

# CIS133 – Homework 7 - NFS

## Part 1:

### What You'll Need

- Your original OpenSuse Virtual operating system. This will be configured as your NFS Server.
- A second OpenSuse virtual operating System. **You MUST complete a new installation of OpenSuse. Do not use a clone of your server.** Use the instructions used when doing the in-class installation earlier in the semester. **Instructions are available on the class website (the top of the homework page).** When using the instructions, **replace all occurrences of the word “server” with the word “client”.**

### NFS Requirements:

- Configure your server as an NFS server and your client as an NFS client.
- The network adapter on each machine must:
  - Be statically configured. Refer to the IP settings document for the IP settings assigned to you: [IP Settings](#)
  - Be configured to be in the external zone.
  - Be configured with the domain name cis133-#.bcc. The number(#) must match the number assigned to you within vmware. i.e., If your student folder number is S02 then use cis133-2.bcc as your domain name
- The firewall rules at the server must allow NFS Server. The firewall must be running.
- The hosts file must be configured on both the server and the client. Each machine must be able to reference each other by name (short name and full name).
- The NFS server must
  - Be configured to start when the computer starts
  - Include the following shared folders:
    - Each folder must be created within a folder named *allshares* at the root (/) of the file system. (i.e., /allshares/foldername)
    - Aside from the specific configurations provided below, use a unique fsid number for each share (do not use 0), and use sync and no\_subtree\_check on each share.
    - The first folder to be shared must be named *public* and must be configured such that any host can mount the share and anyone can write to it (locally and remotely). It must also be configured such that only the owner of a file can delete a file from the folder.
    - The second share must be named *reports* and must be configured such that only hosts in the cis133-#.bcc domain can mount the share. Server and client access should be read only for everyone except, of course the server's root user).
    - The third share must be named *private* and must be configured such that only hosts in the cis133-#.bcc domain can mount the share. The server and client root user, the owner and the *its* group must have full rights to the folder; no one else should have access (locally and remotely). When files are written to the folder from either the server or the client the group assigned to the files must be *its*.
- The NFS Client must
  - Mount each of the shared folders from the NFS Server. The mount point for each must be the same folder name and same location as the respective folder name on the server. The folders must be mounted whenever the client boots.

## Test your Results

Before answering any of the questions in Part 2, ***thoroughly*** test each shared folder at both the server and the client. While testing, you **MUST** create files in the folders while at the server and while at the client. When creating files in these folders they **MUST** conform to the following naming convention: location.username. i.e., if you create a file at the server while logged in as a user named mable, the file's name must be server.mable. If you create a file while at the client logged in as mable, the file's name must be client.mable. This must be the naming convention used for *all files in all shared folders*. The writeable shares **MUST** contain files created while at the server by root and by a user **AND** all writeable shares **MUST** contain files created while at the client by root and by a user.

**Do not answer questions until you've thoroughly tested your configuration.**

**Also..... IF, after answering a question you make changes to your configuration, please remember to go back to update your answer/screenshot.**

### Part 2

1. Explain, in detail how you tested the permissions on *each* share. Your explanations **MUST** include how you tested the share while at the client as root and as a user as well as how you tested it at the server as root and as a user (do NOT use the cis133 user when testing). Your explanation must make it clear to me that you understand what you were testing for.

#### At the NFS Server

2. Show me the contents of the /etc/exports file.
3. Show the last 20 lines of the /etc/passwd file
4. Show the last 10 lines of the /etc/group file.
5. While in the /allshares folder, execute the ls -l command and provide its output.
6. While in the /allshares/public folder, execute the ls -l command and provide its output.
7. While in the /allshares/private folder, execute the ls -l command and provide its output.
8. While in the /allshares/reports folder, execute the ls -l command and provide its output.
9. Execute the command that will check the /etc/exports file for errors.
10. Execute the command that will show which shares are currently available at the server.
11. Execute the command that will show whether or not the nfs server has been configured to start when the system boots.
12. Execute the command that will show the status of the firewall.
13. Include a screenshot that confirms that the firewall has been configured to allow nfs server.

14. Include a screenshot that confirms the network adapter is on the external zone.

### **At the NFS Client**

15. Show me the contents of the /etc/fstab file.

16. Show the last 20 lines of the /etc/passwd file.

17. Show the last 10 lines of the /etc/group file

18. Show me the output of the mount command (grep this output to include only mounted devices that are from your server).

19. Execute the command that will show which shares are currently available at the server.

20. While in the /allshares folder, execute the ls -l command and provide its output.

21. While in the /allshares/public folder, execute the ls -l command and provide its output.

22. While in the /allshares/private folder, execute the ls -l command and provide its output.

23. While in the /allshares/reports folder, execute the ls -l command and provide its output.

24. Execute the command that will show the status of the firewall.

25. Include a screenshot that confirms the network adapter is on the external zone.

**Do not continue with part 3 until all questions in part 2 are answered.**

**Also, if after answering any of the above questions you made changes to your configuration, update your answers before continuing.**

### **Part 3:**

#### **Make the following changes:**

- Remove the reports share from both the server and the client.
- Add another share. The share must be named *data*, it must be stored in the allshares folder and must be configured such that only hosts on the 10.131.0.0 network can mount the share and anyone can write to it (locally or remotely). It should also be configured so that whenever anyone writes to the shared folder while at the client, the owner is your 04 user and the group is the previously created cis133 group. The owner and group requirement must be configured within the exports file, not with special permissions.
- The share must be mounted at the client at boot.
- Change the *public* share such that whenever anyone writes to the shared folder while at the client, the owner is the *nobody* user and the group assignment is *nogroup*.
- Delete any existing files from the public share.
- Create files in both shares. Use the same naming convention as in part 2. Create files while at the client and while at the server; as root and as any other user.

**After configuring and testing the data share, answer the following questions:**

26. At the server, display the contents of the `/etc/exports` file.
27. At the server, execute the command that will show which shares are currently available at the server.
28. At the server, display the permissions set on the data folder.
29. At the server, move into the data share and display the output of the `ls -l` command.
30. At the server, move into the public share and display the output of the `ls -l` command.
31. At the client, display the contents of the `/etc/fstab` file
32. At the client, execute the command that will show which shares are currently available at the server.
33. At the client, show me the output of the `mount` command (grep this output to include only mounted devices that are from your server).