CIS232 – SSH / VNC / Tunneling Homework

You will need:

- Your Linux Server, Linux Client and Windows 7 _or_ Windows 10 machine on your private network. Windows client will need putty and tightvnc installed
- A Linux machine and a Windows machine on the college network. Windows client will need putty and tightvnc installed.

SSH

1. Configure your Linux Server as an SSH server. Ensure an SSH connection is supported from both inside and outside your private network.
    a. Execute the command that will confirm that sshd is configured to start at boot. Provide the command and its output as your answer to this question.
    b. Provide a screenshot which confirms that the firewall is appropriately configured to support an ssh connection from the external network.

2. What is your server's external network card's IP address and what is the server's name?

3. Display the contents of the server's passwd file.

4. From a Windows computer on your _private_ network, use putty to connect to your ssh Server as one of your Linux users. Provide a screenshot of the putty screen confirming the user has successfully logged in. Include the title bar in the screenshot.

5. From a Linux computer on your _private_ network, use ssh to connect to your ssh server. Provide a screenshot which displays the command used to complete the task and the command's output.

6. From a Windows computer on the _college_ network, use putty to connect to your ssh Server as one of your Linux users. Provide a screenshot of the putty screen confirming the user has successfully logged in. Include the title bar in the screenshot.
   What is the name of the machine you used and where is it stored?

7. From a Linux computer on the _college_ network, use ssh to connect to your ssh server. Provide a screenshot which displays the command used to complete the task and the command's output. What is the name of the machine you used and where is it stored?

Remote Desktop Connections

8. Using desktop #52, configure a vncserver session (at the *server*) while logged in as a user.
    a. What command did you use to configure the session?
    b. What user did you use?
    c. What desktop were you logged in with when creating the session?

9. From the Linux client on your *private* network, use vncviewer to connect to desktop #52.
    a. What command did you use?
    b. Provide a screenshot which confirms you've successfully connected.

10. From the Windows client on your *private* network, use TightVNC Viewer to connect to desktop #52.
    a. Include a screenshot which displays what you entered for the 'remote host' entry in the viewer.
    b. Include a screenshot which confirms you've successfully connected.

11. Execute the command that could be used to KILL the desktop 52 vncserver.
    a. Who were you logged in as?
    b. What command did you use?

12. Add another vnc desktop for another user at the server. You pick the desktop number that this user will use. Include it in the command; in other words, don't let the system pick it for you. Include at least two different settings in the user's vnc config file and test the settings.
    a. What desktop number did you choose?
    b. Display the content of the user's config file.
    c. Within Yast Firewall, display the services allowed through the internal zone.
    d. Within Yast Firewall, display the ports tab for the internal zone.
    e. Include a list of every command used to complete this task.
    f. Provide an explanation of the settings you've configured and include an explanation of how you confirmed they worked.
    g. What user did you use?

13. Setup a vnc desktop – use number 90 – for the root user at the server and do what needs to be done to ensure it starts automatically after the server reboots.
    a. Include a list of all the steps you took to do this. Show me any files you used and explain how you tested it.

Tunneling (from <mark>internal</mark> / <u>private</u> network)

14. While at the Linux client, execute the command that will create a secure tunnel to desktop #52 at the Linux server.
    a. Provide the command used and its output.

15. While at the Linux client, use the secure tunnel created in #14 to vnc to the server.
    a. Provide the command used to connect to the server using the tunnel
    b. Include a screenshot which confirms the connection was successful.

16. While at the windows machine, use putty to configure a secure tunnel to desktop #52 at the Linux server.
    a. Load the session and provide two putty screenshots: the Session screen and the ssh/tunnels screen. I need to see what you typed in the host box (session screen) and I need to see the tunnel settings.

17. Using the secure tunnel created in #16, use TightVNC to connect to the server.
    a. Include a screenshot which displays what you entered for the 'remote host' entry in the viewer.
    b. Include a screenshot which confirms you've successfully connected.

Tunneling (from <mark>external</mark> network)

This section has you setup vnc server services on two more computers on your private/internal network and then setup secure tunnels to VNC to each of the machines from the external network.

Do not enable VNC on your server's firewall; all must be done using a secure tunnel.

18. Display the firewall settings of the server's external network card.

19. Configure a vncserver session on the Windows and Linux Client machines that are _on your private network_. Decide on a desktop number and use it when starting the Linux VNCserver. In other words, don't let the system pick it for you.
    a. Linux: What command did you use to configure the session? Who were you logged in as?
    b. Within Yast Firewall, display the services allowed through the internal zone.
    c. Within Yast Firewall, display the ports tab for the internal zone.
    d. Windows: Display the TightNVC Server Confirmation screen / Server tab.

20. Create Tunnels on Windows: While at the Windows computer on the _college network_, use putty to configure a secure tunnel to the Linux Server (desktop #52), the Linux client (whatever desktop you configured in question 18) and the windows client. Save the session using the name SecureTunnels. Load the session and provide two putty screenshots: the Session screen and the ssh/tunnels screen. I need to see what you typed in the host box (session screen) and I need to see the tunnel settings.
    Be sure that you provide these screenshots only AFTER you've confirmed that the three tunnels are properly configured and tested.

21. Create Tunnels on Linux: While at the Linux computer on the _college network_, use ssh to configure a secure tunnel to the Linux Server (desktop #52), to the Linux client (whatever desktop you configured) and to the windows client.
Include each of the three commands used and their output.
Be sure that you provide the commands only AFTER you've confirmed that the three tunnels are properly configured and tested.

22. **Fill in the following tables with the settings used for your tunnels: -- Yes, I do want tables as your answer.**

Computers on Internal/Private network	IP Address	External IP	What port did you tunnel through?	What port is the VNC Server running at?
OpenSuse Server				
Linux Client		N/A		
Windows Client		N/A		

Computers on External network	IP Address	DHCP Server's address	Primary DNS server's address
Linux Client			
Windows Client			

23. While at the Windows computer on the _college_ network, use each of the secure tunnels configured in #20 to vnc to the Linux server, Client and Windows machines on the internal network.
    a. Include a screenshot which displays what you entered for the 'remote host' entry in the viewer for the server.
    b. Include a screenshot which confirms you've successfully connected to the server
    c. Include a screenshot which displays what you entered for the 'remote host' entry in the viewer for the Linux Client.
    d. Include a screenshot which confirms you've successfully connected to the Linux Client
    e. Include a screenshot which displays what you entered for the 'remote host' entry in the viewer for the Windows machine.
    f. Include a screenshot which confirms you've successfully connected to the Windows machine.

24. While at the Linux computer on the _college_ network, use each of the secure tunnels configured in #21 to vnc to the Linux server, Client and Windows machines on the internal network.
    a. What command did you use to vnc to the server?
    b. Include a screenshot which confirms you've successfully connected to the server

c. What command did you use to vnc to the linux client?
d. Include a screenshot which confirms you've successfully connected to the linux client.
e. What command did you use to vnc to the windows machine?
f. Include a screenshot which confirms you've successfully connected to the Windows machine.