

Astra Linux

- - NetworkManager
 - NetworkManager
 - - DNS-
 - nmcli NetworkManager
 -
 - Networking:
 - - (loopback)
 - , DHCP
 -
 - Systemd-networkd / systemd-resolved

Debian .

..:

- IPv6: ;
- ;
- VLAN VXLAN Astra Linux;
- .

Astra Linux (Astra Linux -) :

- NetworkManager — , . Astra Linux , . WiFi, VPN 802.1.
- networking / resolvconf — (resolvconf) - DNS .
(resolvconf) - , .
Astra Linux , , (loopback).
- systemd-networkd / systemd-resolved — , systemd.
Astra Linux , , , .
- connman — .



:

- (sysctl);
- DHCP dhclient (. DHCP).



, DHCP:

```
sudo dhclient
```

dhclient, , , .

NetworkManager



, NetworkManager netdev. netdev . :

```
nmcli general permissions
```

NetworkManager

NetworkManager:

- /etc/NetworkManager/NetworkManager.conf — , , ;
- /etc/NetworkManager/conf.d/*.conf — , . , /usr/lib/NetworkManager/conf.d/ (.);
- /usr/lib/NetworkManager/conf.d/*.conf — , ;
- /var/lib/NetworkManager/NetworkManager-intern.conf — , NetworkManager .

/etc/NetworkManager/.

NetworkManager /usr/share/doc/network-manager/.

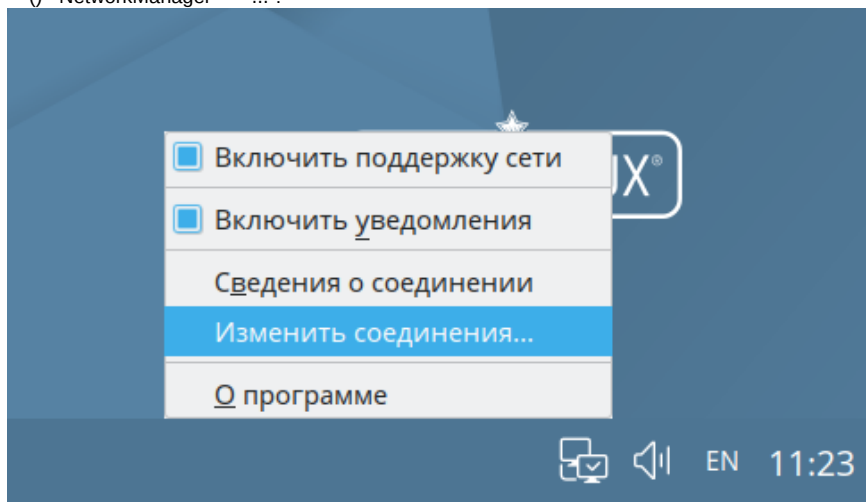
Astra Linux NetworkManager () NetworkManager, .

Astra Linux NetworkManager , .
"" _ " " _ "" _ " , .

DNS-

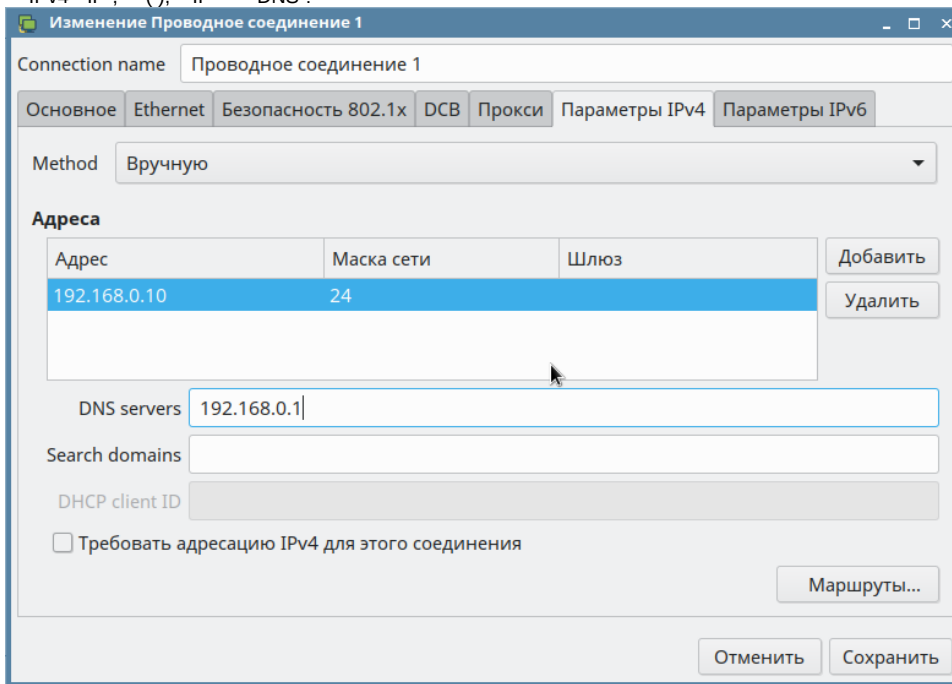
, DNS-, :

1. () NetworkManager " ...":



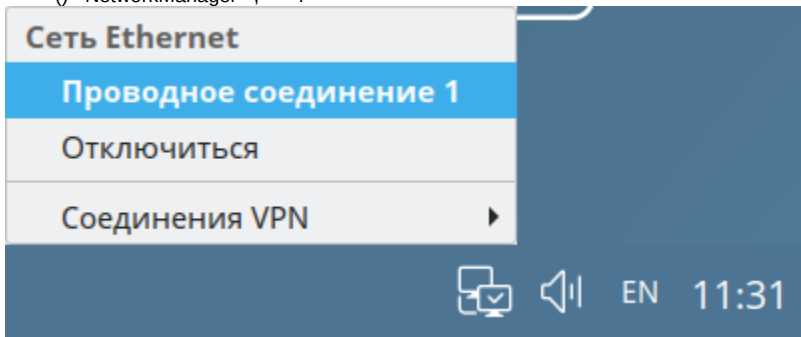
2. ;

3. "IPv4" IP-, (), IP- DNS-:



4. "";

5. () NetworkManager , :



nmcli NetworkManager

nmcli NetworkManager.

(devices, dev) (connection, con).

:

```
# IP- eth0
nmcli device modify eth0 ipv4.address 192.168.32.97/24

# eth0
nmcli device modify eth0 ipv4.gateway 192.168.32.1

# DNS eth0
nmcli device modify eth0 ipv4.dns 192.168.32.1

# eth0
nmcli device show eth0
```

" 1", DHCP.

"" " 1" path (dbus) apath (dbus), :

 nmcli con show path 3
nmcli con show apath 1

() IP-
(connection, con), :

```
#!/bin/bash

# , : / (ip), (gw), DNS (dns, ), (gwroute)
con=" 1"
ip="10.0.2.254/24"
gw="10.0.2.1"
dns="10.0.2.254 8.8.8.8"
gwroute="10.0.2.2"

#
if nmcli con show "$con" > /dev/null ; then
    echo " «$con» $ip gw $gw."

#
    nmcli con mod "$con" ip4 $ip gw4 $gw

# DNS
    nmcli con mod "$con" ipv4.dns "$dns 8.8.8.8"

#
    nmcli con mod "$con" +ipv4.routes "192.168.1.0/24 $gwroute"

# DHCP, ""
    nmcli con mod "$con" ipv4.method manual
    echo " : "
    nmcli -p con show "$con" | grep ipv4

#
    , :

    nmcli con down "$con" ; nmcli con up "$con"
else
    echo " «$con» , ."
    exit 1
fi
```

:

```
man nmcli
man nmcli-examples
man nm-online
```

 **networking NetworkManager** - , /etc/network/interfaces /etc/networking/interfaces.d/. /etc/network/interfaces (loopback).

, NetworkManager , nmcli (, /etc/network/interfaces), :

- :

```
sudo nmcli con reload
```

- NetworkManager:

```
sudo systemctl restart NetworkManager
```

network-manager:

```
sudo systemctl restart network-manager
```

1 1 1 1 *

, , NetworkManager ipv4.dad-timeout.

$$\vdots$$

- $$\bullet \quad \text{---} \quad \cdot \quad \cdot \quad \cdot \quad (\dots, \cdot, \cdot).$$



0. .

- 0 — .
- -1 — Astra Linux, [2023-1023SE17 \(1.7.5\)](#)., 0 ().
- 2222 — Astra Linux, [2023-1023SE17 \(1.7.5\)](#).. 2222.

```
, , [connection] . [ipv4]:
```

```
[ipv4]
dad-timeout=<>
```

, , [connection] (-)., /etc/NetworkManager/conf.d/dad.conf :

```
[connection]
ipv4.dad-timeout=<>
```

$$\vdots$$

```
sudo nmcli con mod <_> ipv4.dad-timeout <>
```

:

```
sudo nmcli con mod \ \ 1 ipv4.dad-timeout -1
```

Networking:

, NetworkManager networking , , /etc/network/interfaces, - , , networking NetworkManager, :

```
sudo systemctl --now mask NetworkManager
```



NetworkManager ():

```
sudo apt remove network-manager-gnome
```

, TCP/IP ifup ifdown, ifupdown, .

- , (,), ;
- , IP- (,) resolvconf, .

! resolvconf NetworkManager , /etc/resolv.conf

ifupdown : ifup ifdown, /etc/network/interfaces, ifquery, /etc/network/interfaces.
/run/network/ifstate

(eth0):

- /etc/network/interfaces , eth0.
- :

sudo ifquery eth0

- . , , :

sudo ifdown eth0; sudo ifup eth0

! , ifconfig(8) ip(8) (up) .

ifdown/ifup NetworkManager,
, /etc/network/interfaces.
ifconfig ip iproute2:

- , :

ip address show dev eth0

- , :

sudo ip address flush dev eth0

/etc/network/interfaces

man interfaces

:

auto <_>	
allow-auto <_>	
allow-hotplug <_>	
, "iface <config_name> ..."	<config_name> :

	<pre> iface <config_name> <address_family> <method_name> <option1> <value1> <option2> <value2> ... </pre>
, "mapping <interface_name_glob>"	<pre> <config_name> <interface_name>. . </pre>
, "#"	<pre> </pre>
, "\"	



iface.

(loopback)

/etc/network/interfaces :



```

auto lo
iface lo inet loopback

```

/etc/network/interfaces.

, DHCP

DHCP :



```

allow-hotplug eth0
iface eth0 inet dhcp

```



```

allow-hotplug eth0
iface eth0 inet static
address 192.168.11.100
netmask 255.255.255.0
gateway 192.168.11.1
dns-domain example.com
dns-nameservers 192.168.11.1

```

:

- IP- : 192.168.11.0 - 192.168.11.255
- IP- : 192.168.11.1
- IP- 192.168.11.100
- The resolvconf package: installed
- : "example.com" (resolvconf)
- IP- DNS: 192.168.11.1 (resolvconf)

, resolvconf, DNS /etc/resolv.conf:



```

nameserver 192.168.11.1
domain example.com

```

Systemd-networkd / systemd-resolved

systemd-networkd / systemd-resolved , :

```
sudo systemctl --now mask NetworkManager
sudo systemctl --now mask networking
sudo systemctl --now mask resolvconf
```

systemd-networkd / systemd-resolved:

```
sudo systemctl unmask systemd-networkd
sudo systemctl enable systemd-networkd
sudo systemctl start systemd-networkd
sudo systemctl unmask systemd-resolved
sudo systemctl enable systemd-resolved
sudo systemctl start systemd-resolved
```

systemd /etc/systemd/network.

:

- .link – : , MAC, MTU
- .network – : IP, , DNS
- .netdev – ,

:

```
man systemd-networkd
man systemd.link
man systemd.network
man systemd.netdev
man systemd-resolved
```

connman, /etc/resolv.conf /var/run/connman/resolv.conf.

connman connmanctl.
connmanctl :

```
man connmanctl
```

connman Astra Linux.