NAT Command Reference

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ISA Configuration Commands

```bash
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-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]
    -- 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] octct-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-lsa-max-subscriber-limit max
          no classic-lsa-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
          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
        12-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
Command Hierarchies

— 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|nat|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

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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-prefix 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-prefix 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] 12-aware-subscribers
      - nat-group [nat-group-id] 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] [dlsite-address ipv6-address] [wlan-gw-ue ieee-address]
        [next-index index] [upnp]
  - perform
    - nat
      - port-forwarding-action
        - 12-aware create subscriber sub-ident-string ip ip-address protocol
          {tcp|udp} [port port] lifetime lifetime [outside-ip ip-address] [outside-port port]
        - 12-aware delete subscriber sub-ident-string ip ip-address protocol
          {tcp|udp} port port
        - 12-aware modify subscriber sub-ident-string ip ip-address protocol
          {tcp|udp} port port lifetime lifetime
        - lsn create router router-instance [b4 ipv6-address] [aftir 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 protocol {tcp|udp} port port
        - lsn modify router router-instance [b4 ipv6-address]
          ip ip-address protocol {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
```