

Лабораторная работа 13

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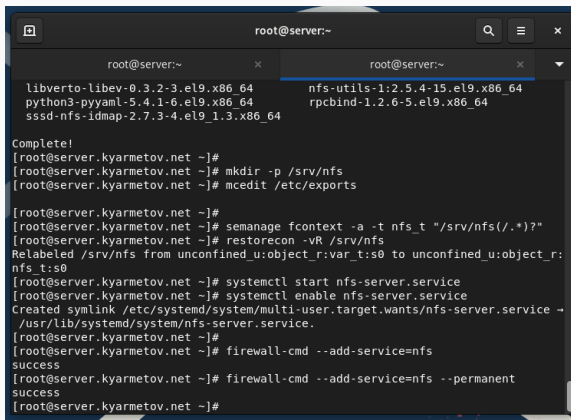
Российский Университет Дружбы Народов

Цель лабораторной работы

Приобретение навыков настройки сервера NFS для удалённого доступа к ресурсам.

Выполнение лабораторной работы

Настройка сервера NFSv4



```
root@server:~  
libverto-libev-0.3.2-3.el9.x86_64  
python3-pyyaml-5.4.1-6.el9.x86_64  
sssd-nfs-idmap-2.7.3-4.el9_1.3.x86_64  
nfs-utils-1:2.5.4-15.el9.x86_64  
rpcbind-1.2.6-5.el9.x86_64  
Complete!  
[root@server.kyarmetov.net ~]#  
[root@server.kyarmetov.net ~]# mkdir -p /srv/nfs  
[root@server.kyarmetov.net ~]# mcedit /etc/exports  
[root@server.kyarmetov.net ~]#  
[root@server.kyarmetov.net ~]# semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"  
[root@server.kyarmetov.net ~]# restorecon -vR /srv/nfs  
Relabeled /srv/nfs from unconfined_u:object_r:var_t:s0 to unconfined_u:object_r:  
nfs_t:s0  
[root@server.kyarmetov.net ~]# systemctl start nfs-server.service  
[root@server.kyarmetov.net ~]# systemctl enable nfs-server.service  
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service  
→ /usr/lib/systemd/system/nfs-server.service.  
[root@server.kyarmetov.net ~]#  
[root@server.kyarmetov.net ~]# firewall-cmd --add-service=nfs  
success  
[root@server.kyarmetov.net ~]# firewall-cmd --add-service=nfs --permanent  
success  
[root@server.kyarmetov.net ~]#
```

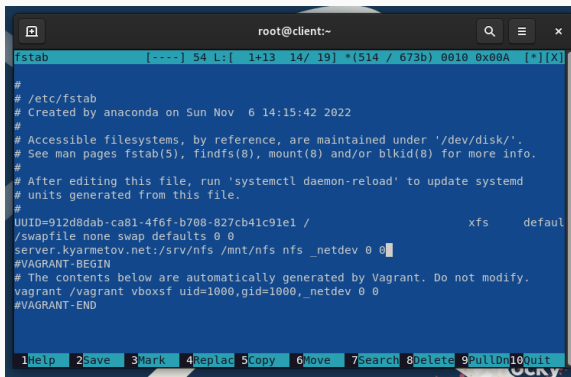
Figure 1: Настройка сервера

Настройка сервера NFSv4

```
[root@client.kyarmetov.net ~]#  
[root@client.kyarmetov.net ~]# showmount -e server.kyarmetov.net  
clnt_create: RPC: Unable to receive  
[root@client.kyarmetov.net ~]#  
[root@client.kyarmetov.net ~]# showmount -e server.kyarmetov.net  
Export list for server.kyarmetov.net:  
/srv/nfs *  
[root@client.kyarmetov.net ~]#
```

Figure 2: Подключение клиента

Монтирование NFS на клиенте



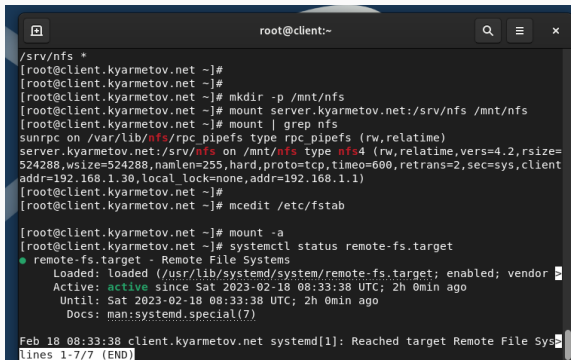
```
root@client:~
fstab [---] 54 L: 1+13 14/ 19] *(514 / 673b) 0010 0x00A [*][X]

#
# /etc/fstab
# Created by anaconda on Sun Nov  6 14:15:42 2022
#
# 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=912d8dab-ca81-4f6f-b708-827cb41c91e1 /                xfs      default
/swapfile none swap defaults 0 0
server.kyarmetov.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

1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn 10Quit
```

Figure 3: файл /etc/fstab

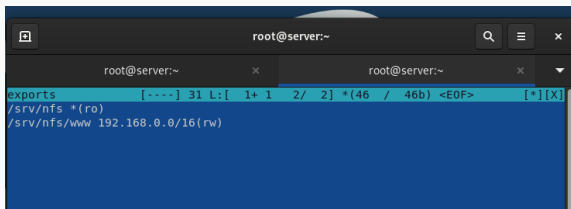
Монтирование NFS на клиенте

A terminal window titled 'root@client:~' with search, menu, and close icons. It shows a series of commands to set up an NFS client. The commands include creating a directory, mounting a remote NFS share, checking the mount status, editing the fstab file, and enabling the remote-fs.target. The output shows the mount is successful and the target is active.

```
root@client:~  
/srv/nfs *  
[root@client.kyarmetov.net ~]#  
[root@client.kyarmetov.net ~]#  
[root@client.kyarmetov.net ~]# mkdir -p /mnt/nfs  
[root@client.kyarmetov.net ~]# mount server.kyarmetov.net:/srv/nfs /mnt/nfs  
[root@client.kyarmetov.net ~]# mount | grep nfs  
sunrpc on /var/lib/nfs/rpc pipefs type rpc_pipefs (rw,relatime)  
server.kyarmetov.net:/srv/nfs on /mnt/nfs type nfs4 (rw,relatime,vers=4.2,rsize=  
524288,wsize=524288,namlen=255,hard,proto=tcp,timeo=600,retrans=2,sec=sys,client  
addr=192.168.1.30,local_lock=none,addr=192.168.1.1)  
[root@client.kyarmetov.net ~]#  
[root@client.kyarmetov.net ~]# mcedit /etc/fstab  
  
[root@client.kyarmetov.net ~]# mount -a  
[root@client.kyarmetov.net ~]# systemctl status remote-fs.target  
● remote-fs.target - Remote File Systems  
   Loaded: loaded (/usr/lib/systemd/system/remote-fs.target; enabled; vendor  
   Active: active since Sat 2023-02-18 08:33:38 UTC; 2h 0min ago  
   Until: Sat 2023-02-18 08:33:38 UTC; 2h 0min ago  
   Docs: man:systemd.special(7)  
  
Feb 18 08:33:38 client.kyarmetov.net systemd[1]: Reached target Remote File Sys  
lines 1-7/7 (END)
```

Figure 4: Монтирование

Подключение каталогов к дереву NFS

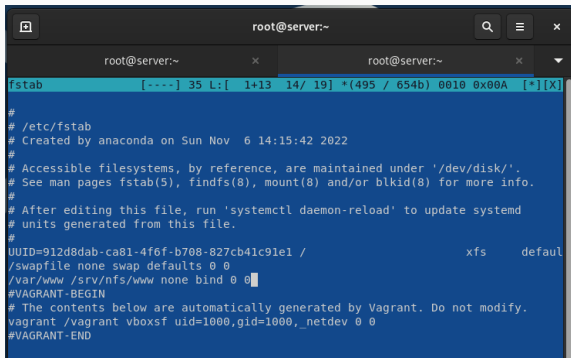


The image shows a terminal window with a dark blue background. The title bar at the top reads "root@server:~". Below the title bar, there are two tabs, both labeled "root@server:~". The terminal content shows the output of a command to view the /etc/exports file. The first line is "exports" followed by some metadata in brackets. The subsequent lines are the export rules: "/srv/nfs *(ro)" and "/srv/nfs/www 192.168.0.0/16(rw)".

```
root@server:~  
exports [----] 31 L: [ 1+ 1 2/ 2] *(46 / 46b) <EOF> [*][X]  
/srv/nfs *(ro)  
/srv/nfs/www 192.168.0.0/16(rw)
```

Figure 5: файл /etc/exports

Подключение каталогов к дереву NFS



```
root@server:~  
fstab [----] 35 L: [ 1+13 14/ 19] *(495 / 654b) 0010 0x00A [*][X]  
#  
# /etc/fstab  
# Created by anaconda on Sun Nov 6 14:15:42 2022  
#  
# 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=912d8dab-ca81-4f6f-b708-827cb41c91e1 / xfs default  
/swapfile none swap defaults 0 0  
/var/www /srv/nfs/www none bind 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
```

Figure 6: файл /etc/fstab

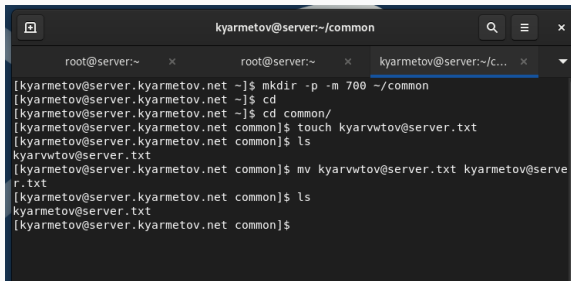
Подключение каталогов к дереву NFS

```
Feb 18 08:33:38 client.kyarmetov.net systemd[1]: Reached target Remote File Sys
[root@client.kyarmetov.net ~]#
[root@client.kyarmetov.net ~]# mcedit /etc/fstab

[root@client.kyarmetov.net ~]#
[root@client.kyarmetov.net ~]# ls /mnt/nfs/
www
[root@client.kyarmetov.net ~]#
[root@client.kyarmetov.net ~]# ls /mnt/nfs/
www
[root@client.kyarmetov.net ~]#
```

Figure 7: Монтирование

Подключение каталогов для работы пользователей

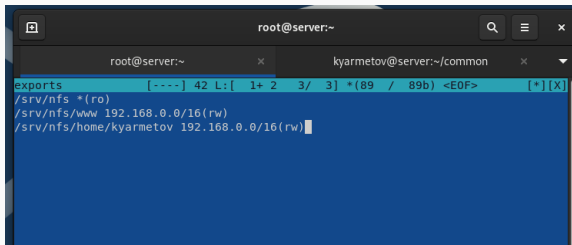


A terminal window titled 'kyarmetov@server:~/common' with search, menu, and close buttons. It shows a sequence of commands and their outputs for setting up a directory structure and permissions. The terminal has three tabs: 'root@server:~', 'root@server:~', and 'kyarmetov@server:~/common' (which is active). The commands and outputs are as follows:

```
[kyarmetov@server.kyarmetov.net ~]$ mkdir -p -m 700 ~/common
[kyarmetov@server.kyarmetov.net ~]$ cd
[kyarmetov@server.kyarmetov.net ~]$ cd common/
[kyarmetov@server.kyarmetov.net common]$ touch kyarvwtov@server.txt
[kyarmetov@server.kyarmetov.net common]$ ls
kyarvwtov@server.txt
[kyarmetov@server.kyarmetov.net common]$ mv kyarvwtov@server.txt kyarmetov@serve
r.txt
[kyarmetov@server.kyarmetov.net common]$ ls
kyarmetov@server.txt
[kyarmetov@server.kyarmetov.net common]$
```

Figure 8: Настройка сервера

Подключение каталогов для работы пользователей

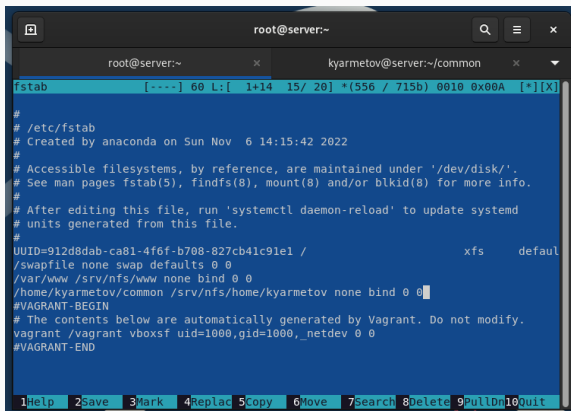


A terminal window with a dark theme. The title bar shows 'root@server:~'. The terminal content displays the output of the 'cat /etc/exports' command. The first line is highlighted in light blue. The output shows three export rules for NFS shares on 192.168.0.0/16.

```
root@server:~  
cat /etc/exports  
exports [----] 42 L: [ 1+ 2 3/ 3] *(89 / 89b) <E0F> [*][X]  
/srv/nfs *(ro)  
/srv/nfs/www 192.168.0.0/16(rw)  
/srv/nfs/home/kyarmetov 192.168.0.0/16(rw)
```

Figure 9: файл /etc/exports

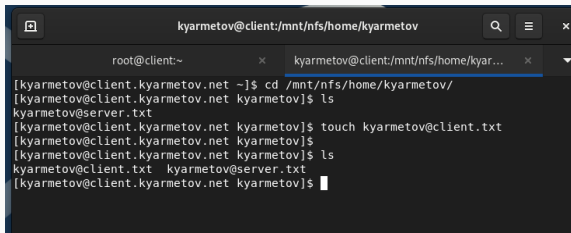
Подключение каталогов для работы пользователей



```
root@server:~  
fstab [----] 60 L: [ 1+14 15/ 20] *(556 / 715b) 0010 0x00A [*][X]  
#  
# /etc/fstab  
# Created by anaconda on Sun Nov  6 14:15:42 2022  
#  
# 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=912d8dab-ca81-4f6f-b708-827cb41c91e1 /          xfs     default  
/swapfile none swap defaults 0 0  
/var/www /srv/nfs/www none bind 0 0  
/home/kyarmetov/common /srv/nfs/home/kyarmetov none bind 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  
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn10Quit
```

Figure 10: файл /etc/fstab

Подключение каталогов для работы пользователей



A terminal window titled 'kyarmetov@client:/mnt/nfs/home/kyarmetov' with search, menu, and close icons. It shows a sequence of commands and outputs for mounting an NFS share and creating a file. The prompt changes between different hostnames as the user navigates the filesystem.

```
kyarmetov@client:~  
[kyarmetov@client.kyarmetov.net ~]$ cd /mnt/nfs/home/kyarmetov/  
[kyarmetov@client.kyarmetov.net kyarmetov]$ ls  
kyarmetov@server.txt  
[kyarmetov@client.kyarmetov.net kyarmetov]$ touch kyarmetov@client.txt  
[kyarmetov@client.kyarmetov.net kyarmetov]$  
[kyarmetov@client.kyarmetov.net kyarmetov]$ ls  
kyarmetov@client.txt  kyarmetov@server.txt  
[kyarmetov@client.kyarmetov.net kyarmetov]$
```

Figure 11: Монтирование

Приобретены практические навыки по настройке службы NFS.