

## Sharing files and printers with Microsoft Windows

CIFS, Samba, SMB. Different words, same thing.

Samba is mainly used as a share in a mixed environment, usually with Windows and Linux. Samba is also known as Common Internet File System (or cifs). This is also the filesystem type. It is friendly to both Windows and POSIX systems and has the ability to integrate with a Windows Active Directory.

Service Name:

smb

Package:

samba (Acronym for Server Message Block, aka samba)

Config:

/etc/samba/smb.conf

Access Control:

iptables

SELinux

Built in access control

Log Files:

/var/log/samba.log

To create a samba share, create a directory and reference it in /etc/samba/smb.conf and specify who gets access to it. This is easy because there are already entries that just need to be uncommented. Comments that are configuration use the semi-colon (;). Comments that are explanations start with a hash mark (#).

The smb.conf file has three sections you should be aware of (only two are useful). The first is the "global" section. In the global section are all of the settings that apply to all of the shares. The second section is the "homes" section. This is where the individual shares are defined. The third section is the "printers" section, but I have not seen samba printers in production in enough environments to justify an explanation. For printing use CUPS ipp (internet printing protocol) printers.

To install:

```
# yum -y install samba
```

Here is what you might expect to see in the “global” section:

```
[global]
        workgroup = IT
```

In the “homes” section the share itself is defined:

```
[share]
        browsable = yes
        path = /samba
```

This is a very simple configuration. In this case, the share name is “share” and the share is located at /samba. You may create this directory using the command `mkdir /samba`.

Start the service and set it to start persistently:

```
# service smb start
# chkconfig smb on
# service nmb start
# chkconfig nmb on
```

!!! TIP !!!

To test your configuration use the command:

```
# testparm /etc/samba/smb.conf
```

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## Advanced configuration

Create firewall rules to allow connectivity over the network to your SAMBA server:

```
# iptables -I INPUT -m multiport -p tcp --dports 139,445 -j ACCEPT
# iptables -I INPUT -m multiport -p udp --dports 137,138 -j ACCEPT
# service iptables save
```

Adapt the /etc/samba/smb.conf to your needs:

Important parameters:

All parameters under the [global] block are applicable to the server in general.

```
workgroup = ELSA
# server string = Samba Server Version %v
netbios name = FS1
interfaces = lo eth0 192.168.122.2/24 192.168.123.2/24
hosts allow = 127. 192.168.122. 192.168.123.
```

workgroup defines the workgroup or domain which we are part of. If you want to join a domain you would need to have a computer account created in the Active Directory domain by the administrator of the domain

server string advertises the version of the SAMBA suite which you are using. It is recommended to comment this out.

netbios name defines the name advertised by the SAMBA server. This can be different from the hostname of the Linux system.

interfaces specifies the interfaces which the SAMBA services will bind to. In the excerpt, this server is bound to localhost and the IP addresses 192.168.122.2 and 192.168.123.2

hosts allow specifies who is allowed to connect to the SAMBA server.

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### SAMBA and printing

By default all printers are shared, should this NOT be what you want, you may elect to share specific printers.

Comment out the [printers] block

Then create a new share definition as follows:

```
[hp1100]
comment = HP1100 laser printer
path = /var/spool/samba
read only = yes
printable = yes
printer name = hp1100
```

The printer name must correlate to the name advertised by CUPS

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To create a specific share you could draw inspiration from the following:

```
[data]
comment = Publicly accessible data
path = /data
browsable = yes
valid users = %S
force user = nobody
force group = users
write list = @powerusers, jim
admin users = @FSadmins
allow hosts = 192.168. EXCEPT 192.168.122.100
```

The share is called data and is accessible for all hosts on the 192.168. network EXCEPT for the host 192.168.122.100.

All newly created files are automatically owned by the user nobody and have the owning group set to users. The share is read only for all valid SAMBA users except for the user jim and the groups @powerusers and @FSadmins who have read-write access.

In addition, members of the group @FSadmins have their privileges elevated so all file operations happen as root.

#### Notes:

- Share sections have a heading in []'s
- Lines which begin with a # or ; are considered comments
- Don't forget to run service smb restart after editing /etc/samba/smb.conf and service nmb restart after editing /etc/samba/lmhosts

- Linux users have to be SAMBA enabled in order to access shares which is done using `smbpasswd -a user`
  - Viewing a list of SAMBA users is done using the command `pdbedit -L`
  - To verify the sanity of your `smb.conf` file use the command `testparm`
  - All SAMBA shares need the context `samba_share_t`
  - To allow users to access their home directories using SAMBA a boolean needs to be enabled using the command: `setsebool -P use_samba_home_dirs 1`
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### Lab activity

Create a directory called `/data/flintstones` and share it with a Microsoft network using the share name `bedrock`. Allow only members of the group `flintstones` (which you are to create) which has the members `fred`, `wilma`, `barney` and `betty` (which you are to create) using the password `llama`. These users may only connect to this share should they originate from the network `192.168.122.0/24`. Read-write access is permitted.

Ensure that your server is a member of the workgroup `TLC` and has the netbios name `FS1`.