

# Лабораторная работа №12

Презентация

---

Ермишина М. К.

22 ноября 2025

Российский университет дружбы народов, Москва, Россия

# Информация

---

- Ермишина Мария Кирилловна
- студент группы НПИбд-01-24
- Российский университет дружбы народов
- 1132230166@pfur.ru
- <https://github.com/ErmiMash>

## **Элементы презентации**

---

Целью данной лабораторной работы является получение навыков настройки сетевых параметров системы.

# Выполнение лабораторной работы

---

# Проверка конфигурации сети

```
[ermimash@ermimash ~]$ su -
Password:
[root@ermimash ~]# ip -s link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    RX: bytes packets errors dropped missed mcast
         2130      18        0        0        0        0
    TX: bytes packets errors dropped carrier collsns
         2130      18        0        0        0        0
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:c9:00:ae brd ff:ff:ff:ff:ff:ff
    RX: bytes packets errors dropped missed mcast
        65335802    54807        0        0        0        9
    TX: bytes packets errors dropped carrier collsns
        4557951    40149        0        0        0        0
[root@ermimash ~]# ip route show
default via 10.0.2.2 dev enp0s3 proto dhcp src 10.0.2.15 metric 100
10.0.2.0/24 dev enp0s3 proto kernel scope link src 10.0.2.15 metric 100
[root@ermimash ~]# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c9:00:ae brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 83193sec preferred_lft 83193sec
    inet6 fe80::a00:27ff:fe09:ae/64 scope global dynamic noprefixroute
        valid_lft 86203sec preferred_lft 14203sec
    inet6 fe80::a00:27ff:fe09:ae/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@ermimash ~]# ping -c 4 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=255 time=53.0 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=255 time=44.4 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=255 time=35.8 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=255 time=37.9 ms

--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3006ms
rtt min/avg/max/mdev = 35.809/42.765/52.971/6.689 ms
[root@ermimash ~]# ip addr add 10.0.0.10/24 dev enp0s3
[root@ermimash ~]#
```

# Добвление доп. адреса

```
[root@ermimash ~]# ip addr add 10.0.0.10/24 dev enp0s3
[root@ermimash ~]# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c9:00:ae brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 83070sec preferred_lft 83070sec
    inet 10.0.0.10/24 scope global enp0s3
        valid_lft forever preferred_lft forever
    inet6 fd17:625c:f037:2:a00:27ff:fec9:ae/64 scope global dynamic noprefixroute
        valid_lft 86080sec preferred_lft 14080sec
    inet6 fe80::a00:27ff:fec9:ae/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@ermimash ~]# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd17:625c:f037:2:a00:27ff:fec9:ae prefixlen 64 scopeid 0x0<global>
    inet6 fe80::a00:27ff:fec9:ae prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:c9:00:ae txqueuelen 1000 (Ethernet)
    RX packets 54875 bytes 65342235 (62.3 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 40223 bytes 4564609 (4.3 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 18 bytes 2130 (2.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 18 bytes 2130 (2.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@ermimash ~]# ss -tul
```

Netid	State	Recv-Q	Send-Q	Local Address:Port	Peer Address:Port
udp	UNCONN	0	0	127.0.0.1:323	0.0.0.0:*
udp	UNCONN	0	0	0.0.0.0:mdns	0.0.0.0:*
udp	UNCONN	0	0	:::1:323	:::1:*
udp	UNCONN	0	0	:::mdns	:::1:*
tcp	LISTEN	0	4096	127.0.0.1:ipp	0.0.0.0:*
tcp	LISTEN	0	128	0.0.0.0:ssh	0.0.0.0:*
tcp	LISTEN	0	4096	:::1:ipp	:::1:*
tcp	LISTEN	0	32	:::fto	:::1:*



# Устранения неполадок

```
[root@ash@redhat ~]# su -
Password:
[root@redhat ~]# ncl connection show
NAME      UUID                                TYPE      DEVICE
enp8s3    d376d274-36b3-18c0-8158-982c6656c911 ethernet enp8s3
lo        00000000-0000-0000-0000-000000000000 loopback lo
[root@redhat ~]# ncl connection add con-name "dhcp" type ethernet ifname enp8s3
Connection 'dhcp' (36a27280-fd86-4302-978e-115932f356a8) successfully added.
[root@redhat ~]# ncl connection add con-name "static" ifname enp8s3
Error: 'type' argument is required.
[root@redhat ~]# ncl connection add con-name "static" ifname enp8s3
autoconnect no type ethernet ip4 10.0.0.28/24 gw 10.0.0.1
ifname enp8s3
Error: 'type' argument is required.
bash: autoconnect: command not found...
bash: ifname: command not found...
[root@redhat ~]# ncl connection add con-name "static" ifname enp8s3 autoconnect no type ethernet ip4 10.0.0.18/24
gw 10.0.0.1 ifname enp8s3
Connection 'static' (2296cae-8964-48f3-a3dc-36a6c7cd87aa) successfully added.
[root@redhat ~]# ncl connection show
NAME      UUID                                TYPE      DEVICE
enp8s3    d376d274-36b3-18c0-8158-982c6656c911 ethernet enp8s3
lo        00000000-0000-0000-0000-000000000000 loopback lo
dhcp      36a27280-fd86-4302-978e-115932f356a8 ethernet --
static    2296cae-8964-48f3-a3dc-36a6c7cd87aa ethernet --
[root@redhat ~]# ncl connection up "static"
Connection successfully activated (0-0m active path: /org/freedesktop/NetworkManager/ActiveConnection/3)
[root@redhat ~]# ncl connection show
NAME      UUID                                TYPE      DEVICE
static    2296cae-8964-48f3-a3dc-36a6c7cd87aa ethernet enp8s3
lo        00000000-0000-0000-0000-000000000000 loopback lo
dhcp      36a27280-fd86-4302-978e-115932f356a8 ethernet --
enp8s3    d376d274-36b3-18c0-8158-982c6656c911 ethernet --
[root@redhat ~]# ifconfig
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp8s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 36:00:00:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.18/24 brd 10.0.0.255 scope global dynamic noprefixroute enp8s3
        valid_lft forever preferred_lft forever
    inet6 fe80::36:00:00:00:00:00/64 scope global dynamic noprefixroute
```

# Изменение параметров соединения с помощью nmcli

```
[root@ermimash ~]# nmcli connection modify "static" connection.autoconnect no
[root@ermimash ~]# nmcli connection modify "static" ipv4.dns 10.0.0.10
[root@ermimash ~]# nmcli connection modify "static" +ipv4.dns 8.8.8.8
[root@ermimash ~]# nmcli connection modify "static" ipv4.addresses 10.0.0.20/24
[root@ermimash ~]# nmcli connection modify "static" +ipv4.addresses 10.20.30.40/16
[root@ermimash ~]# nmcli connection up "static"
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/5)
[root@ermimash ~]# nmcli con show
```

NAME	UUID	TYPE	DEVICE
static	2296caae-d994-48f3-a3dc-26a0c7cdd7aa	ethernet	enp0s3
lo	6dde94eb-d798-4817-9997-9d43afc0062e	loopback	lo
dhcp	56a2720d-f4d6-4102-978e-115932f55846	ethernet	--
enp0s3	d3748174-39bb-30c0-8158-982d6450c911	ethernet	--

```
[root@ermimash ~]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c9:00:ae brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.20/24 brd 10.0.0.255 scope global noprefixroute enp0s3
        valid_lft forever preferred_lft forever
    inet 10.20.30.40/16 brd 10.20.255.255 scope global noprefixroute enp0s3
        valid_lft forever preferred_lft forever
    inet6 fd17:629c:f937:21adb1:8c3b:6ee4:6b3b/64 scope global dynamic noprefixroute
        valid_lft 86387sec preferred_lft 14387sec
    inet6 fe80::f9ef:e42c:8c58:ee01/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@ermimash ~]# nmcli
[root@ermimash ~]# nmcli connection up "enp0s3"
```

Рис. 4: Изменение параметров соединения с помощью nmcli

[ Edit Connection ]

Profile name: static

Device: mpd3-180.80.27.08:08-A0

- ETHERNET <Show>

- SEC.12 SECURITY <Show>

+ IPv4 CONFIGURATION <Cancel> <OK>

Addresses: 18.0.8.18/14 <Remove>  
18.20.80.20/16 <Remove>  
<Add...>

Gateway: 18.0.8.1 <Remove>

DNS servers: 18.0.8.18 <Remove>  
8.8.8.8 <Remove>  
<Add...>

Search domains: <Add...>

Routing (No custom routes) <Edit...>

☐ Never use this network for default route

☐ Ignore automatically obtained routes

☐ Ignore automatically obtained DNS parameters

☐ Require IPv4 addressing for this connection

- IPv6 CONFIGURATION <Automatic> <Show>

☐ Automatically connect

☒ Available to all users

<Cancel> <OK>

# Настройки сетевых соедин. в граф. интерфейсе ОС

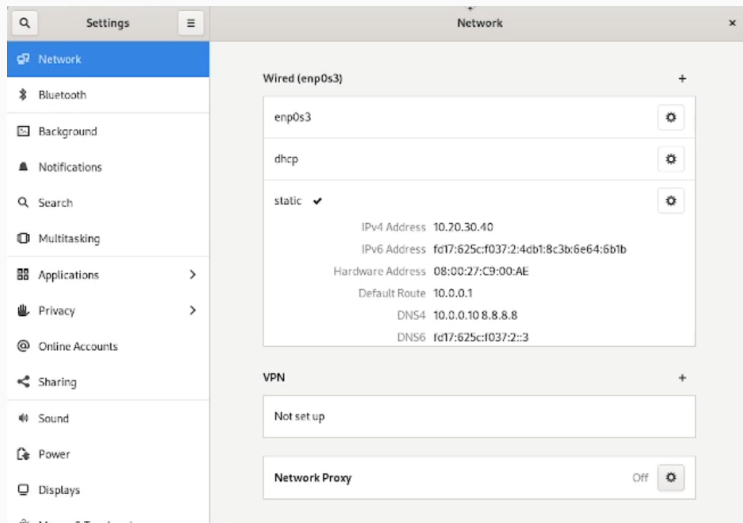


Рис. 6: Настройки сетевых соедин. в граф. интерфейсе ОС

Получены навыки настройки сетевых параметров системы.