Linux Servers

Lab3 – Samba fileserver

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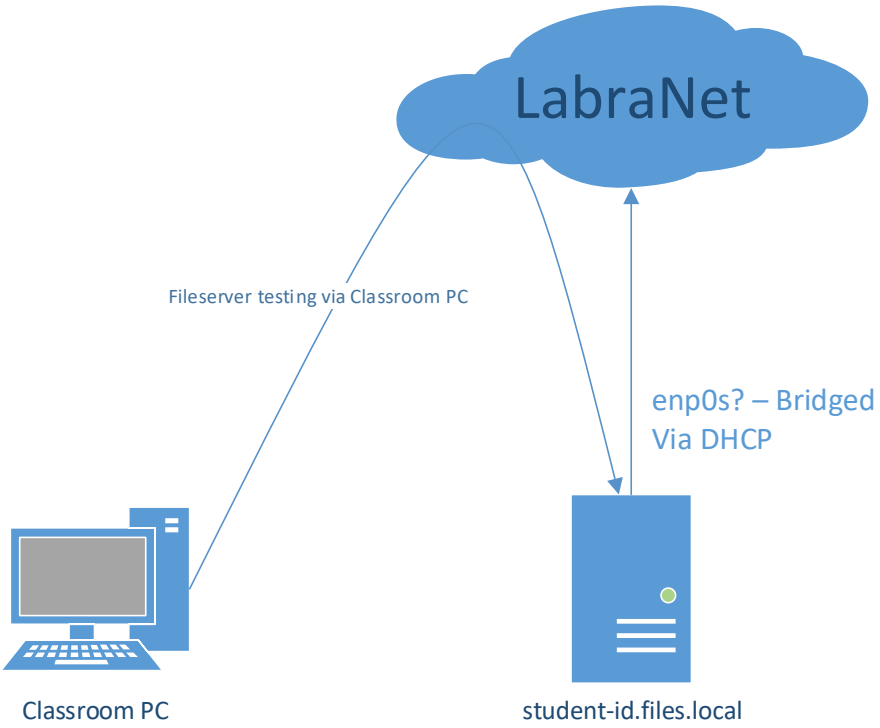
Document your commands or take screenshots. Answer questions in english or finnish.

All configuration must be persistent (survive a reboot). You may use your own notes and Internet resources for your aid. You may consult the teacher or other students.

This lab will use the following topology:



- **Samba installation (1p)**

Install Samba. Configure the server hostname to be <your student-id>.files.local. Configure samba server workgroup to files.local and netbios name <student-id>.

First I installed samba:

```
[root@K1521 ~]# yum install samba samba-client samba-common
```

Then I used nano to modifie the samba config, where I then defined the 'workgroup' and netbios name, saved and closed the config:

```
  GNU nano 2.3.1          File: /etc/samba/smb.conf                Modified

# interface (lo).
#
# hosts allow = the hosts allowed to connect. This option can also be used on a
# per-share basis.
#
# hosts deny = the hosts not allowed to connect. This option can also be used on
# a per-share basis.
#
# max protocol = used to define the supported protocol. The default is NT1. You
# can set it to SMB2 if you want experimental SMB2 support.
#
        workgroup = files.local
        server string = Samba Server Version %v

;       netbios name = K1521
```

I then changed the servers hostname with command:

```
[root@K1521 ~]# sysctl kernel.hostname=K1521.files.local
kernel.hostname = K1521.files.local
```

Turn on both the nmb and smb service.

After the configuration was done, I started the samba services and also enabled them to be started on boot

Starting service:

```
[root@K1521 ~]# service nmb start
Redirecting to /bin/systemctl start  nmb.service
[root@K1521 ~]# service smb start
Redirecting to /bin/systemctl start  smb.service
```

Boot:

```
[root@K1521 ~]# systemctl enable nmb
ln -s '/usr/lib/systemd/system/nmb.service' '/etc/systemd/system/multi-user.targ
et.wants/nmb.service'
[root@K1521 ~]# systemctl enable smb
ln -s '/usr/lib/systemd/system/smb.service' '/etc/systemd/system/multi-user.targ
et.wants/smb.service'
```

- **Firewall rules (1p)**

Allow samba through the firewall. You can use either firewalld or iptables.

I defined a firewall rule for samba for public zone, then reloaded the firewall

```
[root@K1521 ~]# firewall-cmd --permanent --zone=public --add-service=samba
success
```

- **SELinux (1p)**

Install policycoreutils-python package. Turn on the following SELinux booleans (permanently): samba_enable_home_dirs, samba_export_all_rw

I installed the package “policycoreutils-python”

```
[root@K1521 ~]# yum install policycoreutils-python
```

Then I defined SELINUX export rule for samba and enabled home directorys(-P as a permanent)

```
[root@K1521 ~]# setsebool -P samba_enable_home_dirs on
[root@K1521 ~]# setsebool -P samba_export_all_rw on
```

After I defined the rules, I then checked with getsebool that the rules took affect

```
[root@K1521 ~]# getsebool -a | grep samba
samba_create_home_dirs --> off
samba_domain_controller --> off
samba_enable_home_dirs --> on
samba_export_all_ro --> off
samba_export_all_rw --> on
samba_portmapper --> off
samba_run_unconfined --> off
samba_share_fusefs --> off
samba_share_nfs --> off
sanlock_use_samba --> off
use_samba_home_dirs --> off
virt_sandbox_use_samba --> off
virt_use_samba --> off
```

- **User accounts and shared homes (1p)**

Create new user accounts tero and sulo. Create Samba accounts also (with smbpasswd). Add the users to secondary Linux group smbhome (create the group first).

Share the /home directory with samba, set permissions only for smbhome group.

I made users tero and sulo

```
[root@K1521 ~]# useradd sulo
[root@K1521 ~]# useradd tero
```

Then I made samba accounts for the users that I made

```
[root@K1521 ~]# smbpasswd -a sulo
New SMB password:
Retype new SMB password:
Added user sulo.
[root@K1521 ~]# smbpasswd -a tero
New SMB password:
Retype new SMB password:
Added user tero.
```

Then I made group named smbhome and added user sulo and tero in

```
[root@K1521 ~]# groupadd smbhome
[root@K1521 ~]# usermod -a -G smbhome sulo
[root@K1521 ~]# usermod -a -G smbhome tero
```

As seen below the users are in the group smbhome

```
  GNU nano 2.3.1                File: /etc/group

slocate:x:21:
named:x:25:
dhcpd:x:177:
radvd:x:75:
cgred:x:995:
tero:x:1000:
sulo:x:1001:
smbhome:x:1002:tero,sulo
```

- **Public shared folder (1p)**

Create directory /public. Set the correct SELinux context for it and all the files inside with semanage. Test that new files created in the directory get the correct context.

Share the folder with samba as *public* and allow everyone to browse but only smbhome-group to write in it. Remember to set linux group to smbhome and write permissions to group.

I changed directory into root (/) and made a new directory named public

```
[root@K1521 /]# mkdir public
[root@K1521 /]# pwd
/
```

```
drwxrw---x.   2 root smbhome    6 Dec  2 08:15 public
```

```
[root@K1521 /]# chmod 771 public
```

Chown root:smbhome /public

After I made the directory, I changed the directorys permissions so that all the subfolders/files have public read/write permissions

```
[root@K1521 /]# semanage fcontext -a -t public_content_rw_t '/public(/.*)?'
[root@K1521 /]# restorecon -R -v /public
restorecon reset /public context unconfined_u:object_r:default_t:s0->unconfined_
u:object_r:public_content_rw_t:s0
```

Here is the write command for public as a permanent rule

```
[root@K1521 /]# setsebool -P allow_smbd_anon_write 1
```

After I made the SELinux rules, I modified the /etc/samba/smb.conf again. I scrolled down to the bottom of the conf and added the destination path for the share and also the group 'smbhome' to the write list. Saved and closed the file.

```
  GNU nano 2.3.1            File: /etc/samba/smb.conf

;       browseable = no
;       guest ok = yes

# A publicly accessible directory that is read only,
# "staff" group (which have write permissions):
;       [public]
;       comment = Public Stuff
;       path = /public/
;       public = yes
;       writable = yes
;       printable = no
;       write list = +smbhome
```

And last I rebooted samba services

```
[root@K1521 /]# systemctl restart smb
[root@K1521 /]# systemctl restart nmb
```

Testing

Reboot the fileserver and verify that your configuration persists. Test that you can access the server via its own LabraNet IP address.

Checklist for screenshots/documentation:

- Services are running after a reboot (systemctl status service)

Both services are enabled and they start on boot.

```
K1521 login: root
Password:
Last login: Fri Dec  2 08:27:20 on tty1
[root@K1521 ~]# systemctl status smb
smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled)
   Active: active (running) since Fri 2016-12-02 08:27:17 EET; 23s ago
 Main PID: 2347 (smbd)
   Status: "smbd: ready to serve connections..."
   CGroup: /system.slice/smb.service
           ├─2347 /usr/sbin/smbd
           └─2376 /usr/sbin/smbd
```

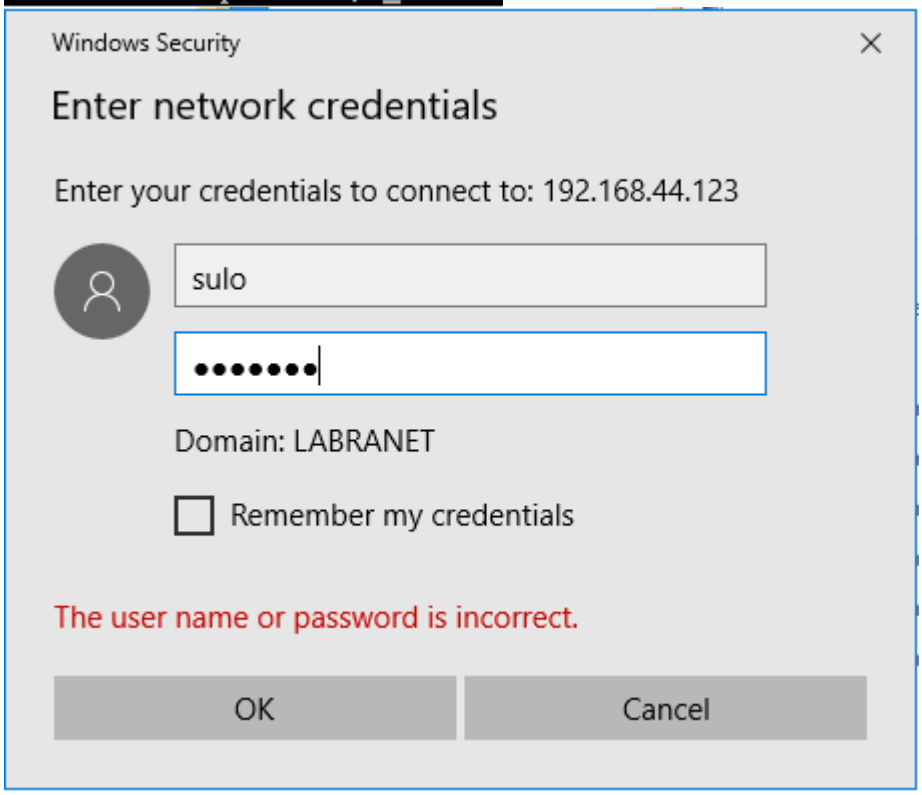
```
[root@K1521 ~]# systemctl status nmb
nmb.service - Samba NMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/nmb.service; enabled)
   Active: active (running) since Fri 2016-12-02 08:27:17 EET; 26s ago
 Main PID: 1847 (nmbd)
   Status: "nmbd: ready to serve connections..."
   CGroup: /system.slice/nmb.service
           └─1847 /usr/sbin/nmbd
```

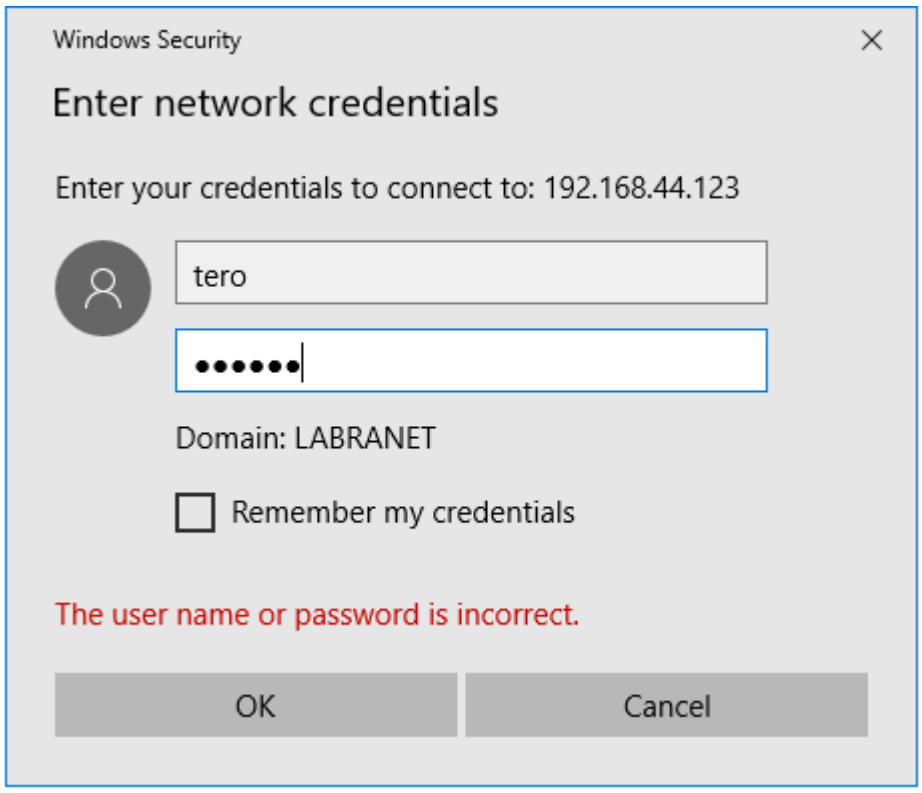
- You can log in as tero or sulo

```
[root@K1521 ~]# su - sulo
Last login: Fri Dec  2 08:25:40 EET 2016 on tty1
[sulo@K1521 ~]$ _
```

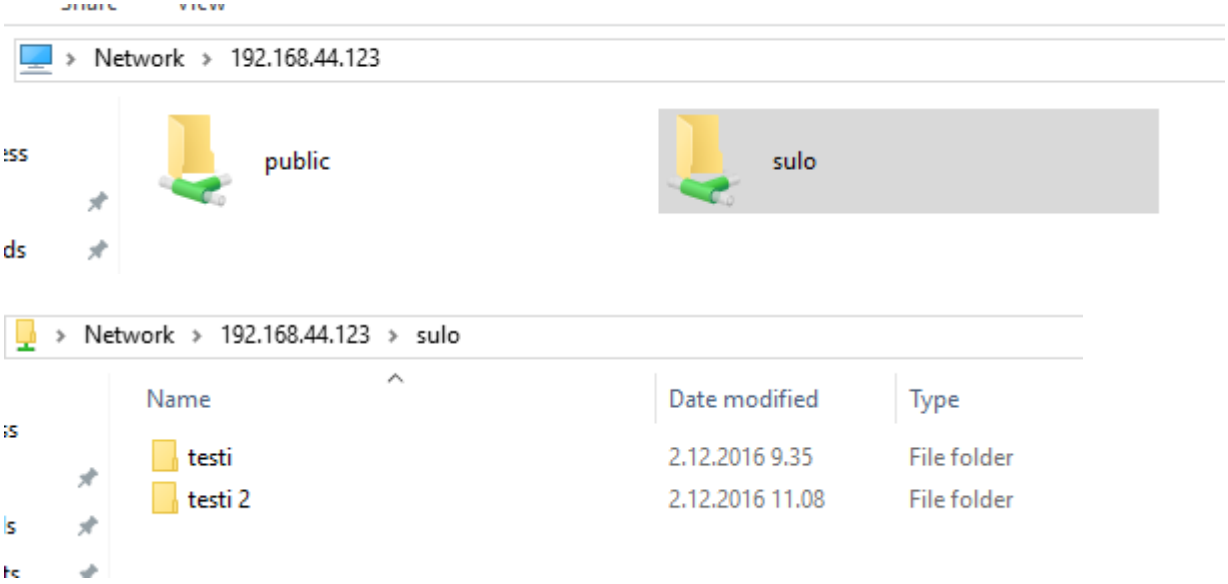
```
[root@K1521 ~]# su - tero
[tero@K1521 ~]$ _
```

```
[tero@K1521 ~]$ cd /public
[tero@K1521 public]$ ls -l
```





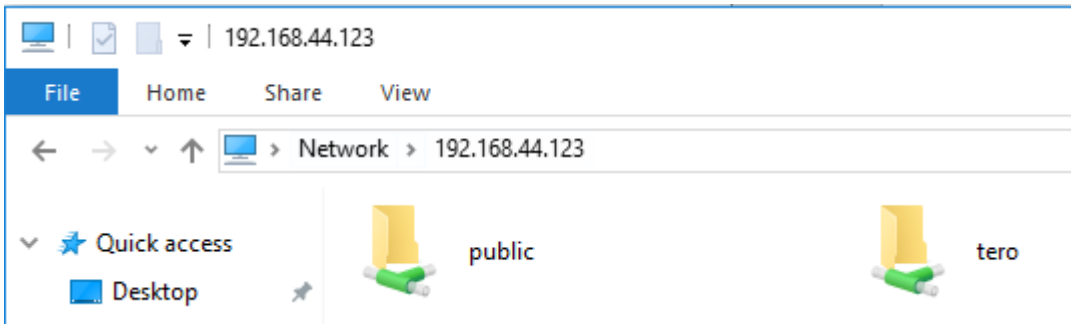
- You can view only your own home folder and the public folder

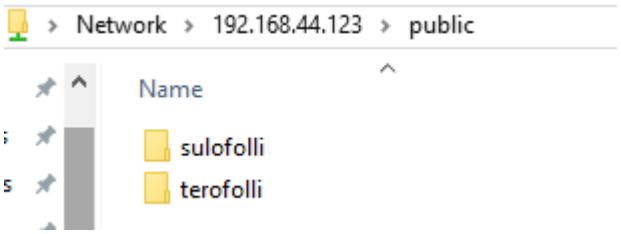


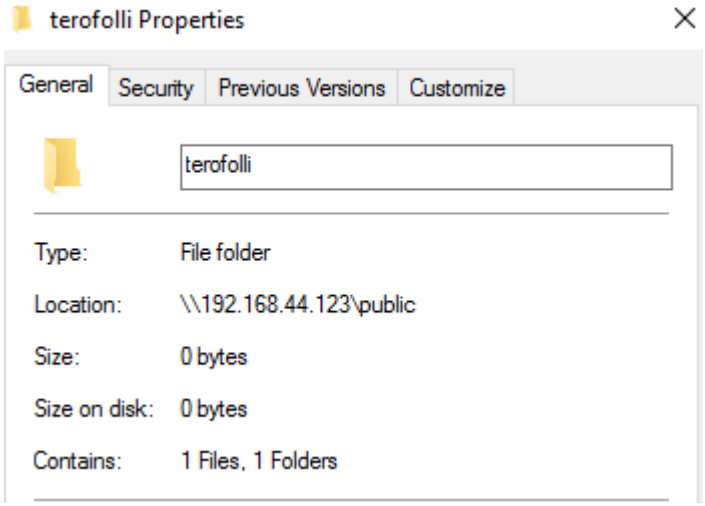

```
[sulo@K1521 home]$ ls -l
total 12
drwx------. 4 rommi rommi 4096 Dec  2 08:31 rommi
drwx------. 4 sulo  sulo  4096 Dec  2 08:26 sulo
drwx------. 4 tero  tero  4096 Dec  2 08:30 tero
[sulo@K1521 home]$ cd tero
-bash: cd: tero: Permission denied
[sulo@K1521 home]$ cd rommi
-bash: cd: rommi: Permission denied
```

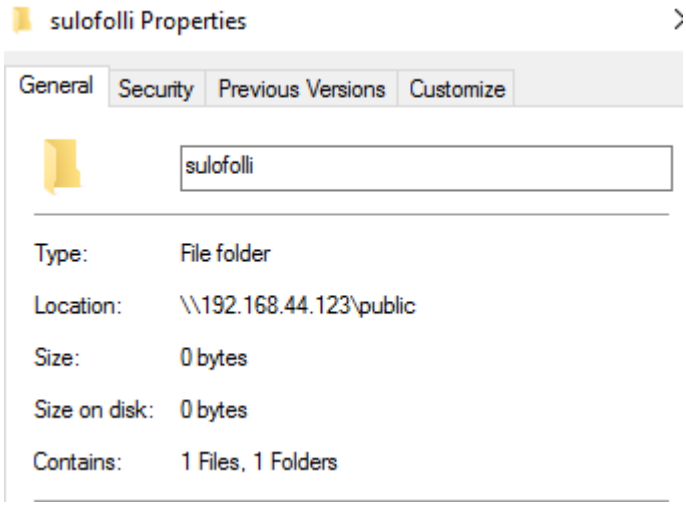
- You can read and create files in the folders

```
C:\Users\K1521>net use
New connections will be remembered.


Status       Local     Remote                    Network

-------------------------------------------------------------------------------
OK           S:        \\student.labranet.jamk.fi\K1521
                                                 Microsoft Windows Network
OK           Z:        \\storage\homes\K1521     Microsoft Windows Network
Disconnected           \\192.168.44.123\home     Microsoft Windows Network
The command completed successfully.


C:\Users\K1521>net use \\192.168.44.123\home /delete
\\192.168.44.123\home was deleted successfully.
```









- Screenshot of the permissions and ownership of the newly created files.

```
[root@K1521 public]# ls -l
total 0
drwxrwxr-x. 3 sulo smbhome 55 Dec  2 11:54 sulofolli
drwxrwxr-x. 2 tero smbhome 25 Dec  2 11:31 terofolli
[root@K1521 public]# cd sulofolli/
[root@K1521 sulofolli]# ls -l
total 0
-rw-rw-r--. 1 tero smbhome 0 Dec  2 11:54 teronfilusulonines.txt
drwxrwxr-x. 2 tero smbhome 6 Dec  2 11:53 terosulonines
```

```
[root@K1521 public]# ls -l
total 0
drwxrwxr-x. 3 sulo smbhome 55 Dec  2 11:54 sulofolli
drwxrwxr-x. 3 tero smbhome 60 Dec  2 11:58 terofolli
[root@K1521 public]# cd terofolli/
[root@K1521 terofolli]# ls -lah
total 0
drwxrwxr-x. 3 tero smbhome 60 Dec  2 11:58 .
drwxrwx--x. 4 root smbhome 38 Dec  2 11:31 ..
-rw-rw-r--. 1 sulo smbhome  0 Dec  2 11:58 sulofiluteronines.txt
drwxrwxr-x. 2 sulo smbhome  6 Dec  2 11:58 sulonfolliteronines
```

Smb conffi

```
  GNU nano 2.3.1           File: /etc/samba/smb.conf                Modified

;       browseable = no
;       guest ok = yes

# A publicly accessible directory that is read only, except for users in the
# "staff" group (which have write permissions):
        [public]
        comment = Public Shit
        path = /public/
        public = yes
        writable = yes
        read only = no
;       printable = no
        write list = +smbhome
        force group = smbhome
        create mask = 0664
        directory mask = 0775
```

Inside the public folder:

```
[root@K1521 public]# ls -lah
total 4.0K
drwxrwx--x.  4 root smbhome   38 Dec  2 11:31 .
dr-xr-xr-x. 18 root root    4.0K Dec  2 08:15 ..
drwxrwxr-x.  2 sulo smbhome    6 Dec  2 11:31 sulofolli
drwxrwxr-x.  2 tero smbhome    6 Dec  2 11:26 terofolli
```

Semanage

```
[root@K1521 terofolli]# getsebool -a | grep samba
samba_create_home_dirs --> off
samba_domain_controller --> on
samba_enable_home_dirs --> on
samba_export_all_ro --> off
samba_export_all_rw --> on
samba_portmapper --> off
samba_run_unconfined --> off
samba_share_fusefs --> off
samba_share_nfs --> off
sanlock_use_samba --> off
use_samba_home_dirs --> off
virt_sandbox_use_samba --> off
virt_use_samba --> off
```