.
3. Select **New Simple Volume**.

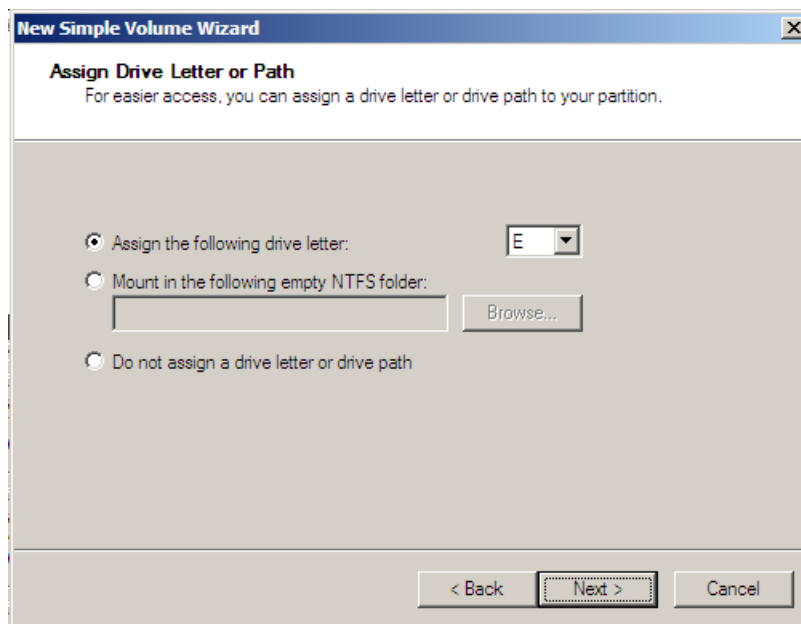
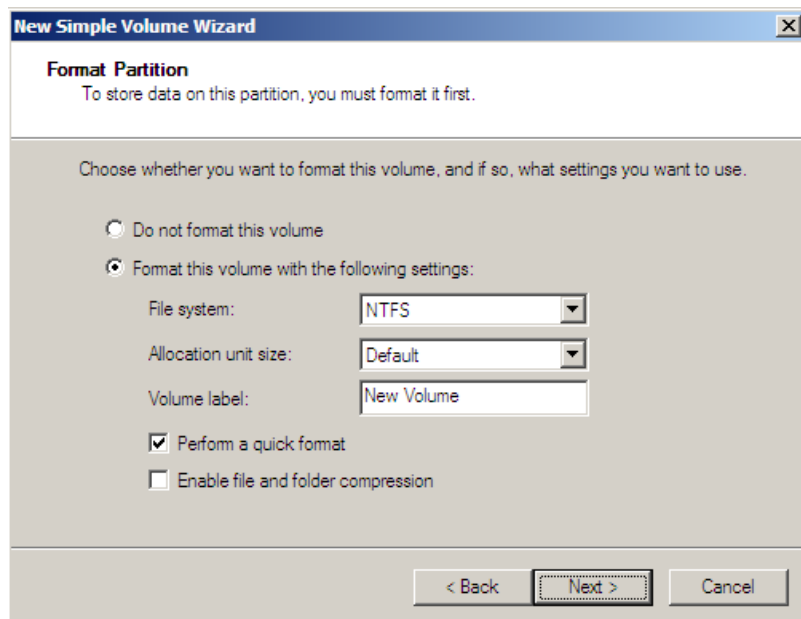


4. Click **Next**.

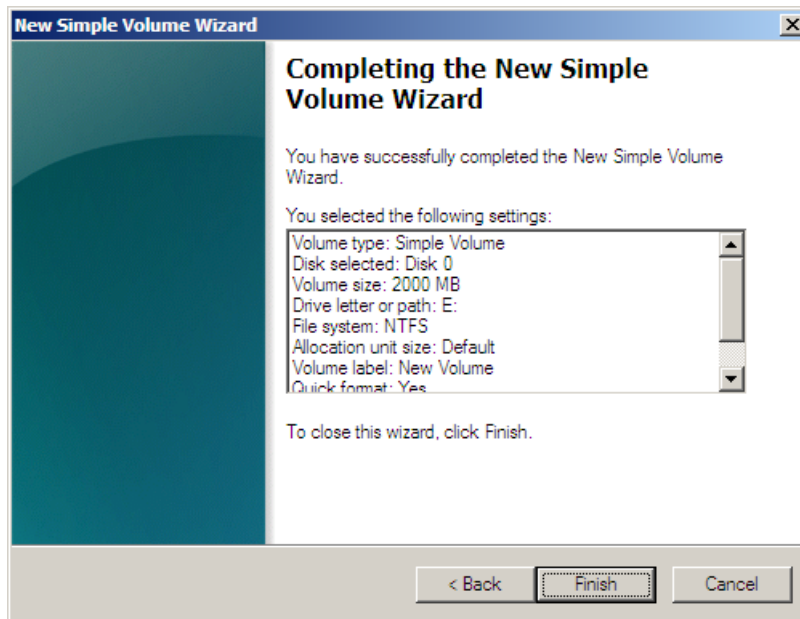


5. Give Volume Size and click **Next**.



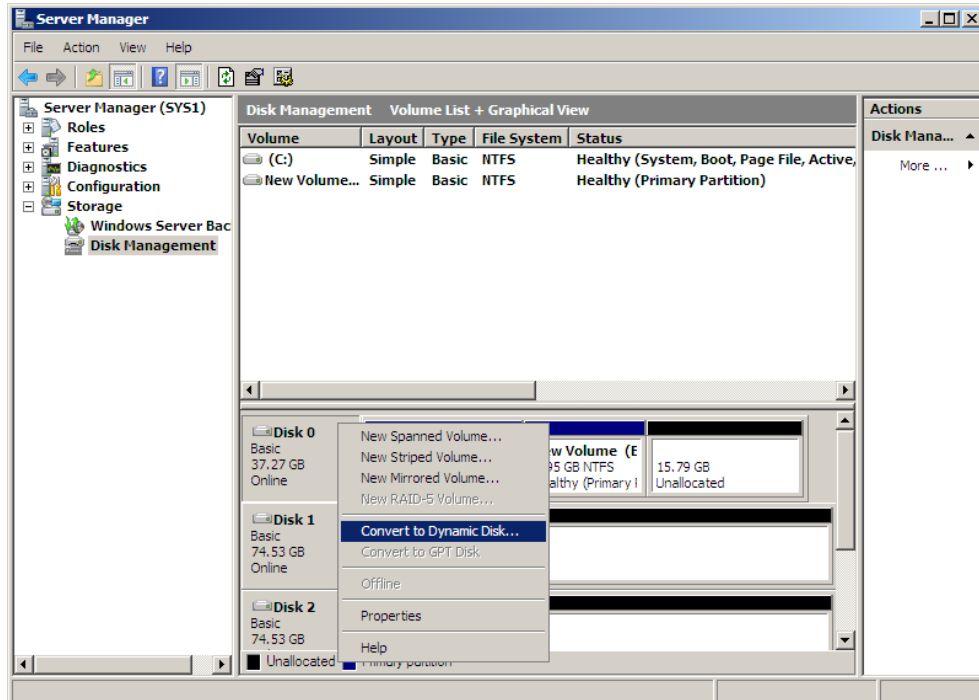
6. Assign **Drive Letter** → click **Next**7. Select the file system as **NTFS** → Select **Perform a Quick Format** → click **Next**

8. Click **Finish**.

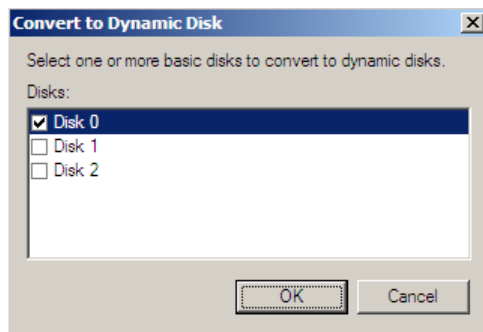


Lab – 2: Converting Basic Disk to Dynamic Disk

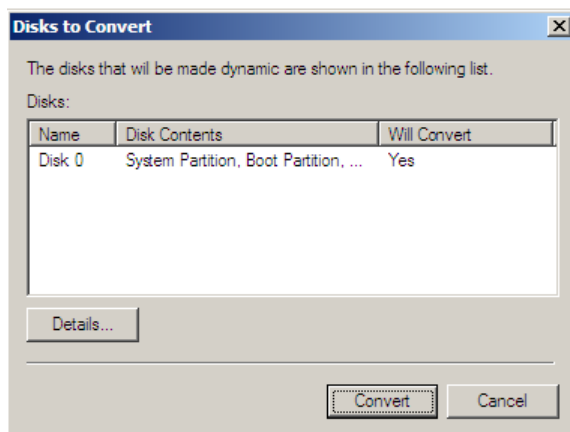
1. Go to **Disk Management** → Right click on **Basic Disk** → Select **Convert to Dynamic Disk**



2. Select the Disks → click **OK**.

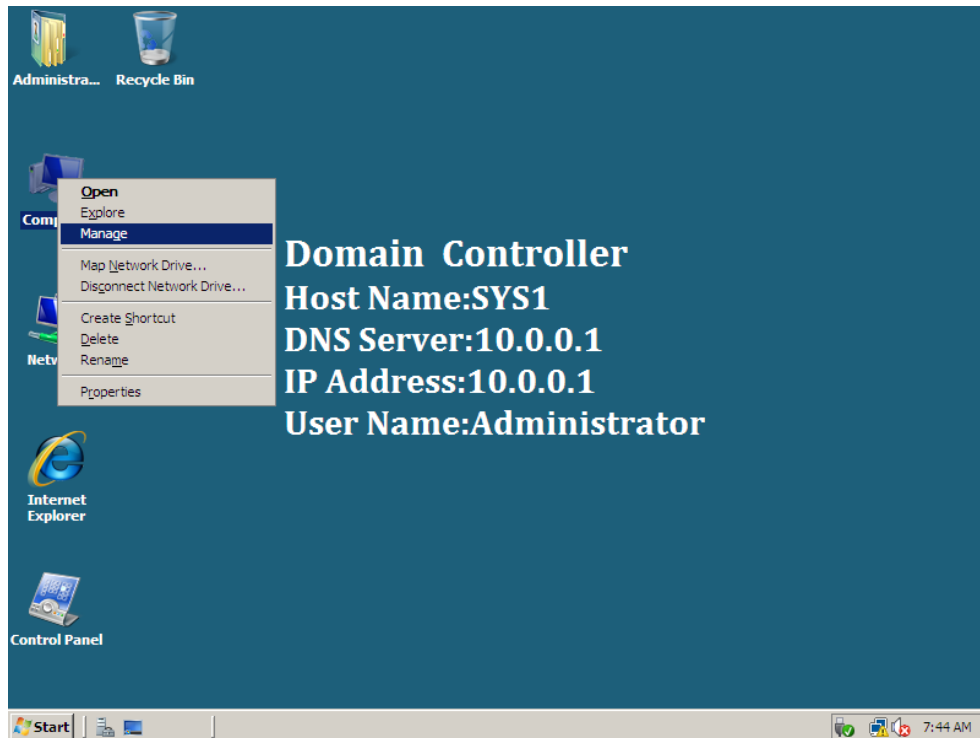


3. Click **Convert** → click **Yes**.

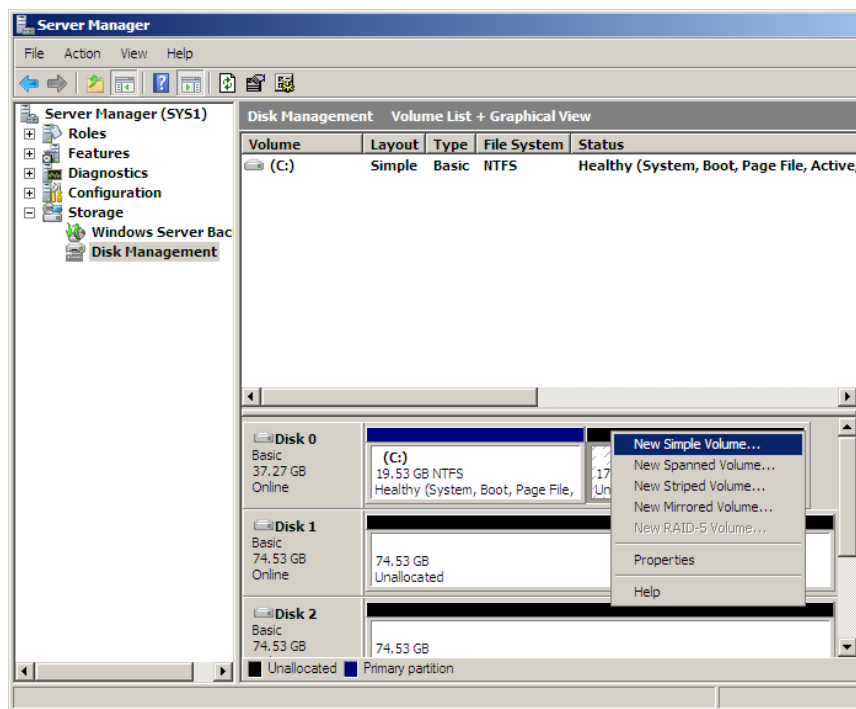


Lab – 3: Creating Simple Volume

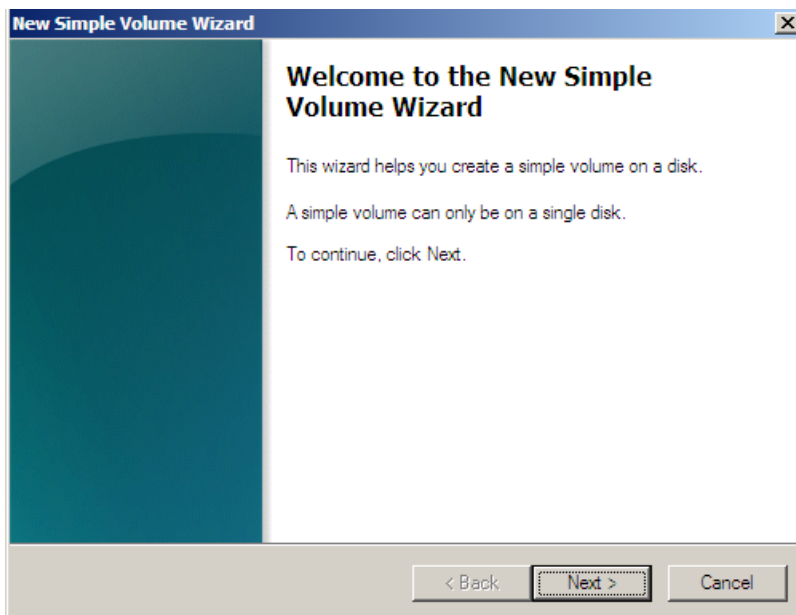
1. Right click on **Computer** → **Manage**.



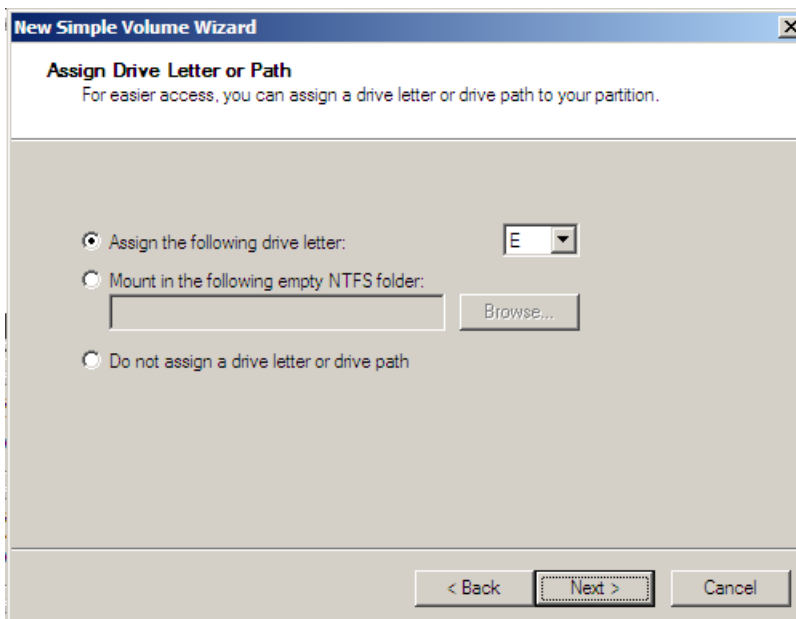
2. Expand Storage, Select **Disk Management**.
3. Right-click the **unallocated space on dynamic disk** → click **New Simple Volume**.



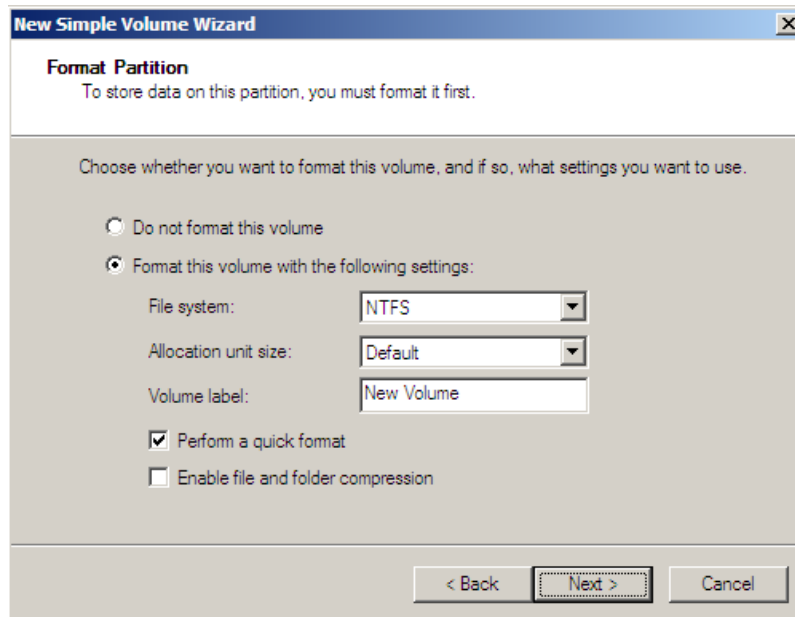
4. Click **Next**.



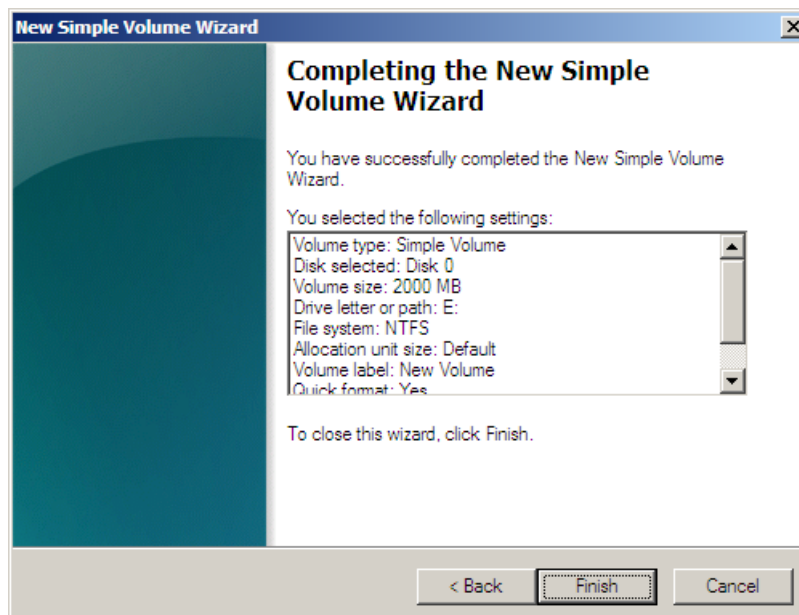
5. Select the dynamic Disk you want to use, and then click **add** → Assign the Disk Space for the Simple Volume
6. Assign **Drive Letter** → click **Next**



7. Select the file system as **NTFS** to format → Select **Perform a Quick Format** → click **Next**



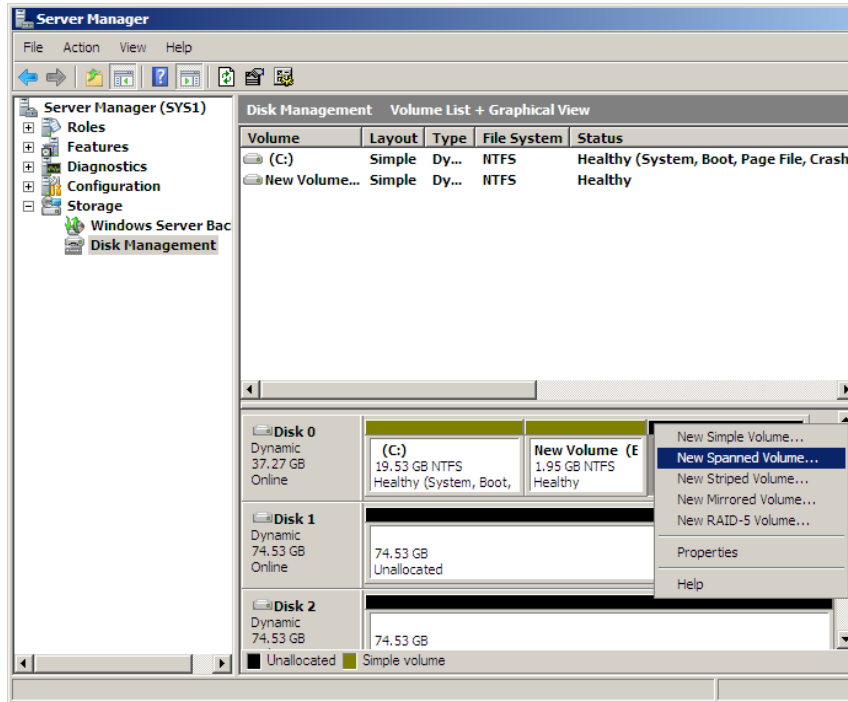
8. Click **Finish**.



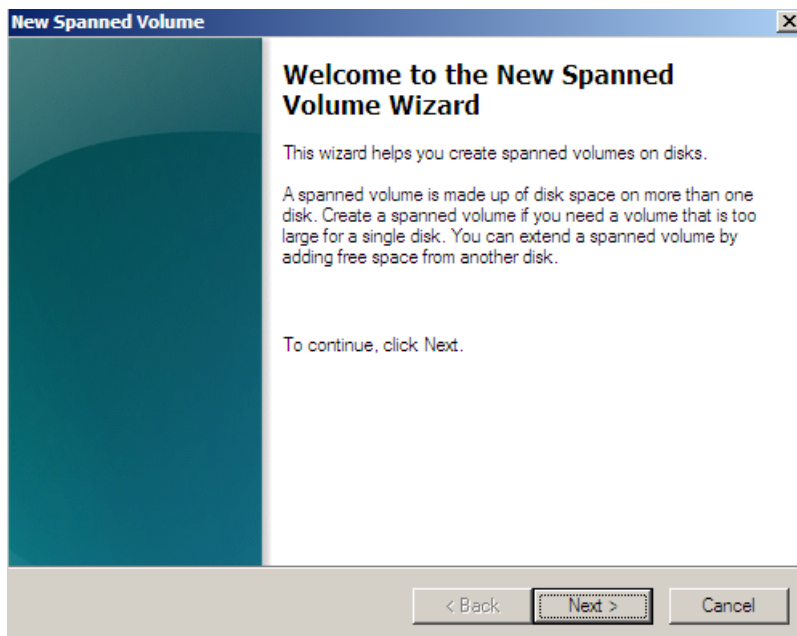
9. **Simple Volume is created.**

Lab – 4: Creating Spanned Volume

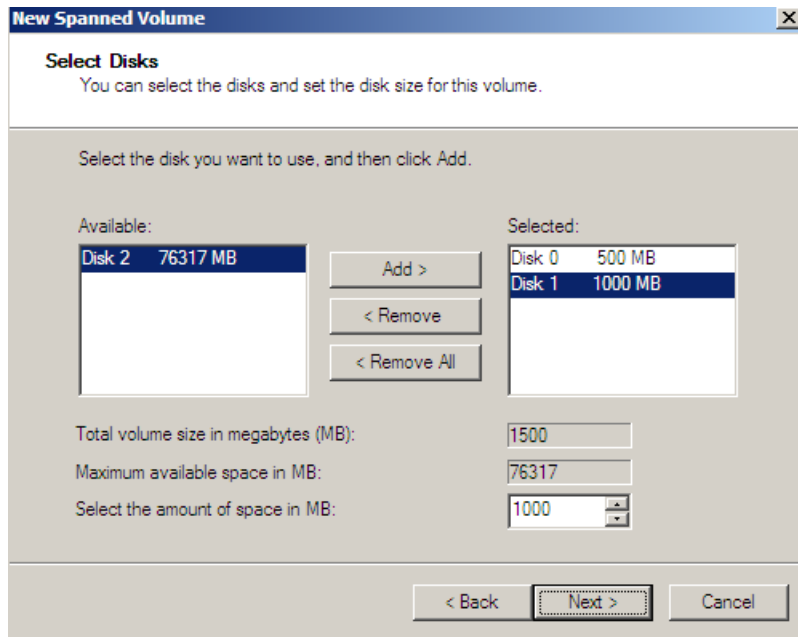
1. Right click on **Computer** → **Manage** → **Expand Storage** → **Disk Management**.
2. Right-click the unallocated space on the dynamic disk on which you want to create **Spanned volume** and then click **New Spanned Volume**.



3. Click **Next**.



4. Select the dynamic Disk you want to use, and then click **add**
5. Assign the Disk Space for the Spanned Volume for both disks → click **Next**



New Spanned Volume

Select Disks
You can select the disks and set the disk size for this volume.

Select the disk you want to use, and then click Add.

Available:		Selected:
Disk 2 76317 MB	Add >	Disk 0 500 MB
	< Remove	Disk 1 1000 MB
	< Remove All	

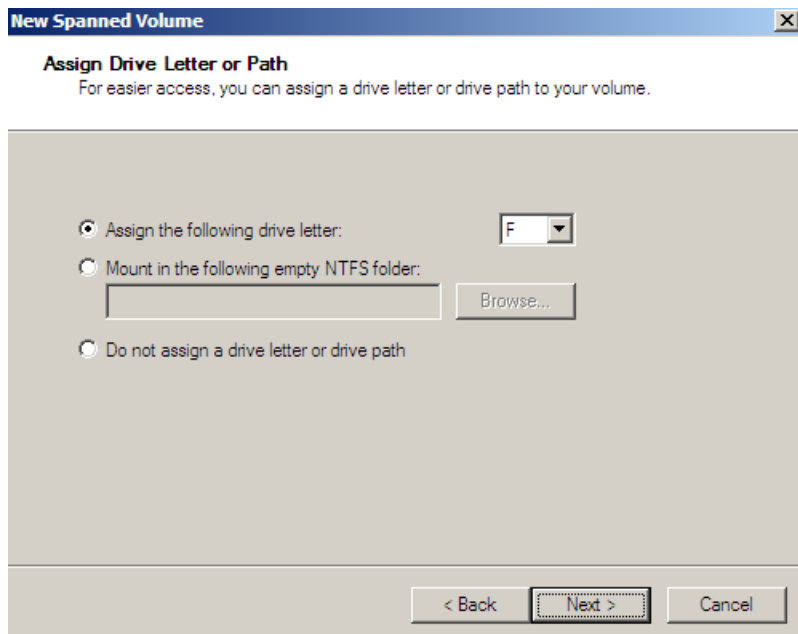
Total volume size in megabytes (MB): 1500

Maximum available space in MB: 76317

Select the amount of space in MB: 1000

< Back Next > Cancel

6. Assign Drive Letter → click **Next**.



New Spanned Volume

Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.

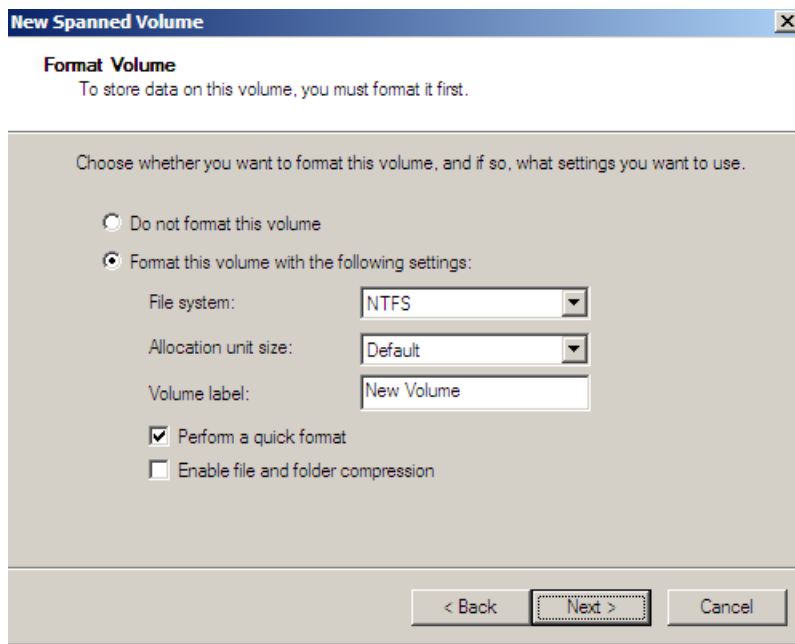
☒ Assign the following drive letter: F

☐ Mount in the following empty NTFS folder: Browse...

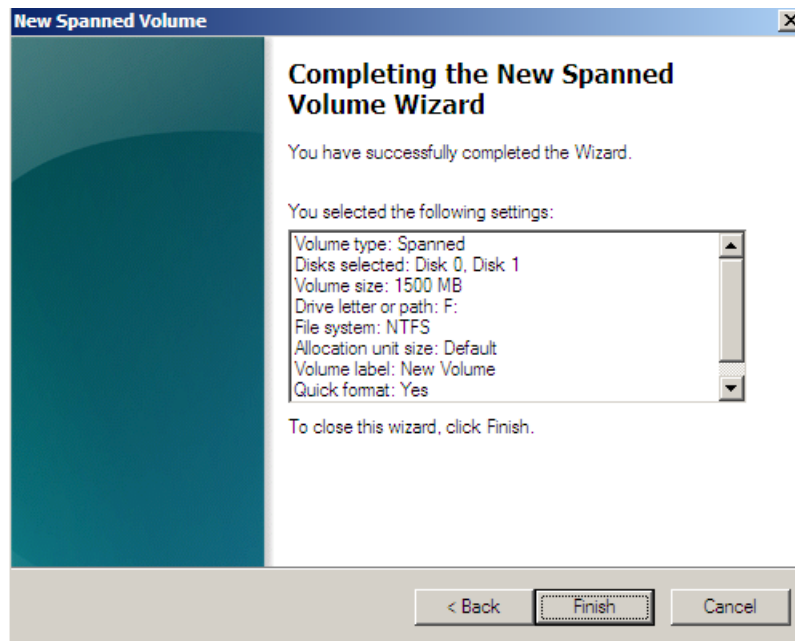
☐ Do not assign a drive letter or drive path

< Back Next > Cancel

7. Select the file system as **NTFS** → Select **Perform a Quick Format** → click **Next**.



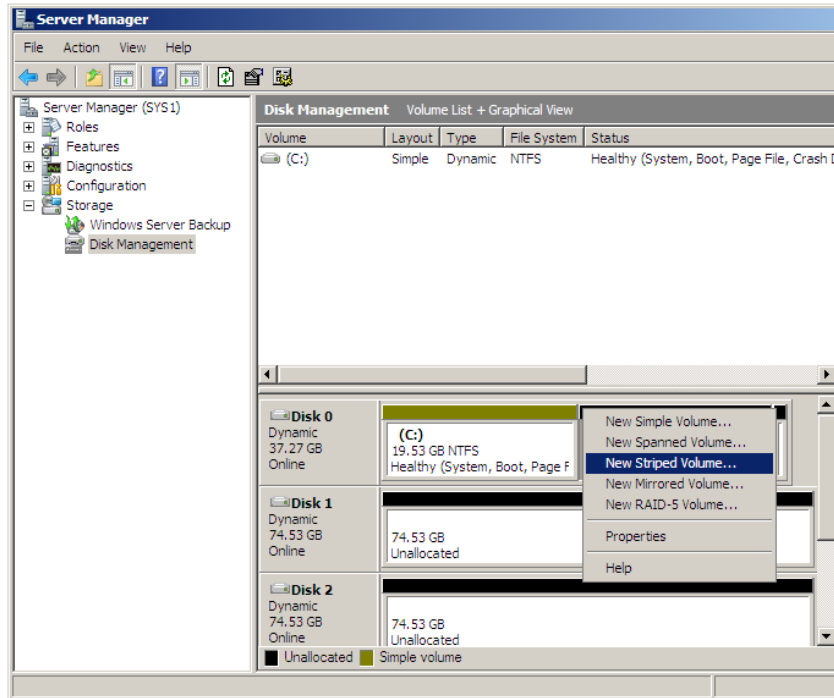
8. Click **Finish**.



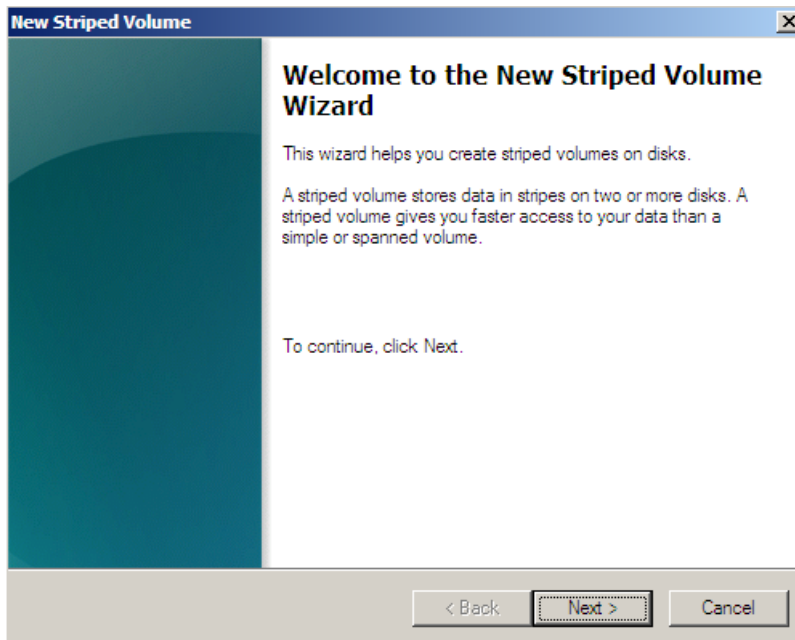
9. Spanned Volume is created

Lab – 5: Creating Striped Volume

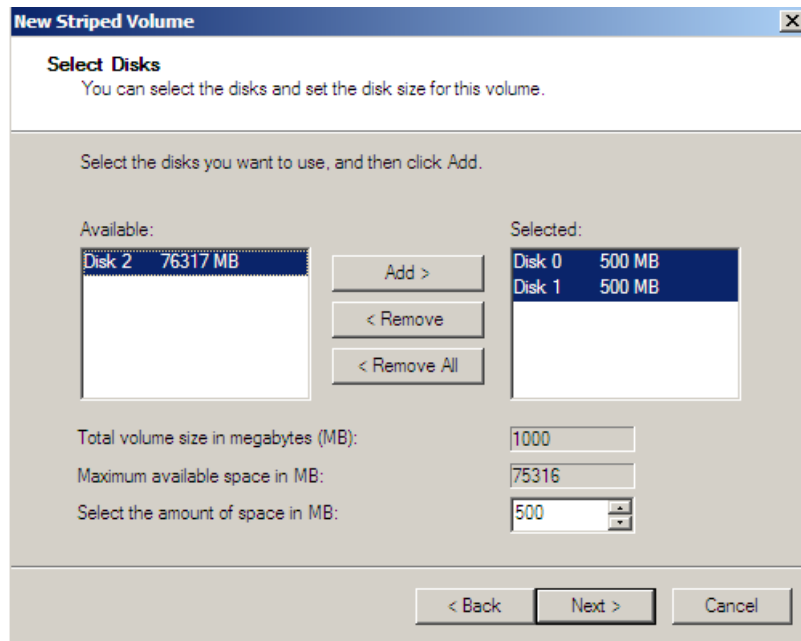
1. Right click on Computer → **Manage** → **Expand Storage** → **Disk Management**
→ Right-click on **unallocated space in dynamic disk** → click **New Striped Volume**.



2. Click **Next**.



3. Select the dynamic disk you want to use and then click **add** → assign the **Disk Space** for the **Striped Volume for both disks** → click **Next**.

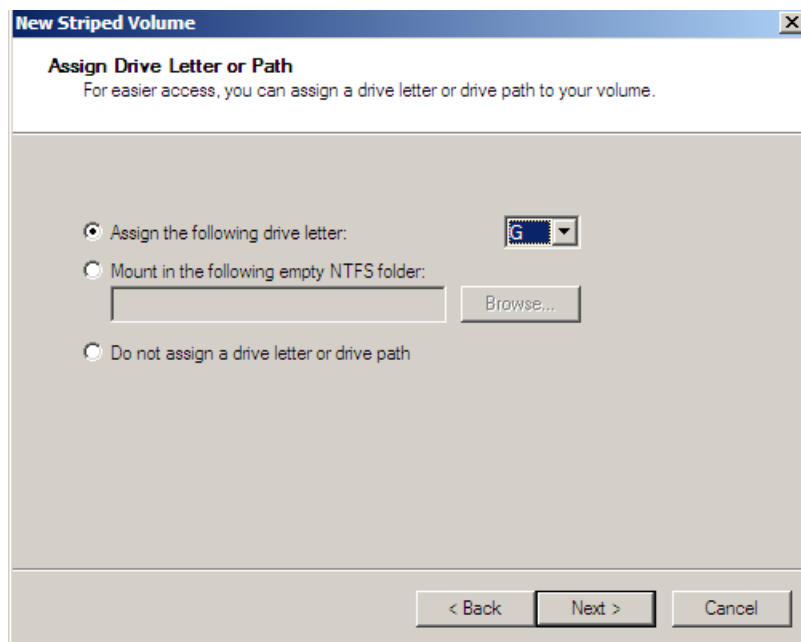


The 'New Striped Volume' dialog box is shown at the 'Select Disks' step. It instructs the user to select disks and set the disk size. The 'Available' list contains 'Disk 2' with 76317 MB. The 'Selected' list contains 'Disk 0' (500 MB) and 'Disk 1' (500 MB). Buttons for 'Add >', '< Remove', and '< Remove All' are present. Below the lists, the 'Total volume size in megabytes (MB)' is 1000, 'Maximum available space in MB' is 75316, and 'Select the amount of space in MB' is 500. Navigation buttons at the bottom are '< Back', 'Next >', and 'Cancel'.

Available:		Selected:	
Disk 2	76317 MB	Disk 0	500 MB
		Disk 1	500 MB

Total volume size in megabytes (MB): 1000
Maximum available space in MB: 75316
Select the amount of space in MB: 500

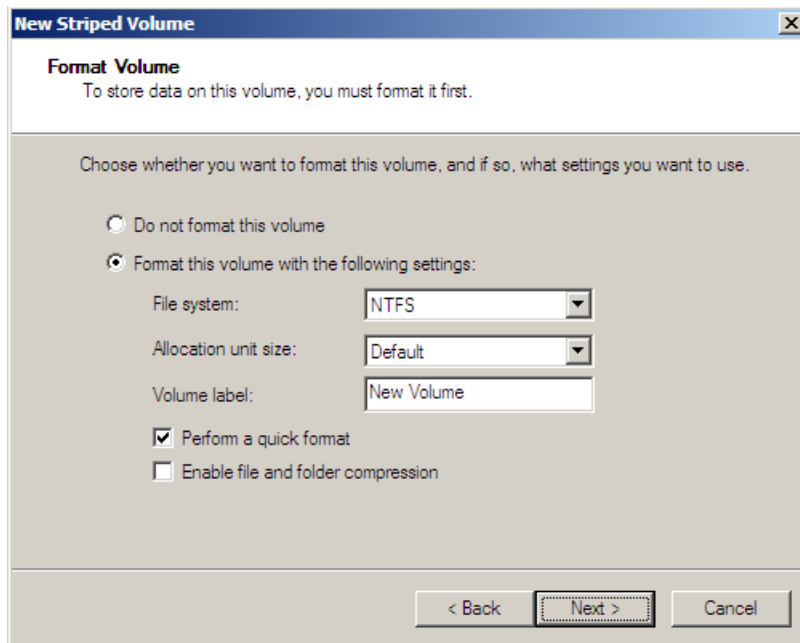
4. Assign Drive Letter → click **Next**.



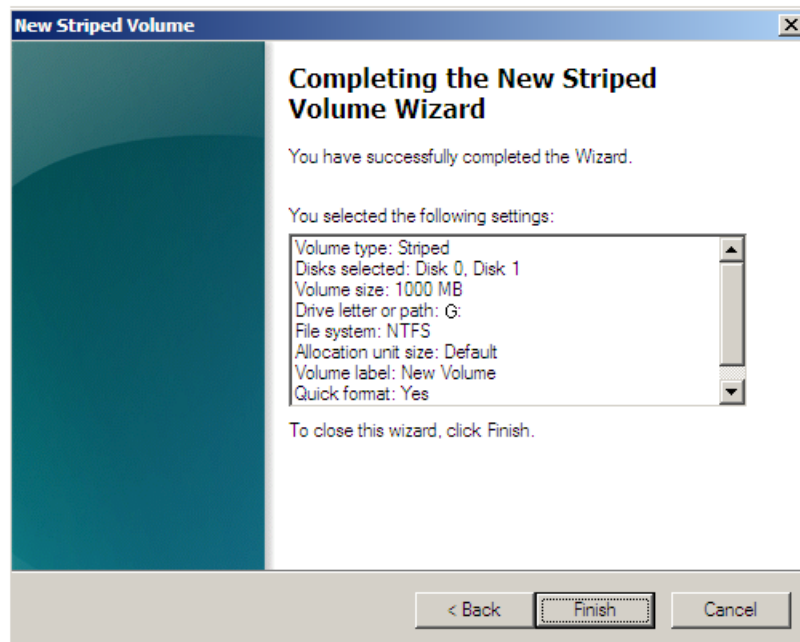
The 'New Striped Volume' dialog box is shown at the 'Assign Drive Letter or Path' step. It offers three options: 'Assign the following drive letter' (selected, with 'G' in the dropdown), 'Mount in the following empty NTFS folder' (with a text box and 'Browse...' button), and 'Do not assign a drive letter or drive path'. Navigation buttons at the bottom are '< Back', 'Next >', and 'Cancel'.

☒ Assign the following drive letter: G
☐ Mount in the following empty NTFS folder: Browse...
☐ Do not assign a drive letter or drive path

5. Select the file system as **NTFS** → Select **Perform a Quick Format** → click **Next**.



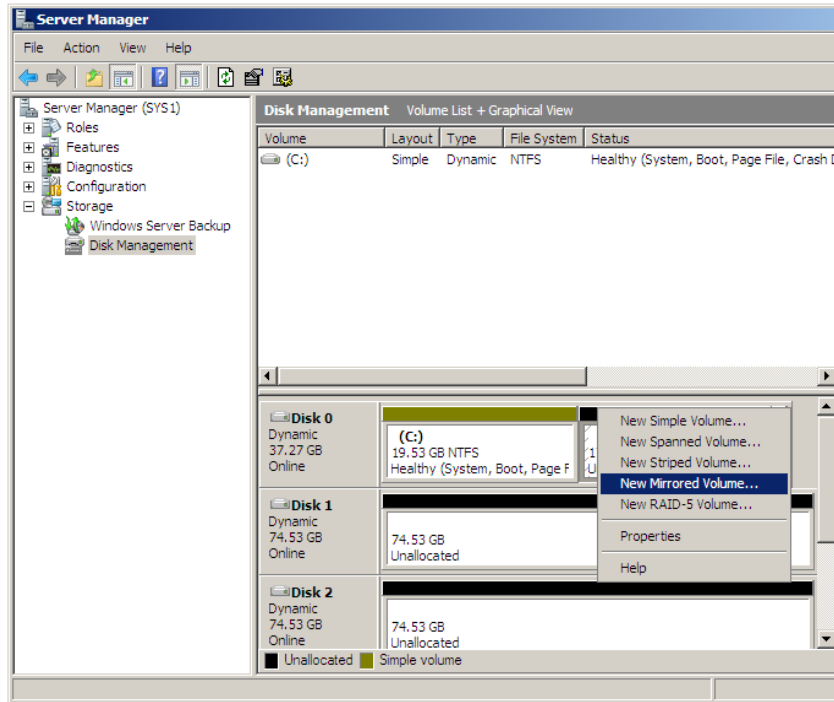
6. Click **Finish**.



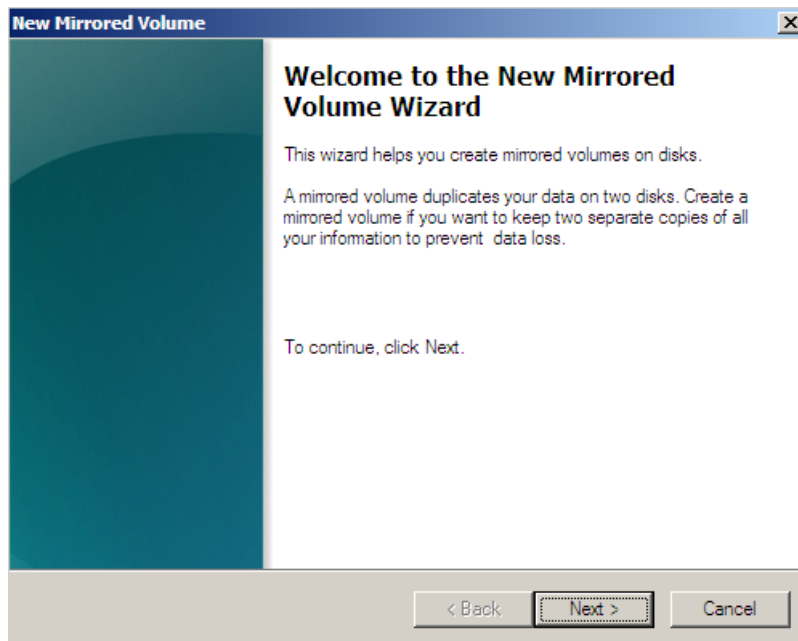
7. A Stripped Volume is created.

Lab – 6: Creating Mirrored Volume

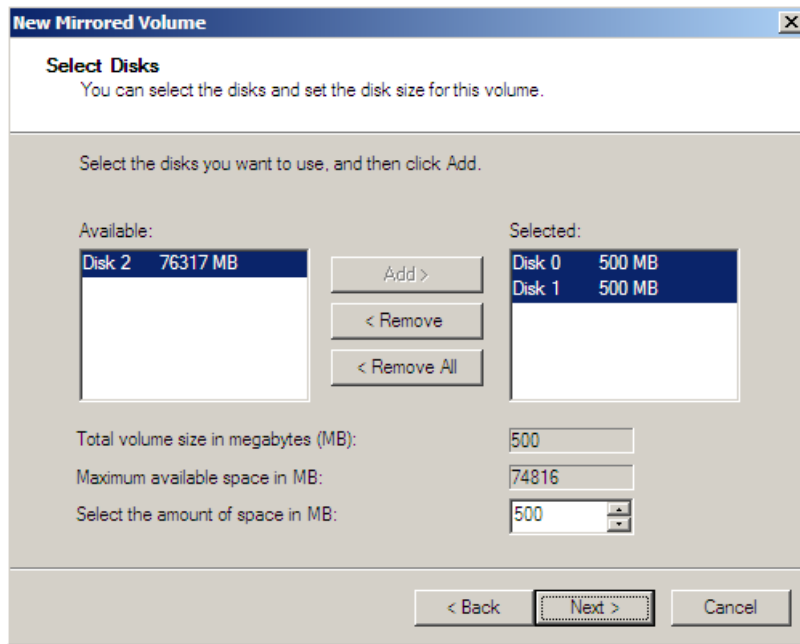
1. Right click on Computer → **Manage** → Expand Storage → **Disk Management**
→ Right click on **unallocated space on dynamic disk** → click **New Mirrored Volume**.



2. Click **Next**



3. Select the **dynamic disk** You want to use, and then **click add** → Assign the **Disk Space** for the Mirrored Volume for **both disks** (Ex: **500**) → click **Next**



The 'New Mirrored Volume' dialog box, 'Select Disks' tab, shows the process of selecting disks for a mirrored volume. It includes an 'Available' list with 'Disk 2' (76317 MB) and a 'Selected' list with 'Disk 0' (500 MB) and 'Disk 1' (500 MB). Navigation buttons include '< Back', 'Next >', and 'Cancel'. Summary fields at the bottom show a total volume size of 500 MB, maximum available space of 74816 MB, and a selected space of 500 MB.

Available:		Selected:	
Disk 2	76317 MB	Disk 0	500 MB
		Disk 1	500 MB

Total volume size in megabytes (MB): 500
Maximum available space in MB: 74816
Select the amount of space in MB: 500

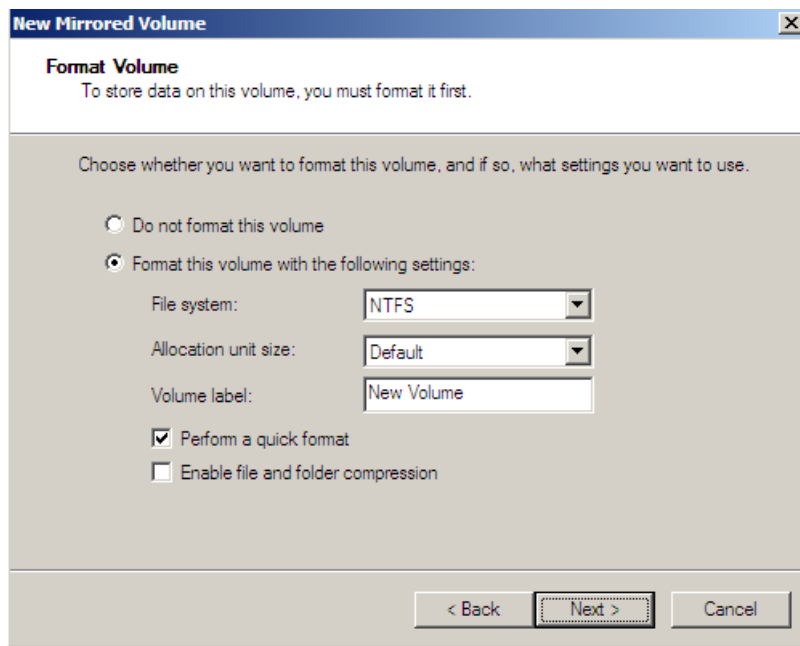
4. Assign Drive Letter → click **Next**



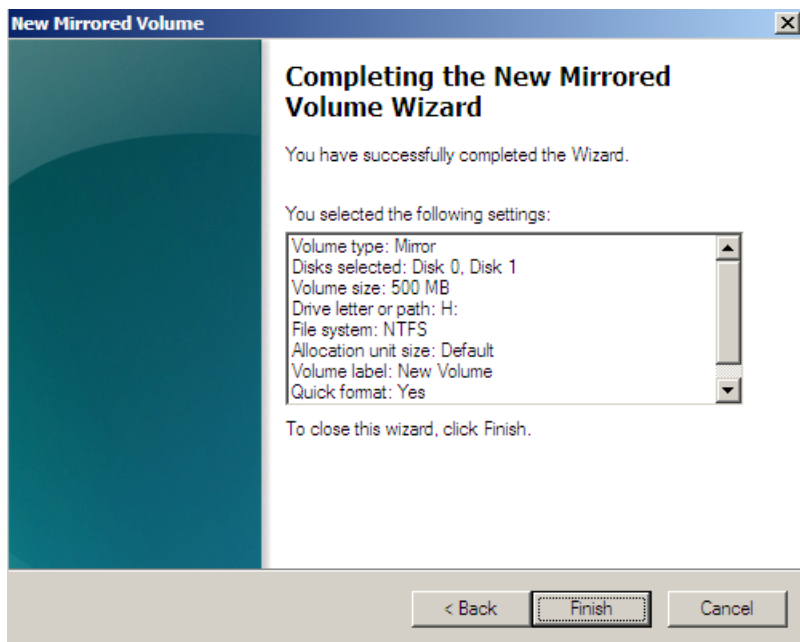
The 'New Mirrored Volume' dialog box, 'Assign Drive Letter or Path' tab, allows assigning a drive letter or path. The 'Assign the following drive letter' option is selected with 'H' in the dropdown. Other options include 'Mount in the following empty NTFS folder' (with a 'Browse...' button) and 'Do not assign a drive letter or drive path'. Navigation buttons at the bottom include '< Back', 'Next >', and 'Cancel'.

☒ Assign the following drive letter: H
☐ Mount in the following empty NTFS folder: Browse...
☐ Do not assign a drive letter or drive path

5. Select the file system as **NTFS** → Select **Perform a Quick Format** → click **Next**.



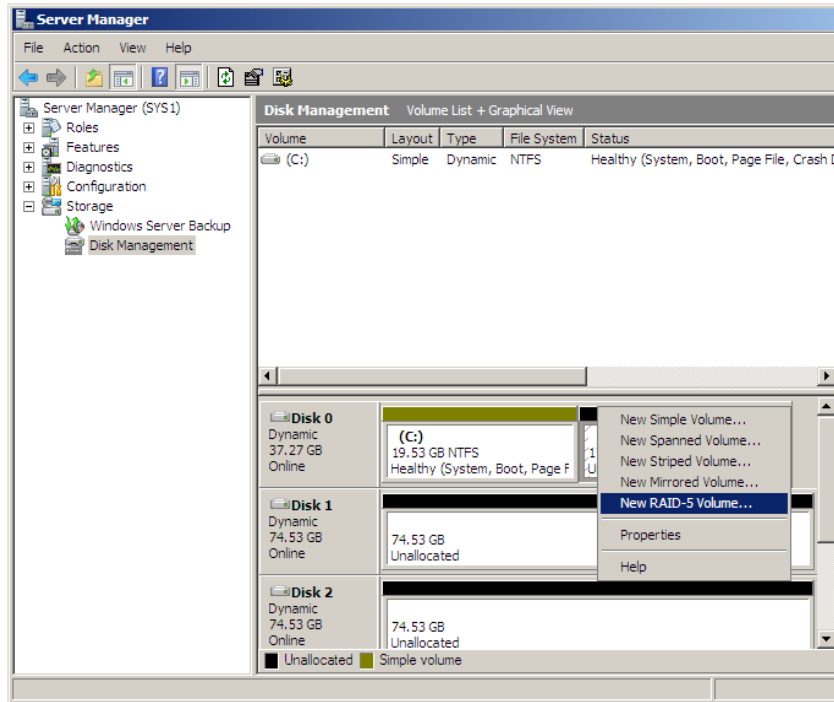
6. Click **Finish**.



7. The mirrored Volume is created.

Lab – 7: Creating RAID-5 Volume

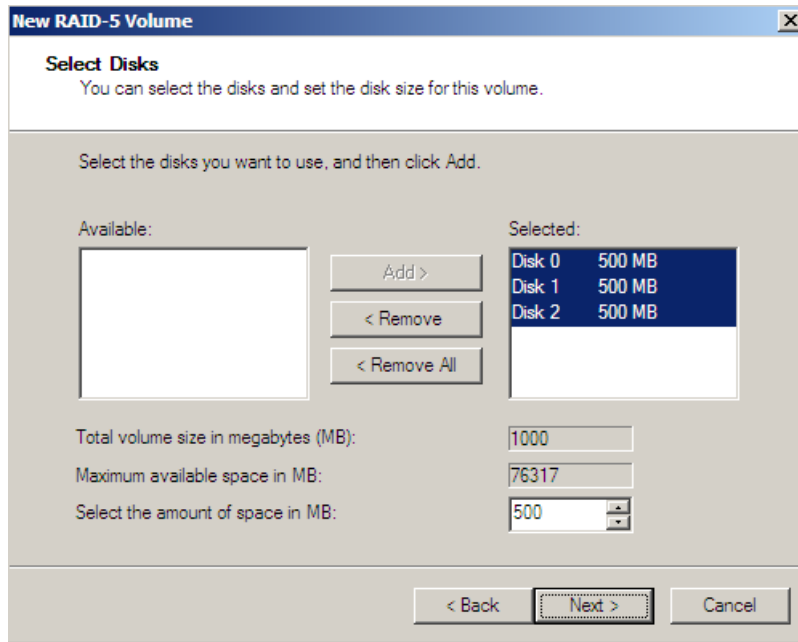
1. Right click on Computer → **Manage** → Expand Storage → **Disk Management**
→ Right click on **unallocated space** on the **dynamic disk** → click **New Raid5 Volume**.



2. Click **Next**.



3. Select the dynamic disks you want to use, and then click **Add** → Assign the **Disk Space** for the **RAID 5** Volume for all disks (Ex: 500) → click **Next**.



New RAID-5 Volume

Select Disks
You can select the disks and set the disk size for this volume.

Select the disks you want to use, and then click Add.

Available:

Selected:

Disk 0	500 MB
Disk 1	500 MB
Disk 2	500 MB

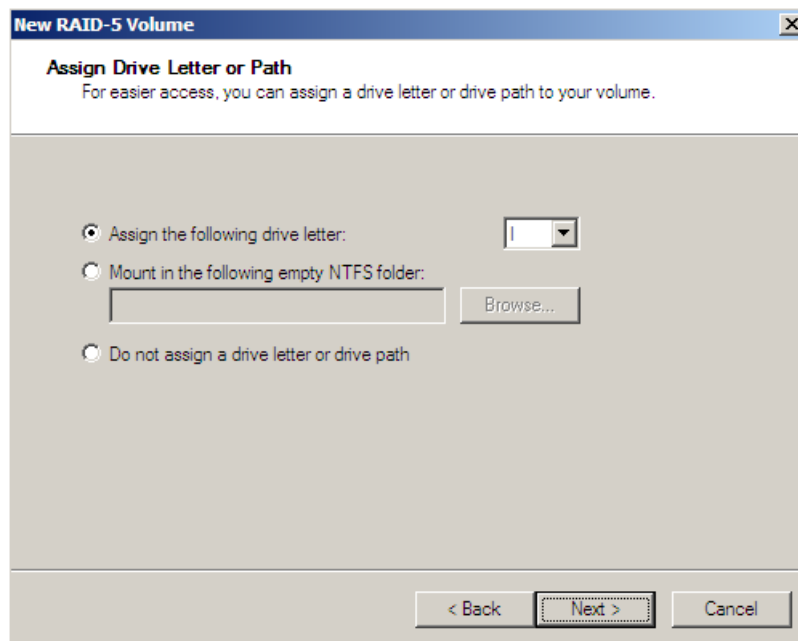
Total volume size in megabytes (MB): 1000

Maximum available space in MB: 76317

Select the amount of space in MB: 500

< Back Next > Cancel

4. Assign Drive Letter → click **Next**.



New RAID-5 Volume

Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your volume.

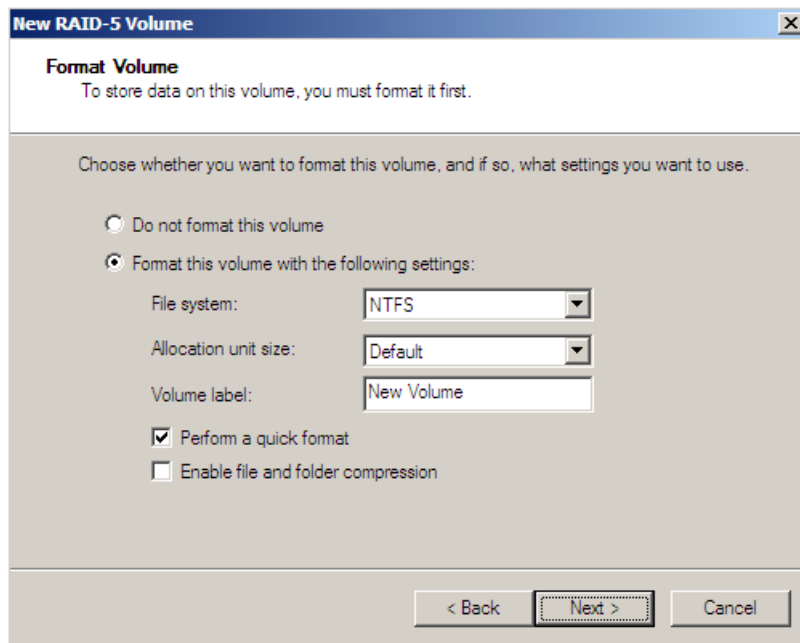
☒ Assign the following drive letter: I

☐ Mount in the following empty NTFS folder: Browse...

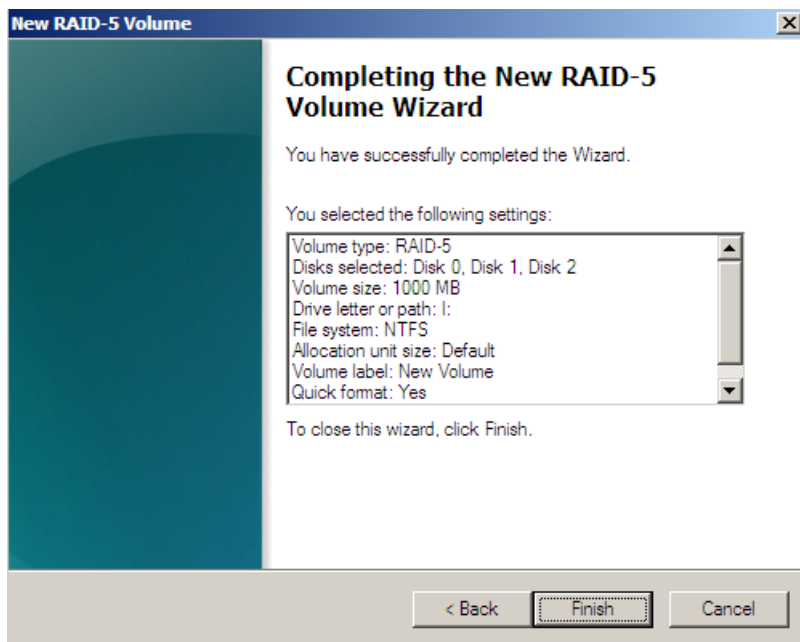
☐ Do not assign a drive letter or drive path

< Back Next > Cancel

5. Select the file system as **NTFS** → Select **Perform a Quick Format** → click **Next**.



6. Click **Finish**.



7. The RAID-5 Volume is created.

SERVER CORE AND DATA BACKUP

INSTALLING WINDOWS 2008 SERVER CORE OPERATING SYSTEM

Prerequisites:

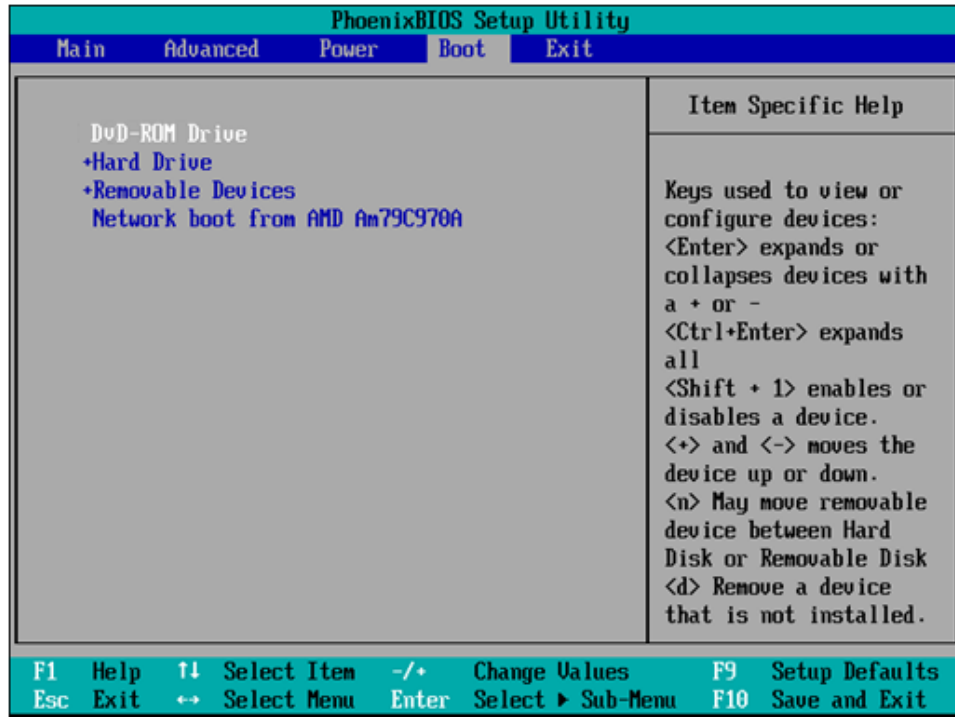
Before working on this lab, you must have

1. A Computer and Windows Server 2008 Operating System DVD.



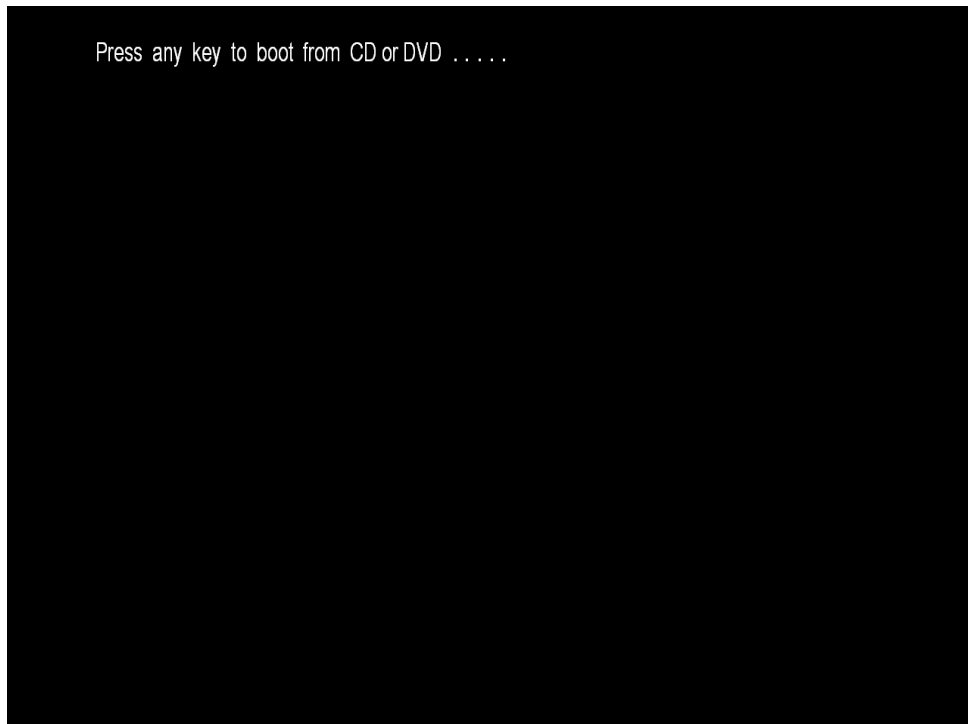
Lab – 1: Installing Windows 2008 Server Core Operating System

1. Restart the System and go to **BIOS**.
2. Set the First Boot Device as **DVD ROM**.

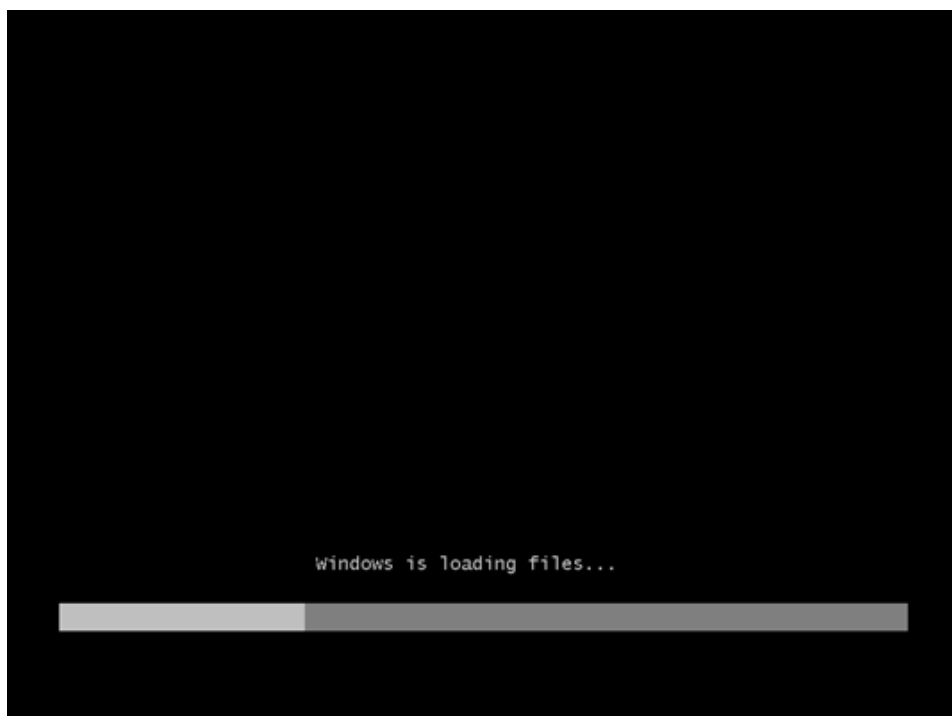


3. Save the settings by Pressing **F10** and click **YES**.
4. Insert **Windows Server 2008DVD** and Restart the system.

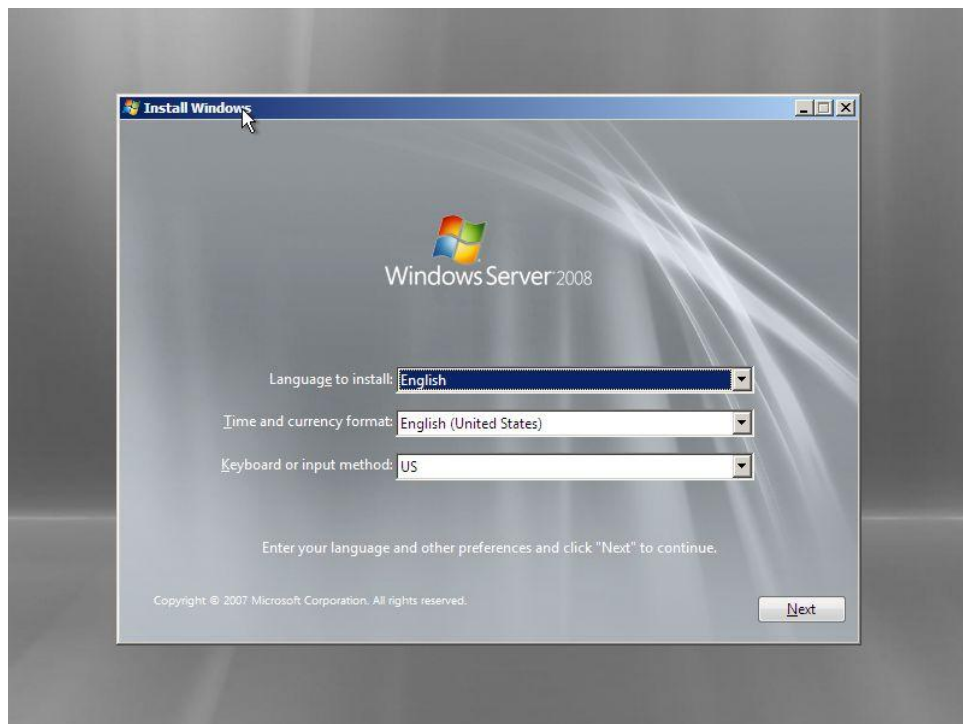
5. Press any key to boot from the CD or DVD.



6. System copies the files from DVD.



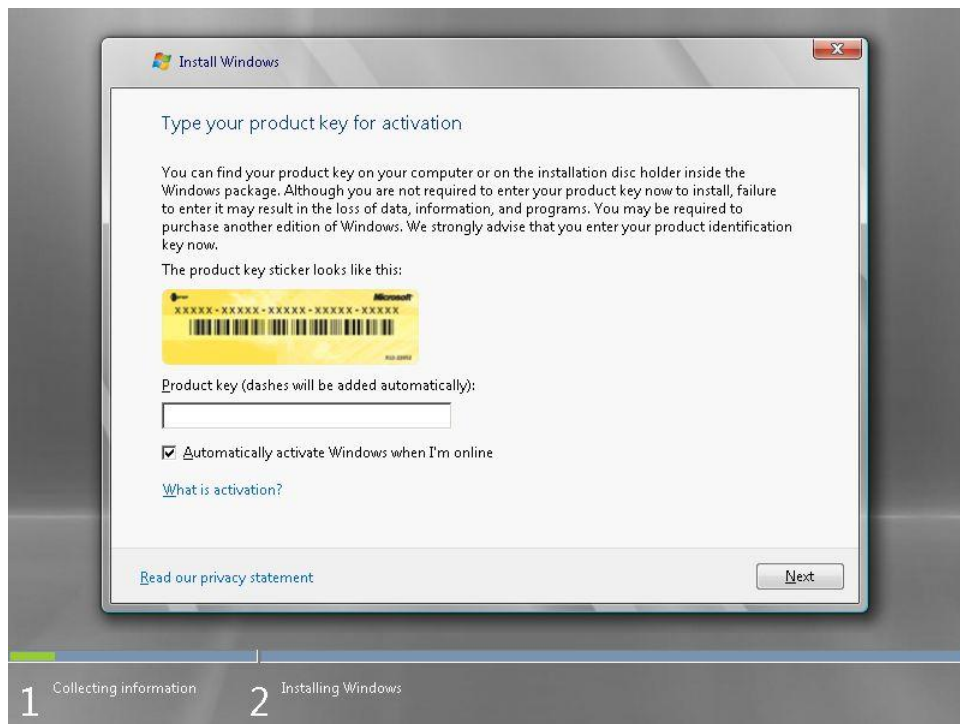
7. Select the language to install **English**.



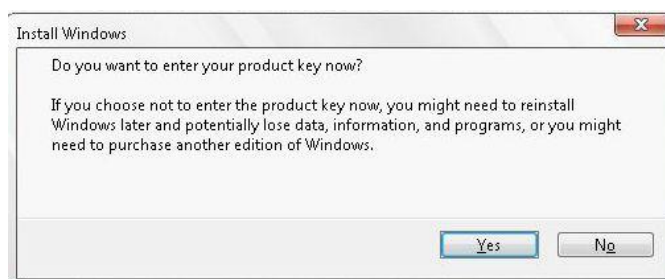
8. Click **Install now**.



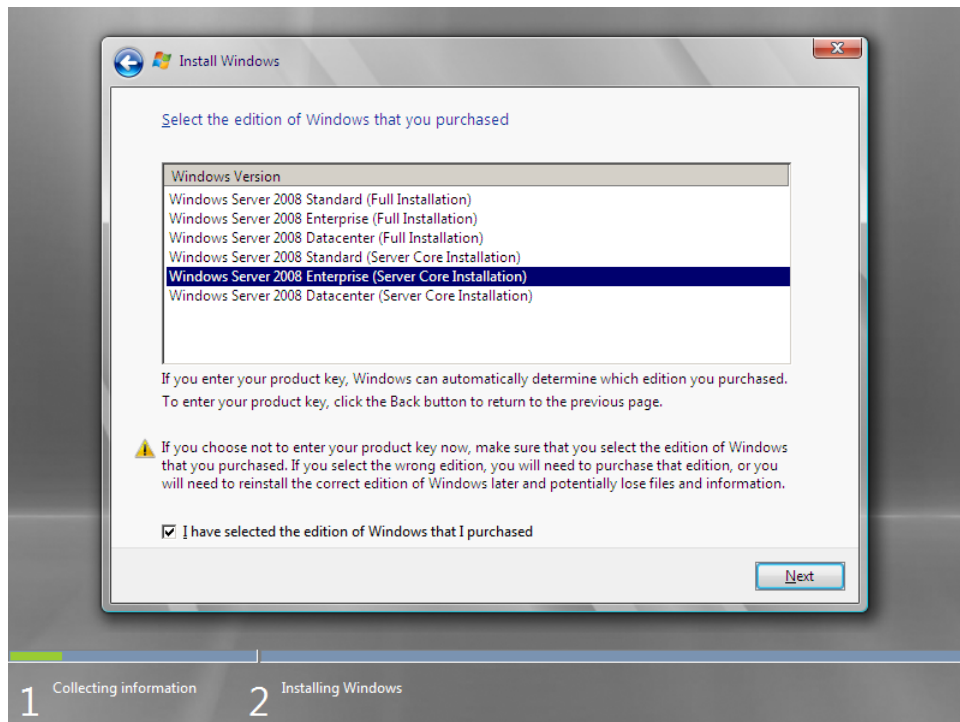
9. Leave the Product Key blank, and click **Next**. (Product key can be entered later.)



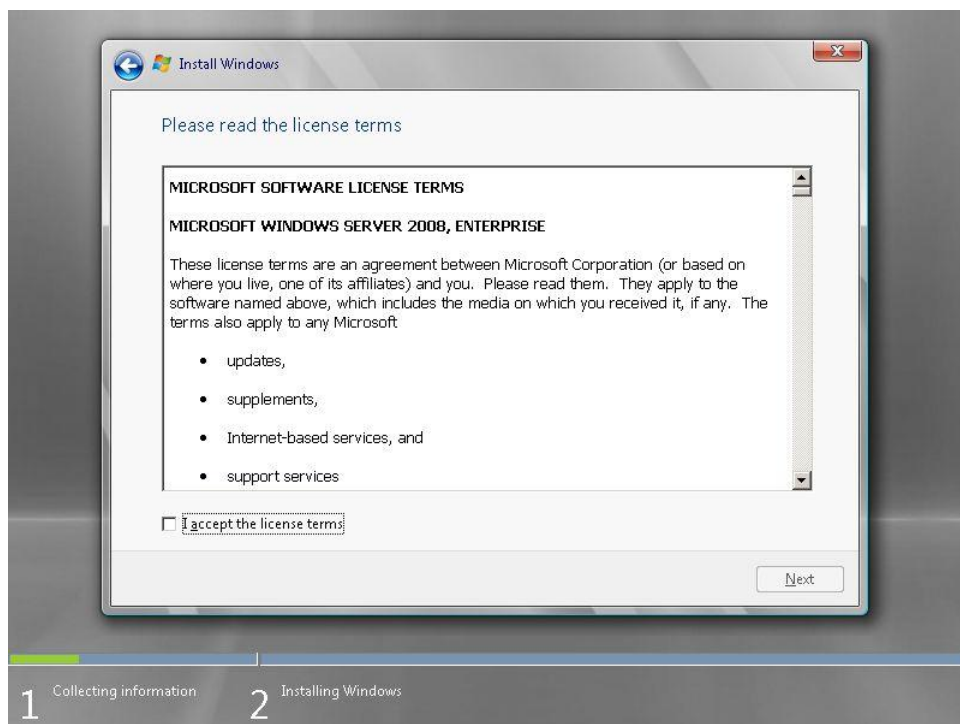
10. Click **NO**.



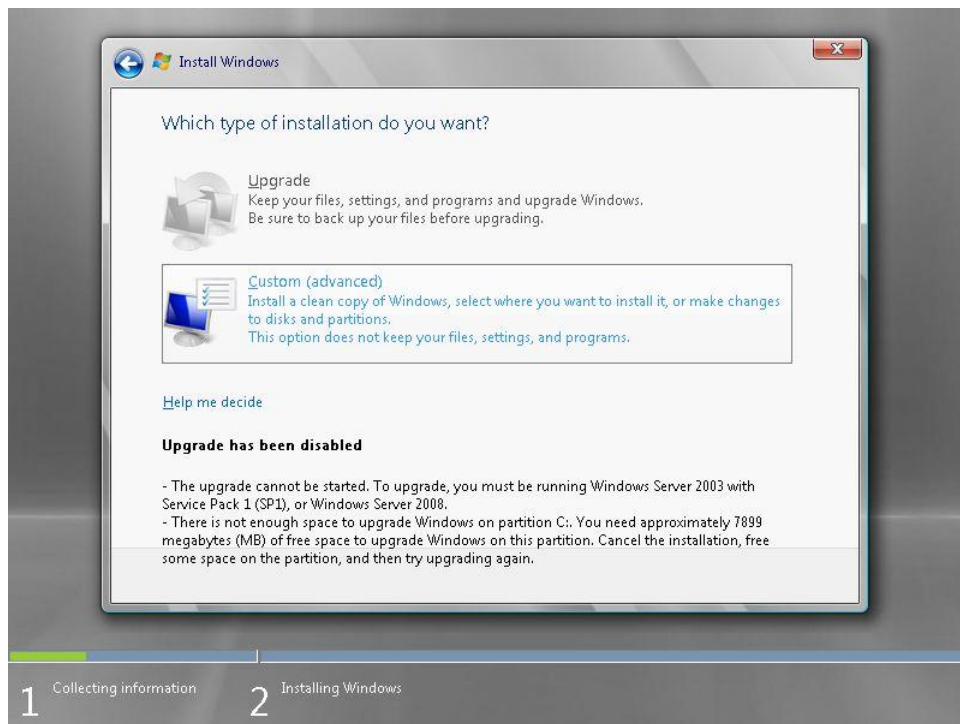
11. Select the edition of Windows-**Windows Server 2008 Enterprise (Server Core Installation)** and check the box **I have selected the edition of windows that I purchased**.



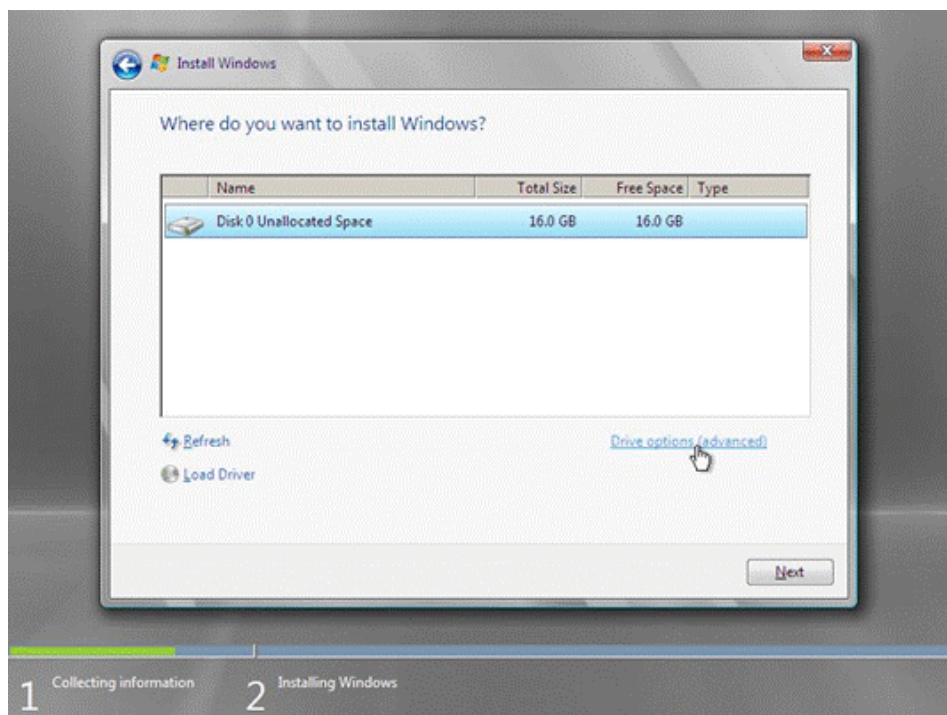
12. Check the box **I accept the license terms**



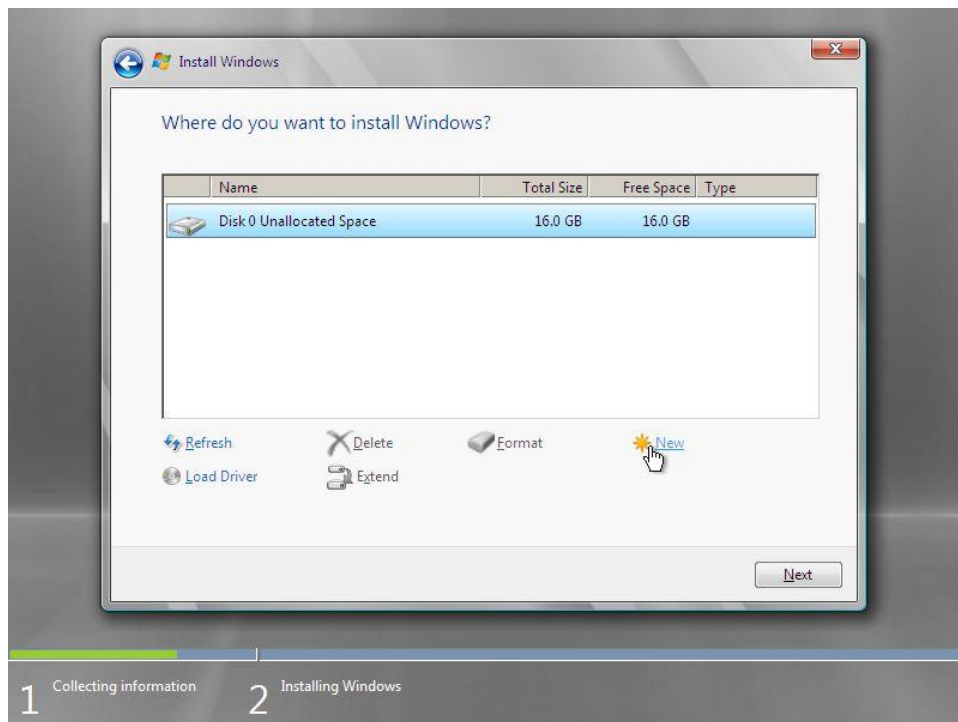
13. Select Custom Installation.



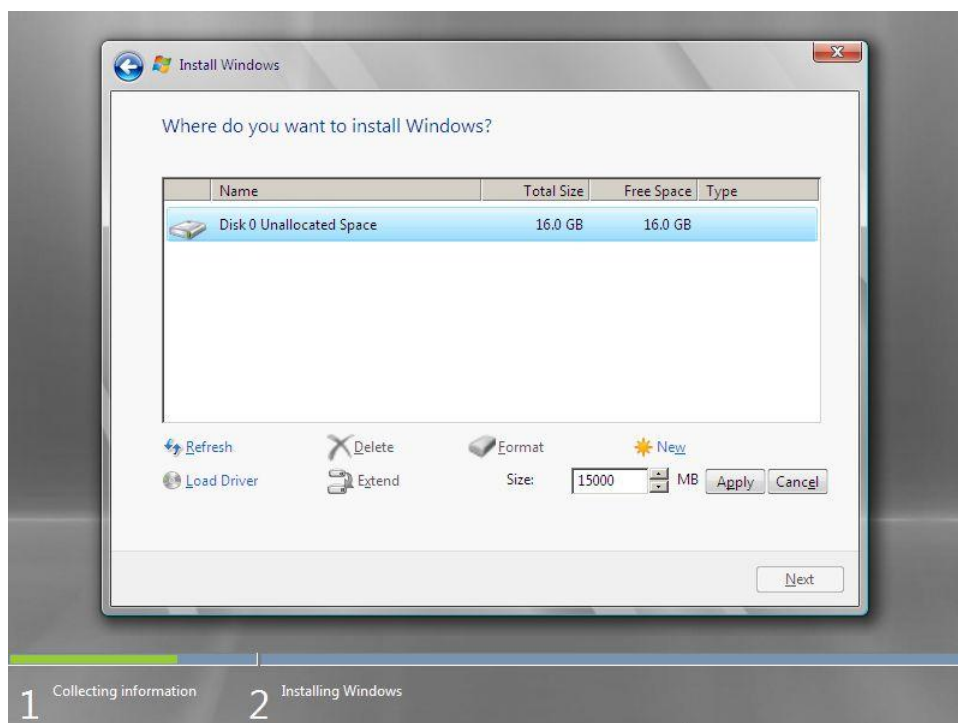
14. Click Drive options.



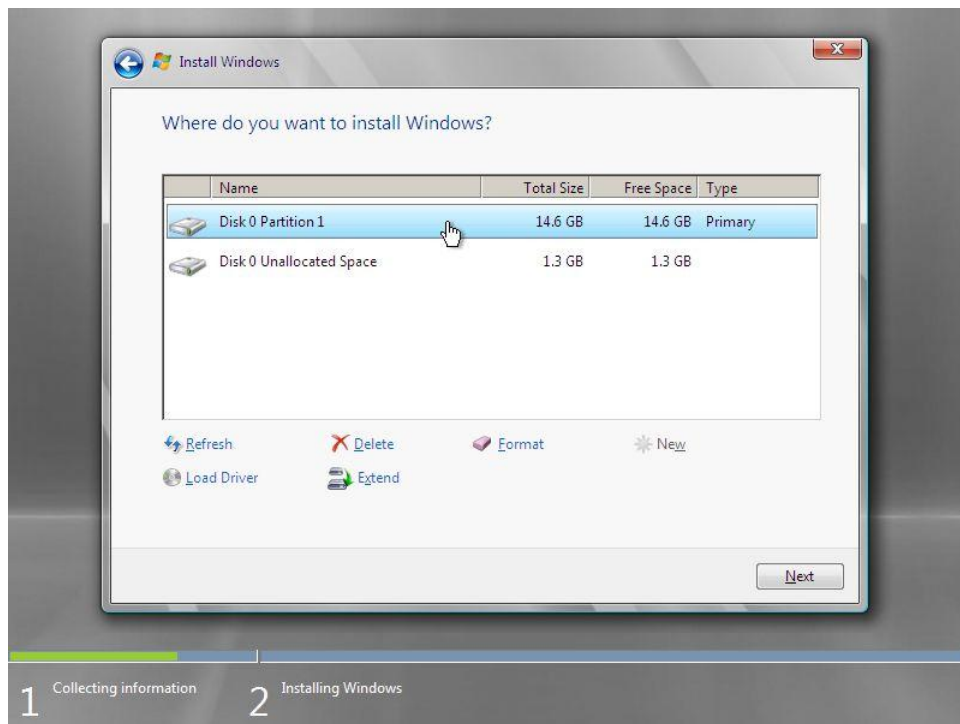
15. Select Unallocated Space and click **New**.



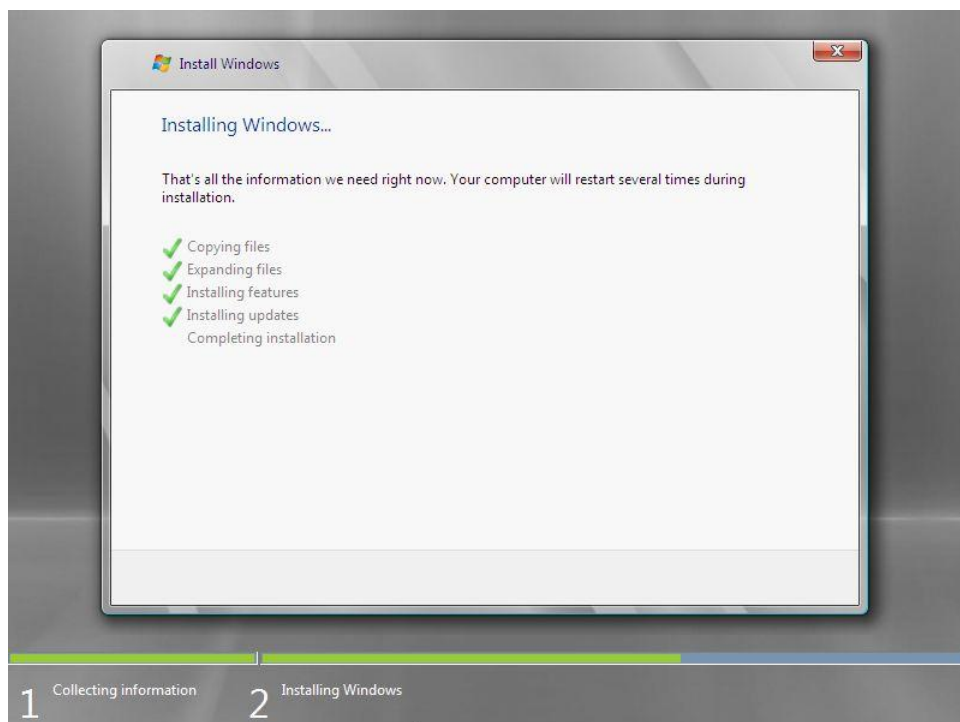
16. Enter the size for the partition, and click **Apply**.



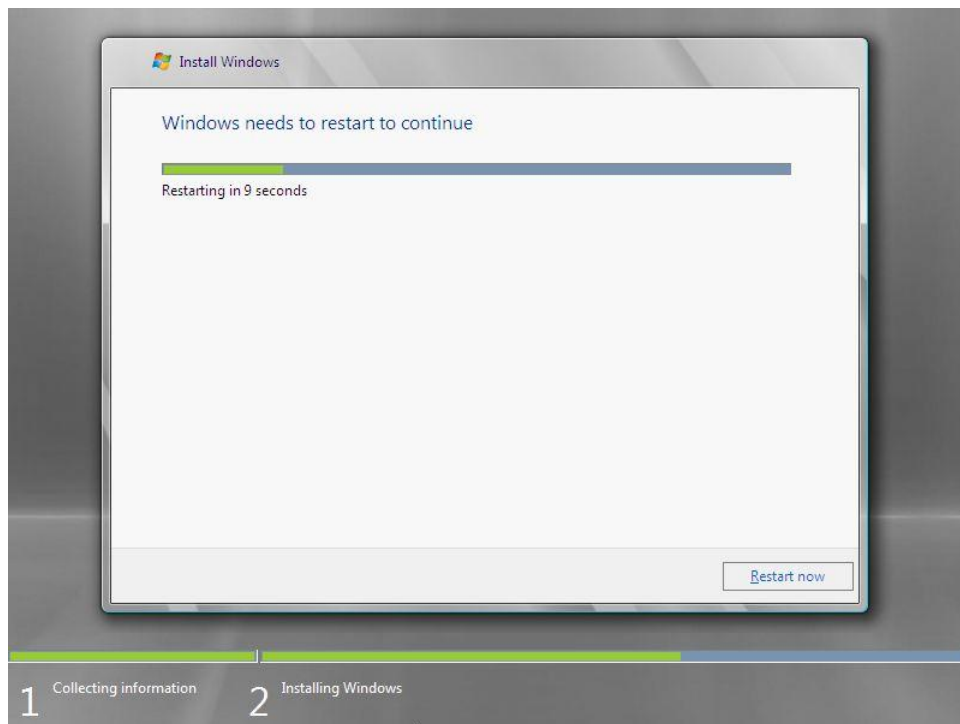
17. Select the **Partition** and click **Next**.



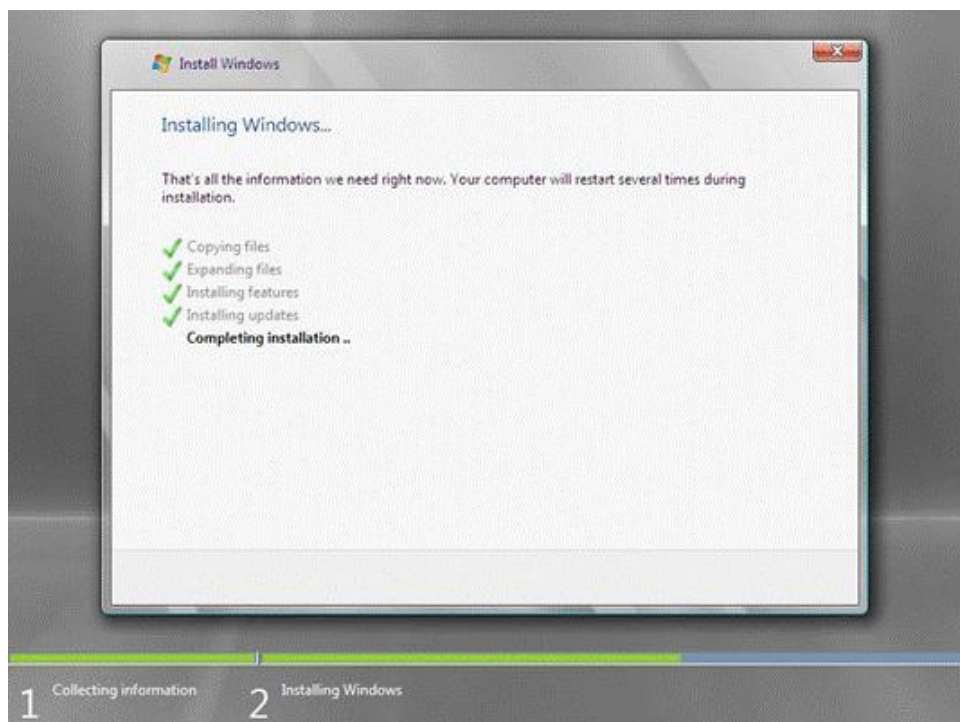
18. Windows Installation will Start.



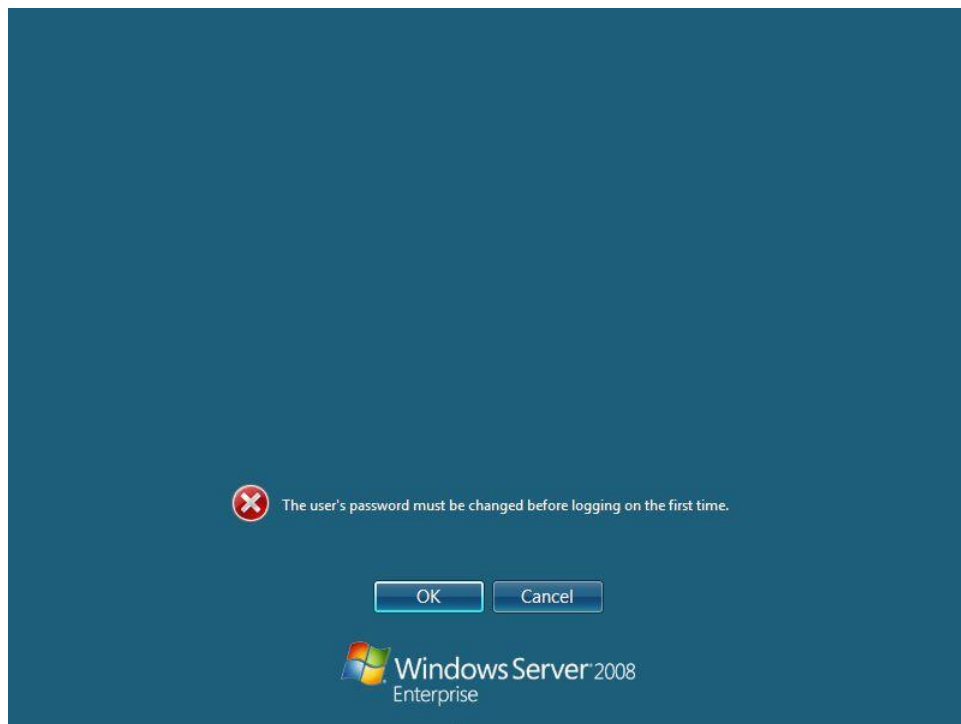
19. System Restarts.



20. Completes the Installation, and system will be restarted.



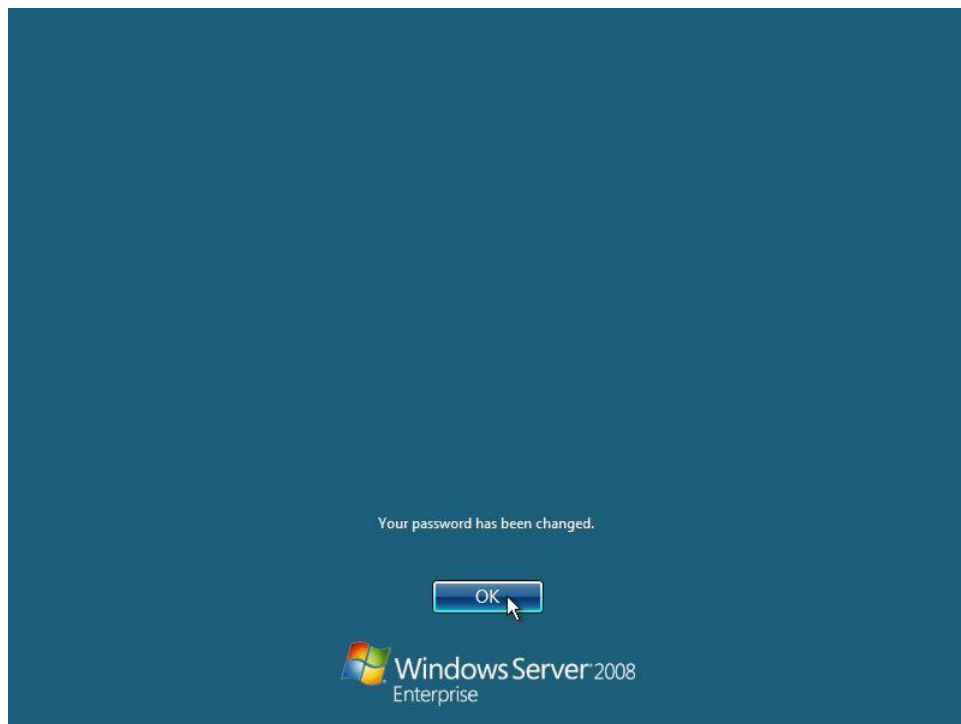
21. Click **OK**, (User's password must be changed before logging on the first time.)



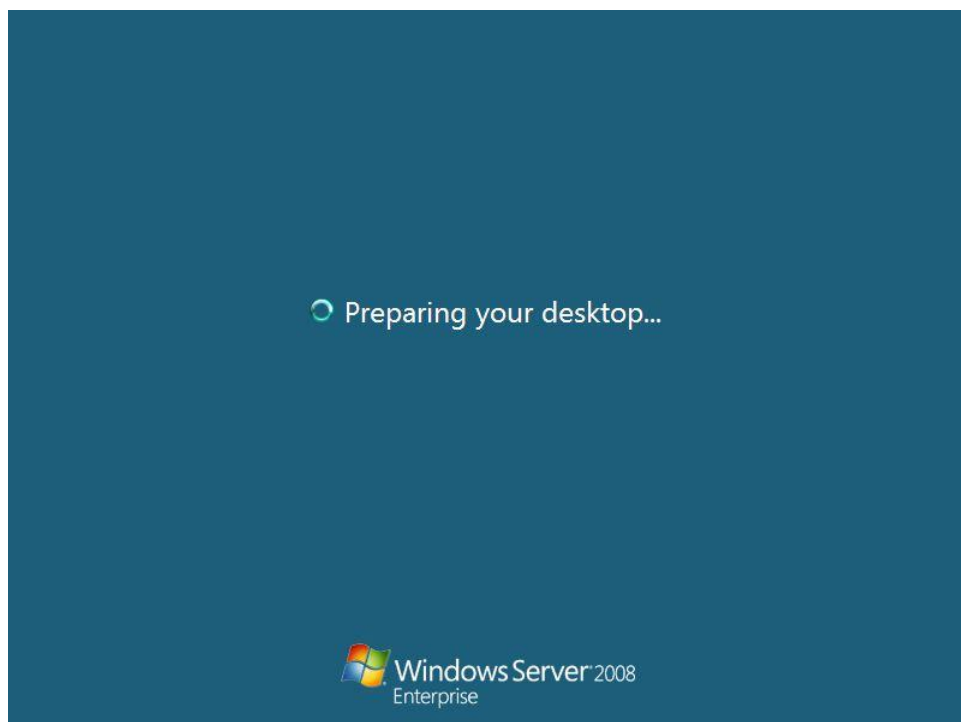
22. Enter the **New Password** and **Confirm the password** and Press **Enter**.



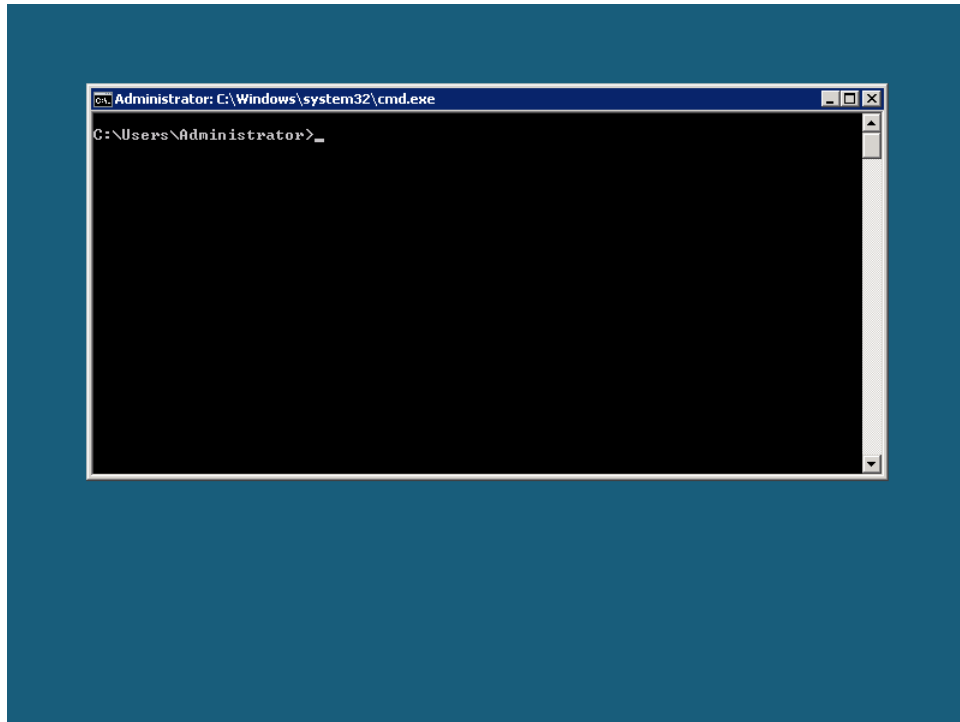
23. Click **OK**. (Your password has been changed.)



24. It Prepares the Desktop.



25. Finally **Administrator** has logged in and the command prompt is opened for management of Server Core.

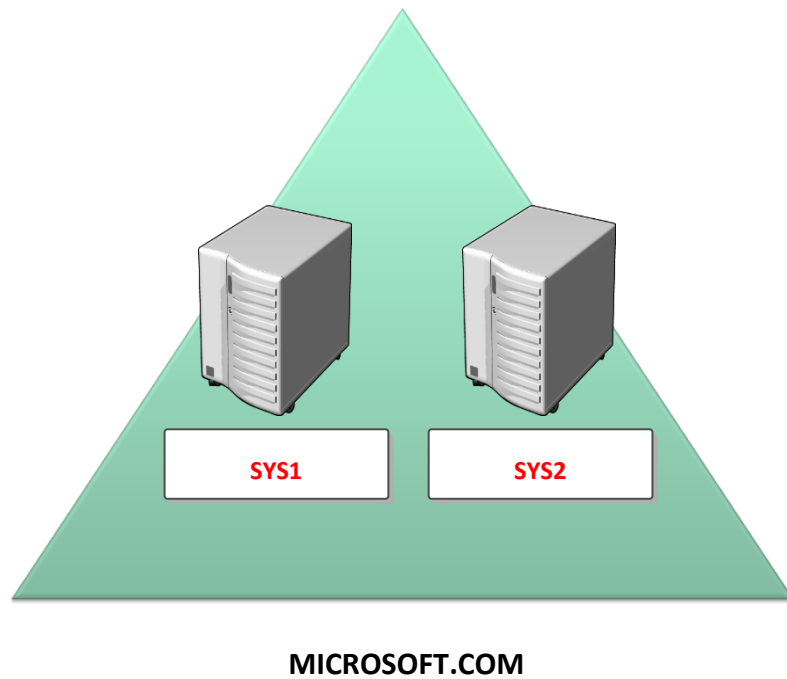


Configuring Windows 2008 Server Core

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server Domain Controller.
2. A computer running windows 2008 server core.



SYS1

Domain Controller / DNS Server

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

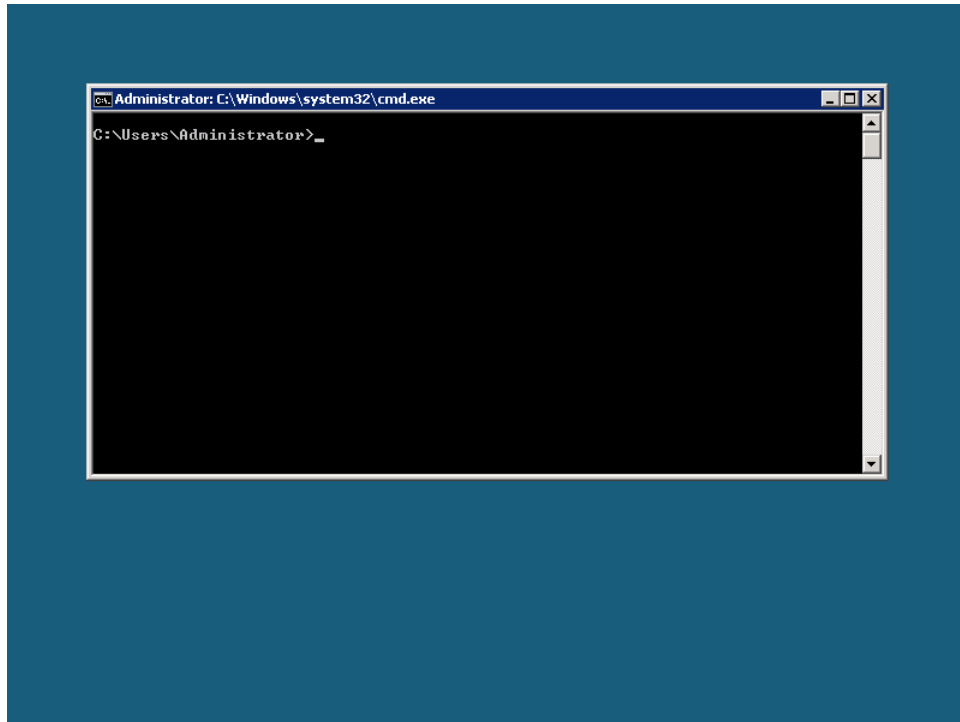
SYS2

Member Server with Server Core O.S

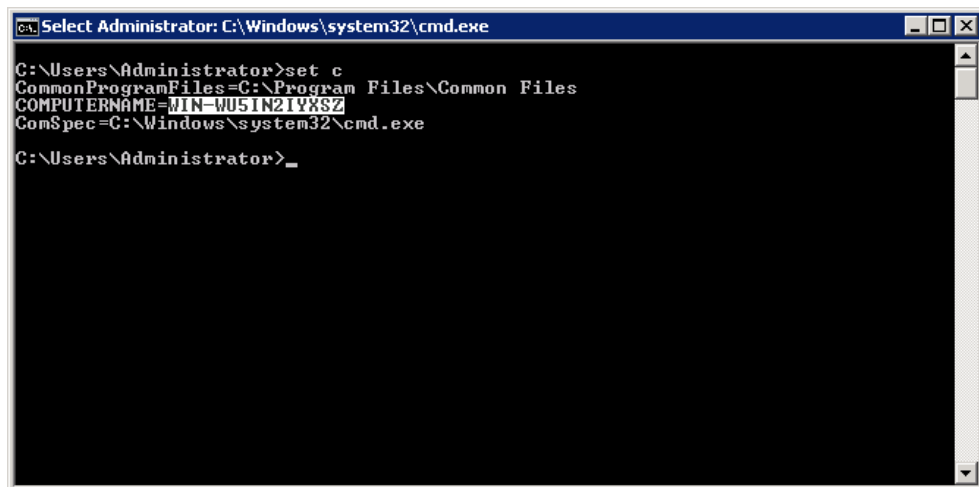
IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

Lab – 2: Configuring Windows 2008 Server Core

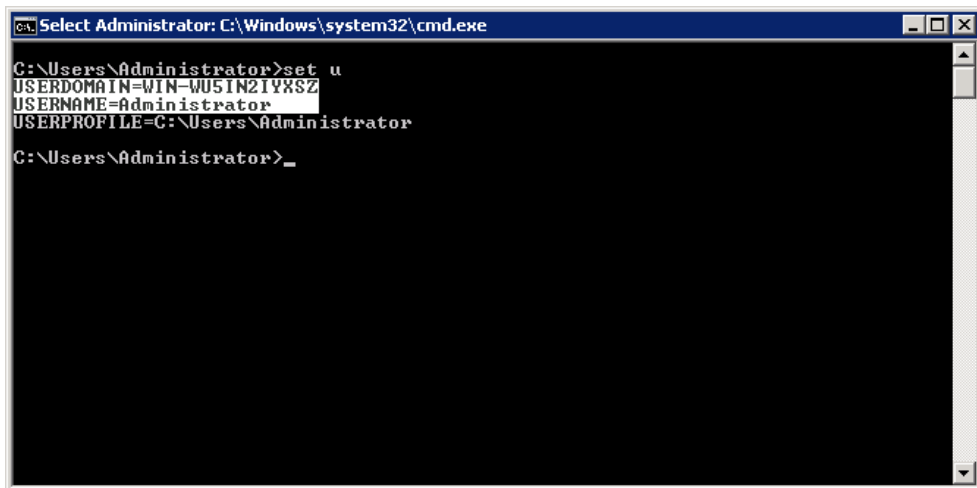
1. Login as **Administrator** on a server running **Server Core**.



2. To view the computer name, type **set c**.

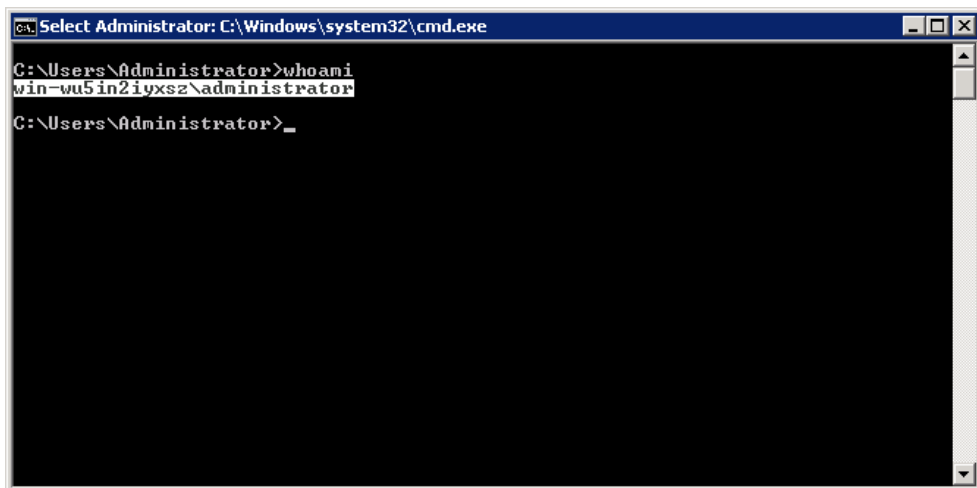


3. To view the user name & user domain, type `set u`.



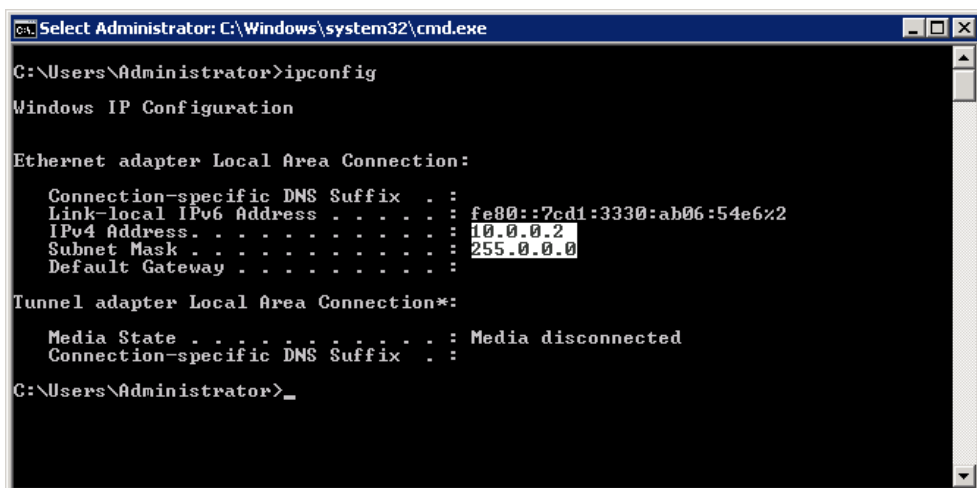
```
CA, Select Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>set u
USERDOMAIN=WIN-WU5IN2IYXSZ
USERNAME=Administrator
USERPROFILE=C:\Users\Administrator
C:\Users\Administrator>_
```

4. To view the currently logged on account, type `whoami`.



```
CA, Select Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>whoami
win-wu5in2iyxsz\administrator
C:\Users\Administrator>_
```

5. To View the IP Address, type `ipconfig`



```
CA, Select Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>ipconfig
Windows IP Configuration

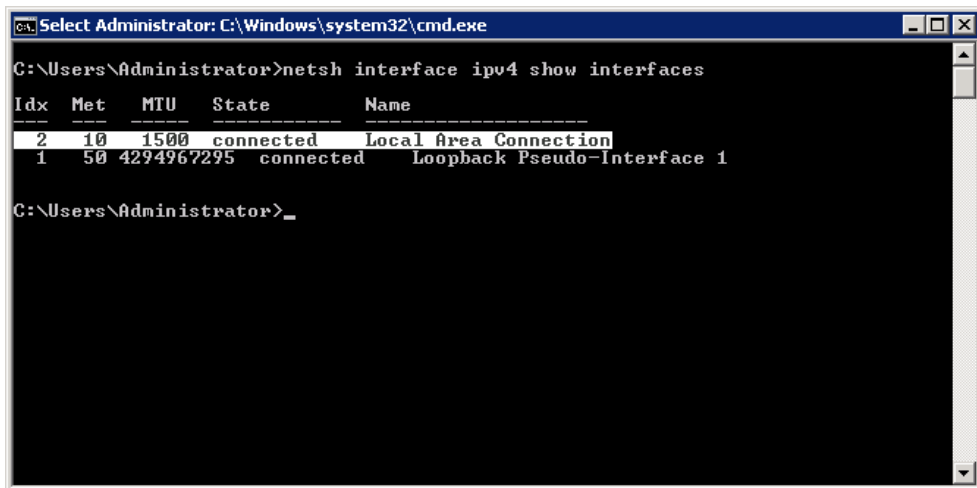
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::2cd1:3330:ab06:54e6%2
    IPv4 Address. . . . . : 10.0.0.2
    Subnet Mask . . . . . : 255.0.0.0
    Default Gateway . . . . . : 

Tunnel adapter Local Area Connection*:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 
C:\Users\Administrator>_
```

6. To view the **network interfaces**, type **netsh interface ipv4 show interfaces**.

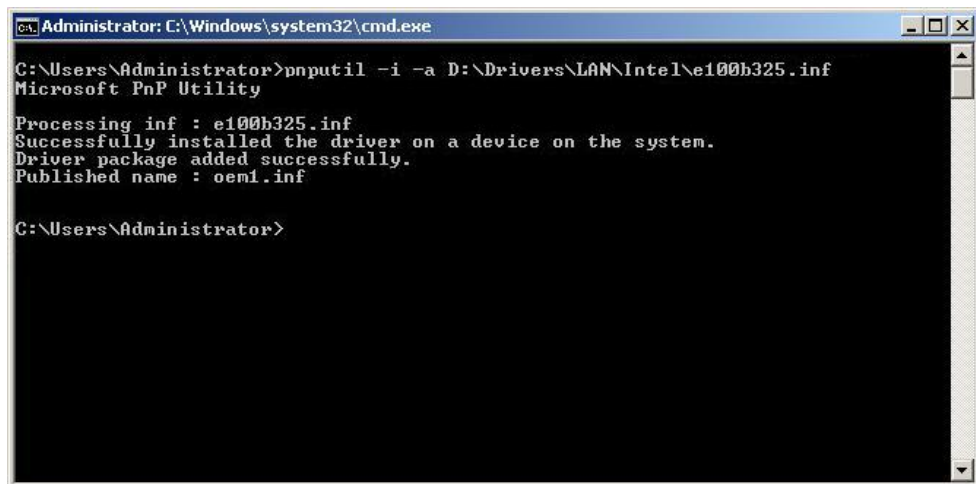


```
C:\Users\Administrator>netsh interface ipv4 show interfaces
```

Idx	Met	MTU	State	Name
2	10	1500	connected	Local Area Connection
1	50	4294967295	connected	Loopback Pseudo-Interface 1

```
C:\Users\Administrator>_
```

- a. If above command does not show any interfaces then, To **Install NIC Drivers**, Type
“**pnputil -i -a D:\LAN Drivers\Driver.inf**”



```
C:\Users\Administrator>pnputil -i -a D:\Drivers\LAN\Intel\e100b325.inf
```

```
Microsoft PnP Utility
```

```
Processing inf : e100b325.inf
```

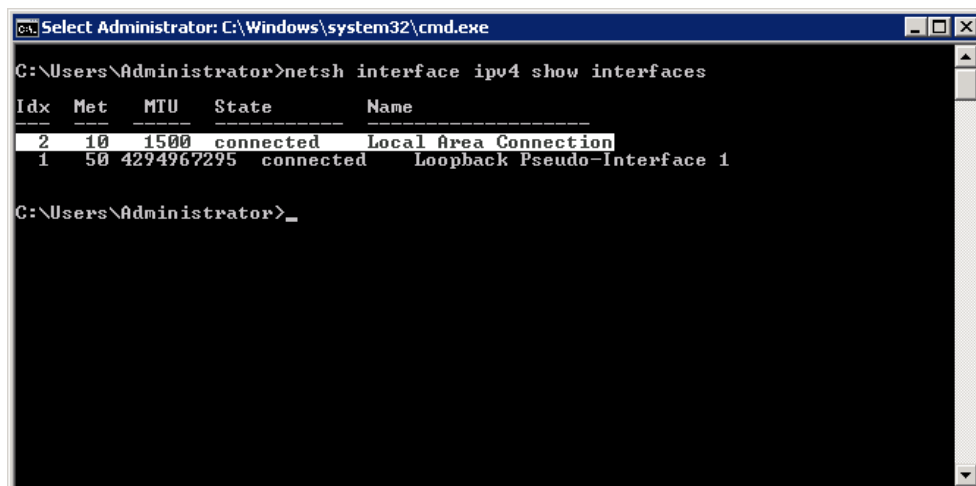
```
Successfully installed the driver on a device on the system.
```

```
Driver package added successfully.
```

```
Published name : oem1.inf
```

```
C:\Users\Administrator>
```

- b. To verify the **network interfaces**, type **netsh interface ipv4 show interfaces**.

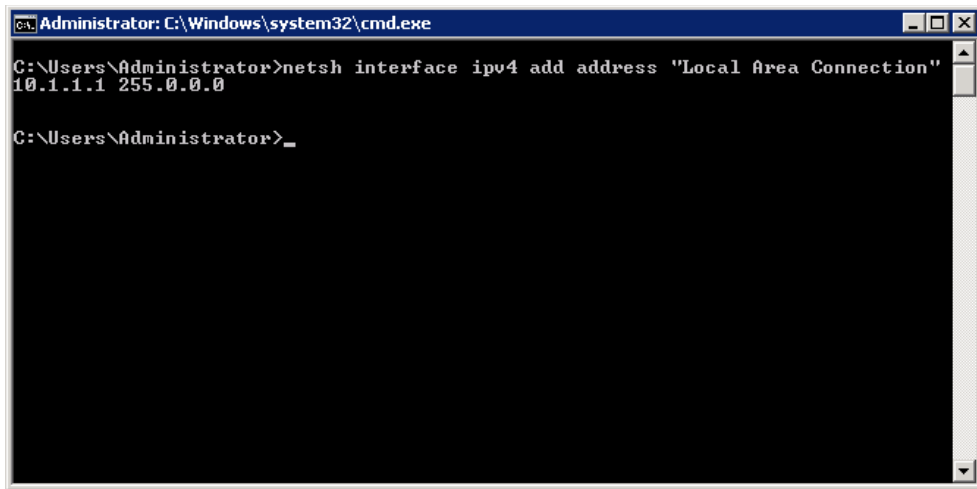


```
C:\Users\Administrator>netsh interface ipv4 show interfaces
```

Idx	Met	MTU	State	Name
2	10	1500	connected	Local Area Connection
1	50	4294967295	connected	Loopback Pseudo-Interface 1

```
C:\Users\Administrator>_
```

7. To assign the IP Address, type `netsh interface ipv4 add address "Local Area Connection" 10.1.1.1 255.0.0.0`



```

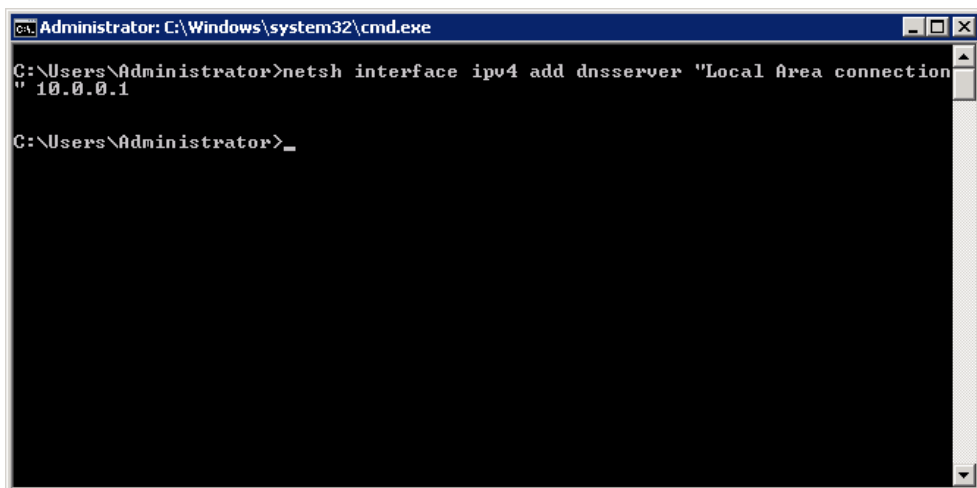
Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>netsh interface ipv4 add address "Local Area Connection"
10.1.1.1 255.0.0.0

C:\Users\Administrator>_

```

8. To add Dns server address, type `netsh interface ipv4 add dnsserver "Local Area Connection" 10.0.0.1`



```

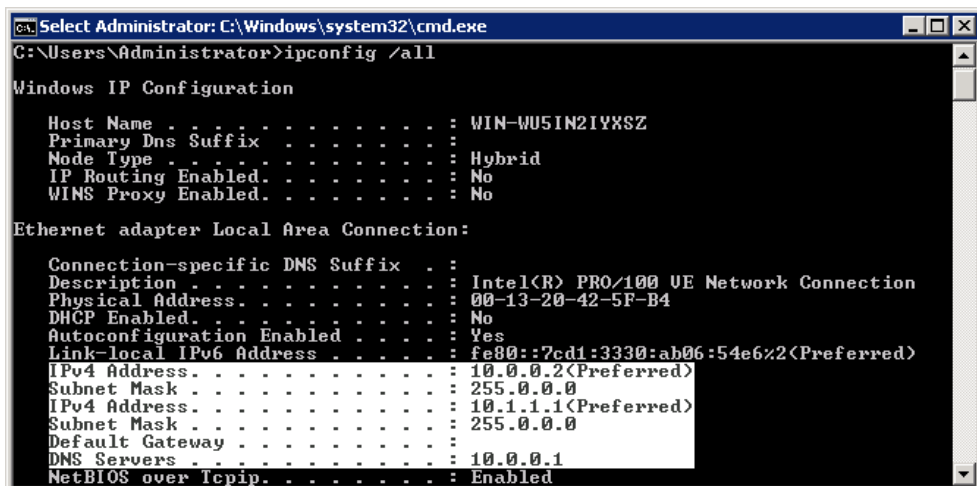
Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>netsh interface ipv4 add dnsserver "Local Area connection
" 10.0.0.1

C:\Users\Administrator>_

```

9. To Verify the IP Address & preferred dns address, type `ipconfig /all`



```

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

C:\Users\Administrator>ipconfig /all

Windows IP Configuration

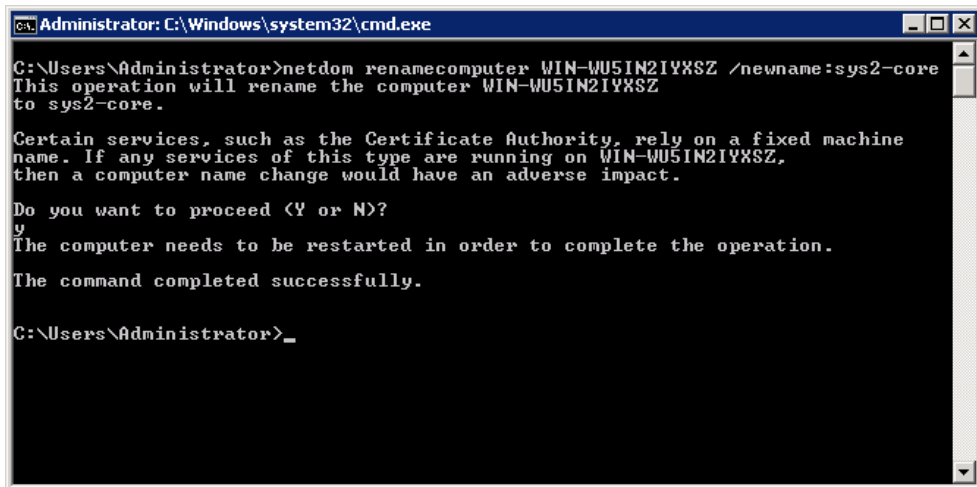
Host Name . . . . . : WIN-WU5IN2IYXSZ
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) PRO/1000 VE Network Connection
Physical Address. . . . . : 00-13-20-42-5F-B4
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::7cd1:3330:ab06:54e6%2<Preferred>
IPv4 Address. . . . . : 10.0.0.2<Preferred>
Subnet Mask . . . . . : 255.0.0.0
IPv4 Address. . . . . : 10.1.1.1<Preferred>
Subnet Mask . . . . . : 255.0.0.0
Default Gateway . . . . . :
DNS Servers . . . . . : 10.0.0.1
NetBIOS over Tcpip. . . . . : Enabled

```

10. To change the computer name, type `netdom renamecomputer computername /newname:New-computer-name`



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

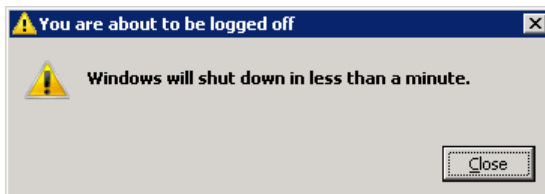
C:\Users\Administrator>netdom renamecomputer WIN-WU5IN2IYXSZ /newname:sys2-core
This operation will rename the computer WIN-WU5IN2IYXSZ
to sys2-core.

Certain services, such as the Certificate Authority, rely on a fixed machine
name. If any services of this type are running on WIN-WU5IN2IYXSZ,
then a computer name change would have an adverse impact.

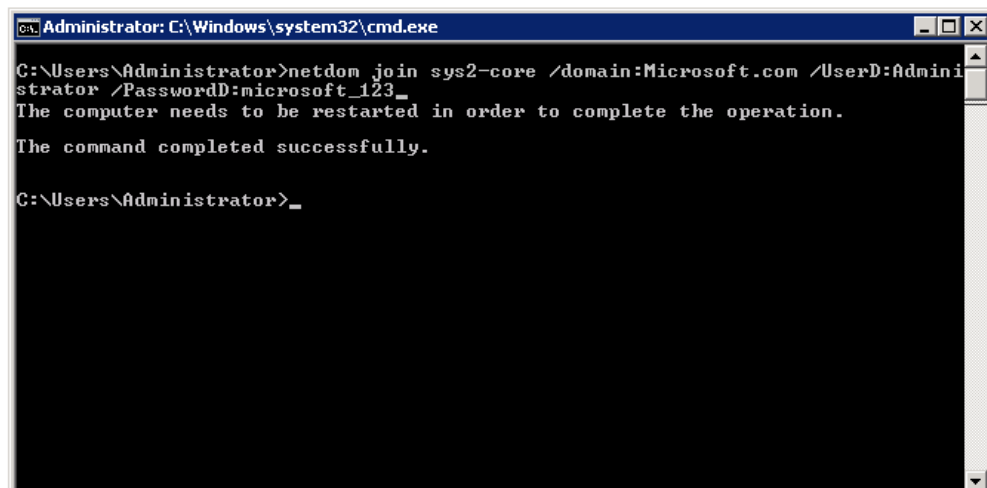
Do you want to proceed <Y or N>?
y
The computer needs to be restarted in order to complete the operation.
The command completed successfully.

C:\Users\Administrator>_
```

11. To restart the computer, type `shutdown /r`, Computer will restart.



12. To join the server to the domain, type `netdom join sys2-core /domain:Microsoft.com /UserD:Administrator /PasswordD:Microsoft_123`

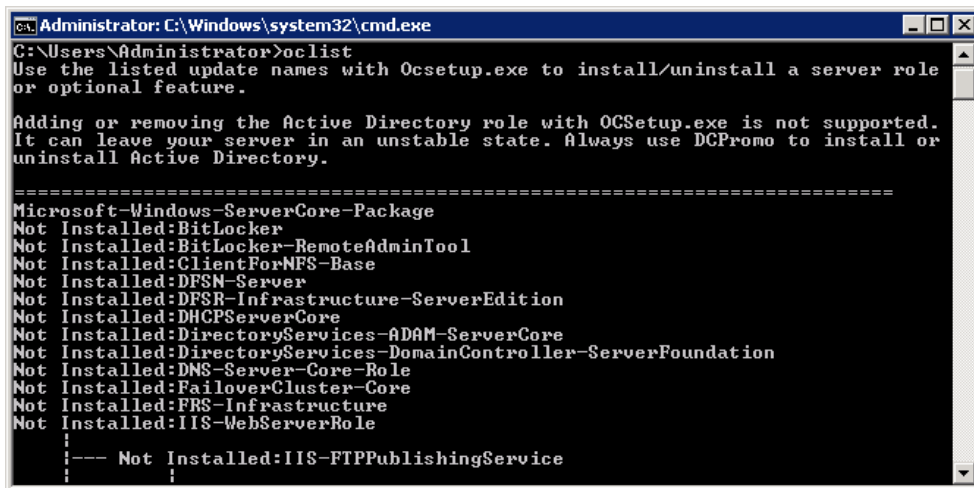


```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>netdom join sys2-core /domain:Microsoft.com /UserD:Admini
strator /PasswordD:microsoft_123_
The computer needs to be restarted in order to complete the operation.
The command completed successfully.

C:\Users\Administrator>_
```


13. To View the installed roles or services, type **oclist**.



```

Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>oclist
Use the listed update names with Ocsetup.exe to install/uninstall a server role
or optional feature.

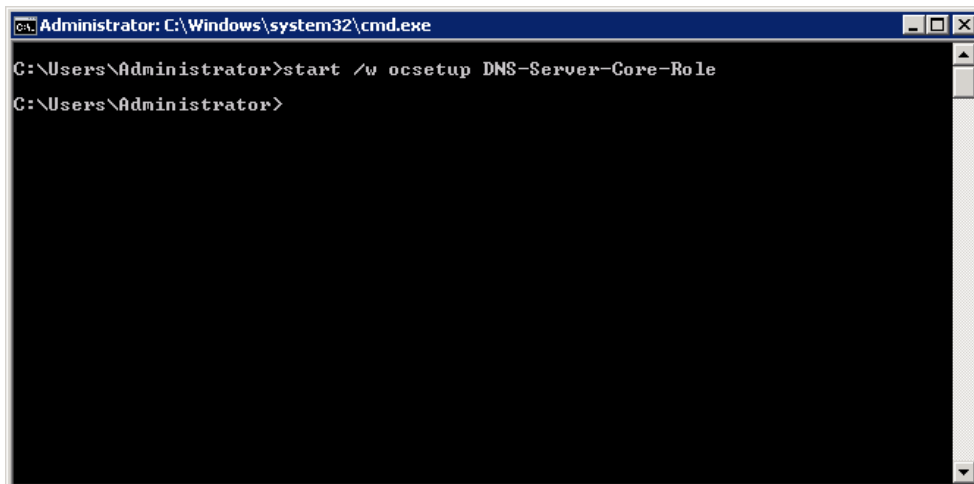
Adding or removing the Active Directory role with OCSetup.exe is not supported.
It can leave your server in an unstable state. Always use DCPromo to install or
uninstall Active Directory.

=====
Microsoft-Windows-ServerCore-Package
Not Installed:BitLocker
Not Installed:BitLocker-RemoteAdminTool
Not Installed:ClientForNFS-Base
Not Installed:DFSN-Server
Not Installed:DFSR-Infrastructure-ServerEdition
Not Installed:DHCP-ServerCore
Not Installed:DirectoryServices-ADAM-ServerCore
Not Installed:DirectoryServices-DomainController-ServerFoundation
Not Installed:DNS-Server-Core-Role
Not Installed:FailoverCluster-Core
Not Installed:FRS-Infrastructure
Not Installed:IIS-WebServerRole
|
|---- Not Installed:IIS-FTTPublishingService
|

```

14. To Install any role or service, type **start /w ocsetup Role or Feature name**

Ex: **start /w ocsetup DNS-Server-Core-Role**

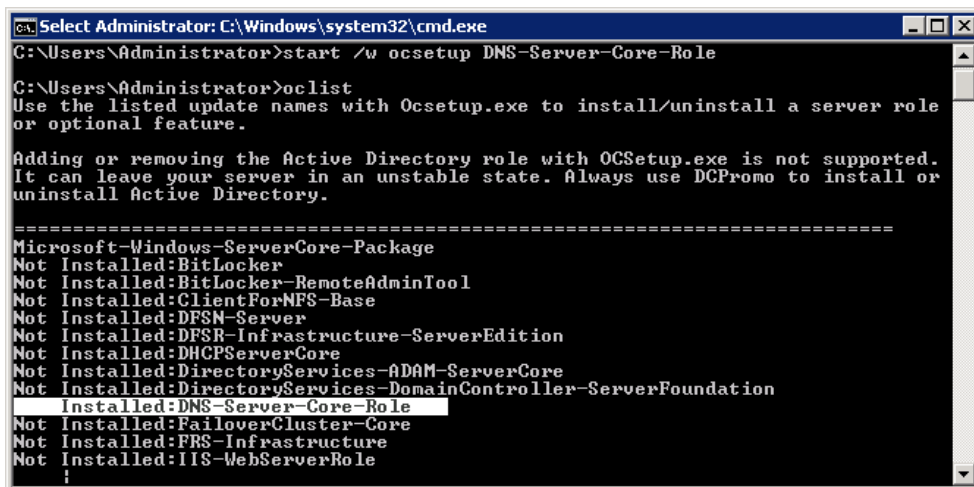


```

Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>start /w ocsetup DNS-Server-Core-Role
C:\Users\Administrator>

```

15. **For Verification:** Type **oclist** → it will display DNS-Server-Core-role as Installed



```

Administrator: C:\Windows\system32\cmd.exe
C:\Users\Administrator>start /w ocsetup DNS-Server-Core-Role
C:\Users\Administrator>oclist
Use the listed update names with Ocsetup.exe to install/uninstall a server role
or optional feature.

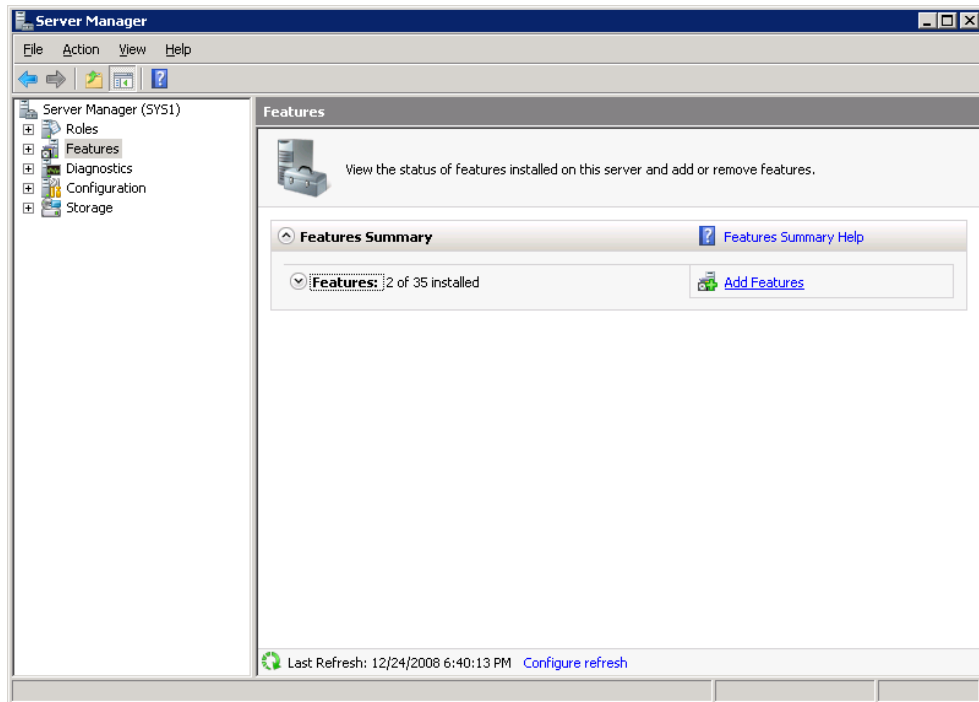
Adding or removing the Active Directory role with OCSetup.exe is not supported.
It can leave your server in an unstable state. Always use DCPromo to install or
uninstall Active Directory.

=====
Microsoft-Windows-ServerCore-Package
Not Installed:BitLocker
Not Installed:BitLocker-RemoteAdminTool
Not Installed:ClientForNFS-Base
Not Installed:DFSN-Server
Not Installed:DFSR-Infrastructure-ServerEdition
Not Installed:DHCP-ServerCore
Not Installed:DirectoryServices-ADAM-ServerCore
Not Installed:DirectoryServices-DomainController-ServerFoundation
Installed:DNS-Server-Core-Role
Not Installed:FailoverCluster-Core
Not Installed:FRS-Infrastructure
Not Installed:IIS-WebServerRole
|

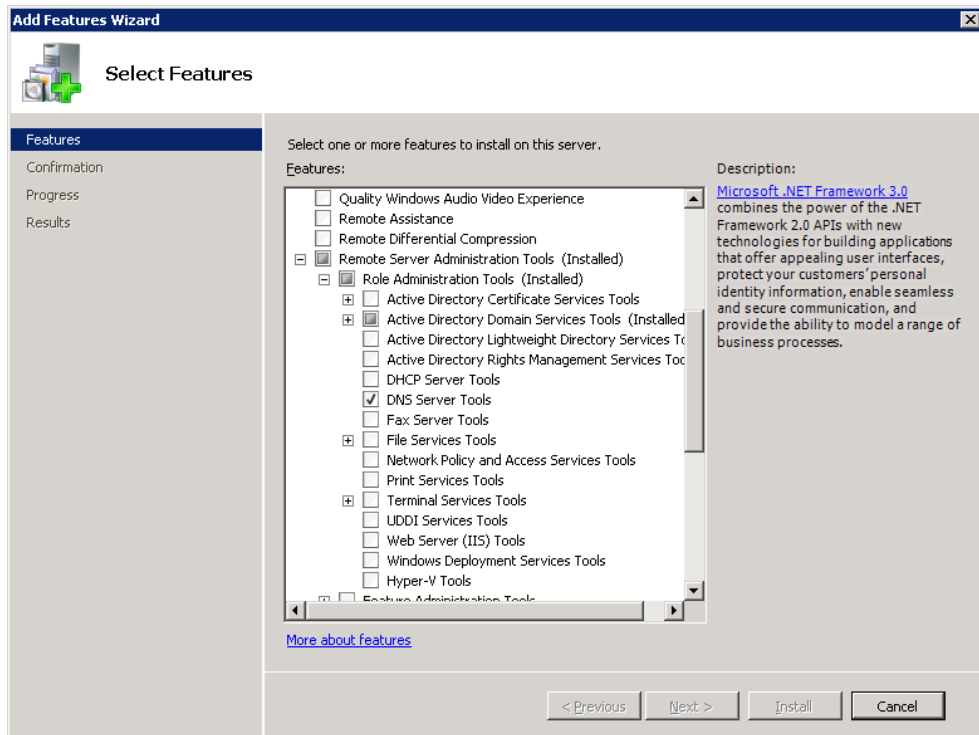
```

16. To manage the Dns server on Server core

On other system (SYS1): Go to Start → Select Programs → Select Administrative Tools → Select **Server Manager** → Select **Features** → Select **Add Features**.

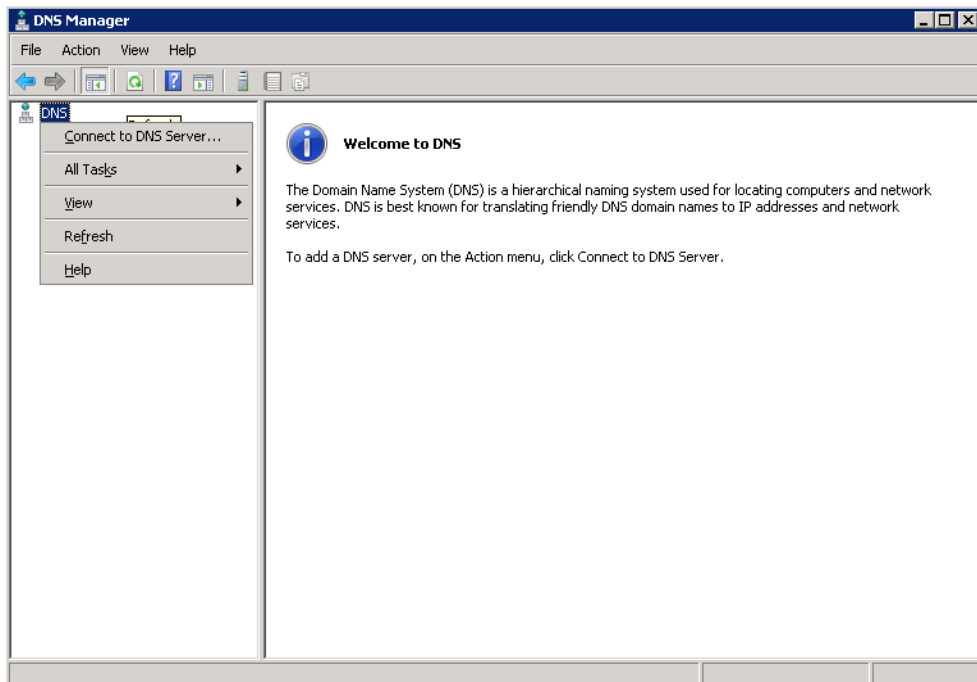
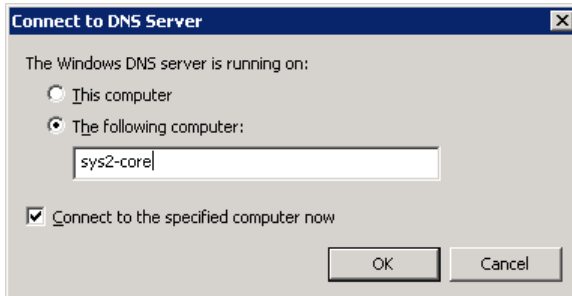


17. Expand **Remote Server Administration Tools** → **Role Administration Tools** → Select the Check box for **DNS Server tools** → click **Next** → click **Install**

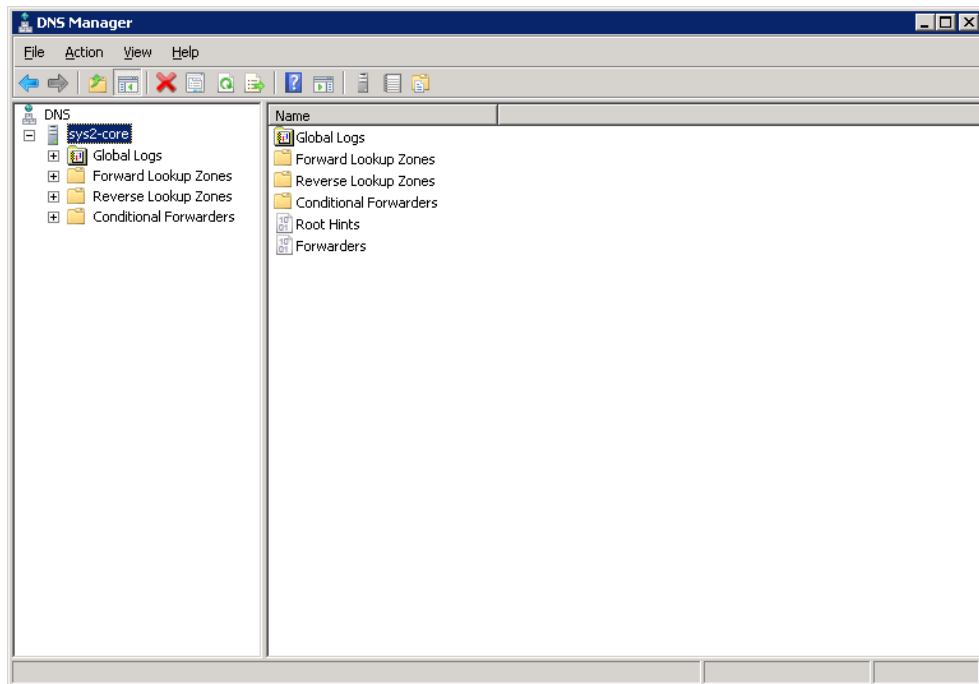


18. To Configure DNS Server of Server Core

On other system (SYS1): Go to Start → Select Programs → Select Administrative Tools → Select **DNS** → Right click **DNS** → click **Connect to DNS Server**

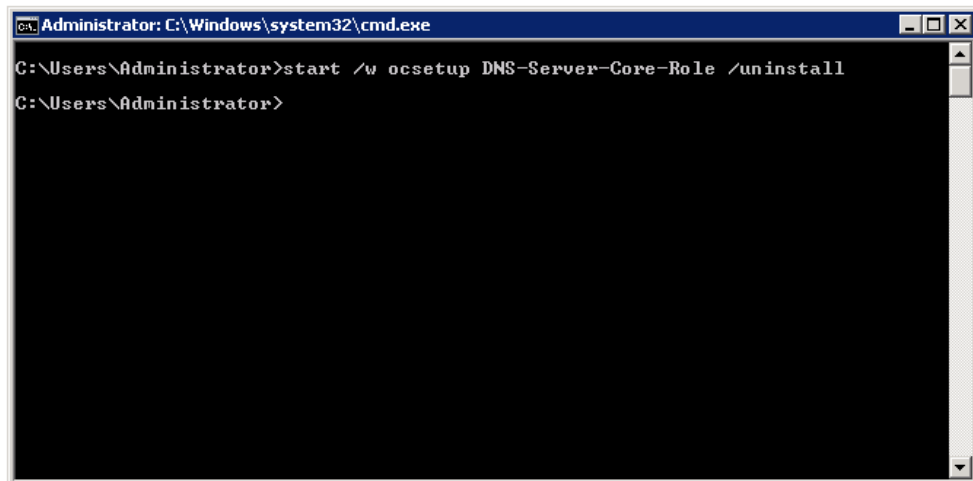
**19. Mention the Computer name of Server core (sys2-core) → click OK.**

20. Connected to Server Core



21. To Uninstall any role or service, type **start /w ocsetup Role or Feature name /uninstall**

Ex: **start /w ocsetup DNS-Server-Core-Role /uninstall**

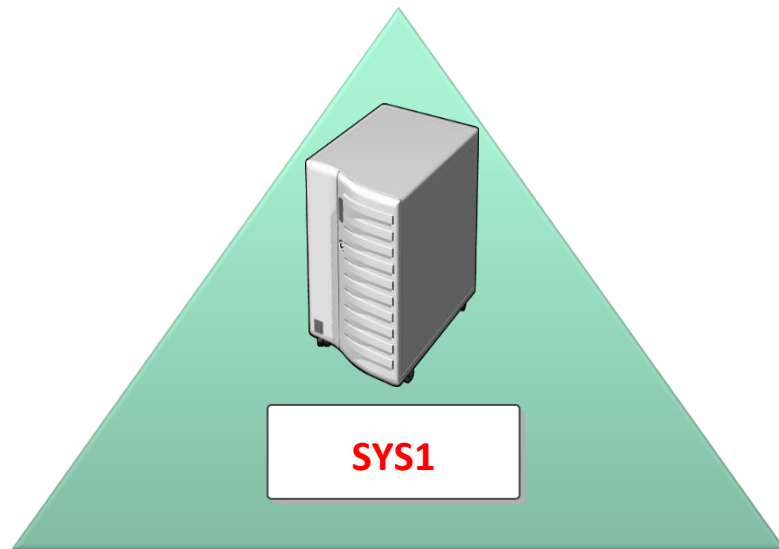


CONFIGURING WINDOWS SERVER BACKUP & RECOVERY

Prerequisites:

Before working on this lab, you must have

1. A Computer with Windows Server 2008 Domain Controller



MICROSOFT.COM

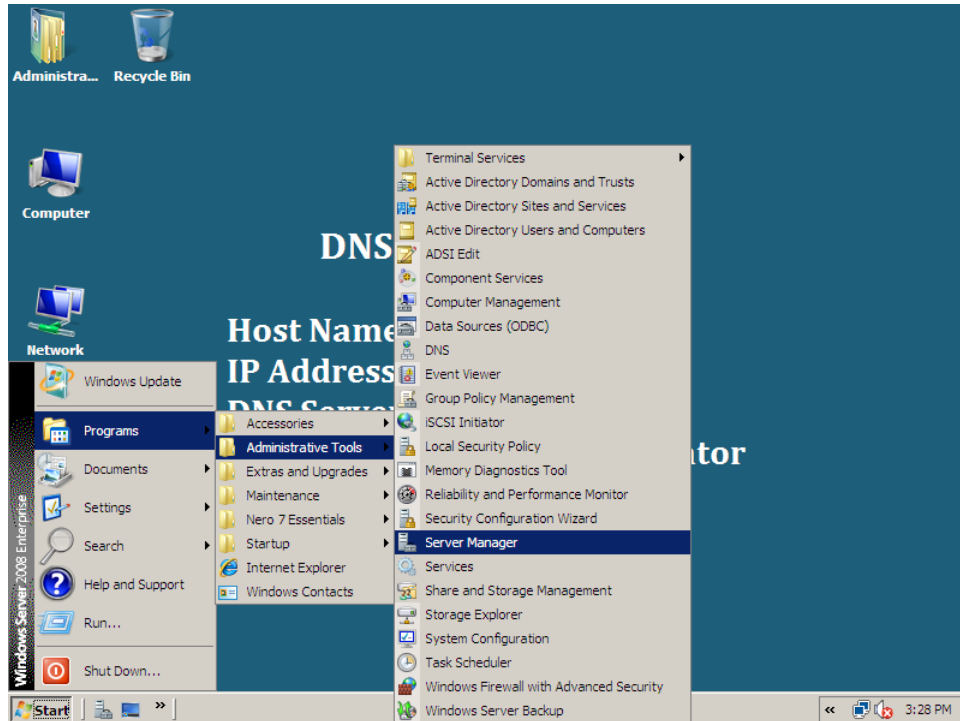
SYS1

Domain Controller

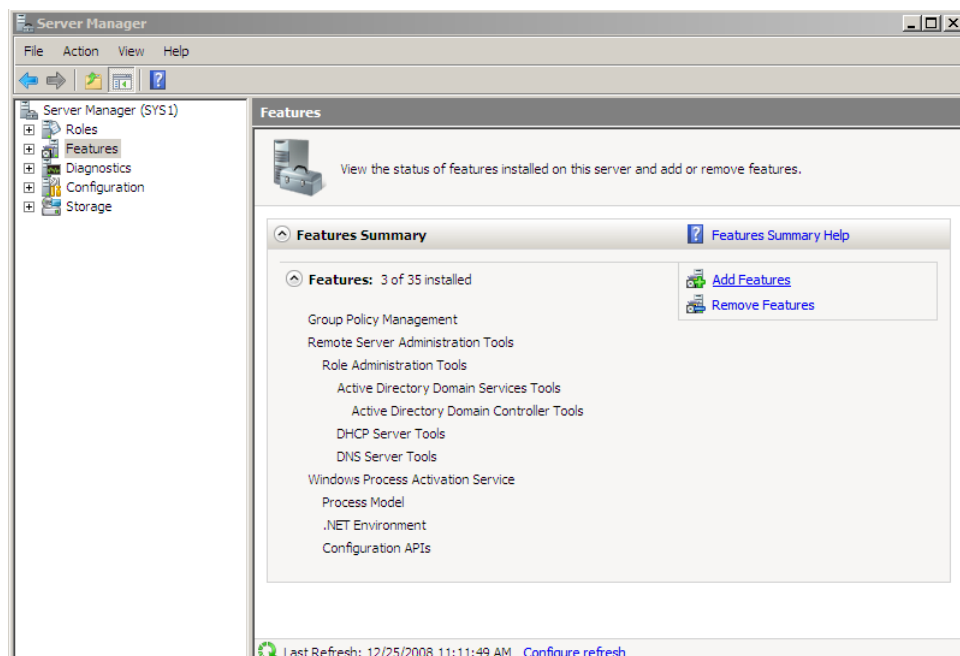
IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

Lab – 3: Configuring Windows Server Backup and Recovery

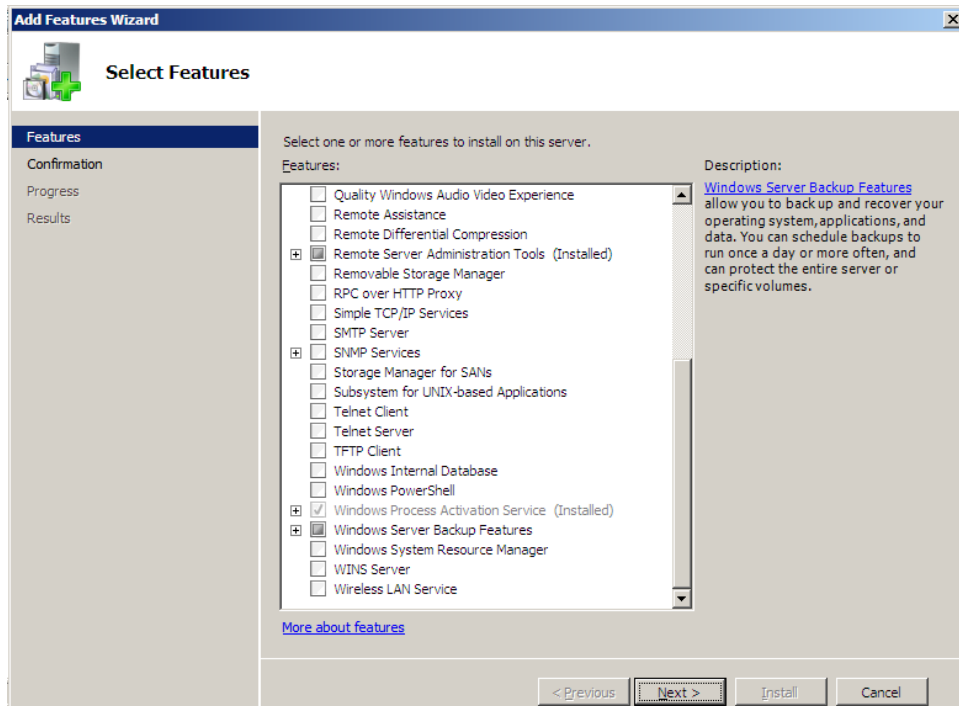
1. Login as **Administrator**, Start→Programs→Administrative Tools→**Server Manager**.



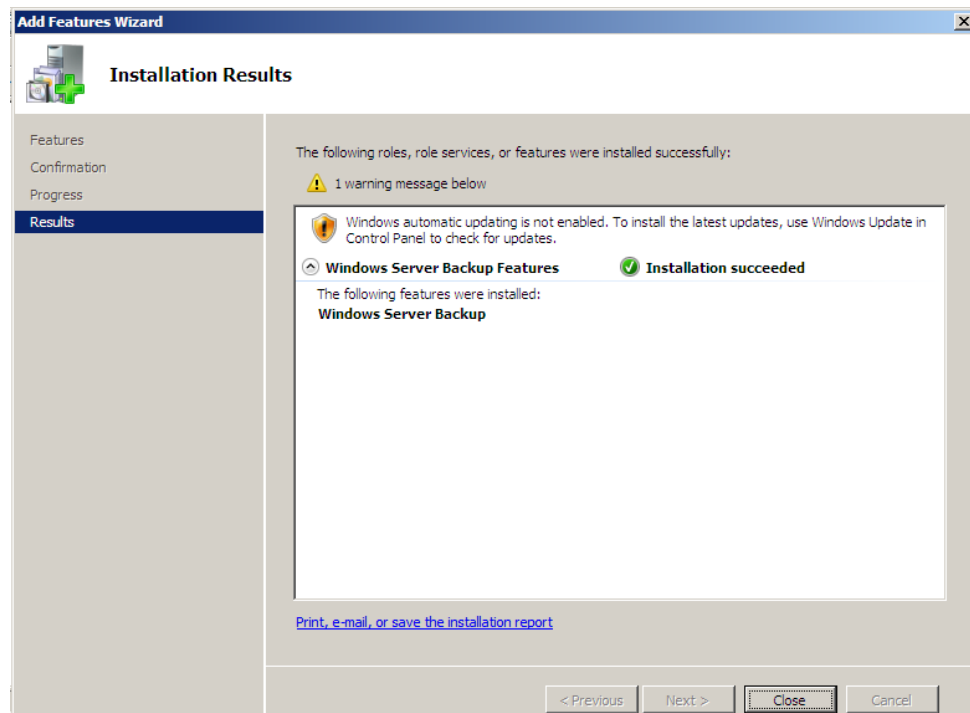
2. Select **Features** and click **Add Features**.



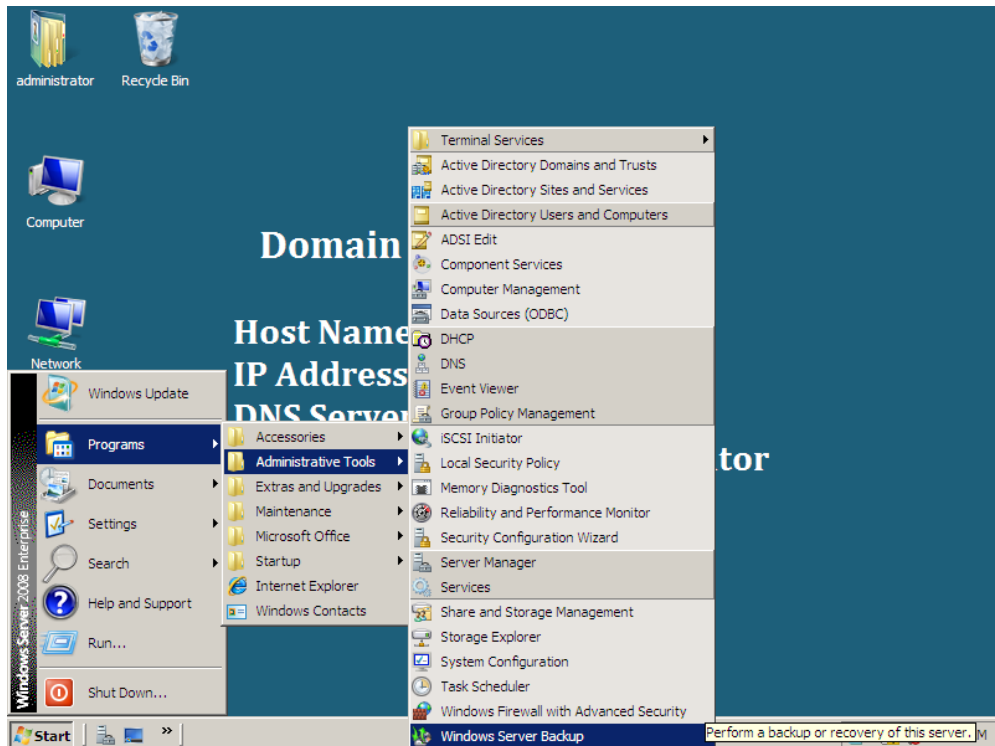
3. Click **Next** → check **Windows Server Backup Features** and **Next** → click **Install**.



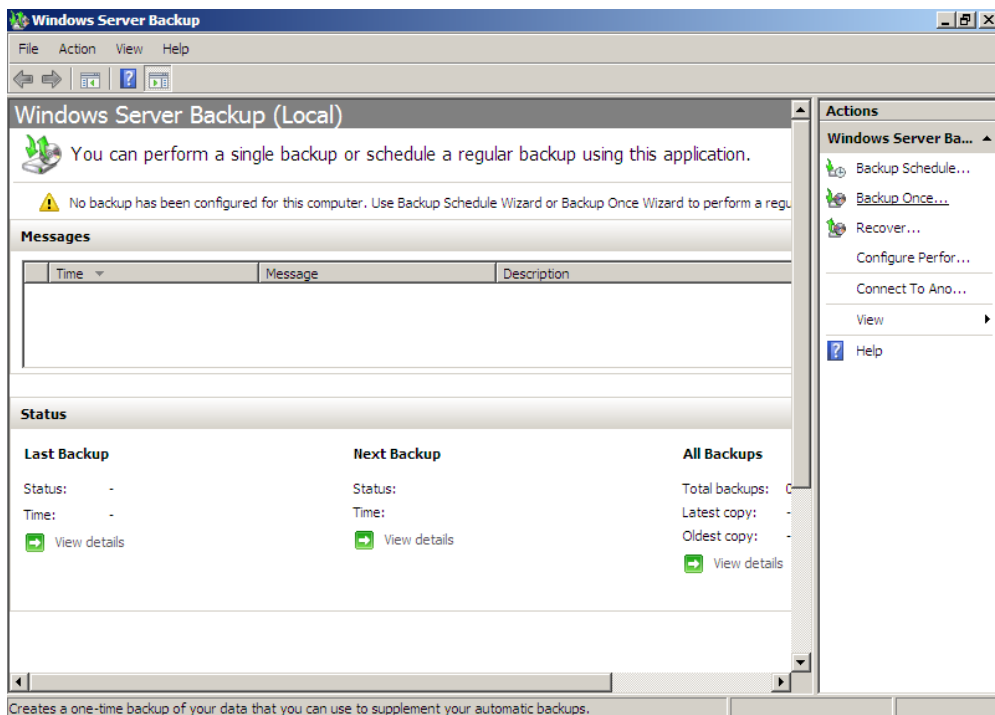
4. After Installation click **Close**.

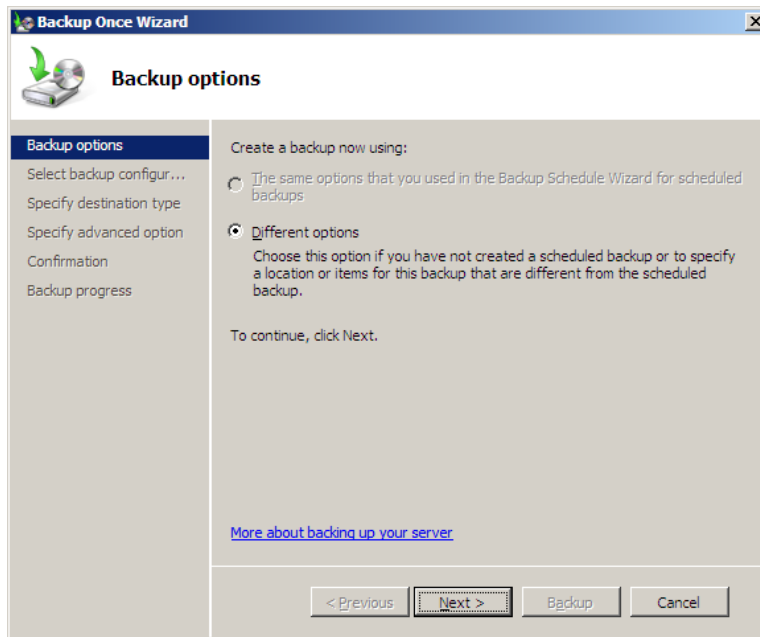
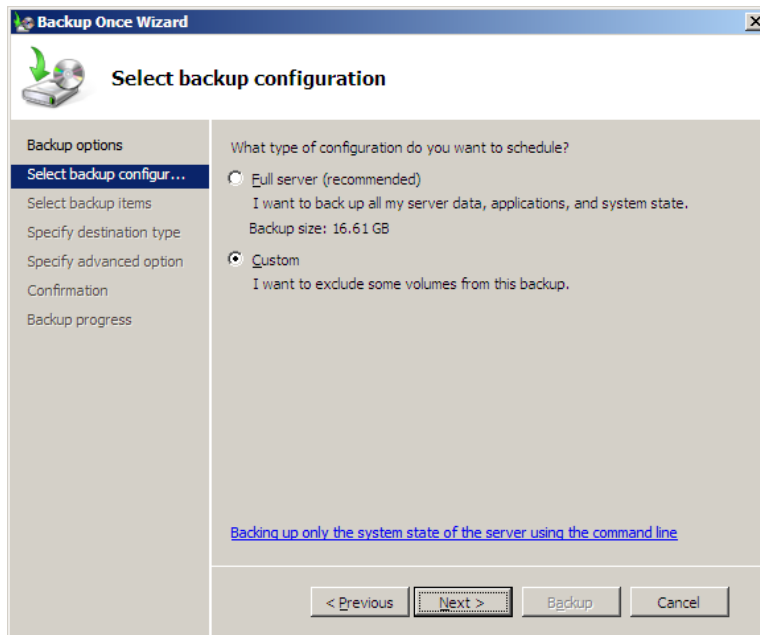


5. Start→Programs→Administrative Tools→**Windows Server Backup**.

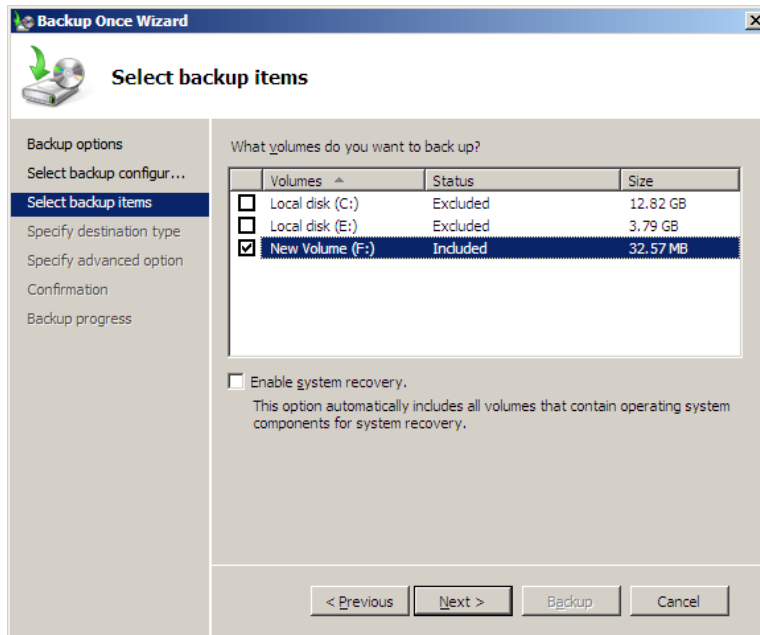


6. Select **Backup Once**

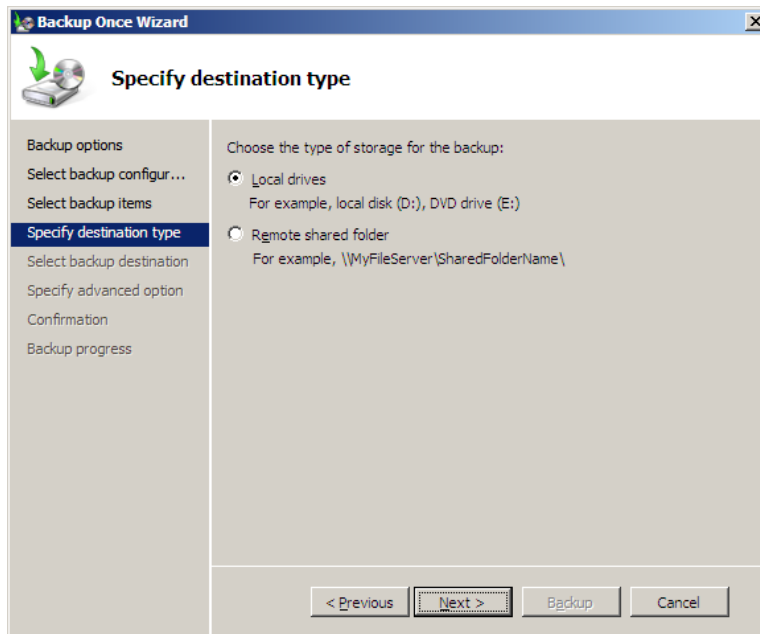


7. Select **Different Options** → click **Next**8. Select **Custom** → click **Next**

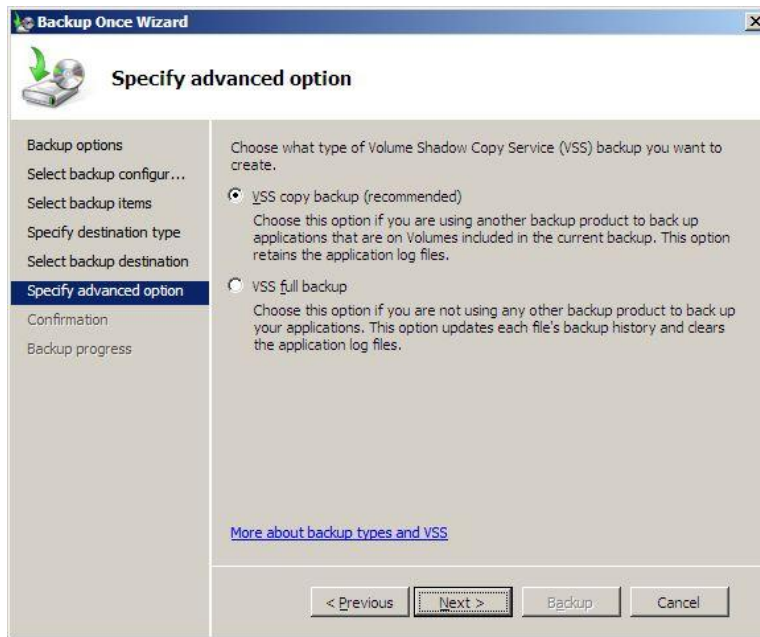
9. Uncheck the box **Enable System recovery** → **Next** and Select which drive we want to take backup select that drive and **Next**.



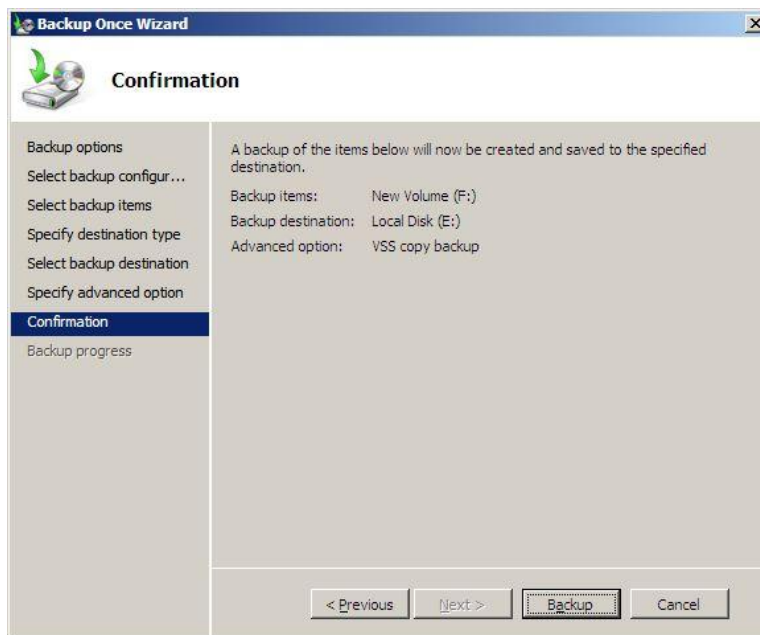
10. Select the destination type **Local drives** → click **Next** → Select the Backup Destination (**Any Drive**) → click **Next**.



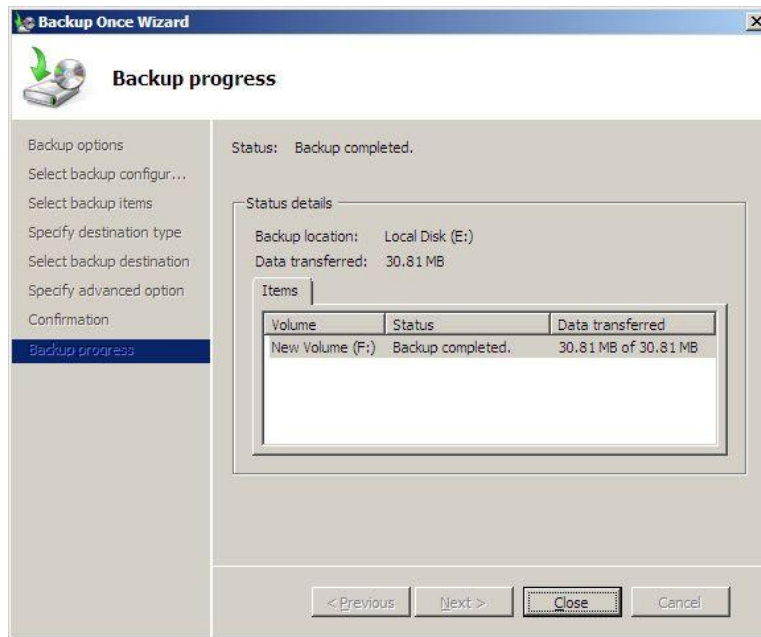
11. Select **VSS copy backup** and click **Next**.



12. Confirm the Options and click **Backup**.

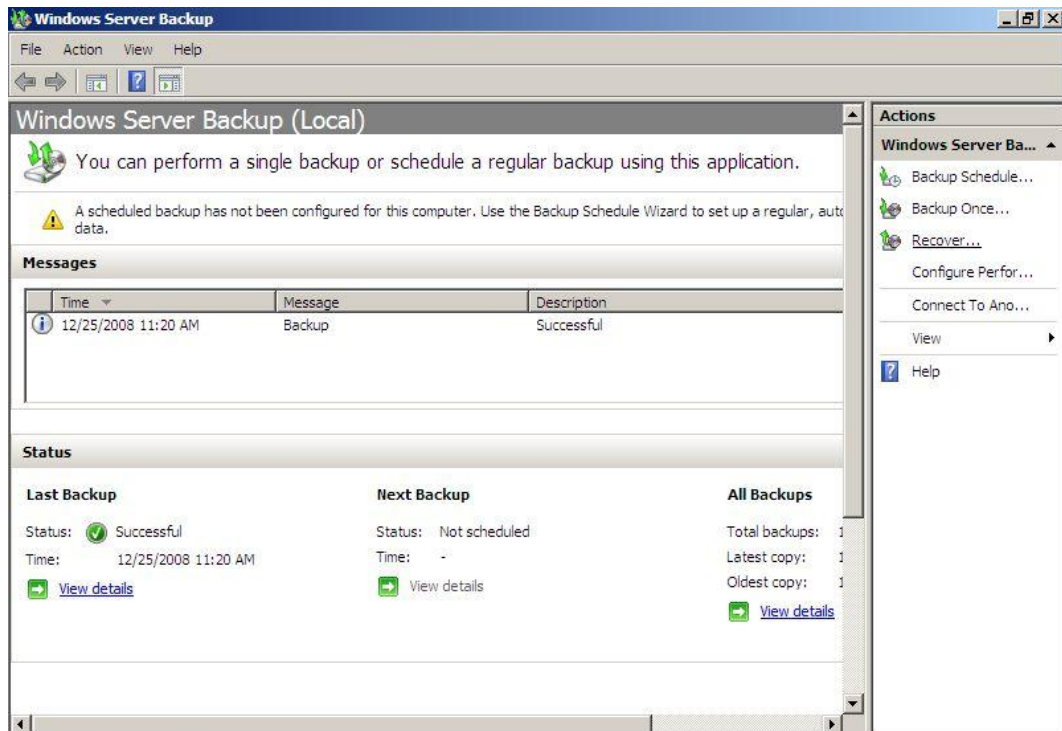


13. Finally click **Close**.

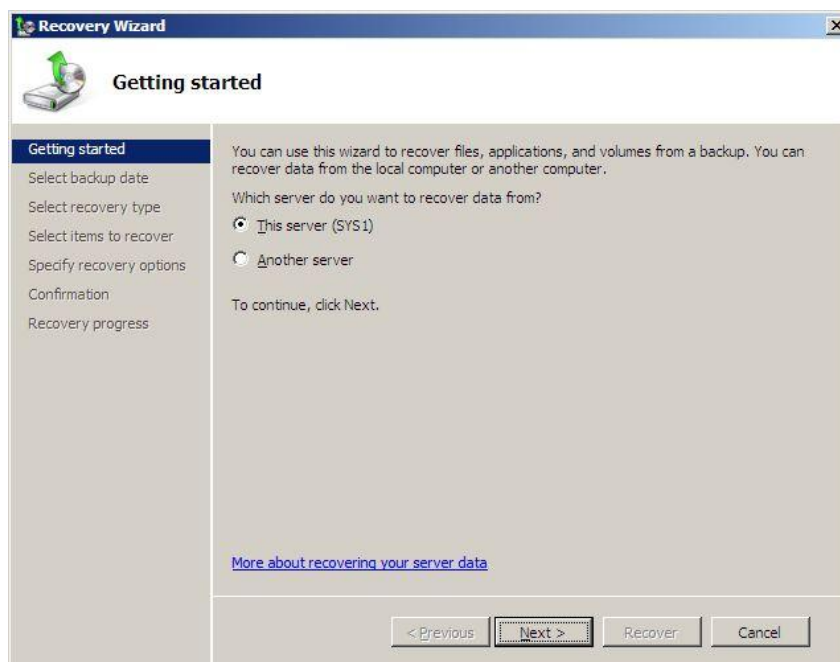


How to Recover the Data from Backup File.

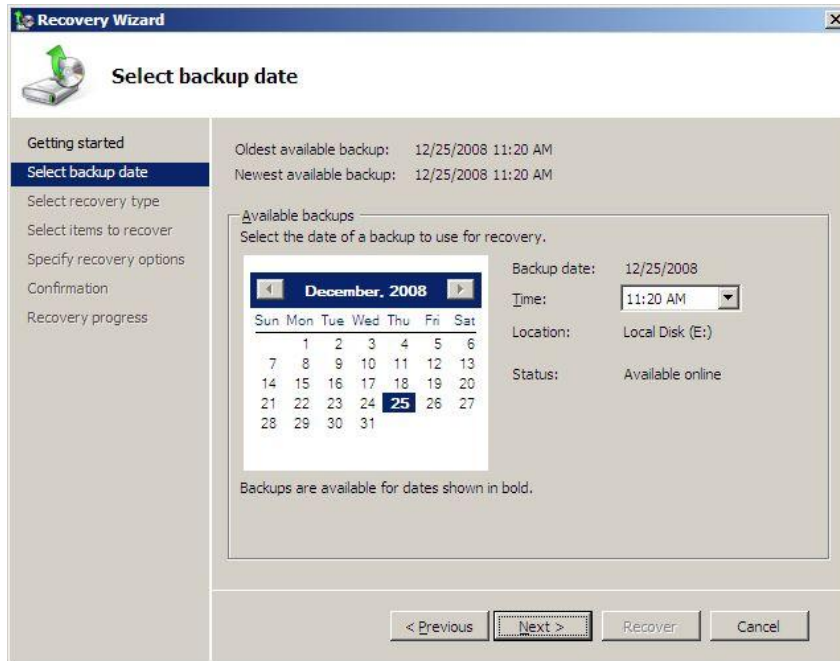
1. Before Restoration, go to the drive and delete the data. (only for Lab purpose)
2. Select Start → Programs → Administrative Tools → Windows Server Backup → select **Recover**.



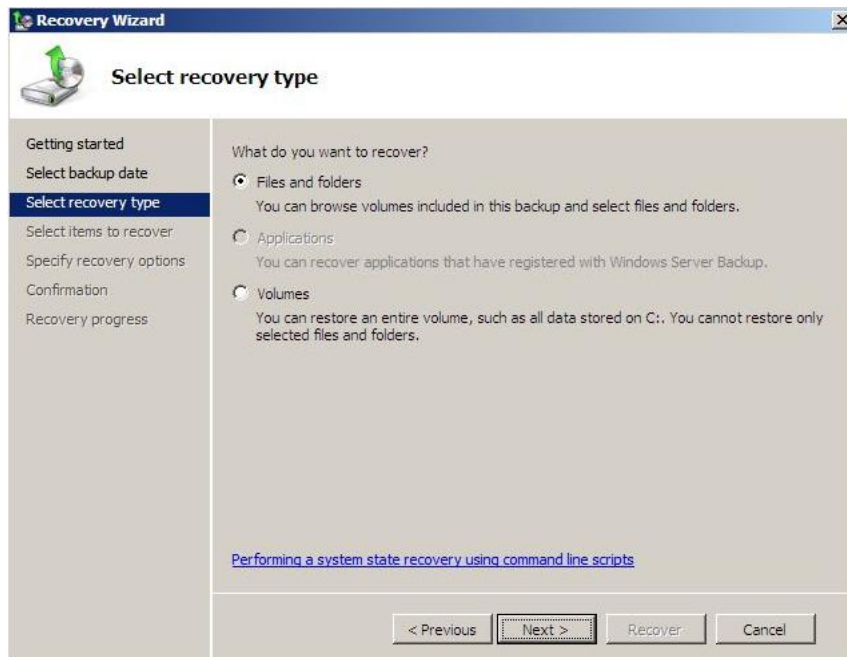
3. Select **This server** and click **Next**.



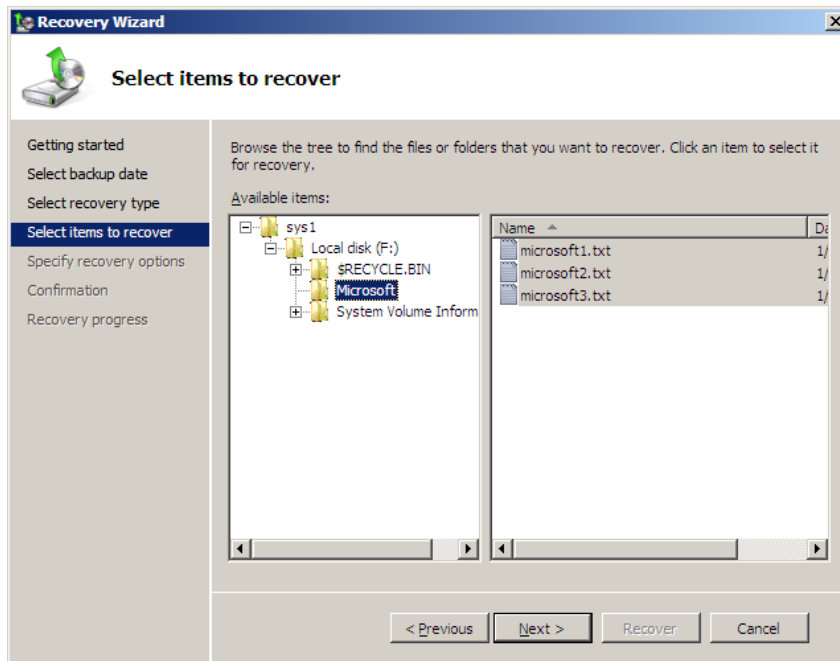
4. Select **Date** and **Time** of the backup file to be restored, click **Next**.



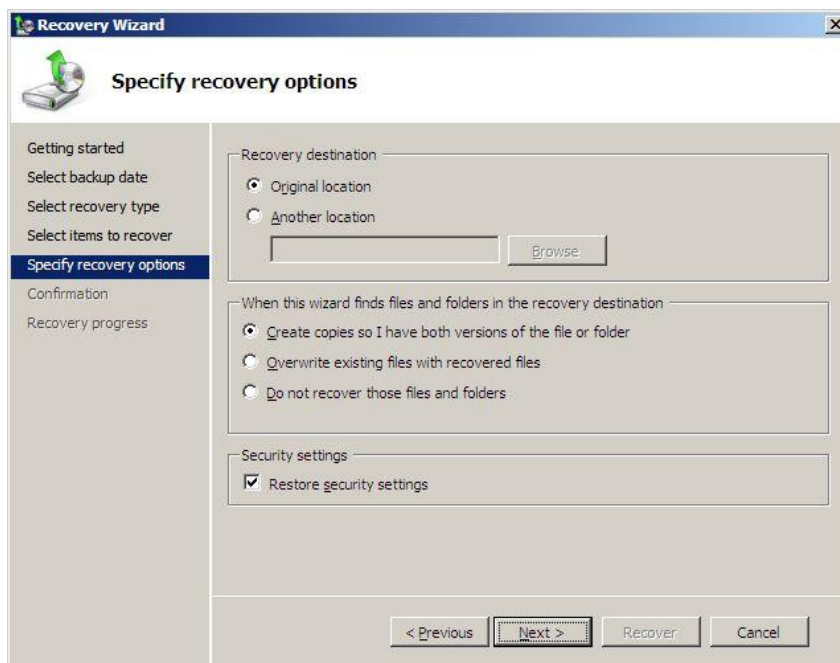
5. Select **Files** and **Folders** and click **Next**.



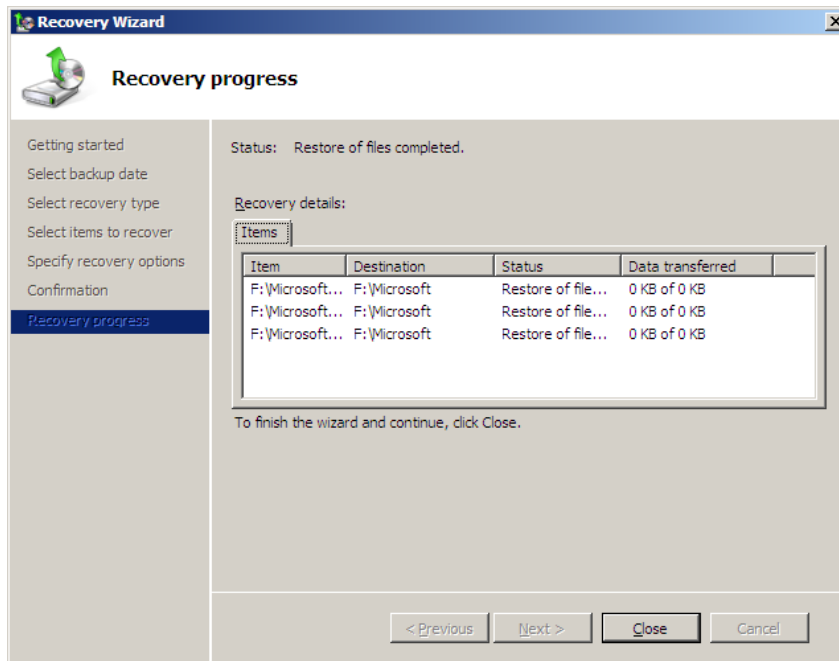
6. Select the **folder** or **files** to be recovered and click **Next**.



7. Select **Original Location** and click **Next**.



- After the Restoration click **Close**.



Verification:

- Go to the **drive** and verify for the **folder** and **files**.

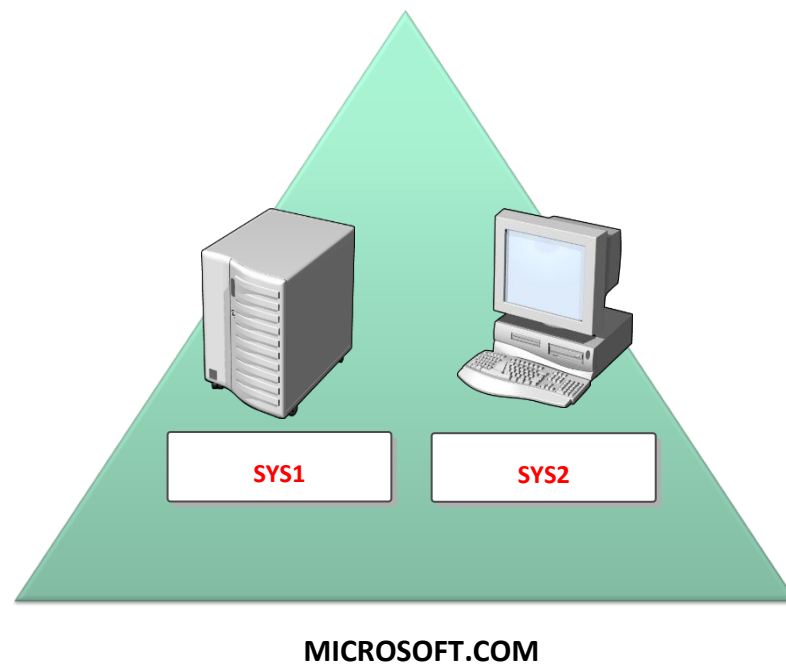
ADVANCED TOPICS

DISTRIBUTED FILE SYSTEM AND GROUPS

Prerequisites:

Before working on this lab, you must have

1. A computer running windows 2008 server Domain Controller.
2. A computer running windows 2008 server or Member Server.



SYS1

Domain Controller

IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

SYS2

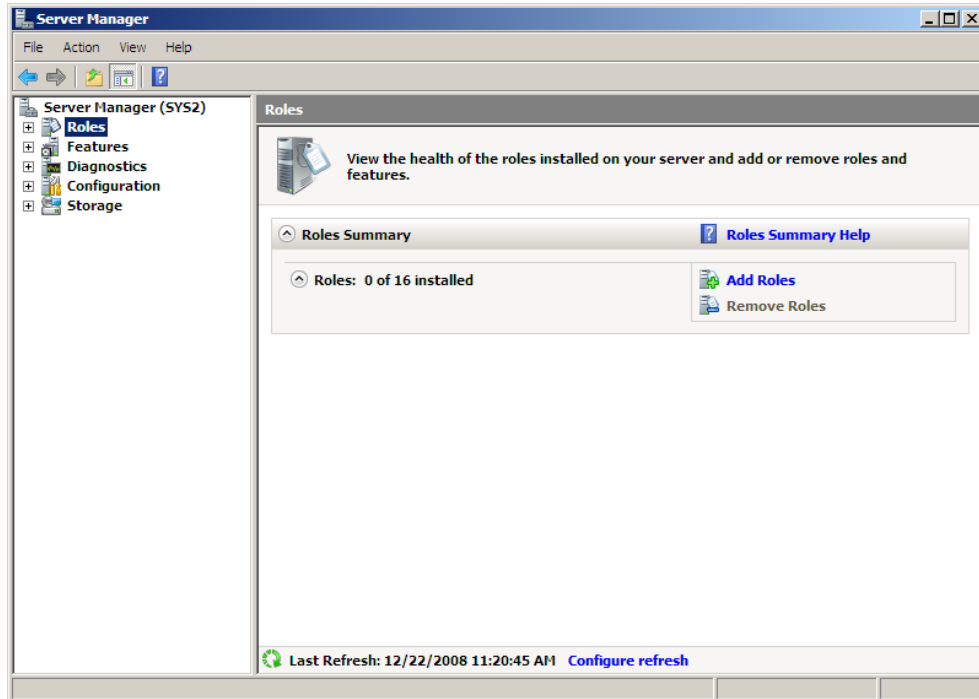
Member Server

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Preferred DNS	10.0.0.1

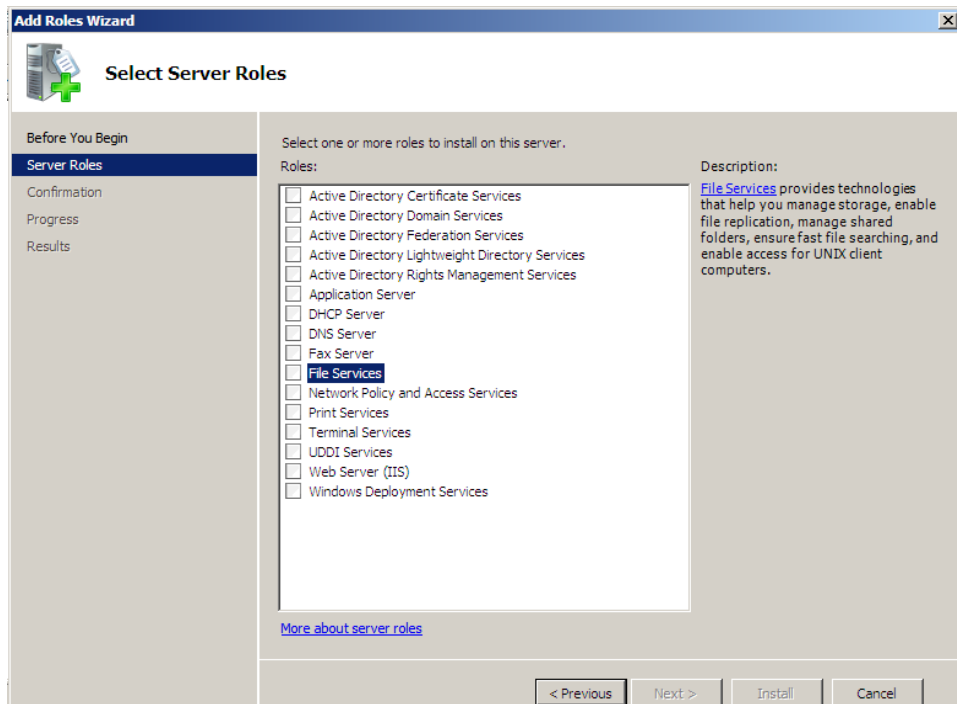
DISTRIBUTED FILE SYSTEM

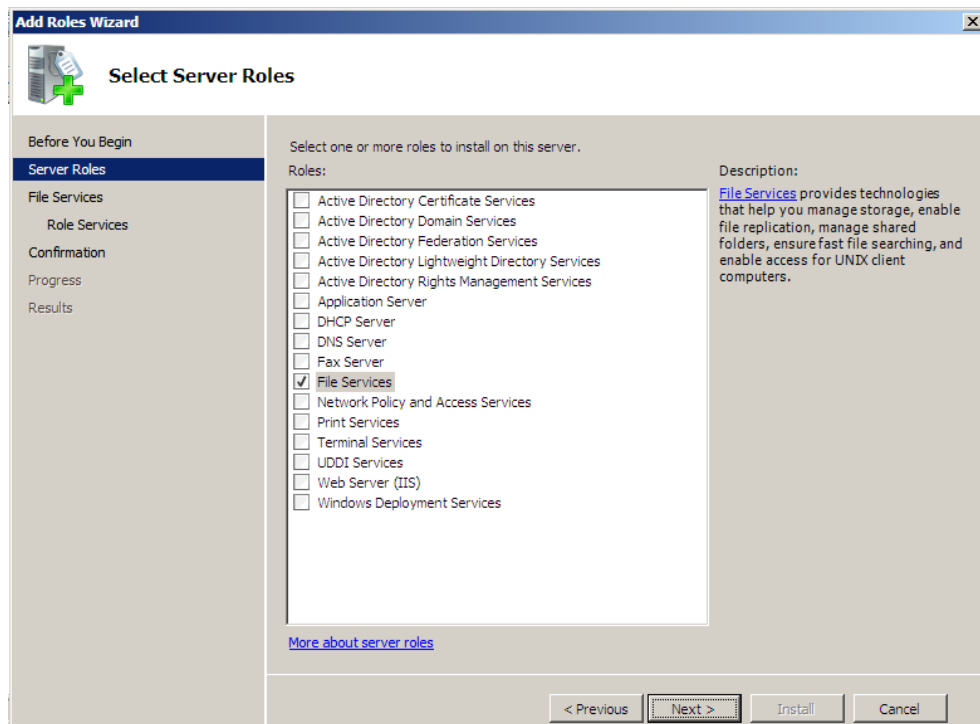
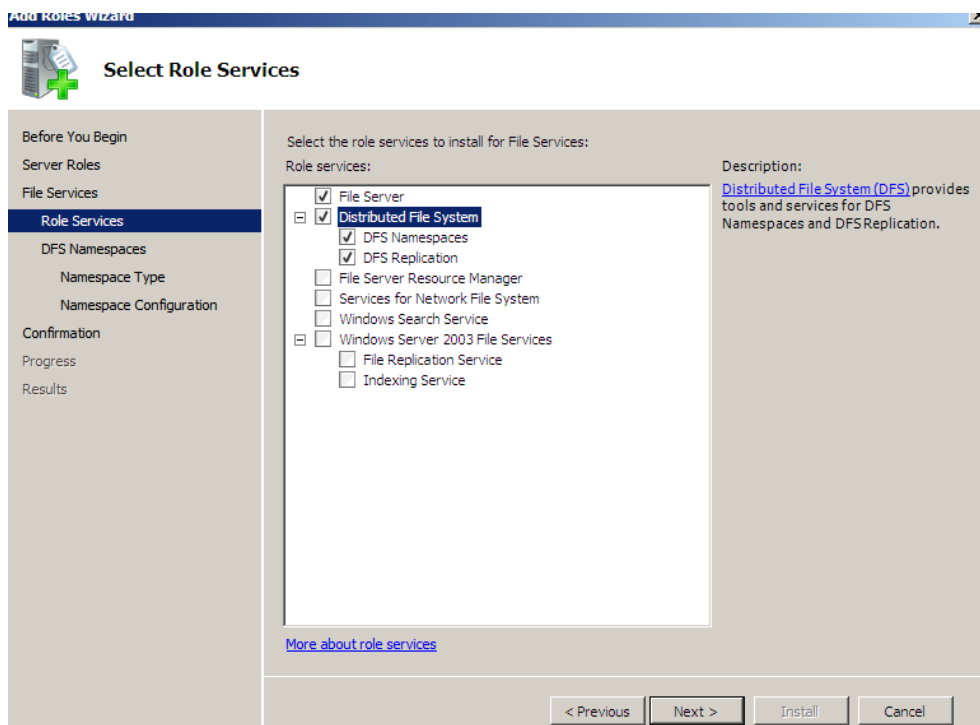
Installing Distributed File System (DFS)

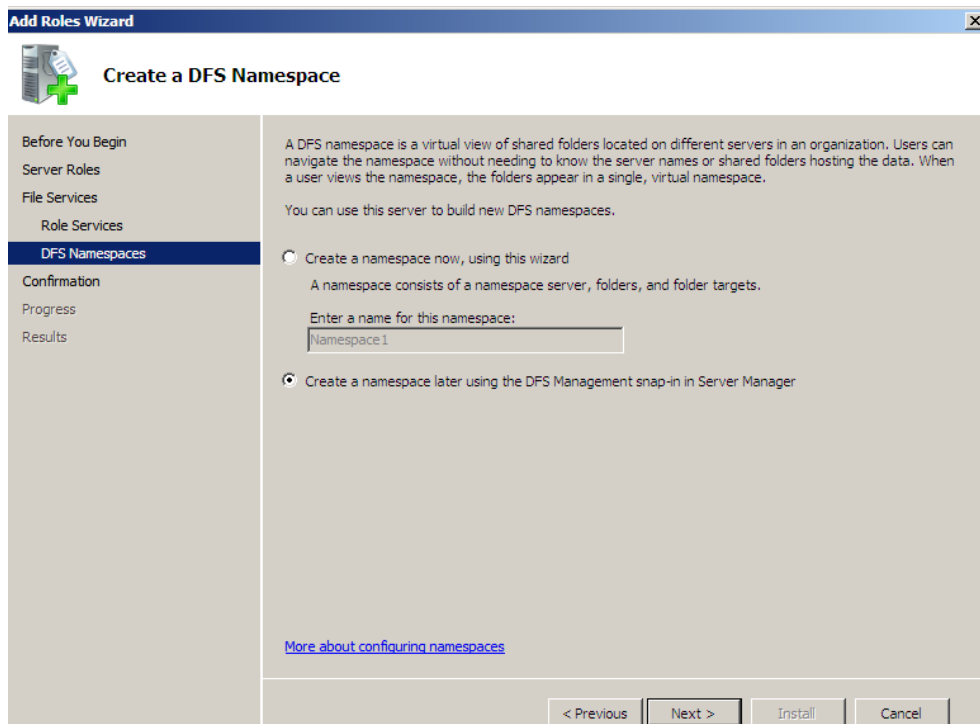
1. In **SYS2 (Member Server)** go to Start → Programs → Administrative Tools → Server Manager → click Roles



2. Click On **Add Roles**



3. Select **File Services** → click **Next**4. Check the box **Distributed File System** → click **Next**.

5. Select **Create a Namespace Later** and click **Next**

The screenshot shows the 'Add Roles Wizard' window with the title bar 'Add Roles Wizard'. The left sidebar contains a tree view with the following items: 'Before You Begin', 'Server Roles', 'File Services', 'Role Services', 'DFS Namespaces' (selected), 'Confirmation', 'Progress', and 'Results'. The main content area is titled 'Create a DFS Namespace'. It contains a description of a DFS namespace and two radio button options. The first option, 'Create a namespace now, using this wizard', is selected. Below it, there is a text box labeled 'Enter a name for this namespace:' with the text 'Namespace1' entered. The second option, 'Create a namespace later using the DFS Management snap-in in Server Manager', is unselected. At the bottom right, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about configuring namespaces' is located at the bottom left of the main content area.

Add Roles Wizard

Create a DFS Namespace

Before You Begin
Server Roles
File Services
Role Services
DFS Namespaces
Confirmation
Progress
Results

A DFS namespace is a virtual view of shared folders located on different servers in an organization. Users can navigate the namespace without needing to know the server names or shared folders hosting the data. When a user views the namespace, the folders appear in a single, virtual namespace.

You can use this server to build new DFS namespaces.

☐ Create a namespace now, using this wizard

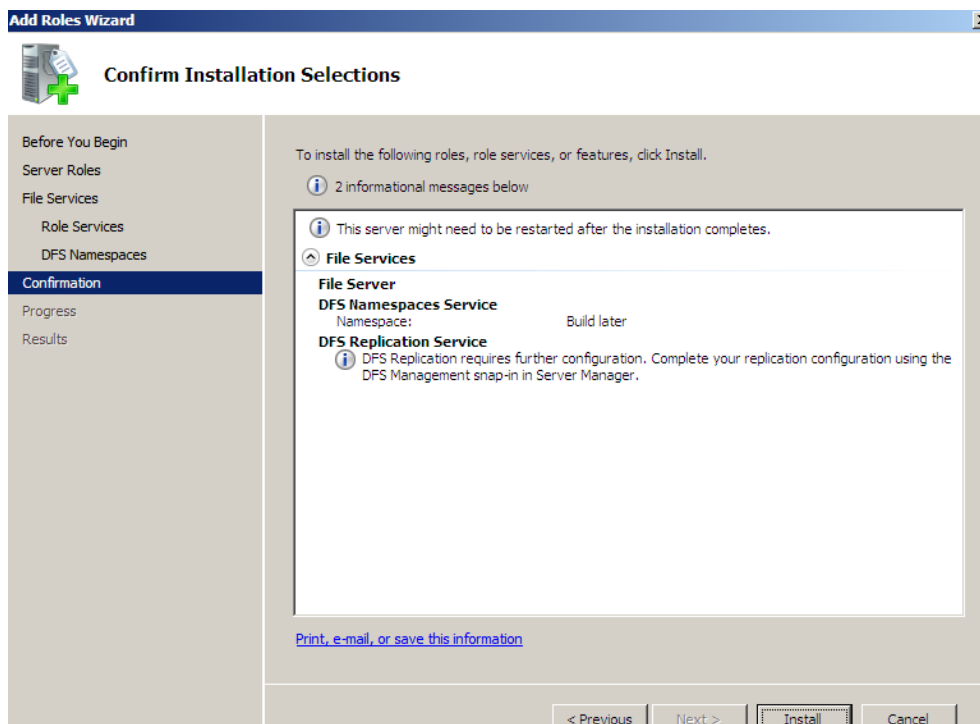
A namespace consists of a namespace server, folders, and folder targets.

Enter a name for this namespace:
Namespace1

☒ Create a namespace later using the DFS Management snap-in in Server Manager

[More about configuring namespaces](#)

< Previous Next > Install Cancel

6. Click **Install** and click **Close**

The screenshot shows the 'Add Roles Wizard' window with the title bar 'Add Roles Wizard'. The left sidebar contains a tree view with the following items: 'Before You Begin', 'Server Roles', 'File Services', 'Role Services', 'DFS Namespaces', 'Confirmation' (selected), 'Progress', and 'Results'. The main content area is titled 'Confirm Installation Selections'. It contains a message 'To install the following roles, role services, or features, click Install.' and a list of 2 informational messages. The first message is 'This server might need to be restarted after the installation completes.' The second message is 'File Services', which is expanded to show 'File Server' and 'DFS Namespaces Service' (Namespace: Build later). Below this, there is a message for 'DFS Replication Service' stating that it requires further configuration. At the bottom right, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'Print, e-mail, or save this information' is located at the bottom left of the main content area.

Add Roles Wizard

Confirm Installation Selections

Before You Begin
Server Roles
File Services
Role Services
DFS Namespaces
Confirmation
Progress
Results

To install the following roles, role services, or features, click Install.

2 informational messages below

This server might need to be restarted after the installation completes.

File Services

File Server

DFS Namespaces Service
Namespace: Build later

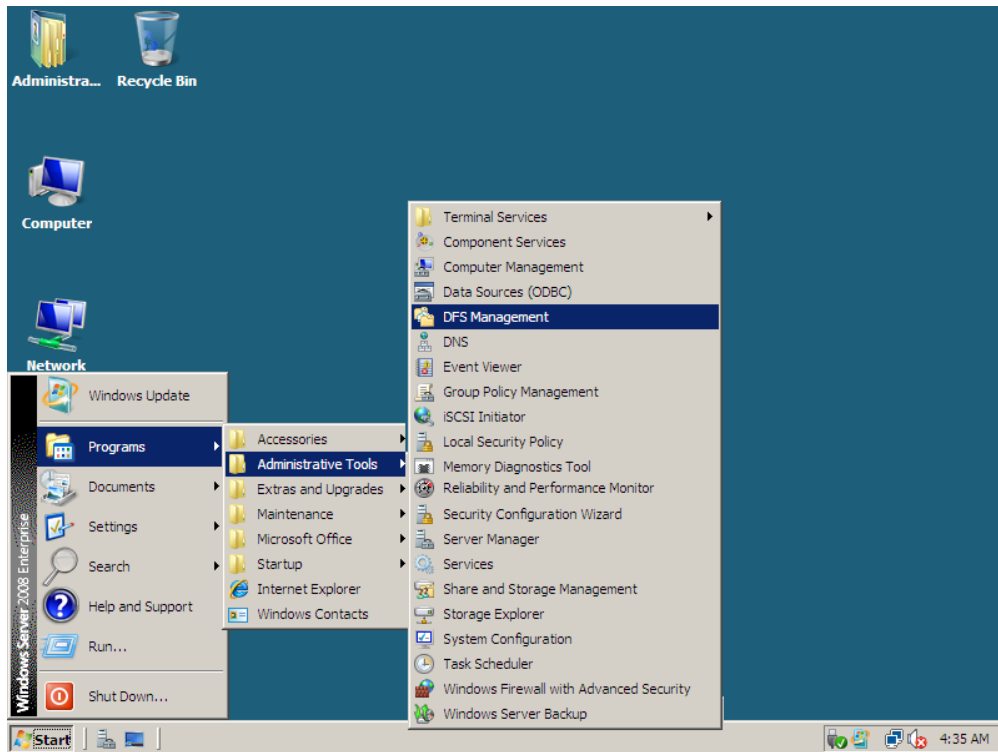
DFS Replication Service
DFS Replication requires further configuration. Complete your replication configuration using the DFS Management snap-in in Server Manager.

[Print, e-mail, or save this information](#)

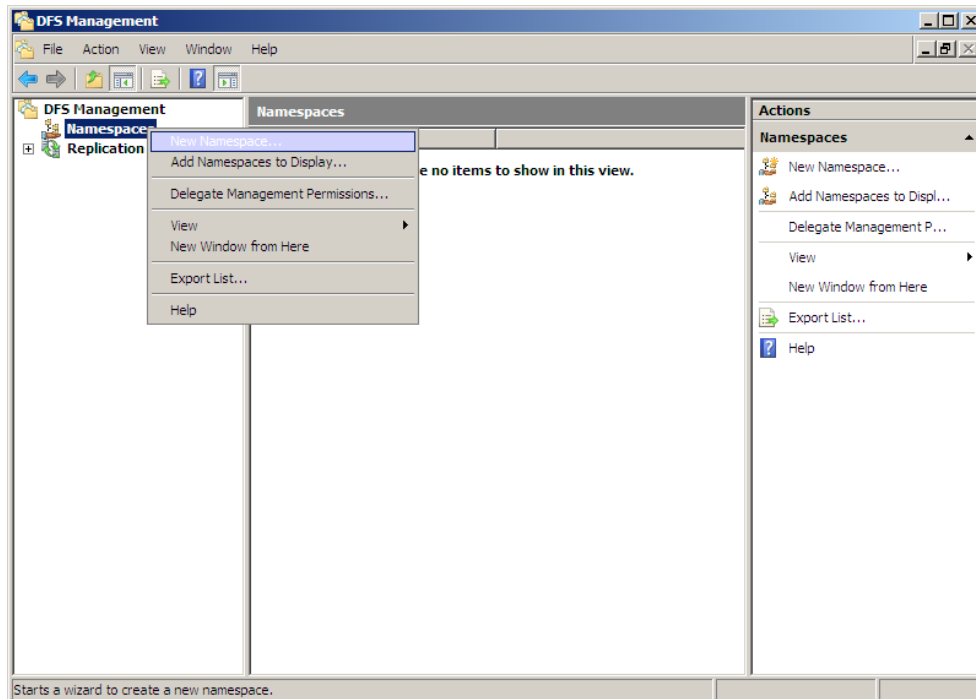
< Previous Next > Install Cancel

Configuring Namespace In DFS

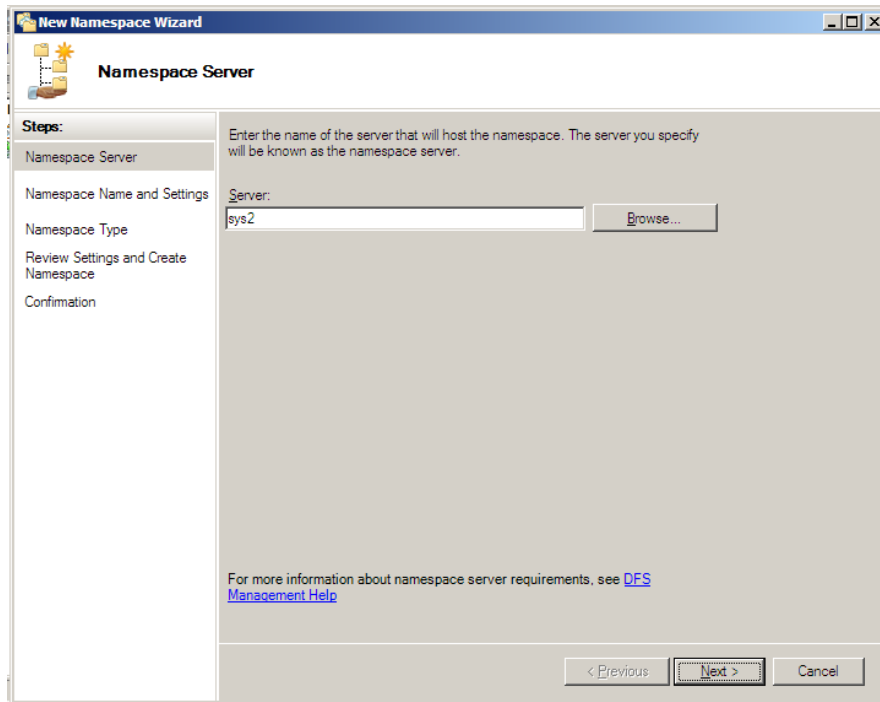
1. In **SYS2 (Member Server)** Go to Start → Programs → Administrative Tools → **DFS MANAGEMENT**.



2. Right click On **Namespaces** and Select **New Namespace**



3. Enter the **Server Name** in which **DFS Installed** and Select **Next**.



The screenshot shows the 'New Namespace Wizard' window at the 'Namespace Server' step. The left pane lists the steps: 'Namespace Server' (selected), 'Namespace Name and Settings', 'Namespace Type', 'Review Settings and Create Namespace', and 'Confirmation'. The main area contains the instruction: 'Enter the name of the server that will host the namespace. The server you specify will be known as the namespace server.' Below this is a 'Server:' label and a text box containing 'sys2', with a 'Browse...' button to its right. At the bottom right are '< Previous', 'Next >', and 'Cancel' buttons. A link for 'DFS Management Help' is also present.

New Namespace Wizard

Namespace Server

Steps:

- Namespace Server
- Namespace Name and Settings
- Namespace Type
- Review Settings and Create Namespace
- Confirmation

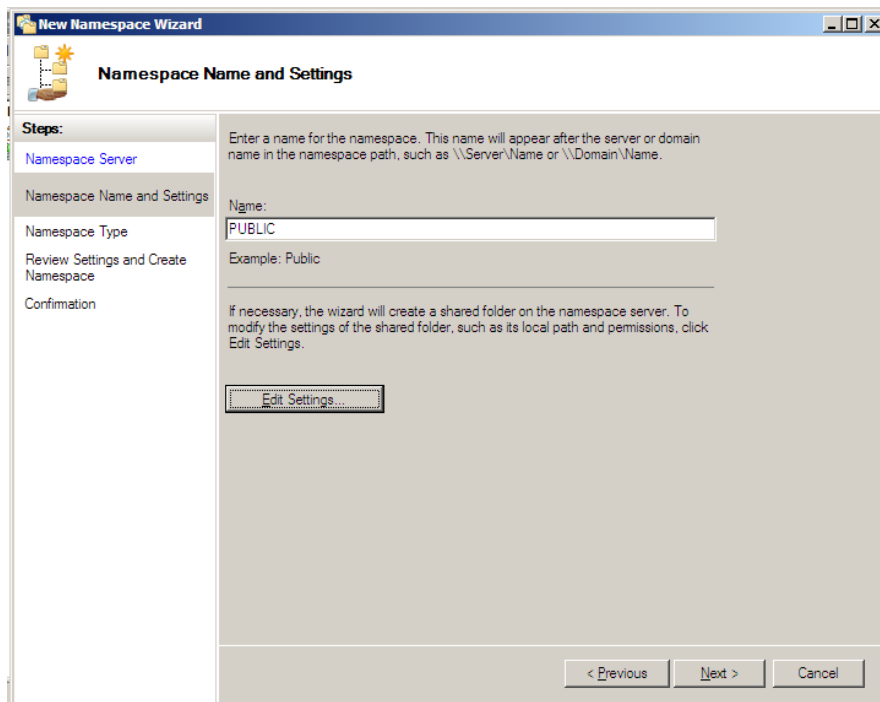
Enter the name of the server that will host the namespace. The server you specify will be known as the namespace server.

Server: sys2

For more information about namespace server requirements, see [DFS Management Help](#)

< Previous Next > Cancel

4. Enter **Name** for the **Name Space (Public)** and click **Edit Settings**.



The screenshot shows the 'New Namespace Wizard' window at the 'Namespace Name and Settings' step. The left pane lists the steps: 'Namespace Server', 'Namespace Name and Settings' (selected), 'Namespace Type', 'Review Settings and Create Namespace', and 'Confirmation'. The main area contains the instruction: 'Enter a name for the namespace. This name will appear after the server or domain name in the namespace path, such as \\Server\\Name or \\Domain\\Name.' Below this is a 'Name:' label and a text box containing 'PUBLIC', with an 'Example: Public' label below it. Further down is a paragraph of text: 'If necessary, the wizard will create a shared folder on the namespace server. To modify the settings of the shared folder, such as its local path and permissions, click Edit Settings.' Below this text is an 'Edit Settings...' button. At the bottom right are '< Previous', 'Next >', and 'Cancel' buttons.

New Namespace Wizard

Namespace Name and Settings

Steps:

- Namespace Server
- Namespace Name and Settings
- Namespace Type
- Review Settings and Create Namespace
- Confirmation

Enter a name for the namespace. This name will appear after the server or domain name in the namespace path, such as \\Server\\Name or \\Domain\\Name.

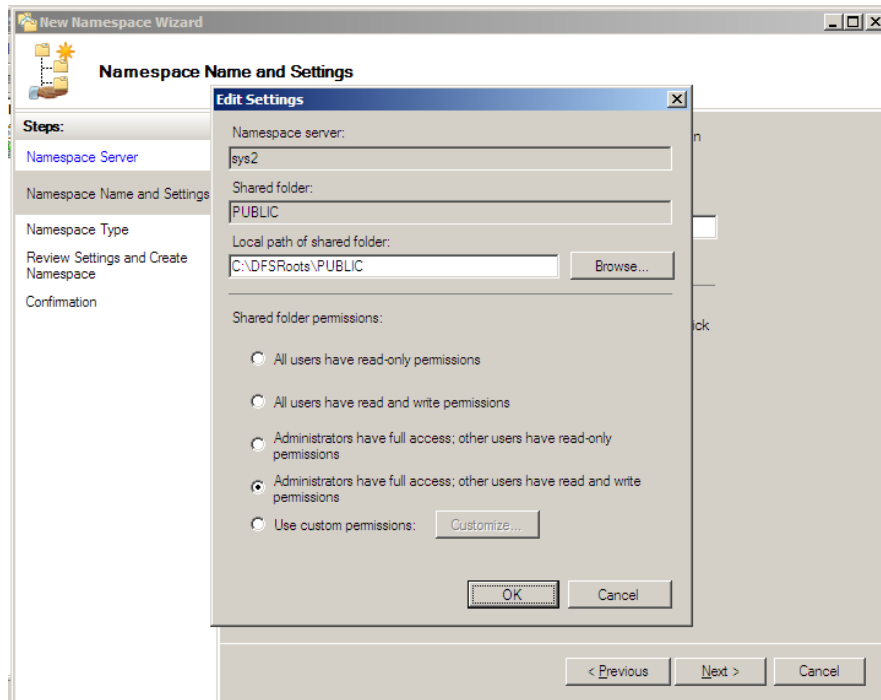
Name: PUBLIC

Example: Public

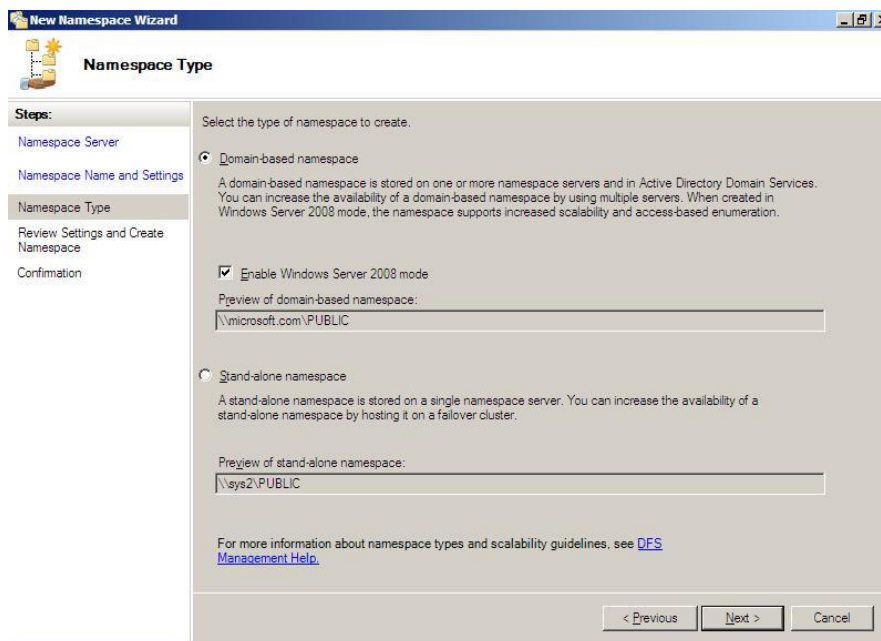
If necessary, the wizard will create a shared folder on the namespace server. To modify the settings of the shared folder, such as its local path and permissions, click Edit Settings.

< Previous Next > Cancel

5. Select the Permissions **Administrators have full access, other users have read and write permissions**, and click **Next**.



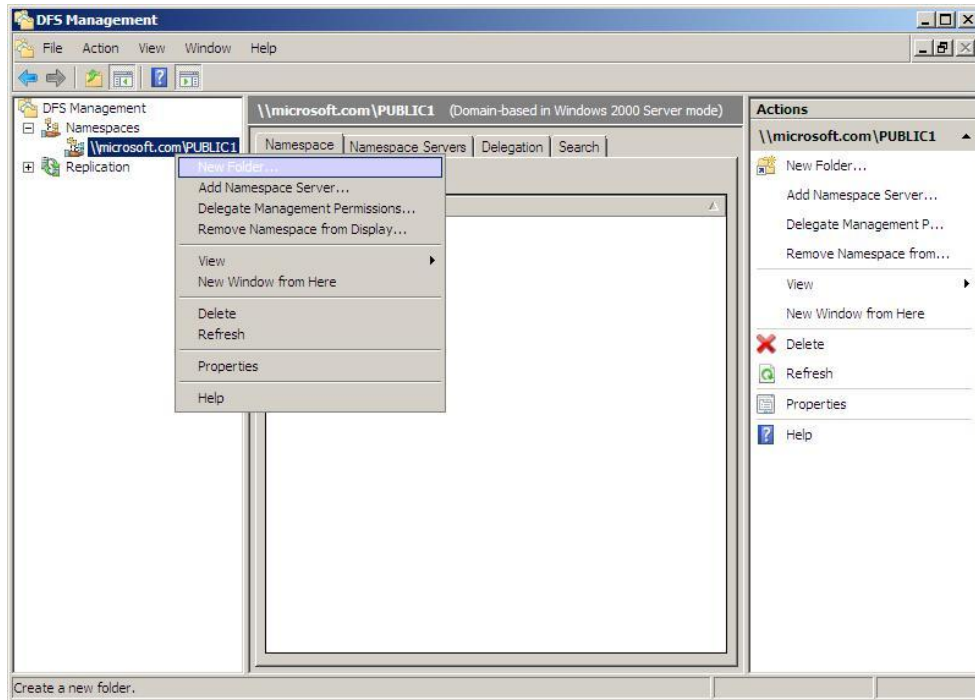
6. Select **Domain Based Namespace** → click **Next**



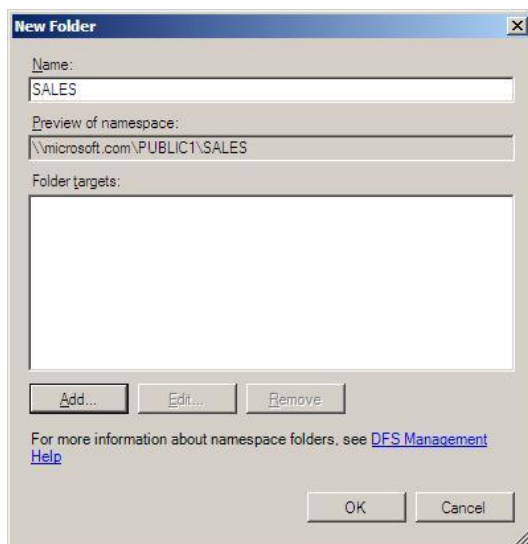
7. Click on **Create** and Select **Close**

Configuring New Folder In Namespace

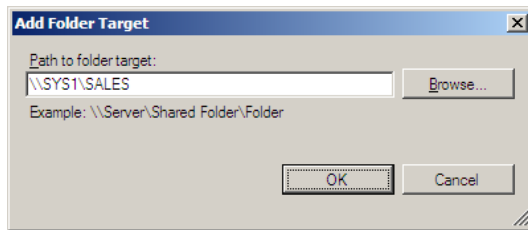
1. In **SYS1 (DC)** open any **Drive** which is formatted with **NTFS**
2. **Create a shared folder (Sales)** and give permission of **Co-Owner For Everyone**
3. In **SYS2 (Member Server)** go to **DFS Management** and Expand Namespaces
4. Right click on namespace name and **Select New Folder**



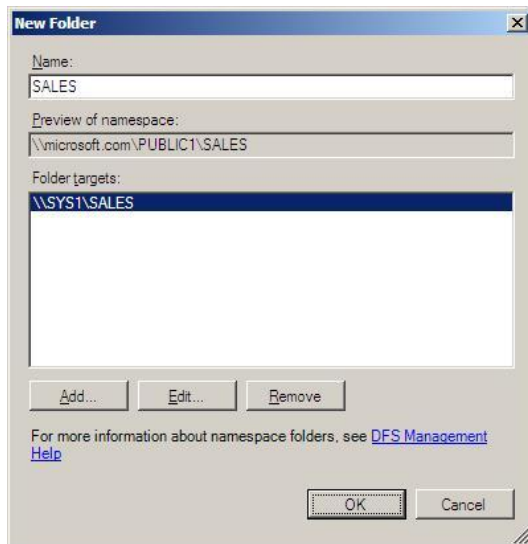
5. Give the name for **NEWFOLDER (SALES)** and click Add.



6. Enter the path for folder target ([\\Systemname\Sharefoldername](#)) & Select OK.

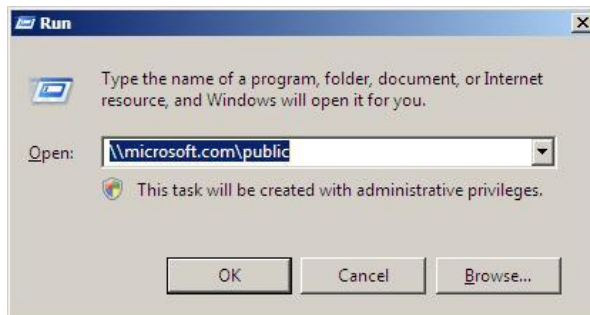


7. Click OK.



VERIFICATION:

1. In SYS2 (Member Server) Go to Run → type ([\\Domainname\Namespace Name](#))

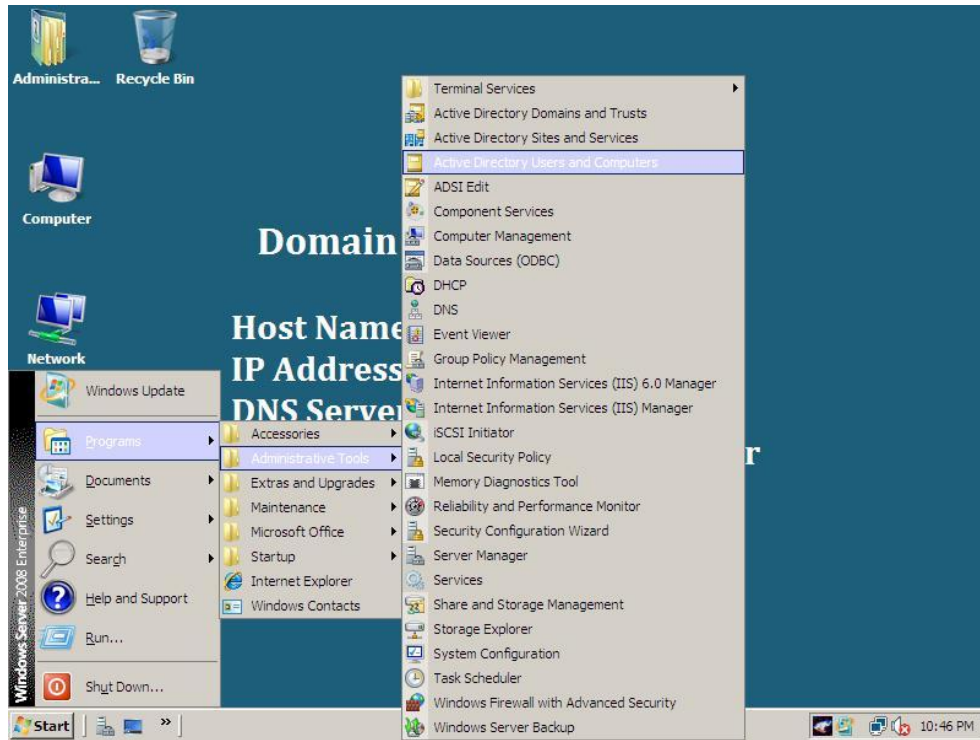


2. It will display the contents (Folders) of Namespace.

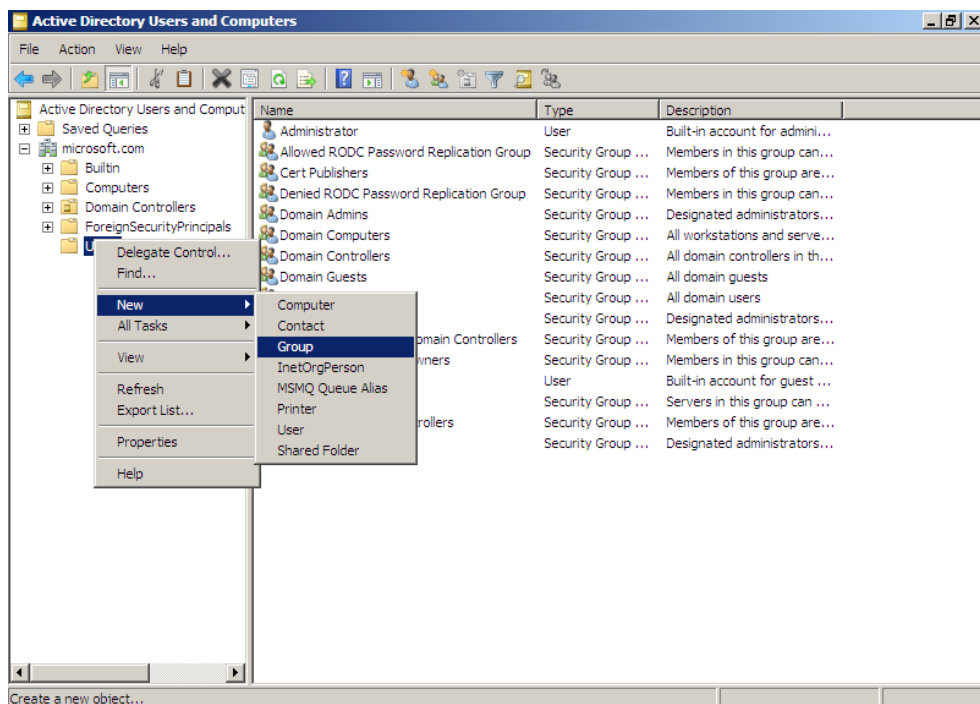
GROUPS

Creating Groups

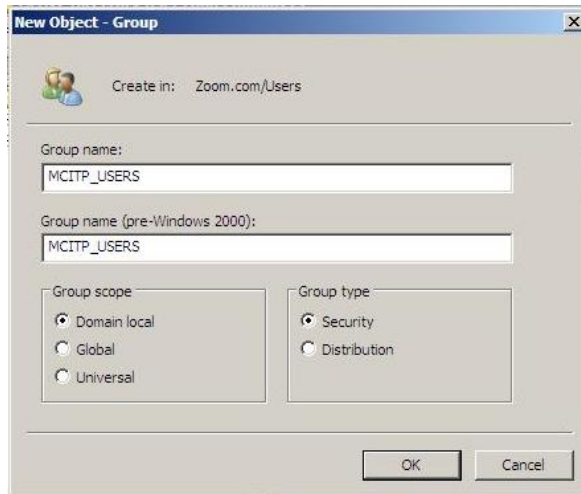
1. Login as **Administrator** on a **Domain Controller**.
2. Go to Start → Programs → Administrative Tools → **Active Directory Users and Computers**.



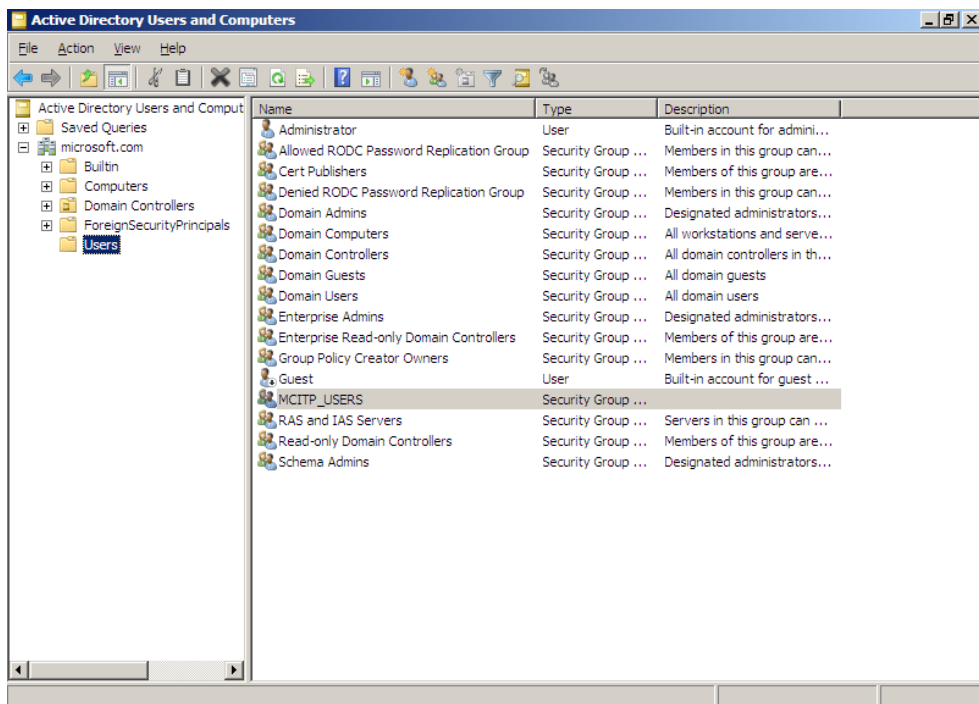
3. Right click **Users** → Select **New** → **Group**.



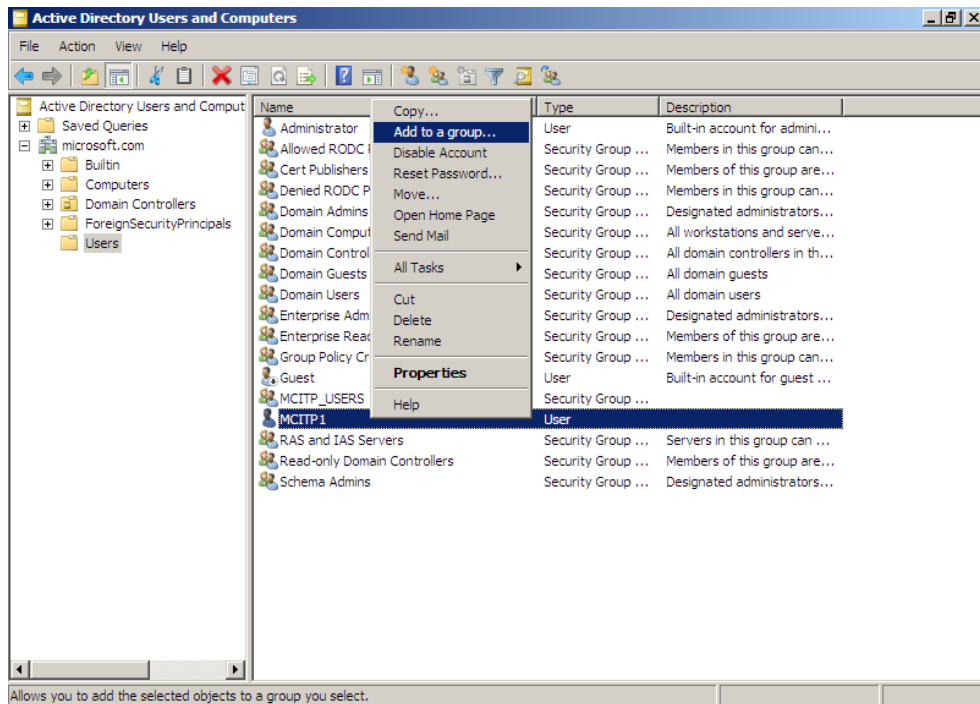
4. Mention the **Group name** & Select the Group Scope as **Domain Local** & Group type as **Security**.



5. Group will be created successfully.

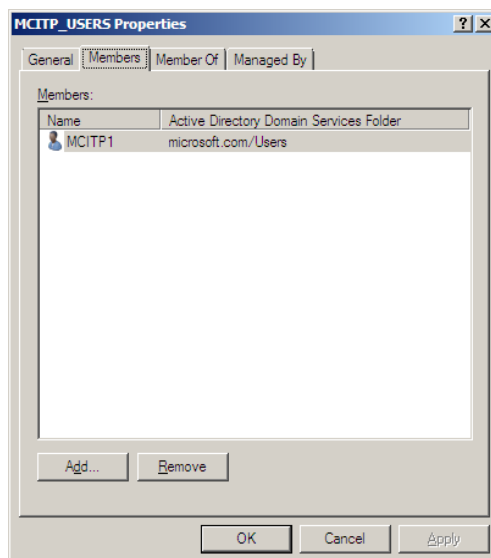


- To add any users to this group, Right click on User account & Select **Add to a group** → Mention the group name as **MCITP_USERS** → click **OK**.

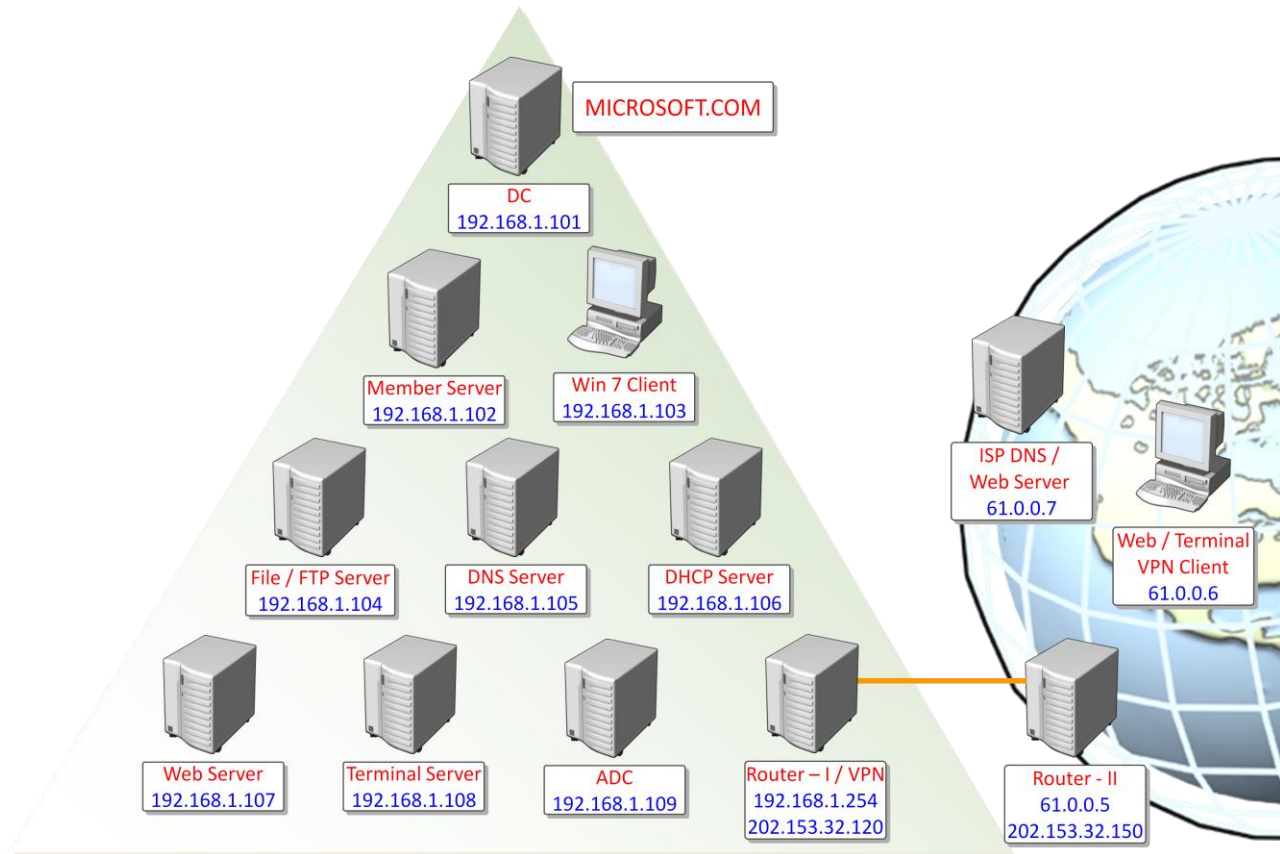


For Verification:

- Go to **Active Directory Users and Computers** → Right click on **Group** → Select **Properties** → Select **Members** Tab → **Verify for the User**.



LIVE SETUP



DOCUMENTATION OF LIVE SETUP

Prerequisite:

Internal Network

Servers:

Domain Controller	– 192.168.1.101
File server	– 192.168.1.104
DNS server	– 192.168.1.105
DHCP server	– 192.168.1.106
Local Web server	– 192.168.1.107
FTP server	– 192.168.1.104
Terminal {RDP} server	– 192.168.1.108
Additional Domain controller	– 192.168.1.109
VPN server	– 192.168.1.254

Clients:

Member Server	– 192.168.1.102
Windows 7 Client	– 192.168.1.103

Router I

LAN Interface	– 192.168.1.254
WAN Interface	– 202.153.32.120

External Network:

Router II

WAN Interface	– 202.153.32.150
WAN2 Interface	– 61.0.0.5

Clients:

Client	– 61.0.0.6
Web server	– 61.0.0.7

Configure 61.0.0.7 as Internet Web Server and DNS Server for www.Whatismyip.com

CONFIGURATION STEPS

- Configure **192.168.1.101 as Domain Controller** along with DNS with the name **Microsoft.com**
- **Join** all the systems to the domain (Windows 2008 / Windows 7)
- **Create Users on DC** & login using the same user from Client (Windows 2008 / Windows 7)
- Configure **192.168.1.104 as File Server**
 - User profiles - Roaming
- Configure the Separate **DNS server** for Domain {obtain SRV Records} **on 192.168.1.105**
- Configure **192.168.1.106 as DHCP Server**
 - Scope
 - Reservation for File server etc,
 - Assign Dynamic IP's to all systems
- Configure **192.168.1.107 as Web Server** for www.Microsoft.com
 - Create DNS zone for this site on DNS server only {192.168.1.105}.
 - Access this web site from Internal network
- Configure **192.168.1.104 as FTP Server**
 - Access this FTP site from Internal network
- Configure **192.168.1.108 as Terminal {RDP} Server**
 - Access this Terminal server from Internal network

- Configure **192.168.1.109** as **ADC for Microsoft.com**
 - Turn off the DC & login as user from **Client** or **Member Server**.
- Configure **192.168.1.254** as **Private Router I** and **WAN IP is 202.153.32.120**
 - Add Static Route for 61.0.0.0 network
- Configure **202.153.32.150** as the **Public Router II** and **WAN IP is 61.0.0.5**
 - Add Static Route for 192.168.1.0 network
 - Access www.Microsoft.com from External network
 - Access the Local FTP site from External network
- Configure **Router I as NAT server**
 - Configure Local DNS Server to forward the request to ISP DNS server{61.0.0.7}
 - Access www.whatismyip.com from Internal network
- Configure **ROUTER1 as VPN Server**
 - Access the VPN server from External network
- Maintain **61.0.0.6** as **public client** to access Terminal Server, VPN Server & Web sites.
 - Create a VPN Tunnel from **61.0.0.6** to **202.153.32.120**
 - Access www.Microsoft.com from External network through VPN
 - Access the Terminal server from External network through VPN