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| Sudo apt install sambaAgnel CharitiesFr.C. Rodrigues Institute of Technology, Vashi **Department of Electronics and Telecommunication Engg.**  **SUB: Skill Laboratory-Linux & Networking & Server Configuration (LNSC)**  **(ECL 604)** | |
| **Setting up a Samba Server** | |
| **EXPT** | **10** |
| **AIM** | Install and Configure Samba Server on Ubuntu. |
| **THEORY:** | Samba is a free and open-source SMB/CIFS protocol implementation for Unix and Linux that allows for file and print sharing between Unix/Linux, Windows, and macOS machines in a local area network. Samba is usually installed and runs on Linux. It comprises several programs that serve different but related purposes, the most important two of which are:   * smbd: provides SMB/CIFS service (file sharing and printing), can also act as a Windows domain controller. * nmbd: This daemon provides NetBIOS name service, listens for name-server requests. It also allows the Samba server to be found by other computers on the network. |
| **PROCEDURE** | **Installation and setting up of Samba Server:**  **Installation of Samba on Ubuntu Linux:**  Samba is included in most Linux distributions. To install Samba on Ubuntu, simply run the following command in terminal.   1. Start with the command of sudo apt update in terminal.      1. Then to start installation of samba server, type sudo apt install samba        1. To check your Samba version, location of its download and its status, run   whereis samba  samba  samba --version     1. To check if Samba service is running, issue the following command.   systemctl status smbd nmbd     1. To start these two services, issue the following command:   sudo systemctl start smbd nmbd   1. Once started, smbd will be listening on TCP port 139 and 445. nmbd will be listening on UDP port 137 and 138.  * TCP 139: used for file and printer sharing and other operations. * TCP 445: the NetBIOS-less CIFS port. * UDP 137: used for NetBIOS network browsing. * UDP 138: used for NetBIOS name service.  1. If you have enabled the UFW firewall on Ubuntu, then you need to open the above ports in the firewall with the following command.   sudo ufw allow samba    **Create a Private Samba Share**   1. In this section, we will see how to create a private Samba share that requires the client to enter username and password in order to gain access. The main Samba configuration file is located at: /etc/samba/smb.conf. You can edit it in terminal with a command line text editor like nano.      1. In the [global] section, make sure the value of workgroup is the same with the workgroup settings of Windows computers.   workgroup = WORKGROUP   1. You can find the setting on your Windows computer by going to Control Panel > System and Security > System. 2. Then scroll down to the bottom of the file. (In nano text editor, you can achieve that by pressing CTRL+W then CTRL+V. ) Add a new section like below.   6666666  Explanation:   * Private is the folder name that will be displayed on the Windows network. * The comment is a description for the shared folder. * The path parameter specifies the path to the shared folder. I use /srv/samba/private/ as an example. You can also use a folder in your home directory. * browseable = yes: Allow other computers in the network to see the Samba server and Samba share. If set to no, users have to know the name of the Samba server and then manually enter a path in the file manager to access the shared folder. guest ok = no: Disable guest access. In other words, you need to enter username and password on the client computer to access the shared folder. * writable = yes: Grants both read and write permission to clients. * valid users = @samba: Only users in the samba group are allowed to access this Samba share.      1. Save and close the file. (To save the file in nano text editor, press Ctrl+O, then press Enter to confirm the file name to write. To close the file, press Ctrl+X.) Now we need to create a Samba user. First, we need to create a standard Linux user account with the following command. Replace username with your desired username.   sudo adduser username     1. You will be prompted to set an Unix password. After that, you also need to set a separate Samba password for the new user with the following command:-   sudo smbpasswd -a username Create the samba group.  sudo groupadd samba And add this user to the samba group.  sudo gpasswd -a username samba Create the private share folder.  sudo mkdir -p /srv/samba/private/     1. The samba group needs to have read, write and execute permission on the shared folder. You can grant these permissions by executing the following command. (If your system doesn’t have the setfacl command, you need to install the acl package with sudo apt install acl.)   sudo setfacl -R -m "g:samba:rwx" /srv/samba/private/   1. Next, run the following command to check if there’s syntactic errors.   testparm     1. Now all left to do is to restart smbd and nmbd daemon.   **Accessing Samba Shared Folder from Windows**   1. On a Windows computer that is in the same network, open File Explorer and click Network on the left pane. If you see the following message, then you need to click on the message and turn on network discovery and file sharing. 2. File sharing is turned off. Some network computers and devices might not be visible. Next, enter \\ followed by the IP address of Samba server in the address bar of File Explorer, like this: \\192.168.0.103. You will see a list of shared resources on the Samba server.      1. Then double-click the shared folder. To access the private share, you need to enter the samba username and password.      1. Once connected, you can read, write and delete files in the Samba shared folder. 2. One feature of the Windows operating system is the capability to map a drive letter (such as S:) to a remote directory. To map the drive letter S: to the Samba share, right-click the Samba shared folder and select **Map network drive**. Then choose a drive letter and click Finish. 3. Once the drive mapping is established, applications can access the files in the Samba share through the drive letter S:. And this Samba share will be automatically mounted when you log in to your Windows computer.   **Accessing Samba Shared Folder from Ubuntu**   1. If you are using Nautilus file manager, then click Other Locations on the left pane. On the bottom, you will see an option to connect to server. To access your Samba share, type in smb:// followed by the IP address of the Samba server and press Enter.   For example: **smb://192.168.0.103**     1. You will see a list of shared resources on the Samba server 2. If you click the private shared folder, then you will need to enter the Samba username and password. |
| **wri** | **Making a file with name of test.txt**    **Editing the file test.txt**    **Accessing file from Windows**        **Accessing file from Ubuntu** |
| **Conclusion:** | Settings in Config files and serivces using smbd and nmbd need to be done for Samba server setup. We have successfully set up Samba server on Ubuntu and have demonstrated the file transfer between multiple devices using Samba service. |