Fort Worth Linux Users Group Samba HOWTO

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Excerpted from the Samba-HOWTO-Collection. More information can be found here: http://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/

What Is Samba?

Samba is a big, complex project. The Samba project is ambitious and exciting. The team behind Samba is a group of some thirty individuals who are spread the world over and come from an interesting range of backgrounds. This team includes scientists, engineers, programmers, business people, and students.

Team members were drawn into active participation through the desire to help deliver an exciting level of transparent interoperability between Microsoft Windows and the non-Microsoft information technology world.

The slogan that unites the efforts behind the Samba project says: *Samba, Opening Windows to a Wider World!* The goal behind the project is one of removing barriers to interoperability.

Samba provides file and print services for Microsoft Windows clients. These services may be hosted off any TCP/IP-enabled platform. The original deployment platforms were UNIX and Linux, though today it is in common use across a broad variety of systems.

The Samba project includes not only an impressive feature set in file and print serving capabilities, but has been extended to include client functionality, utilities to ease migration to Samba, tools to aid interoperability with Microsoft Windows, and administration tools.

The real people behind Samba are users like you. You have inspired the developers (the Samba Team) to do more than any of them imagined could or should be done. User feedback drives Samba development. Samba-3 in particular incorporates a huge amount of work done as a result of user requests, suggestions and direct code contributions.

So let's get started on some sample Samba configurations!

Anonymous Read-Only Server Configuration

Global parameters

```
[global]
workgroup = MIDEARTH
netbios name = HOBBIT
security = share

[data]
```

```
comment = Data
path = /export
read only = Yes
guest ok = Yes
```

1. Add user to system (with creation of the user's home directory):

   ```
   root# useradd -c "Jack Baumbach" -m -g users -p m0r3pa1n jackb
   ```

2. Create directory, and set permissions and ownership:

   ```
   root# mkdir /export
   root# chmod u+rwx,g+rx,o+rx /export
   root# chown jackb.users /export
   ```

3. Copy the files that should be shared to the `/export` directory.

4. Install the Samba configuration file (`/etc/samba/smb.conf`) as shown in Anonymous Read-Only Server Configuration.

5. Test the configuration file by executing the following command:

   ```
   root# testparm
   ```

   Alternatively, where you are operating from a master configuration file called `smb.conf.master`, the following sequence of commands might prove more appropriate:

   ```
   root#  cd /etc/samba
   root#  testparm -s smb.conf.master > smb.conf
   root#  testparm
   ```

6. Note any error messages that might be produced. Proceed only if error-free output has been obtained. An example of typical output that should be generated from the above configuration file is shown here:

   ```
   Load smb config files from /etc/samba/smb.conf
   Processing section "[data]"
   Loaded services file OK.
   Server role: ROLE_STANDALONE
   Press enter to see a dump of your service definitions
   [Press enter]

   # Global parameters
   [global]
           workgroup = MIDEARTH
           netbios name = HOBBIT
           security = share

   [data]
           comment = Data
           path = /export
           read only = Yes
           guest only = Yes
   ```

7. Start Samba using the method applicable to your operating system platform. The method that should be used is platform dependent. Refer to Starting Samba for further information regarding the starting of Samba.
8. Configure your MS Windows client for workgroup *MIDEARTH*, set the machine name to ROBBINS, reboot, wait a few (2 - 5) minutes, then open Windows Explorer and visit the Network Neighborhood. The machine HOBBIT should be visible. When you click this machine icon, it should open up to reveal the *data* share. After you click the share, it should open up to reveal the files previously placed in the `/export` directory.

The information above (following # Global parameters) provides the complete contents of the `/etc/samba/smb.conf` file.

Anonymous Read-Write Document Server

We should view this configuration as a progression from the previous example. The difference is that shared access is now forced to the user identity of jackb and to the primary group jackb belongs to. One other refinement we can make is to add the user *jackb* to the `smbpasswd` file. To do this, execute:

```
root# smbpasswd -a jackb
New SMB password: m0r3pa1n
Retype new SMB password: m0r3pa1n
Added user jackb.
```

Addition of this user to the `smbpasswd` file allows all files to be displayed in the Explorer Properties boxes as belonging to *jackb* instead of to *User Unknown*.

The complete, modified `smb.conf` file is as shown in ???.

Modified Anonymous Read-Write smb.conf

Global parameters

```
[global]
workgroup = MIDEARTH
netbios name = HOBBIT
security = SHARE

[data]
comment = Data
path = /export
force user = jackb
force group = users
read only = No
guest ok = Yes
```

Secure Read-Write File and Print Server

We progress now from simple systems to a server that is slightly more complex.

Our new server will require a public data storage area in which only authenticated users (i.e., those with a local account) can store files, as well as a home directory. There will be one printer that should be available for everyone to use.

In this hypothetical environment (no espionage was conducted to obtain this data), the site is demanding a simple environment that is *secure enough* but not too difficult to use.

Site users will be Jack Baumbach, Mary Orville, and Amed Sehkah. Each will have a password (not shown in further examples). Mary will be the printer administrator and will own all files in the public share.

This configuration will be based on *user-level security* that is the default, and for which the default is to store Microsoft Windows-compatible encrypted passwords in a file called `/etc/samba/smbpasswd`. The default `smb.conf` entry that makes this happen is passdb backend = smbpasswd, guest. Since this is the default, it is not necessary to enter it into the configuration file. Note that the guest backend is added to the list of active passdb backends no matter whether it specified directly in Samba configuration file or not.

Procedure - Installing the Secure Office Server

Secure Office Server smb.conf

Global parameters

```
[global]
workgroup = MIDEARTH
netbios name = OLORIN
printcap name = cups
disable spoolss = Yes
show add printer wizard = No
printing = cups

[homes]
comment = Home Directories
valid users = %S
read only = No
browseable = No

[public]
comment = Data
path = /export
```

```
force user = maryo
force group = users
guest ok = Yes
read only = No

[printers]
comment = All Printers
path = /var/spool/samba
printer admin = root, maryo
create mask = 0600
guest ok = Yes
printable = Yes
use client driver = Yes
browseable = No
```

1. Add all users to the operating system:

```
root# useradd -c "Jack Baumbach" -m -g users -p m0r3pa1n jackb
root# useradd -c "Mary Orville" -m -g users -p secret maryo
root# useradd -c "Amed Sehkah" -m -g users -p secret ameds
```

2. Configure the Samba `smb.conf` file as shown in ???.

3. Initialize the Microsoft Windows password database with the new users:

```
root# smbpasswd -a root
New SMB password: bigsecret
Reenter smb password: bigsecret
Added user root.

root# smbpasswd -a jackb
New SMB password: m0r3pa1n
Retype new SMB password: m0r3pa1n
Added user jackb.

root# smbpasswd -a maryo
New SMB password: secret
Reenter smb password: secret
Added user maryo.

root# smbpasswd -a ameds
New SMB password: mysecret
Reenter smb password: mysecret
Added user ameds.
```

4. Install printer using the CUPS Web interface. Make certain that all printers that will be shared with Microsoft Windows clients are installed as raw printing devices.

5. Start Samba using the operating system administrative interface. Alternately, this can be done manually by executing:

```
root#  nmbd; smbd;
```

Both applications automatically execute as daemons. Those who are paranoid about maintaining control can add the `-D` flag to coerce them to start up in daemon mode.

6. Configure the `/export` directory:

```
root# mkdir /export
root# chown maryo.users /export
root# chmod u=rwx,g=rwx,o-rwx /export
```

7. Check that Samba is running correctly:

```
root# smbclient -L localhost -U%
Domain=[MIDEARTH] OS=[UNIX] Server=[Samba-3.0.20]

Sharename      Type      Comment
---------      ----      -------
public         Disk      Data
IPC$           IPC       IPC Service (Samba-3.0.20)
ADMIN$         IPC       IPC Service (Samba-3.0.20)
hplj4          Printer   hplj4

Server               Comment
---------            -------
OLORIN               Samba-3.0.20

Workgroup            Master
---------            -------
MIDEARTH             OLORIN
```

The following error message indicates that Samba was not running:

```
root#  smbclient -L olorin -U%
Error connecting to 192.168.1.40 (Connection refused)
Connection to olorin failed
```

8. Connect to OLORIN as maryo:

```
root# smbclient //olorin/maryo -Umaryo%secret
OS=[UNIX] Server=[Samba-3.0.20]
smb: \> dir
.                                   D        0  Sat Jun 21 10:58:16 2003
..                                  D        0  Sat Jun 21 10:54:32 2003
Documents                           D        0  Fri Apr 25 13:23:58 2003
DOCWORK                             D        0  Sat Jun 14 15:40:34 2003
OpenOffice.org                      D        0  Fri Apr 25 13:55:16 2003
.bashrc                             H     1286  Fri Apr 25 13:23:58 2003
.netscape6                         DH        0  Fri Apr 25 13:55:13 2003
.mozilla                           DH        0  Wed Mar  5 11:50:50 2003
.kermrc                             H      164  Fri Apr 25 13:23:58 2003
.acrobat                           DH        0  Fri Apr 25 15:41:02 2003

                55817 blocks of size 524288. 34725 blocks available
smb: \> q
```

By now you should be getting the hang of configuration basics. Clearly, it is time to explore slightly more complex examples. For the remainder of this chapter we abbreviate instructions, since there are

previous examples.

SWAT (Samba Web Administration Tool) Setup and Configuration

SWAT is a Web-based interface that can be used to facilitate the configuration of Samba. SWAT might not be available in the Samba package that shipped with your platform, but in a separate package. If it is necesaary to built SWAT please read the SWAT man page regarding compilation, installation, and configuration of SWAT from the source code.

To launch SWAT, just run your favorite Web browser and point it to http://localhost:901/. Replace *`localhost`* with the name of the computer on which Samba is running if that is a different computer than your browser.

SWAT can be used from a browser on any IP-connected machine, but be aware that connecting from a remote machine leaves your connection open to password sniffing because passwords will be sent over the wire in the clear.

More information about SWAT can be found in The Samba Web Administration Tool.

Enabling SWAT for Use

SWAT should be installed to run via the network super-daemon. Depending on which system your UNIX/Linux system has, you will have either an **inetd**- or **xinetd**-based system.

The nature and location of the network super-daemon varies with the operating system implementation. The control file (or files) can be located in the file `/etc/inetd.conf` or in the directory `/etc/[x]inet[d].d` or in a similar location.

The control entry for the older style file might be:

```
        # swat is the Samba Web Administration Tool
        swat stream tcp nowait.400 root /usr/sbin/swat swat
```

A control file for the newer style xinetd could be:

```
# default: off
# description: SWAT is the Samba Web Admin Tool. Use swat \
#              to configure your Samba server. To use SWAT, \
#              connect to port 901 with your favorite web browser.
service swat
{
        port    = 901
        socket_type     = stream
        wait    = no
        only_from = localhost
        user    = root
        server  = /usr/sbin/swat
```

```
        log_on_failure  += USERID
        disable = no
}
```

In the above, the default setting for *disable* is yes. This means that SWAT is disabled. To enable use of SWAT, set this parameter to no as shown.

Both of the previous examples assume that the **swat** binary has been located in the /usr/sbin directory. In addition to the above, SWAT will use a directory access point from which it will load its Help files as well as other control information. The default location for this on most Linux systems is in the directory /usr/share/samba/swat. The default location using Samba defaults will be /usr/local/samba/swat.

Access to SWAT will prompt for a logon. If you log onto SWAT as any non-root user, the only permission allowed is to view certain aspects of configuration as well as access to the password change facility. The buttons that will be exposed to the non-root user are HOME, STATUS, VIEW, and PASSWORD. The only page that allows change capability in this case is PASSWORD.

As long as you log onto SWAT as the user *root*, you should obtain full change and commit ability. The buttons that will be exposed include HOME, GLOBALS, SHARES, PRINTERS, WIZARD, STATUS, VIEW, and PASSWORD.

Domain Controller Configuration Sample File

[global]

workgroup = DOMAINNAME

server string = Samba %v Server

map to guest = Bad User

passwd program = /usr/bin/passwd %u

passwd chat = *New*UNIX*password* %n\n *ReType*new*UNIX*password* %n\n*passwd:*all*authentication*tokens*updated*successfully*

unix password sync = Yes

log file = /var/log/samba/log.%m

max log size = 1000

announce version = 5.0

name resolve order = wins bcast hosts lmhosts

time server = Yes

socket options = TCP_NODELAY SO_RCVBUF=8192 SO_SNDBUF=8192

```
        add machine script = /usr/sbin/useradd -n -g 501 -c 'Machine Account' -d /dev/null -s /bin/false
%u
        logon script = logon.bat
        logon drive = U:
        domain logons = Yes
        os level = 65
        lm announce = Yes
        preferred master = Yes
        domain master = Yes
        wins support = Yes
        ldap ssl = no
        idmap uid = 16777216-33554431
        idmap gid = 16777216-33554431
        admin users = randy

[netlogon]
        comment = Network Logon Service
        path = /var/lib/samba/netlogon
        locking = No
        share modes = No
        volume = "Network"

[homes]
        comment = Home Directories
        read only = No
        browseable = No
        volume = "Homes"

[printers]
        comment = All Printers
```

```
        path = /var/spool/samba
        printable = Yes
        browseable = No

[data]
        comment = Data Share
        path = /usr/data
        read only = No
        create mask = 0755
        volume = "Data"

[cdrom]
        comment = CD-ROM Drive
        path = /media/cdrom

[mynetworkprinter]
        path = /tmp
        printable = Yes

[Installation Files]
        comment = Installation Files - %t
        path = /usr/data/WinExes
        guest ok = Yes

[ZIP]
        comment = ZIP Drive
        path = /media/zip
        username = randy
```

[Profiles]

comment = Network Profiles Directory

path = /usr/data/profiles//%L/%U

read only = No

guest ok = Yes

profile acls = Yes

store dos attributes = Yes

browseable = No

csc policy = disable

***NOTE: The above profiles configuration is currently broken.**

[print$]

comment = Printer drivers

path = /var/lib/samba/print-drivers

Helpful Hints

A common cause of browsing problems (you can't see the Samba server in Network Neighborhood) results from the installation of more than one network protocol on an MS Windows machine. Use TCP/IP only. Remove IPX/SPX and NetBEUI!

Every NetBIOS machine takes part in a process of electing the LMB (and DMB) every 15 minutes. A set of election criteria is used to determine the order of precedence for winning this election process. A machine running Samba or Windows NT will be biased, so the most suitable machine will predictably win and thus retain its role.

The election process is *fought out, so to speak* over every NetBIOS network interface. In the case of a Windows 9x/Me machine that has both TCP/IP and IPX installed and has NetBIOS enabled over both protocols, the election will be decided over both protocols. As often happens, if the Windows 9x/Me machine is the only one with both protocols, then the LMB may be won on the NetBIOS interface over the IPX protocol. Samba will then lose the LMB role because Windows 9x/Me will insist it knows who the LMB is. Samba will then cease to function as an LMB, and browse list operation on all TCP/IP-only machines will therefore fail.

Windows 95, 98, 98se, and Me are referred to generically as Windows 9x/Me. The Windows NT4, 200x, and XP use common protocols. These are roughly referred to as the Windows NT family, but it should be recognized that 2000 and XP/2003 introduce new protocol extensions that cause them to

behave differently from MS Windows NT4. Generally, where a server does not support the newer or extended protocol, these will fall back to the NT4 protocols.

The safest rule of all to follow is: Use only one protocol!

Additional Resources

Samba: Troubleshooting Techniques
ftp://ftp.samba.org/pub/samba/docs/Samba24Hc13.pdf

Samba HOWTO Collection
ftp://ftp.samba.org/pub/samba/docs/Samba-HOWTO-Collection.pdf

Using Samba
ftp://ftp.samba.org/pub/samba/docs/htmldocs/using_samba/index.html

Implementing CIFS: The Common Internet File System
http://ubiqx.org/cifs/

Just what is SMB? http://samba.anu.edu.au/cifs/docs/what-is-smb.html

Samba -- Opening Windows Everywhere
http://www.linux-mag.com/1999-05/samba_01.html

SMB HOWTO http://www.tldp.org/HOWTO/SMB-HOWTO.html

SMB/CIFS BY THE ROOT http://www.phrack.org/phrack/60/p60-0x0b.txt

The Story of Samba: Linux's Stealth Weapon
http://www.linux-mag.com/1999-09/samba_01.html

Understanding the Network Neighborhood
http://www.linux-mag.com/2001-05/smb_01.html

Using Samba as a PDC http://www.linux-mag.com/2002-02/samba_01.html

Large Scale Samba Installations
http://www.linuxjournal.com/article.php?sid=6604