

NAT Command Reference

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ISA Configuration Commands

```

config
  — isa
    — nat-group nat-group-id [create]
    — no nat-group
      — active-mda-limit number
      — no active-mda-limit
      — description description-string
      — no description
      — failed-mda-limit [1..2]
      — no failed-mda-limit
      — [no] mda mda-id
      — radius-accounting-policy nat-accounting-policy
      — no radius-accounting-policy
      — redundancy {active-active|active-standby}
      — no redundancy
      — session-limitssession-limits
        — reserved num-sessions
        — no reserved
        — watermarks high percentage low percentage
        — no watermarks
      — [no] shutdown
  
```

NAT Service Configuration Commands

```

configure
  — service
    — nat
      — deterministic-script
        — location remote-url
        — no location
      — session-limits
        — reserved num-ports
        — no reserved
        — watermarks high percentage low percentage
        — no watermarks
      — nat-policy nat-policy-name [create]
      — no nat-policy nat-policy-name
        — alg
          — [no] ftp
          — [no] pptp
          — [no] rtsp
          — [no] sip
        — block-limit [1..40]
        — no block-limit
        — description description-string
        — no description
        — filtering filtering-mode
        — no filtering
        — ipfix-export-policy [32 chars max]
        — no ipfix-export-policy
        — pool nat-pool-name service-name service-name
        — pool nat-pool-name router router-instance
        — no pool
      — port-limits
        — forwarding limit
        — no forwarding
        — reserved num-ports
        — no reserved
        — watermarks high percentage-high low percentage-low
        — no watermarks
      — [no] priority-sessions
        — [no] fc fc-name
      — session-limits
        — max num-sessions
        — no max
        — reserved num-sessions
        — no reserved
        — watermarks high percentage-high low percentage-low
        — no watermarks
      — tcp-mss-adjust segment-size
      — no tcp-mss-adjust
      — [no] timeouts
        — icmp-query [min minutes] [sec<seconds]
        — no icmp-query
        — sip min minutes] [sec<seconds]
        — no sip
        — subscriber-retention [hrs hours] [min minutes]
  
```

- **no subscriber-retention**
- **tcp-established** [**hrs** *hours*] [**min** *minutes*] [**sec** *seconds*]
- **no tcp-established**
- **tcp-syn** [**hrs** *hours*] [**min** *minutes*] [**sec** *seconds*]
- **no tcp-syn**
- **tcp-time-wait** [**min** *minutes*] [**sec** *seconds*]
- **no tcp-time-wait**
- **tcp-transitory** [**hrs** *hours*] [**min** *minutes*] [**sec** *seconds*]
- **no tcp-transitory**
- **udp** [**hrs** *hours*] [**min** *minutes*] [**sec** *seconds*]
- **no udp**
- **udp-dns** [**hrs** *hours*] [**min** *minutes*] [**sec** *seconds*]
- **no udp-dns**
- **udp-initial** [**min** *minutes*] [**sec** *seconds*]
- **no udp-initial**
- [**no**] **udp-inbound-refresh**
- **pcp-server-policy** *name* [**create**]
- **no pcp-server-policy** *name*
 - **description** *description-string*
 - **no description**
 - **lifetime** **minimum** [60..86399] **maximum** [61..86400]
 - **no lifetime**
 - **max-description-size** *size*
 - **no max-description-size**
 - [**no**] **opcode**
 - [**no**] **announce**
 - [**no**] **get**
 - [**no**] **map**
 - [**no**] **option**
 - [**no**] **description**
 - [**no**] **next**
 - [**no**] **port-reservation**
 - [**no**] **prefer-failure**
 - [**no**] **third-party**
 - **version** **minimum** [1..255] **maximum** [1..255]
 - **no version**

IPFIX Commands

```
configure
  — service
    — ipfix
      — ipfix-export-policy policy-name [create]
      — no ipfix-export-policy policy-name
        — collector router router-instance ip ip-address [create]
        — no collector router router-instance ip ip-address
          — mtu [512..9212]
          — no collector
          — [no] shutdown
          — source-address ip-address
          — no source-address
          — template-refresh-timeout [hrs hours] [min minutes] [sec seconds]
          — no template-refresh-timeout
        — description description-string
        — no description
```

UPnP Commands

```
configure
  — service
    — upnp
      — upnp-policy policy-name [create]
      — no upnp-policy policy-name
        — description description-string
        — no description
        — http-listening-port [1..65535]
        — no http-listening-port
        — mapping-limit [1..256]
        — no mapping-limit
        — [no] strict-mode

configure
  — subscriber-management
    — sub-profile subscriber-profile-name [create]
    — no sub-profile subscriber-profile-name
      — upnp-policy policy-name
      — no upnp-policy
```

ISA RADIUS Policy Commands

```

configure
  — aaa
    — isa-radius-policy name [create]
    — no isa-radius-policy name
      — [no] acct-include-attributes
        — [no] acct-delay-time
        — [no] acct-trigger-reason
        — [no] called-station-id
        — [no] calling-station-id
        — [no] circuit-id
        — [no] dhcp-options
        — [no] dhcp6-options
        — [no] dhcp-vendor-class-id
        — [no] frame-counters
        — [no] framed-ip-addr
        — [no] framed-ip-netmask
        — [no] framed-ipv6-prefix
        — [no] hardware-timestamp
        — [no] inside-service-id
        — [no] ipv6-address
        — [no] mac-address
        — [no] multi-session-id
        — [no] nas-identifier
        — [no] nas-port-id
        — [no] nas-port-type
        — [no] nat-subscriber-string
        — [no] octet-counters
        — [no] outside-ip
        — [no] outside-service-id
        — [no] port-range-block
        — [no] release-reason
        — [no] remote-id
        — [no] session-time
        — [no] subscriber-data
        — [no] subscriber-id
        — [no] ue-creation-type
        — [no] user-name
        — [no] wifi-rssi
        — [no] wifi-ssid-vlan
      — acct-update-triggers
        — [no] address-state
      — [no] auth-include-attributes
        — [no] called-station-id
        — [no] calling-station-id
        — [no] circuit-id
        — [no] dhcp-options
        — [no] dhcp-vendor-class-id
        — [no] dhcp6-options
        — [no] framed-ip-addr
        — [no] ipv6-address
        — [no] mac-address
        — [no] nas-identifier
        — [no] nas-port-id

```

- [no] **nas-port-type**
- [no] **remote-id**
- [no] **wifi-ssid-vlan**
- **description** *description-string*
- **no description**
- **nas-ip-address-origin** {isa-ip|system-ip}
- **no nas-ip-address-origin**
- **password** *password* [hash|hash2]
- **no password**
- **servers**
 - **access-algorithm** {direct|round-robin|hash-based}
 - **no access-algorithm**
 - **retry** *count*
 - **no retry**
 - **router** *router-instance*
 - **router service-name** *service-name*
 - **no router**
 - **server** *server-index* [create]
 - **no server** *server-index*
 - **accounting** [port *udp-port*]
 - **no accounting**
 - **authentication** [port *udp-port*]
 - **no authentication**
 - **coa** [port *udp-port*]
 - **no coa**
 - **ip-address** *ip-address*
 - **no ip-address**
 - **secret** *secret-key* | **hash-key** [hash|hash2]
 - **no secret**
 - [no] **shutdown**
 - **source-address-range** *start-ip-address*
 - **no source-address-range**
 - **timeout** [sec *seconds*] [min *minutes*]
 - **no timeout**
- **user-name-format** *user-name-format* [mac-format *mac-format*]
- **no user-name-format**

VPRN Commands

```

config
  — service
    — vprn service-id customer cust-id create
      — nat
        — inside
          — [no] destination-prefix ip-prefix/length
          — deterministic
            — classic-lsn-max-subscriber-limit max
            — no classic-lsn-max-subscriber-limit
            — dslite-max-subscriber-limit max
            — no dslite-max-subscriber-limit
            — prefix ip-prefix/length subscriber-type nat-sub-type nat-policy nat-policy-name [create]
            — prefix ip-prefix/length subscriber-type nat-sub-type
            — no prefix ip-prefix/length subscriber-type nat-sub-type
              — map start inside-ip-address end inside-ip-address to outside-ip-address
              — no map start inside-ip-address end inside-ip-address
              — [no] shutdown
          — dual-stack-lite
            — [no] address ipv6-address
            — ip-fragmentation {disabled|fragment-ipv6|fragment-ipv6-unless-ipv4-df-set}
            — no ip-fragmentation
            — tunnel-mtu mtu-bytes
            — no tunnel-mtu
            — [no] shutdown
            — subscriber-prefix-length prefix-length
            — no subscriber-prefix-length
          — l2-aware
            — [no] address ip-address/mask
          — nat-policy nat-policy-name
          — no nat-policy
          — [no] nat64
            — [no] drop-zero-ipv4-checksum
            — [no] ignore-tos
            — [no] insert-ipv6-fragment-header
            — ip-fragmentation {disabled|fragment-ipv6|fragment-ipv6-unless-ipv4-df-set}
            — no ip-fragmentation
            — ipv6-mtu [1280..9212]
            — no ipv6-mtu
            — prefix ipv6-prefix/prefix-length
            — no prefix
            — set-tos [0..255]
            — no set-tos
            — [no] shutdown
            — subscriber-prefix-length prefix-length
            — no subscriber-prefix-length
          — redundancy

```

- **peer** *ip-address*
- **no peer**
- **peer6** *ip-address*
- **no peer6**
- **steering-route** *ip-prefix/length*
- **no steering-route**
- **outside**
 - **downstream-ip-filter** *filter-id*
 - **no downstream-ip-filter**
 - **downstream-ipv6-filter** *filter-id*
 - **no downstream-ipv6-filter**
 - **mtu** [512..9000]
 - **no mtu**
 - **pool** *nat-pool-name* [**nat-group** *nat-group-id* **type** *pool-type* [**applications** *applications*] **create**]
 - **no pool** *nat-pool-name*
 - **address-range** *start-ip-address end-ip-address* [**create**]
 - **no address-range** *start-ip-address end-ip-address*
 - **description** *description-string*
 - **no description**
 - **[no] drain**
 - **description** *description-string*
 - **no description**
 - **deterministic**
 - **port-reservation** *num-ports*
 - **no port-reservation**
 - **mode** {**auto**|**nap**|**one-to-one**}
 - **no mode**
 - **[no] port-forwarding-dyn-block-reservation**
 - **port-forwarding-range** *range-end*
 - **no port-forwarding-range**
 - **port-reservation blocks** *num-blocks*
 - **port-reservation ports** *num-ports*
 - **no port-reservation**
 - **redundancy**
 - **export** *ip-prefix/length*
 - **no export**
 - **follow router** *router-instance* **pool** *name*
 - **no follow**
 - **monitor** *ip-prefix/length*
 - **no monitor**
 - **[no] shutdown**
 - **[no] shutdown**
 - **subscriber-limit** [1..65535]
 - **no subscriber-limit**
 - **watermarks high** *percentage-high* **low** *percentage-low*
 - **no watermarks**
 - **upstream-ip-filter** *filter-id*
 - **no upstream-ip-filter**
 - **upstream-ipv6-filter** *filter-id*
 - **no upstream-ipv6-filter**

NAT Subscriber Management Commands

```

configure
  — subscriber-mgmt
    — sub-profile subscriber-profile-name [create]
    — no sub-profile subscriber-profile-name
      — nat-policy policy-name
      — no nat-policy
  
```

NAT Router Configuration Commands

```

config
  — router
    — nat
      — inside
        — [no] destination-prefix ip-prefix/length
        — deterministic
          — classic-lsn-max-subscriber-limit max
          — no classic-lsn-max-subscriber-limit
          — dslite-max-subscriber-limit max
          — no dslite-max-subscriber-limit
          — prefix prefix/ip-prefix-length subscriber-type nat-sub-type
            nat-policy nat-policy-name [create]
          — prefix ip-prefix/ip-prefix-length subscriber-type nat-sub-type
          — no prefix ip-prefix/ip-prefix-length subscriber-type nat-sub-type
            — map start lsn-sub-address end lsn-sub-address to
              outside-ip-address
            — no map start lsn-sub-address end lsn-sub-address
            — [no] shutdown
        — dual-stack-lite
          — [no] address ipv6-address
          — tunnel-mtu mtu-bytes
          — no tunnel-mtu
          — ip-fragmentation {disabled|fragment-ipv6|fragment-ipv6-unless-ipv4-df-set}
          — no ip-fragmentation
          — [no] shutdown
          — subscriber-prefix-length prefix-length
          — no subscriber-prefix-length
        — l2-aware
          — [no] address ip-address/mask
        — nat-policy nat-policy-name
        — no nat-policy
        — [[no] nat64
          — [no] drop-zero-ipv4-checksum
          — [no] ignore-tos
          — [no] insert-ipv6-fragment-header
          — ip-fragmentation {disabled|fragment-ipv6|fragment-ipv6-unless-ipv4-df-set}
          — no ip-fragmentation
          — ipv6-mtu [1280..9212]
          — no ipv6-mtu
          — prefix ipv6-prefix/prefix-length
        
```

- **no prefix**
- **set-tos** [0..255]
- **no set-tos**
- **[no] shutdown**
- **subscriber-prefix-length** *prefix-length*
- **no subscriber-prefix-length**
- **redundancy**
 - **peer** *ip-address*
 - **no peer**
 - **peer6** *ip-address*
 - **no peer6**
 - **steering-route** *ip-prefix/length*
 - **no steering-route**
- **subscriber-identification**
 - **attribute** [**vendor** *vendor-id*] **attribute-type** *attribute-type*
 - **no attribute**
 - **description** *description-string*
 - **no description**
 - **[no] drop-unidentified-traffic**
 - **radius-proxy-server** **router** *router-instance* **name** *server-name*
 - **no radius-proxy-server**
 - **[no] shutdown**
- **outside**
 - **downstream-ip-filter** *filter-id*
 - **no downstream-ip-filter**
 - **downstream-ipv6-filter** *filter-id*
 - **no downstream-ipv6-filter**
 - **mtu** [512..9000]
 - **no mtu**
 - **pool** *nat-pool-name* [**nat-group** *nat-group-id* **type** *pool-type* **create**]
 - **no pool** *nat-pool-name*
 - **address-range** *start-ip-address end-ip-address* [**create**]
 - **no address-range** *start-ip-address end-ip-address*
 - **description** *description-string*
 - **no description**
 - **[no] drain**
 - **description** *description-string*
 - **no description**
 - **mode** {**auto** | **napt** | **one-to-one**}
 - **no mode**
 - **[no] port-forwarding-dyn-block-reservation**
 - **port-forwarding-range** *range-end*
 - **no port-forwarding-range**
 - **port-reservation** **blocks** *num-blocks*
 - **port-reservation** **ports** *num-ports*
 - **no port-reservation**
 - **redundancy**
 - **export** *ip-prefix/length*
 - **no export**
 - **follow** **router** *router-instance* **pool** *name*
 - **no follow**
 - **monitor** *ip-prefix/length*
 - **no monitor**
 - **[no] shutdown**

- **subscriber-limit** [1..65535]
- **no subscriber-limit**
- **watermarks** **high** *percentage-high* **low** *percentage-low*
- **no watermarks**
- **upstream-ipv6-filter** *filter-id*
- **no upstream-ipv6-filter**

NAT Admin Configuration Commands

- ```

admin
 — nat
 — save-deterministic-script

```

## Tools Commands

- ```

tools
  — dump
     — nat
        — histogram router router-instance pool pool-name bucket-size [1..65536] num-
           buckets [2..50]

```

Show Commands

```

show
  — aaa
    — nat-accounting-policy
    — nat-accounting-policy policy-name
    — nat-accounting-policy policy-name associations
    — nat-accounting-policy
  — isa
    — nat-group
    — nat-group nat-group-id [associations]
    — nat-group nat-group-id statistics mda mda-id
    — nat-group nat-group-id member [1..255]
    — nat-group nat-group-id member [1..255] reassembly-statistics
    — nat-group nat-group-id member [1..255] statistics
    — nat-group [nat-group-id] members
  — service
    — nat
      — l2-aware-hosts [outside-router router-instance] [outside-ip outside-ip-address]
        [inside-ip-prefix ip-prefix/mask]
      — l2-aware-subscribers [nat-policy nat-policy-name] [nat-group nat-group-id]
        [member [1..255]] [outside-router router-instance] [outside-ip outside-ip-
        address]
      — l2-aware-subscribers subscriber sub-ident
      — nat-policy nat-policy-name associations
      — nat-policy nat-policy-name statistics
      — nat-policy nat-policy-name
      — nat-policy
      — pcp-server-policy
      — pcp-server-policy name
      — port-forwarding-entries
    — upnp
      — upnp-policy policy-name
      — upnp-policy policy-name statistics
      — upnp-policy

show
  — router
    — nat
      — dual-stack-lite-subscribers subscriber dslite-sub-id
      — dual-stack-lite-subscribers [nat-policy nat-policy-name] [nat-group nat-group-
        id] [member [1..255]] [outside-router router-instance] [outside-ip outside-ip-
        address] [inside-ip-prefix ipv6-prefix]
      — l2-aware-blocks [outside-ip-prefix ip-prefix/length] [outside-port [1..65535]]
        [pool pool-name]
      — lsn-blocks [inside-router router-instance] [inside-ip ip-address] [outside-ip-pre-
        fix ip-prefix/length] [outside-port [1..65535]] [pool pool-name]
      — lsn-hosts host ip-address
      — lsn-hosts [outside-router router-instance] [outside-ip ip-address] [inside-ip-pre-
        fix ip-prefix/mask]
      — pool pool-name
      — pool
      — summary
  
```

Clear Commands

```
clear
  — nat
    — upnp-mappings subscriber sub-ident-string protocol {tcp|udp} outside-port port-number
    — upnp-mappings subscriber sub-ident-string
    — upnp-policy-statistics policy-name
    — isa
      — nat-group nat-group-id member [1..255] l2-aware-subscribers
      — nat-group nat-group-id member [1..255] statistics
```

Tools Commands

```
tools
  — dump
    — nat
      — isa
        — resources mda mda-id
        — sessions [nat-group nat-group-id] [mda mda-id] [protocol {gre|icmp|tcp|udp}]
          [inside-ip ip-address] [inside-router router-instance] [inside-port port-number]
          [outside-ip ipv4-address] [outside-port port-number] [foreign-ip ipv4-address]
          [foreign-port port-number] [dslite-address ipv6-address] [wlan-gw-ue ieee-address]
          [next-index index] [upnp]
    — perform
      — nat
        — port-forwarding-action
          — l2-aware create subscriber sub-ident-string ip ip-address protocol
            {tcp|udp} [port port] lifetime lifetime [outside-ip ip-address] [outside-
            port port]
          — l2-aware delete subscriber sub-ident-string ip ip-address protocol
            {tcp|udp} port port
          — l2-aware modify subscriber sub-ident-string ip ip-address protocol
            {tcp|udp} port port lifetime lifetime
          — lsn create router router-instance [b4 ipv6-address] [aftr ipv6-address]
            ip ip-address protocol {tcp|udp} [port port] lifetime lifetime [outside-
            ip ipv4-address] [outside-port port]
          — lsn delete router router-instance [b4 ipv6-address] ip ip-address proto-
            col {tcp|udp} port port
          — lsn modify router router-instance [b4 ipv6-address] ip ip-address pro-
            tocol {tcp|udp} port port lifetime lifetime
```

Filter Commands

```
configure
  — filter
    — ip-filter filter-id
    — ipv6-filter filter-id
      — entry entry-id
        — action nat [nat-policy-name nat-policy-name]
        — no action
```

