Lab 7 – Remote Desktop Services

Write down **the name of the equipment** used in this lab (fill this out once you have the information):

Computer #1 Name	
Computer #2 Name	

In this lab, we will install **Remote Desktop Services** on the server and connect to the Remote Desktop Server from a host computer or a laptop.
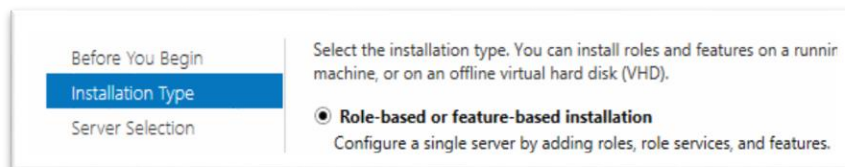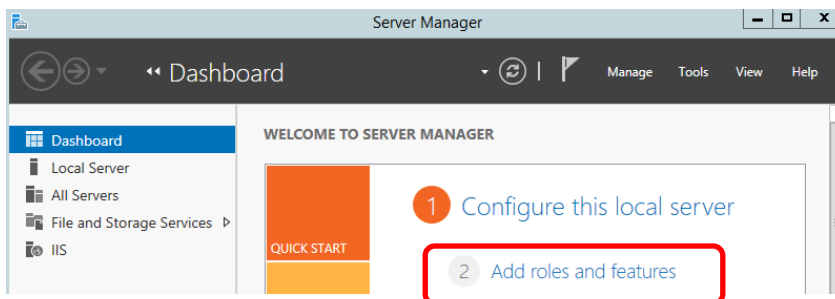
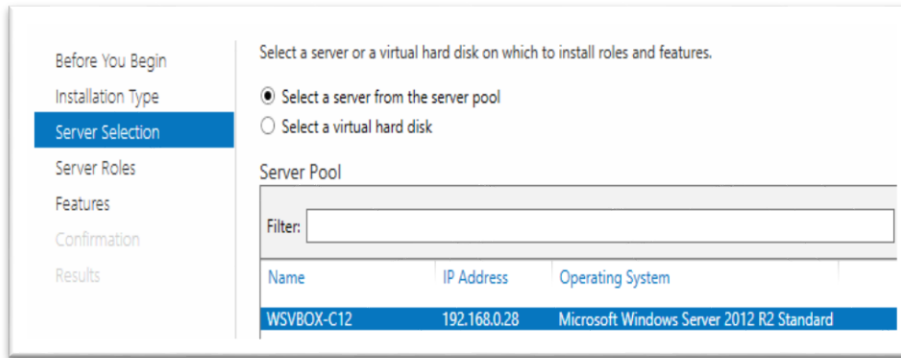### A. Installing Remote Desktop Services

Login to a computer by clicking the CSIS student icon by using the following password: (CSIS Student | password: STF@ll2016). Run the Oracle VM Virtualbox program, double-click on Windows Server 2012 VM and login to the server (username: administrator, password: Id0ntf0rget). Go to View and click *Switch to Fullscreen* or simply press [RightCtrl] + F to switch to fullscreen. You can go back to the windowed mode any time by pressing [RightCtrl] + F.
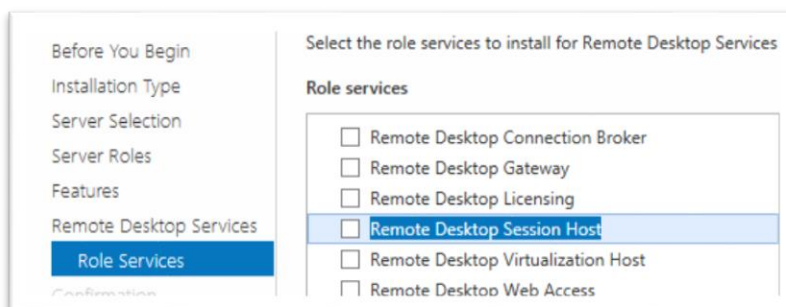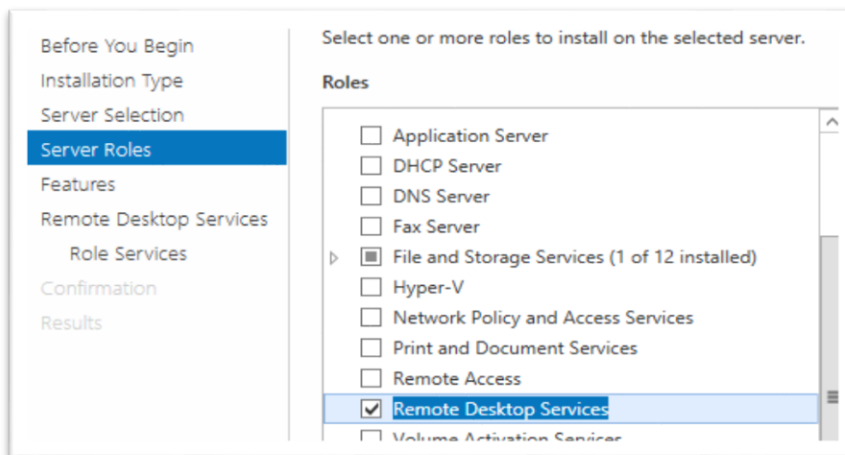
1.   Record the IP address of the server.

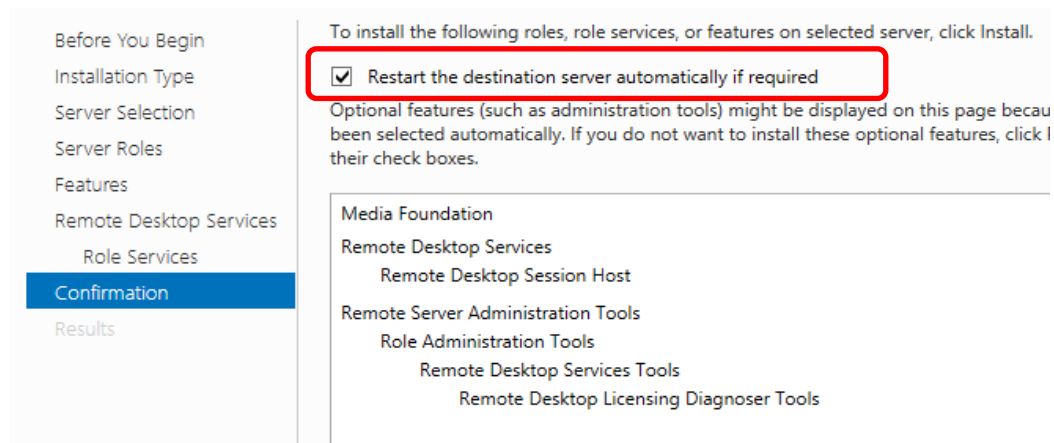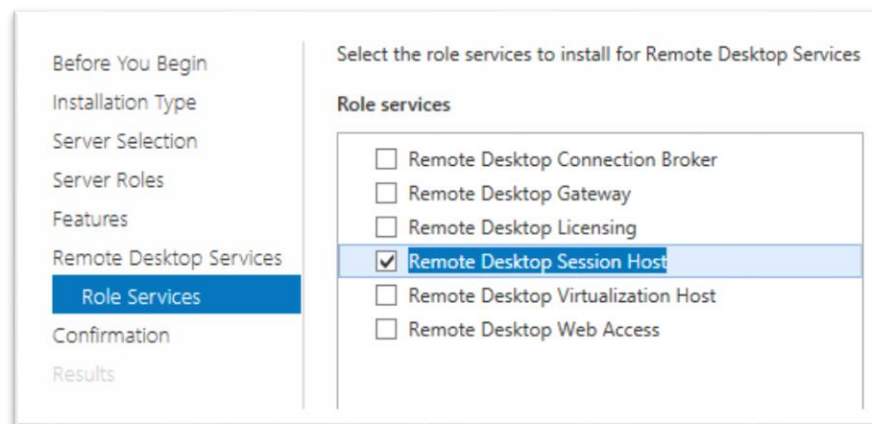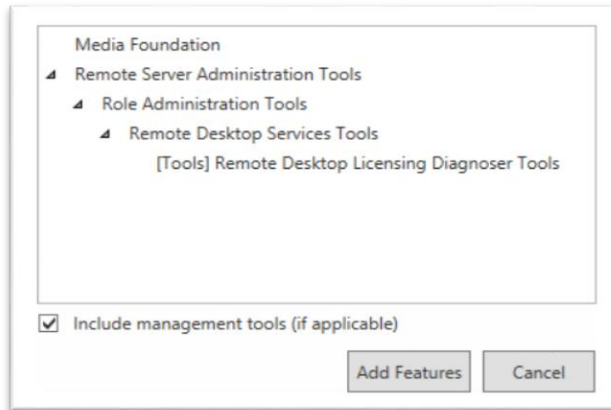   *(Q.1). What is the IPv4 address of the server?*

2.   Go to Administrative Tools > Server Manager > Add roles and features > Next > Role-based or feature-based installation.. Next > Select a server from the server pool, make sure your server name is selected... Next > Check Remote Desktop Services.. Next > Next > Next > Under Role services, choose "Remote Desktop Session Host".. Add features .. Next> Install

Select a server or a virtual hard disk on which to install roles and features.

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

◉ Select a server from the server pool
○ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
WSVBOX-C12	192.168.0.28	Microsoft Windows Server 2012 R2 Standard

Note: Server name mentioned above is just an example.

Select one or more roles to install on the selected server.

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Remote Desktop Services

   Role Services

Confirmation

Results

Roles

☐ Application Server
☐ DHCP Server
☐ DNS Server
☐ Fax Server
▷ ◼ File and Storage Services (1 of 12 installed)
☐ Hyper-V
☐ Network Policy and Access Services
☐ Print and Document Services
☐ Remote Access
☑ Remote Desktop Services
☐ Volume Activation Services

Select the role services to install for Remote Desktop Services

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Remote Desktop Services

   Role Services

Confirmation

Role services

☐ Remote Desktop Connection Broker
☐ Remote Desktop Gateway
☐ Remote Desktop Licensing
☐ Remote Desktop Session Host
☐ Remote Desktop Virtualization Host
☐ Remote Desktop Web Access

Media Foundation
◢ Remote Server Administration Tools
　　◢ Role Administration Tools
　　　　◢ Remote Desktop Services Tools
　　　　　　[Tools] Remote Desktop Licensing Diagnoser Tools

☑ Include management tools (if applicable)

Add Features Cancel

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Remote Desktop Services

Role Services

Confirmation

Results

Select the role services to install for Remote Desktop Services

Role services

☐ Remote Desktop Connection Broker
☐ Remote Desktop Gateway
☐ Remote Desktop Licensing
☑ Remote Desktop Session Host
☐ Remote Desktop Virtualization Host
☐ Remote Desktop Web Access

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Remote Desktop Services

Role Services

Confirmation

Results

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

☑ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page becau
been selected automatically. If you do not want to install these optional features, click I
their check boxes.

Media Foundation

Remote Desktop Services
　　Remote Desktop Session Host

Remote Server Administration Tools
　　Role Administration Tools
　　　　Remote Desktop Services Tools
　　　　　　Remote Desktop Licensing Diagnoser Tools

3. If asked to restart the server, click Close and restart.
4. While logged on as the Administrator, prepare your server to demonstrate Remote Desktop Services as follows:
    a. Run Notepad, enter some text and save the file to your server's desktop
    b. Leave Notepad open with the file active in the Notepad editor.

**B.** <mark>Connect a client</mark> **to your Remote Desktop Server**

If you are using your own laptop, enable the Ethernet NIC and use a network cable to connect your laptop to the network port on the table.

1. Using another computer (VirtualBox's Windows 7/8, or another desktop)
2. Start a Remote Desktop Connection by navigating through [Start], All Programs, Accessories and clicking Remote Desktop Connection.
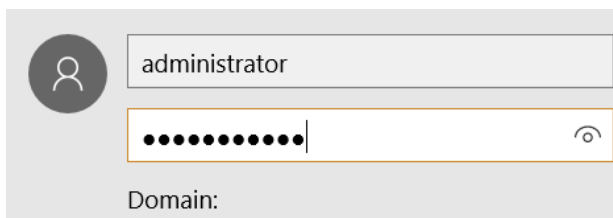   OR
   Search Remote Desktop Connection
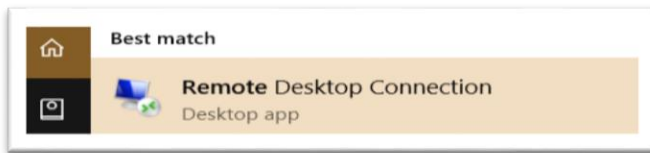
Example result if using other versions of Windows

3. Click [Options >>]. Select the {Experience} tab and set the connection speed to "LAN". Then return to the {General} tab and enter your server's IP address in the Computer field. Clear the User Name and then click [Connect].
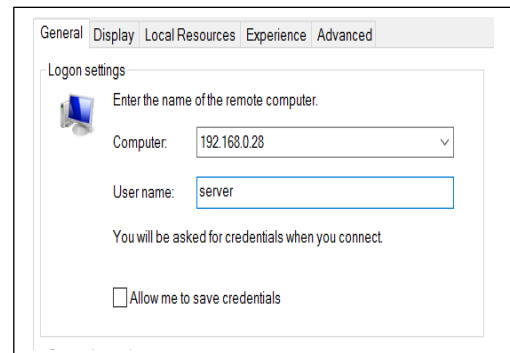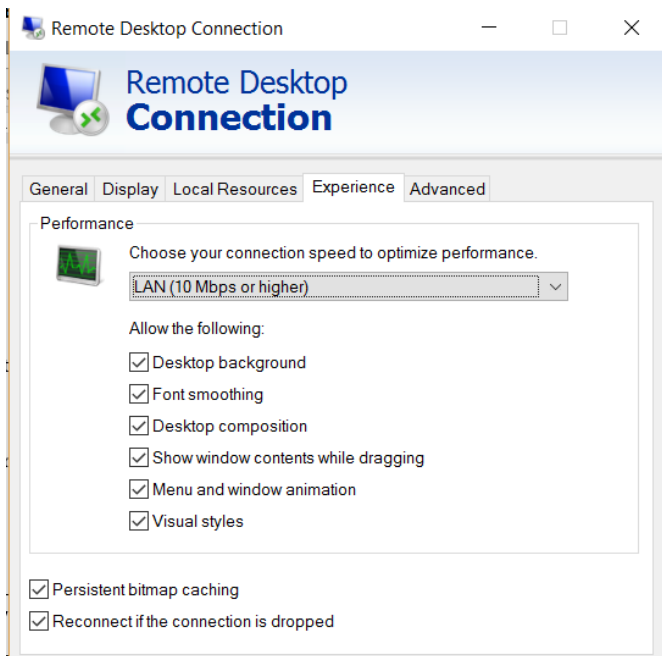
Ip address is just an example.

Login attempt using Windows 10

4. Log on to your server from the remote client host computer or laptop using your server's Administrator account and password. If a warning window pops up, just click [Yes].
5. Observe the screen upon successful login

(Q.2). What is shown on the remote client computer? What happens to the server display?

6. From the remote client, edit the text document on the server using Notepad
7. With a lab partner observing the remote client screen, log on at your server using the Administrator account.

(Q.3). When you login to the server, what appears on the remote client computer? From the server, do you see the changes on the text document made by the remote client?

8. Set your Remote Desktop server to allow multiple connections for each user:
   a. Go to Search and type "Edit group policy"
   b. Open "Edit group policy"
   c. Go to Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Connections
   d. Disable "Restrict Remote Desktop Services user to a single remote desktop services session " > apply
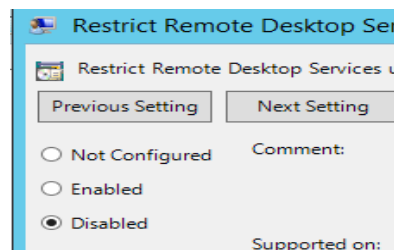
9. Now go back to Windows 7 computer and try to remote desktop to the server again.
10. Observe the server and see if there's any change.

(Q.4). After disabling the restriction in group policy, how is the remote session different from the first one?

Hints:
- **On the server, save whatever you typed on the notepad to your desktop. DON'T close the file.**
- **On the client machine, check if you see the newly created/saved file. Try to open, add few texts, then save.**
- **On the server, do you see the changes? No? Try closing the notepad and open it again. Do you see it now?**

11. On the Windows 7 computer, try to establish a **2nd remote desktop session**.

(Q.5). Were you able to establish a 2nd remote desktop session on Windows 7 computer?

12. On the server, open the Task Manager > Users tab. Right-click "Users" and check everything on the list.
13. Examine each user. Right-click on each user and see the different actions you can do.
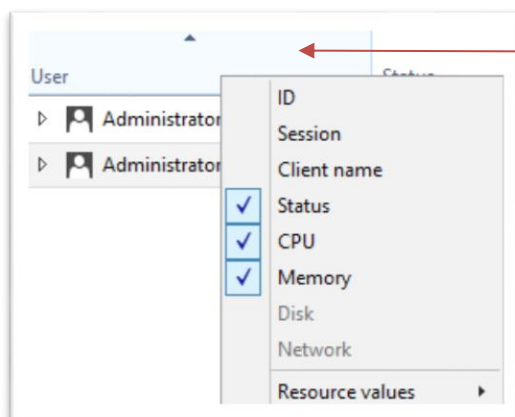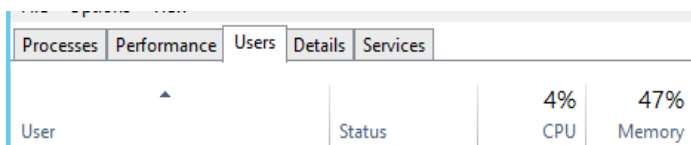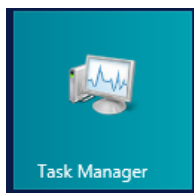
The checked items on the list will provide additional information.
After selecting id, session, and client name. Examine the "Client name" column. See if the information looks familiar.

🗹 **Checkpoint: Get the lab instructor to check your work up to this point.**

**C.   Create a VPN connection**

In this exercise, we will create a VPN server and connect Windows 7 computer to this server. VPN is useful when an employee of a company wants to connect to the company's network remotely (from home). Once the employee is connected to the company's VPN, the employee gets an internal IP address and can access resources on the internal network. In our exercise, you won't see too much of a difference since we are already on the internal network, but you will get a different IP address and all the network activity you do while connected to the VPN will be using this new IP address.

1.   Go to Administrative Tools > Server Manager > Add roles and features > Next > Role-based or feature-based installation.. Next > Select a server from the server pool, make sure your server name is selected… Next > Check Remote Access … Next > Next
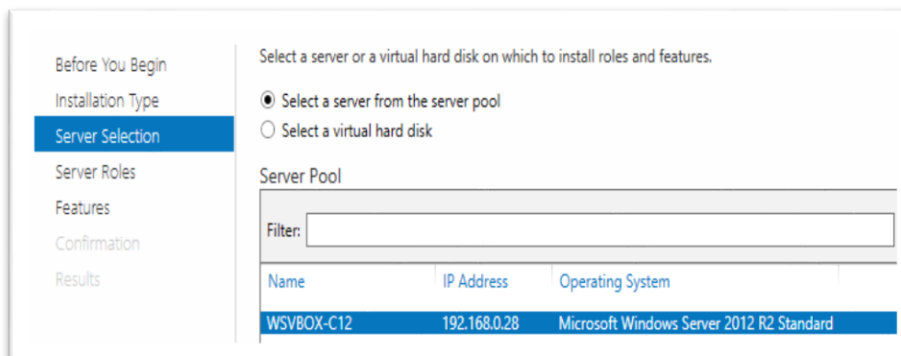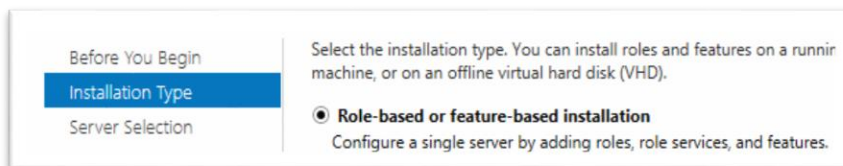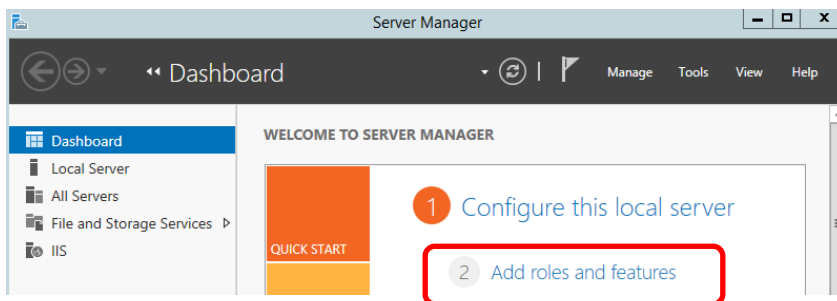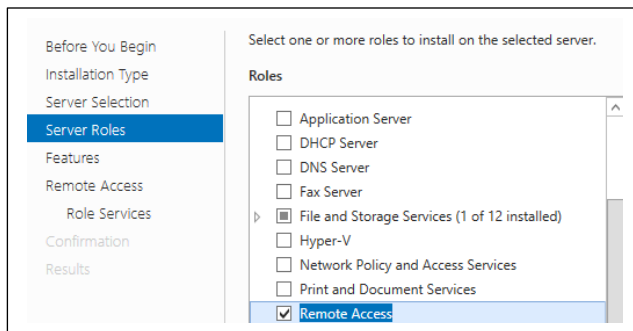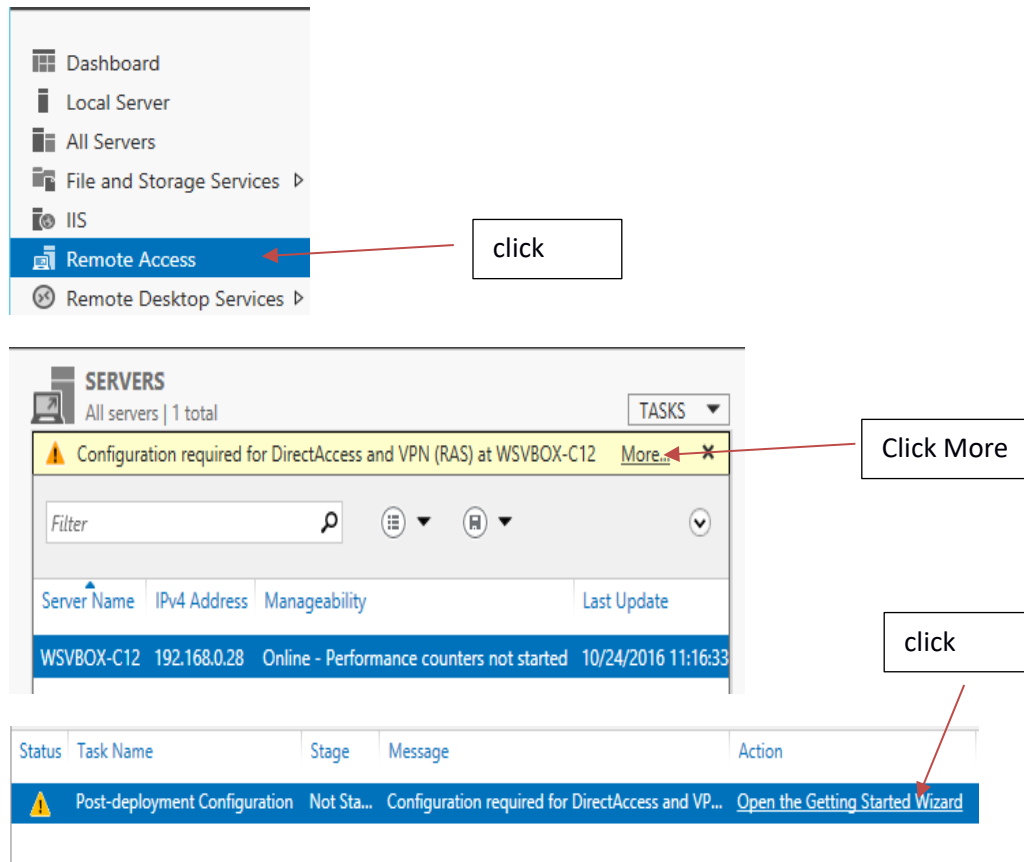
2. Choose (default) DirectAccess and VPN (RAS) > Add feature > Next > Next > Next > Check "Restart the destination server automatically if required" > Install
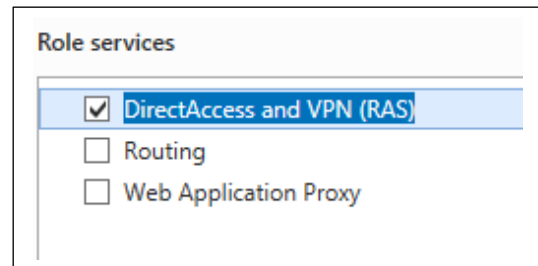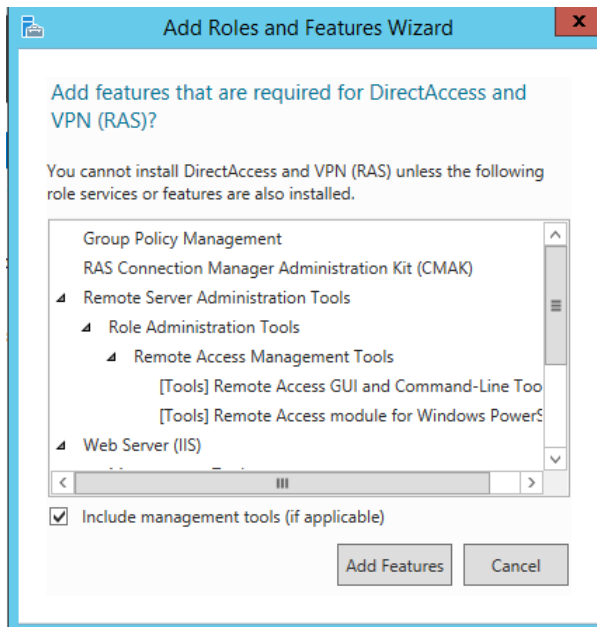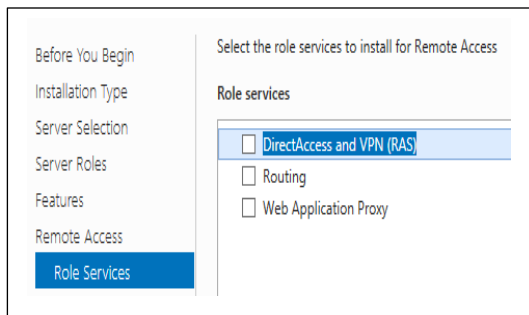
3. After the installation is finished, click "Open getting starting wizard" link window.
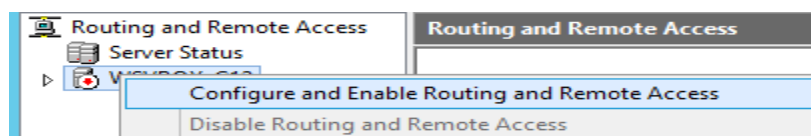

4. Select Deploy VPN Only

    VPN vs DirectAccess – in summary

    VPN is the traditional approach and more "mature" technology.
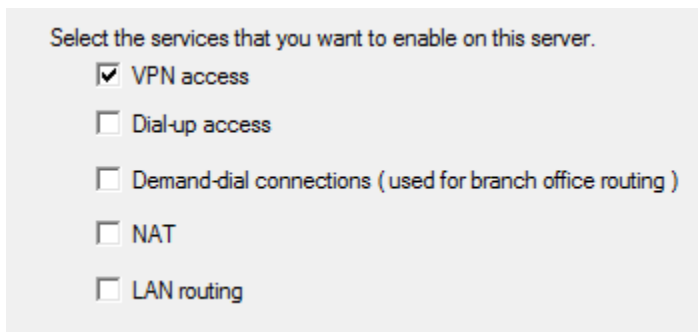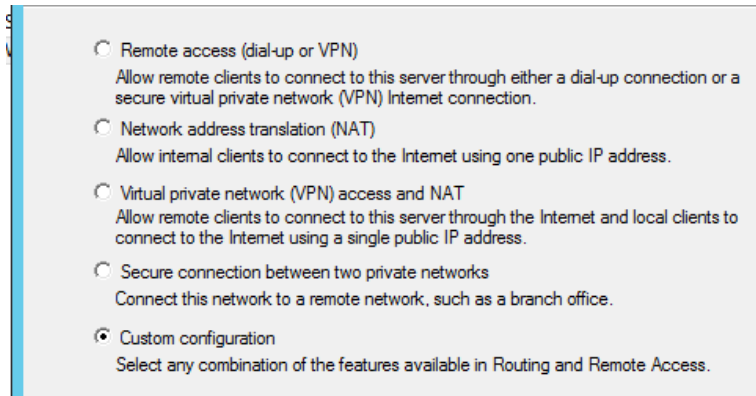   DirectAccess is relatively new.
    -   Established connection done by the machine and not user -> will result to "always-on"
        connection. Theoretically, the connection is performed by the machine the moment it gets an
        internet connection
    -   Bidirectional -> the IT staff can connect to the connected client machine as well.

5. Once the Routing and Remote Access Window is up, right-click the server and choose "Configure and
   Enable Routing and Remote Access" > Next

6. Select Custom (at the very bottom) > Next > VPN Access > Next > Finish > Start Service
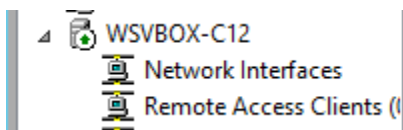

○ Remote access (dial-up or VPN)
 Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.
○ Network address translation (NAT)
 Allow internal clients to connect to the Internet using one public IP address.
○ Virtual private network (VPN) access and NAT
 Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.
○ Secure connection between two private networks
 Connect this network to a remote network, such as a branch office.
● Custom configuration
 Select any combination of the features available in Routing and Remote Access.

Select the services that you want to enable on this server.
☑ VPN access
☐ Dial-up access
☐ Demand-dial connections (used for branch office routing)
☐ NAT
☐ LAN routing

NAT – Network address Translation (router feature. Typically, mapping local ip to a global ip)

LAN routing – when trying to connect two networks

Routing and Remote Access

Start the service

The Routing and Remote Access service is ready to use.

[Start service] [Cancel]
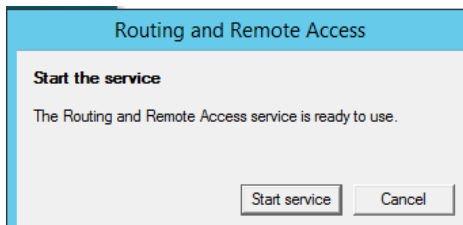
7. The server icon should have a green arrow now.

▲ 🖥 WSVBOX-C12
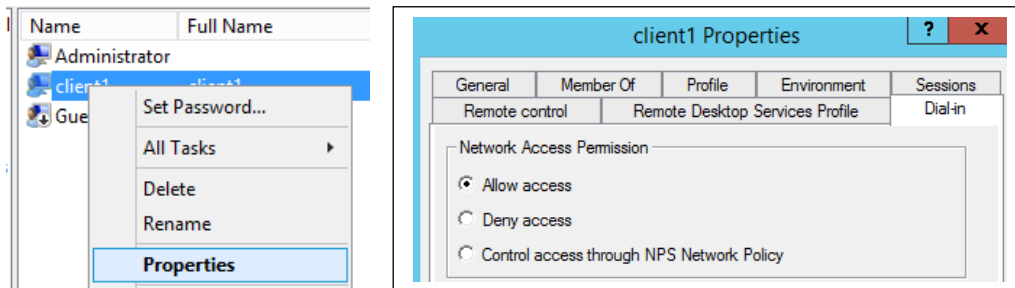 🖳 Network Interfaces
 🖳 Remote Access Clients (

8. Go to Computer Management and create a new user account (enter a password and disable change password during first time login). We will connect to the server by using this account later.

Manage **Tools** View Help

 Component Services
 Computer Management
 Connection Manager Administration Kit
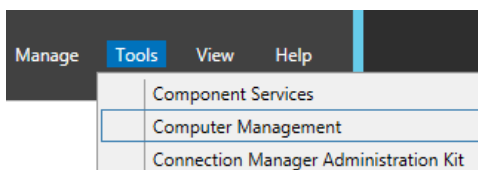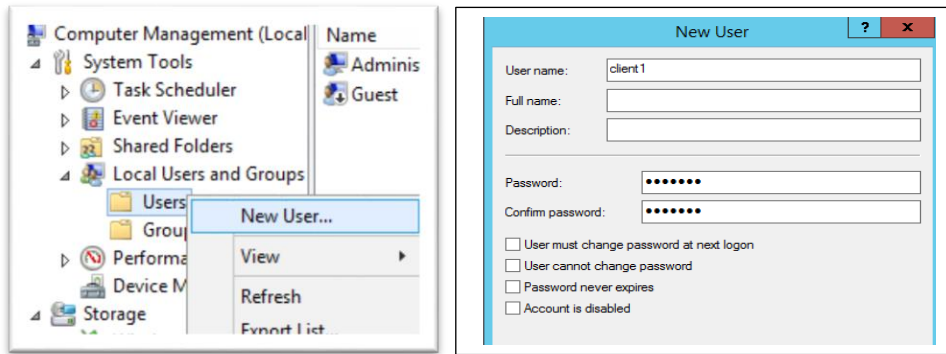
9. Right-click the newly created user > Properties > Dial-in > Allow access > Apply > Ok

Network Policy Server (NPS) allows you to create and enforce organization-wide network access policies for client
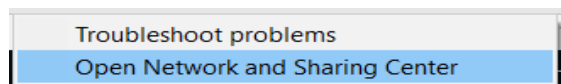
Callback options -> used when the server is busy and you want a "return call"

10. Record the IP address of the server: _____ **(Q6)**
11. Go to the other computer Windows 7 and record the IP address.
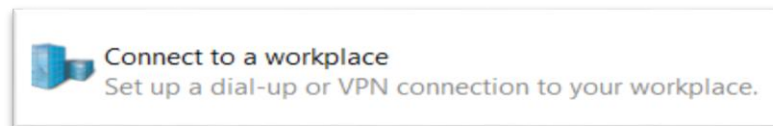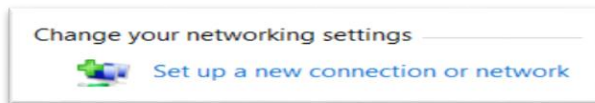
(Q.7). What is the IP address of the client computer (Windows 7) before connecting to the VPN?
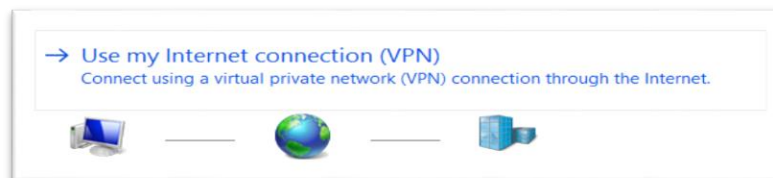
12. On the client machine
    a. Right-click the Network Icon in the task bar > Open Network and Sharing Center.

    b. Click Set up a new connection or network > Connect to a workplace > Next

    c. Use my Internet connection (VPN) > type the IP address of the VPN server, Next> login using the new user you just created on the server > connect [if prompted for network type, choose Work Network]

    Your network administrator can give you this address.

    Internet address: 192.168.0.28

    Destination name: VPN Connection

13. After you are connected to the VPN server, do ipconfig in command prompt and check your IP address again. Note: If you are having trouble connecting, check the firewall setting on the server to allow Routing and Remote Access.

    • Online guide with pictures: https://www.interactivewebs.com/blog/index.php/server-tips/windows-2012-r2-remote-desktop-enabled-cannot-rdp-connect/

14. Go back to your server and start the Wireshark capture. Disable the promiscuous mode.

(Q.8). You should see a new network information under "PPP adapter VPN connection". Record the IPv4 address listed. What is this IP address? From the command prompt, type: **ipconfig***. Copy and paste the result.*

15. On Windows 7 computer > command prompt > type: **ping google.ca**
16. Stop the Wireshark capture after the ping is finished.

(Q.9). Observe the Wireshark capture after the VPN is connected. Find the following protocols: PPTP, PPP, GRE. Print screen a sample

(Q.10). In the wireshark capture, filter for ICMP. What are the source and destination IP addresses? What do they refer to?

 Checkpoint: Get the lab instructor to check your work up to this point.

D.   End of the lab

After your work is inspected and marked, shutdown the server gracefully. Select "Other (planned)" and continue. Logoff the Windows 7 computer after you have saved all your files on an external USB/cloud storage. **All changes made to the computer will be erased.**

Deliverables
- Submit a report named **Lab7.pdf or Lab7.docx**.
- Submit to D2L by the due date (posted in D2L Dropbox).