

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                               42 kB/s | 37 kB   00:00
Extra Packages for Enterprise Linux 10 - x86_64                               2.8 MB/s | 5.5 MB  00:01
Rocky Linux 10 - BaseOS                                         12 kB/s | 4.3 kB   00:00
Rocky Linux 10 - AppStream                                       16 kB/s | 4.3 kB   00:00
Rocky Linux 10 - Extras                                         11 kB/s | 3.1 kB   00:00
Package chrony-4.6.1-1.el10.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@server.kazhavoronkov.net ~]#
```

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



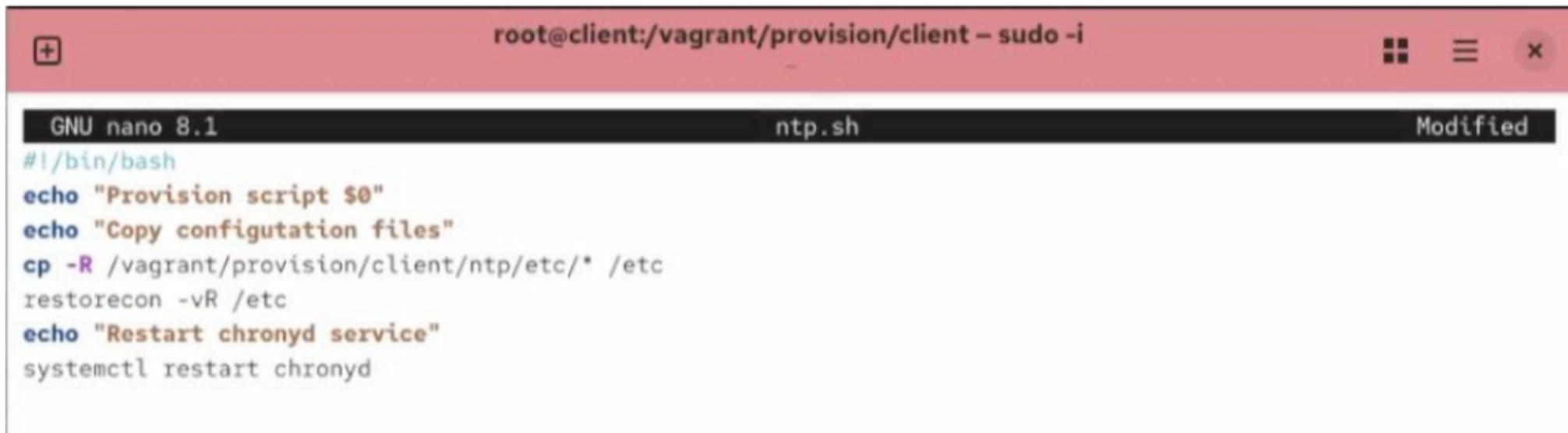
The screenshot shows a terminal window with a red header bar. The header bar contains a square icon with a plus sign, the text "root@server:/vagrant/provision/server – sudo -i", and three icons: a grid, a three-line menu, and a close button. Below the header is a dark navigation bar with the text "GNU nano 8.1" on the left, "ntp.sh" in the center, and "Modified" on the right. The main area of the window displays a shell script named "ntp.sh". The script content is as follows:

```
#!/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 header bar. The header bar contains a plus icon, the text "root@client:/vagrant/provision/client – sudo -i", and three icons for maximizing, minimizing, and closing the window.

The main area of the terminal is a nano editor window. The title bar of the editor says "GNU nano 8.1" on the left, "ntp.sh" in the center, and "Modified" on the right. The editor displays the following bash script:

```
#!/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"
```