

Лабораторная работа №12

Синхронизация времени

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Настройка параметров времени

```
root@server:~ – sudo -i

[kazhavoronkov@server.kazhavoronkov.net ~]$ sudo -i
[sudo] password for kazhavoronkov:
[root@server.kazhavoronkov.net ~]# timedatectl
          Local time: Sat 2025-11-22 10:03:15 UTC
          Universal time: Sat 2025-11-22 10:03:15 UTC
            RTC time: Sat 2025-11-22 10:03:15
            Time zone: UTC (UTC, +0000)
System clock synchronized: yes
          NTP service: active
        RTC in local TZ: no
[root@server.kazhavoronkov.net ~]# date
Sat Nov 22 10:03:33 AM UTC 2025
[root@server.kazhavoronkov.net ~]# hwclock
2025-11-22 10:03:46.075790+00:00
[root@server.kazhavoronkov.net ~]#
```

Настройка параметров времени

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

[kazhavoronkov@client.kazhavoronkov.net ~]$ sudo -i
[sudo] password for kazhavoronkov:
[root@client.kazhavoronkov.net ~]# timedatectl
          Local time: Sat 2025-11-22 10:03:18 UTC
        Universal time: Sat 2025-11-22 10:03:18 UTC
           RTC time: Sat 2025-11-22 10:03:18
        Time zone: UTC (UTC, +0000)
System clock synchronized: no
          NTP service: active
        RTC in local TZ: no
[root@client.kazhavoronkov.net ~]# date
Sat Nov 22 10:03:35 AM UTC 2025
[root@client.kazhavoronkov.net ~]# hwclock
2025-11-22 10:03:52.365842+00:00
[root@client.kazhavoronkov.net ~]#
```

Управление синхронизацией времени

```
[root@server.kazhavoronkov.net ~]# dnf -y install chrony
Extra Packages for Enterprise Linux 10 - x86_64
Extra Packages for Enterprise Linux 10 - x86_64
Rocky Linux 10 - BaseOS
Rocky Linux 10 - AppStream
Rocky Linux 10 - Extras
Package chrony-4.6.1-1.el10.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@server.kazhavoronkov.net ~]#
```

42 kB/s	37 kB	00:00
2.8 MB/s	5.5 MB	00:01
12 kB/s	4.3 kB	00:00
16 kB/s	4.3 kB	00:00
11 kB/s	3.1 kB	00:00



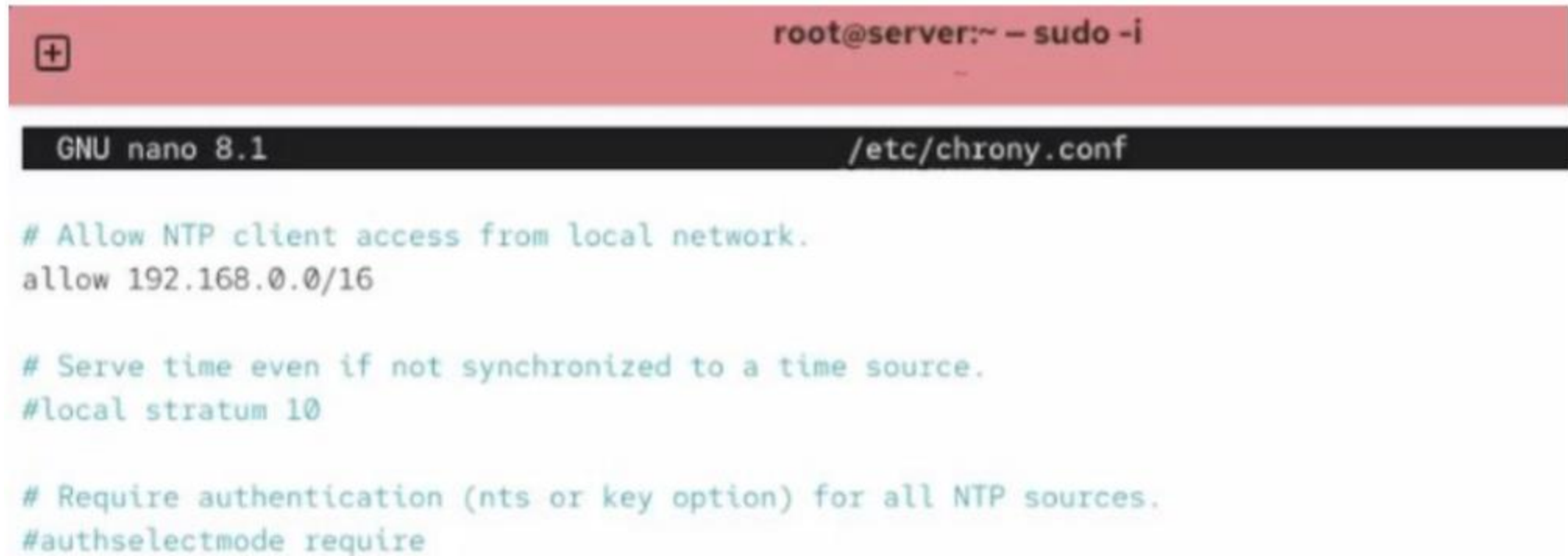
Управление синхронизацией времени

```
[root@server.kazhavoronkov.net ~]# chronyc sources
MS Name/IP address          Stratum Poll Reach LastRx Last sample
=====
^* ntp21.vniiftri.ru         2    7   367    41   -254us[ -408us] +/- 7591us
^- ru.opensourceserver.ru    2    7   377    41    +82us[ +82us] +/-  23ms
^? 2a0b:4880::aaa1:59ff:fe5> 0    8     0     -     +0ns[  +0ns] +/-   0ns
^- 45.90.45.122              2    7   377   113  +2576us[+2432us] +/-  46ms
[root@server.kazhavoronkov.net ~]#
```

Управление синхронизацией времени

```
[root@client.kazhavoronkov.net ~]# nano /etc/chrony.conf
[root@client.kazhavoronkov.net ~]# systemctl restart chronyd
[root@client.kazhavoronkov.net ~]# chronyc sources
MS Name/IP address          Stratum Poll Reach LastRx Last sample
=====
[root@client.kazhavoronkov.net ~]# █
```

Управление синхронизацией времени



```
root@server:~ – sudo -i
GNU nano 8.1 /etc/chrony.conf

# Allow NTP client access from local network.
allow 192.168.0.0/16

# Serve time even if not synchronized to a time source.
#local stratum 10

# Require authentication (nts or key option) for all NTP sources.
#authselectmode require
```

Управление синхронизацией времени

```
[root@server.kazhavoronkov.net ~]# systemctl restart chronyd
[root@server.kazhavoronkov.net ~]# firewall-cmd --add-service=ntp --permanent
success
[root@server.kazhavoronkov.net ~]# firewall-cmd --reload
success
[root@server.kazhavoronkov.net ~]# nano /etc/chrony.conf
[root@server.kazhavoronkov.net ~]# nano /etc/chrony.conf
[root@server.kazhavoronkov.net ~]# █
```


Управление синхронизацией времени

```
# Save NTS keys and cookies.
ntsdumpdir /var/lib/chrony

# Insert/delete leap seconds by slewing instead of stepping.
#leapsecmode slew
server server.kazhavoronkov.net iburst
# Set the TAI-UTC offset of the system clock.
#leapseclist /usr/share/zoneinfo/leap-seconds.list

# Specify directory for log files.
logdir /var/log/chrony

# Select which information is logged.
#log measurements statistics tracking
```

Управление синхронизацией времени

```
[root@client.kazhavoronkov.net ~]# nano /etc/chrony.conf  
[root@client.kazhavoronkov.net ~]# systemctl restart chronyd  
[root@client.kazhavoronkov.net ~]# █
```

Управление синхронизацией времени

```
[root@client.kazhavoronkov.net ~]# chronyc sources
```

```
MS Name/IP address          Stratum Poll Reach LastRx Last sample
```

```
=====
```

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

Управление синхронизацией времени

```
[root@server.kazhavoronkov.net ~]# chronyc sources
```

```
MS Name/IP address          Stratum Poll Reach LastRx Last sample
```

```
=====
```

^+ ntp2.mail.ru	2	6	377	41	-928us[-928us]	+/- 4057us
^- mail.rashnikov.name	2	6	337	37	-820us[-820us]	+/- 25ms
^* mskm9-ntp03c.ntppool.yan>	2	6	377	42	-426us[-183us]	+/- 3639us
^- tms04.deltatelesystems.ru	1	6	337	37	-504us[-504us]	+/- 17ms

Внесение изменений в настройки внутреннего окружения виртуальных машин

```
[root@server.kazhavoronkov.net ~]# cd /vagrant/provision/server
[root@server.kazhavoronkov.net server]# mkdir -p /vagrant/provision/server/ntp/etc
[root@server.kazhavoronkov.net server]# cp -R /etc/chrony.conf /vagrant/provision/server/ntp/etc/
[root@server.kazhavoronkov.net server]# cd /vagrant/provision/server
[root@server.kazhavoronkov.net server]# touch ntp.sh
[root@server.kazhavoronkov.net server]# chmod +x ntp.sh
[root@server.kazhavoronkov.net server]# nano
```

Внесение изменений в настройки внутреннего окружения виртуальных машин



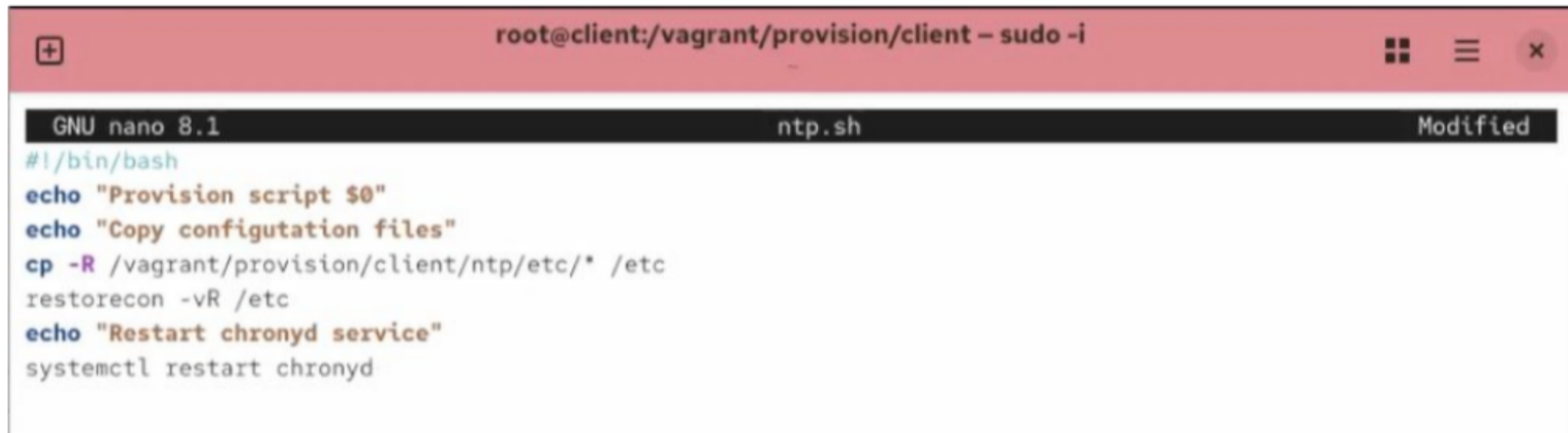
```
root@server:/vagrant/provision/server - sudo -i
GNU nano 8.1 ntp.sh Modified
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y install chrony
echo "Copy configuration files"
cp -R /vagrant/provision/server/ntp/etc/* /etc
restorecon -vR /etc
echo "Configure firewall"
firewall-cmd --add-service=ntp
firewall-cmd --add-service=ntp --permanent
echo "Restart chronyd service"
systemctl restart chronyd

```

Внесение изменений в настройки внутреннего окружения виртуальных машин

```
[root@client.kazhavoronkov.net ~]# cd /vagrant/provision/client
[root@client.kazhavoronkov.net client]# mkdir -p /vagrant/provision/client/ntp/etc
[root@client.kazhavoronkov.net client]# cp -R /etc/chrony.conf /vagrant/provision/client/ntp/etc/
[root@client.kazhavoronkov.net client]# touch ntp.sh
[root@client.kazhavoronkov.net client]# chmod +x ntp.sh
[root@client.kazhavoronkov.net client]#
```

Внесение изменений в настройки внутреннего окружения виртуальных машин



The screenshot shows a terminal window with a red title bar. The title bar text is 'root@client:/vagrant/provision/client - sudo -i'. On the right side of the title bar are three icons: a window icon, a hamburger menu icon, and a close icon. The main content area shows the GNU nano 8.1 editor editing a file named 'ntp.sh'. The editor's status bar at the top indicates 'GNU nano 8.1', 'ntp.sh', and 'Modified'. The script content is as follows:

```
#!/bin/bash
echo "Provision script $0"
echo "Copy configuration files"
cp -R /vagrant/provision/client/ntp/etc/* /etc
restorecon -vR /etc
echo "Restart chronyd service"
systemctl restart chronyd
```


Внесение изменений в настройки внутреннего окружения виртуальных машин

```
        path: "provision/server/ssh.sh"
server.vm.provision "server ntp",
    type: "shell",
    preserve_order: true,
    path: "provision/server/ntp.sh"
server.vm.provider :virtualbox do |v|
  v.linked_clone = true
```

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

```
.....
```