

# Лабораторная работа №13

## Настройка NFS

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# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 10 - x86_64          45 kB/s | 39 kB      00:00
Extra Packages for Enterprise Linux 10 - x86_64          2.6 MB/s | 5.5 MB    00:02
Rocky Linux 10 - BaseOS                                  6.2 kB/s | 4.3 kB    00:00
Rocky Linux 10 - BaseOS                                  961 kB/s | 1.8 MB    00:01
Rocky Linux 10 - AppStream                               8.0 kB/s | 4.3 kB    00:00
Rocky Linux 10 - AppStream                              1.5 MB/s | 1.9 MB    00:01
Rocky Linux 10 - Extras                                  6.4 kB/s | 3.1 kB    00:00
Rocky Linux 10 - Extras                                  7.6 kB/s | 4.7 kB    00:00
Dependencies resolved.
=====
Package                                Architecture      Version           Repository        Size
=====
Installing:
nfs-utils                              x86_64            1:2.8.3-0.el10    baseos            475 k
Upgrading:
libipa_hbac                            x86_64            2.11.1-2.el10_1.1 baseos             34 k
libldb                                  x86_64            4.22.4-106.el10   baseos            181 k
libsmbclient                           x86_64            4.22.4-106.el10   baseos             75 k
libsss_certmap                         x86_64            2.11.1-2.el10_1.1 baseos             81 k
libsss_idmap                           x86_64            2.11.1-2.el10_1.1 baseos             41 k
libsss_nss_idmap                       x86_64            2.11.1-2.el10_1.1 baseos             44 k
libsss_sudo                            x86_64            2.11.1-2.el10_1.1 baseos             33 k
libtalloc                              x86_64            2.4.3-100.el10    baseos             33 k
libtdb                                  x86_64            1.4.13-100.el10   baseos             55 k
libtevent                              x86_64            0.16.2-100.el10   baseos             50 k
libwbclient                            x86_64            4.22.4-106.el10   baseos             43 k
samba-client-libs                      x86_64            4.22.4-106.el10   baseos            5.3 M
samba-common                           noarch            4.22.4-106.el10   baseos            174 k
samba-common-libs                      x86_64            4.22.4-106.el10   baseos            104 k
```

# Настройка сервера NFSv4

Complete!

```
[root@server.kazhavoronkov.net ~]# mkdir -p /srv/nfs
```

```
[root@server.kazhavoronkov.net ~]# nan█
```

# Настройка сервера NFSv4



```
root@server:~ - sudo -i
GNU nano 8.1 /etc/exports Modified
/srv/nfs *(ro)
```

The screenshot shows a terminal window with a red title bar. The title bar contains a window control icon on the left, the text 'root@server:~ - sudo -i' in the center, and window control icons (maximize, close) on the right. The terminal content shows the 'nano' text editor editing the file '/etc/exports'. The editor's status bar at the top indicates 'GNU nano 8.1', the file path '/etc/exports', and the word 'Modified'. The first line of the file contains the text '/srv/nfs \*(ro)' followed by a cursor.

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
[root@server.kazhavoronkov.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.kazhavoronkov.net ~]# systemctl start nfs-server.service
[root@server.kazhavoronkov.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.kazhavoronkov.net ~]# firewall-cmd --add-service=nfs
success
[root@server.kazhavoronkov.net ~]# firewall-cmd --add-service=nfs --permanent
success
[root@server.kazhavoronkov.net ~]# firewall-cmd --reload
success
[root@server.kazhavoronkov.net ~]# █
```

# Настройка сервера NFSv4

```
root@client:~ - sudo -i

[kazhavoronkov@client.kazhavoronkov.net ~]$ sudo -i
[sudo] password for kazhavoronkov:
Sorry, try again.
[sudo] password for kazhavoronkov:
[root@client.kazhavoronkov.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 10 - x86_64      48 kB/s | 39 kB      00:00
Extra Packages for Enterprise Linux 10 - x86_64      1.1 MB/s | 5.5 MB    00:05
Rocky Linux 10 - BaseOS                             7.4 kB/s | 4.3 kB    00:00
Rocky Linux 10 - BaseOS                             859 kB/s | 1.8 MB    00:02
Rocky Linux 10 - AppStream                          6.8 kB/s | 4.3 kB    00:00
Rocky Linux 10 - AppStream                          1.1 MB/s | 1.9 MB    00:01
Rocky Linux 10 - Extras                             5.3 kB/s | 3.1 kB    00:00
Rocky Linux 10 - Extras                             5.0 kB/s | 4.7 kB    00:00
Dependencies resolved.

=====
Package                Architecture  Version                Repository              Size
=====
Installing:
nfs-utils              x86_64       1:2.8.3-0.el10        baseos                  475 k
Upgrading:
libipa_hbac            x86_64       2.11.1-2.el10_1.1    baseos                  34 k
libldb                 x86_64       4.22.4-106.el10      baseos                  181 k
libsmbclient          x86_64       4.22.4-106.el10      baseos                  75 k
libsss_certmap        x86_64       2.11.1-2.el10_1.1    baseos                  81 k
libsss_idmap          x86_64       2.11.1-2.el10_1.1    baseos                  41 k
libsss_nss_idmap      x86_64       2.11.1-2.el10_1.1    baseos                  44 k
```

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# showmount -e server.kazhavoronkov.net
Export list for server.kazhavoronkov.net:
/srv/nfs *
[root@server.kazhavoronkov.net ~]#
```

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# systemctl stop firewalld.service  
[root@server.kazhavoronkov.net ~]# █
```



# Настройка сервера NFSv4

```
[root@client.kazhavoronkov.net ~]# showmount -e server.kazhavoronkov.net
Export list for server.kazhavoronkov.net:
/srv/nfs *
[root@client.kazhavoronkov.net ~]#
```

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# systemctl start firewalld  
[root@server.kazhavoronkov.net ~]# █
```

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# lsof | grep TCP
lsof: WARNING: can't stat() fuse.gvfsd-fuse file system /run/user/1001/gvfs
Output information may be incomplete.
lsof: WARNING: can't stat() fuse.portal file system /run/user/1001/doc
Output information may be incomplete.
systemd      1                root  265u      IPv6        7787      0t0      TCP *:web
sm (LISTEN)
systemd      1                root  305u      IPv4       66390     0t0      TCP *:sun
rpc (LISTEN)
systemd      1                root  307u      IPv6       64678     0t0      TCP *:sun
rpc (LISTEN)
cupsd        1088             root    7u      IPv6       8909     0t0      TCP local
host:ipp (LISTEN)
cupsd        1088             root    8u      IPv4       8910     0t0      TCP local
host:ipp (LISTEN)
sshd         1093             root    7u      IPv4       8886     0t0      TCP *:dow
n (LISTEN)
sshd         1093             root    8u      IPv6       8888     0t0      TCP *:dow
n (LISTEN)
sshd         1093             root    9u      IPv4       8890     0t0      TCP *:ssh
(LISTEN)
sshd         1093             root   10u      IPv6       8892     0t0      TCP *:ssh
(LISTEN)
```

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# lsof | grep UDP
lsof: WARNING: can't stat() fuse.gvfsd-fuse file system /run/user/1001/gvfs
Output information may be incomplete.
lsof: WARNING: can't stat() fuse.portal file system /run/user/1001/doc
Output information may be incomplete.
```

systemd	1	root	306u	IPv4	64671	0t0	UDP *:sun
rpc							
systemd	1	root	308u	IPv6	64685	0t0	UDP *:sun
rpc							
avahi-dae	698	avahi	12u	IPv4	8301	0t0	UDP *:mdn
s							
avahi-dae	698	avahi	13u	IPv6	8302	0t0	UDP *:mdn
s							
chronyd	740	chrony	5u	IPv4	8135	0t0	UDP local
host:323							
chronyd	740	chrony	6u	IPv6	8136	0t0	UDP local
host:323							
chronyd	740	chrony	7u	IPv4	8137	0t0	UDP *:ntp

# Настройка сервера NFSv4

```
[root@server.kazhavoronkov.net ~]# firewall-cmd --get-services
0-AD RH-Satellite-6 RH-Satellite-6-capsule afp alvr amanda-client amanda-k5-client amqp amqps anno-1602 anno-1800 apcupsd aseqnet audit ausweisapp2 bacula bacula-client bareos-director bareos-filedaemon bareos-storage bb bgp bitcoin bitcoin-rpc bitcoin-testnet bitcoin-testnet-rpc bittorrent-lsd ceph ceph-exporter ceph-mon cfengine checkmk-agent civilization-iv civilization-v cockpit collectd condor-collector cratedb ctdb dds dds-multicast dds-unicast dhcp dhcpv6 dhcpv6-client distcc dns dns-over-quic dns-over-tls docker-registry docker-swarm dropbox-lansync elasticsearch etcd-client etcd-server factorio finger foreman foreman-proxy freeipa-4 freeipa-ldap freeipa-ldaps freeipa-replication freeipa-trust ftp galera ganglia-client ganglia-master git gpsd grafana gre high-availability http http3 https ident imap imaps iperf2 iperf3 ipfs ipp ipp-client ipsec irc ircs iscsi-target isns jenkins kadmin kdeconnect kerberos kibana klogin kpasswd kprop kshell kube-api kube-apiserver kube-control-plane kube-control-plane-secure kube-controller-manager kube-controller-manager-secure kube-nodeport-services kube-scheduler kube-scheduler-secure kube-worker kubelet kubelet-read-only kubelet-worker ldap ldaps libvirt libvirt-tls lightning-network llmnr llmnr-client llmnr-tcp llmnr-udp managesieve matrix mdns memcache minecraft minidlna mndp mongodb mosh mntd mpd mqtt mqtt-tls ms-wbt mssql murmur mysql nbd nebula need-for-speed-most-wanted netbios-ns netdata-dashboard nfs nfs3 nmap nrpe ntp nut opentelemetry openvpn ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd pmproxy pmwebapi pmwebapis pop3 pop3s postgresql privoxy prometheus prometheus-node-exporter proxy-dhcp ps2link ps3netsrv ptp pulseaudio puppetmaster quassel radius radsec rdp redis redis-sentinel rootd rpc-bind rquotad rsh rsyncd rtsp salt-master samba samba-client samba-dc sane settlers-history-collection sip sips slimevr slp smtp smtp-submission smtps snmp snmptls snmptls-trap snmptrap spideroak-lansync spotify-sync squid ssdp ssh ssh-custom statsrv steam-lan-transfer steam-streaming stellaris stronghold-crusader stun stuns submission supertuxkart svdrp svn syncthing syncthing-gui syncthing-relay synergy syscomlan syslog syslog-tls telnet tentacle terraria tftp tile38 tinc tor-socks transmission-client turn turns upnp-client vds vnc-server vrrp warpinator wbem-http wbem-https wireguard ws-discovery ws-discovery-client ws-discovery-host ws-discovery-tcp ws-discovery-udp wsdd wsdd-http wsman wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbix-agent zabbix-java-gateway zabbix-server zabbix-trapper zabbix-web-service zero-k zerotier
[root@server.kazhavoronkov.net ~]# firewall-cmd --add-serv
```

# Настройка сервера NFSv4

```
[root@client.kazhavoronkov.net ~]# showmount -e server.kazhavoronkov.net
Export list for server.kazhavoronkov.net:
/srv/nfs *
```

---

# Монтирование NFS на клиенте

```
root@client:~ -- sudo -i

[kazhavoronkov@client.kazhavoronkov.net ~]$ sudo -i
[sudo] password for kazhavoronkov:
[root@client.kazhavoronkov.net ~]# mkdir -p /mnt/nfs
[root@client.kazhavoronkov.net ~]# mount server.kazhavoronkov.net:/srv/nfs /mnt/nfs
mount.nfs: Failed to resolve server server.kazhavoronkov.net: Name or service not known
[root@client.kazhavoronkov.net ~]# mount 192.168.1.100:/srv/nfs /mnt/nfs
[root@client.kazhavoronkov.net ~]# mount
/dev/sda4 on / type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
devtmpfs on /dev type devtmpfs (rw,nosuid,seclabel,size=4096k,nr_inodes=213872,mode=755,inode64)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,seclabel,inode64)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,seclabel,gid=5,mode=620,ptmxmode=000)
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime,seclabel)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,seclabel,nsdelegate,memory_recur
siveprot)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime,seclabel)
bpf on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run type tmpfs (rw,nosuid,nodev,seclabel,size=349244k,nr_inodes=819200,mode=755,inode64)
selinuxfs on /sys/fs/selinux type selinuxfs (rw,nosuid,noexec,relatime)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=36,pgrp=1,timeout=0,minproto=5,maxprot
o=5,direct,pipe_ino=3998)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime,seclabel)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,nosuid,nodev,relatime,seclabel,pagesize=2M)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime,seclabel)
```

# Монтирование NFS на клиенте



The screenshot shows a terminal window with a pink title bar. The window title is "root@client:~ -- sudo -i". Below the title bar, there are three tabs, each with the text "root@client:~ -- sudo -i". The active tab is the middle one, which has a close button (X) on its right. The terminal content shows the GNU nano 8.1 editor editing the file /etc/fstab. The file content includes comments about its creation by anaconda, instructions on how to use it, and a list of filesystems: xfs for / and /boot, and swap for /swapfile. At the bottom, there is a VAGRANT-BEGIN section with a line for mounting an NFS share from server.kazahvoronkov.net to /mnt/nfs, and a VAGRANT-END section.

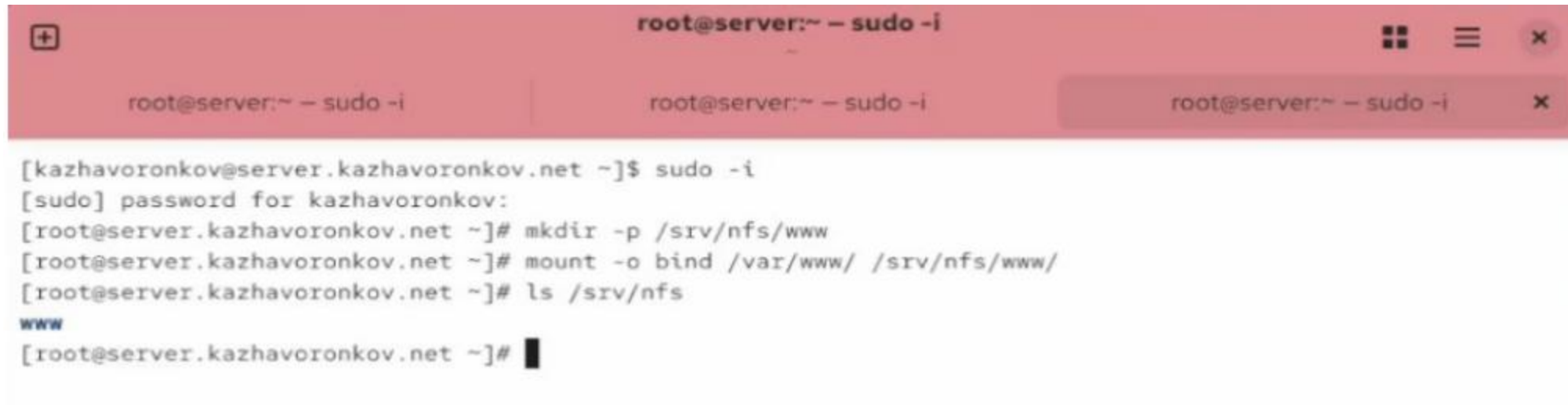
```
root@client:~ -- sudo -i
root@client:~ -- sudo -i
root@client:~ -- sudo -i

GNU nano 8.1 /etc/fstab Modified

#
# /etc/fstab
# Created by anaconda on Sat Sep  6 13:15:18 2025
#
# 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=e0f3fcee-7799-4294-8547-121e1623c157 / xfs defaults 0 0
UUID=401bb276-312f-4651-9a99-1f0db4e65ae4 /boot xfs defaults 0 0
UUID=db95190e-ed05-4b2b-9d66-f80338c9589f none swap defaults 0 0
/swapfile none swap defaults 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.kazahvoronkov.net:/srv/nfs /mnt/nfs nfs _netdev 0 0
```



# Подключение каталогов к дереву NFS

A terminal window with a red title bar and three tabs, each labeled 'root@server:~ - sudo -i'. The terminal shows a user running 'sudo -i' to become root, then using 'mkdir' to create '/srv/nfs/www', 'mount' to bind '/var/www/' to '/srv/nfs/www/', and 'ls' to list the contents of '/srv/nfs', which shows 'www'.

```
[kazhavoronkov@server.kazhavoronkov.net ~]$ sudo -i
[sudo] password for kazhavoronkov:
[root@server.kazhavoronkov.net ~]# mkdir -p /srv/nfs/www
[root@server.kazhavoronkov.net ~]# mount -o bind /var/www/ /srv/nfs/www/
[root@server.kazhavoronkov.net ~]# ls /srv/nfs
www
[root@server.kazhavoronkov.net ~]#
```

# Подключение каталогов к дереву NFS

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

# Подключение каталогов к дереву NFS



The screenshot shows a terminal window with a red title bar. The title bar contains a plus icon, the text 'root@server:~ - sudo -i', and window control icons (maximize, close). Below the title bar, there are three tabs, each labeled 'root@server:~ - sudo -i'. The active tab shows the nano text editor editing the file '/etc/exports'. The editor's status bar at the top indicates 'GNU nano 8.1' and 'Modified'. The content of the file is as follows:

```
GNU nano 8.1 /etc/exports Modified
/srv/nfs *(ro)
/srv/nfs/www 192.168.0.0/16(rw)
```

# Подключение каталогов к дереву NFS

```
[root@server.kazhavoronkov.net ~]# exportfs -r  
[root@server.kazhavoronkov.net ~]#
```

# Подключение каталогов к дереву NFS

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

```
www
```

```
[root@client.kazhavoronkov.net ~]# █
```

# Подключение каталогов к дереву NFS

```
root@server:~ -- sudo -i
root@server:~ -- sudo -i
root@server:~ -- sudo -i
GNU nano 8.1 /etc/fstab Modified
#
# /etc/fstab
# Created by anaconda on Sat Sep  6 13:15:18 2025
#
# 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=e0f3fcee-7799-4294-8547-121e1623c157 / xfs defaults 0 0
UUID=401bb276-312f-4651-9a99-1f0db4e65ae4 /boot xfs defaults 0 0
UUID=db95190e-ed05-4b2b-9d66-f80338c9589f none swap defaults 0 0
/swapfile none swap defaults 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
/var/www /srv/nfs/www none bind 0 0
```

# Подключение каталогов к дереву NFS

```
[root@server.kazhavoronkov.net ~]# exportfs -r  
[root@server.kazhavoronkov.net ~]#
```

# Подключение каталогов к дереву NFS

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

www

```
[root@client.kazhavoronkov.net ~]# █
```



# Подключение каталогов для работы пользователей

```
[kazhavoronkov@server.kazhavoronkov.net ~]$ mkdir -p -m 700 ~/common
[kazhavoronkov@server.kazhavoronkov.net ~]$ cd ~/common
[kazhavoronkov@server.kazhavoronkov.net common]$ touch kazhavoronkov@server.txt
[kazhavoronkov@server.kazhavoronkov.net common]$ mkdir -p /srv/nfs/home/kazhavoronkov
mkdir: cannot create directory '/srv/nfs/home': Permission denied
[kazhavoronkov@server.kazhavoronkov.net common]$ sudo -i
[sudo] password for kazhavoronkov:
[root@server.kazhavoronkov.net ~]# mkdir -p /srv/nfs/home/kazhavoronkov
[root@server.kazhavoronkov.net ~]# mount -o bind /home/kazhavoronkov/common /srv/nfs/home/kazhavoronkov
mount: (hint) your fstab has been modified, but systemd still uses
        the old version; use 'systemctl daemon-reload' to reload.
[root@server.kazhavoronkov.net ~]#
```

# Подключение каталогов для работы пользователей



The image shows a terminal window with a red title bar. The title bar contains a plus icon on the left, the text 'root@server:~ - sudo -i' in the center, and window control icons (maximize, menu, close) on the right. Below the title bar is a black status bar with 'GNU nano 8.1' on the left, '/etc/exports' in the center, and 'Modified' on the right. The main area of the terminal is white and contains the following text:

```
/srv/nfs *(ro)
/srv/nfs/www 192.168.0.0/16(rw)
/srv/nfs/home/kazahvoronkov 192.168.0.0/16(rw)
```

A black cursor is positioned at the end of the third line.

# Подключение каталогов для работы пользователей

```
root@server:~ - sudo -i
GNU nano 8.1 /etc/fstab Modified
#
# /etc/fstab
# Created by anaconda on Sat Sep  6 13:15:18 2025
#
# 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=e0f3fcee-7799-4294-8547-121e1623c157 /                xfs     defaults        0 0
UUID=401bb276-312f-4651-9a99-1f0db4e65ae4 /boot          xfs     defaults        0 0
UUID=db95190e-ed05-4b2b-9d66-f80338c9589f none           swap    defaults        0 0
/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
/home/kazhavoronkov/common /srv/nfs/home/kazahvoronkov none bind 0 0
```

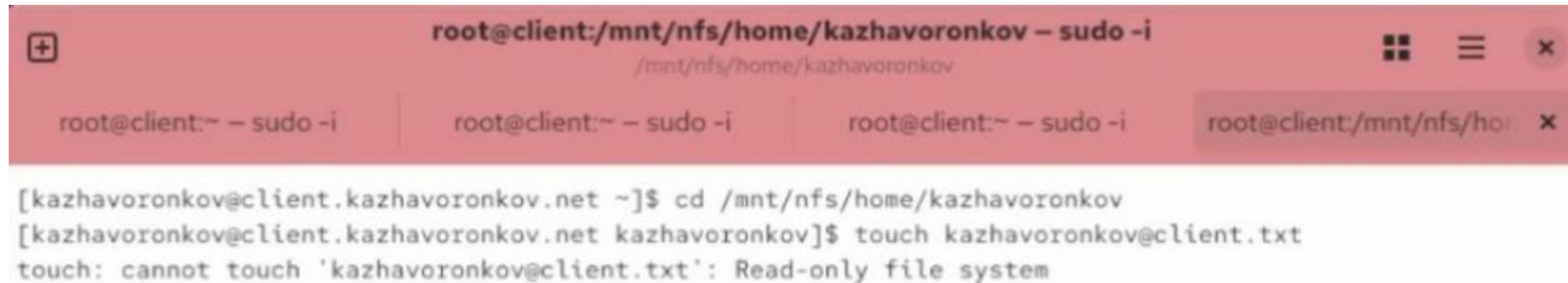
# Подключение каталогов для работы пользователей

```
[root@server.kazhavoronkov.net ~]# exportfs -r  
[root@server.kazhavoronkov.net ~]#
```

# Подключение каталогов для работы пользователей

```
[root@client.kazhavoronkov.net ~]# ls /mnt/nfs  
home  www  
[root@client.kazhavoronkov.net ~]# █
```

# Подключение каталогов для работы пользователей



```
root@client:/mnt/nfs/home/kazhavoronkov – sudo -i
/mnt/nfs/home/kazhavoronkov

root@client:~ – sudo -i | root@client:~ – sudo -i | root@client:~ – sudo -i | root@client:/mnt/nfs/ho x

[kazhavoronkov@client.kazhavoronkov.net ~]$ cd /mnt/nfs/home/kazhavoronkov
[kazhavoronkov@client.kazhavoronkov.net kazhavoronkov]$ touch kazhavoronkov@client.txt
touch: cannot touch 'kazhavoronkov@client.txt': Read-only file system
```

# Внесение изменений в настройки внутреннего окружения виртуальных машин



```
kazhavoronkov@server:/vagrant/provision/server
/vagrant/provision/server

root@server:~ - sudo - | root@server:~ - sudo - | root@server:~ - sudo - | root@server:~ - sudo - | kazhavoronkov@se: X

[kazhavoronkov@server.kazhavoronkov.net common]$ cd /vagrant/provision/server
[kazhavoronkov@server.kazhavoronkov.net server]$ mkdir -p /vagrant/provision/server/nfs/etc
[kazhavoronkov@server.kazhavoronkov.net server]$ cp -R /etc/exports /vagrant/provision/server/nfs/etc/
[kazhavoronkov@server.kazhavoronkov.net server]$ touch nfs.sh
[kazhavoronkov@server.kazhavoronkov.net server]$ chmod +x nfs.sh
[kazhavoronkov@server.kazhavoronkov.net server]$ nano nfs
```

# Внесение изменений в настройки внутреннего окружения виртуальных машин

```
kazhavoronkov@server:/vagrant/provision/server - nano nfs.sh
/vagrant/provision/server
root@server:~ - sudo - root@server:~ - sudo - root@server:~ - sudo - root@server:~ - sudo - kazhavoronkov@se: X

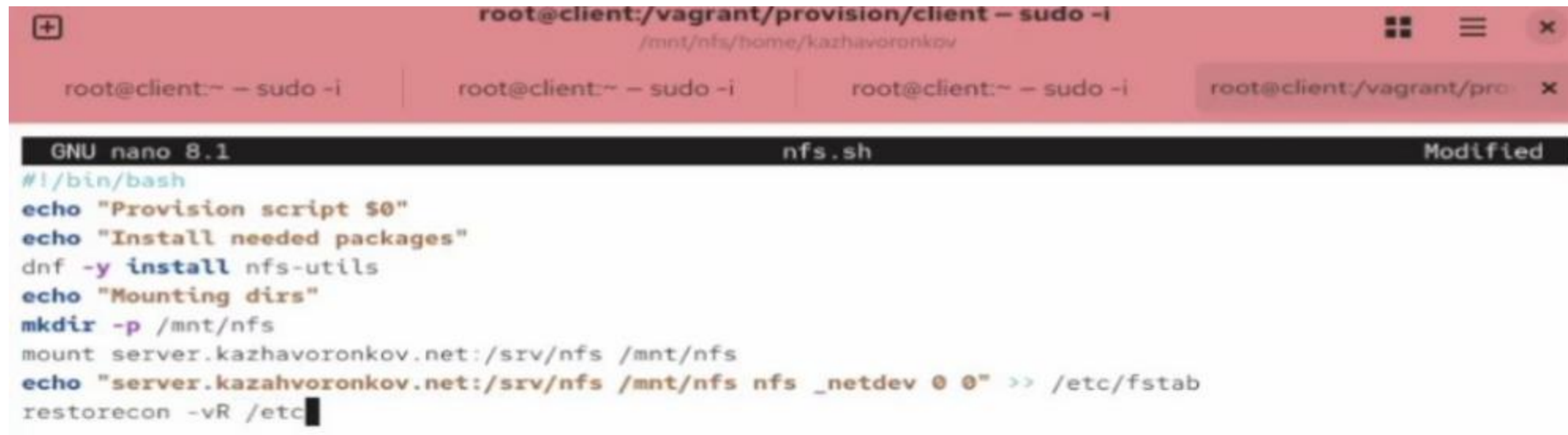
GNU nano 8.1                                nfs.sh                                Modified
echo "Install needed packages"
dnf -y install nfs-utils
echo "Copy configuration files"
cp -R /vagrant/provision/server/nfs/etc/* /etc
restorecon -vR /etc
echo "Configure firewall"
firewall-cmd --add-service nfs --permanent
firewall-cmd --add-service mountd --add-service rpc-bind --permanent
firewall-cmd --reload
echo "Tuning SELinux"
mkdir -p /srv/nfs
semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
restorecon -vR /srv/nfs
echo "Mounting dirs"
mkdir -p /srv/nfs/www
mount -o bind /var/www /srv/nfs/www
echo "/var/www /srv/nfs/www none bind 0 0" >> /etc/fstab
mkdir -p /srv/nfs/home/user
mkdir -p -m 700 /home/user/common
chown user:user /home/user/common
mount -o bind /home/user/common /srv/nfs/home/user
echo "/home/user/common /srv/nfs/home/user none bind 0 0" >> /etc/fstab
echo "Start nfs service"
systemctl enable nfs-server
systemctl start nfs-server
systemctl restart firewallld
```



# Внесение изменений в настройки внутреннего окружения виртуальных машин

```
[root@client.kazhavoronkov.net kazhavoronkov]# cd /vagrant/provision/client  
[root@client.kazhavoronkov.net client]# touch nfs.sh  
[root@client.kazhavoronkov.net client]# chmod +x nfs.sh  
[root@client.kazhavoronkov.net client]# █
```

# Внесение изменений в настройки внутреннего окружения виртуальных машин



```
root@client:/vagrant/provision/client -- sudo -i
/mnt/nfs/home/kazhavoronkov

root@client:~ -- sudo -i | root@client:~ -- sudo -i | root@client:~ -- sudo -i | root@client:/vagrant/pro -- x

GNU nano 8.1                                nfs.sh                                Modified
#!/bin/bash
echo "Provision script $0"
echo "Install needed packages"
dnf -y install nfs-utils
echo "Mounting dirs"
mkdir -p /mnt/nfs
mount server.kazhavoronkov.net:/srv/nfs /mnt/nfs
echo "server.kazhavoronkov.net:/srv/nfs /mnt/nfs nfs _netdev 0 0" >> /etc/fstab
restorecon -vR /etc
```

# Внесение изменений в настройки внутреннего окружения виртуальных машин

```
server.vm.provision "server nfs",  
  type: "shell",  
  preserve_order: true,  
  path: "provision/server/nfs.sh"
```

```
client.vm.provision "client nfs",  
  path: "provision/client/ntp.sh"  
  type: "shell",  
  preserve_order: true,  
  path: "provision/client/nfs|.sh"
```