4. Web Server Administration
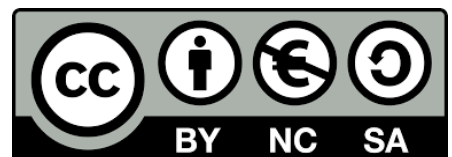
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Web Application Deployment

2nd C-VET Web Application Development

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SSH exercises

Practice 1: SSH

At the end of this practice, you must submit a script that explains and demonstrates the process and steps followed to complete each of the following tasks:

1. Start the SSH server on your machine and verify that you can access it with any user from any device.

2. Configure the SSH service so that:

   - Logging in as root is not allowed.

   - Then, allow logging in as root.

   - Create two new users: user2 and user3, and a group named ssh_users. Add these users to the group and ensure that only the members of this group can access the SSH service.

3. The SSH service, by default, listens on port 22. Modify it to start on port 10022 (or another port), and figure out the command required to access the server on this port. *(Hint: Use* man ssh*)*

4. By default, when authenticating successfully on the SSH server, it shows the date and time of the last connection. Find the option responsible for this behavior and modify it.

5. Configure the SSH server to enable X11 redirection, allowing the execution of graphical applications remotely. Test and verify its functionality.

6. Test connecting from a Windows SSH client (e.g., PuTTY) to a GNU/Linux SSH server and verify the connection.

Practice 2: SSH

At the end of this practice, you must submit a script that explains and demonstrates the process and steps followed to complete each of the following tasks:

Perform client authentication from machine A to machine B using SSH with the following methods:

1. **Password-based authentication**.

2. **Public key authentication with a null passphrase**, where the users on both machines are identical. Copy the public key using scp and append it (without overwriting) to the authorized_keys file.

3. **Public key authentication with a non-null passphrase**, where the users on each machine are identical.

Practice 3: SSH

At the end of this practice, you must submit a script that explains and demonstrates the process and steps followed to complete each of the following tasks:

In this practice, you will use the scp command to copy files and directories between the client and server.

1. In your HOME directory, create a folder named dir1. Inside it:

   - Create another folder called dir2.
   - Create two text files named f1.txt and f2.txt.
   - Inside dir2, create a file named f3.txt.

2. Copy f1.txt and f2.txt to the server.

3. Copy the entire dir2 folder to the server.

4. Modify f1.txt on the server and then copy it back to the client.

Practice 4: SSH

At the end of this practice, you must submit a script that explains and demonstrates the process and steps followed to complete each of the following tasks:

In this practice, you will configure **port forwarding** using SSH so that DNS queries (port 53) over the **TCP protocol** are securely transmitted through the port forwarding.

You can use your own DNS server or the classroom's DNS server (ask your instructor for access).

To test the port forwarding, ensure the DNS query commands specify TCP usage with:

- dig -tcp target_system
- host -T target_system

Practice 5: SSH

At the end of this practice, you must submit a script that explains and demonstrates the process and steps followed to complete each of the following tasks:

In this practice, you will create a **tunnel** to establish a secure connection between systems. As discussed, the information transmitted through the tunnel's associated IPs will be encrypted using the SSH connection.

1. The tunnel will connect your SSH server and a system acting as a client.

2. **Network configuration for the tunnel**:

   - Network: `10.1.1.0 / 30` (subnet mask `255.255.255.252`). This configuration allows only two IPs: one for the server and one for the client.

3. To test the tunnel's functionality:

   - On the **server**, execute: `ping 10.1.1.2`.

   - On the **client**, execute: `ping 10.1.1.1`.

4. Access the web server running on the SSH server using the URL:

`http://10.1.1.1`