

Exercise 7

Samba

Announced Date: 2004/12/27

Due Date: 2004/1/8

Network-based File Sharing (1)

> NFS (UNIX-based)

- **mountd** is responsible for mount request
- **nfsd** and **nfsiod**

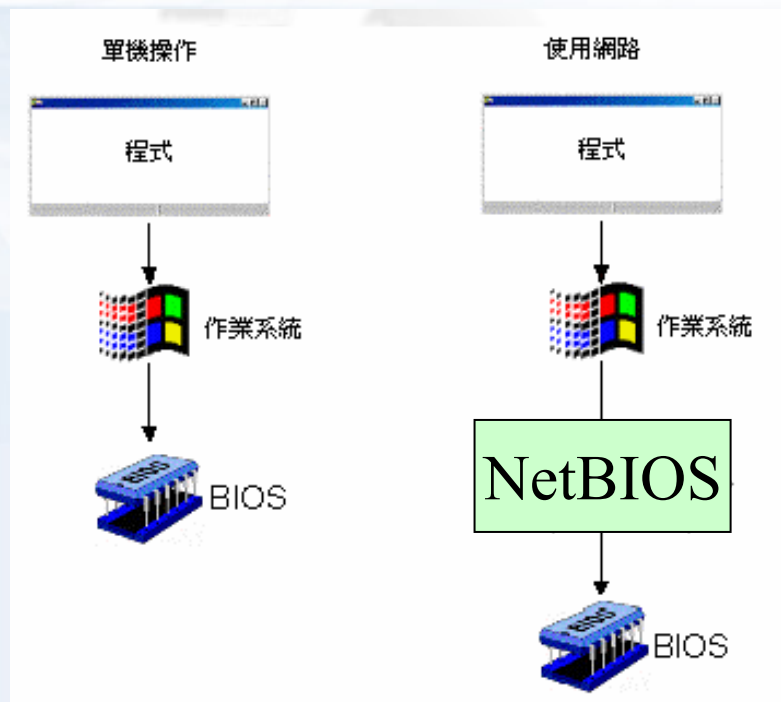
> CIFS (Microsoft)

- **Common Internet File System**
- 網路芳鄰

Applikation		
SMB		
NetBIOS		
NetBEUI	TCP/IP	IPX/SPX
NDIS (2, 3, 3.1, 4, 5)-Interface		
Karten-Treiber (MAC)		
Netzwerk-Karte		

Network-based File Sharing (2)

- > Difference between local filesystem and network filesystem when accessing
 - NetBIOS (API)
 - Used to share or access network-based filesystem just as BIOS does in local filesystem



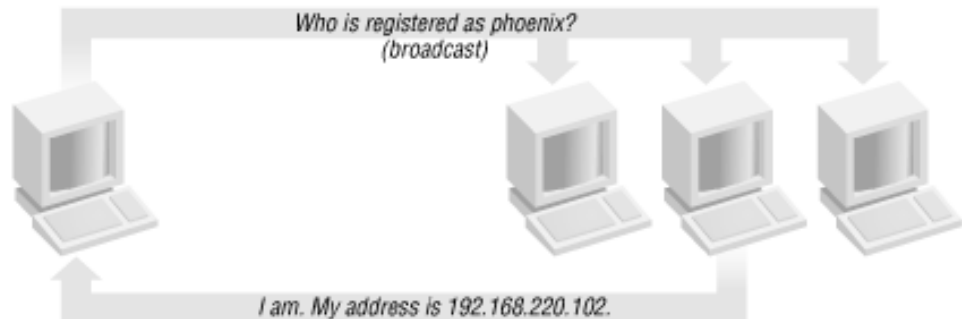
Network-based File Sharing (3)

- NetBEUI (transport protocol)
 - Transfer NetBIOS commands across network
 - Each host can claim a name not used in network
 - > NetBIOS Name Server or not

Name Registration without a NetBIOS Name Server

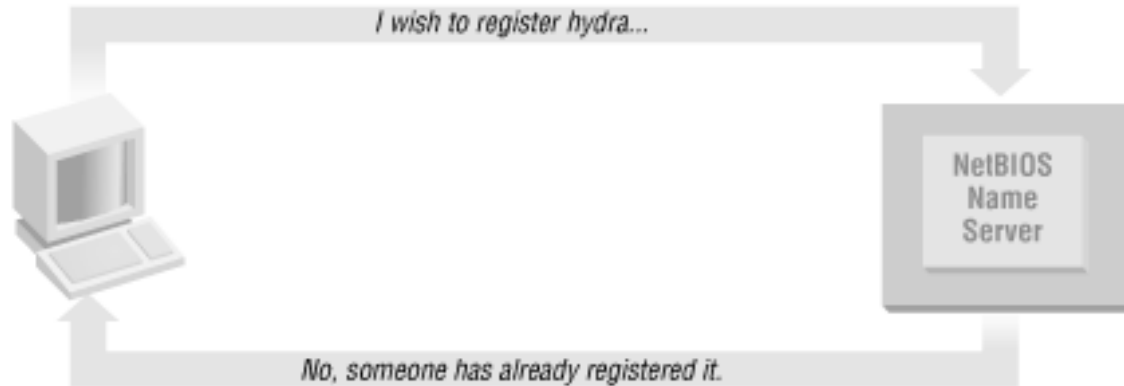


Name Resolution without a NetBIOS Name Server

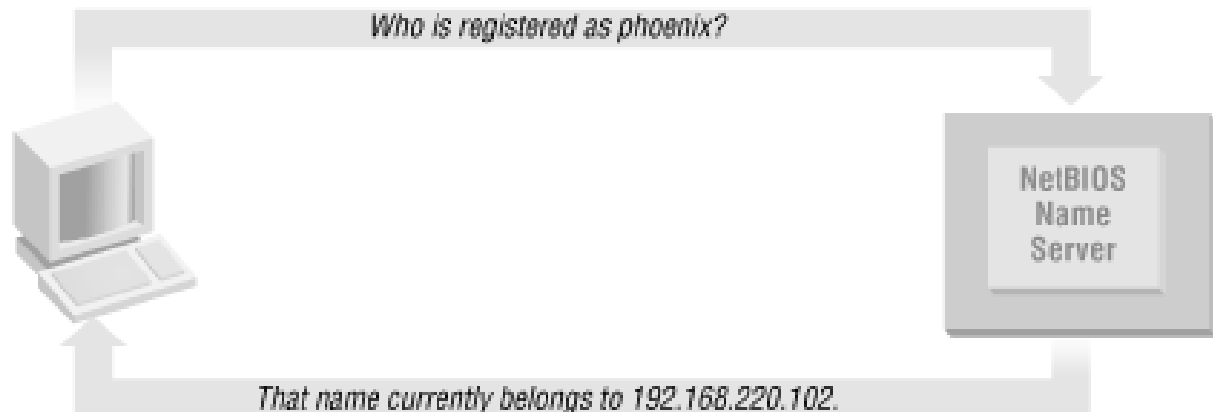


Network-based File Sharing (4)

Name Registration with a NetBIOS Name Server



Name Resolution with a NetBIOS Name Server



UNIX-Windows communication

> SAMBA

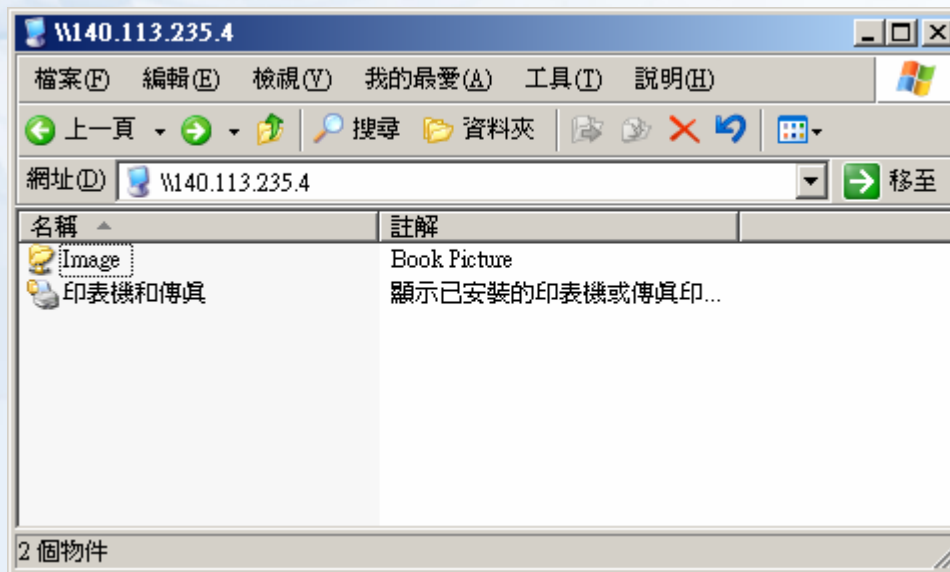
- A UNIX application that speak SMB protocol
- Designed by Andrew Tridgwell, in 1991
- Original Name: Server Message Block (SMB)

Applikation		
SMB		
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What SAMBA can do?

> Sharing

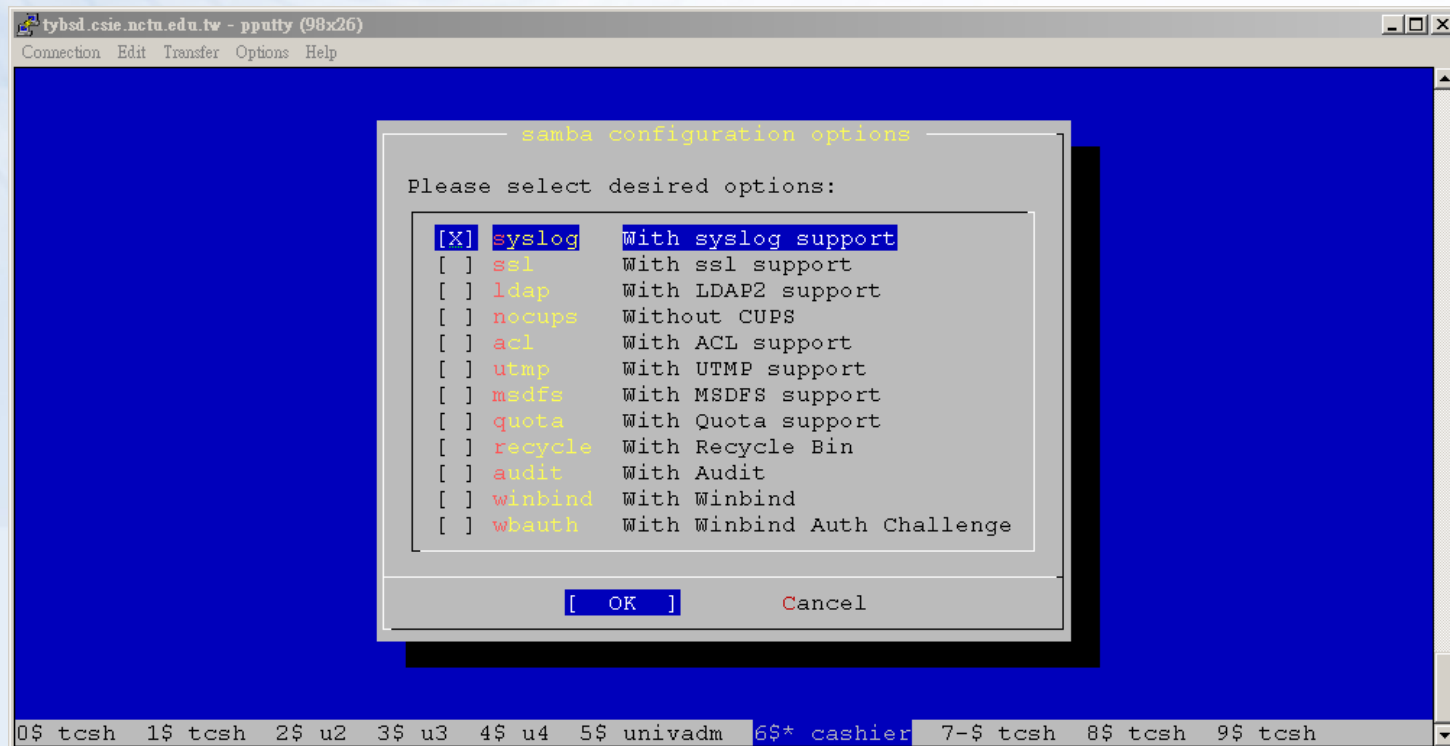
- Sharing files or printers just like Microsoft does
- Authenticate user identity just like Microsoft does
- Resolve NetBIOS name just like Microsoft does



Install SAMBA

> Using ports

- % `cd /usr/ports/net/samba`
- % `make; make install; make clean`



SAMBA components

> Configuration files

- **/usr/local/etc/smb.conf.default → /usr/local/etc/smb.conf**
- **/usr/local/etc/lmhosts**

> Major execution files

- **Under /usr/local/samba/bin directory**
- **smbd**
 - Management of sharing directories, files and printers
- **nmbd**
 - Resolve NetBIOS name and manage workgroup
- **smbpasswd**
 - Change a user's SMB password

SAMBA configuration file

> smb.conf

— Three sections

- Global Setting
- Printer Sharing Setting
- Home Sharing Setting

SAMBA configuration file – Global Setting (1)

> Global Configuration

- **workgroup**
 - Group name to join
 - Ex: workgroup = tytsai
- **server string**
 - Description of this host
 - Ex: server string = TYTSAI SAMBA SERVER
- **netbios name**
 - NetBIOS name of this host
 - Ex: netbios name = tybsd
- **client code page**
 - Which codepage.XXX files to load
 - Ex: client code page = 950
- **hosts allow**
 - Apply to all services, regardless of individual service setting;
 - Ex: hosts allow = 140.113.235. , 140.113.

SAMBA configuration file – Global Setting (2)

- **guest ok**
 - If this is yes, no password is required
 - Ex: guest ok = no
- **guest account**
 - If guest can use this samba service, any guest request will map to this guest account
 - Ex: guest account = ftp
- **log file**
 - Full path of log file
 - Ex: log file = /var/log/samba/log.%m
- **max log size (KB)**
 - Ex: max log size = 500

SAMBA configuration file – Global Setting (3)

- security = [share/user/server/domain]
 - share: no need of id and password to login
 - user: default option, login with id and password
 - server: check id and password by another server
 - domain: check id and password by domain controller
- Ex:
 - > security = user
 - > encrypt passwords = yes
 - > smb passwd file = /usr/local/samba/private/smbpasswd

SAMBA configuration file – Global Setting (4)

> Example of global setting

```
[global]
workgroup           = tytsai
server string       = tybsd samba server
netbios name        = tybsd
client code page     = 950
printcap name       = /etc/printcap
load printers       = yes
printing            = lprng
log file            = /var/log/samba/log.%m
max log size        = 500
security            = user
encrypt passwords   = yes
smb passwd file     = /usr/local/samba/smbpasswd
```


Samba parameters

> Default parameters in samba

- **%m**
 - Client NetBIOS name
- **%M**
 - Client Hostname
- **%I**
 - Client IP
- **%L**
 - Samba server NetBIOS name
- **%h**
 - Samba server Hostname
- **%H**
 - User home directory
- **%U**
 - Login name
- **%T**
 - Current Date time

SAMBA configuration file – Home Sharing Setting (1)

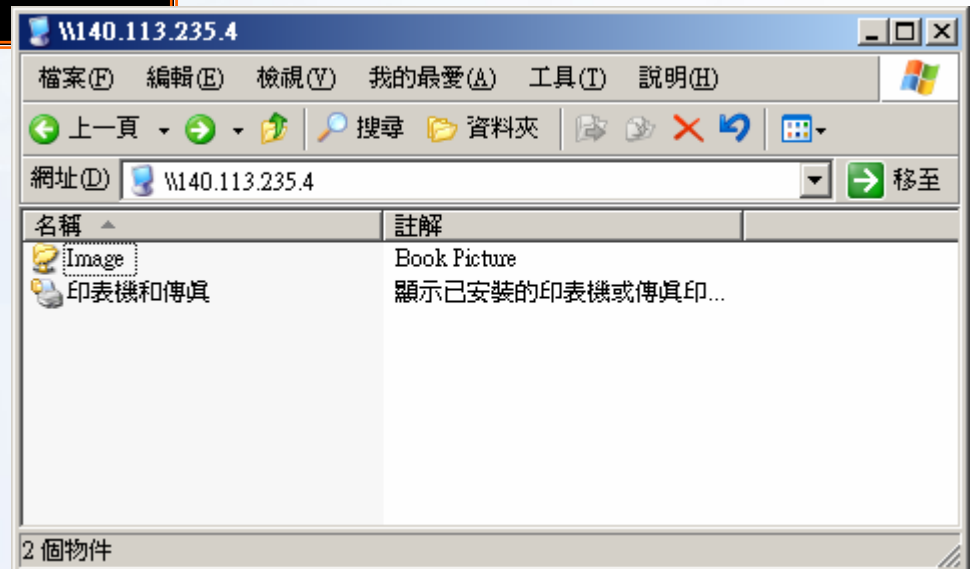
> Home sharing setting

- **comment**
 - Description of this directory
- **path**
 - Sharing directory path
- **browseable**
 - Display sharing name or not
- **read only , writeable**
- **write list**
 - Only users on this can write content if read only
- **create mode / create mask**
 - Default permission when file is created
- **directory mode / directory mask**
 - Default permission when directory is created
- **guest ok**

SAMBA configuration file – Home Sharing Setting (2)

> Example of home sharing

[Image]	
comment	= Book Picture
path	= /home/image
read only	= no
public	= yes
writable	= yes
create mode	= 0664
directory mode	= 0775



Starting SAMBA

> Script

- `/usr/local/etc/rc.d/samba.sh {start|stop}`

SAMBA password (1)

> smb password file

- Path can be defined in smb.conf
- % cd /usr/local/samba/private
- % sudo touch smbpasswd
- % sudo chmod 600 smbpasswd

SAMBA password (2)

> smbpasswd command

— -a

- Add new user

— -d

- Let some account in smbpasswd file can not login

— -e

- Let some disable account resume

```
tytsai@tybsd:/<2>samba/private> sudo cat smbpasswd
tytsai:1001:EE8266490C3E780CF7E62F36F8DB5AE6:57369E62E0B36835FBCDA752A590BB82
:[U      ]:LCT-419332AE:
tytsai@tybsd:/<2>samba/private> sudo /usr/local/samba/bin/smbpasswd -a chiaming
New SMB password:
Retype new SMB password:
Added user chiaming.
tytsai@tybsd:/<2>samba/private> sudo cat smbpasswd
tytsai:1001:EE8266490C3E780CF7E62F36F8DB5AE6:57369E62E0B36835FBCDA752A590BB82
:[U      ]:LCT-419332AE:
chiaming:1002:C3F8E2488DF0D9CD09752A3293831D17:39E635B42A40D6F73E0A963BD8ABC0A9
:[U      ]:LCT-41D0113A:
```


Tool: smbclient (1)

- > A client program that can talk to an SMB server
- > Usage:
 - **-L [hostname]**
 - List sharable resource
 - **-U [username]**
 - Login with username

Tool: smbclient (2)

```
tytsai@tybsd:/<2>samba/bin> ./smbclient -L tybsd -U tytsai
```

```
Password:
```

```
Domain=[TYBSD] OS=[Unix] Server=[Samba 3.0.7]
```

Sharename	Type	Comment
-----	----	-----
Image	Disk	Book Picture
IPC\$	IPC	IPC Service (tybsd)
ADMIN\$	IPC	IPC Service (tybsd)

```
Domain=[TYBSD] OS=[Unix] Server=[Samba 3.0.7]
```

Server	Comment
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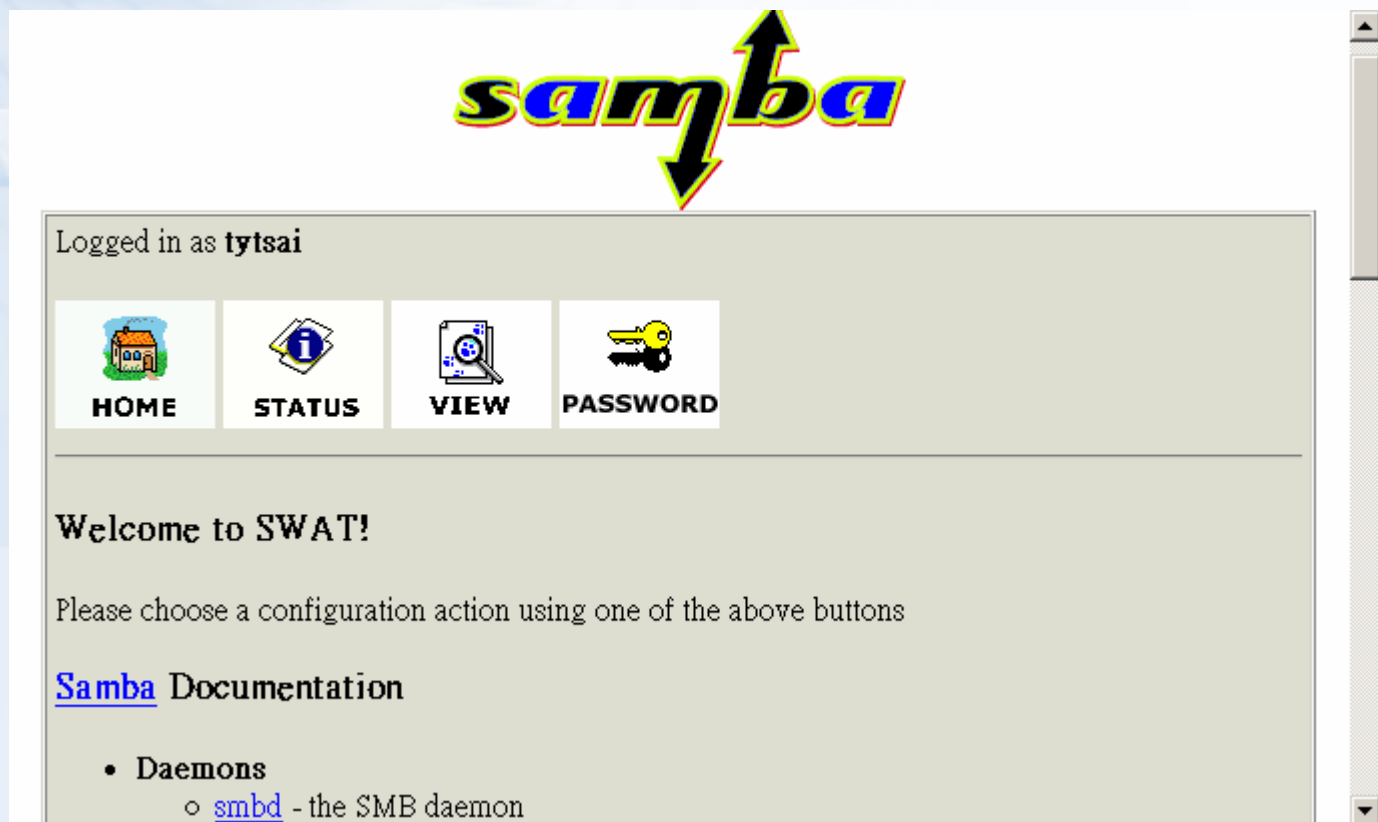
Workgroup	Master
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SWAT (1)

> Edit /etc/inetd.conf

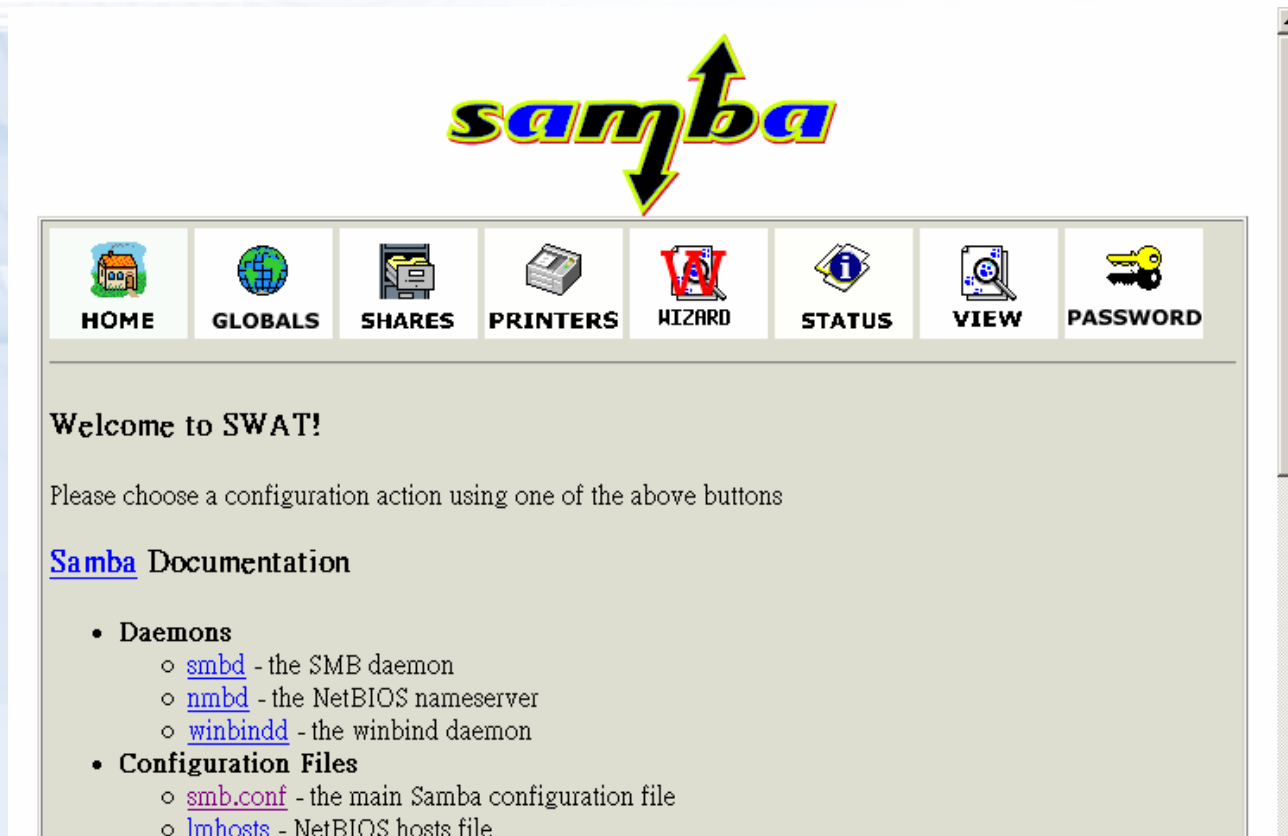
— Unmark

```
swat  stream  tcp  nowait/400  root  /usr/local/sbin/swat  swat
```



SWAT (2)

> Root access



Exercise Requirement

Requirements

- > Install samba
- > Create three sharing
 - **[secret]**
 - Shared directory, require login
 - **[public]**
 - Shared directory, guest ok
 - **[invisible]**
 - Invisible directory, must type directory