show ip sockets through show sockets

show ip sockets

To display IP socket information, use the **show ip sockets** command in user EXEC or privileged EXEC mode.

show ip sockets

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
10.0 T	This command was introduced.
12.2(2)T	Support for IPv6 socket information in the display output of the command was added.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.4(11)T	This command was replaced by the **show udp**, **show sockets** and **show ip sctp** commands.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.

Usage Guidelines

Use this command to verify that the socket being used is opening correctly. If there is a local and remote endpoint, a connection is established with the ports indicated.

Examples

The following is sample output from the **show ip sockets** command:

```
Router# show ip sockets

Proto   Remote          Port    Local           Port  In Out Stat TTY OutputIF
17      10.0.0.0        0       172.16.186.193  67    0   0   1    0
17      172.16.191.135  514     172.16.191.129  1811  0   0   0    0
17      172.16.135.20   514     172.16.191.1    4125  0   0   0    0
17      172.16.207.163  49      172.16.186.193  49    0   0   9    0
17      10.0.0.0        123     172.16.186.193  123   0   0   1    0
88      10.0.0.0        0       172.16.186.193  202   0   0   0    0
```

```
17      172.16.96.59    32856  172.16.191.1   161  0   0   1   0
17      --listen--             --any--        496  0   0   1   0
```
The following sample output from the **show ip sockets** command shows IPv6 socket information:

```
Router# show ip sockets

Proto     Remote      Port    Local     Port    In    Out    Stat    TTY OutputIF
17(v6)  --listen--           --any--   1024     0     0      0       0
17(v6)  --listen--           --any--      7     0     0      0       0 17(v6)
--listen--          --any--    161      0     0      0             0
17(v6)  --listen--           --any--    162     0     0      0       0
17      --listen--           --any--   1024     0     0      0       0
17      --listen--           --any--      7     0     0      0       0
17      --listen--           --any--      9     0     0      0       0
17      --listen--           --any--     19     0     0      0       0
17      --listen--           --any--   1645     0     0      0       0
17      --listen--           --any--   1646     0     0      0       0
17      --listen--           --any--    161     0     0      0       0
17      --listen--           --any--    162     0     0      0       0
```
The table below describes the significant fields shown in the display.

Table 1: show ip sockets Field Descriptions

Field	Description
Proto	Protocol type, for example, User Datagram Protocol (UDP) or TCP.
Remote	Remote address connected to this networking device. If the remote address is considered illegal, "--listen--" is displayed.
Port	Remote port. If the remote address is considered illegal, "--listen--" is displayed.
Local	Local address. If the local address is considered illegal or is the address 0.0.0.0, "--any--" displays.
Port	Local port.
In	Input queue size.
Out	Output queue size.
Stat	Various statistics for a socket.
TTY	The tty number for the creator of this socket.
OutputIF	Output IF string, if one exists.
v6	IPv6 sockets.

Related Commands

Command	Description
show ip sctp	Displays information about SCTP.
show processes	Displays information about the active processes.
show sockets	Displays IP socket information.
show udp	Displays IP socket information about UDP processes.

show ip tcp header-compression

To display TCP/IP header compression statistics, use the **show ip tcp header-compression** command in user EXEC or privileged EXEC mode.

show ip tcp header-compression [*interface-type interface-number*] **[detail]**

Syntax Description

interface-type interface-number	(Optional) The interface type and number.
detail	(Optional) Displays details of each connection. This keyword is available only in privileged EXEC mode.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.4	This command was integrated into Cisco Release 12.4 and its command output was modified to include additional compression statistics.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.4(15)T12	This command was modifed. Support was added for the special Van Jacobson (VJ) format of TCP header compression.

Examples

The following is sample output from the **show ip tcp header-compression** command:

```
Router# show ip tcp header-compression

TCP/IP header compression statistics:
  Interface Serial2/0 (compression on, IETF)
    Rcvd:    53797 total, 53796 compressed, 0 errors, 0 status msgs
             0 dropped, 0 buffer copies, 0 buffer failures
    Sent:    53797 total, 53796 compressed, 0 status msgs, 0 not predicted
             1721848 bytes saved, 430032 bytes sent
             5.00 efficiency improvement factor
    Connect: 16 rx slots, 16 tx slots,
             1 misses, 0 collisions, 0 negative cache hits, 15 free contexts
             99% hit ratio, five minute miss rate 0 misses/sec, 0 max
```

The table below describes the significant fields shown in the display.

Table 2: show ip tcp header-compression Field Descriptions

Field	Description
Interface Serial2/0 (compression on, IETF)	Interface type and number on which compression is enabled.
Rcvd:	Received statistics described in subsequent fields.
total	Total number of TCP packets received on the interface.
compressed	Total number of TCP packets compressed.
errors	Number of packets received with errors.
status msgs	Number of resynchronization messages received from the peer.
dropped	Number of packets dropped due to invalid compression.
buffer copies	Number of packets that needed to be copied into bigger buffers for decompression.
buffer failures	Number of packets dropped due to a lack of buffers.
Sent:	Sent statistics described in subsequent fields.
total	Total number of TCP packets sent on the interface.
compressed	Total number of TCP packets compressed.
status msgs	Number of resynchronization messages sent from the peer.
not predicted	Number of packets taking a nonoptimal path through the compressor.
bytes saved	Total savings in bytes due to compression.
bytes sent	Total bytes sent after compression.
efficiencyimprovement factor	Improvement in line efficiency because of TCP header compression, expressed as the ratio of total packet bytes to compressed packet bytes. The ratio should be greater than 1.00.
Connect:	Connection statistics described in subsequent fields.
rxslots	Total number of receive slots.

Field	Description
txslots	Total number of transmit slots.
misses	Indicates the number of times a match could not be made. If your output shows a large miss rate, then the number of allowable simultaneous compression connections may be too low.
collisions	Total number of collisions.
negative cache hits	Total number of negative cache hits. **Note** This field is not relevant for TCP header compression; it is used for Real-Time Transport Protocol (RTP) header compression.
free contexts	Total number of free contexts. **Note** Free contexts (also known as connections) are an indication of the number of resources that are available, but not currently in use, for TCP header compression.
hit ratio	Percentage of times the software found a match and was able to compress the header.
Five minute miss rate 0 misses/sec	Calculates the miss rate over the previous five minutes for a longer-term (and more accurate) look at miss rate trends.
max	Maximum value of the previous field.

The following example for Cisco IOS Release 12.4(15)T12 shows that the TCP special VJ format is enabled:

```
Router# show ip tcp header-compression serial 5/0 detail

TCP/IP header compression statistics:
 DLCI 100        Link/Destination info: ip 10.72.72.2
Configured:
 Max Header 60 Bytes, Max Time 50 Secs, Max Period 32786 Packets, Feedback On, Spl-VJ On
Negotiated:
 Max Header 60 Bytes, Max Time 50 Secs, Max Period 32786 Packets, Feedback On, Spl-VJ On
TX contexts:
```

Related Commands

Command	Description
ip header-compression special-vj	Enables the special VJ format of TCP header compression.
ip tcp compression-connections	Specifies the total number of TCP header compression connections that can exist on an interface

Command	Description
special-vj	Enables the special VJ format of TCP header compression so that context IDs are included in compressed packets.

show ip traffic

To display the global or system-wide IP traffic statistics for one or more interfaces, use the **show ip traffic** command in user EXEC or privileged EXEC mode.

show ip traffic [**interface** *type number*]

Syntax Description

interface *type number*	(Optional) Displays the global or system-wide IP traffic statistics for a specific interface. If the **interface** keyword is used, the *type* and *number* arguments are required.

Command Default

Using the **show ip traffic** command with no keywords or arguments displays the global or system-wide IP traffic statistics for all interfaces.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.2	The output was enhanced to display the number of keepalive, open, update, route-refresh request, and notification messages received and sent by a Border Gateway Protocol (BGP) routing process.
12.2(25)S	The command output was modified.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB and implemented on the Cisco 10000 series routers.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.
12.2(33)SXH5	This command was modified. The output was changed to display the ARP (proxy) reply counter as the number of ARP replies for real proxies only.
Cisco IOS XE Release 3.1S	This command was integrated into Cisco IOS XE Release 3.1S. This command was modified to include the optional **interface** keyword and associated *type* and *number* arguments. These modifications were made to provide support for the IPv4 MIBs as described in RFC 4293: *Management Information Base for the Internet Protocol (IP)*.

Release	Modification
15.1(4)M	This command was modified. The optional **interface** keyword and associated *type* and *tynumber* arguments were added. These modifications were made to provide support for the IPv4 MIBs as described in RFC 4293, *Management Information Base for the Internet Protocol (IP)*.

Usage Guidelines

Using the **show ip traffic** command with the optional **interface** keyword displays the ipIfStatsTable counters for the specified interface if IPv4 addressing is enabled.

Examples

The following is sample output from the **show ip traffic** command:

```
Router# show ip traffic

IP statistics:
  Rcvd:  27 total, 27 local destination
         0 format errors, 0 checksum errors, 0 bad hop count
         0 unknown protocol, 0 not a gateway
         0 security failures, 0 bad options, 0 with options
  Opts:  0 end, 0 nop, 0 basic security, 0 loose source route
         0 timestamp, 0 extended security, 0 record route
         0 stream ID, 0 strict source route, 0 alert, 0 cipso, 0 ump
         0 other
  Frags: 0 reassembled, 0 timeouts, 0 couldn't reassemble
         0 fragmented, 0 couldn't fragment
  Bcast: 27 received, 0 sent
  Mcast: 0 received, 0 sent
  Sent:  0 generated, 0 forwarded
  Drop:  0 encapsulation failed, 0 unresolved, 0 no adjacency
         0 no route, 0 unicast RPF, 0 forced drop
  Drop:  0 packets with source IP address zero
ICMP statistics:
  Rcvd: 0 format errors, 0 checksum errors, 0 redirects, 0 unreachable
        0 echo, 0 echo reply, 0 mask requests, 0 mask replies, 0 quench
        0 parameter, 0 timestamp, 0 info request, 0 other
        0 irdp solicitations, 0 irdp advertisements
        0 time exceeded, 0 timestamp replies, 0 info replies
  Sent: 0 redirects, 0 unreachable, 0 echo, 0 echo reply
        0 mask requests, 0 mask replies, 0 quench, 0 timestamp
        0 info reply, 0 time exceeded, 0 parameter problem
        0 irdp solicitations, 0 irdp advertisements
BGP statistics:
  Rcvd: 0 total, 0 opens, 0 notifications, 0 updates
        0 keepalives, 0 route-refresh, 0 unrecognized
  Sent: 0 total, 0 opens, 0 notifications, 0 updates
        0 keepalives, 0 route-refresh
EIGRP-IPv4 statistics:
  Rcvd: 0 total
  Sent: 0 total
TCP statistics:
  Rcvd: 0 total, 0 checksum errors, 0 no port
  Sent: 0 total
PIMv2 statistics: Sent/Received
  Total: 0/0, 0 checksum errors, 0 format errors
  Registers: 0/0 (0 non-rp, 0 non-sm-group), Register Stops: 0/0,  Hellos: 0/0
  Join/Prunes: 0/0, Asserts: 0/0, grafts: 0/0
  Bootstraps: 0/0, Candidate_RP_Advertisements: 0/0
  State-Refresh: 0/0
IGMP statistics: Sent/Received
  Total: 0/0, Format errors: 0/0, Checksum errors: 0/0
  Host Queries: 0/0, Host Reports: 0/0, Host Leaves: 0/0
  DVMRP: 0/0, PIM: 0/0
UDP statistics:
```

```
     Rcvd: 185515 total, 0 checksum errors, 185515 no port
     Sent: 0 total, 0 forwarded broadcasts
OSPF statistics:
  Rcvd: 0 total, 0 checksum errors
        0 hello, 0 database desc, 0 link state req
        0 link state updates, 0 link state acks
  Sent: 0 total
        0 hello, 0 database desc, 0 link state req
        0 link state updates, 0 link state acks
Probe statistics:
  Rcvd: 0 address requests, 0 address replies
        0 proxy name requests, 0 where-is requests, 0 other
  Sent: 0 address requests, 0 address replies (0 proxy)
        0 proxy name replies, 0 where-is replies
ARP statistics:
  Rcvd: 1477 requests, 8841 replies, 396 reverse, 0 other
  Sent: 1 requests, 20 replies (0 proxy), 0 reverse
  Drop due to input queue full: 0
```

The following is sample output from the **show ip traffic** command for Ethernet interface 0/0:

```
Router# show ip traffic interface ethernet 0/0

Ethernet0/0 IP-IF statistics :
  Rcvd:  99 total, 9900 total_bytes
         0 format errors, 0 hop count exceeded
         0 bad header, 0 no route
         0 bad destination, 0 not a router
         0 no protocol, 0 truncated
         0 forwarded
         0 fragments, 0 total reassembled
         0 reassembly timeouts, 0 reassembly failures
         0 discards, 99 delivers
  Sent:  99 total, 9900 total_bytes 0 discards
         99 generated, 0 forwarded
         0 fragmented into, 0 fragments, 0 failed
  Mcast: 0 received, 0 received bytes
         0 sent, 0 sent bytes
  Bcast: 0 received, 0 sent
```

Examples

The following is sample output from the **show ip traffic** command when used on a Cisco 10000 series router:

```
Router# show ip traffic

IP statistics:
  Rcvd:  27 total, 27 local destination
         0 format errors, 0 checksum errors, 0 bad hop count
         0 unknown protocol, 0 not a gateway
         0 security failures, 0 bad options, 0 with options
  Opts:  0 end, 0 nop, 0 basic security, 0 loose source route
         0 timestamp, 0 extended security, 0 record route
         0 stream ID, 0 strict source route, 0 alert, 0 cipso, 0 ump
         0 other
  Frags: 0 reassembled, 0 timeouts, 0 couldn't reassemble
         0 fragmented, 0 couldn't fragment
  Bcast: 27 received, 0 sent
  Mcast: 0 received, 0 sent
  Sent:  0 generated, 0 forwarded
  Drop:  0 encapsulation failed, 0 unresolved, 0 no adjacency
         0 no route, 0 unicast RPF, 0 forced drop
         0 options denied, 0 source IP address zero
```

The table below describes the significant fields shown in the display.

Table 3: show ip traffic Field Descriptions

Field	Description
format errors	Indicates a gross error in the packet format, such as an impossible Internet header length.
bad hop count	Occurs when a packet is discarded because its time-to-live (TTL) field was decremented to zero.
encapsulation failed	Usually indicates that the router had no ARP request entry and therefore did not send a datagram.
no route	Counted when the Cisco IOS software discards a datagram that it did not know how to route.

Related Commands

Command	Description
clear ip traffic	Clears the global or system-wide IP traffic statistics for one or more interfaces.

show ip wccp

To display the IPv4 Web Cache Communication Protocol (WCCP) global configuration and statistics, use the **show ip wccp** command in user EXEC or privileged EXEC mode.

show ip wccp [**all**] [**capabilities**] [**summary**] [**interfaces** [**cef**| **counts**| **detail**]] [**vrf** *vrf-name*] [{**web-cache**| *service-number*} [**assignment**] [**clients**] [**counters**] [**detail**] [**service**] [**view**]]

Syntax Description

all	(Optional) Displays statistics for all known services.
capabilities	(Optional) Displays WCCP platform capabilities information.
summary	(Optional) Displays a summary of WCCP services.
interfaces	(Optional) Displays WCCP redirect interfaces.
cef	(Optional) Displays Cisco Express Forwarding interface statistics, including the number of input, output, dynamic, static, and multicast services.
counts	(Optional) Displays WCCP interface count statistics, including the number of Cisco Express Forwarding and process-switched output and input packets redirected.
detail	(Optional) Displays WCCP interface configuration statistics, including the number of input, output, dynamic, static, and multicast services.
vrf *vrf-name*	(Optional) Specifies a virtual routing and forwarding (VRF) instance associated with a service group to display.
web-cache	(Optional) Displays statistics for the web cache service.
service-number	(Optional) Identification number of the web cache service group being controlled by the cache. The number can be from 0 to 254. For web caches using Cisco cache engines, the reverse proxy service is indicated by a value of 99.
assignment	(Optional) Displays service group assignment information.

clients	(Optional) Displays detailed information about the clients of a service, including all per-client information. No per-service information is displayed.
counters	(Optional) Displays traffic counters.
detail	(Optional) Displays detailed information about the clients of a service, including all per-client information. No per-service information is displayed. Assignment information is also displayed.
service	(Optional) Displays detailed information about a service, including the service definition and all other per-service information.
view	(Optional) Displays other members of a particular service group, or all service groups, that have or have not been detected.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
11.1CA	This command was introduced for Cisco 7200 and 7500 platforms.
11.2P	Support for this command was added to a variety of Cisco platforms.
12.0(3)T	The **detail** and **view** keywords were added.
12.3(7)T	The output was enhanced to display the bypass counters (process and Cisco Express Forwarding) when WCCP is enabled.
12.2(14)SX	Support for this command was added for the Supervisor Engine 720.
12.2(17d)SXB	Support for this command was added for the Supervisor Engine 2.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.3(14)T	The output was enhanced to display the maximum number of service groups.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.4(11)T	This command was enhanced to display information about the WCCP service mode.

Release	Modification
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
Cisco IOS XE Release 2.2	This command was integrated into Cisco IOS XE Release 2.2.
15.0(1)M	This command was modified. The **summary** keyword and the **vrf** *vrf-name* keyword and argument pair were added.
12.2(33)SRE	This command was modified. The **summary** keyword and the **vrf** *vrf-name* keyword and argument pair were added.
Cisco IOS XE Release 3.1S	This command was modified. The following keywords and arguments were added: **all**, **assignment**, **capabilities**, **clients**, **counters**, **full**, **id** *ip-address*, **service**, **summary**, and **vrf** *vrf-name*. The output was modified to display information about the WCCP client timeout interval and the redirect assignment timeout.
12.2(50)SY	This command was modified. The **summary** keyword and the **vrf** *vrf-name* keyword and argument pair were added.
15.2(3)T	This command was integrated into Cisco IOS Release 15.2(3)T.
15.1(1)SG	This command was integrated into Cisco IOS Release 15.1(1)SG.
Cisco IOS XE Release 3.3SG	This command was integrated into Cisco IOS XE Release 3.3SG.

Usage Guidelines

Use the **clear ip wccp** command to reset all WCCP counters.

Use the **show ip wccp** *service-number* **detail** command to display information about the WCCP client timeout interval and the redirect assignment timeout interval if those intervals are not set to their default value of 10 seconds.

Use the **show ip wccp summary** command to display the configured WCCP services and a summary of their current state.

On Cisco ASR 1000 Series Aggregation Services Routers, nonzero values can only be seen for platform-specific counters because Cisco ASR 1000 Series Routers implement all redirection in hardware. Configuring the **counters** keyword also displays counters received in hardware.

Examples

This section contains examples and field descriptions for the following forms of this command:

- **show ip wccp** *service-number* (service mode displayed)
- **show ip wccp** *service-number* **view**
- **show ip wccp** *service-number* **detail**
- **show ip wccp** *service-number* **clients**
- **show ip wccp interfaces**
- **show ip wccp web-cache**

- **show ip wccp web-cache counters**

- **show ip wccp web-cache detail**

- **show ip wccp web-cache detail** (bypass counters displayed)

- **show ip wccp web-cache clients**

- **show ip wccp web-cache service**

- **show ip wccp summary**

Examples   The following is sample output from the **show ip wccp** *service-number* command:

```
Router# show ip wccp 90

Global WCCP information:
    Router information:
        Router Identifier:                209.165.200.225

    Service Identifier: 90
        Protocol Version:                 2.00
        Number of Service Group Clients:  2
        Number of Service Group Routers:  1
        Total Packets Redirected:         0
          Process:                        0
          CEF:                            0
        Service mode:                     Open
        Service Access-list:              -none-
        Total Packets Dropped Closed:     0
        Redirect access-list:             -none-
        Total Packets Denied Redirect:    0
        Total Packets Unassigned:         0
        Group access-list:                -none-
        Total Messages Denied to Group:   0
        Total Authentication failures:    0
        Total GRE Bypassed Packets Received: 0
          Process:                        0
          CEF:                            0
```

The table below describes the significant fields shown in the display.

Table 4: show ip wccp service-number Field Descriptions

Field	Description
Router information	A list of routers detected by the current router.
Protocol Version	The version of WCCP being used by the router in the service group.
Service Identifier	Indicates which service is detailed.
Number of Service Group Clients	The number of clients that are visible to the router and other clients in the service group.
Number of Service Group Routers	The number of routers in the service group.

Field	Description
Total Packets Redirected	Total number of packets redirected by the router.
Service mode	Identifies the WCCP service mode. Options are Open or Closed.
Service Access-list	A named extended IP access list that defines the packets that will match the service.
Total Packets Dropped Closed	Total number of packets that were dropped when WCCP is configured for closed services and an intermediary device is not available to process the service.
Redirect access-list	The name or number of the access list that determines which packets will be redirected.
Total Packets Denied Redirect	Total number of packets that were not redirected because they did not match the access list.
Total Packets Unassigned	Number of packets that were not redirected because they were not assigned to any cache engine. Packets may not be assigned during initial discovery of cache engines or when a cache is dropped from a cluster.
Group access-list	Indicates which cache engine is allowed to connect to the router.
Total Messages Denied to Group	Indicates the number of packets denied by the *group-list* access list.
Total Authentication failures	The number of instances where a password did not match.
Total GRE Bypassed Packets Received	The number of generic routing encapsulation (GRE) packets that have been bypassed. Process and Cisco Express Forwarding are switching paths within Cisco IOS software.

Examples   The following is sample output from the **show ip wccp** *service-number* **view** command for service group 1:

```
Router# show ip wccp 90 view

WCCP Routers Informed of:
 209.165.200.225
 209.165.200.226
WCCP Clients Visible
 209.165.200.227
 209.165.200.228
```

```
WCCP Clients Not Visible:
 -none-
```

Note   The number of maximum service groups that can be configured is 256.

If any web cache is displayed under the WCCP Cache Engines Not Visible field, the router needs to be reconfigured to map the web cache that is not visible to it.

The table below describes the significant fields shown in the display.

Table 5: show ip wccp service-number view Field Descriptions

Field	Description
WCCP Router Informed of	A list of routers detected by the current router.
WCCP Clients Visible	A list of clients that are visible to the router and other clients in the service group.
WCCP Clients Not Visible	A list of clients in the service group that are not visible to the router and other clients in the service group.

Examples   The following example displays WCCP client information and WCCP router statistics that include the type of services:

```
Router# show ip wccp 91 detail

WCCP Client information:
 WCCP Client ID: 209.165.200.226
 Protocol Version: 2.0
 State:                 Usable
        Redirection:          L2
        Packet Return:        L2
        Assignment:           MASK
        Connect Time:         6d20h
        Redirected Packets:
          Process:            0
          CEF:                0
        GRE Bypassed Packets:
          Process:            0
          CEF:                0
        Mask Allotment:       32 of 64 (50.00%)
        Assigned masks/values:  1/32

        Mask   SrcAddr    DstAddr    SrcPort DstPort
        ----   -------    -------    ------- -------
        0000: 0x00000000 0x00001741 0x0000  0x0000

        Value SrcAddr    DstAddr    SrcPort DstPort
        ----- -------    -------    ------- -------
        0000: 0x00000000 0x00000001 0x0000  0x0000
        0001: 0x00000000 0x00000041 0x0000  0x0000
        0002: 0x00000000 0x00000101 0x0000  0x0000
        0003: 0x00000000 0x00000141 0x0000  0x0000
        0004: 0x00000000 0x00000201 0x0000  0x0000
        0005: 0x00000000 0x00000241 0x0000  0x0000
        0006: 0x00000000 0x00000301 0x0000  0x0000
        0007: 0x00000000 0x00000341 0x0000  0x0000
```

```
0008: 0x00000000 0x00000401 0x0000  0x0000
0009: 0x00000000 0x00000441 0x0000  0x0000
0010: 0x00000000 0x00000501 0x0000  0x0000
0011: 0x00000000 0x00000541 0x0000  0x0000
0012: 0x00000000 0x00000601 0x0000  0x0000
0013: 0x00000000 0x00000641 0x0000  0x0000
0014: 0x00000000 0x00000701 0x0000  0x0000
0015: 0x00000000 0x00000741 0x0000  0x0000
0016: 0x00000000 0x00001001 0x0000  0x0000
0017: 0x00000000 0x00001041 0x0000  0x0000
0018: 0x00000000 0x00001101 0x0000  0x0000
0019: 0x00000000 0x00001141 0x0000  0x0000
0020: 0x00000000 0x00001201 0x0000  0x0000
0021: 0x00000000 0x00001241 0x0000  0x0000
0022: 0x00000000 0x00001301 0x0000  0x0000
0023: 0x00000000 0x00001341 0x0000  0x0000
0024: 0x00000000 0x00001401 0x0000  0x0000
0025: 0x00000000 0x00001441 0x0000  0x0000
0026: 0x00000000 0x00001501 0x0000  0x0000
0027: 0x00000000 0x00001541 0x0000  0x0000
0028: 0x00000000 0x00001601 0x0000  0x0000
0029: 0x00000000 0x00001641 0x0000  0x0000
0030: 0x00000000 0x00001701 0x0000  0x0000
0031: 0x00000000 0x00001741 0x0000  0x0000


WCCP Client ID:          192.0.2.11
Protocol Version:        2.01
State:                   Usable
Redirection:             L2
Packet Return:           L2
Assignment:              MASK
Connect Time:            6d20h
Redirected Packets:
  Process:               0
  CEF:                   0
GRE Bypassed Packets:
  Process:               0
  CEF:                   0
Mask Allotment:          32 of 64 (50.00%)
Assigned masks/values:   1/32

Mask  SrcAddr    DstAddr    SrcPort DstPort
----  -------    -------    ------- -------
0000: 0x00000000 0x00001741 0x0000  0x0000

Value SrcAddr    DstAddr    SrcPort DstPort
----- -------    -------    ------- -------
0000: 0x00000000 0x00000000 0x0000  0x0000
0001: 0x00000000 0x00000040 0x0000  0x0000
0002: 0x00000000 0x00000100 0x0000  0x0000
0003: 0x00000000 0x00000140 0x0000  0x0000
0004: 0x00000000 0x00000200 0x0000  0x0000
0005: 0x00000000 0x00000240 0x0000  0x0000
0006: 0x00000000 0x00000300 0x0000  0x0000
0007: 0x00000000 0x00000340 0x0000  0x0000
0008: 0x00000000 0x00000400 0x0000  0x0000
0009: 0x00000000 0x00000440 0x0000  0x0000
0010: 0x00000000 0x00000500 0x0000  0x0000
0011: 0x00000000 0x00000540 0x0000  0x0000
0012: 0x00000000 0x00000600 0x0000  0x0000
0013: 0x00000000 0x00000640 0x0000  0x0000
0014: 0x00000000 0x00000700 0x0000  0x0000
0015: 0x00000000 0x00000740 0x0000  0x0000
0016: 0x00000000 0x00001000 0x0000  0x0000
0017: 0x00000000 0x00001040 0x0000  0x0000
0018: 0x00000000 0x00001100 0x0000  0x0000
0019: 0x00000000 0x00001140 0x0000  0x0000
0020: 0x00000000 0x00001200 0x0000  0x0000
0021: 0x00000000 0x00001240 0x0000  0x0000
0022: 0x00000000 0x00001300 0x0000  0x0000
0023: 0x00000000 0x00001340 0x0000  0x0000
0024: 0x00000000 0x00001400 0x0000  0x0000
```

```
0025: 0x00000000 0x00001440 0x0000  0x0000
0026: 0x00000000 0x00001500 0x0000  0x0000
0027: 0x00000000 0x00001540 0x0000  0x0000
0028: 0x00000000 0x00001600 0x0000  0x0000
0029: 0x00000000 0x00001640 0x0000  0x0000
0030: 0x00000000 0x00001700 0x0000  0x0000
0031: 0x00000000 0x00001740 0x0000  0x0000
```

The table below describes the significant fields shown in the display.

Table 6: show ip wccp service-number detail Field Descriptions

Field	Description
Protocol Version	Indicates whether WCCPv1 or WCCPv2 is enabled.
State	Indicates whether the WCCP client is operating properly and can be contacted by a router and other clients in the service group. When a WCCP client has an incompatible message interval setting, the state of the client is shown as "NOT Usable," followed by a status message describing the reason why the client is not usable.
Redirection	Indicates the redirection method used. WCCP uses GRE or L2 to redirect IP traffic.
Assignment	Indicates the load-balancing method used. WCCP uses HASH or MASK assignment.
Connect Time	The amount of time the client has been connected to the router.
Redirected Packets	The number of packets that have been redirected to the content engine.

Examples   The following example displays WCCP client information and WCCP router statistics that include the type of services:

```
Router# show ip wccp 91 clients

WCCP Client information:
 WCCP Client ID: 10.1.1.14
 Protocol Version: 2.0
 State:                 Usable
        Redirection:          L2
        Packet Return:        L2
        Assignment:           MASK
        Connect Time:         6d20h
        Redirected Packets:
          Process:            0
          CEF:                0
        GRE Bypassed Packets:
          Process:            0
          CEF:                0
        Mask Allotment:       32 of 64 (50.00%)
```

```
WCCP Client ID:          192.0.2.11
Protocol Version:        2.01
State:                   Usable
Redirection:             L2
Packet Return:           L2
Assignment:              MASK
Connect Time:            6d20h
Redirected Packets:
  Process:               0
  CEF:                   0
GRE Bypassed Packets:
  Process:               0
  CEF:                   0
Mask Allotment:          32 of 64 (50.00%)
```

The table below describes the significant fields shown in the display.

Table 7: show ip wccp service-number clients Field Descriptions

Field	Description
Protocol Version	Indicates whether WCCPv1 or WCCPv2 is enabled.
State	Indicates whether the WCCP client is operating properly and can be contacted by a router and other clients in the service group. When a WCCP client has an incompatible message interval setting, the state of the client is shown as "NOT Usable," followed by a status message describing the reason why the client is not usable.
Redirection	Indicates the redirection method used. WCCP uses GRE or L2 to redirect IP traffic.
Assignment	Indicates the load-balancing method used. WCCP uses HASH or MASK assignment.
Connect Time	The amount of time (in seconds) the client has been connected to the router.
Redirected Packets	The number of packets that have been redirected to the content engine.

Examples

The following is sample output from the **show ip wccp interfaces** command:

```
Router# show ip wccp interfaces

IPv4 WCCP interface configuration:
    FastEthernet2/1
        Output services: 0
        Input services:  1
        Mcast services:  0
        Exclude In:      FALSE
```

The table below describes the significant fields shown in the display.

Table 8: show ip wccp interfaces Field Descriptions

Field	Description
Output services	Indicates the number of output services configured on the interface.
Input services	Indicates the number of input services configured on the interface.
Mcast services	Indicates the number of multicast services configured on the interface.
Exclude In	Displays whether traffic on the interface is excluded from redirection.

Examples

The following is sample output from the **show ip wccp web-cache** command:

```
Router# show ip wccp web-cache

Global WCCP information:
    Router information:
        Router Identifier:                209.165.200.225

    Service Identifier: web-cache
        Protocol Version:                 2.00
        Number of Service Group Clients:  2
        Number of Service Group Routers:  1
        Total Packets Redirected:         0
          Process:                        0
          CEF:                            0
        Service mode:                     Open
        Service Access-list:              -none-
        Total Packets Dropped Closed:     0
        Redirect access-list:             -none-
        Total Packets Denied Redirect:    0
        Total Packets Unassigned:         0
        Group access-list:                -none-
        Total Messages Denied to Group:   0
        Total Authentication failures:    0
        Total GRE Bypassed Packets Received: 0
          Process:                        0
          CEF:                            0
        GRE tunnel interface:             Tunnel0
```

The table below describes the significant fields shown in the display.

Table 9: show ip wccp web-cache Field Descriptions

Field	Description
Service Identifier	Indicates which service is detailed.
Protocol Version	Indicates whether WCCPv1 or WCCPv2 is enabled.
Number of Service Group Clients	Number of clients using the router as their home router.

Field	Description
Number of Service Group Routers	The number of routers in the service group.
Total Packets Redirected	Total number of packets redirected by the router.
Service mode	Indicates whether WCCP open or closed mode is configured.
Service Access-list	The name or number of the service access list that determines which packets will be redirected.
Redirect access-list	The name or number of the access list that determines which packets will be redirected.
Total Packets Denied Redirect	Total number of packets that were not redirected because they did not match the access list.
Total Packets Unassigned	Number of packets that were not redirected because they were not assigned to any cache engine. Packets may not be assigned during initial discovery of cache engines or when a cache is dropped from a cluster.
Group access-list	Indicates which cache engine is allowed to connect to the router.
Total Messages Denied to Group	Indicates the number of packets denied by the *group-list* access list.
Total Authentication failures	The number of instances where a password did not match.

Examples

The following example displays web cache engine information and WCCP traffic counters:

```
Router# show ip wccp web-cache counters

WCCP Service Group Counters:
  Redirected Packets:
    Process:                 0
    CEF:                     0
  Non-Redirected Packets:
    Action - Forward:
      Reason - no assignment:
        Process:             0
        CEF:                 0
    Action - Ignore (forward):
      Reason - redir ACL check:
        Process:             0
        CEF:                 0
    Action - Discard:
      Reason - closed services:
        Process:             0
        CEF:                 0
  GRE Bypassed Packets:
    Process:                 0
```

```
   CEF:                       0
GRE Bypassed Packet Errors:
  Total Errors:
    Process:                  0
    CEF:                      0

WCCP Client Counters:
  WCCP Client ID:             192.0.2.12
    Redirected Packets:
      Process:                0
      CEF:                    0
    GRE Bypassed Packets:
      Process:                0
      CEF:                    0

  WCCP Client ID:             192.0.2.11
    Redirected Packets:
      Process:                0
      CEF:                    0
    GRE Bypassed Packets:
      Process:                0
      CEF:                    0
```

The table below describes the significant fields shown in the display.

Table 10: show ip wccp web-cache counters Field Descriptions

Field	Description
Redirected Packets	Total number of packets redirected by the router.
Non-Redirected Packets	Total number of packets not redirected by the router.

Examples

The following example displays web cache engine information and WCCP router statistics for the web cache service:

```
Router# show ip wccp web-cache detail

WCCP Client information:
        WCCP Client ID:         209.165.200.225
        Protocol Version:       2.0
        State:                  Usable
        Redirection:            GRE
        Packet Return:          GRE
        Assignment:             HASH
        Connect Time:           1w5d
        Redirected Packets:
          Process:              0
          CEF:                  0
        GRE Bypassed Packets:
          Process:              0
          CEF:                  0
        Hash Allotment:         128 of 256 (50.00%)
        Initial Hash Info:      00000000000000000000000000000000
                                00000000000000000000000000000000
        Assigned Hash Info:     AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
                                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

        WCCP Client ID:         192.0.2.11
        Protocol Version:       2.01
        State:                  Usable
        Redirection:            GRE
        Packet Return:          GRE
        Assignment:             HASH
        Connect Time:           1w5d
```

```
Redirected Packets:
  Process:                0
  CEF:                    0
GRE Bypassed Packets:
  Process:                0
  CEF:                    0
Hash Allotment:           128 of 256 (50.00%)
Initial Hash Info:        00000000000000000000000000000000
                          00000000000000000000000000000000
Assigned Hash Info:       55555555555555555555555555555555
                          55555555555555555555555555555555
```

The table below describes the significant fields shown in the display.

Table 11: show ip wccp web-cache detail Field Descriptions

Field	Description
WCCP Client Information	The header for the area that contains fields for information on clients.
Protocol Version	The version of WCCP being used by the cache engine in the service group.
State	Indicates whether the cache engine is operating properly and can be contacted by a router and other cache engines in the service group.
Connect Time	The amount of time the cache engine has been connected to the router.
Redirected Packets	The number of packets that have been redirected to the cache engine.

Examples

The following example displays web cache engine information and WCCP router statistics that include the bypass counters:

```
Router# show ip wccp web-cache detail

WCCP Client information:
        WCCP Client ID:         209.165.200.225
        Protocol Version:       2.01
        State:                  Usable
        Redirection:            GRE
        Packet Return:          GRE
        Assignment:             HASH
        Connect Time:           1w5d
        Redirected Packets:
          Process:              0
          CEF:                  0
        GRE Bypassed Packets:
          Process:              0
          CEF:                  0
        Hash Allotment:         128 of 256 (50.00%)
        Initial Hash Info:      00000000000000000000000000000000
                                00000000000000000000000000000000
        Assigned Hash Info:     AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
                                AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

        WCCP Client ID:         209.165.200.226
```

```
Protocol Version:       2.01
State:                  Usable
Redirection:            GRE
Packet Return:          GRE
Assignment:             HASH
Connect Time:           1w5d
Redirected Packets:
  Process:              0
  CEF:                  0
GRE Bypassed Packets:
  Process:              0
  CEF:                  0
Hash Allotment:         128 of 256 (50.00%)
Initial Hash Info:      0000000000000000000000000000000
                        0000000000000000000000000000000
Assigned Hash Info:     5555555555555555555555555555555
                        5555555555555555555555555555555
```

The table below describes the significant fields shown in the display.

Table 12: show ip wccp web-cache detail Field Descriptions

Field	Description
WCCP Client Information	The header for the area that contains fields for information on clients.
Protocol Version	The version of WCCP that is being used by the router in the service group.
State	Indicates whether the cache engine is operating properly and can be contacted by a router and other cache engines in the service group.
Connect Time	The amount of time the cache engine has been connected to the router.
Hash Allotment	The percent of buckets assigned to the current cache engine. Both a value and a percent figure are displayed.
Initial Hash Info	The initial state of the hash bucket assignment.
Assigned Hash Info	The current state of the hash bucket assignment.
Redirected Packets	The number of packets that have been redirected to the cache engine.
GRE Bypassed Packets	The number of packets that have been bypassed. Process and Cisco Express Forwarding are switching paths within Cisco IOS software.

Examples

The following example displays information about a service, including the service definition and all other per-service information:

```
Router# show ip wccp web-cache service

WCCP service information definition:
        Type:         Standard
        Id:           0
        Priority:     240
        Protocol:     6
        Flags:        0x00000512
          Hash:       DstIP
          Alt Hash:   SrcIP SrcPort
          Ports used: Destination
        Ports:        80
```

Examples

The following example displays information about the configured WCCP services and a summary of their current state:

```
Router# show ip wccp summary

WCCP version 2 enabled, 2 services
Service    Clients  Routers  Assign      Redirect   Bypass
-------    -------  -------  ------      --------   ------
Default routing table (Router Id: 209.165.200.225):
web-cache  2        1        HASH        GRE        GRE
90         0        0        HASH/MASK   GRE/L2     GRE/L2
```

The table below describes the significant fields shown in the display.

Table 13: show ip wccp summary Field Descriptions

Field	Description
Service	Indicates which service is detailed.
Clients	Indicates the number of cache engines participating in the WCCP service.
Routers	Indicates the number of routers participating in the WCCP service.
Assign	Indicates the load-balancing method used. WCCP uses HASH or MASK assignment.
Redirect	Indicates the redirection method used. WCCP uses GRE or L2 to redirect IP traffic.
Bypass	Indicates the bypass method used. WCCP uses GRE or L2 to return packets to the router.

Related Commands

Command	Description
clear ip wccp	Clears the counter for packets redirected using WCCP.
ip wccp	Enables support of the WCCP service for participation in a service group.
ip wccp redirect	Enables packet redirection on an outbound or inbound interface using WCCP.
show ip interface	Lists a summary of the IP information and status of an interface.
show ip wccp global counters	Displays global WCCP information for packets that are processed in software.
show ip wccp *service-number* **detail**	Displays information about the WCCP client timeout interval and the redirect assignment timeout interval if those intervals are not set to their default value of 10 seconds.
show ip wccp summary	Displays the configured WCCP services and a summary of their current state.
show platform software wccp	Displays global statistics related to WCCP on Cisco ASR 1000 Series Aggregation Services Routers.

show ip wccp global counters

To display IPv4 global Web Cache Communication Protocol (WCCP) information for packets that are processed in software, use the **show ip wccp global counters** command in user EXEC or privileged EXEC mode.

show ip wccp global counters

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.1S	This command was introduced.

Usage Guidelines

The **show ip wccp global counters** command displays counters for packets that are processed in software. These counters are always zero on the Cisco ASR 1000 Series Aggregation Services Routers.

Examples

The following example displays global WCCP information for packets that are processed in the software:

```
Router# show ip wccp global counters

WCCP Global Counters:
Packets Seen by WCCP
Process:   8
CEF (In):  14
CEF (Out): 0
```

The table below describes the significant fields shown in the display.

Table 14: show ip wccp global counters Field Descriptions

Field	Description
CEF (In)	Number of incoming Cisco Express Forwarding packets
CEF (Out)	Number of outgoing Cisco Express Forwarding packets.

Related Commands

Command	Description
clear ip wccp	Clears the counters for packets redirected using WCCP.
ip wccp	Enables support of the WCCP service for participation in a service group.
ip wccp redirect	Enables packet redirection on an outbound or inbound interface using WCCP.
ip wccp web-cache accelerated	Enables the hardware acceleration for WCCP version 1.
show ip interface	Lists a summary of the IP information and the status of an interface.
show ip wccp	Displays the WCCP global configuration and statistics.

show ip wccp web-caches

The **show ip wccp web-caches** command has been replaced by the **show ip wccp web-cache detail** command. See the description of the **show ip wccp** command for more information.

show platform hardware qfp active feature wccp

To display the Web Cache Communication Protocol (WCCP) service group information in the active Cisco Quantum Flow Processor (QFP), use the **show platform hardware qfp active feature wccp** command in privileged EXEC mode.

show platform hardware qfp active feature wccp [**vrf** *vrf-id*] **service id** *service-id* [**ipv6**]

Syntax Description

vrf *vrf-id*	(Optional) Specifies a VRF associated with a service group to display.
service id *service-id*	Specifies the WCCP service group ID.
ipv6	(Optional) Specifies the WCCP IPv6 service.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 2.2	This command was introduced.
Cisco IOS XE Release 3.1S	This command was modified. The **vrf** keyword and *vrf-name* argument were added.
Cisco IOS XE Release 3.10S	This command was modified. The **ipv6** keyword was added.

Examples

The following is a sample output of the **show platform hardware qfp active feature wccp** command:

```
Router# show platform hardware qfp active feature wccp service id 1

Service ID: 0
Service Priority: 240
CG ID: 0
Mode: Open
Num bind objs: 64
Number of Caches in this service: 1
  ce index: 0
  cache_id : 15
  Cache ip addr : 0x5a140102
  Cache cfg ppe addr : 0x8b480000
  Cache oce ppe addr : 0x89b01480
  Cache state ppe addr : 0x8b4d0400
Number of interfaces using this service: 1
  Interface: GigabitEthernet0/3/1
  cpp-if-h: 18
  Dir: 0
  pal-if-h: 20
```

The table below describes the significant fields shown in the display:

Table 15: show platform hardware qfp active feature wccp Field Descriptions

Field	Description
Service ID	Service group number (0 for webcache and 1 to 254 for dynamic services).
Service Priority	Priority of the service group.
CG ID	Class Group ID.
Mode	Specifies whether the service group has been defined as an open service group (default value) or closed service group.
Num bind objs	Number of access control entries (ACEs) in the merged access control list (ACL) for this service group. On the Quantum Flow Processor (QFP), each ACE is programmed as a bind object under a class group specified by the CG ID.
Number of Caches in this service	The number of cache engines available for this service group.
Number of interfaces using this service	The number of interfaces on which this service group has been configured (both inbound as well as outbound redirection).

Examples

The following is a sample output of the **show platform hardware qfp active feature wccp ipv6** command:

```
Router# show platform hardware qfp active feature wccp service id 61 ipv6

Service ID: 61
Service Type: 1
Service Priority: 34
Assign Method: 1
Hash key: 0x51
Hash buckets ppe address: 0x8bceb600
Mode: Open
State: Active
Number of Caches in this service: 1
  ce index: 0
  cache_id : 11
  Cache ip addr : 0x20010001
  Cache cfg ppe addr : 0x8bcab200
  Cache oce ppe addr : 0x891a7670
  Cache state ppe addr : 0x8bcfd288
Number of interfaces using this service: 1
  Interface: GigabitEthernet0/0/0.1
  cpp-if-h: 12
  Dir: 0
  pal-if-h: 15
  uidb sb ppe addr: 0x8bd308e0
```

The table below describes the significant fields shown in the display:

Table 16: show platform hardware qfp active feature wccp ipv6 Field Descriptions

Field	Description
Service ID	Service group number (0 for webcache and 1 to 254 for dynamic services).
Service Type	Specifies the WCCP service type, whether standard or dynamic.
Service Priority	Priority of the service group.
Assign Method	Indicates the load-balancing method used (1 for hash and 0 for mask).
Hash key	Identifies the hash value.
Hash buckets ppe address	Specifies the PPE address of the hash bucket.
Mode	Specifies whether the service group has been defined as an open service group (default value) or closed service group.
State	Specifies the current WCCP state.
Number of Caches in this service	The number of cache engines available for this service group.
Number of interfaces using this service	The number of interfaces on which this service group has been configured (both inbound as well as outbound redirection).

show platform software wccp

To display platform specific configuration and statistics related WCCP information on Cisco ASR 1000 Series Routers, use the **show platform software wccp** command in privileged EXEC mode.

show platform software wccp [*service-number* **ipv6 counters**| [*slot* { **active**| **standby** }[*service-number* { **access-list**| **ipv6** }| **cache-info**| **interface**| **statistics**| **web-cache** { **access-list**| **ipv6** }]| [**vrf** *vrf-identifier* {*service-number* { **access-list**| **ipv6** }| **web-cache** { **access-list**| **ipv6** }}]]| **interface counters**| **statistics**| [**vrf** *vrf-identifier* {*service-number* **ipv6 counters**| **web-cache ipv6 counters**}]| **web-cache ipv6 counters**]

Syntax Description

service-number	(Optional) Displays information for a dynamically defined service. The service number can be from 0 to 254.
ipv6	(Optional) Specifies the IPv6 service.
counters	(Optional) Displays counter information.
slot	(Optional) Embedded Service Processor or Route Processor slot. Valid options are: • **F0** --Embedded Service Processor Slot 0 • **F1** --Embedded Service Processor Slot 1 • **FP** --Embedded Service Processor • **R0** --Route Processor Slot 0 • **R1** --Rout Processor Slot 1 • **RP** --Route Processor
active	(Optional) Specifies an active instance.
standby	(Optional) Specifies a standby instance.
service-number	(Optional) Displays information for a dynamically defined service.
access-list	(Optional) Displays WCCP access list information.
cache-info	(Optional) Displays cache-engine information.
interface	(Optional) Displays information about interfaces bound to WCCP services.

statistics	(Optional) Displays internal messaging statistics for WCCP. Displayed counters are self-descriptive.
web-cache	(Optional) Displays information about the web cache service.
web-cache	(Optional) Displays web cache information.
vrf *vrf-identifier*	(Optional) Specifies a virtual routing and forwarding instance (VRF) associated with a service group to display.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 2.2	This command was introduced.
Cisco IOS XE Release 3.1S	This command was modified. The **vrf** *vrf-identifier*keyword and argument pair was added.
Cisco IOS XE Release 3.10S	This command was modified. The **active**,**standby,** and **ipv6** keywords were added.

Usage Guidelines   Use the **show platform software wccp** to display global statistics and configuration information related to WCCP on the Cisco ASR 1000 Series Routers. The **show ip wccp** command displays information about software-based (process, fast, and Cisco Express Forwarding [CEF]) forwarding of WCCP packets. The Cisco ASR 1000 Services Routers implement WCCP in hardware, rather than in the CEF or process-switching paths. The **show ip wccp** displays WCCP counters, but only platform fields have nonzero values because redirection happens in hardware.

Examples   The following is a sample output of the **show platform software wccp counters** command:

```
Router# show platform software wccp 61 counters

Service Group (1, 61) counters
        Unassigned count = 0
        Dropped due to closed service count = 0
        Bypass count = 0
        Bypass failed count = 0
        Denied count = 0
        Redirect count = 313635910244
  CE = 10.1.1.2, obj_id = 58, Redirect Packets = 42768533218
  CE = 10.2.1.2, obj_id = 165, Redirect Packets = 45619768766
.
.
.
```

The following is a sample output of the **show platform software wccp ipv6 counters** command:

```
Router# show platform software wccp 61 ipv6 counters

Service Group (1, 61, 0) counters
        Unassigned count = 0
        Dropped due to closed service count = 0
        Bypass count = 0
        Bypass failed count = 0
        Denied count = 0
        Redirect count = 4
  CE = 2001:1:100::105, obj_id = 213, Redirect Packets = 4
```

The table below describes the significant fields shown in the display.

Table 17: show platform software wccp counters Field Descriptions

Field	Description
Service Group (1, 61,0) counters	Dynamic service group 61 counters.
Unassigned count	Number of packets that were not redirected because they were not assigned to any cache engine. Packets may not be assigned during initial discovery of cache engines or when a cache is dropped from a cluster.
Dropped due to closed service count = 0	This output field is not supported in Cisco IOS XE Release 2.2 and always returns a value of 0.
Bypass count	The number of packets that have been bypassed.
Bypass failed count	Number of bypass packets that WCCP could not find the original input interface.
Denied count	Total number of packets that were not redirected because they did not match the access list.
Redirect count	Total number of packets redirected by the router.
CE = 10.1.1.2, obj_id = 58, Redirect Packets = 42768533218	The number of packets redirected to each cache-engine.

The following is a sample output of the **show platform software wccp** *slot* **interface** command:

```
Router# show platform software wccp f0 interface

Interface FastEthernet0/1/0
if_handle: 11, direction: In
Standard web-cache service
```

The table below describes the significant fields shown in the display.

Table 18: show platform software wccp slot interface Field Descriptions

Field	Description
Interface FastEthernet0/1/0	Name of the interface on which the WCCP service is applied.
if_handle	The internal interface index associated with the above interface.
direction: In	Specifies if the service is applied inbound or outbound. **Note** WCCP Outbound services are not supported in Cisco IOS XE Release 2.2.
Standard web-cache service	Description of the service which is applied. In this output it is the standard webcache service.

The following is a sample output of the **show platform software wccp interface counters** command:

```
Router# show platform software wccp interface counters

Interface FastEthernet0/1/0
        Input Redirect Packets  = 0
        Output Redirect Packets  = 0
```

The table below describes the significant fields shown in the display.

Table 19: show platform software wccp interface counters Field Descriptions

Field	Description
Input Redirect Packets	The number of input packets that have been redirected to the cache engine.
Output Redirect Packets	The number of output packets that have been redirected to the cache engine.

The following is sample output from the **show platform software wccp web-cache counters** command:

```
Router# show platform software wccp web-cache counters

Service Group (0, 0) counters
        Unassigned count = 0
        Dropped due to closed service count = 0
        Bypass count = 0
        Bypass failed count = 0
        Denied count = 0
        Redirect count = 0
```

The table below describes the significant fields shown in the display.

Table 20: show platform software wccp web-cache counters Field Descriptions

Field	Description
Unassigned count	Number of packets that were not redirected because they were not assigned to any cache engine. Packets may not be assigned during initial discovery of cache engines or when a cache is dropped from a cluster.
Dropped due to closed service count	Total number of packets that were dropped when WCCP is configured for closed services and an intermediary device is not available to process the service.
Bypass count	The number of packets that have been bypassed.
Bypass failed count	Number of bypass packets that WCCP could not find the original input interface.
Denied count	Total number of packets that were not redirected because they did not match the access list.
Redirect count	Total number of packets redirected by the router.

The following are sample outputs from the **show platform software wccp** *slot* **active** *service-number* **ipv6** command:

```
Router# show platform software wccp RP active 61 ipv6

IPV6 Dynamic service 61
Priority: 34, Number of clients: 1
Assign Method: Hash, Fwd Method: GRE, Ret Method: GRE
L4 proto: 6, Use Source Port: No
Is closed: No


Router# show platform software wccp FP active 61 ipv6

IPV6 Dynamic service 61
Priority: 34, Number of clients: 1
Assign Method: Hash, Fwd Method: GRE, Ret Method: GRE
Is closed: No
Current ACE: 0, Pending ACE: 0
New ACE: 0, New ACE completed: No
ACL id: 0
  AOM id: 0x18a, status: created
```

The table below describes the significant fields shown in the display.

Table 21: show platform software wccp slot active service-number ipv6 Field Descriptions

Field	Description
IPV6 Dynamic service	Specifies the IPv6 Dynamic Service number.
Priority	Specifies the priority of the service group.

Field	Description
Number of clients	Specifies the number of WCCP clients.
Assign Method	Indicates the load-balancing method used (1 for hash and 0 for mask).
Fwd Method	Specifies the WCCP forward method, whether GRE or Layer 2.
Ret Method	Specifies the WCCP return method, whether GRE or Layer 2.
L4 proto	Specifies the Layer 4 protocol. Indicates that the Layer 4 part of the packet is TCP (denoted by 6).
Use Source Port	Specifies whether the service definition uses the source port.
Is closed	Specifies whether WCCP is configured as a closed service or an open service.
Current ACE	Specifies the number of Application Control Engine (ACE) items configured.
Pending ACE	Specifies the pending number of ACE items to be downloaded.
New ACE	Specifies the number of new ACE items to be downloaded.
New ACE completed	Specifies the number of new ACE items downloaded.
ACL id	Identifies the Access Control List (ACL) configured with the WCCP service.
AOM id	Specifies the asynchronous object manager identifier.
status	Specifies the WCCP state.

Related Commands

Command	Description
ip wccp	Enables support of the WCCP service for participation in a service group.
ip wccp redirect	Enables packet redirection on an outbound or inbound interface using WCCP.

show sctp association

To display accumulated information for a specific Stream Control Transmission Protocol (SCTP) association, use the **show sctp association** command in privileged EXEC mode.

show sctp association *assoc-id*

Syntax Description

assoc-id -	Association identifier, which can be obtained from the output of the **show sctp association list** command.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced.
12.4(15)T	This command was moved to the Cisco IOS IP Application Services Command Reference.

Usage Guidelines

This command shows only the information that has become available since the last time a **clear sctp statistics** command was executed.

Because thousands of associations can be on a single socket and instance ID, this command has been created to limit the output by displaying the status of one particular association ID.

Examples

The following sample output shows the established associations:

```
Router# show sctp association list

** SCTP Association List **
AssocID: 3011699535, Instance ID: 1
Current state: ESTABLISHED
Local port: 2000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
Remote port: 1000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
AssocID: 2740019456, Instance ID: 0
Current state: ESTABLISHED
Local port: 1000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
Remote port: 2000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
```
The following sample output shows information for SCTP association 3011699535:

```
Router# show sctp association 3011699535

AssocID: 3011699535, Instance ID: 1
 Current state: ESTABLISHED
 Local port: 2000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
 Remote port: 1000, Addrs: 10.1.0.1 10.2.0.1 10.3.0.1 10.0.20.105
```

The table below describes the significant fields shown in the display.

Table 22: show sctp accociation Field Descriptions

Field	Description
AssocID/Instance ID	SCTP association identifier and instance identifier.
Current state	State of SCTP association.
Local port	Port number for the local SCTP endpoint.
Remote port	Port number for the remote SCTP endpoint.
Addrs	IP addresses for the local and remote SCTP endpoints.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show iua as	Displays information about the current condition of an application server.
show iua asp	Displays information about the current condition of an application server process.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp instance	Displays information about SCTP endpoint information for one specific currently configured instance.
show sctp instances	Displays all currently defined SCTP instances.
show sctp statistics	Displays overall statistics counts for SCTP.

show sctp association list

To display identifiers and information for current Stream Control Transmission Protocol (SCTP) associations and instances, use the **show sctp association list** command in privileged EXEC mode.

show sctp association list

Syntax Description   This command has no arguments or keywords.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This command replaces the **show ip sctp association list** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines   Use this command to display the current SCTP association and instance identifiers, the current state of SCTP associations, and the local and remote port numbers and addresses that are used in the associations.

Examples   The following is sample output from this command for three association identifiers:

```
Router# show sctp association list

*** SCTP Association List ****
AssocID:0,  Instance ID:0
Current state:ESTABLISHED
Local port:8989, Addrs:10.1.0.2 10.2.0.2
Remote port:8989, Addrs:10.6.0.4 10.5.0.4
AssocID:1,  Instance ID:0
Current state:ESTABLISHED
Local port:8989, Addrs:10.1.0.2 10.2.0.2
Remote port:8990, Addrs:10.6.0.4 10.5.0.4
AssocID:2,  Instance ID:0
Current state:ESTABLISHED
Local port:8989, Addrs:10.1.0.2 10.2.0.2
Remote port:8991, Addrs:10.6.0.4 10.5.0.4
```
The table below describes the significant fields shown in the display.

Table 23: show sctp association list Field Descriptions

Field	Description
AssocID	SCTP association identifier.

Field	Description
Instance ID	SCTP association instance identifier.
Current state	SCTP association state, which can be ESTABLISHED, CLOSED, COOKIE-WAIT, and COOKIE-ECHOED.
Local port, Addrs	Port and IP address for the local SCTP endpoint.
Remote port, Addrs	Port and IP address for the remote SCTP endpoint.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association parameters	Displays the parameters configured for the association defined by the association identifier.
show sctp association statistics	Displays the current statistics for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp instances	Displays the currently defined SCTP instances.
show sctp statistics	Displays the overall statistics counts for SCTP.
show iua as	Displays information about the current condition of an application server.
show iua asp	Displays information about the current condition of an application server process.

show sctp association parameters

To display configured and calculated parameters for the specified Stream Control Transmission Protocol (SCTP) association, use the **show sctp association parameters** command in privileged EXEC mode.

show sctp association parameters *assoc-id*

Syntax Description

assoc-id	Association identifier. Shows the associated ID statistics for the SCTP association.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This commands replaces the **show ip sctp association parameters** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines   The **show sctp association parameters** command provides information to determine the stability of SCTP associations, dynamically calculated statistics about destinations, and values to assess network congestion. This command also displays parameter values for the specified association.

This command requires an association identifier. Association identifiers can be obtained from the output of the **show sctp association list** command.

Many parameters are defined for each association. Some are configured parameters, and others are calculated. Three main groupings of parameters are displayed by this command:

- Association configuration parameters
- Destination address parameters
- Association boundary parameters

The association configuration section displays information similar to that in the **show sctp association list** command, including association identifiers, state, and local and remote port and address information. The current primary destination is also displayed.

Examples   The following sample output shows the IP SCTP association parameters for association 0:

```
Router# show sctp association parameters 0
```

```
** SCTP Association Parameters **
AssocID: 0  Context: 0  InstanceID: 1
Assoc state: ESTABLISHED  Uptime: 19:05:57.425
Local port: 8181
Local addresses: 10.1.0.3 10.2.0.3
Remote port: 8181
Primary dest addr: 10.5.0.4
Effective primary dest addr: 10.5.0.4
Destination addresses:
10.5.0.4:   State:  ACTIVE
  Heartbeats:  Enabled   Timeout: 30000 ms
  RTO/RTT/SRTT: 1000/16/38 ms   TOS: 0  MTU: 1500
  cwnd: 5364  ssthresh: 3000  outstand: 768
  Num retrans: 0  Max retrans: 5  Num times failed: 0
10.6.0.4:   State:  ACTIVE
  Heartbeats:  Enabled   Timeout: 30000 ms
  RTO/RTT/SRTT: 1000/4/7 ms   TOS: 0  MTU: 1500
  cwnd: 3960  ssthresh: 3000  outstand: 0
  Num retrans: 0  Max retrans: 5  Num times failed: 0
Local vertag: 9A245CD4  Remote vertag: 2A08D122
Num inbound streams: 10  outbound streams: 10
Max assoc retrans: 5  Max init retrans: 8
CumSack timeout: 200 ms  Bundle timeout: 100 ms
Min RTO: 1000 ms  Max RTO: 60000 ms
LocalRwnd: 18000  Low: 13455   RemoteRwnd: 15252  Low: 13161
Congest levels: 0  current level: 0  high mark: 325
```

The table below describes the significant fields shown in the display.

Table 24: show sctp association parameters Field Descriptions

Field	Description
AssocID	SCTP association identifier.
Context	Internal upper-layer handle.
InstanceID	SCTP association instance identifier.
Assoc state	SCTP association state, which can be ESTABLISHED, CLOSED, COOKIE-WAIT, and COOKIE-ECHOED.
Uptime	How long the association has been active.
Local port	Port number for the local SCTP endpoint.
Local addresses	IP addresses for the local SCTP endpoint.
Remote port	Port number for the remote SCTP endpoint.
Primary dest addr	Primary destination address.
Effective primary dest addr	Current primary destination address.
Heartbeats	Status of heartbeats.
Timeout	Heartbeat timeout.

Field	Description
RTO/RTT/SRTT	Retransmission timeout, round trip time, and smoothed round trip time, calculated from network feedback.
TOS	IP precedence setting.
MTU	Maximum transmission unit size, in bytes, that a particular interface can handle.
cwnd	Congestion window value calculated from network feedback. This value is the maximum amount of data that can be outstanding in the network for that particular destination.
ssthresh	Slow-start threshold value calculated from network feedback.
outstand	Number of outstanding bytes.
Num retrans	Current number of times that data has been retransmitted to that address.
Max retrans	Maximum number of times that data has been retransmitted to that address.
Num times failed	Number of times that the address has been marked as failed.
Local vertag, Remote vertag	Verification tags (vertags). Tags are chosen during association initialization and do not change.
Num inbound streams, Num outbound streams	Maximum inbound and outbound streams. This number does not change.
Max assoc retrans	Maximum association retransmit limit. Number of times that any particular chunk may be retransmitted before a declaration that the association failed, which indicates that the chunk could not be delivered on any address.
Max init retrans	Maximum initial retransmit limit. Number of times that the chunks for initialization may be retransmitted before a declaration that the attempt to establish the association failed.
CumSack timeout	Cumulative selective acknowledge (SACK) timeout. The maximum time that a SACK may be delayed while attempting to bundle together with data chunks.

Field	Description
Bundle timeout	Maximum time that data chunks may be delayed while attempts are made to bundle them with other data chunks.
Min RTO, Max RTO	Minimum and maximum retransmit timeout values allowed for the association.
LocalRwnd, RemoteRwnd	Local and remote receive windows.
Congest levels: current level, high mark	Current congestion level and highest number of packets queued.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association statistics	Displays the current statistics for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp instances	Displays all currently defined SCTP instances.
show sctp statistics	Displays overall statistics counts for SCTP.
show iua as	Displays information about the current condition of an application server.
show iua asp	Displays information about the current condition of an application server process.

show sctp association statistics

To display statistics that have accumulated for the specified Stream Control Transmission Protocol (SCTP) association, use the **show sctp association statistics** command in privileged EXEC mode.

show sctp association statistics *assoc-id*

Syntax Description

assoc-id	Association identifier, which can be obtained from the output of the **show sctp association list** command.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This command replaces the **show ip sctp association statistics** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines

This command shows only the information that has become available since the last time a **clear sctp statistics** command was executed.

Examples

The following sample output shows the statistics accumulated for SCTP association 0:

```
Router# show sctp association statistics 0

** SCTP Association Statistics **
AssocID/InstanceID: 0/1
Current State: ESTABLISHED
Control Chunks
  Sent: 623874  Rcvd: 660227
Data Chunks Sent
  Total: 14235644  Retransmitted: 60487
  Ordered: 6369678  Unordered: 6371263
  Avg bundled: 18  Total Bytes: 640603980
Data Chunks Rcvd
  Total: 14496585  Discarded: 1755575
  Ordered: 6369741  Unordered: 6371269
  Avg bundled: 18  Total Bytes: 652346325
  Out of Seq TSN: 3069353
ULP Dgrams
  Sent: 12740941  Ready: 12740961  Rcvd: 12740941
```
The table below describes the significant fields shown in the display.

Table 25: show sctp association statistics Field Descriptions

Field	Description
AssocID/InstanceID	SCTP association identifier and instance identifier.
Current State	State of SCTP association.
Control Chunks	SCTP control chunks sent and received.
Data Chunks Sent	SCTP data chunks sent, ordered and unordered.
Data Chunks Rcvd	SCTP data chunks received, ordered and unordered.
ULP Dgrams	Number of datagrams sent, ready, and received by the Upper-Layer Protocol (ULP).

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp instances	Displays all currently defined SCTP instances.
show sctp statistics	Displays overall statistics counts for SCTP.
show iua as	Displays information about the current condition of an application server.
show iua asp	Displays information about the current condition of an application server process.

show sctp errors

To display the error counts logged by the Stream Control Transmission Protocol (SCTP), use the **show sctp errors** command in privileged EXEC mode.

show sctp errors

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This command replaces the **show ip sctp errors** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines

This command displays all errors across all associations that have been logged since the last time that the SCTP statistics were cleared with the **clear sctp statistics** command. If no errors have been logged, this is indicated in the output.

Examples

The following sample output shows a session with no errors:

```
Router# show sctp errors

*** SCTP Error Statistics ****
No SCTP errors logged.
```
The following sample output shows a session that has SCTP errors:

```
Router# show sctp errors

** SCTP Error Statistics **
Invalid verification tag:       5
Communication Lost:             64
Destination Address Failed:     3
Unknown INIT params rcvd:       16
Invalid cookie signature:       5
Expired cookie:                 1
Peer restarted:                 1
No Listening instance:          2
```
Field descriptions are self-explanatory.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured for the association defined by the association ID.
show sctp association statistics	Displays the current statistics for the association defined by the association ID.
show sctp instances	Displays the currently defined SCTP instances.
show sctp statistics	Displays overall statistics counts for SCTP.
show iua as	Displays information about the current condition of an AS.
show iua asp	Displays information about the current condition of an ASP.

show sctp instance

To display Stream Control Transmission Protocol (SCTP) endpoint information for one specific currently configured instance, use the **show sctp instance** command in user EXEC or privileged EXEC mode.

show sctp instance *instance-id*

Privileged EXEC Mode of Cisco 3845 Series Routers

show sctp instance [redundancy] *instance-id*

Syntax Description

instance-id	Instance identifier, which is defined as the transport ID (TransID) value in the output from the **show sockets** command.
redundancy	(Optional) Displays SCTP instance redundancy information.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced.
15.0(1)M	This command was modified in a release earlier than Cisco IOS Release 15.0(1)M. The **redundancy** keyword was added on the Cisco 3845 series router.

Usage Guidelines

This command displays information for the currently configured instance with the ID specified in the command syntax. The instance number, local port, and address information are displayed. The instance state is either available or deletion pending. An instance enters the deletion pending state when a request is made to delete it but there are currently established associations for that instance. The instance cannot be deleted immediately and instead enters the pending state. No new associations are allowed in this instance, and when the last association is terminated or fails, the instance is deleted.

The default inbound and outbound stream numbers (see the "Examples" section) are used for establishing incoming associations, the maximum number of associations allowed for this instance is shown, and a snapshot of each existing association is shown, if any exists.

Show

Examples   The following sample output displays information for SCTP instance 0. In this example, instance 0 is using local port 1000 and has three current associations. Field description is self-explanatory.

```
Router# show sctp instance 0

Instance ID:0 Local port:1000 State:available
Local addrs:10.1.0.2 10.2.0.2
Default streams inbound:1  outbound:1
  Current associations: (max allowed:200)
  AssocID:0  State:ESTABLISHED  Remote port:8989
    Dest addrs:10.6.0.4 10.5.0.4
  AssocID:1  State:ESTABLISHED  Remote port:8990
    Dest addrs:10.6.0.4 10.5.0.4
  AssocID:2  State:ESTABLISHED  Remote port:8991
    Dest addrs:10.6.0.4 10.5.0.4
```

The following sample output displays information for SCTP instance 1. In this example, instance 1 is using local port 9191 and has no current associations. Field description is self-explanatory.

```
Router# show sctp instance 1

Instance ID:1  Local port:9191 State:available
Local addrs:10.1.0.2 10.2.0.2
Default streams inbound:1  outbound:1
No current associations established for this instance.
Max allowed:6
```

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show iua as	Displays information about the current condition of an application server.
show iua asp	Displays information about the current condition of an application server process.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured for the association defined by the association identifier.
show sctp association statistics	Displays the current statistics for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp statistics	Displays the overall statistics counts for SCTP.
show sockets	Displays information about sockets.

show sctp instances

To display information for each of the currently configured Stream Control Transmission Protocol (SCTP) instances, use the **show sctp instances** command in privileged EXEC mode.

show sctp instances

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This command replaces the **show ip sctp instances** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines

This command displays information for each of the currently configured instances. The instance number, local port, and address information are displayed. The instance state is either available or deletion pending. An instance enters the deletion pending state when a request is made to delete it but there are currently established associations for that instance. The instance cannot be deleted immediately and instead enters the pending state. No new associations are allowed in this instance, and when the last association is terminated or fails, the instance is deleted.

The default inbound and outbound stream numbers are used for establishing incoming associations, the maximum number of associations allowed for this instance is shown, and a snapshot of each existing association is shown, if any exists.

When you enter the **show sctp instances** command, you must type the complete word **instances** in the command syntax. If you try to enter an abbreviated form of this word, there will be a partial match that identifies the **show sctp instance** *instance-id* command.

Examples

The following sample output shows available IP SCTP instances. In this example, two current instances are active and available. The first is using local port 8989, and the second is using 9191. Instance identifier 0 has three current associations, and instance identifier 1 has no current associations.

```
Router# show sctp instances

*** SCTP Instances ****
Instance ID:0  Local port:8989
Instance state:available
Local addrs:10.1.0.2 10.2.0.2
Default streams inbound:1  outbound:1
  Current associations: (max allowed:6)
  AssocID:0  State:ESTABLISHED  Remote port:8989
```

```
        Dest addrs:10.6.0.4 10.5.0.4
  AssocID:1  State:ESTABLISHED  Remote port:8990
        Dest addrs:10.6.0.4 10.5.0.4
  AssocID:2  State:ESTABLISHED  Remote port:8991
        Dest addrs:10.6.0.4 10.5.0.4
Instance ID:1  Local port:9191
Instance state:available
Local addrs:10.1.0.2 10.2.0.2
Default streams inbound:1  outbound:1
No current associations established for this instance.
Max allowed:6
```
Field descriptions are self-explanatory.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured for the association defined by the association identifier.
show sctp association statistics	Displays the current statistics for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp statistics	Displays the overall statistics counts for SCTP.
show iua as	Displays information about the current condition of an AS.
show iua asp	Displays information about the current condition of an ASP.

show sctp statistics

To display the overall statistics counts for Stream Control Transmission Protocol (SCTP) activity, use the **show sctp statistics** command in privileged EXEC mode.

show sctp statistics

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(11)T	This command was introduced. This command replaces the **show ip sctp statistics** command.
12.4(15)T	This command was moved to the *Cisco IOS IP Application Services Command Reference*.

Usage Guidelines

This command displays the overall SCTP statistics accumulated since the last **clear sctp statistics** command. It includes numbers for all currently established associations, and for any that have been terminated. The statistics indicated are similar to those shown for individual associations.

Examples

The following sample output shows SCTP statistics:

```
Router# show sctp statistics

*** SCTP Overall Statistics ****
Total Chunks Sent:         2097
Total Chunks Rcvd:         2766
Data Chunks Rcvd In Seq:   538
Data Chunks Rcvd Out of Seq: 0
Total Data Chunks Sent:    538
Total Data Chunks Rcvd:    538
Total Data Bytes Sent:     53800
Total Data Bytes Rcvd:     53800
Total Data Chunks Discarded: 0
Total Data Chunks Retrans:  0
Total SCTP Dgrams Sent:    1561
Total SCTP Dgrams Rcvd:    2228
Total ULP Dgrams Sent:     538
Total ULP Dgrams Ready:    538
Total ULP Dgrams Rcvd:     538
```
Field descriptions are self-explanatory.

Related Commands

Command	Description
clear sctp statistics	Clears statistics counts for SCTP.
debug ip sctp api	Reports SCTP diagnostic information and messages.
show sctp association list	Displays a list of all current SCTP associations.
show sctp association parameters	Displays the parameters configured and calculated for the association defined by the association identifier.
show sctp association statistics	Displays the current statistics for the association defined by the association identifier.
show sctp errors	Displays error counts logged by SCTP.
show sctp instances	Displays all currently defined SCTP instances.
show iua as	Displays information about the current condition of an AS.
show iua asp	Displays information about the current condition of an ASP.

show sockets

To display IP socket information, use the **show sockets** command in user EXEC or privileged EXEC mode.

show sockets *process-id* **[detail] [events]**

Syntax Description

process-id	Identifier of the IP process to be displayed.
detail	(Optional) Displays detailed information about the selected socket process.
events	(Optional) Displays information about IP socket events.

Command Default

IP socket information is not displayed.

Command Modes

User EXEC Privileged EXEC

Command History

Release	Modification
12.4(11)T	This command was introduced.

Usage Guidelines

Use this command to display the number of sockets currently open and their distribution with respect to the transport protocol process specified by the *process-id* argument.

Use the optional **detail** keyword to display additional information including the local and remote port, protocol type, sub-type for Stream Control Transmission Protocol (SCTP) sockets, IP version, and socket state. Use the optional **events** keyword to display information about the status of the event model for the specified socket. The **events** keyword also displays the events being watched using the event model, events being watched using select calls, and any current events present on the socket.

Use the **show processes** command to display the list of running processes and their associated process IDs.

Examples

The following is sample output from the **show sockets** command when there are no sockets open for the specified process:

```
Router# show sockets 99

There are no open sockets for this process
```
The following example displays the total number of open sockets for the specified process:

```
Router# show sockets 35
```

```
Total open sockets - TCP:7, UDP:0, SCTP:0
```
The following example shows how to display detailed information about open sockets:

```
Router# show sockets 35 detail

  FD LPort FPort Proto Type     TransID
   0  5000  0     TCP   STREAM  0x6654DEBC
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   1  5001  0     TCP   STREAM  0x6654E494
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   2  5002  0     TCP   STREAM  0x656710B0
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   3  5003  0     TCP   STREAM  0x65671688
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   4  5004  0     TCP   STREAM  0x65671C60
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   5  5005  0     TCP   STREAM  0x65672238
State: SS_ISBOUND
Options: SO_ACCEPTCONN
   6  5006  0     TCP   STREAM  0x64C7840C
State: SS_ISBOUND
Options: SO_ACCEPTCONN
Total open sockets - TCP:7, UDP:0, SCTP:0
```
The following example displays IP socket event information:

```
Router# show sockets 35 events

Events watched for this process: READ
FD Watched Present Select Present
0 --- --- R-- R--
```
The table below describes the significant fields shown in the displays.

Table 26: show sockets Field Descriptions

Field	Description
FD	Feasible distance. The feasible distance is the best metric to reach the destination or the best metric that was known when the route went active. This value is used in the feasibility condition check. If the reported distance of the router (the metric after the slash) is less than the feasible distance, the feasibility condition is met and that path is a feasible successor. Once the software determines it has a feasible successor, it need not send a query for that destination.
LPort	Local TCP port.
FPort	Foreign port.
Proto	Protocol type, such as UDP, TCP, or SCTP.

Field	Description
Type	Type of socket being displayed. Possible socket types include: • STREAM--TCP socket. • DGRAM--UDP socket. • SEQPACKET--SCTP socket.
TransID	Transaction ID number.
State:	Current state of the socket. Possible socket state flags include: • SS_NOFDREF--No file descriptor reference for this socket. • SS_ISCONNECTING--Socket connecting is in progress. • SS_ISBOUND--Socket is bound to TCP. • SS_ISCONNECTED--Socket is connected to peer. • SS_ISDISCONNECTING--Socket disconnecting is in progress. • SS_CANTSENDMORE--Cannot send more data to peer. • SS_CANTRCVMORE--Cannot receive more data from peer. • SS_ISDISCONNECTED--Socket is disconnected. Connection is fully closed.
Options:	Displays socket options. Possible socket options include: • SO_ACCEPTCONN--Socket is accepting a connection. • SO_NBIO--Socket is in a non-blocking I/O mode. • SO_LINGER--Socket waits for a time before all data is sent out.
Events watched for this process:	Details the events that are being watched by the application.
READ	Read events being watched by the application.

Field	Description
Watched	Events being watched by the application.
Present	Watched events that are present on the socket.
Select	Events being watched by the application using the select () call.

Related Commands

Command	Description
clear sockets	Closes all IP sockets and clears the underlying transport connections and data structures.
show ip sctp	Displays information about SCTP.
show processes	Displays information about the active processes.
show udp	Displays IP socket information about UDP processes.