Chapter 2
Monitoring and Troubleshooting Remote Access

Use the commands in this chapter to set baselines for and to monitor remote access.

These commands provide information about:

- AAA configuration
- AAA profiles
- AAA statistics
- Address pools
- COPS protocol layer
- Domain name delimiters
- Name servers
- RADIUS servers
- RADIUS SNMP traps
- RADIUS statistics
- SRC client connections
- Subscribers
- User domain mapping

Use the following commands to monitor PPP interfaces:

- **show ppp interface summary**
- **show ppp interface** <*selective control*>

For details on the **show ppp** commands, see *JUNOSe Link Layer Configuration Guide, Chapter 4, Configuring Point-to-Point Protocol*.

You can use the output filtering feature of the **show** command to include or exclude lines of output based on a text string you specify. For details, see *JUNOSe System Basics Configuration Guide, Chapter 2, Command-Line Interface*.

NOTE: AAA and RADIUS statistics are not preserved across a warm restart when stateful SRP Switchover is enabled.

Setting Baselines for Remote Access

You can set baseline statistics using the **baseline** commands. The router implements the baseline by reading and storing the statistics at the time the baseline is set and then subtracting this baseline when you retrieve baseline-relative statistics.

baseline aaa

- Use to set a baseline for AAA statistics.
- Use the **delta** keyword with the **show aaa statistics** command to show baselined statistics.
- There is no **no** version.

baseline aaa route-download

- Use to set a baseline for route downloads.
- Example

  host1#**baseline aaa route-download**

- There is no **no** version.

baseline cops

- Use to set a baseline for COPS statistics.
- Use the **delta** keyword with the **show cops statistics** command to show baselined statistics.
- There is no **no** version.

baseline local pool

- Use to set a baseline for local address pool statistics.
- Use the **delta** keyword with the **show local pool statistics** command to show baselined statistics.
- There is no **no** version.

baseline radius

- Use to set a baseline for RADIUS statistics.
- Use the **delta** keyword with the **show radius statistics** command to show baselined statistics.
- There is no **no** version.

baseline sscc

- Use to set a baseline for SRC statistics.
- Use the **delta** keyword with the **show sscc statistics** command to show baselined statistics.
- There is no **no** version.

Monitoring Remote Access

You can use the following commands to monitor remote access on E-series routers.

show aaa accounting

- Use to display the AAA accounting configuration.
- Field descriptions
  - Accounting duplication—Name of the virtual router to which duplicate accounting records are sent to the accounting server
  - Broadcast accounting—Name of the virtual router groups to which broadcast accounting records are sent to the accounting server
  - send acct-stop on AAA access deny—Enabled, disabled
  - send acct-stop on authentication server access deny—Enabled, disabled
  - acct-interval (for PPP Clients)—Number of minutes between accounting update operations
  - service-acct-interval—Number of minutes between interim accounting updates for services created by the Service Manager feature
  - send immediate-update—On receipt of response to Acct-Start message; enabled, disabled
- Example

```
host1:vrXyz7#show aaa accounting

Accounting duplication set to router vrXyz25
Broadcast accounting uses group groupXyzCompany20
send acct-stop on AAA access deny is enabled
send acct-stop on authentication server access deny is disabled
acct-interval (for PPP Clients) 0
service-acct-interval 0
send immediate-update is enabled
```

show aaa accounting default

- Use to display the AAA accounting default method for a subscriber type. You can view the method used for ATM 1483, IPSec, PPP, RADIUS relay server, and tunnel subscribers, and IP subscriber management interfaces.
- Example

```
host1#show aaa accounting tunnel default
radius
```

show aaa accounting interval

- Use to display the accounting interval.
- Example

```
host1#show aaa accounting interval
acct-interval (for PPP Clients) 10
```

show aaa accounting vr-group

- Use to display the names of a specific virtual router group or of all virtual router groups configured on the router and the virtual routers making up the groups.
- Field descriptions
  - vr-group—Name of the virtual router group.
  - virtual-router—Index entry and name of virtual routers in the group.
- Example

```
host1#show aaa accounting vr-group

vr-group groupXyzCompany10:
 virtual-router 1 vrXyzA
 virtual-router 2 vrXyzB
 virtual-router 3 vrXyzC
 virtual-router 4 vrXyzD
vr-group groupXyzCompany20:
 virtual-router 1 vrXyzP
 virtual-router 2 vrXyzQ
 virtual-router 3 vrXyzR
 virtual-router 4 vrXyzS
```

show aaa authentication default

- Use to display the default AAA authentication method list for a subscriber type. You can view the method list used for ATM 1483 subscribers, IPSec subscribers, IP subscriber management interfaces, PPP subscribers, RADIUS relay subscribers, and tunnel subscribers. For example, you can verify that the local authentication method is configured for PPP subscribers.
- Example

```
host1#show aaa authentication ppp default
local none
```

show aaa delimiters

- Use to display the domain and realm name delimiters, parse order, and parse direction configured on the router.
- Example

```
host1#show aaa delimiters
domain delimiters "@!"
realm delimiters “/”
parse order is realm-first
domain parse direction is right-to-left
realm parse direction is left-to-right
```

show aaa domain-map

- Use to display the mapping between user domains and virtual routers.
- The following keywords have significance when used as user domains:
  - **none**—All client requests with no user domain name are associated with the virtual router mapped to the **none** entry
  - **default**—All client requests with a domain present that have no map are associated with the virtual router mapped to the **default** entry
- Field descriptions—The actual fields displayed depend on your configuration
  - Domain—Name of the domain
  - router-name—Virtual router to which user domain name is mapped
  - tunnel-group—Name of the tunnel group assigned to the domain map
  - ipv6-router-name—IPv6 virtual router to which user domain name is mapped
  - local-interface—Interface information to use on the local (E-series) side of the subscriber's interface
  - ipv6-local-interface—IPv6 interface information to use on the local (E-series) side of the subscriber's interface
  - poolname—Local address pool from which the router allocates addresses for this domain
  - IP hint—IP hint is enabled
  - strip-domain—Strip domain is enabled
  - override-username—Single username used for all users from a domain in place of the values received from the remote client
  - override-password—Single password used for all users from a domain in place of the values received from the remote client
  - Tunnel Tag—Tag that identifies the tunnel
  - Tunnel Peer—Destination address of the tunnel
  - Tunnel Source—Source address of the tunnel
  - Tunnel Type—L2TP
  - Tunnel Medium—Type of medium for the tunnel; only IPv4 is supported
  - Tunnel Password—Password for the tunnel
  - Tunnel Id—ID of the tunnel
  - Tunnel Client Name—Host name that the LAC sends to the LNS when communicating to the LNS about the tunnel
  - Tunnel Server Name—Host name expected from the peer (the LNS) when during tunnel startup
  - Tunnel Preference—Preference level for the tunnel
  - Tunnel Max Sessions—Maximum number of sessions allowed on a tunnel
  - Tunnel RWS—L2TP receive window size (RWS) for a tunnel on the LAC; displays either the configured value or the default behavior, which is indicated by `system chooses`

- Tunnel Virtual Router—Name of the virtual router to map to the user domain name
- Tunnel Failover Resync—L2TP peer resynchronization method
- Tunnel Switch Profile—Name of the L2TP tunnel switch profile
- Tunnel Tx Speed Method—Method that the router uses to calculate the transmit connect speed of the subscriber's access interface: static layer2, dynamic layer2, qos, actual, not set

- Example

```
host1#show aaa domain-map

Domain: lac-tunnel; router-name: lac; ipv6-router-name: default
Tunnel                 Tunnel   Tunnel   Tunnel    Tunnel
 Tag     Tunnel Peer   Source    Type    Medium   Password    Tunnel Id
------   -----------   ------   ------   ------   --------   -----------
5        192.168.1.1   <null>   l2tp     ipv4     welcome    lac-tunnel

                       Tunnel                Tunnel
Tunnel     Tunnel      Server     Tunnel       Max
 Tag     Client Name    Name    Preference   Sessions     Tunnel RWS
------   -----------   ------   ----------   --------   --------------
5        lac           boston   5            0          4

                                                      Tunnel
         Tunnel     Tunnel            Tunnel        Tx
Tunnel   Virtual   Failover           Switch      Speed
 Tag     Router     Resync           Profile     Method
------   -------   --------         ---------    ------
5        <null>    silent failover   denver      qos
```

show aaa duplicate-address-check

- Use to display whether the routing table address lookup or duplicate address check is enabled or disabled.
- Example

```
host1#show aaa duplicate-address-check
enabled
```

show aaa model

- Use to display the AAA model.
- Example

```
host1#show aaa model
aaa model: old model
```

show aaa name-servers

- Use to display the IP addresses of the primary and secondary DNS and WINS name servers.
- Example

```
host1#show aaa name-servers
Name Server Addresses (for PPP Clients):
 primary DNS Addr                    10.2.3.4
 secondary DNS Addr                  10.6.7.8
 primary NBNS (WINS) Addr            10.22.33.44
 secondary NBNS (WINS) Addr          10.66.77.88
```

show aaa profile

- Use to display the configuration of all AAA profiles or of a specific profile.
- Field descriptions
  - atm nas-port-type—Configuration of NAS-Port-Type attribute for ATM interfaces
  - ethernet nas-port-type—Configuration of NAS-Port-Type attribute for Ethernet interfaces
  - profile-service-description—Description configured in the Service-Description attribute
  - pre-authenticate—Indicates that subscriber preauthentication is configured for the profile
  - allow—One or more domain names that are allowed access to AAA authentication
  - deny—One or more domain names that are denied access to AAA authentication
  - translate—Original domain name and the name to which it is mapped for domain map lookup
- Example

```
host1#show aaa profile name PreAuth1
preAuth1:
    atm nas-port-type: ADLSL-CAP
    ethernet nas-port-type: Cable
    profile-service-description: xyzService
    pre-authenticate
    allow xyz.com
    deny default
    translate xyz1.com abc.com
```

show aaa route-download

- Use to display statistics about the RADIUS route-download server configuration.
- Use the optional **statistics** keyword to display information about the RADIUS route download server operation.
- Use the optional **delta** keyword to show baselined statistics.

- Field descriptions
  - AAA Route Downloader—Virtual router where the RADIUS route-download server is configured
  - Download Interval—Number of minutes between route downloads
  - Retry Interval—Number of minutes before retry after a download failure
  - Default Cost—Default cost of downloaded routes
  - Default Tag—Default tag for downloaded routes
  - Base User Name—Virtual router used for route-download requests; either <HOSTNAME> or the configured name
  - Password—Password for route-download requests or <DEFAULT>
  - Synchronization—Either <NOT SET> or the time that the server starts the route download operation each day
  - Status—Current status of route-download server; waiting for base router, waiting for IP warmstart, idle, downloading, updating ip, downloading and updating ip, or suspended
  - Last Download Attempt—Either <NEVER> or the day, date, and time of attempt
  - Last Download Success—Either <NEVER> or the day, date, and time of success
  - Last Regular Download—Status of last regular download; either complete or not complete
  - Next Download Scheduled—<DOWNLOAD ACTIVE>, <NOT SCHEDULED>, or the day, date, and time of next download
  - Next Regular Download—Day, date, and time
  - Total Download Attempts—Number of downloads attempted
  - Successful Downloads—Number of successful download operations
  - Downloaded Fragments—Number of downloaded fragments
  - Downloaded Routes—Number of downloaded routes
  - IP Updates—Number of IP updates
  - Updated Routes—Number of updated routes
  - Cleared Route Intervals—Number of cleared route intervals
- Example 1

```
host1#show aaa route-download
AAA Route Downloader:     configured in virtual router default
Download Interval:        720 minutes
Retry Interval:           10 minutes
Default Cost:             2
Default Tag:              0
Base User Name:           <HOSTNAME>
Password:                 <DEFAULT>
Synchronization:          <NOT SET>

Status:                   idle
Last Download Attempt:    TUE DEC 19 22:46:47 2006
Last Download Success:    TUE DEC 19 22:46:47 2006
```

```
Last Regular Download:    complete
Next Download Scheduled:  WED DEC 20 10:46:47 2006
Next Regular Download:    WED DEC 20 10:46:47 2006
```

- Example 2

```
host1#show aaa route-download statistics

Total Download Attempts: 2
Successful Downloads:    2
Downloaded Fragments:    3756
Downloaded Routes:       192000
IP Updates:              1
Updated Routes:          96000
Cleared Route Intervals: 0
```

show aaa route-download routes

- Use to display information about the routes that are downloaded by the RADIUS route-download server.
- Use the optional **detail** keyword to display more detailed information about the downloaded routes.
- Field descriptions
  - downloaded routes—Number of current downloaded routes
  - Prefix/Length—IP address prefix and mask information for downloaded routes
  - Type—Type of downloaded routes; Access-P indicates routes downloaded from the RADIUS route-download server
  - NextHop—IP address of the next hop
  - Dst/Met—Administrative distance and number of hops for the route
  - Tag—Tag assigned to downloaded routes
  - Intf—Interface type and specifier
- Example 1

```
host1#show aaa route-download routes
96000 downloaded routes
```

- Example 2

```
host1#show aaa route-download routes detail
Prefix/Length      Type        NextHop      Dst/Met  Intf   Tag
---------------  --------  ---------------  -------  -----  ---
192.168.1.1/32   Access-P  255.255.255.255  254/2    null0  0
192.168.1.5/32   Access-P  255.255.255.255  254/2    null0  0
192.168.1.9/32   Access-P  255.255.255.255  254/2    null0  0
192.168.1.13/32  Access-P  255.255.255.255  254/2    null0  0
192.168.1.17/32  Access-P  255.255.255.255  254/2    null0  0
192.168.1.21/32  Access-P  255.255.255.255  254/2    null0  0
```

show aaa route-download routes global

- Use to display chassis-wide information about routes that are downloaded by RADIUS route-download servers.
- Use the optional **detail** keyword to display more detailed information about the downloaded routes.

- Use the optional **start** keyword to specify the first router context that you want to display in the output. For example, aaa:a2 specifies that the display shows a list of router contexts starting with VRF a2 in virtual router aaa.
- Field descriptions
  - Virtual Router—Name of the virtual router used to download the routes
  - VRF—Name of the VRF used to download the routes
  - Present—Routes have been downloaded; y (yes) or n (no) indicates if the router context has been created.
  - Number of Routes—Number of current downloaded routes
  - Prefix/Length—IP address prefix and mask information for downloaded routes
  - Type—Type of downloaded routes; Access-P indicates routes downloaded from the RADIUS route-download server
  - NextHop—IP address of the next hop
  - Dst/Met—Administrative distance and number of hops for the route
  - Tag—Tag assigned to downloaded routes
  - Intf—Interface type and specifier
- Example 1

```
host1#show aaa route-download routes global
                                                Number
                                                  of
Virtual Router        VRF       Present Routes
--------------- --------------- ------- ------
aaa                               n       4
aaa             a1                n       4
default                           y       4
default         d1                n       4
```

- Example 2

```
host1#show aaa route-download routes global detail
Virtual Router   VRF  Present  Prefix/Length      Type       NextHop       Dst/Met  Intf   Tag
---------------  ---  -------  ---------------  --------  ---------------  -------  -----  ---
aaa                   n        192.168.1.1/32   Access-P  255.255.255.255  0/2      null0  0
aaa                   n        192.168.1.2/32   Access-P  255.255.255.255  0/2      null0  0
aaa                   n        192.168.3.1/32   Access-P  255.255.255.255  0/2      null0  0
aaa                   n        192.168.4.1/32   Access-P  255.255.255.255  0/2      null0  0
aaa              a1   n        192.168.5.3/32   Access-P  255.255.255.255  0/2      null0  0
aaa              a1   n        192.168.7.1/32   Access-P  255.255.255.255  0/2      null0  0
aaa              a1   n        192.168.7.5/32   Access-P  255.255.255.255  0/2      null0  0
aaa              a1   n        192.168.9.1/32   Access-P  255.255.255.255  0/2      null0  0
default               y        192.168.22.1/32  Access-P  255.255.255.255  0/2      null0  0
default               y        192.168.23.1/32  Access-P  255.255.255.255  0/2      null0  0
default               y        192.168.24.1/32  Access-P  255.255.255.255  0/2      null0  0
default               y        192.168.25.1/32  Access-P  255.255.255.255  0/2      null0  0
default          d1   n        192.168.40.6/32  Access-P  255.255.255.255  0/2      null0  0
default          d1   n        192.168.40.7/32  Access-P  255.255.255.255  0/2      null0  0
default          d1   n        192.168.40.8/32  Access-P  255.255.255.255  0/2      null0  0
default          d1   n        192.168.40.9/32  Access-P  255.255.255.255  0/2      null0  0
```

- Example 3

```
host1#show aaa route-download routes global start aaa:a2
                                          Number
                                            of
Virtual Router        VRF       Present Routes
--------------- --------------- ------- ------
default                         y       4
default         d1              n       4
```

show aaa statistics

- Use to display authentication, authorization, and accounting statistics.
- Use the optional **delta** keyword to specify that baselined statistics are to be shown.
- Field descriptions
  - incoming initiate requests—Number of incoming AAA requests (from other E-series applications) for user connect services
  - incoming disconnect requests—Number of incoming AAA requests (from other E-series applications) for user disconnect services
  - outgoing grant (tunnel) responses—Number of outgoing tunnel grant responses to AAA requests
  - outgoing grant responses—Number of outgoing grant responses to AAA requests
  - outgoing deny responses—Number of outgoing deny responses to AAA requests
  - outgoing error responses—Number of outgoing error responses to AAA requests
  - outgoing Authentication requests—Number of authentication requests from AAA to the authentication task
  - incoming Authentication responses—Number of authentication responses from the authentication task to AAA
  - outgoing Re-Authentication requests—Number of reauthentication requests from AAA to the authentication task
  - incoming Re-Authentication responses—Number of reauthentication responses from the authentication task to AAA
  - outgoing Pre-Authentication requests—Number of preauthentication requests from AAA to the preauthentication task
  - incoming Pre-Authentication responses—Number of preauthentication responses from the preauthentication task to AAA
  - outgoing Accounting requests—Number of accounting requests (starts, updates, stops) from AAA to the accounting task
  - incoming Accounting responses—Number of accounting responses (starts, updates, stops) from the accounting task to AAA
  - outgoing Duplicate Acct requests—Number of duplicate accounting requests (starts, updates, stops) from AAA to the accounting task

- incoming Duplicate Acct responses—Number of duplicate accounting responses (starts, updates, stops) from the accounting task to AAA
- outgoing Broadcast Acct requests—Number of broadcast accounting requests (starts, updates, stops) from AAA to the accounting task
- incoming Broadcast Acct responses—Number of broadcast accounting responses (starts, updates, stops) from the accounting task to AAA
- outgoing Address requests—Number of address allocation/release requests from AAA to address allocation task
- incoming Address responses—Number of address allocation/release responses from the address allocation task to AAA

- Example

```
host1#show aaa statistics

              AAA Statistics
              --------------
            Statistic                 Count
-----------------------------------   -----
incoming initiate requests            109
incoming disconnect requests          7
outgoing grant (tunnel) responses     3
outgoing grant responses              6
outgoing deny responses               0
outgoing error responses              0
outgoing Authentication requests      9
incoming Authentication responses     9
outgoing Re-Authentication requests   0
incoming Re-Authentication responses  0
outgoing Pre-Authentication requests  1
incoming Pre-Authentication responses 1
outgoing Accounting requests          120
incoming Accounting responses         120
outgoing Duplicate Acct requests      18
incoming Duplicate Acct responses     18
outgoing Broadcast Acct requests      32
incoming Broadcast Acct responses     32
outgoing Address requests             0
incoming Address responses            0
```

show aaa subscriber per-port-limit

- Use to display the maximum number of active subscribers configured per port.
- Example

```
host1#show aaa subscriber per-port-limit
     Subscriber Port Limits
     ----------------------
     Port              Limit
---------------   ---------------
0/2               5
0/3               2
3/2               2
```

show aaa subscriber per-vr-limit

- Use to display the maximum number of active subscribers configured per virtual router.
- Example

```
host1#show aaa subscriber per-vr-limit
subscriber limit is 0
```

show aaa timeout

- Use to display idle and session timeouts.
- Example

```
host1#show aaa timeout
idle timeout (for PPP Clients) 0 seconds
session timeout (for PPP Clients) 31622400 seconds
```

show aaa user accounting interval

- Use to display the default interval used for interim accounting for users on the virtual router.
- An entry of 0 indicates that the feature is disabled.
- Example

```
host1:vrXyz7#show aaa user accounting interval
user-acct-interval 20
```

show configuration category aaa global-attributes

- Use to display the virtual router groups that are configured for AAA broadcast accounting.
- For additional information about the **show configuration** command, see *Customizing the Configuration Output* in *JUNOSe System Basics Configuration Guide, Chapter 5, Managing the System*.
- Field descriptions
  - aaa accounting vr-group—Name of virtual router groups
  - aaa virtual-router—Name and index number of the virtual routers that are members of the virtual router group
- Example

```
host1#show configuration category aaa global-attributes
! Configuration script being generated on MON JAN 10 2005 15:19:19 UTC
! Juniper Edge Routing Switch ERX-1440
! Version: 9.9.9 development-4.0 (January 7, 2005  17:26)
! Copyright (c) 1999-2004 Juniper Networks, Inc.  All rights reserved.
!
! Commands displayed are limited to those available at privilege level 15
!
! NOTE:  This script represents only a subset of the full system configuration.
! The category displayed is: aaa global-attributes
!
aaa accounting vr-group groupXyzCompany10
 aaa virtual-router 1 vrXyzA
 aaa virtual-router 2 vrXyzB
 aaa virtual-router 3 vrXyzC
 aaa virtual-router 4 vrXyzD
```

```
aaa accounting vr-group groupXyzCompany20
 aaa virtual-router 1 vrXyzP
 aaa virtual-router 2 vrXyzQ
 aaa virtual-router 3 vrXyzR
 aaa virtual-router 4 vrXyzS
!
hostname "host1"
```

show configuration category aaa local-authentication

- Use to display the configuration information for AAA local authentication. You can display information for the following keywords:
  - **databases**—Local user databases configured on the router
  - **users**—Users configured in the local user databases
  - **virtual-router**—Local user database selected by the specified virtual router for local authentication
- For additional information about the **show configuration** command, see *Customizing the Configuration Output* in *JUNOSe System Basics Configuration Guide, Chapter 5, Managing the System*.
- Field descriptions for all keywords
  - aaa local database—Name of the local user database; the name **default** specifies the default local user database
  - aaa local select database—Local user database that the virtual router uses for local authentication
  - aaa local username—Unique user entry in the local user database
  - database—Name of the local user database for the specified username
  - hostname—Name of the host router
  - ip-address—IP address parameter for the user entry
  - ip-address-pool—IP address pool parameter for the user entry
  - operational virtual-router—Virtual router parameter for the user entry
  - password—Password used to authenticate the subscriber
  - secret—Secret used to authenticate the subscriber
  - virtual-router—Name of virtual router
- Example (see *Local Authentication Example* in *Chapter 1, Configuring Remote Access* for additional examples with the **users** and **virtual-router** keywords).

```
host1#show configuration category aaa local-authentication databases
! Configuration script being generated on TUE NOV 09 2004 12:50:18 UTC
! Juniper Edge Routing Switch ERX-1400
! Version: 6.1.0 (November 8, 2004  18:31)
! Copyright (c) 1999-2004 Juniper Networks, Inc.  All rights reserved.
!
! Commands displayed are limited to those available at privilege level 15
!
! NOTE:  This script represents only a subset of the full system configuration.
! The category displayed is: aaa local-authentication databases
!
```

```
hostname host1
aaa new-model
aaa local database default
aaa local database svaleLdb10
```

show configuration category aaa server-attributes include-defaults

- Use to display status of the attributes on the AAA server, including AAA accounting duplication and broadcast.
- For additional information about the **show configuration** command, see *Customizing the Configuration Output* in *JUNOSe System Basics Configuration Guide, Chapter 5, Managing the System*.
- Field descriptions
  - virtual router—Name of the virtual router
  - aaa accounting duplication—Virtual router used for duplicate accounting
  - aaa accounting broadcast—Virtual router group used for broadcast accounting
  - aaa duplicate-address-check—Enabled, disabled
  - aaa accounting acct-stop on-aaa-failure—Enabled, disabled
  - aaa accounting acct-stop on-access-deny—Enabled, disabled
  - aaa subscriber limit per-vr—Enabled, disabled
  - aaa intf-desc-format include sub-intf—Enabled, disabled
  - aaa intf-desc-format include adapter—Enabled, disabled
  - aaa accounting immediate-update—Enabled, disabled
- Example

```
host1#show configuration category aaa server-attributes include-defaults
! Configuration script being generated on MON JAN 10 2005 15:12:02 UTC
! Juniper Edge Routing Switch ERX-1440
! Version: 9.9.9 development-4.0 (January 7, 2005  17:26)
! Copyright (c) 1999-2004 Juniper Networks, Inc.  All rights reserved.
!
! Commands displayed are limited to those available at privilege level 15
!
! NOTE:  This script represents only a subset of the full system configuration.
! The category displayed is: aaa server-attributes
!
virtual-router default
aaa accounting duplication lac
aaa accounting broadcast group1
aaa duplicate-address-check enable
aaa accounting acct-stop on-aaa-failure enable
aaa accounting acct-stop on-access-deny disable
aaa subscriber limit per-vr 0
aaa intf-desc-format include sub-intf enable
aaa intf-desc-format include adapter enable
aaa accounting immediate-update disable
!
! ================================================================================
!
virtual-router lac
no aaa accounting duplication
no aaa accounting broadcast
```

```
aaa duplicate-address-check enable
aaa accounting acct-stop on-aaa-failure enable
aaa accounting acct-stop on-access-deny disable
aaa subscriber limit per-vr 0
aaa intf-desc-format include sub-intf enable
aaa intf-desc-format include adapter enable
aaa accounting immediate-update disable
!
! ================================================================================
!
virtual-router isp
no aaa accounting duplication
no aaa accounting broadcast
aaa duplicate-address-check enable
aaa accounting acct-stop on-aaa-failure enable
aaa accounting acct-stop on-access-deny disable
aaa subscriber limit per-vr 0
aaa intf-desc-format include sub-intf enable
aaa intf-desc-format include adapter enable
aaa accounting immediate-update disable
```

show cops info

- Use to display information about the COPS layer over which the SRC connection is made.
- Field descriptions
  - General COPS Information:
    - Session Created—Number of COPS sessions created
    - Sessions Deleted—Number of COPS sessions deleted
    - Current Sessions—Number of current COPS sessions
    - Bytes Received—Number of bytes received on all COPS sessions
    - Packets Received—Number of packets received on all COPS sessions
    - Bytes Sent—Number of bytes transmitted on all COPS sessions
    - Packets Sent—Number of packets transmitted on all COPS sessions
    - Keep Alive Received—Number of COPS keepalive messages received
    - Keep Alive Sent—Number of COPS keepalive message*s sent*
  - Session Information:
    - Remote IP Address—IP address of the remote peer
    - Remote TCP Port—TCP port number of the remote peer
    - Client Type—Type of client for the session. For this release the client type must be 16640 (SRC client).
    - Bytes Received—Number of bytes received for this COPS session
    - Packets Received—Number of packets received for this COPS session
    - Bytes Sent—Number of bytes sent on this COPS session
    - Packets Sent—Number of packets sent on this COPS session
    - REQ Sent—Number of Request packets sent on this COPS session
    - DEC Rcv—Number of Decision packets received on this COPS session

- RPT Sent—Number of Report packets sent on this COPS session
- DRQ Sent—Number of Delete Requests sent on this COPS session
- SSQ Rcv—Number of Synch Requests received on this COPS session
- OPN Sent—Number of Open messages sent on this COPS session
- CAT Rcv—Number of Client Accepts packets received on this COPS session
- CC Sent—Number of Client Closes packets sent on this COPS session
- CC Rcv—Number of Client Closes packets received on this COPS session
- SSC Sent—Number of Sync Complete packets sent on this COPS session

- Example

```
host1#show cops info
General Cops Information:

        Sessions Created: 1
        Sessions Deleted: 0
        Current Sessions: 1
        Bytes Received: 680
        Packets Received: 17
        Bytes Sent: 692
        Packets Sent: 21
        Keep Alive Received: 12
        Keep Alive Sent: 12

Session Information
        Remote Ip Address: 10.10.0.223
        Remote TCP Port: 4001
        Client Type: 16384
        Bytes Received:   2224
        Packets Received: 5
        Bytes Sent:       596
        Packets Sent:     9
        REQ Sent:         4
        DEC Rcv:          4
        RPT Sent:         4
        DRQ Sent:         0
        SSQ Rcv:          0
        OPN Sent:         1
        CAT Rcv:          1
        CC Sent:          0
        CC Rcv:           0
        SSC Sent:         0
```

show cops statistics

- Use to display statistics about the COPS layer over which the SRC connection is made.
- Field descriptions
  - General COPS Information:
    - Session Created—Number of COPS sessions created
    - Sessions Deleted—Number of COPS sessions deleted

- Current Sessions—Number of current COPS sessions
- Bytes Received—Number of bytes received on all COPS sessions
- Packets Received—Number of packets received on all COPS sessions
- Bytes Sent—Number of bytes transmitted on all COPS sessions
- Packets Sent—Number of packets transmitted on all COPS sessions
- Keep Alive Received—Number of COPS keepalive messages received
- Keep Alive Sent—Number of COPS keepalive message*s sent*

- Session Information:
  - Client Type—Type of client for the session.
  - Bytes Received—Number of bytes received for this COPS session
  - Packets Received—Number of packets received for this COPS session
  - Bytes Sent—Number of bytes sent on this COPS session
  - Packets Sent—Number of packets sent on this COPS session
  - REQ Sent—Number of Request packets sent on this COPS session
  - DEC Rcv—Number of Decision packets received on this COPS session
  - RPT Sent—Number of Report packets sent on this COPS session
  - DRQ Sent—Number of Delete Requests sent on this COPS session
  - SSQ Rcv—Number of Synch Requests received on this COPS session
  - OPN Sent—Number of Open messages sent on this COPS session
  - CAT Rcv—Number of Client Accepts packets received on this COPS session
  - CC Sent—Number of Client Closes packets sent on this COPS session
  - CC Rcv—Number of Client Closes packets received on this COPS session
  - SSC Sent—Number of Sync Complete packets sent on this COPS session

- Example

```
host1#show cops statistics
General Cops Information:
        Sessions Created: 0
        Sessions Deleted: 0
        Current Sessions: 0
        Bytes Received: 1108
        Packets Received: 12
        Bytes Sent: 1572
        Packets Sent: 18
        Keep Alive Received: 2
        Keep Alive Sent: 2
Session Information:
        Client Type: 24754
        Bytes Received:   2539032
        Packets Received: 20388
        Bytes Sent:       4386648
        Packets Sent:     51337
        REQ Sent:         21203
        DEC Rcv:          20388
```

```
RPT Sent:          20391
DRQ Sent:          9743
SSQ Rcv:           0
OPN Sent:          0
CAT Rcv:           0
CC Sent:           0
CC Rcv:            0
SSC Sent:          0
```

show ip local alias

- Use to display information about aliases for the local address pools configured on your router.
- If you do not specify an alias, the router displays all aliases.
- Field descriptions
  - Alias—Name of alias for the local address pool
  - Pool—Name of the local address pool
- Example

```
host1#show ip local alias

Alias    Pool
------   -----
alias1   poolA
alias2   poolB
alias3   poolC
 poolA   poolD
 poolB   poolD
 poolC   poolD
```

show ip local pool

- Use to display information about the local address pools configured on your router.
- If you do not specify the name of a local address pool, the router displays all local address pools.
- Field descriptions
  - Pool—User-specified name of the address pool
  - High Thresh—High utilization threshold value
  - Abated Thresh—Abated utilization threshold value
  - Trap—Enable SNMP pool utilization traps: Y (yes) or N (no)
  - Aliases—Aliases for the local address pool
  - Begin—Starting IP address
  - End—Ending IP address
  - Free—Number of addresses available for use
  - In Use—Number of addresses currently in use

- Example

```
host1#show ip local pool

         High    Abated
Pool    Thresh   Thresh   Trap   Group
-----   ------   ------   ----   -----
poolA       85       75    N

     Aliases
     -------
      alias1
                                  In
      Begin        End       Free   Use
     --------   ---------   ----   ---
     10.1.1.1   10.1.1.10    10     0
     10.1.2.1   10.1.2.10    10     0
     10.1.3.1   10.1.3.10    10     0

         High    Abated
Pool    Thresh   Thresh   Trap   Group
-----   ------   ------   ----   -----
poolB       85       75    N

     Aliases
     -------
      alias2
                                  In
      Begin        End       Free   Use
     --------   ---------   ----   ---
     10.2.1.1   10.2.1.10    10     0
     10.2.2.1   10.2.2.10    10     0

         High    Abated
Pool    Thresh   Thresh   Trap   Group
-----   ------   ------   ----   -----
poolC       85       75    N

     Aliases
     -------
      alias3
                                  In
      Begin        End       Free   Use
     --------   ---------   ----   ---
     10.3.1.1   10.3.1.10    10     0

         High    Abated
Pool    Thresh   Thresh   Trap   Group
-----   ------   ------   ----   -----
poolD       85       75    N

     Aliases
     -------
       poolA
       poolB
       poolC
                                   In
      Begin        End        Free   Use
     --------   ----------   ----   ---
     10.4.1.1   10.4.1.255   255     0
```

show ip local pool statistics

- Use to display local address pool statistics.
- Use the optional **delta** keyword to specify that baselined statistics are to be shown.
- Example

```
host1#show ip local pool statistics
 Local Address Pool Statistics

            Statistic               Values
---------------------------------   ------
Requests denied (pool exhaustion)   0
```

show ip local shared-pool

- Use to display the shared local address pool configurations.
- Field descriptions
  - Shared Pool—Name of the shared local address pool
  - In Use—Number of addresses allocated
  - Dhcp Pool—Name of the DHCP address pool
- Example

```
host1#show ip local shared-pool

Shared Pool   In Use  Dhcp Pool
-----------   ------  ---------
shared_poolA  253     dhcp_pool_25
shared_poolB  83      dhcp_pool_25
shared_poolC  99      dhcp_pool_17
```

show ip route

- Use to display the current state of the routing table, including routes not used for forwarding.
- An Access-P entry in the Type column of the output indicates routes that are downloaded by the RADIUS route-download server.
- Refer to the description of the **show ip route** command in *JUNOSe IP, IPv6, and IGP Configuration Guide, Chapter 1, Configuring IP* for additional information about the **show ip route** command.

```
host1#show ip route
Protocol/Route type codes:
  I1- ISIS level 1, I2- ISIS level2,
  I- route type intra, IA- route type inter, E- route type external,
  i- metric type internal, e- metric type external,
  P- periodic download, O- OSPF, E1- external type 1, E2- external type2,
  N1- NSSA external type1, N2- NSSA external type2
  L- MPLS label, V- VRF, *- via indirect next-hop
```

```
Prefix/Length      Type       Next Hop      Dst/Met          Interface
------------------ ---------- ------------- ---------- -----------------
0.0.0.0/0          Static     10.13.10.1      1/0        FastEthernet6/0/0
192.168.10.0/23    Connect    10.13.10.187    0/0        FastEthernet6/0/0
192.168.21.21/32   Access-P   255.255.255.255 254/2      null0
192.168.22.22/32   Access-P   255.255.255.255 254/2      null0
192.168.23.23/32   Access-P   255.255.255.255 254/2      null0
192.168.24.24/32   Access-P   255.255.255.255 254/2      null0
```

show license b-ras

- Use to display the B-RAS license.
- Example

```
host1#show license b-ras
K4bZ16Lr
```

show radius algorithm

- Use to display information about the currently configured RADIUS server algorithm.
- Example

```
host1#show radius algorithm
direct
```

show radius override

- Use to display the current RADIUS override settings.
- Field descriptions
  - nas-ip-addr—Either the NAS-IP-Address [4] attribute is used, or it is overridden with the Tunnel-Client-Endpoint [66] attribute.
  - nas-info—Either the NAS-IP-Address [4] and NAS-Identifier [32] attributes of the virtual router generating the accounting information are used, or they are overridden with the respective attributes of the authentication virtual router.
- Example

```
host1:vrXyz7#show radius override
nas-ip-addr: nas-ip-addr
nas-info:    from authentication virtual router
```

show radius rollover-on-reject

- Use to display the configuration of the RADIUS rollover feature.
- Example

```
host1#show radius rollover-on-reject
rollover-on-reject enabled
```

show radius servers

- Use to display RADIUS server information.
- Use with the optional **accounting**, **authentication**, **dynamic-request**, **route-download**, or **pre-authentication** keywords to limit output to the specific type of server.
- Field descriptions
  - IP Address—IP address of RADIUS server
  - Udp Port—Number of the UDP port of the RADIUS server
  - Retry Count—Maximum number of times that the router retransmits a RADIUS packet to the RADIUS server
  - Timeout—Interval (in seconds) before the router retransmits a RADIUS packet to the RADIUS server
  - Maximum Sessions—Number of outstanding requests to the RADIUS server
  - Dead Time—Amount of time to remove the authentication server or accounting server from the available list when a timeout occurs
  - Secret—Configured authentication server or accounting server secret
- Example

```
host1#show radius servers
               RADIUS Authentication Configuration
               -----------------------------------
                Udp    Retry             Maximum    Dead
 IP Address     Port   Count   Timeout   Sessions   Time   Secret
-------------   ----   -----   -------   --------   ----   ------
172.28.30.117   1812   3       3         255        0      radius

                RADIUS Accounting Configuration
                -------------------------------
                Udp    Retry             Maximum    Dead
 IP Address     Port   Count   Timeout   Sessions   Time   Secret
-------------   ----   -----   -------   --------   ----   ------
172.28.30.117   1813   3       3         255        0      radius


               RADIUS Pre-Authentication Configuration
               ---------------------------------------
                Udp    Retry             Maximum    Dead
 IP Address     Port   Count   Timeout   Sessions   Time   Secret
-------------   ----   -----   -------   --------   ----   ------
172.28.30.117   1812   3       3         255        0      radius


               RADIUS Route-Download Configuration
               -----------------------------------
                Udp    Retry             Maximum    Dead
 IP Address     Port   Count   Timeout   Sessions   Time   Secret
-------------   ----   -----   -------   --------   ----   ------
192.168.30.16   1812   3       3         255        0      radius
```

show radius statistics

- Use to display statistics on RADIUS services.
- Use with the optional **accounting**, **authentication**, **dynamic-request**, **route-download**, or **pre-authentication** keywords to limit output to the specific type of statistics.
- Use the optional **delta** keyword to specify that baselined statistics are to be shown.
- Field descriptions

NOTE: All descriptions apply to the primary, secondary, and tertiary RADIUS authentication and accounting servers.

- UDP Port—Number of the UDP port of a RADIUS server
- Round Trip Time—Hundreds of seconds from request to response
- Access Requests—Number of access requests sent to server
- Rollover Requests—Number of requests coming into server as a result of the previous server timing out
- Retransmissions—Number of retransmissions
- Access Accepts—Number of Access-Accepts received from the server
- Access Rejects—Number of Access-Rejects received from the server
- Access Challenges—Number of access challenges received from the server
- Malformed Responses—Number of responses with attributes having an invalid length or unexpected attributes (such as two attributes when the response is required to have at most one)
- Bad Authenticators—Number of responses in which the authenticator is incorrect for the matching request. This can occur if the RADIUS secret for the client and server does not match.
- Requests Pending—Number of requests waiting for a response
- Request Timeouts—Number of requests that timed out
- Unknown Responses—Number of unknown responses. The RADIUS response type in the header is invalid or unsupported.
- Packets Dropped—Number of packets dropped either because they are too short or the E-series router receives a response for which there is no corresponding request. For example, if the router sends a request and the request times out, the router removes the request from the list and sends a new request. If the server is slow and sends a response to the first request after the router removes the request, the packet is dropped.
- Requests—Total number of accounting requests sent, which is the combined total of Start Requests, Interim Requests, Stop Requests, and Reject Requests
- Start Requests—Number of accounting start requests sent; includes Acct-On, Acct-Start, Acct-Link-State, and Acct-Tunnel-Start requests
- Interim Requests—Number of interim accounting requests

- Stop Requests—Number of accounting stop requests sent; includes Acct-Off, Acct-Stop, Acct-Link-Stop, and Acct-Tunnel-Stop requests
- Reject Requests—Number of accounting reject requests sent; includes Acct-Link-Reject and Acct-Tunnel-Reject requests
- Responses—Number of accounting responses received from the server
- Start Responses—Number of accounting start responses received; includes Acct-On, Acct-Start, Acct-Link-Start, and Acct-Tunnel-Start responses
- Interim Responses—Number of interim accounting responses
- Stop Responses—Number of accounting stop responses received; includes Acct-Off, Acct-Stop, Acct-Link-Stop, and Acct-Tunnel-Stop responses
- Reject Responses—Number of accounting reject responses received; includes Acct-Link-Reject and Acct-Tunnel-Reject responses

- Example 1

```
host1#show radius statistics
   RADIUS Authentication Statistics
   --------------------------------
     Statistic        10.10.121.128
-------------------   -------------
UDP Port              1812
Round Trip Time       0
Access Requests       0
Rollover Requests     0
Retransmissions       0
Access Accepts        0
Access Rejects        0
Access Challenges     0
Malformed Responses   0
Bad Authenticators    0
Requests Pending      0
Request Timeouts      0
Unknown Responses     0
Packets Dropped       0

     RADIUS Accounting Statistics
     ----------------------------
     Statistic        10.10.121.128
-------------------   -------------
UDP Port              1646
Round Trip Time       2
Requests              1
Start Requests        1
Interim Requests      0
Stop Requests         0
Reject Requests       0
Rollover Requests     0
Retransmissions       3
Responses             1
Start Responses       1
Interim Responses     0
Stop Responses        0
Reject Responses      0
Malformed Responses   0
Bad Authenticators    0
```

```
Requests Pending      0
Request Timeouts      3
Unknown Responses     0
Packets Dropped       0
```

- Example 2

```
host1#show radius pre-authentication statistics

 RADIUS Pre-Authentication Statistics
 ------------------------------------
     Statistic        172.28.30.117
-------------------   -------------
UDP Port              1812
Round Trip Time       0
Access Requests       2809
Rollover Requests     0
Retransmissions       56
Access Accepts        2809
Access Rejects        0
Access Challenges     0
Malformed Responses   0
Bad Authenticators    0
Requests Pending      0
Request Timeouts      72
Unknown Responses     0
Packets Dropped       2
```

- Example 3

```
host1#show radius route-download statistics

 RADIUS Route-Download Statistics
 --------------------------------
     Statistic        192.168.30.16
-------------------   -------------
UDP Port              1812
Round Trip Time       0
Access Requests       1613
Rollover Requests     0
Retransmissions       6
Access Accepts        1612
Access Rejects        1
Access Challenges     0
Malformed Responses   0
Bad Authenticators    0
Requests Pending      0
Request Timeouts      6
Unknown Responses     0
Packets Dropped       5
```

show radius trap

- Use to display the configuration of RADIUS SNMP traps.
- Example

```
host1#show radius trap
trap for auth-server-not-responding enabled
trap for no-auth-server-responding disabled
trap for auth-server-responding enabled
trap for acct-server-not-responding enabled
trap for no-acct-server-responding disabled
trap for acct-server-responding disabled
```

show radius tunnel-accounting

- Use to display information about RADIUS accounting for L2TP tunnels.
- Example

```
host1#show radius tunnel-accounting
disabled
```

show radius udp-checksum

- Use to display information about UDP checksums.
- Example

```
host1#show radius udp-checksum
enabled
```

show radius update-source-addr

- Use to display the IP address of the RADIUS servers.
- Example

```
host1#show radius update-source-address
192.168.1.228
```

show sscc info

- Use to display the current status of the SRC client connection to the SAEs. The command output refers to the SRC client by its former name, SSC client.
- Field descriptions
  - The SSC client configured servers—IP addresses of the primary, secondary, and tertiary SAEs
  - Local Source—Fixed source interface for the TCP/COPS connection
  - Local Source Address—Fixed source address for the TCP/COPS connection
  - The configured transport router is—Router on which is TCP/COPS connection is established
  - The configured retry timer is (seconds)—Delay period the client waits for a response from the SAE before submitting request again
  - The connection state is—Current state of the TCP/COPS connection
  - SSC Client Statistics—Statistics about the connection between the SRC client and SAE
    - Policy Commands received—Number of policy commands received on the SRC client connection
    - Policy Commands(List)—Number of Policy Commands with subtype List
    - Policy Commands(Acct)—Number of Policy Commands with subtype Accounting
    - Bad Policy Cmds received—Number of Policy Commands received with bad policies
    - Error Policy Cmds received—Number of Policy Commands received with errors

- Policy Reports sent—Number of Policy Reports sent
- Connection Open requests—Number of connections the SRC client has tried to open with a remote SAE
- Connection Open completed—Number of connections successfully open to the SAE
- Connection Closed sent—Number of connections the SRC client has closed
- Connection Closed remotely—Number of connections that were closed by the remote SAE
- Create Interfaces sent—Number of create interface indications sent to the SAE
- Delete Interfaces sent—Number of delete interface indications sent to the SAE
- Active IP Interfaces—Current number of active IP interfaces the SRC client is aware of
- IP Interface Transitions—Number of IP interface transitions logged by the SRC client
- Synchronizes received—Number of synchronization requests the SRC client received from the SAE
- Synchronize Complete sent—Number of synchronization complete indications sent
- Internal Errors—Number of internal errors
- Communication Errors—Number of errors with lower-layer communications (such as socket errors)

- Example

```
host1#show sscc info
The SSC Client is currently unconnected
The SSC Client configured servers are:
        Primary: 10.10.2.2:3
        Secondary: 0.0.0.0:0
        Tertiary: 0.0.0.0:0
        Local Source: FastEthernet 0/0, Local Source Address: 10.13.5.61
        The configured transport router is: default
        The configured retry timer is (seconds): 90
        The connection state is: NoConnection
 SSC Client Statistics:
        Policy Commands received   0
        Policy Commands(List)      0
        Policy Commands(Acct)      0
        Bad Policy Cmds received   0
        Error Policy Cmds received 0
        Policy Reports sent        0
        Connection Open requests   0
        Connection Open completed  0
        Connection Closed sent     0
        Connection Closed remotely 0
        Create Interfaces sent     0
        Delete Interfaces sent     0
        Active IP Interfaces       2
        IP Interface Transitions   0
        Synchronizes received      0
```

```
Synchronize Complete sent  0
Internal Errors            0
Communication Errors       0
Tokens Seen                0
Active Tokens              0
Token Transitions          0
Token Creates Sent         0
Token Deletes Sent         0
Active Addresses           0
Address Transitions        0
Create Addresses Sent      0
Delete Addresses Sent      0
Authentication Successes   0
Authentication Failures    0
```

show sscc statistics

- Use to display statistics about connection between the SRC client and SAE. The command output refers to the SRC client by its former name, SSC client.
- Field descriptions
  - Policy Commands received—Number of policy commands received on the SRC client connection
  - Policy Commands(List)—Number of Policy Commands with subtype List
  - Policy Commands(Acct)—Number of Policy Commands with subtype Accounting
  - Bad Policy Cmds received—Number of Policy Commands received with bad policies
  - Error Policy Cmds received—Number of Policy Commands received with errors
  - Policy Reports sent—Number of Policy Reports sent
  - Connection Open requests—Number of connections the SRC client has tried to open with a remote SAE
  - Connection Open completed—Number of connections successfully open to the SAE
  - Connection Closed sent—Number of connections the SRC client has closed
  - Connection Closed remotely—Number of connections that were closed by the remote SAE
  - Create Interfaces sent—Number of create interface indications sent to the SAE
  - Delete Interfaces sent—Number of delete interface indications sent to the SAE
  - Active IP Interfaces—Current number of active IP interfaces the SRC client is aware of
  - IP Interface Transitions—Number of IP interface transitions logged by the SRC client
  - Synchronizes received—Number of synchronization requests the SRC client received from the SAE

  - Synchronize Complete sent—Number of synchronization complete indications sent
  - Internal Errors—Number of internal errors
  - Communication Errors—Number of errors with lower-layer communications (such as socket errors)
- Example

```
host1#show sscc statistics
SSC Client Statistics:
        Policy Commands received   0
        Policy Commands(List)      0
        Policy Commands(Acct)      0
        Bad Policy Cmds received   0
        Error Policy Cmds received 0
        Policy Reports sent        3
        Connection attempts        7
        Connection Open requests   7
        Connection Open completed  0
        Connection Closed sent     0
        Connection Closed remotely 5
        Create Interfaces sent     0
        Delete Interfaces sent     3
        Active IP Interfaces       3282
        IP Interface Transitions   3281
        Synchronizes received      0
        Synchronizes rcvd & droped 0
        Synchronize Complete sent  2
        Internal Errors            0
        Communication Errors       0
        Discovers Seen             15263
        Active Discovers           4911
        Discover Transitions       20704
        Discover Creates Sent      15263
        Discover Deletes Sent      10352
        Active Addresses           3274
        Address Transitions        3280
        Create Addresses Sent      3277
        Delete Addresses Sent      3
```

show sscc version

- Use to display the SRC client (formerly SDX client) version number.
- Example

```
host1#show sscc version
The SSC Client version is: 4.0
```

show subscribers

- Use to display the active subscribers on the router.
- If you specify a username, the router displays only the users that match.
- When you issue the command in the default VR, all users are displayed. When you issue the command in a nondefault VR, only those users attached to that VR are displayed.
- You can use the **domain**, **interface**, **port**, **slot**, **username**, or **virtual-router** keywords on all routers to filter the results. If you do not use a keyword, all active users are displayed.

- When you use the **interface** keyword to display detailed subscriber information by interface, you must also specify either the **atm** or **ethernet** keyword, an interface specifier, and optionally a subinterface specifier.

- The output displayed in the interface field depends on the configuration of two commands at the time the subscriber logs in: **aaa intf-desc-format include sub-intf** and **aaa intf-desc-format include adapter** (for the E120 and E320 routers).

  When the **aaa intf-desc-format include sub-intf disable** command has been issued, the subinterface is stripped from the subscriber's interface field at login and is not displayed in the output. In the default state, or when the **aaa intf-desc-format include sub-intf enable** command has been issued, the subinterface is included in the subscriber's interface field at login, and is displayed in the output.

  When the **aaa intf-desc-format include adapter disable** command has been issued, the adapter is stripped from the subscriber's interface field at login and is not displayed in the output. In the default state, or when the **aaa intf-desc-format include adapter enable** command has been issued, the adapter is included in the subscriber's interface field at login and is displayed in the output.

  Even when the subinterface has been stripped from the subscriber's interface field, you can still include the subinterface specifier in the **show subscribers interface** command. Even though the subinterface itself is not displayed, only subscribers on the specified subinterface are displayed.

  These considerations do not apply when you issue the **summary** keyword. The output displayed in the Interface field of summary versions is not affected by the state of either the **aaa intf-desc-format include sub-intf** command or the **aaa intf-desc-format include adapter** command when the subscriber logs in.

- You can use the **ipv6** keyword to display all IPv6 subscribers or include the IPv6 prefix to limit the display to only IPv6 subscribers on a specific network.
- You can use the **summary** keyword to display only summary information about active subscribers.
- Field descriptions
  - User Name—Name of the subscriber
  - Type—Type of subscriber: atm, ip, ipsec, ppp, tnl (tunnel), tst (test)
  - Addr | Endpt—IP or IPv6 address and source of the address: l2tp, local, dhcp, radius, user. For local, dhcp, radius, and user endpoints, the address is that of the user. When the endpoint is l2tp, the address is that of the LNS.
  - Virtual Router—Name of the virtual router context
  - Interface—Interface specifier over which the subscriber is connected
  - Login Time—Date, in YY/MM/DD format, and time the subscriber logged in
  - Circuit Id—User circuit ID value specified by PPPoE
  - Remote Id—User remote ID value specified by PPPoE
  - Total Subscribers—Number of active subscribers, chassis-wide

- Peak Subscribers—Maximum value of the Total Subscriber field during the time the router has been active, chassis-wide
- Subscribers—Number of subscribers; the sum of the Ppp and Ip fields
- Ppp—Number of PPPoA and PPPoE users, combined
- Ip—Number of DHCP and IP subscriber manager users, combined
- Tnl—Number of users tunneled to an LNS
- Total—Total number of users per virtual router; the sum of the Ppp, Ip, and Tnl fields
- Domain Name—Domain name used by the subscriber
- Count—Number of subscribers
- Slot—Number of slot in the chassis

- Example 1

```
host1#show subscribers
                          Subscriber List
                          ---------------
                                                          Virtual
      User Name           Type         Addr|Endpt          Router
----------------------   -----   --------------------   ------------
fred                     tst     10.10.65.86/radius     default
bert                     tst     192.168.10.3/user      default
      User Name                     Interface
----------------------   --------------------------------
fred                     atm 2/1.42:100.104
bert                     FastEthernet 5/2.4
      User Name              Login Time           Circuit Id
----------------------   -------------------   ----------------
fred                     06/05/12 10:58:42     atm 5/1.3
bert                     06/05/12 10:59:08
     User Name              Remote Id
----------------------   ----------------
fred
bert                     (800) 555-1212
```

- Example 2—Shows detailed information for subscribers on the specified interface

```
host1#show subscribers interface ethernet 5/2
                          Subscriber List
                          ---------------
                                                          Virtual
      User Name           Type         Addr|Endpt          Router
----------------------   -----   --------------------   ------------
bert                     tst     192.168.10.3/user      default
       User Name                    Interface
-----------------------  --------------------------------
bert                     FastEthernet 5/2.4
       User Name             Login Time           Circuit Id
-----------------------  -------------------   ----------------
bert                     06/05/12 10:59:08
       User Name             Remote Id
-----------------------   ----------------
bert                     (800) 555-0000
```

- Example 3—Shows detailed information for subscribers on the specified slot

```
host1#show subscribers slot 5
                          Subscriber List
                          ---------------
                                                              Virtual
       User Name          Type         Addr|Endpt             Router
------------------------  -----   --------------------   ------------
fred                      tst     10.10.65.86/radius     default
       User Name                     Interface
------------------------  --------------------------------
fred                      atm 5/1.42:100.104
       User Name              Login Time           Circuit Id
------------------------  -------------------   ----------------
fred                      06/05/12 10:58:42     atm 5/1.3
       User Name             Remote Id
-----------------------    ----------------
fred
```

- Example 4—Shows the number of subscribers on each virtual router, as well as the total and peak subscribers for the chassis

```
host1#show subscribers summary
  Virtual
   Router      Subscribers     Ppp       Ip      Tnl     Total
------------   ------------   ------   ------   ------   ------
default        1              1        0        0        1
Total Subscribers : 10 (chassis-wide total)
Peak  Subscribers : 15 (chassis-wide total)
```

- Example 5—Shows the number of subscribers on each port

```
host1#show subscribers summary port
Interface      Count
------------   ------
3/1            5
2/1            5
Total Subscribers : 10 (chassis-wide total)
Peak  Subscribers : 15 (chassis-wide total)
```

- Example 6—Shows the number of subscribers by domain name

```
host1#show subscribers summary domain
          Domain Name              Count
-------------------------------   ------
abc.com                           5
iii.com                           5
Total Subscribers : 10 (chassis-wide total)
Peak  Subscribers : 15 (chassis-wide total)
```

- Example 7—Shows the number of subscribers by interface

```
host1#show subscribers summary interface
     Interface         Count
--------------------   ------
ATM 3/2.1              1
ETHERNET 5/2.1         2
Total Subscribers : 3 (chassis-wide total)
Peak  Subscribers : 6 (chassis-wide total)
```

- Example 8—Shows the number of subscribers by slot

```
host1#show subscribers summary slot
  Slot     Count
--------   -----
3          1
5          4
Total Subscribers : 5 (chassis-wide total)
Peak  Subscribers : 8 (chassis-wide total)
```

show terminate-code

- Use to display information about the mappings for application terminate reasons.
- Field descriptions
  - Apps—The application generating the terminate reason; AAA, L2TP, PPP, or RADIUS client
  - Terminate Reason—The application's terminate reason
  - Description—The terminate reason
  - Radius Code—The RADIUS Acct-Terminate-Cause code to which the application's terminate reason is mapped
- Example 1—Specifies the **radius** keyword to display all current terminate reasons mapped to RADIUS Acct-Terminate-Cause codes. This command lists all PPP mappings, followed by L2TP mappings, and then AAA mappings.

```
host1(config)#run show terminate-code radius
                                                                    Radius
  Apps          Terminate Reason              Description           Code
---------   --------------------------   --------------------------   ------
ppp         authenticate-authenticator   authenticate authenticator    17
            -timeout                      timeout
ppp         authenticate-challenge-tim   authenticate challenge tim    10
            eout                         eout
ppp         authenticate-chap-no-resou   authenticate chap no resou    10
            rces                         rces
ppp         authenticate-chap-peer-aut   authenticate chap peer aut    17
            henticator-timeout           henticator timeout
ppp         authenticate-deny-by-peer    authenticate deny by peer     17
ppp         authenticate-inactivity-ti   authenticate inactivity ti    4
            meout                        meout
ppp         authenticate-max-requests    authenticate max requests     10
 --More--
```

- Example 2—Specifies the **radius** keyword and a RADIUS Acct-Terminate-Cause code to display all terminate reasons mapped to the specified terminate code. The following example uses **radius 4** as the terminate code.

```
host1(config)#run show terminate-code radius 4
                                                                    Radius
  Apps          Terminate Reason              Description           Code
---------   --------------------------   --------------------------   ------
ppp         authenticate-inactivity-ti   authenticate inactivity ti    4
            meout                        meout
l2tp        session-timeout-inactivity   session timeout inactivity    4
```

- Example 3—Specifies an application to show all current mappings for the particular application's terminate reasons. This example uses **aaa** as the application.

```
host1(config)#run show terminate-code aaa
                                                                    Radius
  Apps           Terminate Reason              Description           Code
---------   --------------------------   --------------------------   ------
aaa         deny-server-not-available    deny server not available     17
aaa         deny-server-request-timeou   deny server request timed     17
            t                            out
aaa         deny-authentication-failur   deny authentication failur    17
            e                            e from server
aaa         deny-address-assignment-fa   deny address assignment fa    17
            ilure                        ilure
aaa         deny-address-allocation-fa   deny address allocation fa    17
            ilure                        ilure
aaa         deny-no-address-allocation   deny insufficient resource    17
            -resources                   s for address allocation
aaa         deny-unknown-subscriber      deny no such server entry     17
aaa         deny-no-resources            deny no resources availabl    10
                                         e
 --More--
```

- Example 4—Specifies an application and terminate reason to show the mapping for a specific terminate reason. This example uses **l2tp** as the application and **session-access-interface-down** as the terminate reason.

```
host1(config)#run show terminate-code l2tp session-access-interface-down
                                                                  Radius
                Terminate Reason Description                       Code
-------------------------------------------------------------   ------
session access interface down                                     8
```