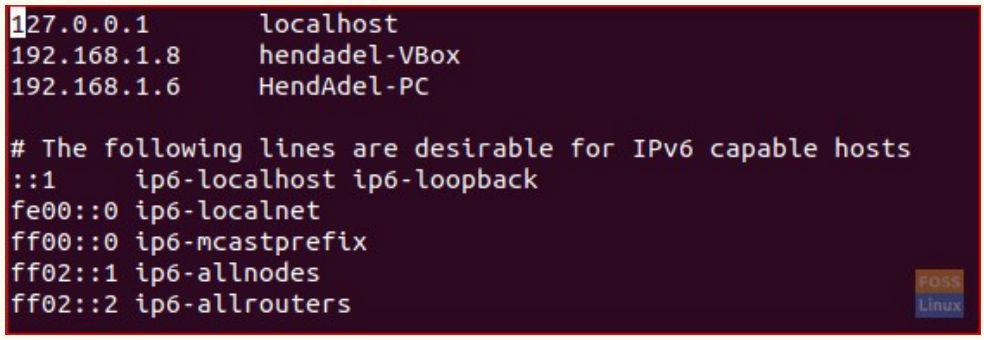
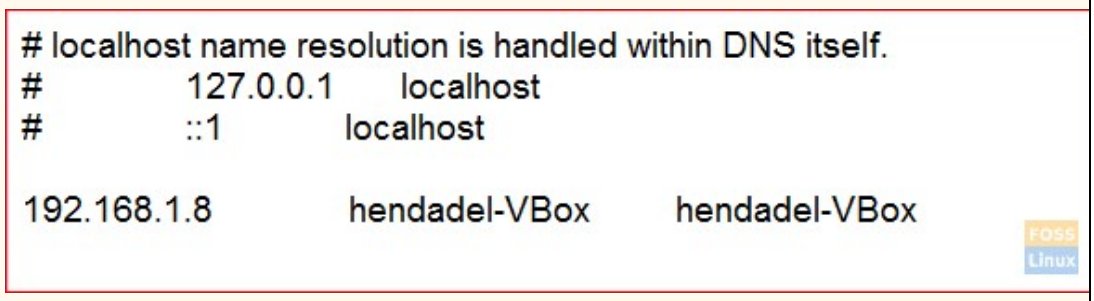
	Experiment No : 10 **Date :**
Title	**Configuration of Samba Server**
Aim	To Set up a Samba Server and creating a print server
Hardware Requirement	Personal Computer
Software Requirement	Linux Operating System(Ubuntu 16.04) , Shell-Interpreter
Theory	Samba is an open-source software suite that runs on Unix/Linux based platforms but is able to communicate with Windows clients like a native application. So Samba is able to provide this service by employing the Common Internet File System (CIFS). At the heart of this CIFS is the Server Message Block (SMB) protocol. Samba does this by performing these 4 key things – • File & print services • Authentication and Authorization • Name resolution • Service announcement (browsing) Samba can be run on many different platforms including Linux, Unix, OpenVMS and operating systems other than Windows and allows the user to interact with a Windows client or server natively. It can basically be described as the Standard Windows interoperability suite of programs for Linux and Unix.

Installation Step By Step	
Step-1	**Setting up Ubuntu and Windows Hosts**
	On Ubuntu, put your Ubuntu IP and hostname in the /etc/hosts file. Also, add a record for the Windows IP and hostname.
	$sudo vi /etc/hosts
	
	On Windows, put your machine IP and hostname. Also, add a record for your Ubuntu IP and hostname.
	notepad C:\\Windows\System32\drivers\etc\hosts
	
Step-2	**Configure domains**
	Both machines must be in the same domain, check the default Windows workstation domain using the next command
	net config workstation

```
C:\Windows\system32>net config workstation
Computer name                        \\HENDADEL-PC
Full Computer name                   HendAdel-PC
User name                            Hend Adel

Workstation active on
        NetBT_Tcpip_{6CD63031-B83F-4168-972C-DB146CC2D4C9} (0A0027000021)
        NetBT_Tcpip_{177E57D5-9ADF-43DA-9FF5-9F09C3A99AFF} (78DD08BE905D)

Software version                     Windows 7 Home Premium

Workstation domain                   WORKGROUP
Logon domain                         HendAdel-PC

COM Open Timeout (sec)               0
COM Send Count (byte)                16
COM Send Timeout (msec)              250
The command completed successfully.
```

As you can see from the previous screenshot, the Windows domain is WORKGROUP.

Step 3 **Enable File Sharing on Windows**

Enable File Sharing on Windows, open cmd with administrator privileges and run the next two commands.

netsh advfirewall firewall set rule group="File and Printer Sharing" new enable=Yes
netsh advfirewall firewall set rule group="Network Discovery" new enable=Yes

The output should be like below:

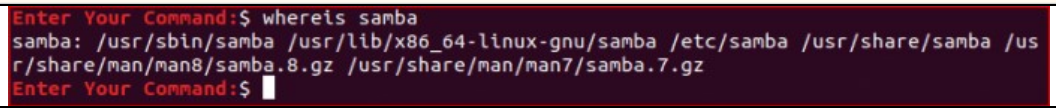
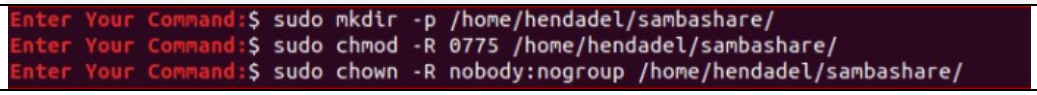
```
C:\Windows\system32>netsh advfirewall firewall set rule group="File and Printer
Sharing" new enable=Yes

Updated 48 rule(s).
Ok.


C:\Windows\system32>netsh advfirewall firewall set rule group="Network Discovery
" new enable=Yes

Updated 57 rule(s).
Ok.
```

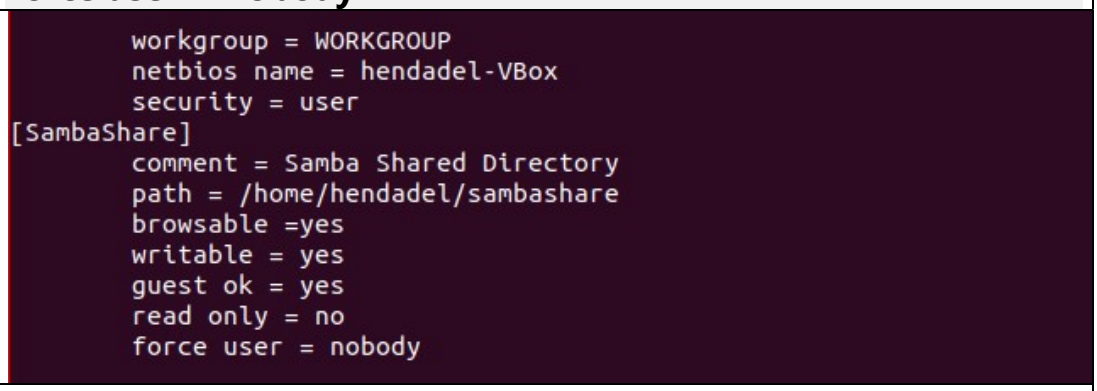
Step-4 **Install Samba on Ubuntu**

Ensure that your Ubuntu updated

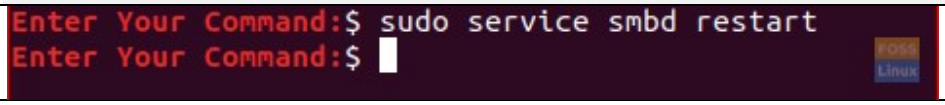
$sudo apt-get update
$sudo apt-get upgrade

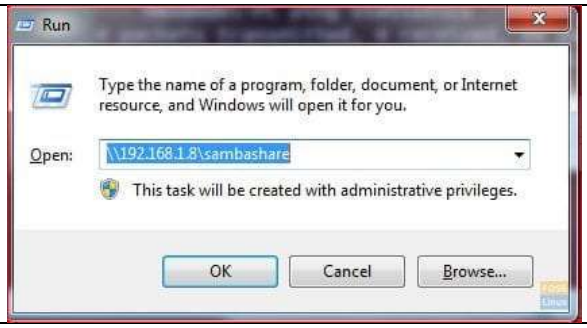
Run next command to install Samba on Ubuntu.

	$sudo apt-get install samba samba-common python-glade2 system-config-samba
	
	Check if the Samba installation was successful.
	$whereis samba The output should like below:
	
Step-5	**Setup Public Shared Folder on Ubuntu**
	Create a public directory on Ubuntu for sharing.
	$sudo mkdir -p /home/hendadel/sambashare
	Set the directory permissions so that anyone can read/write to it.
	$sudo chown -R nobody:nogroup /home/hendadel/sambashare/** **$sudo chmod -R 0775 /home/hendadel/sambashare/
	
Step-6	**Copy and setup Config file**
	Copy Samba default configuration file to be a backup file in case any error happens in the future
	$sudo cp /etc/samba/smb.conf /etc/samba/smb.conf.backup
	Edit Samba configuration file
	$sudo vi /etc/samba/smb.conf
	Add the next lines to Samba configuration file:
	[global] **workgroup = WORKGROUP**

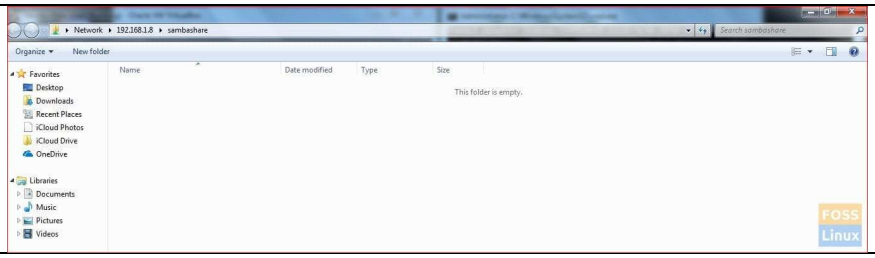
	server string = Samba Server %v **netbios name = hendadel-VBox** **security = user** **[SambaShare]** **Comment = Samba Shared Directory** **path = /home/hendadel/sambashare** **writable = yes** **guest ok = yes** **read only = no** **force user = nobody**
	
	Check the Samba configuration file using the next command.
	$testparm
	The output should be like this:

```
Press enter to see a dump of your service definitions

# Global parameters
[global]
        dns proxy = No
        security = USER
        server string = %h server (Samba, Ubuntu)
        idmap config * : backend = tdb


[SambaShare]
        comment = Samba Shared Directory
        force user = nobody
        guest ok = Yes
        path = /home/hendadel/sambashare
        read only = No


[printers]
        browseable = No
        comment = All Printers
        create mask = 0700
        path = /var/spool/samba
        printable = Yes


[print$]
        comment = Printer Drivers
        path = /var/lib/samba/printers
```

Step-7	**Restart Samba Service.**
	$sudo service smbd restart
	
Step-8	**Access Samba Share on Windows**
	Now from your Windows machine, open run and use the following command to open Ubuntu shared folder.
	\2.168.1.8\sambashare

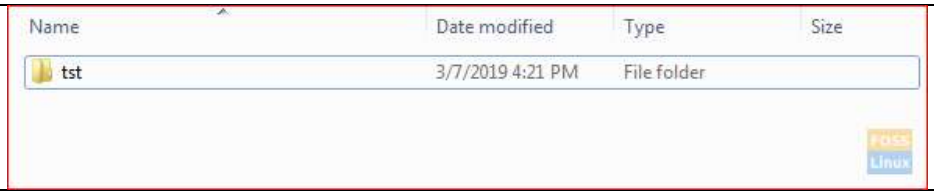


The shared folder should like this:



You can now create folders or files inside the shared directory from your Windows machine and check if they created in Ubuntu too.

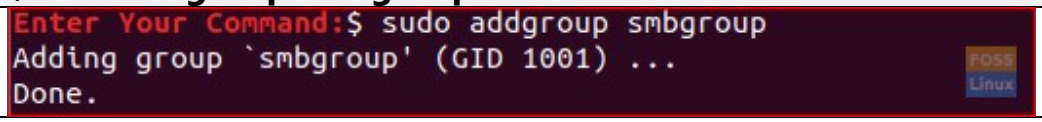
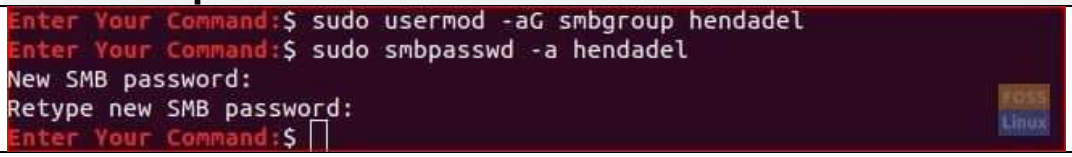
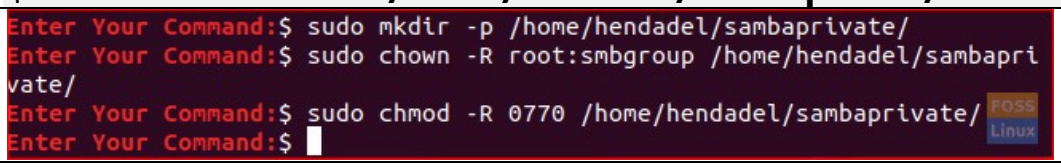
First, create a test folder from Windows:



Check the created folder from Ubuntu:

```
Enter Your Command:$ ls -l /home/hendadel/sambashare/
total 4
drwxr-xr-x 2 nobody nogroup 4096 Mar  7 16:21 tst
Enter Your Command:$
```

Step-9	**Set Private Shared Directory**
	Previously, we had a public folder for all network members. What if you need to share a folder with some specific users, or in other words users who have username and password only can access the shared directory.
	First, we need to create a group, add users and members to this group and only members of this group should have access to the shared directory.
1.	**Create a group**

	$sudo addgroup smbgroup
	
2.	Add your Ubuntu user to the smbgroup.
	$sudo usermod -aG smbgroup hendadel
3.	Give a password for the samba user.
	$sudo smbpasswd -a hendadel
	
4.	Now, create a directory to share in private.
	$sudo mkdir -p /home/hendadel/sambaprivate/
5.	Set permissions to the previous directory, so that only root and members of smbgroup access the shared directory.
	$sudo chown -R root:smbgroup /home/hendadel/sambaprivate/** **$sudo chmod -R 0770 /home/hendadel/sambaprivate/
	
6.	Edit Samba configuration file to add the new created directory
	$sudo vi /etc/samba/smb.conf
7.	Add the below:
	[SambaPrivate] **path = /home/hendadel/sambaprivate** **valid users = @smbgroup** **guest ok = no** **writable = yes** **browsable = yes** The configuration file should be as follows:

```
        workgroup = WORKGROUP
        netbios name = hendadel-VBox
        security = user
[SambaShare]
        comment = Samba Shared Directory
        path = /home/hendadel/sambashare
        browsable =yes
        writable = yes
        guest ok = yes
        read only = no
        force user = nobody


[SambaPrivate]
  path = /home/hendadel/sambaprivate
  valid users = @smbgroup
  guest ok = no
  writable = yes
  browsable = yes
```

8.	Restart Samba service.
	$sudo service smbd restart
9.	Check the Samba configuration file:
	$testparm

```
Enter Your Command:$ sudo service smbd restart
Enter Your Command:$ testparm
Load smb config files from /etc/samba/smb.conf
rlimit_max: increasing rlimit_max (1024) to minimum Windows limit (16384
)
Processing section "[SambaShare]"
Processing section "[SambaPrivate]"
Global parameter log file found in service section!
Global parameter max log size found in service section!
WARNING: The "syslog" option is deprecated
Global parameter syslog found in service section!
Global parameter panic action found in service section!
Global parameter server role found in service section!
Global parameter passdb backend found in service section!
Global parameter obey pam restrictions found in service section!
Global parameter unix password sync found in service section!
Global parameter passwd program found in service section!
Global parameter passwd chat found in service section!
Global parameter pam password change found in service section!
Global parameter map to guest found in service section!
Global parameter usershare allow guests found in service section!
Processing section "[printers]"
Processing section "[print$]"
Loaded services file OK.
```

10.	Check the two created folders from Windows machine.
	$\2.168.1.8\sambashare
11.	Windows should ask you for username and password like the below screenshot.

	
12.	After entering your credentials, you should see the shared directories as below.
	
Conclusion	This Samba server experiment has successfully demonstrated the process of setting up and configuring a Samba file sharing server in a Linux (Ubuntu) environment to share resources with Windows clients. Through the successful completion of this experiment, the I have gained practical experience in setting up and configuring a Samba server in a Linux environment, enabling seamless file sharing between Linux and Windows systems. This knowledge can be applied in real-world scenarios where cross-platform file sharing and collaboration are required, such as in small-to-medium-sized business environments or home networks. Overall, this Samba server experiment has provided valuable hands-on experience in the setup and management of a widely-used file sharing solution, equipping the participants with the necessary skills to implement and troubleshoot similar Samba deployments in the future.

Signature	
Date	
Grade	