

SGSN PSP Configuration Mode Commands

Command Modes

The Peer-Server Process (PSP) configuration mode provides the commands to create, configure, bind, and manage a specific PSP instance included in an SS7 routing domain configuration.

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- associate, on page 2
- do show, on page 4
- end, on page 4
- end-point, on page 4
- exchange-mode, on page 5
- exit, on page 6
- psp-mode, on page 7
- routing-context, on page 8
- sctp-alpha, on page 9
- sctp-beta, on page 10
- sctp-checksum-type, on page 11
- sctp-cookie-life, on page 12
- sctp-init-rwnd, on page 13
- sctp-max-assoc-retx, on page 14
- sctp-max-data-chunks, on page 15
- sctp-max-in-strms, on page 16
- sctp-max-init-retx, on page 16
- sctp-max-mtu size, on page 17
- sctp-max-out-strms, on page 18

- sctp-max-path-retx, on page 19
- sctp-parameter , on page 20
- sctp-rto-initial, on page 21
- sctp-rto-max, on page 22
- sctp-rto-min, on page 23
- sctp-sack-frequency, on page 24
- sctp-sack-period, on page 25
- sctp-suppress-alarm, on page 26
- shutdown, on page 27
- timeout, on page 28

associate

Defines an association between the PSP instance and an application server process (ASP) instance and/or a DSCP marking template.

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Product

SGSN

HNB-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

associate { asp instance *asp_num* **| dscp-template downlink** *template_name* **}**
no associate [asp | dscp-template downlink]

no

Removes the association, between the PSP and the ASP or the DSCP marking template, from the routing domain configuration.

Important Using the **no associate** command will most likely result in the termination of all current subscriber sessions active through the peer-server.

asp instance *asp_num*

Identifies a specific ASP configuration. Up to four ASP instances can be configured for a single SS7 routing domain.

asp_num is a digit from 1 to 4.

dscp-marking downlink *template_name*

Identifies a specific DSCP marking template to associate with this PSP configuration.

template_name is a string of 1 to 64 characters, including letters, digits, dots (.), dashes (-), and forward slashes (/), to identify a unique instance of a DSCP template. For more information about DSCP marking templates, refer to the *DSCP Template Configuration Commands Mode* chapter.

The DSCP marking template provides a mechanism enabling the SGSN to perform differentiated services code point (DSCP) marking of control packets and signaling messages at the SGSN's M3UA level on the Gb interface. This DSCP marking feature enables the SGSN to perform classifying and managing of network traffic and to determine quality of service (QoS) for the interfaces to an IP network

While enabling DSCP marking of SCTP (control packets) on HNB-GW only **associate dscp-template downlink** *template_name* command is applicable. This command is used to provides a mechanism enabling the HNB-GW to perform differentiated services code point (DSCP) marking of control packets and signaling messages at the HNB-GW. This DSCP marking feature enables the HNB-GW to perform classifying and managing of network traffic and to determine quality of service (QoS) for the interfaces to an IP network

Usage Guidelines

Use this command to create an association between a specific peer-server process (PSP) and a specific application server process (ASP) instance or a specific differentiated services code point (DSCP marking template).

Before using the **associate** command, the values for the **psp-mode** and **end-point** commands must be configured.

Before using the **associate** command, the M3UA end-point of the ASP must be configured. Use the commands defined in the *ASP Configuration Mode* chapter of the *Command Line Interface Reference.*

While enabling DSCP marking of SCTP (control packets) on HNB-GW only **associate dscp-template downlink** *template_name* command is applicable. For more information about DSCP marking templates, refer to the *DSCP Template Configuration Commands Mode* chapter.

Example

Associate this PSP instance with ASP configuration instance *2* :

```
associate asp instance 2
```

Use the following command to terminate all associations with this PSP instance:

```
no associate
```

Associate this PSP instance with a DSCP marking template identified as *dscptemp1* :

```
associate dscp-template downlink dscptemp1
```

do show

Executes all **show** commands while in Configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
do show
```

Usage Guidelines Use this command to run all Exec mode **show** commands while in Configuration mode. It is not necessary to exit the Config mode to run a **show** command.

The pipe character **|** is only available if the command is valid in the Exec mode.



Caution There are some Exec mode **show** commands which are too resource intensive to run from Config mode. These include: **do show support collection**, **do show support details**, **do show support record** and **do show support summary**. If there is a restriction on a specific **show** command, the following error message is displayed:

```
Failure: Cannot execute 'do show support' command from Config mode.
```

end

Exits the configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines Change the mode back to the Exec mode.

end-point

This command defines or deletes the IP address to be associated with the local SCTP end-point for the application server process (ASP).



Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Product SGSN

HNB-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

`end-point { address` *`ip_address`* **`| port`** *`port_number`* **`}`**
`no end-point [ address` *`ip_address`* **`]`**

no

Removes the ASP end-point association configuration from the PSP configuration.

Important This command can not be used as long as the PSP and the ASP are associated. Use the **no associate** command when entering any form of this command, including **no end-point**. When the change is made, re-enter the ASP association with the **association** command.

address *ip_address*

Specifies the IP address for the ASP end-point.

ip_address: Must be defined using the standard IPv4 dotted decimal notation or the colon notation of IPv6.

port *port_number*

Configures the M3UA's SCTP port number for the end-point.

port_number: Must be an integer from 1 to 65535.

Default: 2905.

Usage Guidelines

Use this command to manage the ASP end-point. At least one address needs to be configured for the ASP before the end-point can be associated with the PSP.

Example

Set the ASP end-point to IP address *192.168.1.1* with the following command:

`end-point address 192.168.1.1`

exchange-mode

Configures the exchange-mode for the PSP communication.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description **`exchange-mode [ double-ended | single-ended ]`**

double-ended

A double exchange of ASPTM and ASPSM messages would typically be needed to change the IPSP states. Either end can request the change and the state changes if the other end acknowledges.

With this configuration, the connections in each direction are managed independently so one could be closed while the other remains active.

single-ended

Only a single exchange of ASPTM and ASPSM messages is needed to change the IPSP state. Either end can request the change and the state changes if the other end acknowledges.

Usage Guidelines



Important Before using this command to set a value or reset the default, you must disassociate the PSP instance with the **no associate** command. When you have modified your configuratioin with this command, then use the **associate** command to setup a new ASP association.

Use this command to toggle the exchange modes for the PSP to match the exchange mode supported by the ASP. The exchange mode specifies what type of ASP messages exchange is used in an IPSP communication.

The **exchange-mode** must be configured for 'single-ended' if the **psp-mode** has been configured for 'client'.

Example

Change the exchange mode from the standard double-ended to single-ended:

`exchange-mode single-ended`

exit

Exits the current configuration mode and moves to the previous configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Return to the Peer-Service configuration mode.

psp-mode

Configures either client-mode or server-mode as the PSP's operational mode.

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Product SGSN

HNB-GW

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description `psp-mode { client | server }`

client

The PSP operates as a client.

server

The PSP operates as a server.

Usage Guidelines

Important Before using this command to change the configuration, you must disassociate the PSP instance with the **no associate** command. When you have modified your configuratioin with this command, then use the **associate** command to setup a new ASP association.

Instruct the peer-server process to operate in either client or server mode.

Example

Configure the PSP to operate in server mode:

```
psp-mode server
```

routing-context

Configures the behavior of the routing context in M3UA messages.

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description

```
routing-context { discard-inbound | process-inbound | m3ua-data {
insert-outbound | suppress-outbound } }
default routing-context
```

default

Include this keyword with the command, to reset the configuration to the system default for routing-context which is a combination of process-inbound and insert-outbound.

discard-inbound

Sets the routing context received in M3UA messages to be discarded.

process-inbound

Sets the routing context received in M3UA messages to be processed.

m3ua-data

This keyword controls the insertion of routing context in outbound M3UA data messages. The default behavior is to insert routing context in management messages and suppress routing context in data messages.

insert-outbound

Sets the routing context so that it is added in the M3UA messages.

suppress-outbound

Sets the routing context so that it is suppressed in the M3UA messages.

Usage Guidelines



Important Before using this command to change the configuration or reset the default, you must disassociate the PSP instance with the **no associate** command. When you have modified your configuratioin with this command, then use the **associate** command to setup a new ASP association.

In PSP (singled-ended) configuration mode, the settings for both the local routing context (the SGSN's routing context) and the peer routing context (the RNC's routing context) should be the same. If the routing contexts created at the SGSN and on the peer are different then this can cause the M3UA link to fail.

Routing context is an optional parameter when an M3UA association has only one associated peer-server.

Example

If the peer does not support routing context, then disable the routing context feature:

```
routing-context discard-inbound suppress-outbound
```

sctp-alpha

This stream control transmission protocol (SCTP) retransmission time out (RTO) parameter defines the RTO-Alpha value.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

sctp-alpha *value*
default sctp-alpha

value

Defines a percentage (%) that represents the RTO portion of the round-trip time (RTT) calculation. This percentage value must be an integer between 0 and 65535.

default

Resets the **sctp-alpha** to the default value of 5%.

Usage Guidelines

sctp-alpha is used in conjunction with other commands, such as the **sctp-beta** command, to determine the round-trip time (RTT) calculations. The Alpha parameter is used to manage load balancing within the SS7 environment for multi-homed peers.



Important Before using this command to set a value or reset the default, you must disassociate the PSP instance with the **no associate** command. When you have modified your configuratioin with this command, then use the **associate** command to setup a new ASP association.

Example

Set the SCTP RTO-Alpha value to *256%* of the RTT calculation:

```
sctp-alpha 256
```

sctp-beta

This stream control transmission protocol (SCTP) retransmission time out (RTO) parameter defines the RTO-Beta value.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
sctp-beta value
default sctp-beta
```

value

Defines a percentage (%) that represents the RTO portion of the round-trip time (RTT) calculation. This percentage value must be an integer between 0 and 65535.

default

Resets the **sctp-beta** to the default value of 10%.

Usage Guidelines

Use this command in conjunction with other commands, such as the **sctp-alpha** command, to determine the round-trip time (RTT) calculations. The Beta parameter is used to manage load balancing within the SS7 environment for multi-homed peers.



Important

Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set the SCTP RTO-Alpha value to *512%* of the RTT calculation:

```
sctp-beta 512
```

sctp-checksum-type

This command selects the type of checksum algorithm to be used.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description

```
sctp-checksum-type { adler32 | crc32 }
default sctp-checksum-type
```

adler32

Selects the Adler-32 type of algorithm as a faster checksum function.

crc32

Selects the CRC-32, a slower but more reliable 32-bit cyclic redundancy check.

default

Resets the **sctp-checksum-type** to the default of CRC-32.

Usage Guidelines Use this command to set which type of checksum algorithm the SGSN is to use to validate SCTP packets.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set the checksum type for *CRC32*:

```
sctp-checksum-type crc32
```

sctp-cookie-life

This command sets the SCTP valid cookie life.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
sctp-cookie-life value
default sctp-cookie-life
```

value

Sets the valid cookie life value in increments of 100 milliseconds. The range is 50 to 1200 .

default

Resets the **sctp-cookie-life** value to the default, 600 (= .6 seconds).

Usage Guidelines Use this command to set the SCTP cookie life.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set the SCTP cookie life to 1 second (*1000* milliseconds):

```
sctp-cookie-life 1000
```

sctp-init-rwnd

This command sets the size of the SCTP receiver window .

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

sctp-init-rwnd *window_size*
default sctp-init-rwnd

window_size

Sets an integer to configure the window size. The range is 32768 to 1048576.

default

Resets the **sctp-init-rwnd** window size to the default, 1048576.

Usage Guidelines

Use this command to set the receiver window size in the configuration. Configuring this parameter enables the SCTP client to send configured 'sctp-init_rwnd' as a_rwnd parameter in the INIT message. For the SCTP server, the INIT ACK will be populated with sctp-init_rwnd as a_rwnd parameter per RFC 4960.

The command enables the operator to configure a reduced priority for LinkManager Control messages, thereby giving Timer messages the highest priority. The Timer messages are retained at the highest priority and Data messages are kept at a lower priority.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Use the following command to set the SCTP window size to *32786*:

```
sctp-init-rwnd 32768
```

sctp-max-assoc-retx

This command sets the maximum number of datagram retransmissions to be associated with this peer server configuration.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

sctp-max-assoc-retx *value*
default sctp-max-assoc-retx

value

Defines the maximum number of datagram retransmissions for an association. The value must be an integer between 0 and 255.

default

Resets the default for **sctp-max-assoc-retx** to 10.

Usage Guidelines

Use this command to configure the maximum number of datagram retransmissions for an association. The endpoint will be declared unreachable after **sctp-max-assoc-retx** number of consecutive retransmissions to an endpoint on any transport address.

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set the maximum number to *3* datagram retransmissions:

```
sctp-max-assoc-retx 3
```

sctp-max-data-chunks

This command sets the operator-preferred limit to the number of data chunks that can be bundled in an SCTP message.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description

`sctp-max-data-chunks ( limit` *`max_chunks`* **`| mtu-limit )`**
`default sctp-max-data-chunks`

default

Resets the default for **sctp-max-data-chunks** to the limit set for the MTU with the **sctp-max-mtu-size** command.

limit *max_chunks*

Sets the operator-preferred maximum number of data chunks that can be bundled into SCTP messages. Enter an integer from 1 to 65535.

mtu-limit

Instructs the SGSN to bundle only as many data chunks for the SCTP streams as defined by for the maximum transmission unit (MTU) size configured with the **sctp-max-mtu-size** command.

Usage Guidelines

Use this command to override the default MTU-limit for data chunk bundling and configure a preferred maximum number of data chunks that can be bundled into an SCTP message.

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set *1024* as a maximum number of data chunks to bundled:

```
sctp-max-data-chunks limit 1024
```

sctp-max-in-strms

Configures the maximum number of incoming SCTP streams

Product

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description

`sctp-max-in-strms` *`value`*
`default sctp-max-in-strms`

default

Returns the configuration to the default of 16.

value

Default: 16.

Specifies the maximum number of incoming SCTP streams as an integer from 1 to 16. The SGSN restricts the allowable range to 2 to 16. If a value of 1 is entered, a value 2 will be applied for any SGSN service associated with this SCTP parameter template.

Usage Guidelines

Use this command to configure the maximum number of incoming SCTP streams.

Example

The following command configures the maximum number of incoming SCTP streams to *5*:

sctp-max-in-strms 5

sctp-max-init-retx

This command sets the maximum number of retries to send the INIT datagram.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

sctp-max-init-retx *value*
default sctp-max-init-retx

value

Sets the maximum number of retries. This value must be an integer between 0 and 255.

default

Resets the default for **sctp-max-init-retx** to 5.

Usage Guidelines

Use this command to set the maximum number of retries the SCTP layer should make to send the INIT datagram to the peer to open an association.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

sctp-max-init-retx *3*

sctp-max-mtu size

This command sets the number of bytes that comprise the maximum MTU size.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

sctp-max-mtu-size *value*
default sctp-max-mtu-size

value

Sets the maximum number of bytes for the SCTP MTU size. This value must be an integer between 508 and 65535.

default

Resets the default for **sctp-max-mtu-size** to 1500 bytes.

Usage Guidelines

Use this command to configure the size of the MTU.

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set the maximum size of the MTU to 3000 bytes:

sctp-max-mtu-size *3000*

sctp-max-out-strms

This command sets the maximum number of outgoing streams through the PSP going towards the peer server.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*host_name*`(config-ss7-rd-`*ss7rd_id*`-ps-peer-`*server_id*`-psp-`*psp_instance*`)#`

Syntax Description

sctp-max-out-strms *max#_out_streams*
default sctp-max-out-strms

default

Resets the SGSN's **sctp-max-out-strms** value to the default of 2.

max#_out_streams

The value must be an integer between 1and 16. The value should match the peer node's (STP/SG/RNC/HLR) number of in-bound streams.



Important For releases prior to 14.0, the value range was 1 to 65535. However, the system always capped at 16 so in Release 14.0 the range has been decreased to reflect that fact.

Usage Guidelines Use this command to balance the stream throughput from the PSP to the peer server. The value for this command is used to validate the incoming packets in the SCTP layer.

If the user tries to configure the value of **sctpmax-out-strms** less than "2", a message is displayed and the default value is set.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

Set a maximum SCTP out streams to *12*:

```
sctp-max-out-strms 12
```

Set a maximum SCTP out streams to the default of *2* streams:

```
default sctp-max-out-strms
```

sctp-max-path-retx

This command sets the maximum number of datagram retransmissions for this path.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

sctp-max-path-retx *value*
default sctp-max-path-retx

value

Sets the maximum number of datagram retransmission to a destination transport address. This value must be an integer from 0 to 255.

default

Resets the **sctp-max-path-retx** default to 5.

Usage Guidelines

Use this command to set the maximum number of datagram retransmissions to a destination transport address. The destination transport address will be declared unreachable after the SGSN exhausts the **sctp-max-path-retx** number of consecutive retransmissions to a destination transport address.

Depending upon network conditions, lower values typically means faster detection of SCTP-Path failure.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

```
sctp-max-path-retx  10
```

sctp-parameter

This command enables the SGSN administrator to alter the contents of the Optional Address Parameter IE.

Product

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
[ default | no ] sctp-parameter ipv4-address suppress single-ended
```

[default | no]

Either command prefix resets the default behavior to repeat the source IP address in the IE.

Usage Guidelines

In situations when the endpoint is uni-homed (that is, single transport layer address), this command enables the SGSN administrator to override the default behavior and to configure the SGSN to suppress (not repeat)

the source IP address which is typically included as part of the Optional Address Parameter IE in the INIT/INIT-Ack chunk.

Example

Enable suppression of sending repeated IP address in the OAP IE with this command:

sctp-parameter ipv4-address suppress single-ended

Repeat sending the source IP address in the OAP IE with the following command:

no sctp-parameter ipv4-address suppress single-ended

sctp-rto-initial

This command sets the initial retransmission timeout for the SCTP.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-`*`ss7rd_id`*`-ps-peer-`*`server_id`*`-psp-`*`psp_instance`*`)#`

Syntax Description

`sctp-rto-initial` *`value`*
`default sctp-rto-initial`

default

Resets the system to the **sctp-rto-initial** default of 30 (3 seconds).

value

The value must be an integer between 1 and 50.

Usage Guidelines



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Use this command to define the initial retransmission timer.

The value set for **sctp-rto-initial** should be greater than or equal to the minimum value set with **sctp-rto-min** (**sctp-rto-initial**=> **sctp-rto-min**).

The value set for **sctp-rto-initial** should be less than or equal to the maximum value set with **sctp-rto-max** (**sctp-rto-initial** <= **sctp-rto-max**).

Example

sctp-rto-initial *240*

sctp-rto-max

This command sets the maximum retransmission timeout value for the SCTP.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

sctp-rto-max *value*
default sctp-rto-max

default

Resets the system to the **sctp-rto-max** default of 600 (60 seconds).

value

Set the maximum retransmission timeout value in increments of 100 milliseconds (0.1 seconds) and the value must be an integer between 5 and 1200.

Usage Guidelines

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Use this command to configure the maximum time for retransmissions.

The value set for **sctp-rto-max** should be greater than or equal to the value set for **sctp-rto-initial** (**sctp-rto-max** => **sctp-rto-initial**).

Example

The following sets the timeout for 45 seconds:

```
sctp-rto-max 450
```

sctp-rto-min

This command sets the minimum retransmission timeout (RTO) value for the SCTP.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
sctp-rto-min [ units-10ms ] value
default sctp-rto-min
```

default

Resets the **sctp-rto-min** to the default of 10 (1 second).

units-10ms

Including this keyword, before entering a value, enables configuration with finer granuality - in 10 millisecond units.

value

If the **units-10ms** keyword is included, then set the timeout in increments of 10 milliseconds. The value must be an integer between 1 and 500.

If the **units-10ms** keyword is not included then set the timeout in increments of 100 milliseconds. The value must be an integer between 1 and 50.

Usage Guidelines

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Use this command to set the minimum time for retransmission before timeout.

The value set for **sctp-rto-min** should be less than or equal to the value set for **sctp-rto-initial** (**sctp-rto-min** <= **sctp-rto-initial**)

Example

The following sets the timeout for 2 seconds:

```
sctp-rto-min 20
```

sctp-sack-frequency

This command sets the frequency of transmission of SCTP selective acknowledgements (SACK).

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
sctp-sack-frequency [ units-10ms ] value
default sack-frequency
```

units-10ms

Including this keyword, before entering a value, enables configuration with finer granuality - in 10 millisecond units.

value

Sets the maximum number of datagrams to be received prior to sending a SACK to the peer. The value must be an integer between 1 and 5.

default

Resets the **sctp-sack-frequency** default value of 2.

Usage Guidelines



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Use this command to set the maximum number of datagrams to be received before a SACK must be sent to the peer. The **sctp-sack-frequency** is used in conjunction with the **sctp-sack-period** to control the generation of SACK, depending on which one occurs first.

Example

```
sctp-sack-frequency 3
```

sctp-sack-period

This command sets the delay before sending an SCTP selective acknowledgement (SACK).

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
sctp-sack-period [ units-10ms ] value
default sack-period
```

units-10ms

Including this keyword, before entering a value, enables configuration with finer granuality - in 10 millisecond units.

value

If the **units-10ms** keyword is included, then set the timeout in increments of 10 milliseconds. The value must be an integer between 0 and 50.

If the **units-10ms** keyword is not included then set the timeout in increments of 100 milliseconds. The value must be an integer between 0 and 5.

default

Resets the system to the **sctp-sack-period** default value, 2 (=200 milliseconds).

Usage Guidelines

Use this command to set the time the SCTP waits to send a SACK.

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

```
sctp-sack-period 3
```

sctp-suppress-alarm

This command enables/disables the suppression of alarms for SCTP path failure between two peer endpoints.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#
```

Syntax Description

```
[ no ] sctp-suppress-alarm path-failure self-end-point-address
orig_ipv4_addresspeer-end-point-address peer_ipv4_address
```

no

Disables the pre-configured alarm suppression for SCTP path failure.

path-failure

This keyword specifies that the alarm suppression is for SCTP path failure between two peer nodes.

self-end-point-address *orig_ipv4_address*

This keyword specifies the IP address of the originating endpoint.

orig_ipv4_address is the IP address of originating endpoint in IPv4 dotted decimal notation.

peer-end-point-address *peer_ipv4_address*

This keyword specifies the IP address of the peer endpoint.

peer_ipv4_address is the IP address of peer endpoint in IPv4 dotted decimal notation.

Usage Guidelines Use this command to configure the path failure alarm suppression. This command ignores the alarms generated on SCTP path failure.



Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

The following command suppresses the path failure alarms occurred in SCTP path between originating peer address *209.165.200.228* and peer endpoint *209.165.200.233*:

sctp-suppress-alarm path-failure self-end-point-address *209.165.200.228* **peer-end-point-address** *209.165.200.233*

shutdown

This command brings down and locks the SCTP association.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]`*host_name*`(config-ss7-rd-`*ss7rd_id*`-ps-peer-`*server_id*`-psp-`*psp_instance*`)#`

Syntax Description **[no] shutdown**

no

On configuring **no shutdown**, the PSP is marked unlocked and the SGSN initiates an association establishment towards the peer, if the SGSN is a client and it honors messages from the peer for association establishment, if SGSN is server. This is the default configuration for a PSP.

The default is **no shutdown**.

Usage Guidelines On configuring **shutdown**, the PSP is brought down via a SCTP Shutdown procedure (if association is already ESTABLISHED) or Abort (any other association state) and it is marked LOCKED. The SGSN does not initiate any messages towards the peer and any message from the peer will be responded with a SCTP Abort, when the PSP is in a LOCKED state.

Example

The following command brings down and locks the SCTP association:

shutdown

timeout

This command sets the times for various timeout timers.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Peer-Server Configuration > PSP Configuration

configure > ss7-routing-domain *routing_domain_id* **variant** *variant_type* **> peer-server id** *id* **> psp instance** *psp_instance*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-ss7rd_id-ps-peer-server_id-psp-psp_instance)#`

Syntax Description

timeout { m3ua-periodic-dest-audit *dest_timeout* **| sctp-bundle [units-10ms]** *timer* **| sctp-heart-beat** *hrt_bt_timeout* **}**
[default | no] timeout { m3ua-periodic-dest-audit | sctp-bundle | sctp-heart-beat }

default

Resets the specified command to the default value.

no

Removes the selected configuration.

m3ua-periodic-dest-audit *dest_timeout*

Sets the period (in increments of seconds) between the DAUD messages while auditing a destination state.

dest_timeout: Must be an integer from 1 to 65535. Default is 2.

sctp-bundle [units-10ms] *timer*

Specifies that SCTP data chunks are to be queued until this timer expires at which time the data chunks are bundled and committed for transmission. SCTP bundling provides better bandwidth utilization and less traffic, however, there is a packet transmission delay.

timer is an integer from 1 through 65535, in 100ms increments (10 = 1000ms or 1 second).

[units-10ms]: Including this optional keyword specifies that the integer *timer* is to be calculated using 10ms increments (instead of 100ms increments) to allow for finer granularity.

Important Peer end should also be configured to support SCTP bundling.

Default: SCTP bundling is disabled.

sctp-heart-beat *hrt_bt_timeout*

Sets the number of seconds in the SCTP heart-beat timer

hrt_bt_timeout: This value is an integer between 1 and 300. Default is 30.

Usage Guidelines

Use this command to configure timers. Repeat the command with each of the keywords to set values for each.

Important Before using this command to set a value, you must disassociate the PSP instance with the **no associate** command. When you have set the value with this command, then use the **associate** command to setup a new association.

Example

```
timeout m3ua-periodic-dest-audit 120
```