

- auth-nocache
- authentication algorithm
- authentication method
- authentication required disable
- certificate
- clear ip nhrp
- clear tunnels counters
- clear tunnels softgre
- compression
- default-profile
- description
- dscp
- enable
- encryption algorithm
- history statistics
- ignore-default-route
- interface
- ip nhrp authentication
- ip nhrp enable
- ip nhrp holding-time
- ip nhrp ipsec
- ip nhrp map
- ip nhrp multicast
- ip nhrp nhs
- ip nhrp redirect
- ip nhrp shortcut
- ip tcp adjust-mss
- ipsec authentication method
- ipsec authentication pre-shared-key
- keepalive dhcp dependent-interface
- keepalive dhcp link-timeout
- keepalive dst-address
- keepalive enable
- keepalive retries
- keepalive timeout
- keepalive timeout ipsec
- key
- load-average
- local address
- local address xauth
- local checksum
- local cookie
- local interface
- local port
- local session-id
- mode
- mode
- mtu
- multipoint
- password
- peer It
- ppp failure-count
- ppp timeout keepalive
- protocol
- protocol
- remote address
- remote address
- remote address xauth
- remote checksum
- remote cookie
- remote port
- remote session-id
- route-metric
- route-nopull
- snmp init-trap
- show ip nhrp
- show tunnels configuration
- show tunnels counters
- show tunnels history
- show tunnels status
- show tunnels utilization
- ttl
- tunnel
- tunnel
- tunnel-source

- username
- username

auth-nocache

OPENVPN-.

(no) OPENVPN-.

[no] auth-nocache

15

CONFIG-OPENVPN

```
esr(config)# auth-nocache
```

authentication algorithm

, OPENVPN-.

(no) .

authentication algorithm <ALGORITHM>
no authentication algorithm

<ALGORITHM> – , : md4, rsa-md4, md5, rsa-md5, mdc2, rsa-mdc2, sha, sha1, rsa-sha, rsa-sha1, rsa-sha1-2, dsa, dsa-sha, dsa-sha1, dsa-sha1-old, ripemd160, rsa-ripemd160, ecdsa-with-sha1, sha-224, rsa-sha-224, sha-256, rsa-sha-256, sha-384, rsa-sha-384, sha-512, rsa-sha-512, whirlpool.

15

CONFIG-OPENVPN

```
esr(config-openvpn)# authentication algorithm md5
```

authentication method

, PPPoE, PPTP L2TP.

(no) .

authentication method <METHOD>

no authentication method <METHOD>

<METHOD>- , :chap, mschap, mschap-v2, eap, pap.

chap

10

CONFIG-PPPOE

CONFIG-PPTP

CONFIG-L2TP

```
esr(config-pppoe)# authentication method mschap-v2
```

authentication required disable

PPP PPTP L2TP.

(no) PPP PPTP L2TP.

[no] authentication required disable

15

CONFIG-PPPOE

CONFIG-PPTP

CONFIG-L2TP

```
esr(config-pppoe)# authentication required disable
```

certificate

OPENVPN-.

(no) .

```
certificate <CERTIFICATE-TYPE> <NAME>
no certificate <CERTIFICATE-TYPE>
```

<CERTIFICATE-TYPE> - , :

- ca - ;
- client-crt - ;
- client-key - ;
- crl - ;
- dh - -;
- ta - HMAC-.

<NAME> - , 31 .

.

15

CONFIG-OPENVPN

```
esr(config-openvpn)# certificate ca KEY
```

clear ip nhrp

NHRP- .

```
clear ip nhrp [ { dynamic | static | incomplete | nhs} ] [ { nbma-address <ADDR> | tunnel gre <ID> | tunnel-
address <ADDR> } ] [ vrf <VRF> ]
```

<ID> - ;

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

<VRF> - VRF, 31 . NHRP-, VRF;

dynamic - ;

incomplete - ;

nbma-address - , NBMA-;

nhs - , NHS;

static - , ;

tunnel - , ;

tunnel-address - , ;

vrf - , c VRF.

10

ROOT

```
esr# clear ip nhrp vrf vrf_test tunnel gre 9 static
```

clear tunnels counters

```
clear tunnels counters [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-ADDR> ] } ]
```

<TUN> – , , .

«,» «-». , .

<ID> – / .

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

10

ROOT

```
esr# clear tunnels counters dypseudowire 2 192.0.2.10
```

clear tunnels softgre

softgre ./.

```
clear tunnels softgre [ remote-address <REMOTE-IP> ]
```

<REMOTE-IP> – IP-, softgre-.

15

ROOT

```
esr# clear tunnels softgre esr#clear tunnels softgre remote-address10.10.42.10
```

compression

OPENVPN.

(no) .

[no] compression

10

CONFIG-OPENVPN

```
esr(config-openvpn)# compression
```

default-profile

SoftGRE- mode local address.

(no) .

[no] default-profile

10

CONFIG-SOFTGRE

```
esr(config-softgre)# default-profile
```

description

(no) .

description <DESCRIPTION>

no description

<DESCRIPTION> – , 255 .

10

CONFIG-IP4IP4

CONFIG-SUBTUNNEL

CONFIG-GRE

CONFIG-L2TP

CONFIG-L2TPV3

CONFIG-VTI

CONFIG-LT

CONFIG-PPTP

CONFIG-PPPOE

CONFIG-OPENVPN

```
esr(config-gre)# description "tunnel to branch"
```

dscp

DSVP IP- .

(no) DSVP .

dscp <DSVP>

no dscp

<DSVP> – DSVP, [0..63].

10

CONFIG-IP4IP4

CONFIG-GRE

```
esr(config-ip4ip4)# dscp 40
```

enable

(no) .

[no] enable

10

CONFIG-IP4IP4

CONFIG-GRE

CONFIG-SUBTUNNEL

CONFIG-L2TP

CONFIG-L2TPV3

CONFIG-VTI

CONFIG-LT

CONFIG-PPTP

CONFIG-PPPOE

CONFIG-OPENVPN

```
esr(config-gre)# enable
```

encryption algorithm

(no) .

encryption algorithm <ALGORITHM>

no encryption algorithm

<ALGORITHM> - , : des, blowfish128, aes128, des-edc, aes192, 3des, desx, aes256.

15

CONFIG-OPENVPN

```
esr(config-openvpn)# encryption algorithm aes128
```

history statistics

(no) .

```
[no] history statistics
```

10

CONFIG-GRE

CONFIG-SOFTGRE

CONFIG-SUBTUNNEL

CONFIG-IP4|P4

CONFIG-L2TPV3

CONFIG-LT

CONFIG-VTI

CONFIG-PPTP

CONFIG-PPPOE

CONFIG-OPENVPN

CONFIG-L2TP

```
esr(config-ip4ip4)# history statistics
```

ignore-default-route

(no) .

```
[no] ignore-default-route
```

10

CONFIG-L2TP

CONFIG-PPTP

CONFIG-PPPOE

```
esr(config-pptp)# ignore-default-route
```

interface

PPPoE-.

(no) .

interface <IF>

no interface

<IF>- , , .

10

CONFIG-PPPOE

```
esr(config-pppoe)# interface gigabitethernet 1/0/5.100
```

ip nhrp authentication

NHRP. NHRP- .

(no) .

ip nhrp authentication { <WORD> | encrypted <ENCRYPTED-TEXT> }

[no] ip nhrp authentication

<WORD>- , [1..8], [0-9a-fA-F].

<ENCRYPTED-TEXT>- , [1..8], [2..16].

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp authentication pass
```

ip nhrp enable

NHRP .

(no) NHRP .

[no] ip nhrp enable

.

10 CONFIG-GRE

```
esr(config-gre)# ip nhrp enable
```

ip nhrp holding-time

, NHRP- . NHRP-, 1/3 NHRP holding time.

(no) .

ip nhrp holding-time <TIME>

[no] ip nhrp holding-time

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

7200

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp holding-time
```

ip nhrp ipsec

IPsec-VPN mGRE .

(no) IPsec-VPN mGRE .

```
ip nhrp ipsec <WORD> { static | dynamic }
no ip nhrp ipsec <WORD> { static | dynamic }
```

<WORD> – VPN, 31 ;
static – , NHRP-, , ;
dynamic – , NHRP-.

15

CONFIG-GRE

```
esr(config-gre)# ip nhrp ipsec VPN static
```

ip nhrp map

«» «» NBMA-.

(no) .

[no] ip nhrp map <ADDR-IN> <ADDR-OUT>

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

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

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp map 192.168.1.2 67.86.141.231
```

ip nhrp multicast

(no) .

[no] ip nhrp multicast { dynamic | nhs | <ADDR> }

```
dynamic — , ;
nhs — NHRP-;
<ADDR> — IP-, AAA.BBB.CCC.DDD, [0..255].
```

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp multicast nhs
```

ip nhrp nhs

```
« ()» NHRP .
(no) .

ip nhrp nhs <ADDR/LEN> [ no-registration ]
no ip nhrp nhs <ADDR/LEN>
```

```
<ADDR/LEN> — , AAA.BBB.CCC.DDD/EE, AAA – DDD [0..255] EE [1..32];
no-registration — NHRP .
```

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp nhs 192.168.1.2
```

ip nhrp redirect

```
, NHRP- NHRP Traffic Indication.
(no) .
```

```
[no] ip nhrp redirect
```

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp redirect
```

ip nhrp shortcut

(no) .

[no] ip nhrp shortcut

10

CONFIG-GRE

```
esr(config-gre)# ip nhrp shortcut
```

ip tcp adjust-mss

MSS (Maximum segment size) TCP-.

(no) MSS.

ip tcp adjust-mss <MSS>

no ip tcp adjust-mss

<MSS> – MSS, [500..1460].

1460

10

CONFIG-IP4IP4

CONFIG-GRE

CONFIG-L2TP

CONFIG-PPPOE

CONFIG-PPTP

CONFIG-VTI

CONFIG-LT

```
esr(config-gre)# ip tcp adjust-mss 1400
```

ipsec authentication method

IKE- IKE- «ipsec authentication pre-shared-key» (. [ipsec authentication pre-shared-key](#)).

(no) .

```
ipsec authentication method pre-shared-key  
no ipsec authentication method
```

pre-shared-key – , .

10

CONFIG-L2TP

```
esr(config-l2tp-server)# ipsec authentication method psk
```

ipsec authentication pre-shared-key

, , .

(no) .

```
ipsec authentication pre-shared-key { ascii-text { <TEXT> | encrypted <ENCRYPTED-TEXT> } | hexadecimal {<HEX> |  
encrypted <ENCRYPTED-HEX> } }
```

no ipsec authentication pre-shared-key

<TEXT> – [1..64] ASCII .

<HEX> – [1..32] [2..128] (0xYYYY...) (YYYY...).

<ENCRYPTED-TEXT> – [1..32], [2..128] ;

<ENCRYPTED-HEX> – [2..64], [2..256] .

none

10

CONFIG-L2TP

```
esr(config-l2tp-server)# ipsec authentication pre-shared-key ascii-text password
```

keepalive dhcp dependent-interface

IP- DHCP GRE- keepalive. 8- GRE-.
(no) IP- DHCP.

keepalive dhcp dependent-interface <IF>

no keepalive dst-address

<IF>- , .

10

CONFIG-GRE

```
esr(config-gre)# keepalive dhcp dependent-interface gi 1/0/1
```

keepalive dhcp link-timeout

GRE- IP- / keepalive dhcp dependent-interface (. [keepalive dhcp dependent-interface](#))
(no) .

keepalive dhcp link-timeout <SEC>

no keepalive dhcp link-timeout

<SEC>- GRE- IP- / keepalive dhcp dependent-interface, [1..32767].

10

10

CONFIG-GRE

```
esr(config-gre)# keepalive dhcp link-timeout 90
```

keepalive dst-address

```
IP- keepalive . IP- , DOWN. keepalive (. keepalive enable).  
(no) .
```

```
keepalive dst-address <ADDR>  
no keepalive dst-address
```

```
<ADDR> – IP- GRE-.
```

10

CONFIG-GRE

```
esr(config-gre)# keepalive dst-address 192.168.1.57
```

keepalive enable

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

```
[no] keepalive enable
```

10

CONFIG-GRE

```
esr(config-gre)# keepalive enable
```

keepalive retries

```
keepalive retries .  
(no) .
```

```
keepalive retries <VALUE>  
no keepalive retries
```

<VALUE> – , [1..255].

6

10

CONFIG-GRE

```
esr(config-gre)# keepalive retries 8
```

keepalive timeout

```
keepalive .  
(no) .
```

```
keepalive timeout <TIME>  
no keepalive timeout
```

<TIME> – , [1..32767].

10

10

CONFIG-GRE

```
esr(config-gre)# keepalive timeout 18
```

keepalive timeout ipsec

```
, IPsec VPN, . OTT.  
(no) 180.
```

```
keepalive timeout ipsec <TIME>
no keepalive timeout ipsec
```

<TIME> – , [30-32767].

180

10

CONFIG-GRE

```
esr(config-gre)# keepalive timeout ipsec 1000
```

key

```
(Key) GRE ( RFC 2890) . GRE-.
(no) .
```

```
key <KEY>
no key
```

<KEY> – KEY, [1..2000000].

10

CONFIG-GRE

```
esr(config-gre)# key 40
```

load-average

```
, .
load-average <TIME>
```

```
no load-average
```

```
<TIME> - , [5..150].
```

5

10

CONFIG-GRE

CONFIG-IP4IP4

CONFIG-LT

CONFIG-SUBTUNNEL

CONFIG-L2TPv3

CONFIG-VTI

CONFIG-PPTP

CONFIG-PPPOE

CONFIG-OPENVPN

CONFIG-L2TP

```
esr(config-gre)# load-average
```

local address

IP- .

(no) IP- .

```
local address <ADDR>
```

```
no local address
```

```
<ADDR> - IP- .
```

10

CONFIG-IP4IP4

CONFIG-GRE

CONFIG-L2TPV3

CONFIG-VTI

```
esr(config-ip4ip4)# local address 192.168.1.1
```

local address xauth

, mode config, IPsec VPN XAUTH-.
(no) .

local address xauth <NAME>
no local address

<NAME> – IPsec VPN, 31 .

10

CONFIG-GRE

```
esr(config-)# local address xauth IPsecVPN
```

local checksum

GRE-.
(no) .

[no] local checksum

10

CONFIG-GRE

```
esr(config-gre)# local checksum
```

local cookie

cookie
(no) cookie.

```
local cookie <COOKIE>
no local cookie
```

<COOKIE> – COOKIE, [8 16].

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# local cookie 8FB51B8FB
```

local interface

IP-, GRE-.
(no) IP-, .

```
local interface { <IF> | <TUN> }
```

```
no local interface
```

<IF> – , , ;
<TUN> – , , .

10

CONFIG-GRE

```
esr(config-gre)# local interface gigabitethernet 1/0/1
```

local port

UDP-, UDP .
(no) UDP-.

```
local port <UDP>
no local port
```

<UDP> – UDP- [1..65535].

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# local port 1501
```

local session-id

.

(no) .

```
local session-id <SESSION-ID>
no local session-id
```

```
<SESSION-ID> - , [1..200000].
```

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# local session-id 200
```

mode

SoftGRE-.

(no) .

```
mode <MODE>
no mode
```

```
<MODE> - , :
```

- data - ;
- management - .

10

CONFIG-SOFTGRE

```
esr(config-softgre)# mode data
```

mode

GRE-.

(no) .

mode <MODE>

<MODE> – GRE-:

- ip – IP- GRE;
- ethernet – Ethernet- GRE.

ip

10

CONFIG-GRE

```
esr(config-gre)# mode ethernet
```

mtu

MTU (Maximum Transmition Unit) .

(no) MTU .

mtu <MTU>

no mtu

<MTU> – MTU, [552..10000].

- PPPoE-, [552..1500]

1500

10

CONFIG-IP4|IP4

CONFIG-GRE

CONFIG-SUBTUNNEL

CONFIG-L2TP

CONFIG-L2TPV3

CONFIG-VTI

CONFIG-LT

CONFIG-PPTP

CONFIG-PPPOE

CONFIG-OPENVPN

```
esr(config-l2tpv3)# mtu 1400
```

multipoint

multipoint.

(no) , point-to-point .

[no] multipoint

10

CONFIG-GRE

```
esr(config-gre)# multipoint
```

password

OPENVPN-.

(no) .

password { <CLEAR-TEXT> | encrypted <ENCRYPTED-TEXT> }

no password

<CLEAR-TEXT> – , [8..32], [0-9a-fA-F];

<ENCRYPTED-TEXT> – , [8..32].



15

CONFIG-OPENVPN

```
esr(config-openvpn)# password 01234567
```

peer lt

(VRF) .

(no) .

[no] peer lt <ID>

<ID> - .

10

CONFIG-LT

```
esr(config-lt)# peer lt 2
```

ppp failure-count

data-link .

(no) .

ppp failure-count <NUM>

no ppp failure-count

<NUM> - data-link , [1..100].

10

10

CONFIG-L2TP

CONFIG-PPPOE

CONFIG-PPTP

```
esr(config-l2tp)# ppp failure-count 20
```

ppp timeout keepalive

, keepalive-.

(no) .

```
ppp timeout keepalive <TIME>
no ppp timeout keepalive
```

<TIME> – , [1..32767].

10

10

CONFIG-L2TP

CONFIG-PPPOE

CONFIG-PPTP

```
esr(config-l2tp)# ppp timeout keepalive 5000
```

protocol

L2TPv3.

```
protocol <TYPE>
```

```
no protocol
```

<TYPE> – , :

- IP- IP-;
- UDP- UDP-.

15

CONFIG-L2TPV3

```
esr(config-l2tpv3)# protocol ip
```

protocol

OPENVPN.

```
protocol <TYPE>
```

```
no protocol
```

```
<TYPE> - , :
```

- TCP – TCP-;
- UDP – UDP-.

TCP

15

CONFIG-OPENVPN

```
esr(config-openvpn)# protocol tcp
```

remote address

IP- .

(no) IP- .

```
remote address <ADDR>
```

```
no remote address
```

```
<ADDR> – IP- .
```

10

CONFIG-IP4IP4

CONFIG-GRE

CONFIG-SOFTGRE

CONFIG-L2TP

CONFIG-L2TPV3

CONFIG-VTI

CONFIG-PPTP

```
esr(config-ip4ip4)# remote address 192.168.1.2
```

remote address

IP- TCP/UDP- .

(no) IP- .

[no] remote address <ADDR> [port <PORT>]

<ADDR> – IP- ;

<PORT> – TCP/UDP [1..65535].

<PORT> – 1194.

10

CONFIG-OPENVPN

```
esr(config-openvpn)# remote address 192.168.1.2 port 1233
```

remote address xauth

management-ip data-ip, mode config, IPsec VPN XAUTH-. IPsec-VPN-.

(no) .

remote address xauth <NAME> {management-ip|data-ip}

no remote address

<NAME> – IPsec VPN, 31;

management-ip – , mode config IPsec VPN XAUTH-. IPsec-VPN- ELTEX_MANAGEMENT_IP (28683).

data-ip – , mode config IPsec VPN XAUTH-. IPsec-VPN- ELTEX_DATA_IP (28684)

10

CONFIG-GRE

```
esr(config-gre)# remote address xauth IPsecVPN
```

remote checksum

GRE-.

(no) .

```
[no] remote checksum
```

10

CONFIG-GRE

```
esr(config-gre)# remote checksum
```

remote cookie

cookie

(no) cookie.

```
remote cookie <COOKIE>
```

```
no remote cookie
```

```
<COOKIE> - COOKIE,      [8 16].
```

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# remote cookie 8FB51B8FB
```

remote port

UDP-, UDP.

(no) UDP-.

remote port <UDP>

no remote port

<UDP>- UDP [1..65535].

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# remote port 65000
```

remote session-id

(no) .

remote session-id <SESSION-ID>

no remote session-id

<SESSION-ID>- , [1..200000].

10

CONFIG-L2TPV3

```
esr(config-l2tpv3)# remote session-id 2
```

route-metric

OPENVPN-.

(no) .

route-metric <METRIC>

```
no route-metric
```

```
<METRIC> - , [0..255].
```

```
0
```

```
15
```

```
CONFIG-OPENVPN
```

```
esr(config)# route-metric 100
```

route-nopull

```
, OPENVPN-.
(no) .
```

```
[no] route-nopull
```

```
15
```

```
CONFIG-OPENVPN
```

```
esr(config)# route-nopull
```

snmp init-trap

```
snmp-trap / .
(no) snmp-trap / .
```

```
[no] snmp init-trap
```

CONFIG-GRE

CONFIG-SUBTUNNEL

```
esr(config-gre)# snmp init-trap
```

show ip nhrp

NHRP-.

show ip nhrp [{ dynamic | static | incomplete | nhs }] [{ nbma-address <ADDR> | tunnel gre <ID> | tunnel-address <ADDR> }] [vrf <VRF>]

<ID> – ;
<ADDR> – IP- AAA.BBB.CCC.DDD, [0..255];
<VRF> – VRF, 1 31. NHRP-, VRF;
dynamic – , ;
incomplete – ;
nbma-address – NBMA-;
nhs – NHS;
static – , ;
tunnel – ;
tunnel-address – ;
vrf – , c VRF.

Tunnel address	NBMA address	Interface	Peer type	Expire	Created	Flags
12.1.1.3	192.168.3.4	gre 1	dynamic	0:04:38	00:23:18	lower-up, up
12.1.1.9	192.168.9.4	gre 1	dynamic	0:04:45	00:23:49	lower-up, up
12.1.1.99	120.12.120.12	gre 1	dynamic	0:01:14	00:24:11	lower-up, up

show tunnels configuration

```
show tunnels configuration [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-ADDR> ] } ]
```

<TUN> - , .
<ID> - / .
<NEIGBOR-ADDR> - IP- AAA.BBB.CCC.DDD, [0..255];

1

ROOT

```
esr# show tunnels configuration gre 25
State:                                enabled
Description:
Local address:                         14.0.0.2
Remote address:                        14.0.0.1
Calculates checksums for outgoing GRE packets: no
Requires that all input GRE packets were checksum: no
key:                                     -
TTL:                                     Inherit
DSCP:                                    0
MTU:                                     1500
Security zone:                          remote
```

show tunnels counters

```
show tunnels counters [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-ADDR> ] } ]
```

<TUN> - , .
. , . , .

```
<ID>- / .  
<NEIGBOR-ADDR>- IP- AAA.BBB.CCC.DDD, [0..255];
```

1

ROOT

```
esr# show tunnels counters dypseudowire 2 192.0.2.10  
Tunnel 'dypseudowire 2_192.0.2.10' counters:  
  Packets received:          1006  
  Bytes received:           84200  
  Dropped on receive:        0  
  Receive errors:            0  
  Multicasts received:       0  
  Receive length errors:     0  
  Receive buffer overflow errors: 0  
  Receive CRC errors:        0  
  Receive frame errors:       0  
  Receive FIFO errors:        0  
  Receive missed errors:      0  
  Receive compressed:         0  
  Packets transmitted:       1006  
  Bytes transmitted:         102308  
  Dropped on transmit:        0  
  Transmit errors:            0  
  Transmit aborted errors:    0  
  Transmit carrier errors:    0  
  Transmit FIFO errors:       0  
  Transmit heartbeat errors:   0  
  Transmit window errors:      0  
  Transmit compressed:         0  
  Collisions:                  0
```

show tunnels history

```
show tunnels history [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-  
ADDR> ] } ] [ timer <TIMER> ]
```

```
<TUN>- , .  
<ID>- / .  
<NEIGBOR-ADDR>- IP- AAA.BBB.CCC.DDD, [0..255];  
<TIMER>- timer. :  
  • hours 72;  
  • minutes 60;  
  • seconds 60;  
  • timer, 3 ()
```

ROOT

```
esr# show tunnel history gre 1 timer minutes
gre 1
Last 60 minutes:
Timer  Recv utilization, Kbit/s  Sent utilization, Kbit/s  Recv errors  Sent errors  Output drops
-----
0-1    240          16            0            0            0
1-2    961          64            0            0            0
2-3    962          64            0            0            0
3-4    962          64            0            0            0
4-5    960          64            0            0            0
5-6    961          64            0            0            0
6-7    719          64            0            0            0
7-8    960          64            0            0            0
8-9    800          65            0            0            0
9-10   962          64            0            0            0
10-11  865          64            0            0            0
11-12  962          64            0            0            0
12-13  817          65            0            0            0
13-14  962          65            0            0            0
14-15  961          65            0            0            0
15-16  880          60            0            0            0
16-17  960          63            0            0            0
17-18  0             0             0            0            0
18-19  0             0             0            0            0
19-20  0             0             0            0            0
20-21  0             0             0            0            0
21-22  0             0             0            0            0
```

show tunnels status

```
show tunnels status [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-ADDR> ] } ]
```

```
<TUN> - , , .  
., ., .
```

```
<ID> - / .
```

```
<NEIGBOR-ADDR> - IP- AAA.BBB.CCC.DDD, [0..255];
```

1

ROOT

```
esr# show tunnels status
Tunnel      Admin state        MTU      Local IP           Remote IP        Uptime
-----      -----              -----    -----            -----          -----
ip4ip4 4     Up                1500    115.0.0.100      115.0.0.30      1 minute and 4 seconds
```

show tunnels utilization

```
show tunnels utilization [{ <TUN> | pseudowire [ <ID> <NEIGBOR-ADDR> ] | dypseudowire pseudowire [ <ID> <NEIGBOR-ADDR> ] } ]
```

<TUN> - , .

«,» «-». , .

<ID> - / .

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

10

ROOT

```
esr# show tunnels utilization gre 2
Tunnel      Period, s      Sent,          Recv,
           Kbit/s        Kbit/s
-----  -----  -----
gre 2       15            0              0
                                         0
                                         0
```

ttl

TTL .

(no) TTL .

ttl <TTL>

no ttl

<TTL> - TTL, [1..255].

10

CONFIG-IP4IP4

CONFIG-GRE

```
esr(config-ip4ip4)# ttl 10
```

tunnel

(no) .

[no] tunnel <TUN>

<TUN>- , ,

10

CONFIG

1

l2tp 10:

```
esr(config)# tunnel l2tp 10
esr(config-l2tp)#
```

2

l2tpv3 10:

```
esr(config)# tunnel l2tpv3 10
esr(config-l2tpv3)#
```

3

ip4ip4 200:

```
esr(config)# tunnel ip4ip4 200
esr(config-ip4ip4)#
```

4

gre 25:

```
esr(config)# tunnel gre 25
esr(config-gre)#
```

5

vti 125:

```
esr(config)# tunnel vti 125
esr(config-vti)#
```

6

pptp 10

```
esr(config)# tunnel pptp 10
esr(config-pptp)#
```

7

pppoe 8

```
esr(config)# tunnel pppoe 8
esr(config-pppoe)#
```

tunnel

OPENVPN-.

(no) .

tunnel <MODE>

<MODE> – OPENVPN-:

- ip – IP- OPENVPN;
- ethernet – Ethernet- OPENVPN.

ip

10

CONFIG-OPENVPN

```
esr(config-openvpn)# mode ethernet
```

tunnel-source

VRF IP- GRE- , GRE- VRF VRF .

(no) , GRE- IP- GRE- VRF.

tunnel-source [vrf <VRF>]
[no] tunnel-source

<VRF> – VRF, 31 .

"vrf" VRF, IP- .

(GRE- IP- VRF).

10

CONFIG-GRE

```
esr(config-gre)# tunnel-source vrf magistral
```

username

L2TP-, PPPoE- PPTP-.

(no) .

```
username <NAME> password ascii-text { <CLEAR-TEXT> | encrypted <ENCRYPTED-TEXT> }
```

```
no username <NAME>
```

```
<NAME> - , 31 ;  
<CLEAR-TEXT> - , [1 .. 64] ;  
<ENCRYPTED-TEXT> - , [2..128] .
```

15

CONFIG-L2TP

CONFIG-PPPOE

CONFIG-PPTP

```
esr(config-pptp)# username fedor password ascii-text password
```

username

OPENVPN-.

(no) .

```
username <NAME>  
no username <NAME>
```

```
<NAME> - , 31 .
```

15

CONFIG-OPENVPN

```
esr(config-openvpn)# username fedor
```