

NAT

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- action source-nat
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- show ip nat alg
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- show ip nat proxy-arp
- to

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].

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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- , .  
  
.
```

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CONFIG-SNAT-RULE

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

description

```
(no) .
```

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

```
<DESCRIPTION> - , 255 .
```

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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

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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» .

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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].

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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- .

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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 .

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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].

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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- .

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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

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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
```

```
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```

```
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- .
```

```
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```

```
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

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CONFIG-DNAT-RULE

CONFIG-SNAT-RULE

```
esr(config-snatch-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

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CONFIG-DNAT-RULE
CONFIG-SNAT-RULE

```
esr(config-snatch-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

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

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- .
```

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- .

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CONFIG

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

nat destination

(DNAT, Destination NAT).

(no) (DNAT, Destination NAT).

[no] nat destination

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CONFIG

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

nat source

(SNAT, Source NAT).

(no) (SNAT, Source NAT).

[no] nat source

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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 .

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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-.
```

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CONFIG-DNAT

CONFIG-SNAT

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

rearrange

```
rearrange <VALUE>
```

```
<VALUE> - , [1..50].
```

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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].
```

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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» .

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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» .

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CONFIG-DNAT

CONFIG-SNAT

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

```
show ip nat alg
```

IP- .

```
show ip nat alg
```

.

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-.

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ROOT

```
esr# show nat source pools
Pools
~~~~~
ID      Name           Ip address        Port       Description    Persi
          range          range          stent
----  -----
0       outside        25.56.48.11    2000 -      outside-poo   false
                                3000          1
```

show ip nat ruleset

, NAT.

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

<TYPE>- :

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

[NAME]- . . - .

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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>] [outside-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- ;
- outside-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- ;
- outside-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 .

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ROOT

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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
```

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Destination NAT

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

show ip nat proxy-arp

NAT Proxy ARP.

show ip nat proxy-arp

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ROOT

```
esr# show nat proxy-arp
Interface      IP address range
-----  -----
g1/0/15       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

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CONFIG-SNAT-RULESET

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