NAT

action destination-nat

, .

(no) .

```
action destination-nat { off | pool <NAME> | netmap <ADDR/LEN> }
no action destination-nat
```

off – . , , ;

pool <NAME> – , IP- / TCP/UDP-. , , IP- TCP/UDP- , ;

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

.

10

CONFIG-DNAT-RULE

```
esr(config-dnat-rule)# action destination-nat netmap 10.10.10.0/24
```

action source-nat

« » , , «match».

(no) .

```
action source-nat { off | pool <NAME> | netmap <ADDR/LEN> [static] | interface [FIRST_PORT – LAST_PORT] }
no action source-nat
```

off – . , , ;

pool <NAME> – IP- / TCP/UDP-. , , IP- / TCP/UDP- , ;

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

static – NAT, netmap;

interface [FIRST_PORT – LAST_PORT] – IP- . , , IP- IP- , . TCP/UDP-, TCP/UDP- , .

.

10

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# action source-nat netmap 10.10.10.0/24
```

description

.

(no) .

```
description <DESCRIPTION>
no description
```

<DESCRIPTION> – , 255 .

10

CONFIG-DNAT-RULESET

CONFIG-SNAT-RULESET

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

CONFIG-DNAT-POOL

CONFIG-SNAT-POOL

```
esr(config-snat-ruleset)# description "test ruleset"
```

enable

.

(no) .

```
[no] enable
```

.

.

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# enable
```

from

. , .

(no) .

```
from { zone <NAME> | interface <IF> | tunnel <TUN> | default }
no from
```

<NAME> – ;

<IF> – , , ;

<TUN> – , , ;

default – , .

> «default» «from» .

.

10

CONFIG-DNAT-RULESET

```
esr(config-dnat-ruleset)# from zone untrusted
```

ip address

IP-, IP- .

(no) IP-.

```
ip address <ADDR>
no ip address
```

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

10

CONFIG-DNAT-POOL

```
esr(config-dnat-pool)# ip address 10.10.10.10
```

ip address-range

IP-, IP- .

(no) .

```
ip address-range <IP>[-<ENDIP>]
no ip address-range
```

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

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

10

CONFIG-SNAT-POOL

```
esr(config-snat-pool)# ip address-range 10.10.10.1-10.10.10.20
```

ip nat proxy-arp

ARP- IP- . , IP- .

```
ip nat proxy-arp <OBJ-GROUP-NETWORK-NAME>
no ip nat proxy-arp
```

<OBJ-GROUP-NETWORK-NAME> – IP-, 31 .

NAT Proxy ARP .

10

CONFIG-GI

CONFIG-TE

CONFIG-SUBIF

CONFIG-QINQ-IF

CONFIG-PORT-CHANNEL

CONFIG-BRIDGE

CONFIG-CELLULAR-MODEM

CONFIG-LT

```
esr(config-if-gi)# ip nat proxy-arp nat-pool
```

ip port

TCP/UDP , TCP/UDP- .

(no) TCP/UDP-.

```
ip port <PORT>
no ip port
```

<PORT> – TCP/UDP , [1..65535].

10

CONFIG-DNAT-POOL

```
esr(config-dnat-pool)# ip port 5000
```

ip port-range

TCP/UDP-, TCP/UDP- .

(no) .

```
ip port-range <PORT>[-<ENDPORT>]
no ip port-range
```

<PORT> – TCP/UDP- , [1..65535];

<ENDPORT> – TCP/UDP- , [1..65535]. TCP/UDP- , TCP/UDP- TCP/UDP- .

10

CONFIG-SNAT-POOL

```
esr(config-snat-pool)# ip port-range 20-100
```

match destination-address

IP- , .

«not» IP- , . (no) .

```
match [not] destination-address <OBJ-GROUP-NETWORK-NAME>
no match destination-address
```

<OBJ-GROUP-NETWORK-NAME> – IP-, 31 . «any» IP- .

any

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match destination-address remote
```

match destination-address-port

IP- TCP/UDP- , .

«not» IP- TCP/UDP- , .

(no) .

```
match [not] destination-address-port <OBJ-GROUP-ADDRESS-PORT-NAME>
no match destination-address
```

<OBJ-GROUP-ADDRESS-PORT-NAME> – IP- TCP/UDP-, 31 . «any» .

any

10

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match destination-address local
```

match destination-port

TCP/UDP- , .

«not» TCP/UDP- , .

(no) .

```
match [not] destination-port <PORT-SET-NAME>
no match destination-port
```

<PORT-SET-NAME> – , 31 . «any» TCP/UDP- .

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match destination-port ssh
```

match icmp

ICMP, «match protocol». ICMP, .

«not» ICMP, .

(no) .

```
match [not] icmp { <ICMP_TYPE> <ICMP_CODE> | <OPTION> }
no match icmp
```

<ICMP_TYPE> – ICMP, [0 ..255];

<ICMP_CODE> – ICMP, [0 ..255]. «any» ICMP;

<OPTION> – ICMP-, :

- administratively-prohibited;
- alternate-address;
- conversion-error;
- dod-host-prohibited;
- dod-network-prohibited;
- echo;
- echo-reply;
- host-isolated;
- host-precedence;
- host-redirect;
- host-tos-redirect;
- host-tos-unreachable;
- host-unknown;
- host-unreachable;
- information-reply;
- information-request;
- mask-reply;
- mask-request;
- network-redirect;
- network-tos-redirect;
- network-tos-unreachable;
- network-unknown;
- network-unreachable;
- option-missing;
- packet-too-big;
- parameter-problem;
- port-unreachable;
- precedence;
- protocol-unreachable;
- reassembly-timeout;
- router-advertisement;
- router-solicitation;
- source-quench;
- source-route-failed;
- time-exceeded;
- timestamp-reply;
- timestamp-request;
- traceroute;

any any

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match icmp 2 any
```

match protocol

IP-, .

«not» , .

(no) .

```
match [not] protocol <TYPE>
no match protocol
match [not] protocol-id <ID>
no match protocol-id
```

<TYPE> – , : esp, icmp, ah, eigrp, ospf, igmp, ipip, tcp, pim, udp, vrrp, rdp, l2tp, gre.

«any» ;

<ID> – IP-, [0x00-0xFF].

any

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match protocol udp
```

match source-address

IP- , .

«not» IP- , .

(no) .

```
match [not] source-address <OBJ-GROUP-NETWORK-NAME>
no match source-address
```

<OBJ-GROUP-NETWORK-NAME> – IP-, 31 . «any» IP- .

any

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match source-address local
```

match source-address-port

IP- TCP/UDP- , .

«not» (match not) IP- TCP/UDP- , .

(no) .

```
match [not] source-address-port <OBJ-GROUP-ADDRESS-PORT-NAME>
no match source-address-port <OBJ-GROUP-ADDRESS-PORT-NAME>
```

<OBJ-GROUP-ADDRESS-PORT-NAME> – IP- TCP/UDP-, 31 . «any» .

any

10

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match source-address-port admin
```

match source-port

TCP/UDP , .

«not» TCP/UDP , . (no) .

```
match [not] source-port <PORT-SET-NAME>
no match source-port
```

<PORT-SET-NAME> – , 31 . «any» TCP/UDP- .

10

CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snat-rule)# match source-port telnet
```

nat alg

IP- .

(no) IP- .

```
[no] nat alg { <PROTOCOL> }
```

<PROTOCOL> – , , [ftp, h323, pptp, netbios-ns, gre, sip, tftp].

"all", IP- .

IP- .

10

CONFIG

```
esr(config)# nat alg ftp
```

nat destination

(DNAT, Destination NAT).

(no) (DNAT, Destination NAT).

```
[no] nat destination
```

.

10

CONFIG

```
esr(config)# nat destination
esr(config-dnat)#
```

nat source

(SNAT, Source NAT).

(no) (SNAT, Source NAT).

```
[no] nat source
```

.

10

CONFIG

```
esr(config)# nat source
esr(config-snat)#
```

persistent

NAT persistent.

NAT persist ent STUN (session traversal utilities for NAT – NAT) , NAT. , .

(no) .

```
[no] persistent
```

.

NAT persistent .

10

CONFIG-SNAT-POOL

```
esr(config-snat-pool)# persistent
```

pool

IP- TCP/UDP- NAT SNAT POOL DNAT POOL.

⚠ - , .

(no) NAT-.

```
[no] pool <NAME>
```

<NAME> – NAT-, 31 . , «all» IP- TCP/UDP-.

10

CONFIG-DNAT

CONFIG-SNAT

```
esr(config-snat)# pool nat
esr(config-snat-pool)#
```

rearrange

.

```
rearrange <VALUE>
```

<VALUE> – , [1..50].

10

CONFIG-DNAT-RULESET

CONFIG-SNAT-RULESET

```
esr(config-dnat-ruleset)# rearrange 10
```

renumber rule

.

```
renumber rule <CUR_ORDER> <NEW_ORDER>
```

<CUR_ORDER> – , [1..10000];

<NEW_ORDER> – , [1..10000].

10

CONFIG-DNAT-RULESET

CONFIG-SNAT-RULESET

```
esr(config-dnat-ruleset)# renumber rule 13 100
```

rule

c SNAT RULE DNAT RULE. .

(no) .

```
[no] rule <ORDER>
```

<ORDER> – , [1 .. 10000]. , «all» .

10

CONFIG-DNAT-RULESET

CONFIG-SNAT-RULESET

```
esr(config-snat-ruleset)# rule 10
esr(config-snat-rule)#
```

ruleset

SNAT RULESET DNAT RULESET.

(no) .

```
[no] ruleset <NAME>
```

<NAME> – , 31 . , «all» .

10

CONFIG-DNAT

CONFIG-SNAT

```
esr(config-snat)# ruleset wan
esr(config-snat-ruleset)#
```

show ip nat alg

IP- .

```
show ip nat alg
```

.

1

ROOT

```
esr# show ip nat alg
ALG Status:
    FTP:   Enabled
    H.323: Disabled
    GRE:   Disabled
    PPTP:  Disabled
    SIP:   Disabled
    SNMP:  Disabled
    TFTP:  Disabled
```

show ip nat pool

IP- TCP/UDP .

```
show ip nat <TYPE> pools
```

<TYPE> – , :

- source – IP- TCP/UDP-;
- destination – IP- TCP/UDP-.

1

ROOT

```
esr# show nat source pools
   Pools
   ~~~~~
ID     Name                    Ip address          Port      Description   Persi
                                                   range                   stent
----   ---------------------   -----------------   -------   -----------   -----
0      outside                 25.56.48.11         2000 –    outside-poo   false
                                                   3000       l
```

show ip nat ruleset

, NAT.

```
show ip nat <TYPE> ruleset [<NAME>]
```

<TYPE> – :

- source – IP- TCP/UDP- ;
- destination – IP- TCP/UDP- ;

[NAME] – , . – .

1

ROOT

```
esr# show ip nat source rulesets
   Rulesets
   ~~~~~~~~
ID     Name                                To                  Description
----   --------------------------------    ------------------  -----------------
0      factory                             zone 'untrusted'
1      test                                gigabitethernet     test
                                             1/0/1
esr# show ip nat source rulesets factory
Ruleset:           factory
Description:
To:                none
Rules:
------
Order:             10
Description:       replace 'source ip' by outgoing interface ip address
Matching pattern:
    Protocol:      any(0)
    Src-addr:      any
    Dest-addr:     any
Action:          interface port any
Status:            Enabled
--------------------------------------------------------------------------------
```

show ip nat translations

. (ip firewall mode).

```
show ip nat translations [ vrf <VRF> ] [ protocol <TYPE> ] [ inside-source-address <ADDR> ] [ outiside-source-address <ADDR> ] [ inside-destination-address <ADDR> ] [ outside-destination-address <ADDR> ] [ inside-source-port <PORT> ] [ outside-source-port <PORT> ] [ inside-destination-port <PORT> ] [ outside-destination-port <PORT> ] [ summary ]
```

<VRF> – VRF, 31 . VRF;

summary – ;

<TYPE> – , : esp, icmp, ah, eigrp, ospf, igmp, ipip, tcp, pim, udp, vrrp, rdp, l2tp, gre;

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

<PORT> – TCP/UDP , [1..65535];

Source NAT:

- inside-source-address – IP- ;
- inside-destination-address – IP- ;
- outiside-source-address – IP- ;
- outside-destination-address – IP- .
- inside-source-port – TCP/UDP ;
- outside-source-port – TCP/UDP ;
- inside-destination-port – TCP/UDP ;
- outside-destination-port – TCP/UDP .

Destination NAT

- inside-source-address – IP- ;
- inside-destination-address – IP- ;
- outiside-source-address – IP- ;
- outside-destination-address – IP- ;
- inside-source-port – TCP/UDP ;
- outside-source-port – TCP/UDP ;
- inside-destination-port – TCP/UDP ;
- outside-destination-port – TCP/UDP .

1

ROOT

1

Source NAT

```
esr# show ip nat translations
Prot   Inside source  Inside destination Outside source Outside destination Pkts Bytes
----   ------------  -----------------   ------------   --------------     -----  -----
icmp   115.0.0.10         1.1.0.2         1.1.0.24          1.1.0.2          3    252
```

2

Destination NAT

```
esr#  show ip nat translations
Prot   Inside source  Inside destination Outside source Outside destination Pkts Bytes
----   ------------  -----------------   ------------   --------------     -----  -----  icmp
1.1.0.2        115.0.0.10         1.1.0.2         1.1.0.16          --    --
```

show ip nat proxy-arp

NAT Proxy ARP.

```
show ip nat proxy-arp
```

1

ROOT

```
esr# show nat proxy-arp
Interface     IP address range
-----------   ---------------------------------------------
gi1/0/15      115.0.0.15-115.0.0.100
```

to

. , .

(no) .

`to { zone <NAME> | interface <IF> | tunnel <TUN> | default }`

`no to`

<NAME> – ;

<IF> – , , ;

<TUN> – , , ;

default – , .

«default» «to» .

None

10

CONFIG-SNAT-RULESET

```
esr(config-snat)# ruleset test
esr(config-snat-ruleset)# to interface gigabitethernet 1/0/1
```