TNE30019/TNE80014 – Unix for Telecommunications

Multi-Platform File Sharing Using Samba

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Outline

- Platform-independent file sharing with Samba
- Samba on FreeBSD
- Configuring Samba server
- Checking configuration
- Access control
- SMB/Samba clients

What is Samba ?

- Server Message Block (SMB) network protocol allows to share access to files, printers, serial ports
- Initially developed by IBM
- Modified by Microsoft and part of Windows since early 1990s
- One version known as Common Internet File System (CIFS)
- **Samba** is free open source re-implementation of SMB/CIFS network protocol for Unix
- With Samba can share resources between Windows and Unix systems (that run Samba)

Samba Server Configuration

- Configuration file divided into three sections

Global

System wide configuration

Shares

Defines how resources and shares are managed

Printers

Defines how printers are shared and managed

Samba Server Configuration

Common Global Options [global]

- workgroup – What Windows workgroup/domain will this machine be advertised under
- server string – Text description displayed in browser windows
- hosts allow – Remote hosts allowed to access server
- interfaces – Network interfaces to listen on
- printing – How the backend should print (e.g. CUPS)
- Many many more, but many default options are usually OK
- Share options can also be specified here – these become default if not re-specified in share or printer sections

- More information: man smb.conf

Samba Server Configuration

Common Share Options [share_name]

- comment – Description of share displayed by Windows
- path – Where on local disk share can be found
- guest ok – Is password required?
- writeable – Can we copy files to share
- valid users – Who is allowed to use share
- masks – What Unix permissions are used to create/edit files
- Many more options exist

Variables we can use in parameters

- %m – Replaced by name of connecting machine
- %u – Replaced by username of connecting user
- %S – Replaced by share name requested
- Allow share to be specific to **who** is connecting

Samba Server Configuration

- Many configuration options have multiple names that do the same thing
- All options have default values – even if not specified
  - How do we know what these values are?
  - Can we check our configuration?
- Can use testparm application
  - Loads and checks format of smb.conf
  - Can print all option values

SMB/Samba Access Control

- Default mode is security = user
  - Client must log-on with valid username and password
  - Name can be mapped using username map parameter
  - Samba has its own password file (/etc/samba/smbpasswd)
  - Samba users must be managed with the smbpasswd tool
- Set security = domain
  - Samba will try to validate username/password by passing it to Windows Domain Controller (like Windows server)

Samba Share Examples

```
[homes]
    comment = Home Directories
    path = /home/%S
    valid users = %S
    browseable = no
    read only = no

[backup]
    comment = Backup Data
    path = /data/backup
    browseable = no
    writeable = yes # writable is inverted synonym for read only
    valid users = jbut, wharrop, szander
    create mask 0770
```


SMB/Samba Clients

- SMB build into Windows Explorer
  - Click on network computer to see exported shares
  - Type in \\server\share to access files
- Various Linux/BSD GUI file managers support Samba, e.g. Konqueror, Gnome Commander
- Unix `smbclient` provides command line interface (like FTP)
- Unix can mount Samba shares with `mount`

```
mount -t smbfs -o username=<name>,password=<password>
      //server/share /mountpoint
```