

# Samba Server, Installation and Configuration of Samba Server.

**Date:** 11-09-2023

## **Samba Server:**

Samba Server is an open-source software suite that provides file and printer sharing resources using SMB/CIFS (Server Message Block/Common Internet File System) protocols. It allows non-windows operating systems like Linux and macOS to interoperate with windows OS by enabling file sharing and printer sharing resources on a windows based network. Port numbers used in samba server are 139 for netbios and 445 for TCP/IP.

## **Key Features of Samba Server:**

1. **Files and Printers Sharing:** Samba primarily provide file and printer sharing capabilities by allowing non-windows system to act as file server and printer server within a windows network.
2. **Cross Platform Compatibility:** Samba enables interoperability between windows and non-windows systems, making it possible to share file and printer resources.
3. **Open-Source:** It is freely available, modified and extended by one community. It is often included in many Linux distributions.
4. **Authentication:** Samba supports various authentication methods includes Active Directory integration for centralized user and group management. This allows for single-sign-on and unified access control.
5. **Security:** Samba provides security features such as encrypted communication such as the SMD/CIFS protocol, password protection and access control list to secure shared resources.
6. **Domain Controller:** Samba can function as domain controller in windows network, allowing it to manage user accounts, authentication and access control for both windows and non-windows operating systems.
7. **Printer Support:** Samba supports printer sharing, allowing non-windows systems to use printer shared from windows machine and vice-versa.
8. **Network-Browsing:** Samba includes tools for network browsing and discovery, making it easier for users to locate and access shared resources on the network.
9. **Configurability:** Samba can be highly configured and customized to suit specific network and security requirements. Configuration files often named as smb.conf allows administrators to define behavior of samba server.
10. **Community Support:** Samba has a strong and active community of users and developers, which means you can find extensive documentation, support forums and resources for troubleshooting.

## **Installation and Configuration of Samba Server using Ubuntu 20.04 Virtual Machine in Virtual Box Software:**

- Check the hostname and IP address of the virtual machine installed with ubuntu 20.04 .
- hostname - prabhu, IP address - 192.168.1.8, Username - akhilprabhu, Password - akhilprabhu.
- Before doing anything, we need to update the system in Linux.
- sudo apt update (command to update).
- sudo apt install samba -y (to install samba server).
- sudo systemctl enable --now smbd (To start samba server name of the samba server is smbd).

```
prabhu@prabhu:~$ sudo systemctl enable --now smbd
Synchronizing state of smbd.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable smbd
prabhu@prabhu:~$ sudo systemctl status smbd
* smbd.service - Samba SMB Daemon
  Loaded: loaded (/lib/systemd/system/smbd.service; enabled; vendor preset: enabled)
  Active: active (running) since Mon 2023-09-11 10:11:47 UTC; 3min 47s ago
    Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
  Main PID: 6176 (smbd)
    Status: "smbd: ready to serve connections..."
     Tasks: 4 (limit: 4609)
    Memory: 11.5M
    CGroup: /system.slice/smbd.service
            └─6176 /usr/sbin/smbd --foreground --no-process-group
              └─6178 /usr/sbin/smbd --foreground --no-process-group
                └─6179 /usr/sbin/smbd --foreground --no-process-group
                  └─6180 /usr/lib/x86_64-linux-gnu/samba/samba-bgod --ready-signal-fd=45 --parent-watch=

Sep 11 10:11:47 prabhu systemd[1]: Starting Samba SMB Daemon...
Sep 11 10:11:47 prabhu update-apparmor-samba-profile[6170]: grep: /etc/apparmor.d/samba/smbd-shares:
Sep 11 10:11:47 prabhu update-apparmor-samba-profile[6170]: diff: /etc/apparmor.d/samba/smbd-shares:
Sep 11 10:11:47 prabhu systemd[1]: Started Samba SMB Daemon.
lines 1-20/20 (END)
```

- `sudo systemctl status smbd` (To check status of samba server).
- Now we are creating a password protected folder.
- `pwd` (present working directory).
- `mkdir prabhu_folder` (make directory with name prabhu\_folder).
- `ls -l` (list).

```
prabhu@prabhu:~$ pwd
/home/prabhu
prabhu@prabhu:~$ mkdir prabhu_folder
prabhu@prabhu:~$ ls -l
total 4
drwxrwxr-x 2 prabhu prabhu 4096 Sep 11 10:18 prabhu_folder
prabhu@prabhu:~$ _
```

- We can see prabhu\_folder has a user named prabhu, with directory permissions.
- `sudo smbpasswd -a prabhu` (To create a samba user, password is prabhu)

```
prabhu@prabhu:~$ pwd
/home/prabhu
prabhu@prabhu:~$ mkdir prabhu_folder
prabhu@prabhu:~$ ls -l
total 4
drwxrwxr-x 2 prabhu prabhu 4096 Sep 11 10:18 prabhu_folder
prabhu@prabhu:~$ sudo smbpasswd -a prabhu
New SMB password:
Retype new SMB password:
Added user prabhu.
prabhu@prabhu:~$ _
```

- To edit samba configuration file and store information of shared folder.
- `sudo nano /etc/samba/smb.conf` (after executing the command use control + V and write the data mentioned below and store it using control + X).
- `[prabhu_folder]; path = /home/prabhu/prabhu_folder ; read only = no; valid users = prabhu.`

```
GNU nano 4.8 /etc/samba/smb.conf Modified

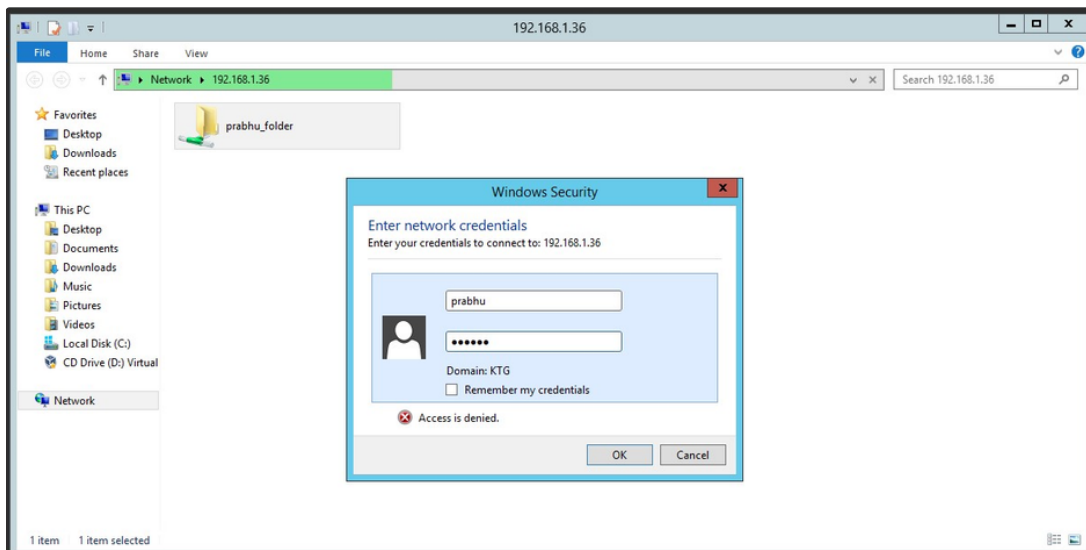
[printers]
comment = All Printers
browseable = no
path = /var/spool/samba
printable = yes
guest ok = no
read only = yes
create mask = 0700

# Windows clients look for this share name as a source of downloadable
# printer drivers
[prints]
comment = Printer Drivers
path = /var/lib/samba/printers
browseable = yes
read only = yes
guest ok = no
# Uncomment to allow remote administration of Windows print drivers.
# You may need to replace 'lpadmin' with the name of the group your
# admin users are members of.
# Please note that you also need to set appropriate Unix permissions
# to the drivers directory for these users to have write rights in it
: write list = root, @lpadmin

[prabhu_folder]
path = /home/prabhu/prabhu_folder
read only = no
valid users = prabhu

Get Help Write Out Where Is Cut Text Justify Cur Pos M-U Undo
Exit Read File Replace Paste Text To Spell Go To Line M-E Redo
```

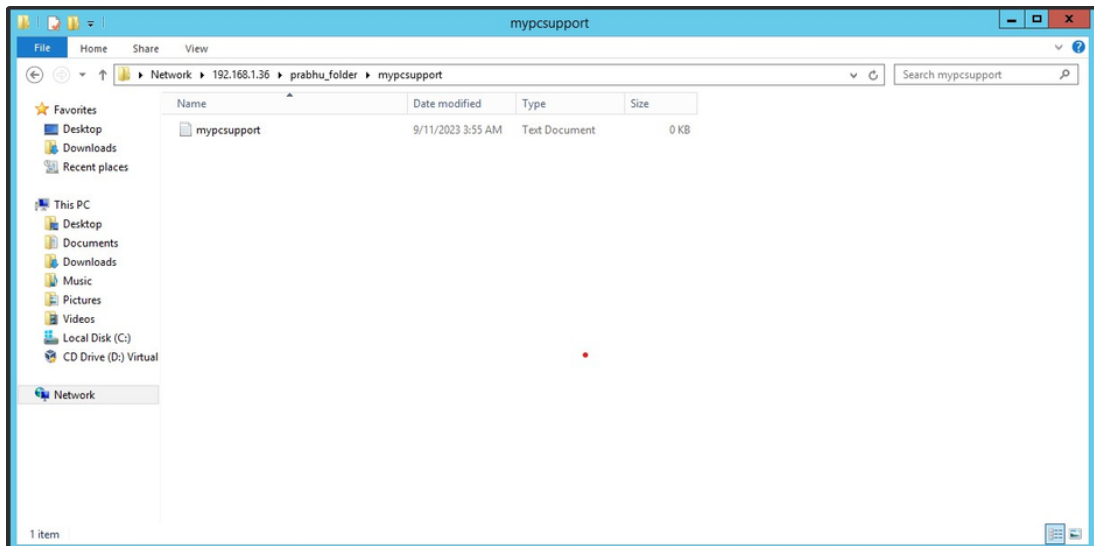
- `sudo systemctl restart smbd` (We need to restart the samba server).
- `ls -l`.
- Now we need to check the network shared folder in windows server 2012 R2 virtual machine. (username - administrator; password - Prabhu@2005).
- We can find the `prabhu_folder` in this VM, if we try to open it will ask you for authentication.



- After opening the folder create a new file, we can see that on ubuntu and vice-versa.

```
prabhu@prabhu:~$ ls prabhu_folder/
mypcsupport
prabhu@prabhu:~$
```

- `ls prabhu_folder/` (we can see the folder of mypcsupport).
- `touch prabhu_folder/mypcsupport/mypcsupport.txt` (To create a text file).



- And this is the process of installation and configuration Samba Server.

#### Alternatives for Samba Server:

1. New File System (NFS)
2. File Transfer Protocol (FTD)
3. WebDAV
4. Secure Shell
5. Cloud Storage services such as google drive, one drive, drop box.

#### Enabling Recycle Bin for Samba File Server Using VFS\_Recycle:

You can use the built-in network **recycle bin** to automatically save all files deleted by a user on the **Samba** file server on Linux. For this, the **vfs\_recycle** (Virtual File System) module is used.

The CIFS VFS modules are installed with the samba package on most Linux distributions. If needed, you can install VFS modules manually. For example, on Ubuntu / Linux Mint / Debian:

- `sudo apt update`
- `sudo apt install samba-vfs-modules`
- `apt list | grep samba-vfs` (Used to list and filter packages related to samba-vfs, apt list this part lists all the available packages on your system. | pipe command used to pass the output of left side to input of right-side command. Grep is the text search utility, that can be used to filter and display lines.)

By default, when you delete files from the samba shared folder, they are permanently deleted. A Linux file server administrator can create a network recycle bin. The **Samba Recycle Bin** is a hidden directory to which all Samba objects that have been deleted by the user are moved.

- `mkdir /mnt/smb/. recycle`
- `sudo chmod 777 /mnt/smb/. recycle` (to give file permissions of read, write and execute.)

To hide a directory, place a dot ( `.` ) at the beginning of the directory name.

Open the file `/etc/samba/smb.conf` and add the following settings to the **[global]** section:

- `sudo nano /etc/samba/smb.conf`

After using this command, we will be able to edit and add information to the configuration file. We need to add the following content to the configuration file.

`vfs object = recycle`

`recycle:repository = /mnt/smb/. recycle`

`recycle:keeptree = yes`

```
recycle:versions = yes
recycle:touch = yes
recycle:exclude_dir = /tmp /TMP /temp /TEMP /public /cache /CACHE
recycle:exclude = *.TMP *.tmp *.temp ~$* *.log *.bak
```

**vfs objects = recycle** — enable the Samba recycle bin;

**recycle:repository** — set recycle bin directory for storing deleted samba objects. The directory has to be located on the same file system as the SMB folder.

**recycle:keeptree** — delete objects while keeping the directory tree

**recycle:touch** — change the time of the last access to the file when it is moved to the Recycle Bin;

**recycle:versions** — add version number when deleting files with matching name.

**recycle:exclude** — add exclusions for specific file types. Files with these extensions will be permanently deleted;

To apply the change, you need to restart samba:

- `sudo systemctl restart smbd`

After configuring the recycle bin, we need to test it, by deleting the files from client server.

Now open the host machine and execute a command shown below.

- `ls /mnt/smb.recycle`

Now we can see all the deleted files from the samba shared folder.

To restore the deleted files from the recycle bin, use the following commands.

- `cd /mnt/smb/. recycle`
- `ls`
- `mv akhil.txt /home/akhilprabhu/akhilprabhu_folder`
- `ls`
- `sudo systemctl restart smbd`

Now we can assure that the deleted files will be restored to the original location from the recycle bin.