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- -
 - [active-backup](#)
 - [IEEE 802.3ad \(LACP\)](#)
 - [balance-alb](#)

- [Astra Linux.](#)
- [VLAN VXLAN Astra Linux.](#)



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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)
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 Astra Linux Common Edition 2.12

() Ethernet . . . , () . () () bonding. :

balance-rr	0	(round-robin)		
active-backup	1	(link down ..) ;		
balance-xor	2	(MAC-, IP- IP-).		
broadcast	3	().		
802.3ad	4	Link Agregacion Control Protocol, LACP — IEEE 802.3ad.		
balance-tlb	5	, .		
balance-alb	6	, .		



balance-rr, balance-xor broadcast (static port trunking).
 802.3ad .
 balance-alb , MAC-.

:

- «-» (active-backup). . . . ;
- LACP. . . , IEEE 802.3ad.;
- (balance-alb). . . ARP . bonding ARP , , MAC MAC , . MAC . (round-robin) .

, :

- networking. NetworkManager, , , ;

```
sudo nmcli con show
sudo nmcli con del " 1"
sudo nmcli con del " 2"
sudo ip address flush dev eth1
sudo ip address flush dev eth2
```

- [Astra Linux;](#)

- eth1 eth2;
- bond0.

1. ifenslave iperf :

```
sudo apt install ifenslave iperf
```

- ifenslave , iperf , .
2. /etc/network/interfaces :

```
auto eth1 eth2 bond0
iface eth1 inet manual
iface eth2 inet manual
```

auto (networking), manual , DHCP. . /etc/network/interfaces .

active-backup

active-backup , .

10.1.1.2, - 10.1.1.3.

active-backup Astra Linux:

1. /etc/network/interfaces :

```
iface bond0 inet static
address <_IP->
netmask 255.255.255.0
pre-up modprobe bonding mode=active-backup arp_interval=100 arp_ip_target=<IP-__>
post-down rmmod bonding
bond-mode active-backup
bond-primary eth1
bond-miimon 100
bond-downdelay 200
bond-updelay 150
bond-slaves eth1 eth2
```



bond-downdelay bond-miimon.

- <_IP-> IP- 10.1.1.2, - 10.1.1.3, <IP-__> -, 10.1.1.3, - 10.1.1.2;
2. :

```
sudo ifup bond0
```

active-backup:

1. iperf:

```
sudo iperf -s -i 1
```

```
:
-s- ;
-i- ();
```

2. iperf:

```
sudo iperf -c <IP-__> -p 5001 -i 1 -n 100M -t 60
```

```
:
-c - ip- ;
-p - ;
-i- ();
-n - ;
-t- ;
```

3. iperf (60 ,):

- a. eth1 (..) , , - , (eth1) (eth2);
- b. eth1, , , eth1 ().

IEEE 802.3ad (LACP)

IEEE 802.3ad Astra Linux:

1. /etc/network/interfaces :

```
iface bond0 inet static
address 192.168.0.1
netmask 255.255.255.0
bond-mode 802.3ad
bond-miimon 100
bond-downdelay 200
bond-updelay 200
bond-xmit-hash-policy 1
bond-slaves eth1 eth2
```



bond-downdelay bond-miimon.

2. :

```
sudo ifup bond0
```

3. :

```
cat /proc/net/bonding/bond0
```

bond0 - . :

```
Bonding Mode: IEEE 802.3ad Dynamic link aggregation
Transmit Hash Policy: layer2 (0)
MII Status: up
MII Polling Interval (ms): 100
Up Delay (ms): 0
Down Delay (ms): 200
802.3ad info
LACP rate: slow
Active Aggregator Info:
Aggregator ID: 2
Number of ports: 2
Actor Key: 17
Partner Key: 13
Partner Mac Address: 00:14:a8:82:87:80
Slave Interface: eth0
MII Status: up
Link Failure Count: 1
Permanent HW addr: 00:30:48:59:e9:c6
Aggregator ID: 2
Slave Interface: eth1
MII Status: up
Link Failure Count: 0
Permanent HW addr: 00:30:48:59:e9:c7
Aggregator ID: 2
```

, cat /proc/net/bonding/bond0 «Bonding Mode: IEEE 802.3ad Dynamic link aggregation» , , «Slave Interface: eth0», «MII Status: up».

balance-alb

balance-alb , .



balance-alb Astra Linux:

1. /etc/network/interfaces :

```
iface bond0 inet static
address <_IP->
netmask 255.255.255.0
pre-up modprobe bonding mode=balance-alb
post-down rmmod bonding
bond-mode 6
bond-miimon 100
bond-downdelay 150
bond-updelay 150
bond-slaves eth1 eth2
```

2. <_IP-> IP- 10.1.1.2, - 10.1.1.3;
:

```
sudo ifup bond0
```

3. balance-alb:

- a. :

```
ip link show
```

```
...
3: eth1: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc
pfifo_fast master bond0 state UP mode DEFAULT group default qlen
1000
    link/ether 52:54:00:31:72:c7 brd ff:ff:ff:ff:ff:ff
4: eth2: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc
pfifo_fast master bond0 state UP mode DEFAULT group default qlen
1000
    link/ether 52:54:00:61:6b:17 brd ff:ff:ff:ff:ff:ff
5: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc
noqueue state UP mode DEFAULT group default qlen 1000
    link/ether 52:54:00:31:72:c7 brd ff:ff:ff:ff:ff:ff
```

, (UP) eth1 eth2, (eth1) MAC- bond0 (bold);

- b. ;
- c. :

```
ip link show
```

```
...
3: eth1: <NO-CARRIER,BROADCAST,MULTICAST,SLAVE,UP> mtu 1500 qdisc
pfifo_fast master bond0 state DOWN mode DEFAULT group default qlen
1000
    link/ether 52:54:00:61:6b:17 brd ff:ff:ff:ff:ff:ff
4: eth2: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 1500 qdisc
pfifo_fast master bond0 state UP mode DEFAULT group default qlen
1000
    link/ether 52:54:00:31:72:c7 brd ff:ff:ff:ff:ff:ff
5: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc
noqueue state UP mode DEFAULT group default qlen 1000
    link/ether 52:54:00:31:72:c7 brd ff:ff:ff:ff:ff:ff
```

, eth1 , MAC- bond0 eth2.

