

VLAN VXLAN Astra Linux

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- **VLAN**
 -
 - **VLAN**
 - **VLAN** NetworkManager
 - **VLAN** networking
- **VXLAN**
 -
 - - **VXLAN** "-"
 - **VXLAN** Docker



:

- Astra Linux Special Edition .10015-01 (1.7), .10015-10
- Astra Linux Special Edition .10015-17
- Astra Linux Special Edition .10015-37 (7.7)
- Astra Linux Special Edition .10015-03 (7.6)
- Astra Linux Special Edition .10152-02 (4.7)
- Astra Linux Special Edition .10015-01 (1.6)
- Astra Linux Special Edition .10015-16 . 1 . 2
- Astra Linux Special Edition .10265-01 (8.1)
- Astra Linux Common Edition 2.12

VLAN VXLAN.

- VLAN (Virtual Local Area Network) — (). , . VLAN , , . VLAN- (VLAN ID), .. VLAN- - 4096. . [RFC-3069 VLAN Aggregation for Efficient IP Address Allocation](#) IEEE 802.1q. Astra Linux (8021q);
- VXLAN (Virtual Extensible LAN) - , . VXLAN VLAN Ethernet UDP. VXLAN 16 , . , 4096 , IEEE 802.1q (VLAN). VXLAN 24 (16 777 216). . RFC 7348 IEEE 802.1ad. Astra Linux (vxlan).

VLAN

VLAN . , VLAN "" . eth0, VLAN , (bond team) (bridge).

VLAN:

1. 8021q:

```
sudo modprobe 8021q
```

2. , :

```
lsmod | grep 8021q
```

3. (iptables) :

```
echo "500 firsttable" | sudo tee -a /etc/iproute2/rt_tables
echo "501 firsttable" | sudo tee -a /etc/iproute2/rt_tables"
```

VLAN ID 500 501;

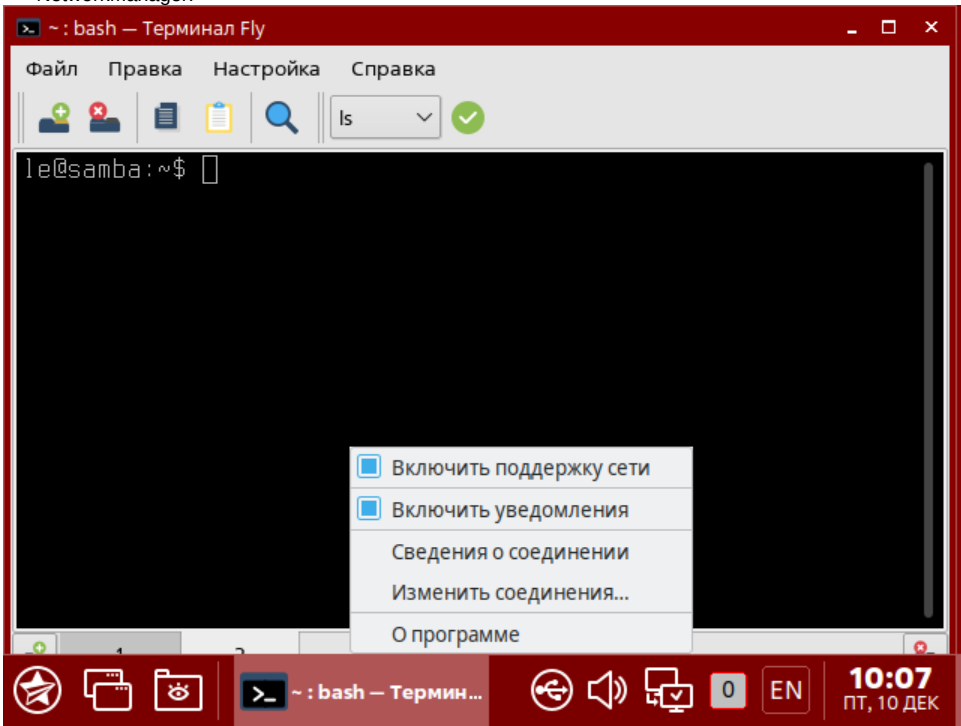
, , /etc/modules-load.d/ , , /etc/modules-load.d/vlan.conf, :

```
8021q
```

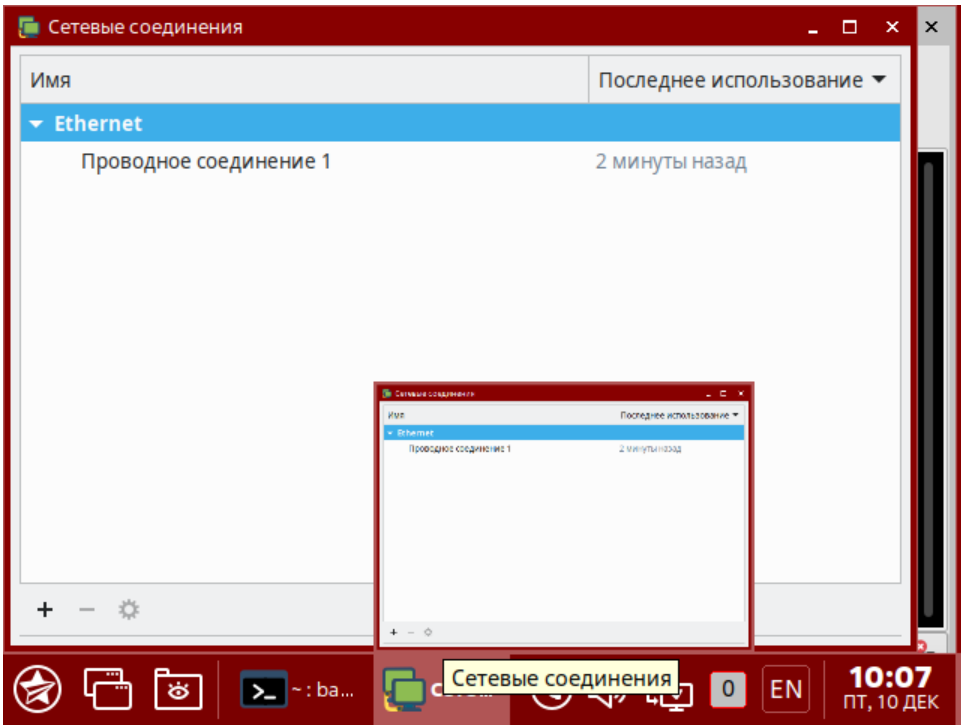
VLAN

VLAN NetworkManager

- 1. (Astra Linux Special Edition —);
- 2. NetworkManager:

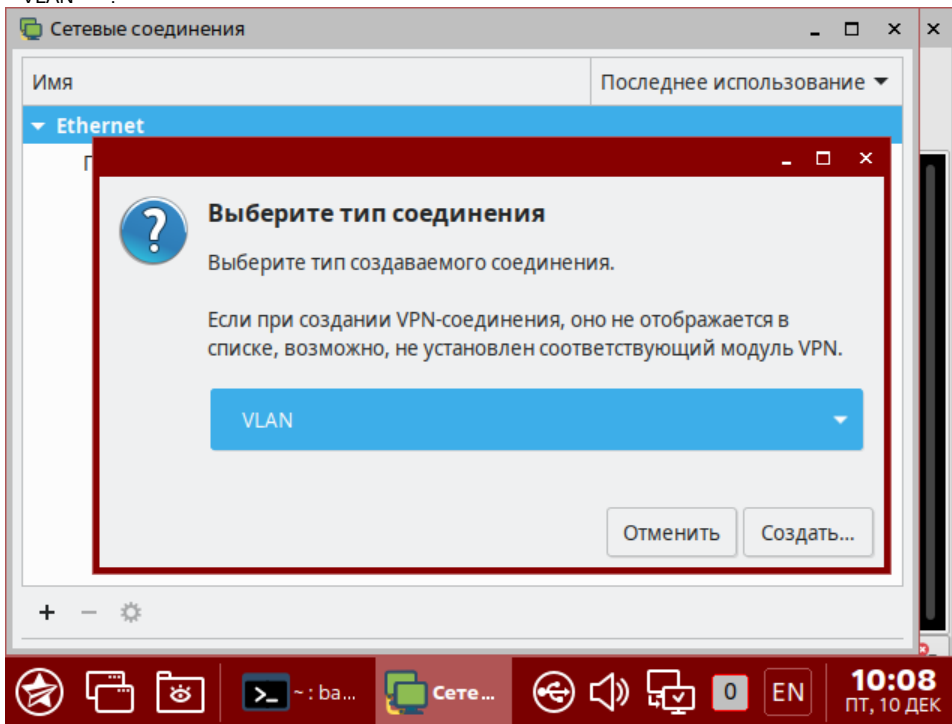


- 3. "":



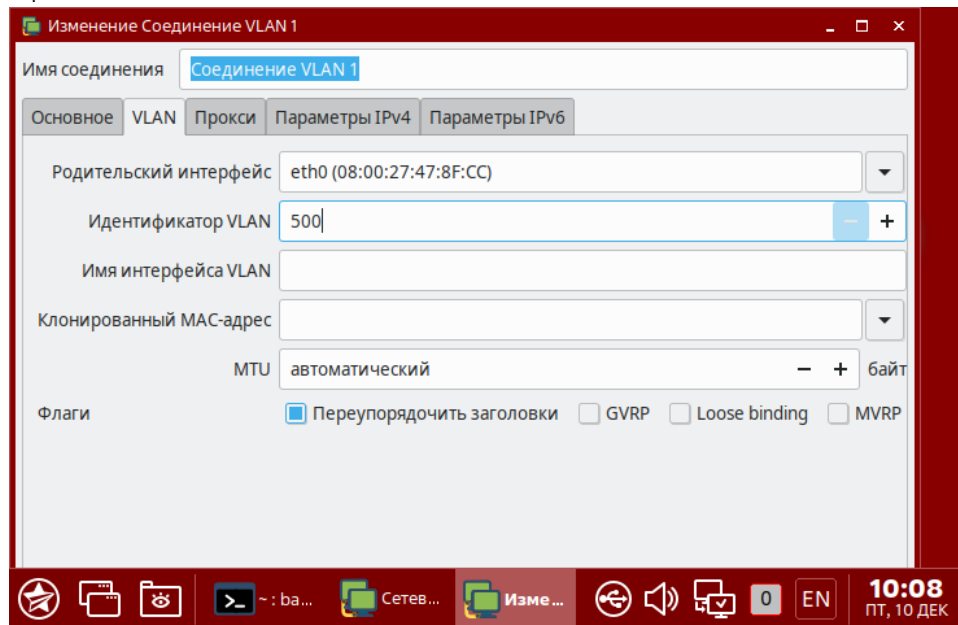
- 4. "+";

5. VLAN "":



6. :

- a. VLAN , VLAN:
 - i. ;
 - ii. ;
 - iii. VLAN;
 - iv. ;



- b. , ;
- c. "";

VLAN networking

VLAN networking

1. (Astra Linux Special Edition —);
2. ;

```
ip link show
```

```
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

2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
state UP mode DEFAULT group default qlen 1000
    link/ether 52:54:00:64:d9:e8 brd ff:ff:ff:ff:ff:ff
```

eth0;

3. :

```
# The first VLAN interface
auto eth0.500
iface eth0.500 inet static
address 172.20.20.10
netmask 255.255.255.240
gateway 172.20.20.1
dns-nameservers 8.8.8.8 8.8.4.4
```

VLAN <_>.<VLAN_ID>;

4. :

```
sudo ifup eth0.500
```

5. :

```
sudo ifconfig eth0.500
```

VLAN

```
# The second VLAN interface
auto eth0.501
iface eth0.501 inet static
address 172.21.10.0
netmask 255.255.255.0
```

, :

1. . /etc/sysctl.d/ .conf.:

```
echo "net.ipv4.ip_forward=1" | sudo tee -a /etc/sysctl.d/net.conf
echo "net.ipv4.conf.all.arp_filter=0" | sudo tee -a /etc/sysctl.d/net.conf
echo "net.ipv4.conf.all.rp_filter=2" | sudo tee -a /etc/sysctl.d/net.conf
```

2. :

```
sudo sysctl -p
```

VXLAN

1. VXLAN:

```
sudo ip link add vxlan0 type vxlan id 42 group 239.1.1.1 dev eth0
dstport 4789
```

```
vxlan0. 239.1.1.1 eth0 , () . 4789 IANA;
```

2. VXLAN:

```
sudo ip link delete vxlan0
```

3. VXLAN:

```
sudo ip -d link show vxlan0
```

VXLAN bridge:

1. :

```
sudo bridge fdb add to 00:17:42:8a:b4:05 dst 192.19.0.2 dev vxlan0
```

2. :

```
sudo bridge fdb delete 00:17:42:8a:b4:05 dev vxlan0
```

3. :

```
sudo bridge fdb show dev vxlan0
```

VXLAN ifconfig:

```
sudo ifconfig vxlan0
```

:

```
sudo route -n
```

, ping VXLAN :

```
ping 10.0.0.107
```

VXLAN "-"

:

- 1:
 - IP-: 172.31.0.106;
 - VXLAN-: 10.0.0.106;
- 2:
 - IP-: 172.31.0.107;
 - VXLAN-: 10.0.0.107;

:

1. 1:

a. VXLAN:

```
sudo ip link add vxlan0 type vxlan id 1 remote 172.31.0.107
dstport 4789 dev eth0
```

b. :

```
sudo ip link set vxlan0 up
```

c. :

```
sudo ip addr add 10.0.0.106/24 dev vxlan0
```

2. 2 , :

```
sudo ip link add vxlan0 type vxlan id 1 remote 172.31.0.106 dstport
4789 dev eth0
sudo ip link set vxlan0 up
sudo ip addr add 10.0.0.107/24 dev vxlan0
```

VXLAN Docker

:-

- - 1:
 - IP-: 172.31.0.106;
- - 2:
 - IP-: 172.31.0.107;

- , - (, , k8s). - docker VXLAN.

docker . [Docker Astra Linux 1.7.](#) [wiki/astralinux:se.](#)

brctl bridge-utils. bridge-utils :

```
sudo apt install bridge-utils
```

docker - docker0, IP- 172.17.0.1/16. , . :

```
sudo ifconfig docker0
```

```
docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:a9:5e:6f:00 txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

IP- docker 172.17.0.2. , , --ip. docker, -:

```
docker network create --subnet 172.18.0.0/16 mynetwork
```

:

```
docker network ls
```

NETWORK ID	NAME	DRIVER	SCOPE
265dff745581	bridge	bridge	local
ddf7301657ff	host	host	local
a28625161bb9	mynetwork	bridge	local
b74b0b0796bb	none	null	local

br... "":

```
sudo ifconfig
```

```
br-a28625161bb9: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.18.0.1 netmask 255.255.0.0 broadcast 172.18.255.255
    ether 02:42:e9:f0:e9:a0 txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

IP-, -:

```
docker run -itd --net mynetwork --ip 172.18.0.2 wiki/astralinux:se
```

-:

```
docker run -itd --net mynetwork --ip 172.18.0.3 wiki/astralinux:se
```

docker, "", :

```
docker run -itd wiki/astralinux:se
```

- :

- docker0 -, docker. 172.17.0.0/16, IP- 172.17.0.1;
- br-xxxx -, . 172.18.0.0/16, IP- 172.18.0.1;
- vethxxxx - . () . eth0 veth;

- .

brctl, :

```
sudo brctl show
```

```
br-a28625161bb9      8000.0242e9f0e9a0      no      veth1675dd1
docker0             8000.0242a95e6f00      no      vethe587b2d
```

VXLAN -, docker. docker, VXLAN -. - VXLAN docker -.

1. -:

a. VXLAN (VNI) 2000 vxlan_docker. :

```
sudo ip link add vxlan_docker type vxlan id 200 remote
172.31.0.107 dstport 4789 dev eth0
```

b. VLAN:

```
sudo ip link set vxlan_docker up
```

c. docker:

```
sudo brctl addif br-3231f89d69f6 vxlan_docker
```

2. - :

```
sudo ip link add vxlan_docker type vxlan id 200 remote 172.31.0.106
dstport 4789 dev eth0
sudo ip link set vxlan_docker up
sudo brctl addif br-f4b35af34313 vxlan_docker
```

ping, :

```
ping 172.18.0.2
```