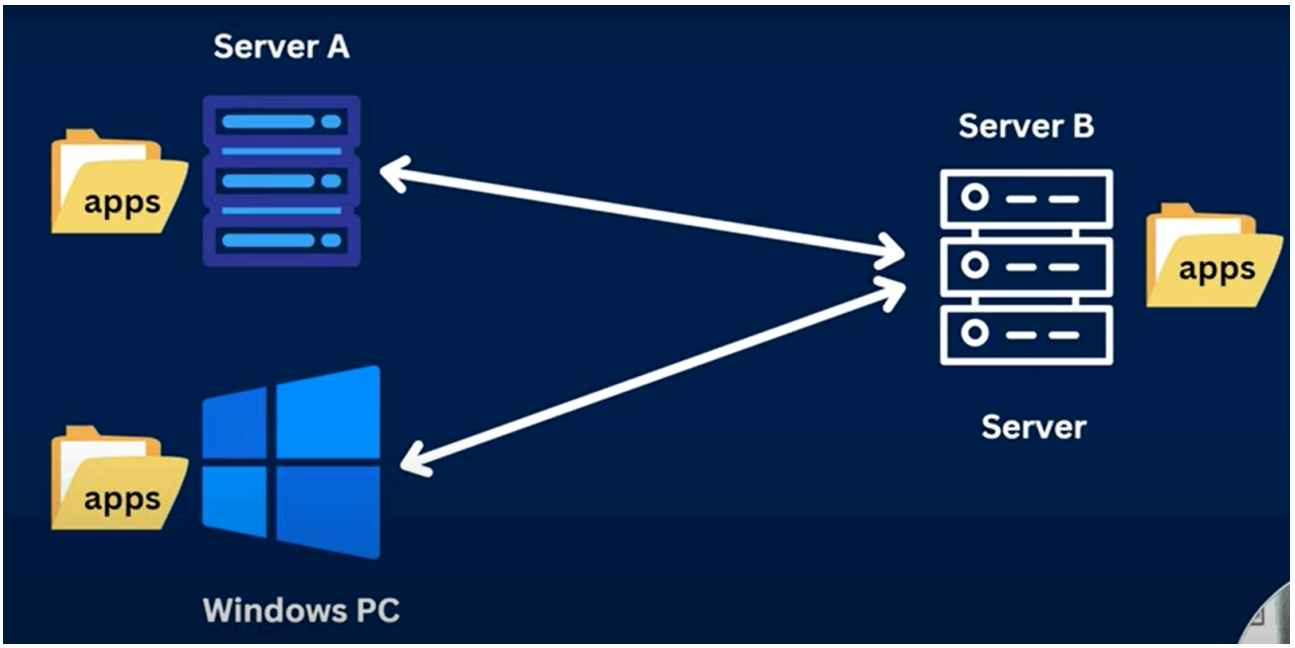
========== SAMBA Server ==========



Samba:- is an open-source implementation of the SMB/CIFS(Common Internet File System) protocol that allows file and printer sharing between Linux/Unix systems and Windows clients. It enables Linux systems to:

- Share files and directories with Windows machines.
- Access Windows shares from Linux.
- Act as a domain controller or join an Active Directory domain.

Server Installation:

 # Install samba packages using this command
yum -y install samba* or yum install smb samba-client samba-common -y

```
[root@server ~]# yum -y install samba*
Updating Subscription Management repositories.
Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs 7.1 kB/s | 4.5 kB     00:00
Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs 1.8 MB/s |  53 MB     00:28
Red Hat Enterprise Linux 9 for x86_64 - BaseOS (RPMs)   9.1 kB/s | 4.1 kB     00:00
Red Hat Enterprise Linux 9 for x86_64 - BaseOS (RPMs)   2.4 MB/s |  51 MB     00:21
Last metadata expiration check: 0:00:06 ago on Fri 04 Apr 2025 04:35:29 AM IST.
Dependencies resolved.
================================================================================
 Package                 Arch   Version           Repository                  Size
================================================================================
Installing:
 samba                   x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    990 k
 samba-client            x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-appstream-rpms 756 k
 samba-client-libs       x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    5.3 M
 samba-common            noarch 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    175 k
 samba-common-libs       x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    104 k
 samba-common-tools      x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    489 k
 samba-dcerpc            x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    723 k
 samba-gpupdate          x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-appstream-rpms  17 k
 samba-krb5-printing     x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-appstream-rpms  22 k
 samba-ldb-ldap-modules  x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms     29 k
 samba-libs              x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms    131 k
 samba-tools             x86_64 4.20.2-2.el9_5    rhel-9-for-x86_64-baseos-rpms     26 k
```

#Take backup of conf file

cp /etc/samba/smb.conf /etc/samba/smb.conf.bkp

```
[root@server ~]# cp /etc/samba/smb.conf /etc/samba/smb.conf.bkp
```

 # Create a directory which you want to share

mkdir -p /surya/shared

```
[root@server ~]# mkdir -p /surya/shared
[root@server ~]# chcon -t samba_share_t /surya/shared
[root@server ~]#
```

 # Change SELinux security context in case of enabled

chcon -t samba_share_t /surya/shared

```
[root@server ~]# mkdir -p /surya/shared
[root@server ~]# chcon -t samba_share_t /surya/shared
[root@server ~]#
```

Change file permission as you want

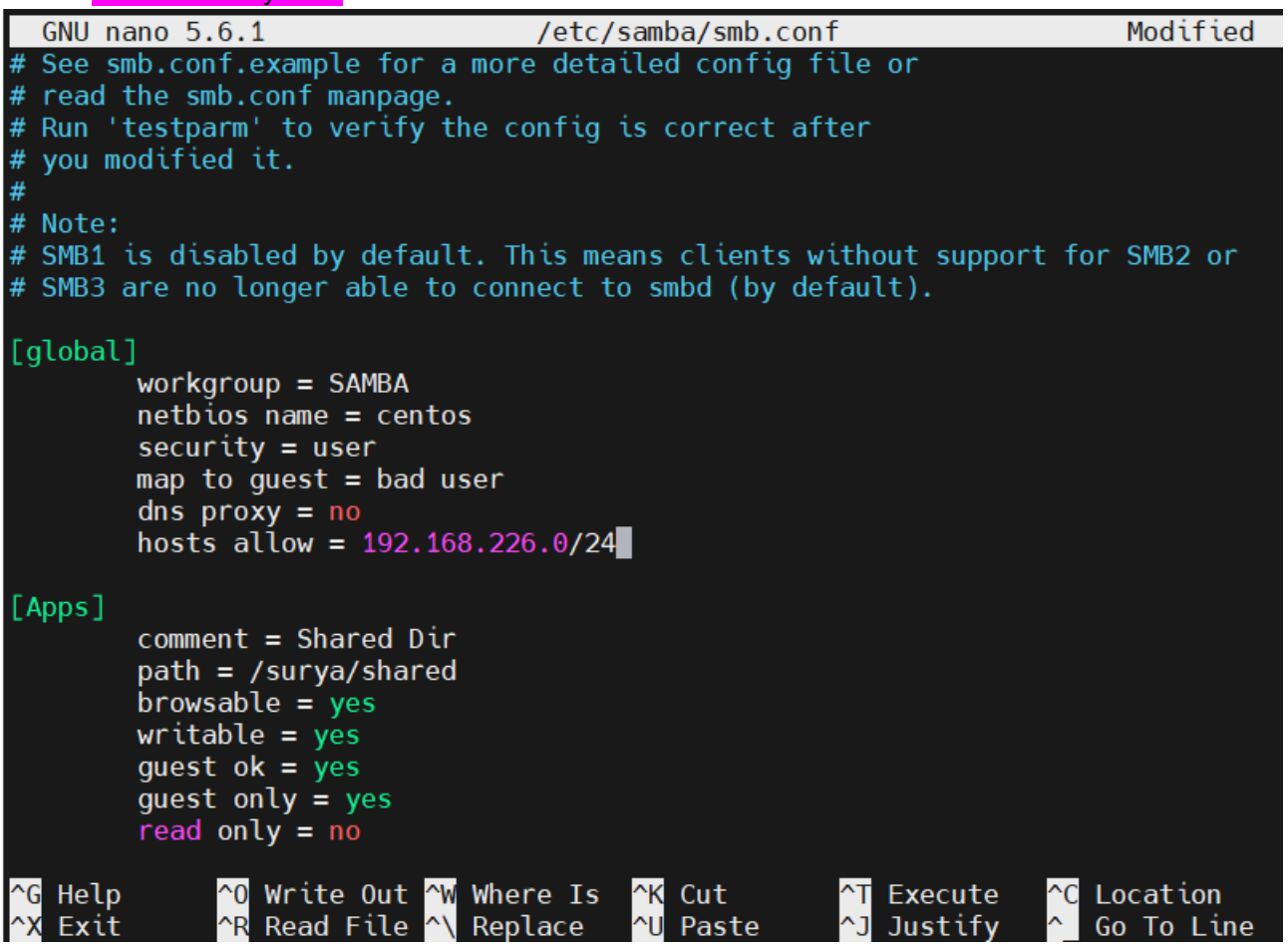
chmod 775 /surya
chmod 775 /surya/shared
chmod 775 /surya/shared/*
chcon -t samba_share_t /surya/shared/

 # Do some Major changes in smb.conf file and write like below and save the file

nano /etc/samba/smb.conf

```
[global]
        workgroup = SAMBA
        netbios name = centos
        security = user
        map to guest = bad user
        dns proxy = no
```

```
        hosts allow = 192.168.226.0/24


[Apps]
        comment = Shared Dir
        path = /surya/shared
        browsable = yes
        writable = yes
        guest ok = yes
        guest only = yes
        read only = no
```



 # For check your configuration file run below command if server will ok the it display like below

testparm

```
[root@server shared]# testparm
Load smb config files from /etc/samba/smb.conf
Loaded services file OK.
Weak crypto is allowed by GnuTLS (e.g. NTLM as a compatibility fallback)

Server role: ROLE_STANDALONE

Press enter to see a dump of your service definitions

# Global parameters
[global]
        dns proxy = No
        map to guest = Bad User
        netbios name = CENTOS
        security = USER
        workgroup = SAMBA
        idmap config * : backend = tdb
        hosts allow = 192.168.226.0/24


[Apps]
        comment = Shared Dir
        guest ok = Yes
        guest only = Yes
        path = /surya/shared
        read only = No
[root@server shared]#
```

Enable start and check service status of samba

systemctl enable nmb smb
systemctl start nmb smb
systemctl status nmb smb

```
[root@server ~]# systemctl enable smb
Created symlink /etc/systemd/system/multi-user.target.wants/smb.service → /usr/l
ib/systemd/system/smb.service.
[root@server ~]# systemctl enable nmb
Created symlink /etc/systemd/system/multi-user.target.wants/nmb.service → /usr/l
ib/systemd/system/nmb.service.
[root@server ~]# systemctl start nmb smb
[root@server ~]# systemctl status nmb smb
● nmb.service - Samba NMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/nmb.service; enabled; vendor prese>
     Active: active (running) since Fri 2025-04-04 06:46:54 IST; 8s ago
       Docs: man:nmbd(8)
             man:samba(7)
             man:smb.conf(5)
   Main PID: 14074 (nmbd)
     Status: "nmbd: ready to serve connections..."
      Tasks: 1 (limit: 7799)
     Memory: 2.7M
        CPU: 48ms
     CGroup: /system.slice/nmb.service
             └─14074 /usr/sbin/nmbd --foreground --no-process-group

Apr 04 06:46:54 server systemd[1]: Starting Samba NMB Daemon...
Apr 04 06:46:54 server nmbd[14074]: [2025/04/04 06:46:54.854005,  0] ../../sour>
Apr 04 06:46:54 server nmbd[14074]:   nmbd version 4.20.2 started.
Apr 04 06:46:54 server nmbd[14074]:   Copyright Andrew Tridgell and the Samba T>
Apr 04 06:46:54 server systemd[1]: Started Samba NMB Daemon.

● smb.service - Samba SMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; vendor prese>
     Active: active (running) since Fri 2025-04-04 04:58:48 IST; 1h 48min ago
       Docs: man:smbd(8)
             man:samba(7)
             man:smb.conf(5)
   Main PID: 13683 (smbd)
     Status: "smbd: ready to serve connections..."
lines 1-28
```

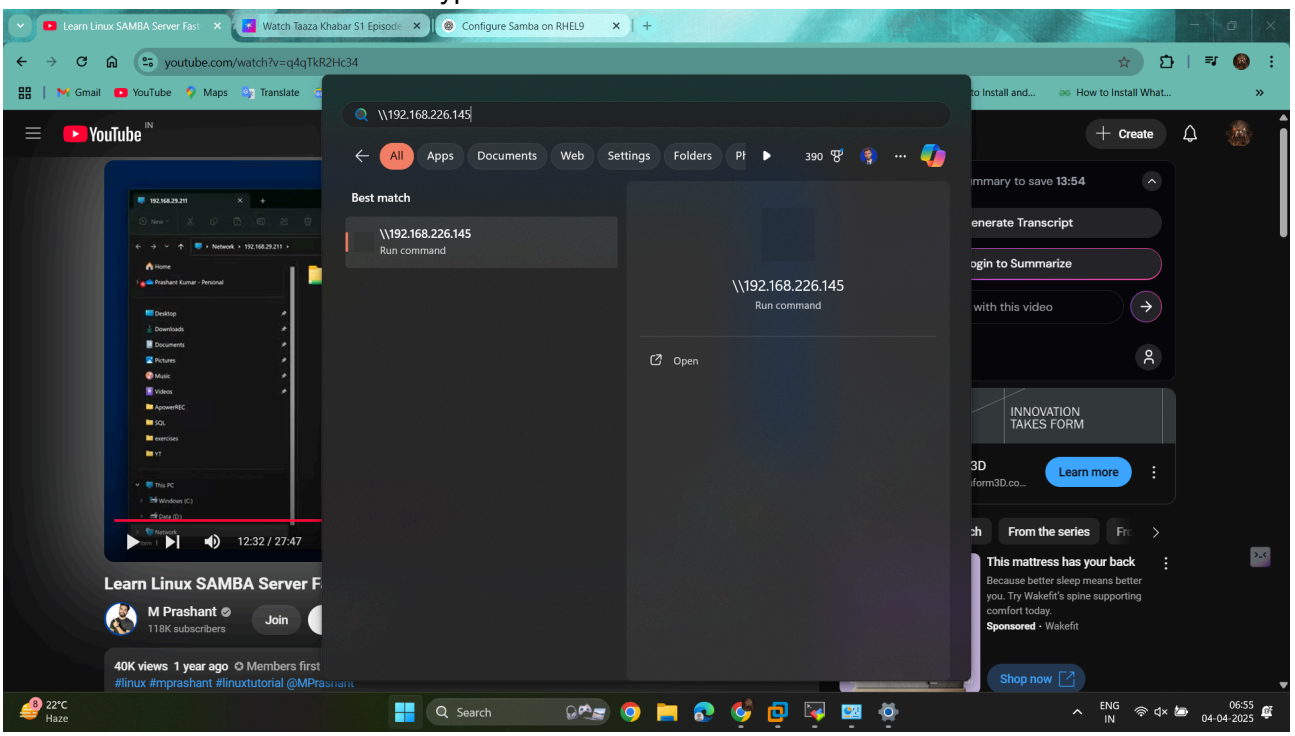
 # Add samba service in firewall and reload firewall service

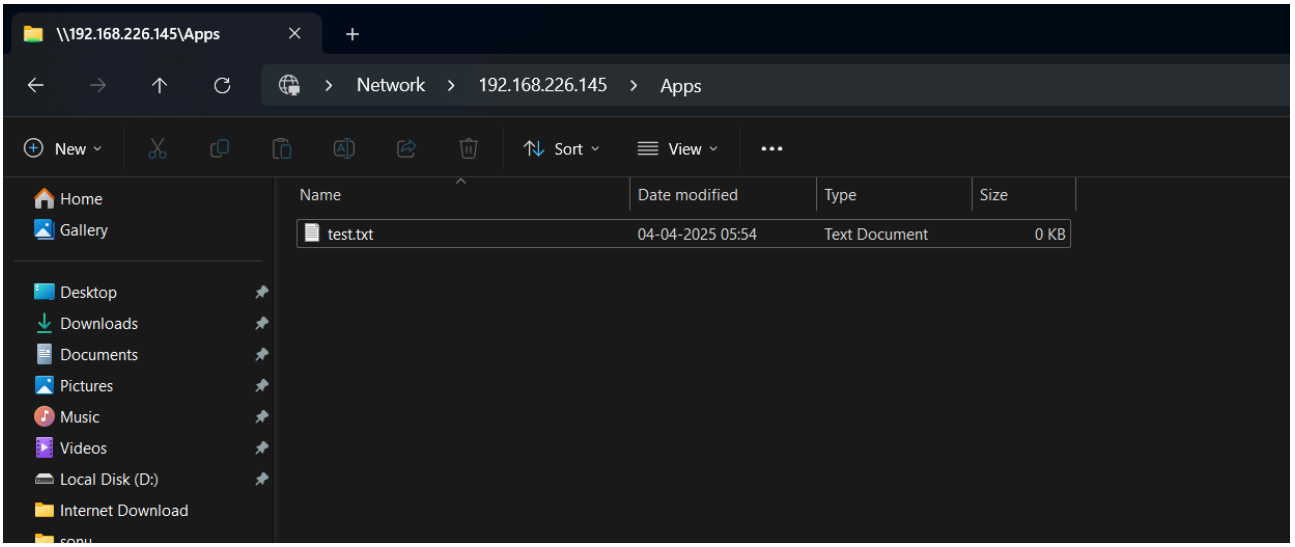
firewall-cmd --permanent --zone=public --add-service=samba
firewall-cmd --reload

Now access from window client

Method 1

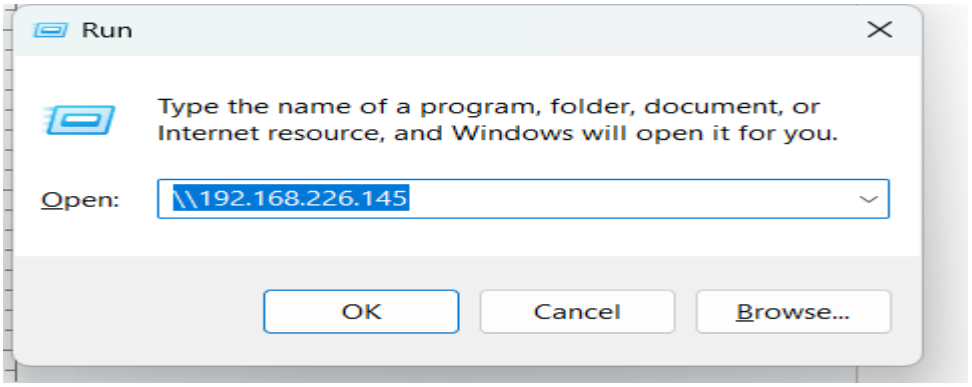
→ Go to window search war and type like below

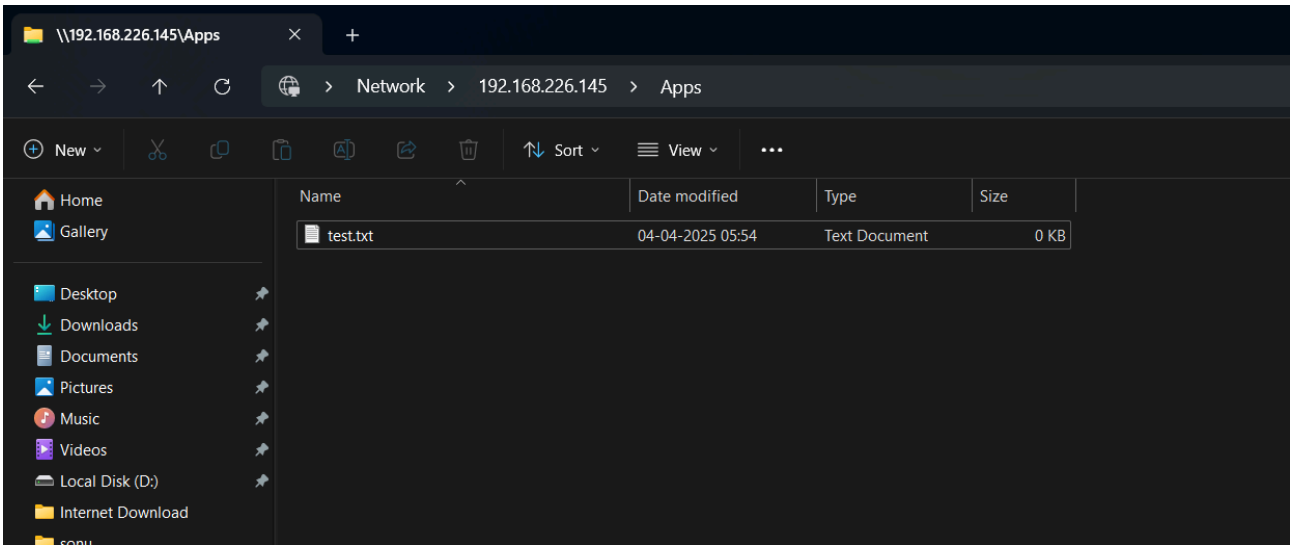




Method 2

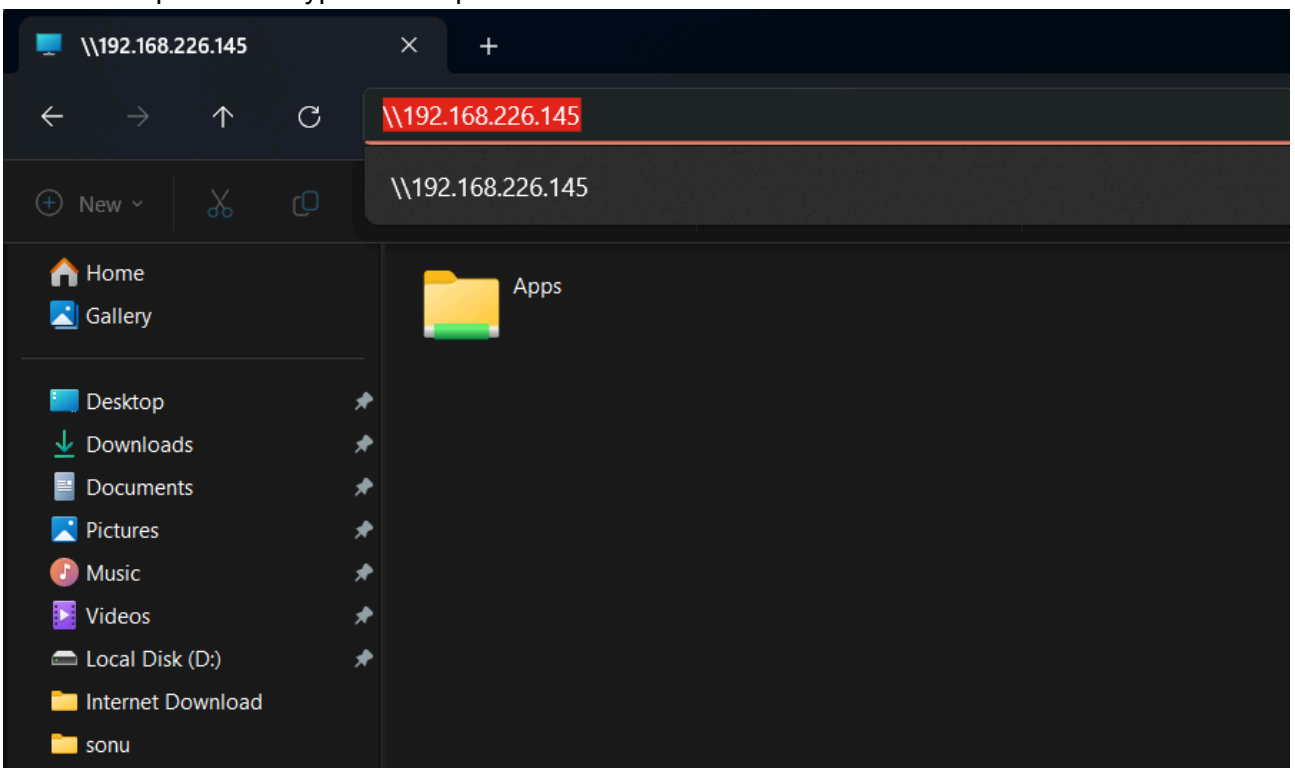
type “win+r”





Method 3

Go to file explorer and type server ip “\\X.X.X.X”



Client Linux machine setup

 # Install client packages

yum install cifs-utils samba-client

```
[root@client ~]# yum install cifs-utils samba-client
Updating Subscription Management repositories.
Red Hat Enterprise Linux 9 for x86_64 - BaseOS (RPMs)
Red Hat Enterprise Linux 9 for x86_64 - BaseOS (RPMs)
Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs)
Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs)
Last metadata expiration check: 0:00:07 ago on Friday 04 April 2025 07:20:25 AM.
Dependencies resolved.
================================================================================
 Package                                 Architecture            Version
================================================================================
Installing:
 cifs-utils                              x86_64                  7.0-5.el9
 samba-client                            x86_64                  4.20.2-2.el9_5
Upgrading:
 adcli                                   x86_64                  0.9.2-1.el9
 evolution-data-server                   x86_64                  3.40.4-9.el9
 evolution-data-server-langpacks         noarch                  3.40.4-9.el9
 gnupg2                                  x86_64                  2.3.3-4.el9
 krb5-libs                               x86_64                  1.21.1-4.el9_5
 libcurl                                 x86_64                  7.76.1-19.el9_1.2
 libipa_hbac                             x86_64                  2.9.5-4.el9_5.4
 libldb                                  x86_64                  2.9.1-2.el9
 libnfsidmap                             x86_64                  1:2.5.4-27.el9
 libsmbclient                            x86_64                  4.20.2-2.el9_5
 libsss_certmap                          x86_64                  2.9.5-4.el9_5.4
 libsss_idmap                            x86_64                  2.9.5-4.el9_5.4
```

Create a mount-point(a dir)

mkdir -p /mnt/surya/shared

mount created dir with server

mount -t cifs //192.168.226.145/shared /mnt/surya/shared/

```
[root@client ~]# mount -t cifs //192.168.226.145/shared /mnt/surya/shared/
Password for root@//192.168.226.145/shared:
[root@client ~]#
```

check mount-point on client machine

df -Th

```
[root@client ~]# df -Th
Filesystem              Type      Size  Used Avail Use% Mounted on
devtmpfs                devtmpfs  599M     0  599M   0% /dev
tmpfs                   tmpfs     630M     0  630M   0% /dev/shm
tmpfs                   tmpfs     252M  7.4M  245M   3% /run
/dev/mapper/rhel-root   xfs        46G  4.3G   42G  10% /
/dev/nvme0n1p2          xfs      1014M  254M  761M  25% /boot
/dev/nvme0n1p1          vfat      599M  7.0M  592M   2% /boot/efi
tmpfs                   tmpfs     126M   36K  126M   1% /run/user/0
tmpfs                   tmpfs     126M   56K  126M   1% /run/user/42
//192.168.226.145/shared cifs      46G  1.8G   44G   4% /mnt/surya/shared
[root@client ~]#
```

For permanent mount give entry in /etc/fstab

//192.168.226.145/secure /mnt/surya/shared cifs
username=testuser,password=Ag22@123,iocharset=utf8,vers=4.2 0 0

```
 GNU nano 5.6.1                                                    /etc/fstab

#
# /etc/fstab
# Created by anaconda on Wed Mar 26 13:43:55 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/rhel-root   /                       xfs     defaults        0 0
UUID=fc169482-02a7-4a83-aecd-bf375d06f4d7 /boot                   xfs     defaults        0 0
UUID=4977-DA3A          /boot/efi               vfat    umask=0077,shortname=winnt 0 2
/dev/mapper/rhel-swap   none                    swap    defaults        0 0
192.168.226.145:/data1  /data2                  nfs     defaults        0       0
/mnt/surya/shared       //192.168.226.145/shared        cifs    defaults        0       0
//192.168.226.145/secure  /mnt/surya/shared  cifs  username=testuser,password=Ag22@123,iocharset=utf8,vers=4.2  0  0
```

 # Now access from linux client

cd /mnt/surya/shared

```
[root@client ~]# cd /mnt/surya/shared/
[root@client shared]# ls
test.txt
[root@client shared]#
```

Now secure your server

On Server:-

Create a user and group

groupadd smbgrp

useradd -M -d /samba_secure -s /usr/sbin/nologin -G smbgrp testuser

Create a directory

mkdir /samba_secure

Change ownership of secure directory

chown testuser:smbgrp /samba_secure

change permission of secure directory

chmod 2770 /samba_secure

Disable SElinux context if enabled

chcon -t samba_share_t /samba_secure

```
[root@server ~]# groupadd smbgrp
[root@server ~]# useradd -M -d /samba_secure -s /usr/sbin/nologin -G smbgrp testuser
[root@server ~]# mkdir /samba_secure
[root@server ~]# chown testuser:smbgrp /samba_secure
[root@server ~]# chmod 2770 /samba_secure
[root@server ~]# chcon -t samba_share_t /samba_secure
```

Create a test user

smbpasswd -a testuser

```
[root@server ~]# smbpasswd -a testuser
New SMB password:
Retype new SMB password:
Added user testuser.
```

Enable test user

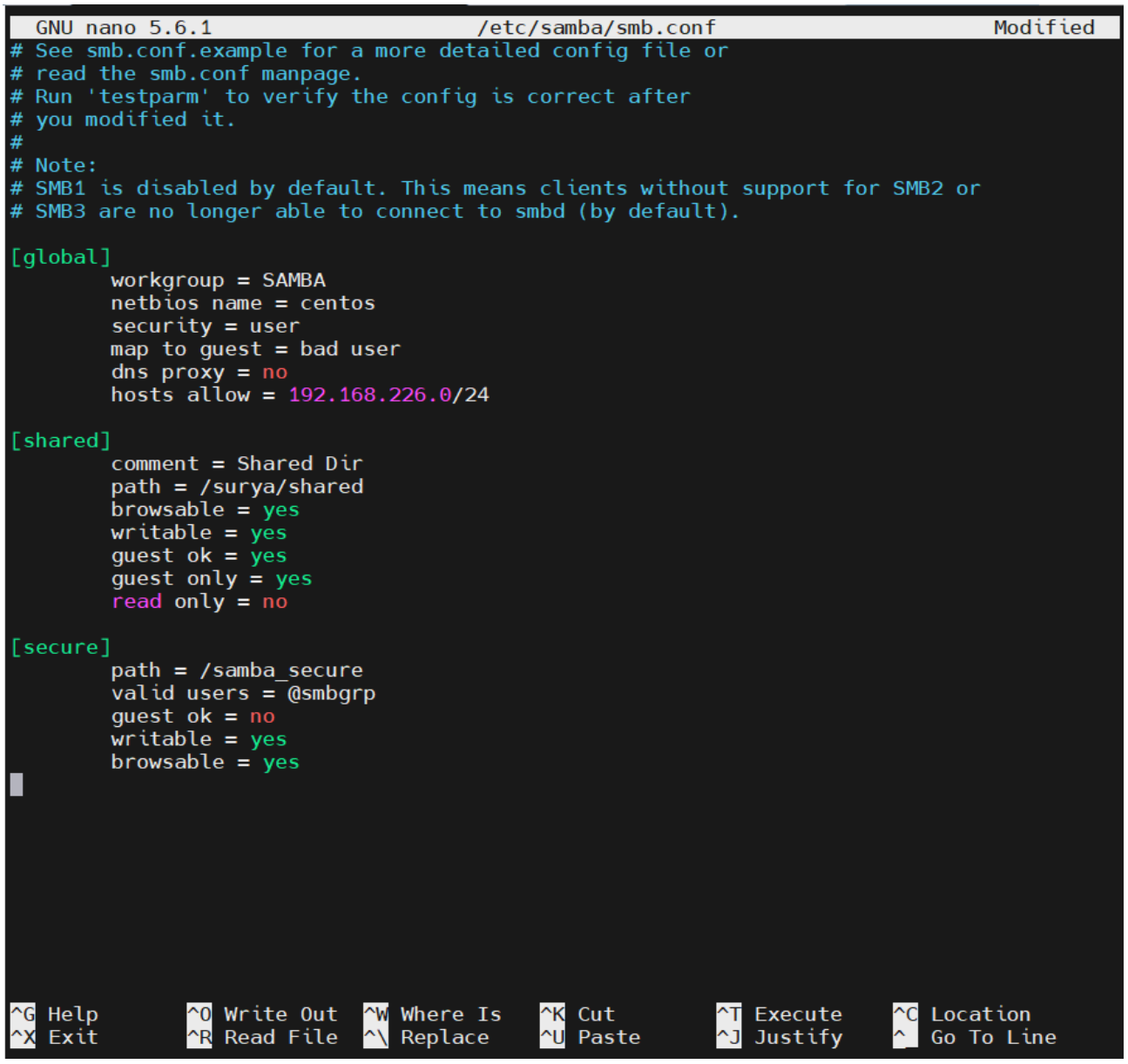
smbpasswd -e testuser

```
[root@server ~]# smbpasswd -e testuser
Enabled user testuser.
[root@server ~]#
```

Now add below content in conf file and save the file

nano /etc/samba/smb.conf

```
[secure]
        path = /samba_secure
        valid users = @smbgrp
        guest ok = no
        writable = yes
        browsable = yes
```



run this command for check conf file

testparm

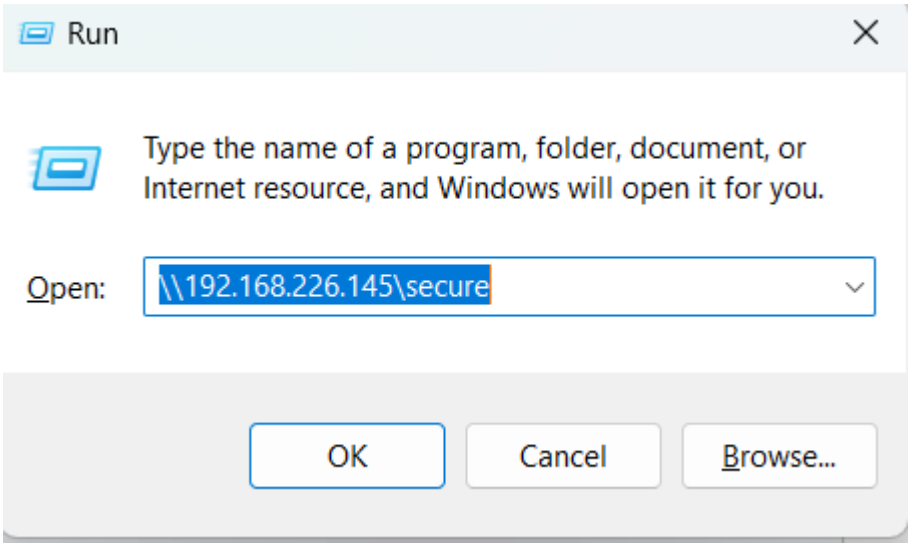
restart the smb and nmb service and check status

systemctl restart smb nmb

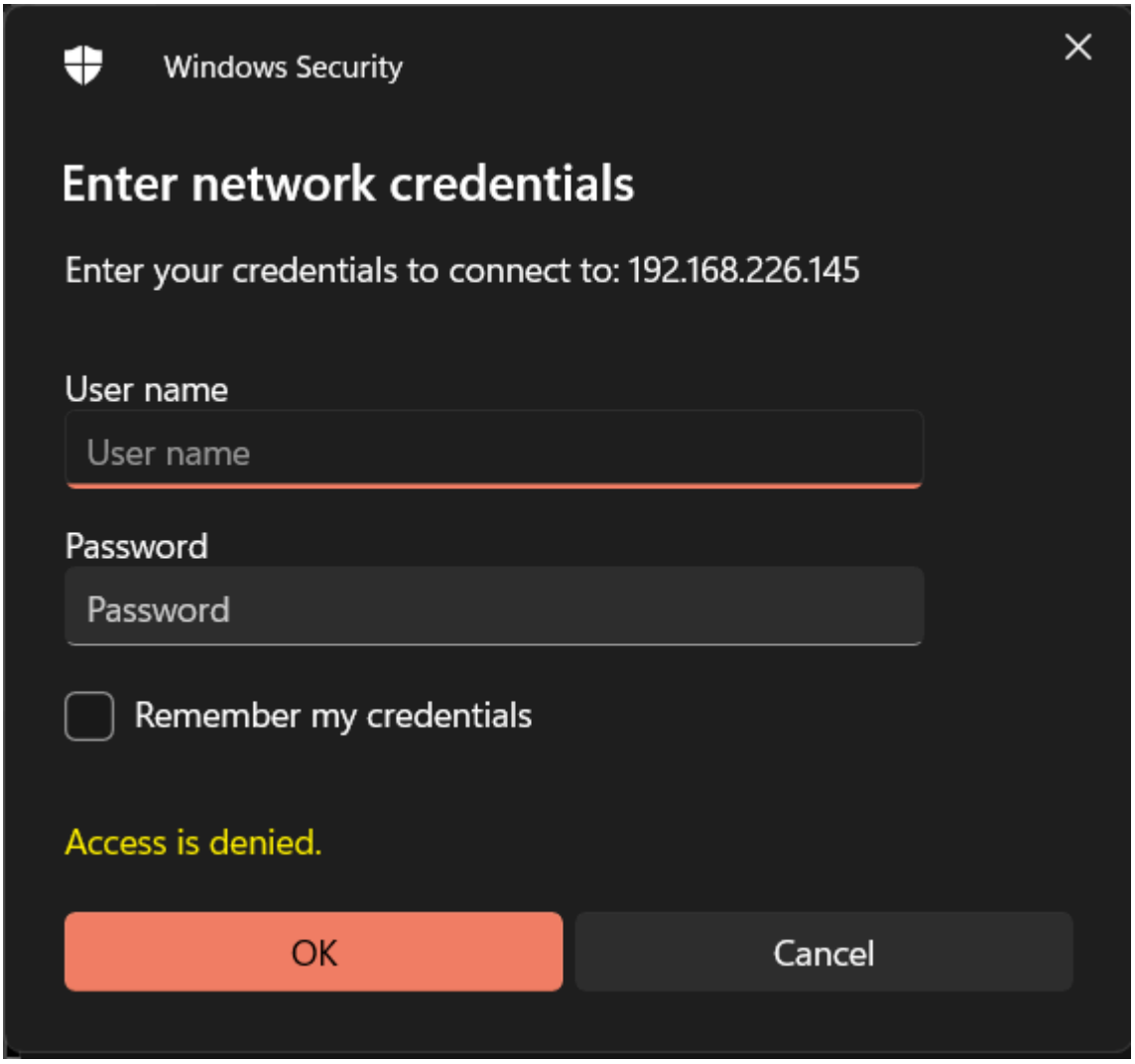
```
[root@server ~]# systemctl restart smb nmb
[root@server ~]# systemctl status  smb nmb
● smb.service - Samba SMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; vendor preset: dis
     Active: active (running) since Fri 2025-04-04 08:37:35 IST; 12s ago
       Docs: man:smbd(8)
             man:samba(7)
             man:smb.conf(5)
   Main PID: 14313 (smbd)
     Status: "smbd: ready to serve connections..."
      Tasks: 4 (limit: 7799)
     Memory: 7.7M
        CPU: 57ms
     CGroup: /system.slice/smb.service
             ├─14313 /usr/sbin/smbd --foreground --no-process-group
             ├─14316 /usr/sbin/smbd --foreground --no-process-group
             ├─14317 /usr/sbin/smbd --foreground --no-process-group
             └─14318 /usr/sbin/smbd --foreground --no-process-group

Apr 04 08:37:35 server systemd[1]: Starting Samba SMB Daemon...
Apr 04 08:37:35 server smbd[14313]: [2025/04/04 08:37:35.797271,  0] ../../source3/sm
Apr 04 08:37:35 server smbd[14313]:   smbd version 4.20.2 started.
Apr 04 08:37:35 server smbd[14313]:   Copyright Andrew Tridgell and the Samba Team 19
Apr 04 08:37:35 server systemd[1]: Started Samba SMB Daemon.

● nmb.service - Samba NMB Daemon
     Loaded: loaded (/usr/lib/systemd/system/nmb.service; enabled; vendor preset: dis
     Active: active (running) since Fri 2025-04-04 08:37:35 IST; 12s ago
       Docs: man:nmbd(8)
             man:samba(7)
             man:smb.conf(5)
   Main PID: 14314 (nmbd)
     Status: "nmbd: ready to serve connections..."
      Tasks: 1 (limit: 7799)
     Memory: 2.7M
        CPU: 42ms
     CGroup: /system.slice/nmb.service
             └─14314 /usr/sbin/nmbd --foreground --no-process-group
```

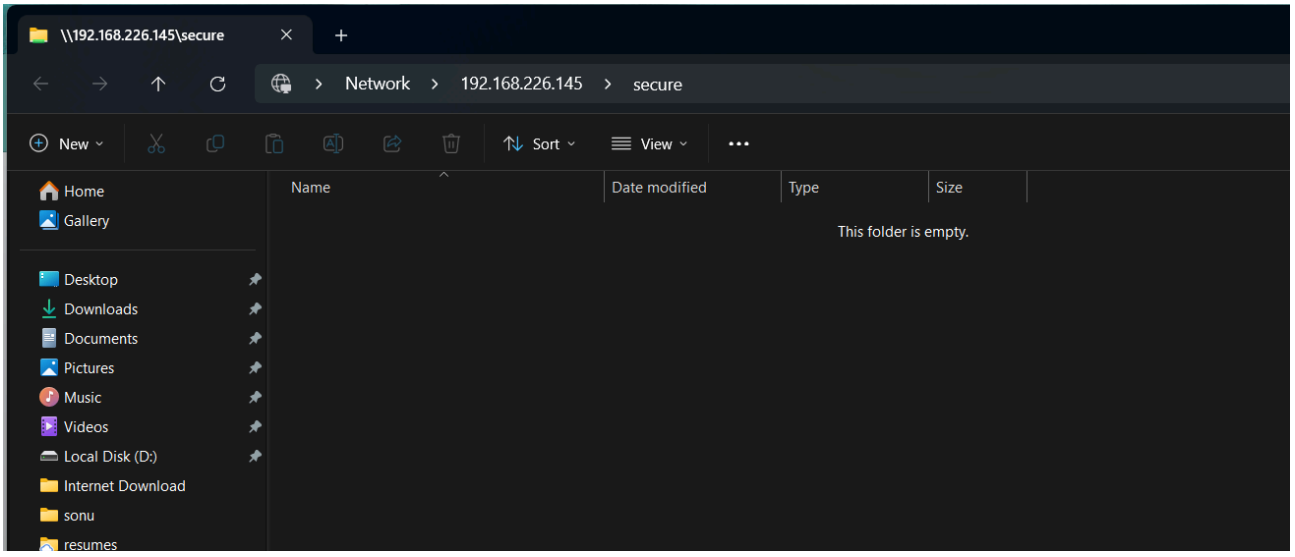
Now access with credentials

Go to window machine and try to access with secure path
//192.168.266.145/secure



click ok and access with username and credentials





Access from linux machine

smbclient -L //192.168.226.145 -U testuser

access samba server with enter credentials

```
[root@client shared]# smbclient -L //192.168.226.145 -U testuser
Password for [SAMBA\testuser]:

        Sharename       Type      Comment
        ---------       ----      -------
        shared          Disk      Shared Dir
        secure          Disk
        IPC$            IPC       IPC Service (Samba 4.20.2)
SMB1 disabled -- no workgroup available
[root@client shared]#
```

THANK YOU

Install & Configure Samba Server on Linux (RHEL7 / CentOS7)

Uses of Samba:
As a File Server like NFS to share the files but across OS (linux to windows).

Samba details
Package : samba*
Port no : 137,138,139
Script : /etc/init.d/smb
Protocol_use: smb CIFS
Service name : smb
Daemon : smbd
CIFS- Common Internet File System

Configuration file : /etc/samba/smb.conf

Server Installation:

#yum -y install samba*

#vi /etc/samba/smb.conf

```
[mnt]
comment = Samba test share
path = /mnt

writeable = yes
```

save file

Note : By default samba doesn't allow to write any data. If you want the share to be write-able mode, add the below directive as "yes" and change the file permission (chmod 777 /mnt) to write-able. If file permission is not set to write, samba will allow to write the data, but linux file permission wont allow to write, so you will face an issue as permission denied.

Always after changing the configuration file, use the command **"testparm"** to check the changes for any syntax

#testparm

Enable and Start and check status of the Samba service

[root@linux1 ~]# systemctl start smb

[root@linux1 ~]# systemctl enable smb

Ensure the samba port is listening or not.

[root@linux1 ~]# netstat -lt | grep netbios

Add a valid Linux user to samba

Samba need a additional password to provide the access as well as that user should be a valid linux user,which means user should be exist in the server. if not, create a new user using useradd command and add the user to the samba as below. It will prompt to enter the additional new password specially for samba.

[root@linux1 ~]# smbpasswd -a user1

New SMB password:

Retype new SMB password:

Added user user1.

Verify the access locally and remotely

Always first check the access locally and finally check from client end. It will be easy to troubleshoot where the problem exists when the problem occurs to access the samba shares locally or over the network.

Verify the access from samba server end use the below samba client utility (smbclient) in which specify the samba server address (-L 192.168.2.61) and user (-U user1). It will prompt to enter the password of the user added to the samba.

[root@linux1 ~]# smbclient -L 192.168.2.61 -U user1

Enter user1's password:

Domain=[MYGROUP] OS=[Windows 6.1] Server=[Samba 4.2.10]

Sharename Type Comment

--- --- ---

mnt Disk Samba test share

IPC$ IPC IPC Service (Samba Server Version 4.2.10) Honor 10 at

user1 Disk Home Directories

Domain=[MYGROUP] OS=[Windows 6.1] Server=[Samba 4.2.10]

Server Comment

--- ---

Workgroup Master

--- ---

WORKGROUP LEARNITGUIDE

If we get the output as above, then we can access the samba server successfully.

Verify the access from samba client Execute the same command from the client to ensure the same is working from network also. We should get the same output as we got locally

Now go to Windows system --> run -- //<server-ip> --> use samba credentials

In windows -> computer -> \\10.0.0.142\mnt

Shared folder will appear