

# SAMBA

## Configuration and Management

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Project submitted in the context of the course  
I3351 System Administration  
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# What is Samba ?

The commercialization of the Internet over the past few years has created something of a modern melting pot. It has brought business-folk and technologists closer together than was previously thought possible. As a side effect, Windows and UNIX systems have been invading each other's turf, and people expect that they will not only play together nicely, but that they will share.

A lot of emphasis has been placed on peaceful coexistence between UNIX and Windows. Unfortunately, the two systems come from very different cultures and they have difficulty getting along without mediation. ...and that, of course, is Samba's job. Samba runs on UNIX platforms, but speaks to Windows clients like a native. It allows a UNIX system to move into a Windows "Network Neighborhood" without causing a stir. Windows users can happily access file and print services without knowing or caring that those services are being offered by a UNIX host.

Samba is an important component to seamlessly integrate Linux/Unix Servers and Desktops into Active Directory environments. It can function both as a domain controller and as a regular domain member.

Samba is a software package that gives network administrators flexibility and freedom in terms of setup, configuration, and choice of systems and equipment. Because of all that it offers,

Samba has grown in popularity, and continues to do so every year

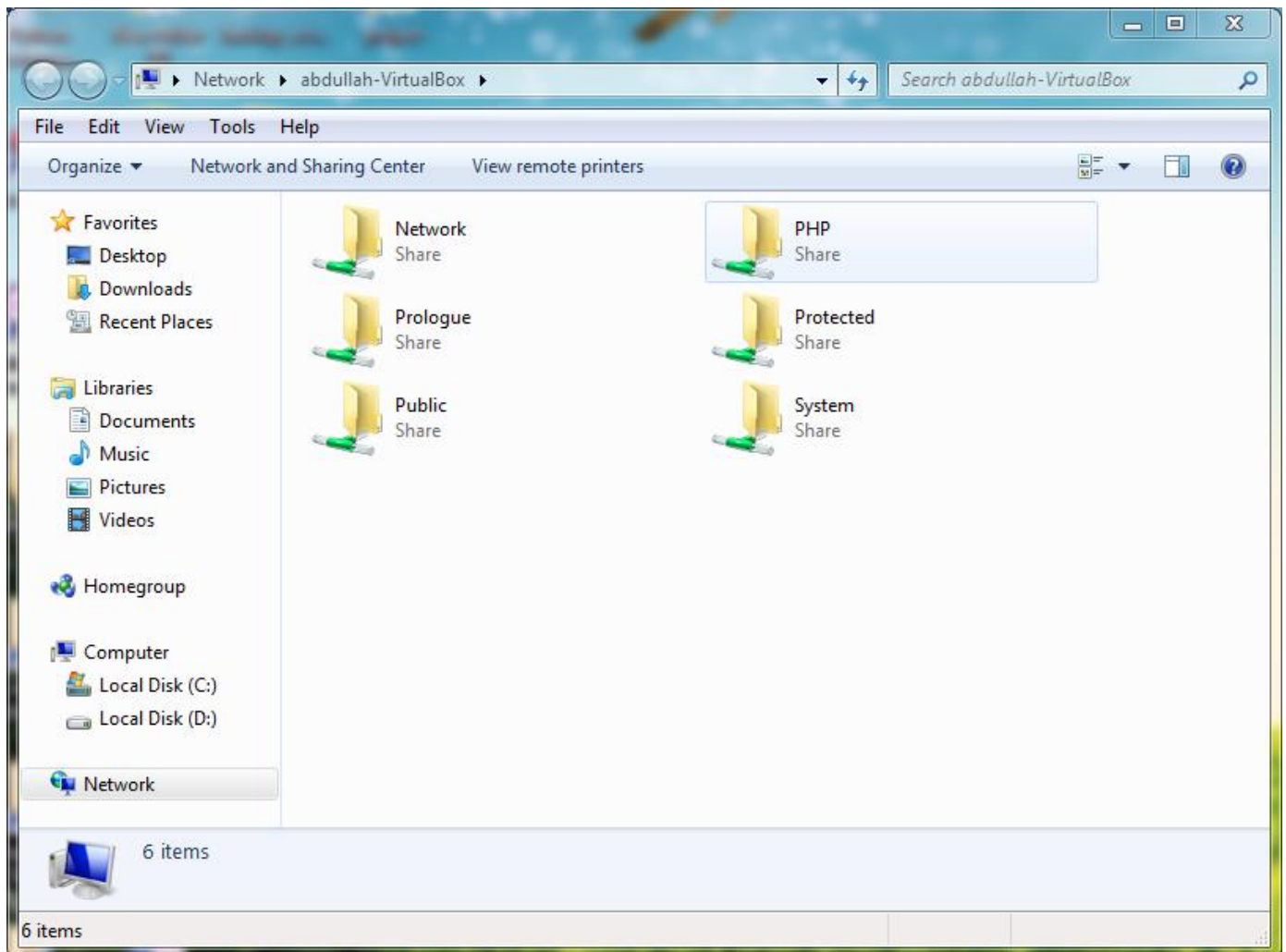
# Project Architecture

In this project we create a university course system where the teacher and his students can share files and documents.

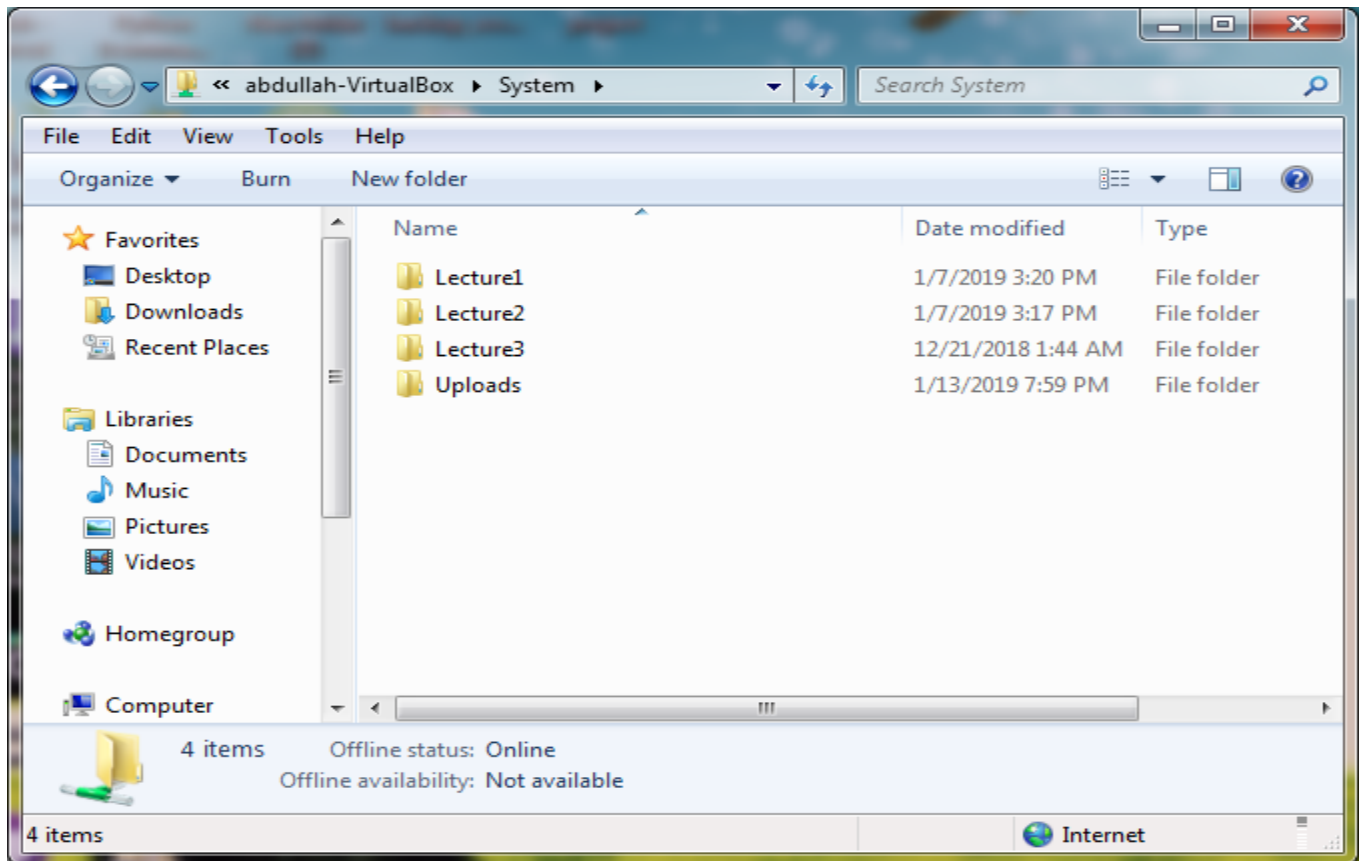
1. For every course we have a protected directory on the server. The owner of this directory is the teacher so only he can add files and folders to this directory. All students registered in his course form one group and this group is granted access to the files in the shared directory where they can only browse and read the documents. However in each course directory we have a shared directory Uploads where all students can upload their assignments. Only the students registered in this course can create and read files in this section, also the creator of the file is the only user permitted to write or modify his files or directories.
2. The system administrator can monitor the entire system and has a view off all the users currently logged in and what directories and files they are viewing.
3. At the end, we can back up the any files we have on the server. We can configure automated tasks that do a scheduled backups for any folders in the server. The system administrator can specify what directories to backup and how often the backup process is done for each directory.



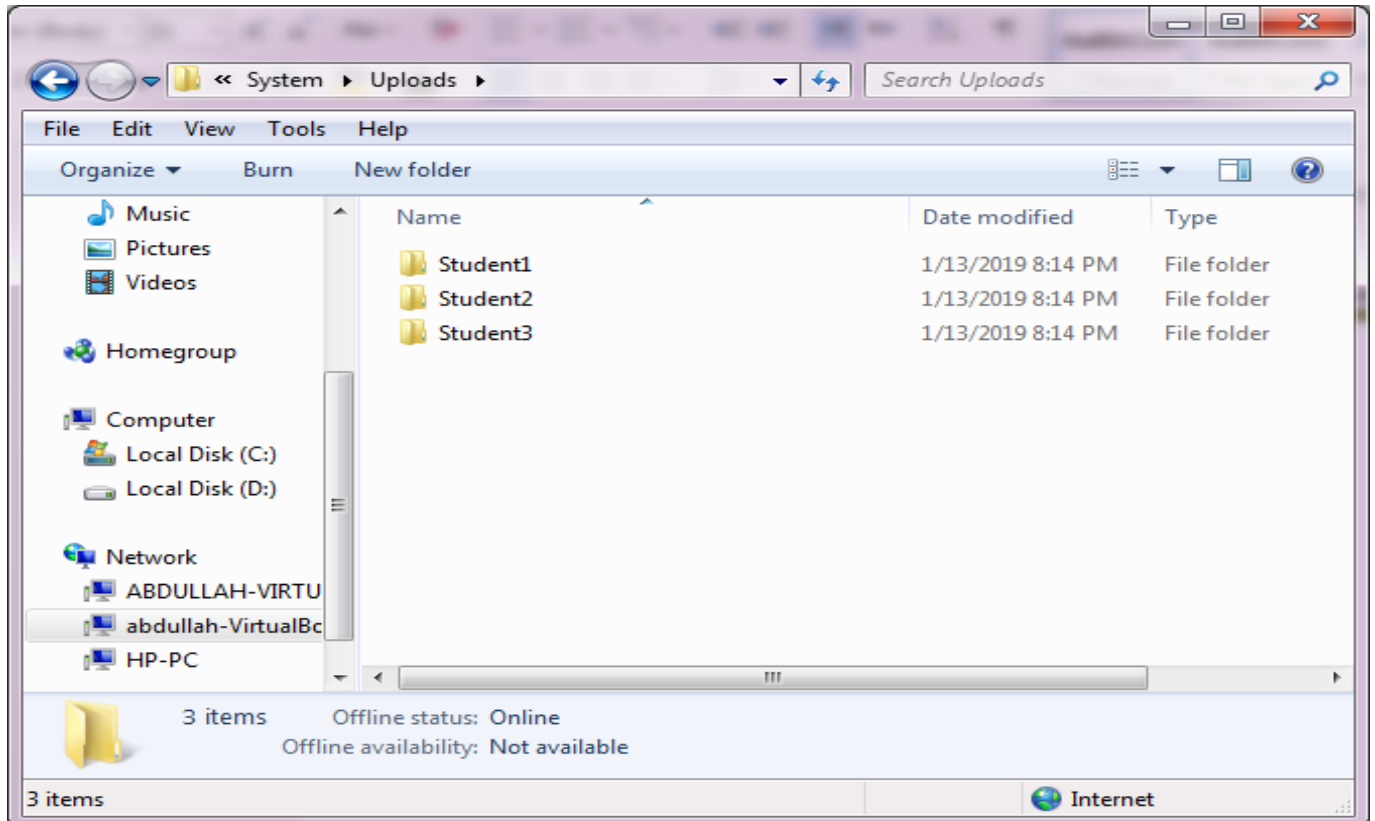
**Figure 1 : login authentication**



**Figure 2 : Samba shared folders**



**Figure 3** The content of the course System



**Figure 4** every student creates a folder here

# Installation and Configuration

## 1) Ubuntu:

- ❖ Login as root .
- ❖ Add Windows system name to Ubuntu host file by editing /etc/hosts:

192.168.56.1                      HP-PC

- ❖ Install Samba by running the following command:

```
sudo apt-get install samba samba-common python-glade2  
system-config-samba
```

- ❖ Create a directory in /samba  
mkdir /samba/System
- ❖ Create the teacher : adduser ahmad
- ❖ Create the group: addgroup system
- ❖ Create the students then add them to the group:  
adduser hassan  
usermod -aG system richard
- ❖ Add all users to the samba password database:  
smbpasswd -a ahmad
- ❖ Change owner of the directory to the teacher, and group to the students' group:  
chown -R ahmad:system /samba/System



- ❖ Give the owner the permission to write, read and execute; and the group read and execute:

```
chmod 750 -R /samba/System
```

- ❖ Create a directory Uploads in each course directory and give each corresponding group the read , write and execute permission:

```
chmod 770 /samba/System/Uploads
```

- ❖ Edit /etc/samba/samba.conf to add the new directory:

```
[System]
```

```
path = /samba/System
```

```
comment = Course for System Administration
```

```
valid users = ahmad @system # groups are preceded with @
```

```
guest ok = no
```

```
writable = yes
```

```
browsable = yes
```

```
invalid users = mike
```

```
read list = hadi mira
```

```
write list = amira hassan
```

```
admin user = Abdullah
```

```
max connection = 30
```

➤ Use testparm to check if the configuration is correct.

## 2) Windows:

❖ Edit the file C:\\Windows\\System32\\drivers\\etc\\hosts to include Ubuntu referenced name:

```
192.168.1.3      abduallah-VirtualBox.localhost      Abdullah-  
VirtualBox
```

❖ Enable windows file sharing:

```
netsh advfirewall firewall set rule group="File and Printer Sharing" new enable=Yes
```

```
netsh advfirewall firewall set rule group="Network Discovery" new enable=Yes
```

❖ Test the connectivity from both sides:

```
ping abduallah-VirtualBox
```

```
ping HP-PC
```

❖ Write a batch file to allow windows user to disconnect so others can login with their account, which is useful if we have a shared computer and different users need to access the system:

```
@echo off
```

```
::Disconnect user
```

```
net use * /delete /y >timeing.txt
```

```
msg * /time:5 "You Have Been Disconnected"
```

# Monitoring the System

## 1)Log:

log file : this option in smb.conf allows you to override the name of the Samba log file (also known as the debug file). It takes the standard substitutions, allowing you to have separate log files for each user or machine.

➤ log level = 1

Setting a higher log level enables you to debug problems with Samba daemons and commands.

➤ log file = /var/log/samba/log.%m

%m is the netbios of the client.

➤ max log size = 5000

➤ debug timestamp = yes

then run: smbcontrol all reload-config.

```
abduallah@abduallah-VirtualBox:/var/log/samba$ ll
total 88
drwxr-x---  3 root adm      4096 نون 6 23:54 ./
drwxrwxr-x 13 root syslog  4096 نون 7 00:07 ../
drwx-----  4 root root    4096 نون 13 15:18 cores/
-rw-r--r--  1 root root      0 نون 13 15:18 log.
-rw-r--r--  1 root root    2902 نون 13 19:12 log.nmbd
-rw-r--r--  1 root root    4065 نون 6 23:54 log.nmbd.1
-rw-r--r--  1 root root    2296 نون 1 13:26 log.nmbd.2.gz
-rw-r--r--  1 root root   53067 نون 13 19:18 log.smbd
-rw-r--r--  1 root root     616 نون 6 23:49 log.smbd.1
-rw-r--r--  1 root root     386 نون 1 13:22 log.smbd.2.gz
abduallah@abduallah-VirtualBox:/var/log/samba$
```

Figure 5 : the log files corresponding to samba

Each file contains specific log information about the system, the amount of information stored depends on the log level:

```
abdullah@abdullah-VirtualBox:/var/log/samba$ cat log.smbd.1
[2019/01/02 01:41:57.661111, 0] ../lib/util/become_daemon.c:124(daemon_ready)
STATUS=daemon 'smbd' finished starting up and ready to serve connections
[2019/01/02 20:47:13.414751, 0] ../lib/util/become_daemon.c:124(daemon_ready)
STATUS=daemon 'smbd' finished starting up and ready to serve connections
[2019/01/03 00:43:18.787205, 0] ../lib/util/become_daemon.c:124(daemon_ready)
STATUS=daemon 'smbd' finished starting up and ready to serve connections
[2019/01/06 23:49:48.999704, 0] ../lib/util/become_daemon.c:124(daemon_ready)
STATUS=daemon 'smbd' finished starting up and ready to serve connections
abdullah@abdullah-VirtualBox:/var/log/samba$
```

*Figure 6 : the contents of log.smbd.1*

```
[2019/01/07 11:32:44.492500, 0] ../source3/nmbd/nmbd_workgroupdb.c:276(dump_workgroups)
dump_workgroups()
dump workgroup on subnet 192.168.56.101: netmask= 255.255.255.0:
WORKGROUP(1) current master browser = HP-PC
ABDULLAH-VIRTUA 40809a03 (Samba Server 4.7.6-Ubuntu)
HP-PC 40051007 ( )
[2019/01/07 11:35:39.651026, 0] ../source3/nmbd/nmbd_workgroupdb.c:276(dump_workgroups)
dump_workgroups()
dump workgroup on subnet 192.168.56.101: netmask= 255.255.255.0:
WORKGROUP(1) current master browser = HP-PC
ABDULLAH-VIRTUA 40809a03 (Samba Server 4.7.6-Ubuntu)
HP-PC 40051007 ( )
[2019/01/07 11:39:20.448876, 0] ../source3/nmbd/nmbd_workgroupdb.c:276(dump_workgroups)
dump_workgroups()
dump workgroup on subnet 192.168.56.101: netmask= 255.255.255.0:
WORKGROUP(1) current master browser = HP-PC
ABDULLAH-VIRTUA 40809a03 (Samba Server 4.7.6-Ubuntu)
HP-PC 40051007 ( )
```

*Figure 7 : small amount of the contents of log.nmbd*

## 2) Commands:

- `smbstatus` : report on current Samba connections

```
Samba version 4.7.6-Ubuntu
```

PID	Username	Group	Machine	Protocol	Version	Encryption	Signing
2444	dr_ahmad	dr_ahmad	192.168.56.1 (ipv4:192.168.56.1:50100)	SMB2_10		-	-

Service	pid	Machine	Connected at	Encryption	Signing
Public	2444	192.168.56.1	ينكلان و ن 7 EET 11:39:35 2019 EET	-	-

Locked files:

Pid	Uid	DenyMode	Access	R/W	Oplock	SharePath	Name	Time
2444	65534	DENY_NONE	0x100080	RDONLY	NONE	/samba/public	.	Mon Jan 7 11:39:47 2019
2444	65534	DENY_NONE	0x100081	RDONLY	NONE	/samba/public	.	Mon Jan 7 11:39:58 2019
2444	65534	DENY_NONE	0x100081	RDONLY	NONE	/samba/public	New folder (4)	Mon Jan 7 11:40:05 2019

*Figure 8 : we can see who's accessing the shared directories*

- `testparm`: Check an `smb.conf` configuration file or internal correctness.
- `net usershare info -long`
- `net rpc user`
- `net rpc share list -U $USERNAME`

# Back Up and Task Automation

Samba is a very reliable backup system to use for backing up your data/document files from your computer to the server. Samba provides a very basic shell script for backup (source4/scripting/bin/samba\_backup in the source tarball). This requires that your whole samba installation is in one place.

I adjusted the script so we can choose which directories to backup and where. The script now takes the list of directories to back up on the server as an argument for the script command.

Not only that, we can also schedule the back up process so that we specify for a set of directories how often we are going to perform their back up.

```
# ./backup.sh System
# ./backup.sh Network PHP
# ./backup.sh Network PHP System Prologue
# ls /samba | xargs ./backup.sh
#
```

*Figure 9 : backing up samba directories*

```

k:/usr/local/sambabackup# ll
4096 نون ك 7 13:40 ./
4096 نون ك 7 12:53 ../
352 نون ك 7 13:42 Network.070119.tar.bz2
116 نون ك 7 13:42 PHP.070119.tar.bz2
118 نون ك 7 13:42 Prologue.070119.tar.bz2
321 نون ك 7 13:42 protected.070119.tar.bz2
2632 نون ك 7 13:42 public.070119.tar.bz2
419 نون ك 7 13:42 System.070119.tar.bz2

```

*Figure 10 : /usr/local/samba after backup*

Crontab files can be used to automate backups:

```

#
# m h dom mon dow   command
0 4 * * * /etc/samba/script/backup.sh System
0 4 * * 6 /etc/samba/script/backup.sh Network Prologue
0 4 25 * * /etc/samba/script/backup.sh public
0 4 25 1,6 * ls /samba | xargs /etc/samba/script/backup.sh

```

*Figure 11 : automating backup with crontab*

# Conclusion Future Anticipations

Lots of people believe that Samba is outdated and have to retire, they claim that with the existence of Cloud Computing Samba services are not needed anymore. But that's not completely true, samba is still very essential in LANs where the speed of internet is slow and not efficient for cloud computing.

For future knowledge I would like to get more into the world of samba. First I'm very interested in knowing more about the types of security that Samba offers and get know more about their configurations. Also I'm very intrigued about using Samba as a domain controller, starting from version 4.0, Samba is able to run as an Active Directory (AD) domain controller (DC). It is able to handle the most desired functions of a primary domain controller in a Windows NT domain, handling domain logons and authentication for accessing shared resources, as well as supporting logon scripts, roaming profiles, and system policies.



# References

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