

BGP

- [address-family](#)
- [address-family](#)
- [allow-local-as](#)
- [clear bgp](#)
- [cluster-id](#)
- [default-originate](#)
- [description](#)
- [ebgp-multihop](#)
- [flow-spec enable](#)
- [ipv6 router bgp log-neighbor-changes](#)
- [ipv6 router bgp maximum-paths](#)
- [neighbor](#)
- [next-hop-self](#)
- [peer-group](#)
- [peer-group](#)
- [preference](#)
- [remote-as](#)
- [remove-private-as](#)
- [router bgp](#)
- [router bgp log-neighbor-changes](#)
- [router bgp maximum-paths](#)
- [route-reflector-client](#)
- [router-id](#)
- [send-community extended](#)
- [show bgp flow-spec](#)
- [show bgp ipv4 unicast](#)
- [show bgp ipv6 unicast](#)
- [show bgp l2vpn vpls](#)
- [show bgp neighbors](#)
- [show bgp summary](#)
- [show bgp vpnv4 unicast](#)
- [timers error-wait](#)
- [timers holdtime](#)
- [timers keepalive](#)
- [update-source](#)
- [vrf](#)
- [weight](#)

address-family

BGP.

(no) .

:

```
[no] address-family { ipv4 | ipv6 } unicast
```

:

- [ipv4](#) – [ipv4](#);
- [ipv6](#) – [ipv6](#).

:

10

CONFIG-BGP

CONFIG-BGP-VRF

```
esr(config-bgp)# address-family ipv4
```

address-family

(no) .

:

```
[no] address-family { ipv4 | ipv6 | vpnv4 | l2vpn vpls } unicast
```

:

- ipv4 – ipv4;
- ipv6 – ipv6;
- vpnv4 – vpnv4;
- l2vpn vpls – l2vpn.

:

10

:

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# address-family ipv4
```

allow-local-as

, BGP-, AS Path .

(no) .

```
allow-local-as <NUMBER>
```

```
no allow-local-as
```

<NUMBER> – AS Path, , [1..10].

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# allow-local-as
```

clear bgp

BGP-.

```
clear bgp [ <AS> ] [ vrf <NAME_VRF> ] [ neighbor { <ADDR> | <IPV6_ADDR> } ]
```

<AS> – , [1..4294967295];
<ADDR> – IP- , AAA.BBB.CCC.DDD, [0..255];
<IPv6_ADDR> – IPv6-, X:X:X:X::X, X [0..FFFF];
<NAME-VRF> – VRF, 31, BGP.

10

ROOT

```
esr# clear bgp  
esr# clear bgp 1000
```

cluster-id

Route-Reflector , BGP- .

(no) .

cluster-id <ID>
no cluster-id

<ID> – Route-Reflector , AAA.BBB.CCC.DDD, [0..255].

10

CONFIG-BGP

CONFIG-BGP-VRF

```
esr(config-bgp-af)# cluster-id 1.1.1.1
```

default-originate

, BGP- .

(no) .

[no] default-originate

.

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-neighbor)# default-originate
```

description

.

(no) .

description <DESCRIPTION>

no description

<DESCRIPTION> – , 255 .

10

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# description "ISP_RTK"
```

ebgp-multihop

, .

(no) .

[no] ebgp-multihop <NUM>

<NUM> – EBGp (TTL).

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-NEIGHBOR

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# ebgp-multihop
```

flow-spec enable

```
flow-spec BGP- BGP-.
```

```
(no) .
```

```
[no] flow-spec enable
```

.

.

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-group)# flow-spec enable
```

ipv6 router bgp log-neighbor-changes

```
IPv6-BGP-.
```

```
(no) IPv6-BGP-.
```

```
[no] ipv6 router bgp log-neighbor-changes
```

.

.

10

CONFIG

```
esr(config)# ipv6 router bgp log-neighbor-changes
```

ipv6 router bgp maximum-paths

ECMP IPv6- .

(no) ECMP.

```
ipv6 router bgp maximum-paths <VALUE>
```

```
no ipv6 router bgp maximum-paths
```

<VALUE> – IPv6- , [1..16].

10

CONFIG

```
esr(config)# ipv6 router bgp maximum-paths 14
```

neighbor

BGP- BGP-. (no) .

```
[no] neighbor {<ADDR> |<IPV6-ADDR>}
```

<ADDR> – IP- , AAA.BBB.CCC.DDD, [0..255].

<IPV6-ADDR> – IPv6- , X:X:X:X::X, [0..FFFF].

10

CONFIG-BGP

CONFIG-VRF-BGP

```
esr(config-bgp)# neighbor 192.168.0.2
esr(config-bgp-neighbor)#
```

next-hop-self

, BGP- next-hop IP- .

(no) .

[no] next-hop-self

.

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-neighbor-af)# next-hop-self
```

peer-group

BGP- .

(no) BGP- .

[no] peer-group <NAME>

<NAME> - , 31 .

10

CONFIG-BGP

CONFIG-BGP-VRF

```
esr(config-bgp)# peer-group list1
```

peer-group

BGP- BGP- BGP-.

(no) BGP-.

peer-group <NAME>
no peer-group

<NAME> - , 31 .

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-af)# peer-group list1
```

preference

, .

(no) .

preference <VALUE>

no preference

<VALUE> – , [1..255].

170

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-neighbor)# preference 30
```

remote-as

BGP-.

(no) .

remote-as <AS>

no remote-as

<AS> – , [1..4294967295].

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# remote-as 20
```

remove-private-as

, BGP-AS Path (RFC 6996).

(no) .

[no] remove-private-as <ACTION>

<ACTION> – , AS . :

- all – AS AS path;
- nearest – AS () AS AS path;
- replace – AS AS .

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-neighbor-af)# remove-private-as
```

router bgp

BGP- BGP-.

(no) BGP- .

[no] router bgp <AS>

<AS> – , [1..4294967295].

CONFIG

```
esr(config)# router bgp 1000
esr(config-bgp)#
```

BGP- 1000.

router bgp log-neighbor-changes

BGP-.

(no) BGP-.

[no] router bgp log-neighbor-changes

.

10

CONFIG

```
esr(config)# router bgp log-neighbor-changes
```

router bgp maximum-paths

ECMP .

(no) ECMP.

router bgp maximum-paths <VALUE>

no router bgp maximum-paths

<VALUE> – , [1..16].

.

10

CONFIG

```
esr(config)# router bgp maximum-paths 14
```

route-reflector-client

, BGP- Route-Reflector .

(no) .

```
[no] route-reflector-client
```

.

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# route-reflector-client
```

router-id

.

(no) .

```
router-id <ID>
```

```
no router-id
```

<ID> – , AAA.BBB.CCC.DDD, [0..255].

10

CONFIG-BGP

CONFIG-BGP-VRF

```
esr(config-bgp-af)# router-id 1.1.1.1
```

send-community extended

extended community . . extended community . VPNv4/L2VPN extended community .
(no) .

[no] send-community extended

10

.

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR-FAMILY

CONFIG-BGP-VRF-NEIGHBOR-FAMILY

```
esr(config-bgp-neighbor-af)# send-community extended
```

show bgp flow-spec

flow-spec.

show bgp [vrf <VRF-NAME>] flow-spec [neighbor <ADDR>] [instance <AS-NUM>]

<AS-NUM> – , [1..4294967295].

<ADDR> – IP-, AAA.BBB.CCC.DDD, [0..255].

<VRF-NAME> – VRF, 31, .

1

ROOT

1

```
esr# show bgp flow-spec
-----
Destination Prefix: 192.168.54.2/32
IP Protocol:      17
Ext-community type: traffic-rate (0x8006)
```

show bgp ipv4 unicast

BGP .

```
show bgp [ vrf <VRF-NAME> ] ipv4 unicast [ { <IP-ADDR> | <IP-ADDR/LEN> } ] [ instance <AS-NUM> ] [ neighbor <IP-ADDR> [ { advertise-routes | routes } ] ]
```

<AS-NUM> – , [1..4294967295].

<IP-ADDR> – IP-, AAA.BBB.CCC.DDD, [0..255].

<IP-ADDR/LEN> – IP-, AAA.BBB.CCC.DDD/EE, AAA – DDD [0..255] EE [1..32].

<VRF-NAME> – VRF, 31, .

routes – , .

advertise-routes – , .

BGP .

1

ROOT

1

```
esr# show bgp ipv4 unicast
Status codes: u - unicast, b - broadcast, m - multicast a - anycast
               * - valid, > - best
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network      Next Hop      Metric  LocPrf  Path
*> u 10.0.10.0/24 10.115.0.1      100      i
*> u 0.0.0.0/0    10.115.0.1      100      i
*  u 14.0.10.0/24 10.115.0.1      100      i
```

2

```
esr# show bgp ipv4 unicast 75.0.0.0
75.0.0.0/24 via 115.0.0.40 on gil/0/14 [bgp20 2000-01-15] (AS90?)
  Administrative Distance: 68
  Type: unicast
  Origin: Incomplete
  AS PATH: 1 30 70 90
  Next Hop: 115.0.0.40
  MED: 0
  Local Preference: 100
  Community: (1:555)
  Valid, Best
```

show bgp ipv6 unicast

BGP .

```
show bgp [ vrf <VRF-NAME> ] ipv6 unicast [ { <IPV6-ADDR> | <IPV6-ADDR/LEN> } ] [ instance <AS-NUM> ] [ neighbor <IPV6-ADDR> [ { advertise-routes | routes } ] ]
```

<AS-NUM> – , [1..4294967295].

<IPV6-ADDR> – IPv6-, X:X:X:X::X, [0..FFFF].

<IPv6-ADDR/LEN>- , X:X:X:X::X/EE, [0..FFFF],EE [1..128].

<VRF-NAME>- VRF, 31, .

routes - , .

advertise-routes - , .

1

ROOT

1

```
esr# show bgp ipv6 unicast
Status codes: u - unicast, b - broadcast, m - multicast, a - anycast
              * - valid, > - best
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network                Next Hop           Metric  LocPrf   Weight Path
*> u 2600:380:180::/41    fc00:0:1409:2800::1  --      100      0      65054 12389 3356 ... i
*> u 2804:2404:8000::/34  fc00:0:1409:2800::1  --      100      0      65054 12389 266925 ... i
*> u 2400:3800:8800::/37  fc00:0:1409:2800::1  --      100      0      65054 12389 2497 ... i
*> u 2400:54c0:c0::/44    fc00:0:1409:2800::1  --      100      0      65054 12389 3356 ... i
```

2

```
esr# show bgp ipv6 unicast 2600:380:180::/41
2600:380:180::/41 via fc00:0:1409:2800::1 on gil/0/1.2800 [bgp65514 14:08:30] (20057i)
  Administrative Distance: 170
  Type:                    unicast
  Origin:                  IGP
  AS PATH:                 65054 12389 3356 7018 20057
  Next Hop:                fc00:0:1409:2800::1 (fe80::aaf9:4bff:feaa:2dd5)
  Local Preference:       100
  Community:               (3356:3) (3356:22) (3356:86) (3356:575) (3356:666) (3356:903) (3356:2059)
                          (12389:6)
  Weight:                  0
  Valid, Best
```

show bgp l2vpn vpls

l2vpn-.

show bgp l2vpn vpls { all | rd <ASN:nn> } [neighbor <ADDR> { advertise-routes | routes } [ve-id <ID> block-offset <ID>]

- all - all l2vpn-;
- rd - rd RD;
- routes - , ;
- advertise-routes - , ;
- <RD> - Route distinguisher, :
 - <ASN>:<nn> - <ASN> - [1..65535], nn - [1..65535];
 - <ADDR>:<nn> - <ADDR> - AAA.BBB.CCC.DDD/EE AAA-DDD [0..255], nn - [1..65535];
 - <4BASN>:<nn> - <4ASN> - [1..4294967295], nn - [1..65535].
- <IP> - IP-, AAA.BBB.CCC.DDD, [0..255];
- <ID> - [1..65535], vpls edge block-offset.

1

ROOT

ESR-R# show bgp l2vpn vpls all										
Status codes: * - valid, > - best, i - internal, S - stale										
Origin codes: i - IGP, e - EGP, ? - incomplete										
Codes	Route	Distinguisher	VID	VBO	VBS	Next hop	Metric	LocPrf	Weight	Path

*>i	65502:100		3	1	8	192.168.9.9	--	100	0	i
*>	65502:102		2	1	10	--	--	--	--	
*>	65502:100		2	1	10	--	--	--	--	
*>i	65502:102		1	1	10	192.168.7.7	--	100	0	i
*>i	65502:100		1	1	10	192.168.7.7	--	100	0	i

show bgp neighbors

BGP .

show bgp [vrf <VRF-NAME>] neighbors [instance <AS-NUM>] { <ADDR> | <IPv6-ADDR> }

<AS-NUM> - , [1..4294967295].

<VRF-NAME> - VRF, 31, .

<ADDR> - IP IPv6 , AAA.BBB.CCC.DDD, [0..255], X:X:X:X::X, [0..FFFF].

<IPv6-ADDR/LEN> - , X:X:X:X::X/EE, [0..FFFF],EE [1..128].

ROOT

```

esr# show bgp instance 20
BGP neighbor is 10.115.0.1
  BGP state:      Established
  Neighbor address: 10.115.0.1
  Neighbor AS:    20
  Neighbor ID:    115.0.0.1
  Neighbor caps:  refresh restart-aware AS4
  Session:       internal multihop AS4
  Source address: 10.115.0.2
  Hold timer:    137/180
  Keepalive timer: 10/60
Incoming prefix-list: from_ISP
Outgoing prefix-list: to_ISP
Incoming route-map:  comingS
Outgoing route-map:  AS_prepend
Uptime:             12 s
BFD address:        192.168.1.2
BFD state:          Up
BFD interval:       3.000 s
BFD timeout:        15.000 s

```

2

```

esr# show bgp neighbors 100.64.28.1
BGP neighbor is 100.64.28.1
  BGP state:      Established
  Neighbor address: 100.64.28.1
  Neighbor AS:    65054
  Neighbor ID:    5.5.0.111
  Neighbor caps:  refresh enhanced-refresh restart-aware AS4
  Session:       external AS4
  Source address: 100.64.28.160
  Weight:        0
  Hold timer:    165/180
  Keepalive timer: 38/60
  RR client:     No
Address family ipv4 unicast:
  Default originate: No
  Default information originate: No
  Outgoing route-map: RouteMap_out
  Preference:       170
  Remove private AS: No
  Next-hop self:    No
  Uptime:           12952 s

```

3


```

esr# show bgp neighbors fc00:0:1409:2800::1
BGP neighbor is fc00:0:1409:2800::1
  BGP state: Established
  Neighbor address: fc00:0:1409:2800::1
  Neighbor AS: 65054
  Neighbor ID: 5.5.0.111
  Neighbor caps: refresh enhanced-refresh restart-aware AS4
  Session: external AS4
  Source address: fc00:0:1409:2800::16
  Weight: 0
  Hold timer: 174/180
  Keepalive timer: 50/60
  RR client: No
  Address family ipv6 unicast:
    Default originate: No
    Default information originate: No
    Incoming route-map: RouteMap_in
    Outgoing route-map: RouteMap_out
    Preference: 170
    Remove private AS: No
    Next-hop self: No
  Uptime: 13003 s

```

show bgp summary

BGP.

```
show bgp [vrf <VRF-NAME>] summary [instance <AS-NUM>]
```

<AS-NUM> - , [1..4294967295].

<VRF-NAME> - VRF, 31, .

1

ROOT

```

esr# show bgp summary
Tue Sep 14 15:36:26 2021
  BGP router identifier 100.64.28.160, local AS number 65514
  BGP activity 984813/0 prefixes
  Neighbor          AS              MsgRcvd    MsgSent    Up/Down    St/PfxRcd
  -----
  10.20.0.2         65058          0          0         01:28:02    Idle
  100.64.28.1       65054        861119     102         01:27:56    855897

```

show bgp vpnv4 unicast

vpn4. .

```
show bgp vpnv4 unicast { all | rd <RD> | vrf <NAME_VRF> } [ neighbor <IP> { routes | advertise-routes } ] [
<PREFIX> ]
```

```
all - all vpv4 ;
rd - rd RD;
vrf - vrf vpv4 VRF;
routes - , ;
advertise-routes - , ;
<RD> - Route distinguisher, :

    • <ASN>:<nn> - <ASN> - [1..65535], nn - [1..65535];
    • <ADDR>:<nn> - <ADDR> - AAA.BBB.CCC.DDD/EE AAA-DDD [0..255], nn - [1..65535];
    • <4BASN>:<nn> - <4ASN> - [1..4294967295], nn - [1..65535];
    • <NAME_VRF> - VRF, 31;

<IP> - IP-, AAA.BBB.CCC.DDD, [0..255];
<PREFIX> -, - AAA.BBB.CCC.DDD/EE, AAA-DDD [0..255] EE [1..32].
```

1

ROOT

1

esr# show bgp vpv4 unicast all
Status codes: * - valid, > - best, i - internal, S - stale
Origin codes: i - IGP, e - EGP, ? - incomplete

Codes	Route Distinguisher	IP Prefix	Next hop	Metric	Label	LocPrf	Weight	Path
*>i	65000:10001	10.100.106.1/32	6.6.6.6	--	16	100	0	?
*>	65000:10002	10.20.0.0/24	--			--	17	
--	--	?						
*>	65000:10002	10.20.1.0/24	--			--		
17	--	--	?					
*>i	65000:10001	10.100.0.4/30		2.2.2.2			--	
16	100	0	i					
*>	65000:10002	172.18.0.0/30		--				
--	17	--	?					
*>i	65000:10002	10.30.0.0/24		5.5.5.5			--	
17	100	55	i					
*>i	65000:10001	10.100.104.0/24	2.2.2.2			--	16	
100	0	i						
*>	65000:10001	10.100.105.0/24	--				--	
16	--	--	?					
*>i	65000:10001	10.100.106.0/24	6.6.6.6		--	16		
100	0	?						
*>	65000:10001	203.203.203.203/32	--			--	16	
--	--	?						
*>	65000:10001	202.202.202.202/32	--			--	16	
--	--	?						
*>i	65000:10001	10.100.100.0/24	2.2.2.2		--	16	100	
0	i							
*>	65000:10001	10.100.0.0/30	--			--	16	
--	--	?						
*>	65000:10001	10.100.102.0/24	--			--	16	
--	--	?						

2

```
esr# show bgp vpnv4 unicast all 10.100.106.0/24
BGP routing table entry for 65000:10001 10.100.106.0/24
Next hop: 6.6.6.6
Label: 16
AS path: --
Origin: Incomplete
Local preference: 100
Extended Community: RT:65000:10001
Weight: 0
```

timers error-wait

```
, , .
(no) .
```

```
timers error-wait <TIME1> <TIME2>
no timers error-wait
```

```
<TIME1> - , [1..65535];
<TIME2> - , [1..65535].
```

60 300

10

```
CONFIG-BGP
CONFIG-VRF-BGP
CONFIG-BGP-GROUP
CONFIG-BGP-VRF-GROUP
CONFIG-BGP-NEIGHBOR
CONFIG-BGP-VRF-NEIGHBOR
```

```
esr(config-bgp-af)# timers error-wait 90 450
```

timers holdtime

```
, . 0. keepalive . 3 *keepalive.
(no) .
```

```
timers holdtime <TIME>
no timers holdtime
```

```
<TIME> - , [1..65535].
```

180

10

CONFIG-BGP

CONFIG-VRF-BGP

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-af)# timers holdtime 360
```

timers keepalive

, .

(no) .

timers keepalive <TIME>

no timers keepalive

<TIME> – , [1..65535].

60

10

CONFIG-BGP

CONFIG-VRF-BGP

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-af)# timers keepalive 120
```

update-source

IP/IPv6- , IP/IPv6- BGP.

(no) IP/IPv6- .

```
update-source { <ADDR> | <IPv6-ADDR> }  
no source-address
```

<ADDR> – IP-, AAA.BBB.CCC.DDD, [0..255].
<IPv6-ADDR> – IPv6-, X:X:X::X, [0..FFFF].

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# update-source 10.100.100.2
```

vrf

BGP VRF BGP VRF.

(no) BGP VRF .

[no] ip vrf <VRF>

<VRF> – VRF, 31 .

10

CONFIG-BGP

```
esr(config-bgp)# vrf xx  
esr(config-bgp-vrf)#
```

weight

, BGP- BGP-.

(no) .

weight <WEIGHT>

no weight

<WEIGHT> – , [0..65535].

0

10

CONFIG-BGP-GROUP

CONFIG-BGP-VRF-GROUP

CONFIG-BGP-NEIGHBOR

CONFIG-BGP-VRF-NEIGHBOR

```
esr(config-bgp-neighbor)# weight 200
```