

Лабораторная работа № 14

Настройка файловых служб Samba

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18 декабря 2023

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Вводная часть

Приобретение навыков настройки доступа групп пользователей к общим ресурсам по протоколу SMB.

1. Установите и настройте сервер Samba.
2. Настройте на клиенте доступ к разделяемым ресурсам.
3. Напишите скрипты для Vagrant, фиксирующие действия по установке и настройке сервера Samba для доступа к разделяемым ресурсам во внутреннем окружении виртуальных машин server и client. Соответствующим образом необходимо внести изменения в Vagrantfile.

Выполнение лабораторной работы

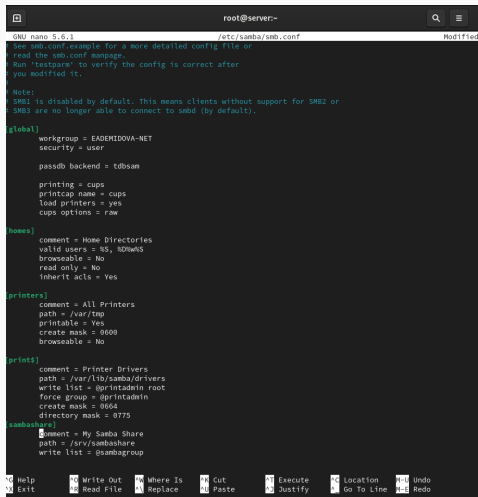
На сервере установим необходимые пакеты:

```
dnf -y install samba samba-client cifs-utils
```

```
Complete!  
[root@server.eademidova.net ~]# groupadd -g 1010 sambagroup  
[root@server.eademidova.net ~]# usermod -aG sambagroup eademidova  
[root@server.eademidova.net ~]# mkdir -p /srv/smbashare  
[root@server.eademidova.net ~]#
```

Рис. 1: Создание группы sambagroup, добавление к ней пользователя и создание каталога

Настройка сервера Samba



```
root@server:~  
GNU nano 5.6.1 /etc/samba/smb.conf Modified  
See smb.conf.example for a more detailed config file or  
read the smb.conf manpage.  
Run 'testparm' to verify the config is correct after  
you modified it.  
Note:  
SMB1 is disabled by default. This means clients without support for SMB2 or  
SMB3 are no longer able to connect to smbd (by default).  
  
[global]  
workgroup = EADEMIDOVA-NET  
security = user  
  
passdb backend = tdbsam  
  
printing = cups  
printcap name = cups  
load printers = yes  
cups options = raw  
  
[homes]  
comment = Home Directories  
valid users = %, %d\\%s  
browseable = No  
read only = No  
inherit acls = Yes  
  
[printers]  
comment = All Printers  
path = /var/tmp  
printable = Yes  
create mask = 0600  
browseable = No  
  
[print$]  
comment = Printer Drivers  
path = /var/lib/samba/drivers  
write list = @printadmin root  
force group = @printadmin  
create mask = 0664  
directory mask = 0775  
  
[sambashare]  
comment = My Samba Share  
path = /srv/sambashare  
write list = @sambagroup  
  
Help Write Out Where Is Cut Execute Location Undo  
Exit Read File Replace Paste Justify Go To Line Redo
```

Рис. 2: Добавление конфигураций в файл /etc/samba/smb.conf

Настройка сервера Samba

```
write list = @smbagroup
[root@server.eademidova.net ~]# testparm
Load smb config files from /etc/samba/smb.conf
Loaded services file OK.
Weak crypto is allowed by GnuTLS (e.g. NTLM as a compatibility fallback)

Server role: ROLE_STANDALONE

Press enter to see a dump of your service definitions
^C
[root@server.eademidova.net ~]# systemctl start smb
[root@server.eademidova.net ~]# systemctl enable smb
Created symlink /etc/systemd/system/multi-user.target.wants/smb.service → /usr/lib/systemd/system/smb.service.
[root@server.eademidova.net ~]# systemctl status smb
• smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; preset: disabled)
   Active: active (running) since Mon 2023-12-18 19:01:49 MSK; 11s ago
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
  Main PID: 7782 (smbd)
    Status: "smbd: ready to serve connections..."
      Tasks: 3 (limit: 5724)
    Memory: 13.1M
       CPU: 56ms
    CGroup: /system.slice/smb.service
            └─7782 /usr/sbin/smbd --foreground --no-process-group
              └─7784 /usr/sbin/smbd --foreground --no-process-group
                └─7785 /usr/sbin/smbd --foreground --no-process-group

Dec 18 19:01:48 server.eademidova.net systemd[1]: Starting Samba SMB Daemon...
Dec 18 19:01:48 server.eademidova.net smbd[7782]: [2023/12/18 19:01:48.963951, 0] ../../source3/smbd/server.c
Dec 18 19:01:48 server.eademidova.net smbd[7782]: smbd version 4.18.6 started.
Dec 18 19:01:48 server.eademidova.net smbd[7782]: Copyright Andrew Tridgell and the Samba Team 1992-2023
Dec 18 19:01:49 server.eademidova.net systemd[1]: Started Samba SMB Daemon.
```

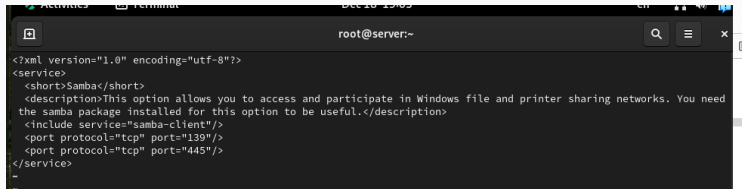
Рис. 3: Просмотр подмонтированных удалённых ресурсов на клиенте

```
[root@server.eademidova.net ~]# ^C
[root@server.eademidova.net ~]# smbclient -L //server
Password for [EADMIDOVA-NET\root]:
Anonymous login successful
```

Sharename	Type	Comment
-----	----	-----
print\$	Disk	Printer Drivers
smbashare	Disk	My Samba Share
IPC\$	IPC	IPC Service (Samba 4.18.6)

```
SMB1 disabled -- no workgroup available
[root@server.eademidova.net ~]#
```

Рис. 4: Подключение к серверу с помощью smbclient



The image shows a terminal window titled "root@server:~" with a search icon, a menu icon, and a close button. The terminal displays XML configuration for the Samba service. The XML is as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<service>
  <short>Samba</short>
  <description>This option allows you to access and participate in Windows file and printer sharing networks. You need the samba package installed for this option to be useful.</description>
  <include service="samba-client"/>
  <port protocol="tcp" port="139"/>
  <port protocol="tcp" port="445"/>
</service>
```

Рис. 5: Просмотр задействованных при удалённом монтировании служб

```
SMB1 disabled -- no workgroup available
[root@server.eademidova.net ~]# less /usr/lib/firewalld/services/samba.xml
/usr/lib/firewalld/services/samba.xml: No such file or directory
[root@server.eademidova.net ~]# less /usr/lib/firewalld/services/samba.xml
[root@server.eademidova.net ~]# firewall-cmd --add-service=samba
success
[root@server.eademidova.net ~]# firewall-cmd --add-service=samba --permanent
success
[root@server.eademidova.net ~]# firewall-cmd --reload
success
[root@server.eademidova.net ~]# chgrp sambagroup /srv/sambashare
[root@server.eademidova.net ~]# chmod g=rwx /srv/sambashare
[root@server.eademidova.net ~]#
```




Рис. 6: Настройка межсетевого экрана и прав доступа для каталога с разделяемым ресурсом

```
[root@server.eademidova.net ~]# cd /srv/sambashare
[root@server.eademidova.net ~]# cd /srv
[root@server.eademidova.net srv]# ls -Z
unconfined_u:object_r:nfs_t:s0 nfs unconfined_u:object_r:var_t:s0 sambashare
[root@server.eademidova.net srv]# semanage fcontext -a -t samba_share_t "/srv/sambashare(/.*)?"
[root@server.eademidova.net srv]# restorecon -vR /srv/sambashare
Relabeled /srv/sambashare from unconfined_u:object_r:var_t:s0 to unconfined_u:object_r:samba_share_t:s0
[root@server.eademidova.net srv]# ls -Z
unconfined_u:object_r:nfs_t:s0 nfs unconfined_u:object_r:samba_share_t:s0 sambashare
[root@server.eademidova.net srv]# setsebool samba_export_all_rw 1
[root@server.eademidova.net srv]# setsebool samba_export_all_rw 1 -P
[root@server.eademidova.net srv]#
```

Рис. 7: Настройка контекста безопасности SELinux

```
[eademidova@server.eademidova.net ~]$ id
uid=1001(eademidova) gid=1001(eademidova) groups=1001(eademidova),10(wheel) context=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023
[eademidova@server.eademidova.net ~]$ cd /srv/smbshare
```

Рис. 8: Просмотр UID нашего пользователя

```
[eademidova@server.eademidova.net sambashare]$ touch eademidova@server.txt
[eademidova@server.eademidova.net sambashare]$ ls
eademidova@server.txt
[eademidova@server.eademidova.net sambashare]$ smbpasswd -L -a eademidova
smbpasswd -L can only be used by root.
[eademidova@server.eademidova.net sambashare]$ sudo -i
[sudo] password for eademidova:
[root@server.eademidova.net ~]# smbpasswd -L -a eademidova
New SMB password:
Retype new SMB password:
[root@server.eademidova.net ~]#
```

Рис. 9: Создание файла на разделяемом ресурсе

```
[eademidova@server.eademidova.net sambashare]$ smbpasswd -L -a eademidova
smbpasswd -L can only be used by root.
[eademidova@server.eademidova.net sambashare]$ sudo -i
[sudo] password for eademidova:
[root@server.eademidova.net ~]# ^C
[root@server.eademidova.net ~]# smbpasswd -L -a eademidova
New SMB password:
Retype new SMB password:
Added user eademidova.
[root@server.eademidova.net ~]# exit
```

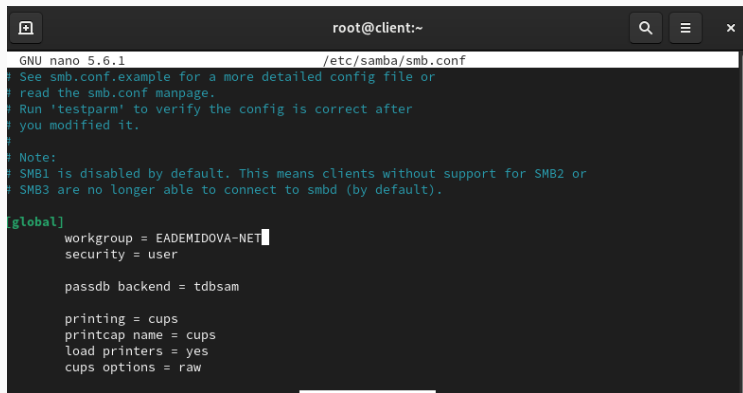
Рис. 10: Добавление пользователя в базу пользователей Samba

Монтирование файловой системы Samba на клиенте

```
complete.  
[root@client.eademidova.net ~]# usermod -aG sambagroup eademidova  
usermod: group 'sambagroup' does not exist  
[root@client.eademidova.net ~]# groupadd -g 1010 sambagroup  
[root@client.eademidova.net ~]# usermod -aG sambagroup eademidova  
[root@client.eademidova.net ~]# exit  
logout  
[root@client.eademidova.net ~]# less /usr/lib/firewalld/services/samba-client.xml  
[root@client.eademidova.net ~]# firewall-cmd --add-service=samba-client  
success  
[root@client.eademidova.net ~]# firewall-cmd --add-service=samba-client --permanent  
success  
[root@client.eademidova.net ~]# firewall-cmd --reload  
success
```

Рис. 11: Настройка межсетевого экрана, создание группы и добавление в неё пользователя на клиенте

Монтирование файловой системы Samba на клиенте



The screenshot shows a terminal window with the title bar 'root@client:~'. The window contains the GNU nano 5.6.1 editor editing the file /etc/samba/smb.conf. The editor shows the following content:

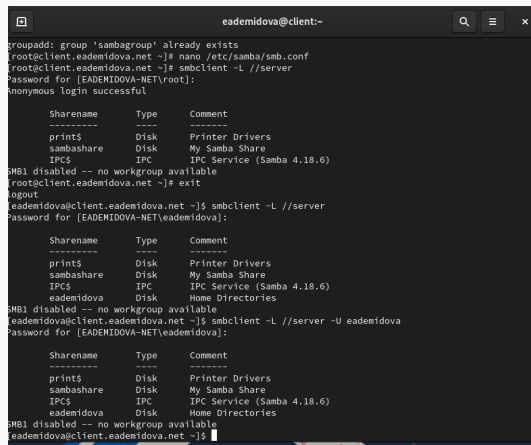
```
GNU nano 5.6.1 /etc/samba/smb.conf
# See smb.conf.example for a more detailed config file or
# read the smb.conf manpage.
# Run 'testparm' to verify the config is correct after
# you modified it.
#
# Note:
# SMB1 is disabled by default. This means clients without support for SMB2 or
# SMB3 are no longer able to connect to smbd (by default).
[global]
    workgroup = EADEMIDOVA-NET
    security = user

    passdb backend = tdbsam

    printing = cups
    printcap name = cups
    load printers = yes
    cups options = raw
```

Рис. 12: Изменение параметра рабочей группы на клиенте

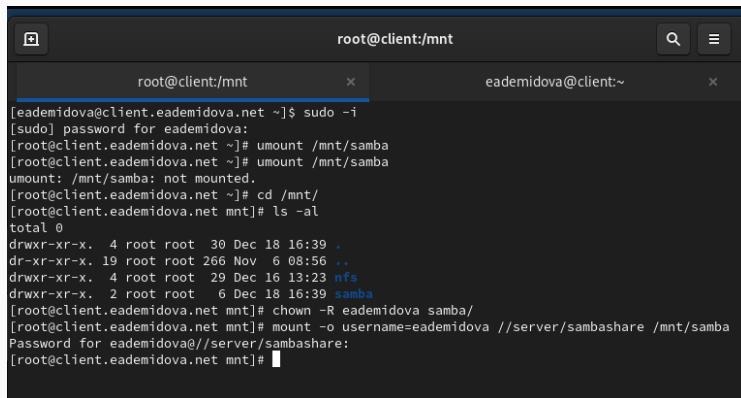
Монтирование файловой системы Samba на клиенте



```
eademidova@client:~  
groupadd: group 'sambagroup' already exists  
[root@client.eademidova.net ~]# nano /etc/samba/smb.conf  
[root@client.eademidova.net ~]# smbclient -L //server  
Password for [EADEMIDOVA-NET\root]:  
anonymous login successful  
  
Sharename      Type      Comment  
-----  
print$         Disk      Printer Drivers  
smbashare      Disk      My Samba Share  
IPC$           IPC       IPC Service (Samba 4.18.6)  
SMB1 disabled -- no workgroup available  
[root@client.eademidova.net ~]# exit  
logout  
eademidova@client.eademidova.net ~]$ smbclient -L //server  
Password for [EADEMIDOVA-NET\eademidova]:  
  
Sharename      Type      Comment  
-----  
print$         Disk      Printer Drivers  
smbashare      Disk      My Samba Share  
IPC$           IPC       IPC Service (Samba 4.18.6)  
eademidova     Disk      Home Directories  
SMB1 disabled -- no workgroup available  
eademidova@client.eademidova.net ~]$ smbclient -L //server -U eademidova  
Password for [EADEMIDOVA-NET\eademidova]:  
  
Sharename      Type      Comment  
-----  
print$         Disk      Printer Drivers  
smbashare      Disk      My Samba Share  
IPC$           IPC       IPC Service (Samba 4.18.6)  
eademidova     Disk      Home Directories  
SMB1 disabled -- no workgroup available  
eademidova@client.eademidova.net ~]$
```

Рис. 13: Проверка наличия общего доступа

Монтирование файловой системы Samba на клиенте

A terminal window titled 'root@client:/mnt' with a search icon and a menu icon in the top right. It contains two tabs: 'root@client:/mnt' and 'eademidova@client:~'. The active tab shows a sequence of commands and their outputs. The user 'eademidova' runs 'sudo -i', then 'umount /mnt/samba' (which fails with 'not mounted'), then 'cd /mnt/'. The user 'root' runs 'ls -al', showing a directory listing with 'nfs' and 'samba' entries. Finally, 'root' runs 'chown -R eademidova samba/' and 'mount -o username=eademidova //server/sambashare /mnt/samba', which prompts for a password for 'eademidova@//server/sambashare:'.

```
root@client:/mnt
[eademidova@client.eademidova.net ~]$ sudo -i
[sudo] password for eademidova:
[root@client.eademidova.net ~]# umount /mnt/samba
[root@client.eademidova.net ~]# umount /mnt/samba
umount: /mnt/samba: not mounted.
[root@client.eademidova.net ~]# cd /mnt/
[root@client.eademidova.net mnt]# ls -al
total 0
drwxr-xr-x.  4 root root  30 Dec 18 16:39 .
dr-xr-xr-x. 19 root root 266 Nov  6 08:56 ..
drwxr-xr-x.  4 root root  29 Dec 16 13:23 nfs
drwxr-xr-x.  2 root root   6 Dec 18 16:39 samba
[root@client.eademidova.net mnt]# chown -R eademidova samba/
[root@client.eademidova.net mnt]# mount -o username=eademidova //server/sambashare /mnt/samba
Password for eademidova@//server/sambashare:
[root@client.eademidova.net mnt]#
```

Рис. 14: Получение доступа к общему ресурсу с клиента

```
[eademidova@client:eademidova.net samba]$  
[eademidova@client.eademidova.net samba]$ touch eademidova@client.txt  
[eademidova@client.eademidova.net samba]$ ls  
1 eademidova@client.txt eademidova@server.txt  
[eademidova@client.eademidova.net samba]$
```

Рис. 15: Создание файла на разделяемом ресурсе с клиента

```
[root@client.eademidova.net ~]# umount /mnt/samba
[root@client.eademidova.net ~]# touch /etc/samba/smbusers
[root@client.eademidova.net ~]# chmod 600 /etc/samba/smbusers
[root@client.eademidova.net ~]#
```

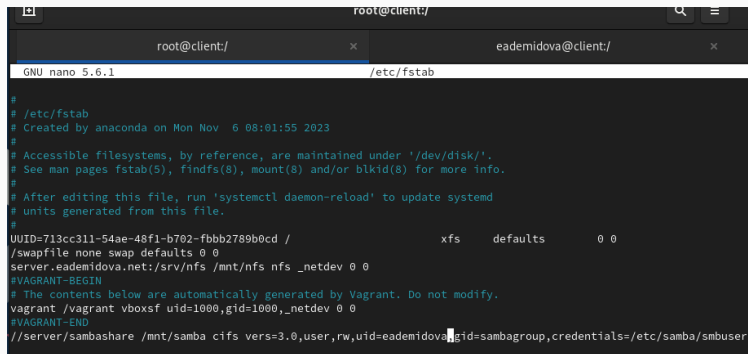
Рис. 16: Создание файла учётных данных



```
GNU nano 5.6.1 /etc/samba/smbusers
username=eademidova
password=123456
```

Рис. 17: Внесение содержимого в файл учётных данных

Монтирование файловой системы Samba на клиенте



The screenshot shows a terminal window with two tabs: 'root@client:/' and 'eademidova@client:/'. The active tab is 'root@client:/' and it shows the GNU nano 5.6.1 editor editing the file /etc/fstab. The content of the file is as follows:

```
#  
# /etc/fstab  
# Created by anaconda on Mon Nov  6 08:01:55 2023  
#  
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.  
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.  
#  
# After editing this file, run 'systemctl daemon-reload' to update systemd  
# units generated from this file.  
#  
UUID=713cc311-54ae-48f1-b702-fbbb2789b0cd /                xfs     defaults        0 0  
/swapfile none swap defaults 0 0  
server.eademidova.net:/srv/nfs /mnt/nfs nfs _netdev 0 0  
#VAGRANT-BEGIN  
# The contents below are automatically generated by Vagrant. Do not modify.  
vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0  
#VAGRANT-END  
//server/sambashare /mnt/samba cifs vers=3.0,user,rw,uid=eademidova,gid=sambagroup,credentials=/etc/samba/smbuser
```

Рис. 18: Добавление записи в файл /etc/fstab


```
refer to the mountutils(8) manual page (type man mountutils) and kernel log messages (dmesg).  
[root@client.eademidova.net ~]# nano /etc/fstab  
[root@client.eademidova.net ~]# systemctl daemon-reload  
[root@client.eademidova.net ~]# mount -a  
[root@client.eademidova.net ~]#
```

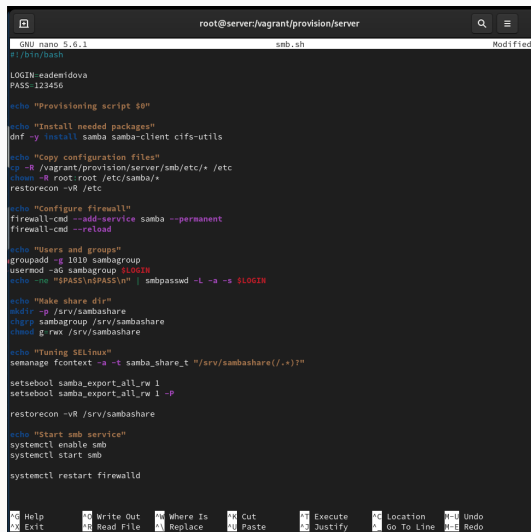
Рис. 19: Монтирование общего ресурса

```
[eademidova@client.eademidova.net samba]$ touch test.txt  
[eademidova@client.eademidova.net samba]$ ls  
1 eademidova@client.txt eademidova@server.txt test.txt  
[eademidova@client.eademidova.net samba]$
```

Рис. 20: Проверка доступа к разделяемым ресурсам после перезапуска клиента

```
cd /vagrant/provision/server  
mkdir -p /vagrant/provision/server/smb/etc/samba  
cp -R /etc/samba/smb.conf /vagrant/provision/server/smb/etc/samba/  
  
touch smb.sh  
chmod +x smb.sh
```

Внесение изменений в настройки внутреннего окружения виртуальной машины



```
root@server:/vagrant/provision/server
GNU nano 5.6.1                                smb.sh                                Modified
#!/bin/bash

LOGIN=eademidova
PASS=123456

echo "Provisioning script $0"

echo "Install needed packages"
dnf -y install samba samba-client cifs-utils

echo "Copy configuration files"
cp -R /vagrant/provision/server/smb/etc/* /etc
chown -R root:root /etc/samba/*
restorecon -vR /etc

echo "Configure firewall"
firewall-cmd --add-service samba --permanent
firewall-cmd --reload

echo "Users and groups"
groupadd -g 1010 sambagroup
usermod -aG sambagroup $LOGIN
echo -ne "$PASS\n$PASS\n" | smbpasswd -L -a -s $LOGIN

echo "Make share dir"
mkdir -p /srv/sambashare
chgrp sambagroup /srv/sambashare
chmod g-rwx /srv/sambashare

echo "Tuning SELinux"
semanage fcontext -a -t samba_share_t "/srv/sambashare(/.*)?"

setsebool samba_export_all_rw 1
setsebool samba_export_all_rw 1 -P

restorecon -vR /srv/sambashare

echo "Start smb service"
systemctl enable smb
systemctl start smb

systemctl restart firewalld

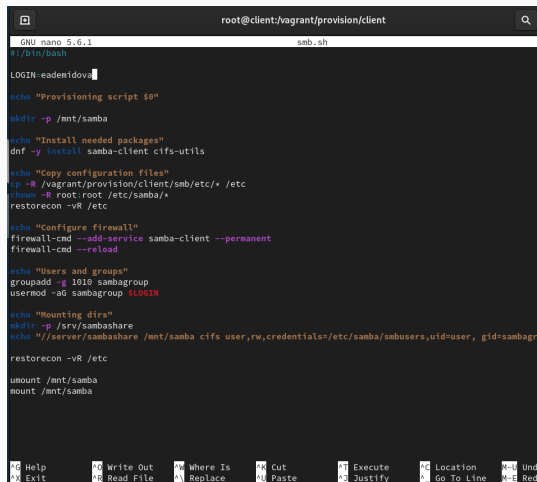
NC Help      NC Write Out  NC Where Is   NC Cut        NC Execute    NC Location   NC Undo
OX Exit      OR Read File  AR Replace   AL Paste     AJ Justify   AL Go To Line AL Redo
```

Рис. 21: Скрипта файла /vagrant/provision/server/smb.sh

```
cd /vagrant/provision/client
mkdir -p /vagrant/provision/client/smb/etc/samba
cp -R /etc/samba/smb.conf /vagrant/provision/client/smb/etc/samba/
cp -R /etc/samba/smbusers /vagrant/provision/client/smb/etc/samba/

touch smb.sh
chmod +x smb.sh
```

Внесение изменений в настройки внутреннего окружения виртуальной машины



```
root@client:vagrant/provision/client
GNU nano 5.6.1                                smb.sh
#!/bin/bash

LOGIN=eademidova

echo "Provisioning script $0"

mkdir -p /mnt/samba

echo "Install needed packages"
dnf -y install samba-client cifs-utils

echo "Copy configuration files"
cp -R /vagrant/provision/client/smb/etc/* /etc
chown -R root:root /etc/samba/*
restorecon -vR /etc

echo "Configure firewall"
firewall-cmd --add-service samba-client --permanent
firewall-cmd --reload

echo "Users and groups"
groupadd -g 1010 sambagroup
usermod -aG sambagroup $LOGIN

echo "Mounting dirs"
mkdir -p /srv/sambashare
echo "///server/sambashare /mnt/samba cifs user,rw,credentials=/etc/samba/smbusers,uid=user, gid=sambagr

restorecon -vR /etc

umount /mnt/samba
mount /mnt/samba

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  ^M Und
^X Exit      ^R Read File ^J Replace   ^U Paste     ^I Justify   ^_ Go To Line ^= Red
```

Рис. 22: Скрипта файла /vagrant/provision/client/ smb.sh

```
server.vm.provision "SMB server",  
  type: "shell",  
  preserve_order: true,  
  path: "provision/server/smb.sh"  
client.vm.provision "SMB client",  
  type: "shell",  
  preserve_order: true,  
  path: "provision/client/smb.sh"
```

Заключение

В результате выполнения данной работы были приобретены практические навыки настройки доступа групп пользователей к общим ресурсам по протоколу SMB.