

# SCTP

## CONFIGURATION FILE DESCRIPTION

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SCTP



# 1 Configuration File

## 1.1 General

This document describes the configuration file parameters with arguments applicable for the Stream Control Transmission Protocol (SCTP) according to IETF RFC 4960 **for versions of configuration file:**

CAA901548R10AK, CAA901548R10AJ, CAA901548R10AI, CAA901548R10AH, CAA901548R10AG, CAA901548R10AF, CAA901548R10AE, CAA901548R10AD, CAA901548R10AC, CAA901548R10AB, CAA901548R10AA, CAA901548R10Z, CAA901548R10Y, CAA901548R10X, CAA901548R10W, CAA901548R10V, CAA901548R10U, CAA901548R10T, CAA901548R10S, CAA901548R10R, CAA901548R10Q, CAA901548R10P, CAA901548R10O, CAA901548R10N, CAA901548R10M, CAA901548R10L, CAA901548R10K, CAA901548R10J, CAA901548R10I, CAA901548R10H, CAA901548R10G, CAA901548R10F, CAA901548R10E, CAA901548R10D, CAA901548R10C, CAA901548R10B, CAA901548R10A, CAA901548R10, CAA901548R9G, CAA901548R9F, CAA901548R9E, CAA901548R9D, CAA901548R9C, CAA901548R9B, CAA901548R9A, CAA901548R9.

The configuration file must be in text-file format (that is, ASCII coded) and may only contain raw data. The numerical data are either in decimal, hexadecimal, or binary values, except for Adler IP address where the IP addresses follows Internet Standard format as character strings with “.” notation. The only pseudo code allowed in the file shall be separated from the data value with at least one space or tab character. Data items are separated with CR (carriage return). A comment line starts with a hash sign “#”.

## 1.2 Acronyms and Terms

ASCII	American Standard Code for Information Interchange
CFD	Configuration File Description
CP	Common Parts
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
Current Primary Path	Path that is used in path selection algorithm as the primary path for outgoing traffic.
CWND	Congestion Window
DNS	Domain Name System



<b>ECN</b>	Explicit Congestion Notification
<b>FE</b>	Front End
<b>HW</b>	Hardware
<b>ICMP</b>	Internet Control Message Protocol
<b>ID</b>	Identifier
<b>IETF</b>	Internet Engineering Task Force
<b>IP</b>	Internet Protocol
<b>IS</b>	Incoming Stream
<b>MAC</b>	Message Authentication Code
<b>MIS</b>	Maximum (number of) Incoming Streams
<b>MM</b>	Management Module
<b>MOS</b>	Maximum (number of) Outbound Streams
<b>MTU</b>	Maximum Transmission Unit
<b>OAM</b>	Operation and Maintenance Module
<b>OOB</b>	Out Of the Blue (packet)
<b>OS</b>	Outbound Stream
<b>PMTU</b>	Path MTU
<b>PMTUD</b>	PMTU Discovery
<b>Preset Primary Path</b>	Primary path that was chosen by SCTP after association establishment or last time set by the user or management order.
<b>PTB</b>	Packet Too Big message
<b>RFC</b>	Request For Comments
<b>RTO</b>	Retransmission Time-out
<b>RTT</b>	Round-Trip Time
<b>RTTVAR</b>	Round-Trip Time VARIation
<b>RWND</b>	Receiver Window



SCTP	Stream Control Transmission Protocol
SFI	Send Failure Indication
SIGTRAN	SIGnaling TRANsport
SRTT	Smoothed RTT
SS7	Signaling System number 7
ULM	Upper Layer Message

## 1.3 References

[E1]	Functional Specification for SCTP IETF 155 17-CAA 901 548 Uen
[E2]	RFC 4960 “Stream Control Transmission Protocol”
[E3]	Functional Specification for “Common Parts” 15517-CAA 201 29 Uen
[E4]	Configuration File Description for MM 190 73-CAA 201 30 Uen
[E5]	Configuration File Description for OAM 5/190 73-CAA 901 791 Uen
[E6]	Configuration File Description for CAF 1/1543-CNA 403 0874/3 Uen

## 1.4 Parameters

The parameters in the following table are defined in the SCTP section in the SS7 stack configuration file, for example ss7.cnf or sctp.cnf.

**Note:** The symbol “Def:” in the column “Values” means that when BASE SCTP is initialized by an old configuration file, which does not support the parameter, this default value is used by SCTP. The default value of the configuration parameter grants backward compatibility behavior.

The symbol “Rec:” in the column “Values” should be treated as a recommended value for the fixed network without lingering disturbances and, therefore, this value doesn't fit all networks, traffic and equipment types, which might be used by customer. The value of the parameters should be set according to the network's quality/capacity/noisiness. It depends on practical experience for the particular case. Parameters recommended for SS7CAF applications see in [E6].



Table 1 Parameters and Descriptions

Name of the parameter	Values	Reconfiguration	Description
File Version Number	Min: CAA901548R9 Max: CAA901548R10AK Rec: CAA901548R10AK Def: -	Yes, possible for migration purposes.	SCTP supports following configuration file version numbers: CAA901548R9 CAA901548R9A CAA901548R9B CAA901548R9C CAA901548R9D CAA901548R9E CAA901548R9F CAA901548R9G CAA901548R10 CAA901548R10A CAA901548R10B CAA901548R10C CAA901548R10D CAA901548R10E CAA901548R10F CAA901548R10G CAA901548R10H CAA901548R10I CAA901548R10J CAA901548R10K CAA901548R10L CAA901548R10M CAA901548R10N CAA901548R10O CAA901548R10P





Table 1 Parameters and Descriptions

			CAA901548R10Q CAA901548R10R CAA901548R10S CAA901548R10T CAA901548R10U CAA901548R10V CAA901548R10W CAA901548R10X CAA901548R10Y CAA901548R10Z CAA901548R10AA CAA901548R10AB CAA901548R10AC CAA901548R10AD CAA901548R10AE CAA901548R10AF CAA901548R10AG CAA901548R10AH CAA901548R10AI CAA901548R10AJ CAA901548R10AK  Description what has been changed between values of configuration file versions is listed below:
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Table 1 Parameters and Descriptions

			<p>CAA901548R9A version differs from CAA901548R9 version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>Unloading Maximum Number of Associations</b></li><li>• <b>Unloading General Delay</b></li><li>• <b>Unloading Burst Delay</b></li></ul> <p>CAA901548R9B version differs from CAA901548R9A version by adding new configuration parameter: <b>Would Block ceased Trigger</b></p> <p>CAA901548R9C version differs from CAA901548R9B version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>HB Reduce Rate</b></li><li>• <b>Arwnd Update Threshold</b></li></ul> <p>CAA901548R9D version differs from CAA901548R9C version by increasing maximum allowed value for <b>Number Of Associations</b> parameter to 8192.</p> <p>CAA901548R9E version differs from CAA901548R9D version by the new parameter <b>Block Cross-paths Flag</b></p> <p>CAA901548R9F version differs from CAA901548R9E version by the new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>Associations release burst timer</b></li><li>• <b>Associations release burst size</b></li></ul> <p>CAA901548R9G version differs from CAA901548R9F version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>SCTP over UDP</b></li><li>• <b>UDP Local Port</b></li><li>• <b>UDP Remote Port</b></li></ul>
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Table 1 Parameters and Descriptions

	<p>CAA901548R10 version differs from CAA901548R9D version by adding new configuration parameters:</p> <ul style="list-style-type: none"> <li>• <b>Wait Next Probe interval</b></li> <li>• <b>Number of Attempts to Discover Congested Paths</b></li> <li>• <b>ECN capability</b></li> <li>• <b>DNS Support</b></li> <li>• <b>Stream Statistic Flag</b></li> </ul> <p><b>Minimum IPv4 PMTU, Maximum IPv4 PMTU, Maximum IPv6 PMTU</b> parameters moved from configuration group properties to the general section.</p> <p>CAA901548R10A version differs from CAA901548R10 version by adding new configuration parameter <b>Block Cross-paths Flag</b></p> <p>CAA901548R10B version differs from CAA901548R10A version by adding new configuration parameters:</p> <ul style="list-style-type: none"> <li>• <b>Minimum Activate Threshold</b></li> <li>• <b>Maximum Activate Threshold</b></li> <li>• <b>Activate Threshold Factor</b></li> </ul> <p>Also it differs by increasing maximum allowed value for <b>Path Selection Adjustment</b> to 7.</p> <p>CAA901548R10C version differs from CAA901548R10B version by adding new configuration parameters:</p> <ul style="list-style-type: none"> <li>• <b>Associations release burst timer</b></li> <li>• <b>Associations release burst size</b></li> </ul> <p>CAA901548R10D version differs from CAA901548R10C version by adding new configuration parameter: <b>Primary.Path.Max.Rtx.</b></p>
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Table 1 Parameters and Descriptions

	<p>CAA901548R10E version differs from CAA901548R10D version by adding new configuration parameter: <b>Individual Takeover Process Time Limit</b>.</p> <p>CAA901548R10F version differs from CAA901548R10E version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>SCTP over UDP</b></li><li>• <b>UDP Local Port</b></li><li>• <b>UDP Remote Port</b></li></ul> <p>CAA901548R10G version differs from CAA901548R10F version by adding the new configuration parameter: <b>Statistics 64bit Update Timer</b></p> <p>CAA901548R10H version differs from CAA901548R10G version by adding new configuration parameter: <b>DNS Host Name Resolving Interval</b>.</p> <p>CAA901548R10I version differs from CAA901548R10H version by adding new configuration parameter: <b>Interval For Lost Primitives Check</b>.</p> <p>CAA901548R10J version differs from CAA901548R10I version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>Number of Attempts to Probe Unreachable IP Paths</b></li><li>• <b>Probing Unreachable IP Paths Interval</b></li></ul> <p>CAA901548R10K version differs from CAA901548R10J version by adding new configuration parameter: <b>Multi-home Robustness</b>.</p> <p>CAA901548R10L version differs from CAA901548R10K version by adding new configuration parameter: <b>Exhaustive IP Path Statistic Calculation</b>.</p>
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Table 1 Parameters and Descriptions

	<p>CAA901548R10M version differs from CAA901548R10L version by range extension of configuration parameters: <b>Heartbeat interval</b> (the low limit has been extend to 10 ms) and <b>Heartbeat status</b> (new supported value - 2).</p> <p>CAA901548R10N version differs from CAA901548R10M version by range extension of configuration parameters <b>Number Of Optional Configuration Groups</b> and <b>Configuration Group ID</b>: the upper limit has been extended to 254. Added new configuration parameters:</p> <ul style="list-style-type: none"> <li>• <b>Initial RWND Setting Timeout</b></li> <li>• <b>DSCP</b></li> <li>• <b>Number Of Remote Endpoint Blocks</b></li> <li>• <b>Remote Port</b></li> <li>• <b>Number of Remote Addresses</b></li> <li>• <b>Remote IP address or DNS Hostname</b></li> <li>• <b>Configuration Group ID</b></li> </ul>
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Table 1 Parameters and Descriptions

	<p>CAA901548R10O version differs from CAA901548R10N version by range extension of the configuration parameter: <b>Heartbeat status</b> (extended up to 15).</p> <p>CAA901548R10P version differs from CAA901548R10O version by range extension of the configuration parameter: <b>ICMP status</b> (extended up to 7).</p> <p>CAA901548R10Q version differs from CAA901548R10P version by adding new configuration parameter: <b>Maximum Number of Endpoint Users</b></p> <p>CAA901548R10R version differs from CAA901548R10Q version by adding new configuration parameter: <b>Zero RWND Supervision Timer</b>.</p> <p>CAA901548R10S version differs from CAA901548R10R version by adding new configuration parameters:</p> <ul style="list-style-type: none"><li>• <b>Action</b></li><li>• <b>Match Type</b></li></ul> <p>CAA901548R10S version differs from CAA901548R10T version by changing of validation rule for <b>IPv6 PMTU</b> parameter.</p> <p>CAA901548R10U version differs from CAA901548R10T by adding new configuration parameter: <b>Multiple Fast Retransmit</b></p> <p>CAA901548R10V version differs from CAA901548R10U version by adding new configuration parameter: <b>Management behaviour bitmask</b></p> <p>CAA901548R10W version differs from CAA901548R10V version by adding new configuration parameter: <b>Slow Start CWND Increment Factor</b>.</p> <p>CAA901548R10X version differs from CAA901548R10W version by reconfiguration policy for <b>ULM Buffer Size</b> and <b>Initial RWND</b> parameters and description of <b>Reconfiguration settings</b> parameter</p>
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Table 1 Parameters and Descriptions

	<p>CAA901548R10Y version differs from CAA901548R10X version by adding new configuration parameter: <b>Time Critical Service</b>.</p> <p>CAA901548R10Z version differs from CAA901548R10Y version by adding new configuration parameters: <b>Maximum Initial CWND, Maximum Initial CWND Operation Mode</b>.</p> <p>CAA901548R10AA version differs from CAA901548R10Z version by adding new configuration parameter: <b>Check IP Interfaces Timer Value</b>.</p> <p>CAA901548R10AB version differs from CAA109548R10AA by extending the range of configuration parameter: <b>SCTP over UDP</b>.</p> <p>CAA901548R10AC version differs from CAA109548R10AB by adding new configuration parameter: <b>Forced Activation of Parameters</b>.</p> <p>CAA901548R10AD version differs from CAA109548R10AC by adding new configuration parameter: <b>Bi-directional Support Only</b>.</p> <p>CAA901548R10AE version differs from CAA901548R10AD version by increasing maximum allowed value for <b>Number Of Associations</b> and <b>Associations release burst size</b> parameters to 16249.</p> <p>CAA901548R10AF version differs from CAA109548R10AE by reconfiguration policy for <b>ULM SFI part</b> parameter and validation rule for <b>Management behaviour bitmask</b> parameter.</p> <p>CAA901548R10AG version differs from CAA109548R10AF by adding new configuration parameter: <b>CRC32C Algorithm</b>.</p> <p>CAA901548R10AH version differs from CAA109548R10AG by adding new configuration parameter: <b>Maximum User Message Size</b>.</p> <p>CAA901548R10AI version differs from CAA109548R10AH by adding new configuration parameter: <b>Cross Paths Mode</b>.</p>
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Table 1 Parameters and Descriptions

			CAA901548R10AJ version differs from CAA109548R10AI by adding new configuration parameter: <b>Bundling Threshold</b> .  CAA901548R10AK version differs from CAA109548R10AJ by adding new configuration parameter: <b>ULM Info Ind Part</b> .
<b>Number Of Associations</b>	Min: 1 Max: 4 096 Since <b>R9D</b> : Max: 8 192 Since <b>R10AE</b> : Max: 16 249 Rec: 512 Def: -	No	The maximum number of associations to be handled by SCTP instance in this configuration. Please note, that each configured association requires certain amount of memory for its handling. It is recommended to limit number of association according to real needs. Refer to [E1] for details.
<b>Interval For Lost User Handling</b> in milliseconds	Min: 0 Max: 3 600 000 Rec: 5 000 Def: 5 000	Yes, applies to all users beginning from the next interval.	Number of milliseconds for the interval, which begins when the connection with SCTP user is lost. During this interval SCTP waits for the reconnection. If it does not happen during this time, the user will be considered as “dead” and all associations related to it will be destroyed.  This interval is also applied during broken connection between SCTP instances in case of association movement (Horizontal Takeover and Individual Association Movement).  Value 0 means that the user or the other SCTP is considered as “dead” right after the lost connection.
<b>Key Change Period</b> in milliseconds	Min: 1 000 Max: 180 000 Rec: 4 000 Def: -	Yes, applies to SCTP module beginning from the next interval.	Set up how often the secret key used to compute the MAC on the State Cookie is changed.





Table 1 Parameters and Descriptions

<b>Number of Local IP Addresses and DNS Hostnames</b>	Min: 0 Max: 512 Rec: 0 Def: 0	Yes, takes affect on newly created endpoints only.	<p>Total number of available addresses and DNS Hostnames. The exact set of addresses, used by SCTP for creation of endpoint, is the intersection of set of addresses provided by SCTP user, set of addresses provided below and a set of addresses provided by operating system.</p> <p>Configuration parameter <b>Multi-home Robustness</b> allows SCTP to create endpoints for IP addresses which are listed below but not provided by SCTP user and/or operating system.</p> <p>Value 0 means that any IPv4 and IPv6 addresses that are provided by SCTP user and operating system can be used.</p> <p><b>Note:</b> the maximum number of local IPv4 addresses and the maximum number of local IPv6 addresses that can be supported by SCTP are limited by 255. The configuration that includes more than 255 IPv4 or IPv6 addresses will be passed but only 255 IPv4 or IPv6 addresses of them will be used as available.</p>
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Table 1 Parameters and Descriptions

<b>Local IP address or DNS Hostname</b> in Internet Standard format	Min: - Max: - Rec: — Def: All local IP addresses available	Yes, takes affect on newly created endpoints only.  <b>Note:</b> IP addresses can not be removed from the registered endpoints. Already established endpoints and associations continue to use IP addresses, which even removed from this list. If IP addresses are removed from the system also, SCTP associations will detect changes in the status of network.	Local IP address available.  The format of the IP address should be of Internet Standard format: “a.b.c.d”, example 150.168.200.18 for IPv4 addresses or “a:b:c:d:e:f:g:h”, example 2031:0:130F:0:0:9C:8A:130F for IPv6 addresses  <b>Note:</b> IPv6 addresses in the compressed format are allowed, example: 2031:0:130F::9C:8A:130F.  Local DNS available.  Text string composed of the alphabet (A-Z), digits (0-9), minus sign (-), and period (.). No blank or space characters are permitted as a part of the name. The first character must be an alpha or digit character. The last character must not be a minus sign. DNS Hostname must not be in #.#.#.# dotted-decimal form.
The field <b>Local IP address or DNS Hostname</b> is repeated <b>Number of Local IP Adresses and DNS Hostnames</b> times.			



Table 1 Parameters and Descriptions

<b>Size of Outgoing IP Buffer</b> in number of bytes	<p>Min: 1 500 (including IP header size, that is 20 bytes in the IPv4 case and 40 bytes in the IPv6 case)</p> <p>Min: 1 300 (including IP header size, that is 20 bytes in the IPv4 case and 40 bytes in the IPv6 case)</p> <p>Max: 65 535 (including IP header size, that is 20 bytes in the IPv4 case and 40 bytes in the IPv6 case)</p> <p>Rec: max(“<b>Maximum IPv4 PMTU</b>” + 20, “<b>Maximum IPv6 PMTU</b>” + 40)</p> <p>Def: -</p>	<p>Yes, applies to SCTP module and to all sockets as their option. This parameter can not be reduced.</p> <p>If default system or previous value is greater than provided, this parameter is not applied to sockets but new configuration is accepted.</p>	<p>Sets the maximum number of bytes which SCTP can write to IP socket.</p> <p>Parameter is validated for compliance to possible range. If it is smaller initially than default system value (usually 8 192 bytes), it is not applied but configuration is accepted.</p> <p>If outgoing SCTP packet is greater than size of this buffer this packet will be lost. So, it is strongly recommended to synchronize this value with <b>PMTU</b>.</p>
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Table 1 Parameters and Descriptions

<b>Size of Incoming IP Buffer</b> in number of bytes	Min: 0 Max: 5 000 000. Rec: 0 Def: —	Yes, applies to all sockets as their option. This parameter can not be reduced.  If default system or previous value is greater than provided, this parameter is not applied to sockets but new configuration is accepted.	<p>Sets the maximum number of bytes which is used by IP layer when receive packets from the network. If 0 is specified, the operating systems default value is used. The maximum value is operating system specific.</p> <p>Parameter is validated for compliance to possible range (usually 8 192). If it is smaller initially (but not zero) than the default system value, it is not applied but the configuration is accepted.</p> <p><b>Note:</b> In case of using Distributed Endpoint between SCTP FEs on the same host functionality based on TUN interfaces, it is responsibility of operator to set the value of this parameter to greater than 0 and align it with the real IP layer properties. Otherwise the configuration will be accepted, but incomplete packets may be received, which SCTP will discard due to incorrect checksum. See chapter "Distributed Endpoint between SCTP FEs on the Same Host" in [E1] and [E3] for details.</p> <p>If incoming packet is greater than this parameter, IP layer will provide incomplete packet and SCTP will discard it due to incorrect checksum. But if IP layer provides complete packet and checksum is correct SCTP will forward this packet to the SCTP user even though the length of the packet is greater.</p>
<b>CRC-Calculation Status</b>	Min: 0 Max: 1 Rec: 1 Def: 1	Yes, applies to SCTP module.	<p>Defines whether CRC calculation is active or not. 0 - CRC is not active; SCTP delegates CRC calculation to lower layers 1 - CRC calculation is active; SCTP calculates the CRC.</p> <p>It is strongly not recommended to set this parameter to 0 on Solaris 10 platform, because this can prevent any traffic to run.</p>



Table 1 Parameters and Descriptions

<b>ICMP Status</b>	Min: 0 Max: 1 Since <b>R10P</b> : Max: 7 Rec: 1 Def: 1	No Since <b>R10P</b> : Yes	Determines if SCTP handles ICMP messages or not.  <b>Bit 0 (activation):</b> 0 - ICMP status is set to inactive; SCTP will have no possibility to handle ICMP messages. 1 - ICMP status is set to active; SCTP will open a socket and receive ICMP messages.  <b>Bit 1 (ignoring ICMP with code "protocol unreachable"):</b> 0 – ICMP packets with code "protocol unreachable" are not ignored by SCTP and handled according to <b>E2</b> . 1 – ICMP packets with code "protocol unreachable" are ignored by SCTP.  <b>Bit 2 (ignoring ICMP with type "destination unreachable"):</b> 0 – ICMP packets with type "destination unreachable" are not ignored by SCTP. 1 – ICMP packets with type "destination unreachable" (except ICMP with codes "protocol unreachable" and "fragmentation needed") are ignored by SCTP.  <b>Note:</b> Bit 1 (ignoring ICMP with code "protocol unreachable") and Bit 2 (ignoring ICMP with type "destination unreachable") do not have any effect if Bit 0 (activation) equals to zero.  It is recommended to set <b>ICMP Status</b> parameter to 1 if PMTUD was enabled.
<b>Bind To Device Flag</b>	Min: 0 Max: 1 Rec: 0 Def: 0	Yes, takes affect on newly created sockets only.	Activate/deactivate Bind To Device or not. For platforms that do not support the socket option, the parameter has no effect. 0 - SCTP does not try to force the socket option BINDTODEVICE to be set when opening sockets 1 - SCTP tries to force the socket option BINDTODEVICE to be set when opening sockets



Table 1 Parameters and Descriptions

<b>ULM Buffer Size</b> in number of bytes	Min: 0 Max: 10 000 000 Rec: 500 000 Def: 0	No  Since <b>R10X</b> :  Yes, if <b>Total Assured Memory</b> parameter is set to 0. Otherwise, no.	<p>Defines limitation for buffer that is assigned for upper layer messages. SCTP will not save confirmations and indications if the buffer is overflowed. Zero means that buffer is unlimited, hence the memory can be exhausted by SCTP.</p> <p><b>Note:</b> In case if it is reconfigured, and new limit is lower than actual amount of buffered data, no actions will be done. It means that buffer will not be cleaned. But it will be decrease eventually.</p> <p><b>Note:</b> See also <b>ULM SFI part</b> and <b>ULM Info Ind Part</b>.</p>
<b>Total Assured Memory</b> in number of bytes	Min: 0 Max: max size, that operating system can provide  Rec: Depends on other configuration parameters and system properties. For details see chapter “Memory handling” in [E1]. Def: 0	No	<p>Defines limitation for memory usage. Zero means that memory is unlimited, then SCTP will use expandable CP pools. If parameter is not equal to zero SCTP will allocate dynamic memory during MM_INIT_req processing and will not use more than configured. It is strongly recommended to set up the parameter if operating system can not return NULL pointer for allocation request in case of low memory.</p> <p>Parameter may be set to zero if operating system has swap for operative memory.</p> <p>For more details see chapter “Memory handling” in [E1].</p>



Table 1 Parameters and Descriptions

<b>ULM SFI Part</b> in percents	Min: 0 Max: 100 Rec: 70 Def: 70	No Since <b>R10AF</b> : Yes	<p>Identifies the part (in percents) of ULM buffer (<b>ULM Buffer Size</b>), which may be filled with SCTP_SEND_FAILURE_ind messages. If this parameter is equal to zero SCTP_SEND_FAILURE_ind will not be buffered. See [E1] (chapters 2 and 5) for more details.</p> <p><b>Note:</b> in case of reconfiguration if the new value is less than the currently used space in ULM buffer allocated for primitives, SCTP will apply the new value but the new limit will take a role only when enough buffered primitives are released.</p> <p><b>Note:</b> in case of reconfiguration if a new value is greater than the old one, SCTP will simply apply the new value. But if there is not enough space in ULM buffer due to buffered primitives of another type, SCTP will be able to buffer new SCTP_SEND_FAILURE_ind primitives only when enough buffered primitives are released.</p>
<b>Port Range From</b>	Min: 0 Max: " <b>Port Range To</b> " Rec:- Def: -	No	<p>Smallest port which can be dynamically assigned by SCTP to endpoint. Port range from value must be more than zero to assign port dynamically from range. If "<b>Port Range From</b>" is equal to zero and "<b>Port Range To</b>" is equal to zero, SCTP uses FE-instance number to assign port, see primitive SCTP_INITIALIZE_req in [E1] for more information.</p> <p>Note, that if "<b>Port Range From</b>" is equal to zero, then "<b>Port Range To</b>" must be equal to zero too, otherwise SCTP will return an error.</p>



Table 1 Parameters and Descriptions

<b>Port Range To</b>	Min: 0, higher or equal to <b>"Port Range From"</b> Max: 65 535 Rec:- Def: -	No	<p>Greatest port which can be dynamically assigned by SCTP to endpoint. If <b>"Port Range From"</b> is equal to zero and <b>"Port Range To"</b> is equal to zero, SCTP uses FE-instance number to assigned port, see primitive SCTP_INITIALIZE_req in [E1] for more information.</p> <p>If <b>"Port Range To"</b> is equal to zero, then <b>"Port Range From"</b> must be equal to zero too, otherwise SCTP will return an error.</p>
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Table 1 Parameters and Descriptions

<b>Reconfiguration settings</b>  Available since <b>R9</b>	Min: 0 Max: 2 Rec: 2 Def: 2	Yes, applies to Sctp module.  New value of this parameter is applied to next reconfiguration session.	<p>This parameter is used during module reconfiguration. Value of <b>Reconfiguration settings</b> parameter shows how reconfiguration will be applied to associations.</p> <p>0 - reconfigured parameters will be applied only to new associations started from existing or newly created endpoints.</p> <p>1 - reconfigured parameters will be applied to existing and new associations, except <b>Initial RWND</b>, which, if decreased, will be applied only to new associations (association opened after the reconfiguration on the existing or new endpoints).</p> <p>2 - the same as 1.</p> <p><b>Note:</b> In case of configuration when upgrading or when it is necessary to restart the Sctp Front End process the <b>Reconfiguration settings</b> parameter value is ignored and configuration parameters will be applied only to new associations established afterwards.</p> <p><b>Note:</b> Sctp configuration is not applied to an association after the movement from another Sctp Front End in the scope of Horizontal Takeover and Individual Association Movement (Horizontal Takeover can be used for Sctp Front End upgrade scenarios and can follow Sctp Front End process restart).</p>
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Table 1 Parameters and Descriptions

<b>PMTUD Accuracy</b> in number of bytes Available since <b>R9</b>	Min: 0 Max: 32 000 Rec: 12  Def: 0  Must be divisible by 4 bytes	Yes, applies to running PMTUD process immediately	<p>Defines the precision for PMTU discovery process. If range to find PMTU is less than PMTU Accuracy then PMTUD is complete for path.</p> <p>If PMTUD Accuracy is equal to zero PMTUD is disabled.</p> <p>If PMTUD Accuracy is not equal to zero and needed for Path MTU Discovery socket options are not supported by IP layer (see <b>E1</b>), such configuration will not be applied.</p> <p>If PMTUD Accuracy is not equal to zero and <b>Size of outgoing IP buffer</b> is less than <math>\max(\text{Maximum IPv4 PMTU} + 20, \text{Maximum IPv6 PMTU} + 40)</math>, such configuration will not be applied.</p> <p>It is recommended to set <b>ICMP Status</b> parameter to 1 if PMTUD was enabled.</p> <p><b>Note:</b> In case of using Distributed Endpoint between SCTP FEs on the same host functionality based on TUN interfaces, Path MTU Discovery will work correctly for IPv6 only if the value of <b>Maximum IPv6 PMTU</b> is set less than the currently configured PMTU of Operating System. Path MTU Discovery will work correctly for IPv4 only if the platform routing component drops IPv4 packets with the size greater than real MTU. See chapter "Distributed Endpoint between SCTP FEs on the Same Host" in [<b>E1</b>] and [<b>E3</b>] for details.</p>
<b>PMTUD Interval</b> in milliseconds Available since <b>R9</b>	Min: 300 000 Max: $2^{32}-1$ Rec: 7 200 000  Def: 7 200 000	Yes, applies to SCTP module starting from next interval.	<p>Describes time interval between PMTUD processes. Parameter is for the whole module. Maximum one association path is being discovered at any moment of time.</p> <p>(Parameter makes sense only if PMTUD Accuracy is nonzero)</p>



Table 1 Parameters and Descriptions

<b>Wait Next Probe interval</b> in milliseconds  Available since <b>R10</b>	Min: 0 Max: 3 600 000 Rec: 120 000 Def: 120 000	Yes, applies to Sctp module	Describes time interval to wait after a successful PMTUD probe before sending the next probe on that path.  After an unsuccessful probe PMTUD procedure will wait for five times this value before sending a new probe.  (Parameter makes sense only if PMTUD Accuracy is nonzero)
<b>Number of Attempts to Discover Congested Paths</b>  Available since <b>R10</b>	Min: 0 Max: 255 Rec: 0 Def: 0	Yes, applies to running PMTUD process immediately	Describes Number of Attempts to Discover Congested Paths. If the number of attempts spent to discover a congested path is equal to this parameter Sctp will mark the path as discovered.  If the value is equal to zero Sctp will try to discover congested paths till the congestion is ceased or the path is inactivated.  (Parameter makes sense only if PMTUD Accuracy is nonzero)
<b>Minimum IPv4 PMTU</b> in number of bytes  Available since <b>R9</b>	Min: 68 Max: <b>Maximum IPv4 PMTU</b> Rec: 508 Def: 508	New value of the parameter will be applied to all associations.	Describes lower value to find PMTU on IPv4 paths. Used to reset path MTU if Datagram Too Big ICMP message received and Next-Hop MTU field not set in this message.



Table 1 Parameters and Descriptions

<b>Maximum IPv4 PMTU</b> in number of bytes  Available since <b>R9</b>	Min: <b>Minimum IPv4 PMTU</b>  Max: <b>Size of outgoing IP buffer - 20</b>  Rec: 65 515  Def: 65 515	New value of the parameter will be applied to all associations.	<p>Describes upper value to find PMTU on IPv4 paths. SCTP will not send probes with size more than Maximum IPv4 PMTU.</p> <p>It is strongly recommended to set the value of this parameter to <b>Size of outgoing IP buffer</b> minus the size of IP header.</p> <p>20 bytes is the minimum value of the size of IP header which is used to validate this parameter.</p> <p>It is recommended to set the value of this parameter to not greater than the currently configured pmtu of Operating System. Otherwise SCTP will report SCTP_ERROR_WRITE_SOCKET each time after sending of a probe packet with the size greater than that pmtu. Nevertheless Path MTU Discovery will be continued.</p>
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Table 1 Parameters and Descriptions

<b>Maximum IPv6 PMTU</b> in number of bytes  Available since <b>R9</b>	Min: 1 240  Max:  If <b>PMTUD Accuracy</b> activates PMTU discovery process - equal to <b>Size of outgoing IP buffer</b> - 40.  Otherwise - equal to 65 495.  Rec: 65 495  Def: 65 495	New value of the parameter will be applied to all associations.	<p>Describes upper value to find PMTU on IPv6 paths (it makes sense only if PMTUD Accuracy is nonzero). SCTP will not send probes with size greater than Maximum IPv6 PMTU.</p> <p>It is strongly recommended to set the value of this parameter to <b>Size of outgoing IP buffer</b> minus the size of IP header.</p> <p>40 bytes is the minimum value of the size of IP header which is used to validate this parameter.</p> <p>It is recommended to set the value of this parameter to not greater than the currently configured pmtu of Operating System. Otherwise SCTP will report SCTP_ERROR_WRITE_SOCKET each time after sending of a probe packet with the size greater than that pmtu. Nevertheless Path MTU Discovery will be continued.</p> <p><b>Note:</b> In case of using Distributed Endpoint between SCTP FEs on the same host functionality based on TUN interfaces, Path MTU Discovery will not work correctly if the value of this parameter is set greater than the currently configured PMTU of Operating System. See chapter "Distributed Endpoint between SCTP FEs on the Same Host" in [E1] and [E3] for details.</p>
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Table 1 Parameters and Descriptions

<b>Start Delay</b> in milliseconds Available since <b>R9</b>	Min: 0 Max: $2^{32}-1$ Rec: 1 000 Def: 0	Yes	<p>Normally SCTP does not keep a connection with other SCTP layer. However, SCTP module communicates with other instances in order to check '<b>FE ID</b>' parameter. The option '<b>Start Delay</b>' configures the behavior. The verification procedure is performed with help of SCTP_INFO_req(s) which are distributed to all running SCTP FE(s). If timer is expired earlier than all SCTP_INFO_conf(s) are received, SCTP checks only available answers. Delayed responds from other SCTP instances are ignored. Notice that SCTP can not be used by ULP while this timer is running, since the module is not 'started' at that moment.</p> <p>For more details see chapter "Automatic verification of Configuration-&gt;general(FEID)" in [E1].</p>
<b>Takeover Process Limit</b> in milliseconds Available since <b>R9</b>	Min: 10 000 Max: $2^{32}-1$ Rec: 30 000 Def: 30 000	Yes, applies to SCTP module	Limit for the horizontal SCTP take over process. SCTP starts timer when process is started and reports alarm to Management Module when this timer is expired.
<b>Unloading Maximum Number of Associations</b> Available since <b>R9A</b>	Min: 0 Max: 4 096 Rec: 1 Def: 4 096	Yes, applies to SCTP module	Limits the number of associations which start unloading procedure at the same moment.
<b>Unloading General Delay</b> in milliseconds Available since <b>R9A</b>	Min: 0 Max: "Interval For Lost User Handling" Rec: 200 Def: "Interval For Lost User Handling"	Yes, applies to SCTP module	<p>For SCTP which takes over associations: defines the time while SCTP waits binding with redirected users.</p> <p>For SCTP which is going to be unloaded: defines the delay before the first burst of unloaded associations.</p>



Table 1 Parameters and Descriptions

<b>Unloading Burst Delay</b> in milliseconds Available since <b>R9A</b>	Min: 10 Max: 100 000 Rec: 100 Def: 1 000	Yes, applies to Sctp module	Defines the interval between two bursts of associations which start unloading procedure during association movement procedure.
<b>Would Block ceased Trigger</b> in percents Available since <b>R9B</b>	Min: 0 Max: 99 Rec: 70 Def: 0	Yes	<p>The option is provided to CP module as a threshold of triggered event: WB ceased. If default value is used callback is not registered in CP.</p> <p>This parameter is linked with the functionality in CP module and may depend on platform specific. See [E3] chapter 5.3.29.</p>
<b>FE ID</b> Available since <b>R9</b>	Min: 0 Max: 256 Rec: 256 Def: CP InstanceID	No	<p>Parameter is unique identifier for Sctp FE process. Configuration should guarantee that the value of this parameter is unique for each Sctp module in a system. If it is equal to 256, CP process instance will be assigned instead. For more information about this parameter see [E1] (chapter 2).</p> <p>Note: Value of this parameter should be equal to Instance Id. See [E1] (chapter 4.16).</p>
<b>Associations release burst timer</b> in milliseconds Available since <b>R10C</b>	Min: 0 Max: 65535 Rec: 100 Def: 0	Yes	<p>Defines the time interval between the burst of association releases.</p> <p>If set to 0, Sctp will just return the execution control after each burst.</p> <p>The parameter is ignored if <b>Associations release burst size</b> is set to 0.</p>



Table 1 Parameters and Descriptions

<b>Associations release burst size</b> Available since <b>R10C</b>	Min: 0 Max: 8192 Since <b>R10AE</b> : Max: 16 249 Rec: 512 Def: 0	Yes	<p>Defines the maximum number of SCTP associations that can be released without returning the execution control.</p> <p>After this number of associations is released, the <b>Associations release burst timer</b> will be started and release of associations will be continued after its expiration</p> <p>If set to 0, all associations will be released at once and parameter <b>Associations release burst timer</b> will be ignored.</p> <p><b>Note:</b> The value of this parameters should not be greater than CP configuration parameter <b>MSGMAXENTRIES</b>.</p> <p><b>Note:</b> Since configuration version <b>R10AF</b>, if <b>Management behaviour bitmask</b> bit 0 is set to 0 and <b>Associations release burst size</b> has non-zero value, SCTP configuration will be rejected.</p>
<b>Individual Takeover Process Time Limit</b> in milliseconds Available since <b>R10E</b>	Min: 0 Max: $2^{32}-1$ Rec: 10 000 Def: 10 000	Yes, applies to SCTP module	Limit for the Individual Association Movement process. If the timer was expired before the successful association movement, SCTP reports unsuccessful result and cleans all information regarding the association.





Table 1 Parameters and Descriptions

<b>SCTP over UDP</b> Available since <b>R10F</b>	Min: 0 Max: 1 Since <b>R10AB</b> : Max: 2 Rec: 0 Def: 0	No	SCTP bearer type. Can be UDP or IP. UDP is not recommended to be used in production. UDP may be used for testing on hosts without root access. Values: 0 - IP bearer 1 - UDP bearer, local and remote UDP ports are taken from: <b>UDP Local Port</b> and <b>UDP Remote Port</b> accordingly. 2 - UDP bearer, local and remote UDP ports are taken from endpoint and association SCTP objects. <b>Note:</b> in order to establish the association over UDP, both (remote and local) SCTP endpoints should be configured with UDP bearer.
<b>UDP Local Port</b> Available since <b>R10F</b>	Min: 0 Max: 65535 Rec: - Def: 0	No	UDP local port number if UDP bearer is used.
<b>UDP Remote Port</b> Available since <b>R10F</b>	Min: 0 Max: 65535 Rec: - Def: 0	No	UDP remote port number if UDP bearer is used.



Table 1 Parameters and Descriptions

<b>Statistics 64bit Update Timer</b> in milliseconds  Available since <b>R10G</b>	Min: 0 Max: $2^{32}-1$ Rec: - Def: 0	Yes	<p>Defines the time interval between comparison of SctpStatisticIdRecBytesLo and SctpStatisticIdSentBytesLo statistics with their previous values. If the previous value is greater than the current one, the appropriate statistic counter (SctpStatisticIdRecBytesHi or SctpStatisticIdSentBytesHi) is increased by one, then the timer is restarted.</p> <p>If it is set to zero, corresponding timer is not started and statistic counters SctpStatisticIdRecBytesHi and SctpStatisticIdSentBytesHi are not updated.</p> <p>It is recommended to set the parameter to non-zero value only if 64bit counters are needed. In this particular case the value of the timer may be calculated with the formula below:</p> $[\text{Statistics 64bit Update Timer}] \cdot 2^{35} \cdot 10^3 / (X \cdot N)$ <p>Where X is speed in bits per second, N is a number of available for SCTP IP addresses.</p>
<b>DNS Host Name Resolving Interval</b> in milliseconds  Available since <b>R10H</b>	Min: 0 Max: $2^{32}-1$ Rec: 86 400 000 Def: 0	Yes, applies to SCTP module starting from next interval.	<p>The timer is used to periodically resolve all configured <b>DNS host name addresses</b>.</p> <p>The value 0 means that the timer is not started at all and if at least one DNS host name address was unresolved, the configuration is rejected.</p> <p>It is not recommended to configure the new timer to a low value (at least not less than 30 seconds) to reduce the load on the DNS server.</p>



Table 1 Parameters and Descriptions

<b>Interval For Lost Primitives Check</b> in milliseconds  Available since <b>R10I</b>	Min: 0 Max: $2^{32}-1$ Rec: 5 000 Def: 0	Yes, applies to Sctp module.  <b>Note:</b> Reconfiguration will take effect with the next timer start.	Defines the time interval since Sctp_OVERLOAD_CONGESTION_LEVEL_req or Sctp_USER_CONGESTION_LEVEL_req primitive is received after which Sctp will check with the upper layer whether corresponding congestion abatement has ceased. If the timer is configured with zero value, Sctp will not start this timer and will never check for lost primitive.
<b>Multi-home Robustness</b>  Available since <b>R10K</b>	Min: 0 Max: 1 Rec: 1 Def: 0	Yes, applies to Sctp module.	Defines if Sctp should allow the user to initialize an endpoint if some of local IP addresses are absent in the system: 0 - Sctp does not initialize an endpoint if some of its local IP addresses are absent in the system; 1 - Sctp initializes an endpoint if some of its local IP addresses are absent in the system.  <b>Note:</b> even if this parameter is configured to 1, Sctp will not initialize an endpoint if all its local IP addresses are absent in the system.



Table 1 Parameters and Descriptions

<b>Exhaustive IP Path Statistic Calculation</b>  Available since <b>R10L</b>	Min: 0 Max: 1 Rec: 0 Def: 0	Yes, applies to SCTP module.	<p>Defines whether IP path statistic "Number of control chunks received by SCTP" and "Number of received by SCTP bytes" calculation is active or not:</p> <p>0 - Statistic calculation is not active, counters "Number of control chunks received by SCTP" and "Number of received by SCTP bytes" will be always equal to zero for IP paths;</p> <p>1 - Statistic calculation is active, counters "Number of control chunks received by SCTP" and "Number of received by SCTP bytes" will be counted for IP paths.</p> <p>It is recommended to set this parameter to 0, otherwise performance penalty will be observed.</p> <p><b>Note:</b> even if "Exhaustive IP path statistic calculation" equals to 0, counters "Number of control chunks received by SCTP" and "Number of received by SCTP bytes" still will be calculated per SCTP association and per module.</p>
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Table 1 Parameters and Descriptions

<b>Initial RWND Setting Timeout</b> in milliseconds  Available since <b>R10N</b>	Min: 0 Max: $2^{32}-1$ Rec: 0 Def: 0	Yes, applies to only newly established associations.	<p>This timer is used by SCTP if association establishment is initiated by the remote peer and there is no matched Remote Endpoint Block. If the value is not equal to 0, SCTP uses Initial CWND defined depending on <b>Maximum Initial CWND</b> as Initial RWND value during association establishment and starts the Initial RWND Setting timer right after COOKIE_ACK sending. If the timer is expired SCTP sets new RWND as the current RWND + (Initial RWND from the assigned Configuration Group - Initial RWND of the association). If the SCTP user updates Configuration Group of the established association during the Initial RWND Setting Timeout SCTP stops the timer and sets new RWND as the current RWND + (Initial RWND from the provided Configuration Group - Initial RWND of the association). If the configured RWND is less than value used during association establishment then SCTP will not change RWND of the established association in order to avoid RWND shrinking.</p> <p>If the value is 0, SCTP will use the configured Initial RWND from assigned Configuration Group.</p>
<b>Maximum Number of Endpoint Users</b>  Available since <b>R10Q</b>	Min: 1 Max: 65535 Rec: - Def: 64	No	<p>Defines the maximum number of endpoint users. It is recommended to configure the value as low as possible dependently on the system configuration in order to allow SCTP to allocate less memory.</p>



Table 1 Parameters and Descriptions

<b>Management behaviour bitmask</b>  Available since R10V	Min: 0 Max: 1 Rec: 1 Def: 0	Bit 0: yes, applies at next module termination. The behaviour does not depend on <b>Reconfiguration Settings</b> value.	<p>Bitmask defining management behaviour of SCTP.</p> <p><b>Bit 0 (Should MM_ORDER_conf[TERMINATE] be delayed until all objects are destroyed.):</b> 0 – MM_ORDER_conf[TERMINATE] is sent immediately after MM_ORDER_req[TERMINATE]. 1 – MM_ORDER_conf[TERMINATE] is sent as soon as all internal objects are deallocated and destroyed (associations are released).</p> <p>In case if bit 0 of <b>Management behaviour bitmask</b> is set to 1, following recommendations for timers should be considered:</p> <ul style="list-style-type: none"><li>– (Associations release burst timer * Number of associations / Associations release burst size) &lt; TSTOP timer (configured in oam.cnf, see E5).</li><li>– (Associations release burst timer * Number of associations / Associations release burst size) &lt; Transaction timer * Number of modules inside FE process (configured in mm.cnf). <b>Note:</b> If mm.cnf (see E4) is not used, then Transaction timer value is 600000 milliseconds.</li></ul> <p>These recommendations are needed in order to avoid expiration of TSTOP timer at OAM and Transaction timer at MM, thus to avoid unexpected errors reported by management application.</p> <p><b>Bits 1-7:</b> reserved for future and should be set to 0.</p> <p><b>Note:</b> Since configuration version R10AF, if <b>Management behaviour bitmask</b> bit 0 is set to 0 and <b>Associations release burst size</b> has non-zero value, SCTP configuration will be rejected.</p>
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Table 1 Parameters and Descriptions

<b>Check IP Interfaces Timer Value</b> in milliseconds  Available since <b>R10AA</b>	Min: 0 Max: $2^{32}-1$ Rec: 60000 Def: 60000	Yes, applies to SCTP module.  <b>Note:</b> Reconfiguration will take effect with the next timer start.  If value is reconfigured to 0, then already running timer will be stopped.	This timer is used by SCTP to monitor statuses of network interfaces when <b>Multi-home Robustness</b> is enabled.  At the timer expiration, SCTP will check if some IP interfaces become available or unavailable. The timer will be restarted.  The timer is only used on the platforms where CP notifications on IP events are not supported (for details see [E3]). On other platforms the timer will never be started even if it is configured with nonzero duration.  If timer is set to 0, then it will never be started.
<b>CRC32C Algorithm</b>  Available since <b>R10AG</b>	Min: 0 Max: 2 Rec: 2 - if CRC32 HW instruction is available; 1- if CRC32 HW instruction is unavailable Def: 0	Yes, applies to SCTP module.	Defines which CRC32C calculation algorithm will be used: 0 – Slicing-by-4 algorithm; 1 – Slicing-by-8 algorithm; 2 – Using CRC32 HW instruction.  If value 2 is configured but CRC32 HW instruction is not available (for information what CRC32 instruction CPU supports and for the detailed description of the algorithms see [E3]), the configuration is not rejected and SCTP switches to Slicing-by-8 calculation algorithm.  <b>Note:</b> This parameter is ignored if <b>CRC-Calculation-Status</b> is 0.



Table 1 Parameters and Descriptions

<b>Maximum User Message Size</b> in bytes Available since <b>R10AH</b>	Min: 1 Max: $2^{32} - 1$ Rec: - Def: 65 000	Yes, if <b>Total Assured Memory</b> is set to 0. Then applies to SCTP module. Otherwise, no.	<p>Defines the maximum user message size that can be received by SCTP. When the value is greater than 65 000 bytes, SCTP allocates one additional memory block to buffer and reassemble the message before sending to the network.</p> <p><b>Note:</b> The parameter value less than 65 000 is ignored. The default value is used instead.</p> <p><b>Note:</b> The maximum possible value is limited by the system (maximum memory pool block size supported by Common Parts) and cannot be more than <math>(2^{32} - 1)</math> bytes. For more information see [E3].</p>
<b>ULM Info Ind Part</b> in percents Available since <b>R10AK</b>	Min: 0 Max: 100 Rec: 0 Def: 0	Yes	<p>Identifies the part (in percents) of ULM buffer (<b>ULM Buffer size</b>), which may be filled with SCTP_INFO_ind primitives. If this parameter is equal to zero SCTP_INFO_ind primitives can fill all free space of ULM buffer. If this parameter is none-zero SCTP_INFO_ind primitives will not occupy space of ULM buffer over the set value. See [E1].</p> <p><b>Note:</b> In case of reconfiguration if the new value is less than the currently used space in ULM buffer allocated for SCTP_INFO_ind primitives, SCTP will apply the new value but the new limit will take a role only when enough buffered primitives are released.</p> <p><b>Note:</b> In case of reconfiguration if a new value is greater than the old one, SCTP will simply apply the new value. But if there is not enough space in ULM buffer due to buffered primitives of another type, SCTP will be able to buffer new SCTP_INFO_ind primitives only when enough buffered primitives are released.</p>





Table 1 Parameters and Descriptions

<b>Number Of Optional Configuration Groups</b>  Available since <b>R9</b>	Min: 0 Max: 16  Since <b>R10N</b> : Max: 254  Rec: -  Def: 0	Yes, possible to add or remove new groups.	Defines number of configuration groups which are presented in the configuration file. Possible values:  Zero value of this parameter means that it will be only one general configuration group in configuration file.  All configuration groups are disposed after the parameter " <b>Number Of Optional Configuration Groups</b> ", and repeated $N + 1$ times, where $N$ is equal to parameter " <b>Number Of Optional Configuration Groups</b> ". All configuration groups follow one after another without any dividers.
<b>Configurations groups</b>  Configuration Group parameters must be repeated ( <b>Number Of Optional Configuration Groups</b> + 1) times.			



Table 1 Parameters and Descriptions

<b>Configuration Group ID</b> Available since <b>R9</b>	Min: 0 Max: 16 Since <b>R10N</b> : Max: 254  Rec: - Def: -	Yes, possible to add or remove new groups.	<p>The ID of the SCTP Configuration Group, which combines all protocol parameters which are used to initialize Endpoints and Associations objects.</p> <p>The order of configuration groups is free. Each configuration group should have unique Configuration Group ID.</p> <p>General Configuration Group ("<b>Configuration Group ID</b>" = 0) must present in the configuration file.</p> <p>If only General Configuration Group is present in configuration file ("<b>Number Of Optional Configuration Groups</b>" = 0), then "<b>Configuration Group ID</b>" shall be set to zero value.</p> <p><b>Note:</b> It is possible to remove Configuration Group during reconfiguration. If some SCTP objects still refer to this Configuration Group, they will be reconfigured by SCTP by using the following way:</p> <p>If an endpoint is using Configuration Group which is going to be removed, the endpoint will be automatically reconfigured to use the General Configuration group ("<b>Configuration Group ID</b>" = 0).</p> <p>If an association is using a configuration group which is going to be removed, the association will be automatically reconfigured to use configuration group of its endpoint.</p> <p>Update of an affected object (endpoint or association) with the properties of its new configuration group depends on whether the object is attached to or attached from its configuration group. For more information see the chapter "Attachment and Detachment of Configuration Group to Associations and Endpoints" in [E1].</p>
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Table 1 Parameters and Descriptions

<b>Minimum RTO</b> in milliseconds	Min: 10 Max: 5 000 Rec: 200 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	The minimum value that RTO is allowed to take. If when computing the RTO the result is less than the minimum, RTO is rounded up to value of this parameter.  According to the [E2], this parameter is recommended to be equal to 1 000 milliseconds.
<b>Maximum RTO</b> in milliseconds	Min: larger than “ <b>Minimum RTO</b> ” Max: 120 000 Rec: 800 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	The maximum value that RTO is allowed to take. If when computing RTO the result is greater than the maximum, RTO shall be rounded down to Maximum RTO.  According to the [E2], this parameter is recommended to be equal to 60 000 ms.
<b>Initial Retransmission Time-Out (RTO)</b> in milliseconds	Min: “ <b>Minimum RTO</b> ” Max: “ <b>Maximum RTO</b> ” Rec: 400 Def: -	Yes, will be applied only to newly established associations.	This is the initial value that the RTO will take, prior to the first RTT measure.  According to the [E2], this parameter is recommended to be equal to 3 000 ms.



Table 1 Parameters and Descriptions

<b>RTO Alpha Index</b>	Min: 1 Max: 4 Rec: 3 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter is used to compute the value of the SRTT for a particular destination address. It is used to weight up the RTT measures and its value must be between 0 and 1 (<math>0 &lt; \text{RTO.Alpha} &lt; 1</math>). A value close to 1 gives more importance to the last RTT measure.</p> <p>The range of possible values in the configuration file, and the actual value given to the parameter within the module, are the following:</p> <ul style="list-style-type: none"><li>. value = 1 -&gt; <math>\text{RTO.alpha} = 1/2</math></li><li>. value = 2 -&gt; <math>\text{RTO.alpha} = 1/4</math></li><li>. value = 3 -&gt; <math>\text{RTO.alpha} = 1/8</math></li><li>. value = 4 -&gt; <math>\text{RTO.alpha} = 1/16</math></li></ul> <p>According to the [E2], RTO.Alpha is recommended to be <math>1/8</math>.</p>
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Table 1 Parameters and Descriptions

<b>RTO Beta Index</b>	Min: 1 Max: 4 Rec: 2 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter is used to compute the value of the RTTVar of a destination address. Similarly to RTO.Alpha, it is used to weight up some of the terms within the equation used to compute the RTTVar:</p> $RTTVAR = (1 - RTO.Beta) * RTTVar + RTO.Beta *  SRTT - lastRTT $ <p>Its value must be between 0 and 1 (<math>0 &lt; RTO.Beta &lt; 1</math>). A value close to 1 gives more importance to the last observed variation.</p> <p>The range of possible values in the configuration file, and the actual value given to the parameter within the module, are the following:</p> <ul style="list-style-type: none"> <li>. value = 1 -&gt; RTO.beta = 1/2</li> <li>. value = 2 -&gt; RTO.beta = 1/4</li> <li>. value = 3 -&gt; RTO.beta = 1/8</li> <li>. value = 4 -&gt; RTO.beta = 1/16</li> </ul> <p>According to the [E2], RTO.Beta is recommended to be 1/4.</p>
<b>Valid Cookie Life in milliseconds</b>	Min: 1 000 Max: 180 000 Rec: 60 000 Def: -	Yes, will be applied only to newly established associations.	<p>This parameter sets up the lifespan of the State Cookie sent in the INIT_ACK chunk. It is used to limit the valid amount of time between the sending of the INIT_ACK chunk and the reception of a COOKIE_ECHO chunk when establishing an association. If a COOKIE_ECHO chunk arrives after <b>Valid Cookie Life</b> delay since the INIT_ACK was sent, it is discarded and, therefore, no association is established</p> <p>According to the [E2], this parameter is recommended to be equal to 60 000 ms.</p>



Table 1 Parameters and Descriptions

<b>Allowed Increment Cookie Life</b> in milliseconds	Min: 0 Max: 180 000 Rec: 0 Def: -	Yes, will be applied only to newly established associations.	<p>The sender of an INIT chunk may request the remote endpoint to increase a cookie life-span (for instance, if a previous attempt to connect failed due to a stale-cookie error). If the value sent in the “Cookie Preservative” field of the INIT chunk is less than or equal to this parameter, the receiver of the INIT will increase the valid cookie life in the number of milliseconds specified. If the value present in the “Cookie Preservative” is greater than this parameter, the cookie life shall be incremented in the number of milliseconds specified by the parameter.</p> <p>Some considerations about this parameter: for security reasons the server may want to ignore any increase on the cookie life-span (increasing the value of the cookie life-span means more time for an attacker to break our key), so the value of this parameter would be set to zero. The “Maximum Cookie Life”, that is the “<b>Valid Cookie Life</b>” plus the “<b>Allowed Increment Cookie Life</b>”,</p>
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Table 1 Parameters and Descriptions

<b>Assoc.Max.Rtx</b> in number of attempts	Min: " <b>Path.Max.Rtx</b> " Max: 20 Rec: if " <b>Path Selection Adjustment</b> " activates scheme B ("PATH") - equal to <b>Path.Max.Rtx</b> * (number of IP paths) if " <b>Path Selection Adjustment</b> " activates scheme A ("PEER") - equal to <b>Path.Max.Rtx</b> * (number of SCTP paths) Def: -	The behavior depends on <b>Reconfiguration Settings</b> value. Active associations which have association error counter greater than newly provided align counter with new <b>Assoc.Max.Rtx</b> value. Thus, if the next sent packet is lost the association will be closed.	This is the maximum number of consecutive unsuccessful retransmissions to a remote peer (on all the destination transport addresses of the peer if it is multihomed). If the number of retransmissions becomes greater than this value, the remote peer is considered as unreachable and the association is closed down. The value of this parameter should be greater than or equal to " <b>Path.Max.Rtx</b> ". For a specific association, it may happen that all the IP paths become inactive without overpassing the " <b>Assoc.Max.Rtx</b> ". In this case, BASE SCTP behavior depends on the path selection scheme (see <b>Path Selection Adjustment</b> ) used for the association: <ul style="list-style-type: none"> <li>• If the scheme A ("PEER") is used, the association will be closed.</li> <li>• If the scheme B ("PATH") is used, the association will be moved to the dormant state and will not be closed. For more information on the dormant state of association see [E1].</li> </ul> According to the [E2], this parameter is recommended to be equal to 10.
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Table 1 Parameters and Descriptions

<b>Path.Max.Rtx</b> in number of attempts	<p>Min: 1</p> <p>Max: "<b>Assoc.Max.Rtx</b>"</p> <p>Rec:</p> <p>for single homed association - 2</p> <p>for multihomed association: if <b>Path Selection Adjustment</b> activates scheme B ("PATH") - 1 if <b>Path Selection Adjustment</b> activates scheme A ("PEER") - "<b>Number of Local IP Addresses and DNS Hostnames</b>" which are available for an SCTP endpoint.</p> <p>Def: -</p>	<p>The behavior depends on <b>Reconfiguration Settings</b> value.</p> <p>Active associations which have path error counter greater than newly provided align counter with new <b>Path.Max.Rtx</b> value. Thus, if the next sent packet is lost the path will be considered as unreachable.</p>	<p>Maximum number of consecutive retransmissions via specific IP path (local IP address - remote IP address pair). If the number of retransmissions becomes greater than this value, the IP path is considered "inactive" (see [E1] for how SCTP handles "inactive" IP paths).</p> <p>If <b>Path Select Adjustment</b> activates scheme A ("PEER") [E1] this parameter is extrapolated to destination transport addresses. And it defines maximum number of consecutive retransmissions to remote address.</p> <p>If all IP paths linked with one remote address are "inactive" remote address is also considered as "inactive".</p> <p>According to the [E2], this parameter is recommended to be equal to 5.</p>
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Table 1 Parameters and Descriptions

<b>Maximum Initial Retransmissions</b> in number of attempts	Min: 1 Max: 16 Rec: 8 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>The maximum number of retransmissions allowed for both INIT and COOKIE-ECHO chunks. If the number of retransmissions becomes greater than this value, SCTP aborts the initialization of the association and reports the error to the SCTP user.</p> <p><b>Note: Maximum Initial Retransmissions</b> parameter can be applied to associations in COOKIE-WAIT or COOKIE-ECHOED states in case of module reconfiguration. (states description can be found in [E1] and [E2])</p> <p>According to the [E2], this parameter is recommended to be equal to 8.</p>
<b>Maximum Shutdown Retransmissions</b> in number of attempts	Min: 1 Max: 20 Rec: 5 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>The maximum number of retransmissions of SHUTDOWN chunks or the maximum number of retransmissions of SHUTDOWN_ACK during the shutdown of an association. If the number of retransmissions becomes greater than this value, SCTP aborts the graceful shutdown procedure and closes the association, but ABORT chunk is not sent.</p> <p>According to the [E2], this parameter is suggested to be equal to <b>Assoc.Max.Rtx</b>.</p>



Table 1 Parameters and Descriptions

<b>Heartbeat Interval</b> in milliseconds	Min: 1 000 Since <b>R10M</b> : Min: 10 Max: 1 800 000 Rec: 30 000 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Affects a duration of time interval between cyclic heartbeats. According to the <b>Heartbeat Status</b> SCTP starts "Heartbeat Interval" timer per association or per IP path.</p> <p>Regular heartbeat is sent on an IP path if no reliable path availability indication has been received from data or heartbeat within the current heartbeat period and there is no outstanding data which can generate reliable path availability indication (see [E1] for more details).</p> <p>Heartbeat period is RTO interval + Heartbeat Interval, where Heartbeat interval is chosen as the maximum between zero and this configuration parameter recalculated with <b>HB Reduce Rate</b>, <b>Smooth Factor</b> and random variation within +/- (RTO interval)/2.</p> <p>HEARTBEAT_ACK chunk for a specific heartbeat is expected within pathRTO. If HEARTBEAT_ACK does not arrive in time, the heartbeat is considered unacknowledged and RTO of its IP path is doubled (which is termed backoff in [E2]). The next heartbeat is sent after heartbeat interval period.</p> <p>A small value of this parameter can help to detect unreachable addresses sooner than higher values, though sending heartbeats too often could lead to performance penalty.</p> <p>According to the [E2], this parameter is recommended to be equal to 30 000 milliseconds.</p> <p>It is recommended to configure the value of <b>HB interval</b> parameter to be greater than <b>Maximum RTO</b>.</p>
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Table 1 Parameters and Descriptions

<b>HB Reduce Rate</b> Available since <b>R9C</b>	Min: 0 Max: 100 Rec: 50 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	This parameter sets the number of percents on which current HB interval should be decreased (comparing to current value) with each new HB attempt in case of HB ACK was not received. The HB interval is reduced only while IP path is active, once IP path inactivity has been discovered, the HB interval reset to initial value for that path.
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Table 1 Parameters and Descriptions

<b>Heartbeat Status</b>	Min: 0 Max: 1 Since <b>R10M</b> : Max: 3 Rec: 1 Def: - Since <b>R100</b> : Max: 15 Rec: 15 Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	Bitmask defines SCTP path monitoring by regular heartbeats:  <b>bit 0 (Activation):</b>  0 - path monitoring is disabled. SCTP does not send regular heartbeats at all.  1- path monitoring is enabled.  Note: If bit 0 is equal to 0, bit 1 has no sense and ignored by SCTP.  <b>bit 1 (Quicker Failure Detection):</b>  0 - Quicker Failure Detection is disabled. SCTP starts "Heartbeat Interval" timer per association and send one heartbeat via only one idle IP path each time when the timer is expired.  1 - Quicker Failure Detection is enabled. SCTP starts "Heartbeat Interval" timer per IP path and sends one heartbeat via particular idle IP path each time when the timer is expired independently on other IP paths.  If bit 1 is set to 1, it is recommended to configure non-zero <b>Smooth Factor</b> .  <b>bit 2 (HBs with PMTU size):</b>  0 – SCTP sends HBs without extension by PAD chunk.  1 – SCTP sends HBs with PMTU size of the affected IP path by using bundled PAD chunk.  Note: if bit 0 is set to 0 and bit 2 is set to 1, SCTP sends demand HBs and Unreachable IP Path Detecting HBs with PMTU size and does not send regular HBs.  Note: if bit 0 is set to 1 and bit 2 is set to 1, SCTP sends regular HBs, demand HBs and Unreachable IP Path Detecting HBs with PMTU size.
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Table 1 Parameters and Descriptions

			<p><b>bit 3 (HBs bundled with PAD chunks):</b></p> <p>0 – Every regular HB chunk is bundled with PAD chunk.</p> <p>1 – Regular HB chunk is bundled with PAD chunk only when it is sent on a path with non-zero t3 counter.</p> <p>Note: Bit 3 is applied only to regular HBs.</p> <p>Note: if bit 2 is set to 0, then bit 3 is ignored.</p> <p><b>bits 4-7: not used.</b></p>
<p><b>Hb.Max.Burst</b></p> <p>Available since <b>R9</b></p>	<p>Min: 0</p> <p>Max: <math>2^{32}-1</math></p> <p>Rec: 1</p> <p>Def: 1</p>	<p>Yes, applies only to newly established associations</p>	<p>Limits number of HB which could be sent at the same time for path probing. Maximum value is not limited for configuration file.</p> <p>Zero value of the parameter means that “Path probing” mechanism shall not be enabled for associations.</p> <p>SCTP will not use “Hb.Max.Burst” value more than the number of IPpaths. For more details see [E2]</p> <p>According to the [E2], this parameter is recommended to be equal to 1.</p> <p><b>Note:</b> If Hb.Max.Burst value is equal to 0, but the Unreachable IP Paths Detecting procedure was enabled ( <b>Number of Attempts to Probe Unreachable IP Paths</b> is greater than 0), configuration will be rejected.</p>



Table 1 Parameters and Descriptions

<b>Initial HB Interval</b> in milliseconds Available since <b>R9</b>	Min: 0 Max: 1 800 000 Rec: “ <b>Heartbeat interval / 6</b> ” Def: “ <b>Heartbeat interval / 6</b> ”	Yes, applies only to newly established associations	<p>Defines the time between bursts of HEARTBEAT chunks during initial path-probing. A period for acceptance of the corresponding HEARTBEAT_ACK chunks is RTO. During this interval they are considered as not stale.</p> <p>Limits intensity of the HB after association start-up for path probing. Frequent heartbeats may affect traffic flow.</p> <p>It is recommended to configure the value of <b>Initial HB interval</b> parameter to not greater than the value of <b>HB interval</b> parameter.</p> <p>Also, it is recommended to configure the value of <b>Initial HB interval</b> parameter to be greater than <b>Maximum RTO</b>.</p>
<b>Smooth Factor</b> in percentage Available since <b>R9</b>	Min: 0 Max: 100 Rec: 50 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Allows smooth heartbeat messages in time. It is recommended to setup non-zero smooth factor, if a lot of associations could be started at the same time or if bit 1 of <b>HB status</b> is set to 1. Smoothed heartbeats allow avoiding unexpected impact on traffic flow. See <b>[E1]</b> (chapter 2) for more details.</p> <p>Parameter is used during whole life-time of an association.</p>
<b>Maximum Incoming Streams (MIS)</b>	Min: 1 Max: 65 535 Rec: SS7 ITU: 17; SS7 ANSI: 257 Def: -	Yes, applies only to new endpoints	Maximum number of incoming streams for an association. Used MIS value can take values different from this value. See <b>[E1]</b> (chapter 3.2.1.1.3 MIS Parameter Handling) for more details.



Table 1 Parameters and Descriptions

<b>Maximum Outgoing Streams (MOS)</b>	Min: 1 Max: 65 535 Rec: SS7 ITU: 17; SS7 ANSI: 257 Def: -	Yes, applies only to new endpoints	Maximum number of outgoing streams for an association. Used MOS value can take values different from this value. See [E1] (chapter 3.2.1.1.4 MOS Parameter Handling) for more details.
<b>M</b> in number of bytes	Min: 1 024 Max: 10 000 000 Rec: 15* <b>PMTU</b> Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	The size of the buffer used to store user-data pending to send or retransmit in an association. The maximum amount of data that SCTP can store before discarding user messages.
<b>N</b> in number of bytes	Min: 1 024 Max: "M" Rec: (3/4)* "M" Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	The value of the threshold used to ask the SCTP user to stop the delivery of data on an association. Once <b>N</b> or more bytes are queued and are pending to send, the SCTP layer issues an indication SCTP_CONGESTION_IND to the user (see [E1] (chapter 5) for details). The value of <b>N</b> should be less than <b>M</b> (see above) in order to be an effective threshold.
<b>N Percentage</b> in percentage	Min: 1 Max: 100 Rec: 85 Def: 85	The behavior depends on <b>Reconfiguration Settings</b> value.	The value of the threshold used to notify the SCTP user that the delivery of data on an association can be resumed. Once the size of <b>M</b> -buffer becomes less than <b>N*N percentage/100</b> , the SCTP layer issues an indication SCTP_CONGESTION_CEASE_ind to the user (see [E1] (chapter 5) for details). At 100 percentage the primitive will be sent as soon as the buffer occupancy goes below <b>N</b> .



Table 1 Parameters and Descriptions

<b>Initial RWND</b> in number of bytes	<p>Min: must be larger than 1 500, and not less than “PMTU”</p> <p>Min: must be larger than 1 300, and not less than “PMTU”</p> <p>Since <b>R10</b>: Min: must be larger than 1 500, and not less than “PMTU” and “IPv6 PMTU”</p> <p>Since <b>R10</b>: Min: must be larger than 1 300, and not less than “PMTU” and “IPv6 PMTU”</p> <p>Max: 1 048 576</p> <p>Rec: 8192</p> <p>Def: -</p>	<p>The behavior depends on <b>Reconfiguration Settings</b> value.</p> <p>If <b>Reconfiguration Settings</b> parameter is equal to one or two, and the value of <b>Initial RWND</b> is decreased then the new value of the parameter will be applied only to newly established associations; if the value of <b>Initial RWND</b> is higher then the previously set configuration value, it will be applied to both existing and newly established associations.</p>	<p>The value of the initial (and maximal) advertised receiver window in an association. Each user message which is greater then <b>Initial RWND</b> will be provided to user with help of partial delivery.</p>
<b>Arwnd Update Threshold</b> in percents Available since <b>R9C</b>	<p>Min: 0</p> <p>Max: 100</p> <p>Rec: 50</p> <p>Def: 0</p>	<p>The behavior depends on <b>Reconfiguration Settings</b> value.</p>	<p>This parameter sets the part of <b>Initial RWND</b> which is required to be released in the incoming buffer in order to force additional SACK chunk. The additional SACK is always bundled and sent together with HEARTBEAT chunk.</p> <p>Value 0 means that no additional SACK chunks will be sent.</p> <p>See description of this parameter in [E1] for more details.</p>





Table 1 Parameters and Descriptions

<b>Maximum Number Of OOB Packets</b>	Min: 1 Max: 1 6384 Rec: 100 Def: 100	Yes, applies to module immediately.	Sets the threshold for out of the blue packets received. If the threshold is exceeded during the interval specified below the Alarm SCTP_ALARM_OUT_OF_THE_BLUE_THRESHOLD will be sent. See description of this primitive in [E1] for more details.
<b>Interval For OOB Packets</b> in milliseconds	Min: 1 000 Max: 6 500 000 Rec: 3 600 000 Def: 3 600 000	Yes, applies to module beginning from the next interval.	Number of milliseconds for the interval for which the counter for out of the blue chunks will be reset.
<b>Maximum Burst</b> Number of packages	Min: 1 Max: 16 384 Rec: 4 Def: 4	The behavior depends on <b>Reconfiguration Settings</b> value.	Amount of packets of <b>PMTU</b> size that could be transmitted in each transmit operation.  See [E1] (chapter 4) for more information.  According to the [E2], this parameter is recommended to be equal to 4.
<b>SACK Timer</b> in milliseconds	Min: 0 Max: 500 Rec: 40 Def: 200	The behavior depends on <b>Reconfiguration Settings</b> value.	Number of milliseconds for the SACK chunk to be sent after a DATA chunk reception. If this value is equal to zero each SCTP packet will be SACKed immediately and the <b>SACK Frequency</b> parameter value will not have an effect.  According to the [E2], this parameter is suggested to be equal to 200 ms.
<b>SACK Frequency</b>	Min: 1 Max: 5 Rec: 2 Def: 2	The behavior depends on <b>Reconfiguration Settings</b> value.	The number of SCTP packets which must be received by the SCTP module before it sends a SACK chunk. This value has no effect if “ <b>SACK Timer</b> ” is equal to zero.  According to the [E2], this parameter is suggested to be equal to 2.



Table 1 Parameters and Descriptions

<b>Bundling Status</b>	Min: 0 Max: 1 Rec: 1 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	Enables DATA chunks bundling: 0 - disabled, 1 - enabled.  <b>Note:</b> irrespectively on how this parameter is configured SCTP still can bundle control chunks.  See <b>Bundling Timer</b> , <b>Bundling Threshold</b> and [E1] for details about bundling.
<b>Bundling Timer</b> in milliseconds	Min: 0 Max: 10 000 Rec: 0 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	Configures the delay to bundle DATA chunks. In the scope of Adaptive Bundling feature (see <b>Bundling Threshold</b> parameter) it also defines interval to measure user traffic load.



Table 1 Parameters and Descriptions

<b>Path Selection Adjustment</b> Available since <b>R9</b>	Min: 0 Max: 7 Rec: 3 Def: 1	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Bitmask which defines path selection properties</p> <p><b>bit 0 (Path selection scheme):</b></p> <p>0: Path selection on scheme A ("PEER")</p> <p>1: Path selection on scheme B ("PATH")</p> <p><b>Note:</b> If path selection scheme A ("PEER") is used, all other bits must be set to zero.</p> <p>If path selection scheme B ("PATH") is used, additional features defined by following bits may be used:</p> <p><b>bit 1 (Primary Path Avoidance):</b></p> <p>0: primary path avoidance is disabled</p> <p>1: primary path avoidance is enabled</p> <p>This parameter allows to avoid normal data transmission on the primary path, in case, if the latest attempt to send data on it fails. The primary path is used as long as path error counter does not exceed Primary.Path.Max.Rtx.</p> <p><b>bit 2 (Volatile mode):</b></p> <p>0: volatile mode is disabled</p> <p>1: volatile mode is enabled</p> <p>In "Volatile mode" current primary path is only changed when it fails. If "Volatile mode" is disabled, SCTP will also use preset primary path as current primary path as soon as it is probed by heartbeats.</p> <p>The parameters <b>Minimum Activate Threshold</b>, <b>Maximum Activate Threshold</b> and <b>Activate Threshold Factor</b> are ignored in "Volatile mode".</p> <p><b>bits 3-7: not used.</b></p>
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Table 1 Parameters and Descriptions

<b>PMTU</b> in number of bytes	Min: "Minimum IPv4 PMTU" Max: "Maximum IPv4 PMTU" Rec: 1 480 (for Ethernet protocols) Rec: 1 280 (for Ethernet protocols) Def: -	The behavior depends on <b>Reconfiguration Settings</b> value.	Describes PMTU on IPv4 paths. Path Maximum Transmission Unit, the maximum number of bytes of an IP datagram that can be transferred in a single unit over a specific path in an IPv4 network. If an IP datagram exceeds the <b>PMTU</b> , normally it will be either fragmented or dropped by IP layer.  In the case of recommended configured value any user message will be fragmented by 1452 bytes and presented as a queue of DATA chunks. So, if this parameter is greater than 1480, it is strongly recommended to activate bundling.  In the case of recommended configured value any user message will be fragmented by 1252 bytes and presented as a queue of DATA chunks. So, if this parameter is greater than 1280, it is strongly recommended to activate bundling.  <b>PMTU</b> can be more than CP buffer size (which used to send messages).
<b>IPv6 PMTU</b> Available since <b>R9</b>	Min: 1 240 Max: "Maximum IPv6 PMTU" Since <b>R10T</b> if <b>PMTUD Accuracy</b> does not activate PMTU discovery process: Max: <b>Size of outgoing IP buffer - 40</b> Rec: 1 240 Def: "PMTU"	The behavior depends on <b>Reconfiguration Settings</b> value.	Describes PMTU on IPv6 paths. Value of this parameter is Initial PMTU for IPv6 paths for PMTUD process.



Table 1 Parameters and Descriptions

<b>ECN capability</b> Available since <b>R10</b>	Min: 0 Max: 1 Rec: 1 Def: 0	Yes, will be applied only to newly established associations.	Determines if the support for Explicit Congestion Notification (ECN) is enabled.  0 - SCTP is not ECN capable 1 - SCTP is ECN capable  If ECN capability is equal to one and needed for ECN feature socket options are not supported by IP layer (see <b>E1</b> ), such configuration will be rejected.
<b>DNS Support</b> Available since <b>R10</b>	Min: 0 Max: 3 Rec: 3 Def: 0	Yes, will be applied only to newly established associations.	This parameter defines support of DNS Hostnames:  Bit 0 defines support of DNS Hostnames in user primitives (0 - Not supported, 1 - Supported).  Bit 1 defines support of DNS Hostnames in INIT and INIT ACK chunks (0 - Not supported, 1 - Supported).
<b>Stream Statistic Flag</b> Available since <b>R10</b>	Min: 0 Max: 1 Rec: 0 Def: 0	Yes, will be applied only to newly established associations.	Indicates if collection of the statistic per stream is active or not:  0 - inactive 1 - active  If the statistic collection per stream was activated, it affects memory. Memory consumption in this case is described in <b>E1</b> .



Table 1 Parameters and Descriptions

<b>Block Cross-paths Flag</b>  Available since <b>R10A</b> and <b>R9E</b> (for SCTP R9 configuration files)	Min: 0 Max: 1 Rec: 0 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	Defines if SCTP should block cross-paths for traffic (including control chunks).  0 - do not block cross-paths 1 - block cross-paths  Cross-paths are defined as paths which have the same local IP address or the same remote IP address as the primary path  <b>Note:</b> Cross-paths are blocked only after association establishment.  <b>Note:</b> Block Cross-paths Flag parameter take effect if only <b>Cross Paths Mode</b> parameter is equal to zero.
<b>Minimum Activate Threshold</b>  Available since <b>R10B</b>	Min: 1 Max: <b>Maximum Activate Threshold</b> Rec: - Def: 1	The behavior depends on <b>Reconfiguration Settings</b> value.	Minimum number of consecutive successful heartbeats needed to switch back to primary path.  Defines the initial value of Activate threshold parameter of an association path.  This parameter is ignored if bit 2 of " <b>Path Selection Adjustment</b> " is set to 1 (Volatile mode is ON).  <b>Note:</b> If during reconfiguration /update of <b>Minimum Activate Threshold</b> it becomes greater than current Activate threshold, Activate threshold will be increased to new value of <b>Minimum Activate Threshold</b>



Table 1 Parameters and Descriptions

<b>Maximum Activate Threshold</b> Available since <b>R10B</b>	<b>Min: Minimum Activate Threshold</b> Max: 65535 Rec: - Def: 1	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Maximum possible number of consecutive successful heartbeats needed to switch back to primary path.</p> <p>This parameter is ignored if bit 2 of "<b>Path Selection Adjustment</b>" is set to 1 (Volatile mode is ON).</p> <p><b>Note:</b> If this value is greater than 1, it will take longer time to switch back to primary path.</p> <p><b>Note:</b> If during reconfiguration/update of <b>Maximum Activate Threshold</b> it becomes less than current Activate threshold, Activate threshold will be decreased to new value of <b>Maximum Activate Threshold</b></p>
<b>Activate Threshold Factor</b> Available since <b>R10B</b>	<b>Min: 0</b> Max: 255 Rec: 0 Def: 255	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter (n) defines the backoff factor (F) used to update the current value of consecutive successful heartbeats needed to switch back to the preset primary path.</p> <p>The backoff factor (F) is used each time a switch back to primary path is performed and is calculated from the <b>Activate Threshold Factor</b> (n) by means of the formula</p> $F = 2 - n / 255.$ <p><b>Note:</b> After multiplying to the backoff factor, rounding of the new Activate threshold will be done to the nearest integer value.</p> <p>This parameter is ignored if bit 2 of "<b>Path Selection Adjustment</b>" is set to 1 (Volatile mode is ON).</p>



Table 1 Parameters and Descriptions

<b>Primary.Path.Max.Rtx</b> Available since <b>R10D</b>	Min: 0 Max: <b>Path.Max.Rtx</b> Rec: - Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Defines the Maximum value of the error counter of the current primary path in case of enabled <b>Primary Path Avoidance</b> in <b>Path Selection Adjustment</b>. If the error counter of the primary path exceeds this value, SCTP will choose another current primary path.</p> <p>If <b>Primary Path Avoidance</b> is disabled, this parameter will be ignored.</p> <p>It is recommended to configure <b>Primary.Path.Max.Rtx</b> parameter is less than <b>Path.Max.Rtx</b>. Otherwise <b>Primary Path Avoidance</b> becomes disabled.</p>
<b>Number of Attempts to Probe Unreachable IP Paths</b> Available since <b>R10J</b>	Min: 0 Max: 255 Rec: <b>Path.Max.Rtx</b> +1 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter defines the number of unsuccessful successive HBs after which an IP path is marked as "unreachable" in the Unreachable IP Paths Detecting procedure.</p> <p>Value 0 means that SCTP does not try to detect unreachable IP paths (the Unreachable IP Paths Detecting procedure is disabled).</p> <p><b>Note:</b> the value of the <b>Heartbeat Maximum Burst</b> parameter cannot be equal to 0 if the Unreachable IP Paths Detecting procedure was enabled.</p>
<b>Probing Unreachable IP Paths Interval</b> in milliseconds Available since <b>R10J</b>	Min: 0 Max: $2^{32}-1$ Rec: 7200000 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter defines the interval between Unreachable IP Paths Detecting procedures.</p> <p>Value 0 means that SCTP tries to detect unreachable IP paths only one time. It is not recommended to set the value of this parameter less than <b>Initial HB Interval</b>.</p> <p><b>Note:</b> Parameter makes sense only if <b>Number of Attempts to Probe Unreachable IP Paths</b> is nonzero.</p>





Table 1 Parameters and Descriptions

<b>DSCP</b>  Available since <b>R10N</b>	Min: 0  Max: 64  Rec: -  Def: 64	The behavior depends on <b>Reconfiguration Settings</b> value.	This value represents the "Differentiated Service Code Point" related to the Quality of Service. Used value can be different from this value. See [E1] (chapter 3.2.1.1.2 DSCP Parameter Handling) for more details.
<b>Zero RWND Supervision Timer</b> in milliseconds  Available since <b>R10R</b>	Min: 0  Max: $2^{32}-1$  Rec: 5000 to 120000  Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	This timer is used for supervision of the period of time in which peer's RWND is closed. SCTP starts this timer when the calculated peer's RWND is equal to 0. SCTP stops this timer when it is notified that peer's RWND is open. SCTP ungracefully closes the association at the timer expiration.  If the value is equal to 0, SCTP does not start the timer.  If the value is equal to 1, SCTP calculates the duration of the timer by using the following formula: $4 * \text{Maximum RTO} * \text{Assoc.Max.Rtx}$ .  <b>Note:</b> It is not recommended to configure the timer value less than $\text{Maximum RTO} * \text{Assoc.Max.Rtx}$ .
<b>Multiple Fast Retransmit</b>  Available since <b>R10U</b>	Min: 0  Max: 1  Rec: 0  Def: 1	The behavior depends on <b>Reconfiguration Settings</b> value.	Defines whether Multiple Fast Retransmit procedure is enabled or not:  0 – disabled;  1 – enabled;  Value 0 makes SCTP to follow E2.



Table 1 Parameters and Descriptions

<b>Slow Start CWND Increment Factor</b>  Available since <b>R10W</b>	Min: 100 Max: 200 Rec: 200 Def: 100	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter defines maximum CWND increment factor during slow start phase in percent from the path MTU.</p> <p>In slow start phase CWND is increased by the lesser of:</p> <ol style="list-style-type: none"><li>1) the total size of the previously outstanding DATA chunk(s) acknowledged;</li><li>2) current path MTU multiplied by Slow Start CWND Increment Factor and divided by 100.</li></ol> <p>Value 100 makes SCTP to follow <b>E2</b>.</p> <p>It is recommended to configure this parameter in steps of 10% (100, 110, 120 and so on).</p>
<b>Time Critical Service</b>  Available since <b>R10Y</b>	Min: 0 Max: 2 Rec: 0 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Represents Time Critical Service mode:</p> <p>0 – Service is disabled.</p> <p>1 – The stream 0 is dedicated for non-time critical data; the rest of the streams are dedicated for time critical data.</p> <p>2 – The stream 0 is dedicated for time critical data; the rest of the streams are used for non-time critical data.</p> <p><b>Note:</b></p> <p>This mechanism allows SCTP to transmit traffic through the same association with different delay and bundling behavior depending on the specification by the user as the traffic being either time critical or non-time critical. For more details see chapter “Time Critical Service” in <b>[E1]</b>.</p>



Table 1 Parameters and Descriptions

<b>Maximum Initial CWND</b> in number of PMTUs  Available since <b>R10Z</b>	Min: 4  Max: 10  Rec: 10 on fast IP links,  4 on slow IP links  Def: 4	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter defines maximum initial, restart and loss recovery CWND for SCTP associations.</p> <p>If bit 0 of parameter <b>Maximum Initial CWND Operation Mode</b> set to 1 (Initial window) initial CWND will be set as <math>\min(\text{Maximum Initial CWND} * \text{Current PMTU}, \max(2 * \text{Current PMTU}, \text{CWND\_PLATEAU}))</math>, where CWND_PLATEAU equals</p> <ul style="list-style-type: none"> <li>• <math>1460 * \text{Maximum Initial CWND}</math> if <b>Maximum Initial CWND</b> is greater than 4.</li> <li>• <math>1460 * 3</math> otherwise.</li> </ul> <p>If bit 1 of parameter <b>Maximum Initial CWND Operation Mode</b> set to 1 (Restart window) restart CWND will be set as <math>\max(\text{CWND}/2, \min(\text{Maximum Initial CWND} * \text{Current PMTU}, \max(\text{CWND}, 4 * \text{Current PMTU})))</math>.</p> <p>If bit 2 of parameter <b>Maximum Initial CWND Operation Mode</b> set to 1 (Loss recovery window) loss recovery CWND will be set as <math>\max(\text{CWND}/2, \min(\text{Maximum Initial CWND} * \text{Current PMTU}, \max(\text{CWND}, 4 * \text{Current PMTU})))</math>.</p> <p><b>Note:</b> On the Management level, platform adaptation is recommended to provide simplified alternatives to configure initial CWND:</p> <p>0: Initial, restart and loss recovery windows are <math>4 * \text{Current PMTUs}</math>.</p> <p>1: Initial window is <math>10 * \text{Current PMTU}</math>, restart and loss recovery windows are <math>4 * \text{Current PMTU}</math>.</p> <p>2: N/A.</p> <p>3: Initial, restart and loss recovery windows are <math>10 * \text{Current PMTU}</math>.</p>
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Table 1 Parameters and Descriptions

<b>Maximum Initial CWND Operation Mode</b>  Available since <b>R10Z</b>	Min: 0 Max: 7 Rec: 7 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>This parameter is a bit mask which defines in which cases the large CWND, defined by <b>Maximum Initial CWND</b> will be applied to:</p> <p><b>Bit 0:</b> Initial window.</p> <ul style="list-style-type: none"><li>• 0 – <b>Maximum Initial CWND</b> will not be applied to initial window.</li><li>• 1 – <b>Maximum Initial CWND</b> will be applied to initial window.</li></ul> <p><b>Bit 1:</b> Restart window.</p> <ul style="list-style-type: none"><li>• 0 – <b>Maximum Initial CWND</b> will not be applied to restart window.</li><li>• 1 – <b>Maximum Initial CWND</b> will be applied to restart window.</li></ul> <p><b>Bit 2:</b> Loss recovery window.</p> <ul style="list-style-type: none"><li>• 0 – <b>Maximum Initial CWND</b> will not be applied to loss recovery window.</li><li>• 1 – <b>Maximum Initial CWND</b> will be applied to loss recovery window.</li></ul> <p><b>Bits 3-7:</b> Not used, must be zero.</p> <p><b>Note:</b> On the Management level, platform adaptation shall provide simplified alternatives to configure initial CWND:</p> <p>0: Initial, restart and loss recovery windows are 4*<b>PMTU</b>s.</p> <p>1: Initial window is 10*<b>PMTU</b>, restart and loss recovery windows are 4*<b>PMTU</b>.</p> <p>2: N/A.</p> <p>3: Initial, restart and loss recovery windows are 10*<b>PMTU</b>.</p>
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Table 1 Parameters and Descriptions

<b>Forced Activation of Parameters</b>  Available since <b>R10AC</b>	Min: 0 Max: 1 Rec: 0 Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	Defines whether Forced Activation of Parameters is enabled: 0 – forced activation is disabled, 1 – forced activation is enabled. It means that SCTP will ungracefully close an association (send ABORT to the peer and SCTP_COMM_LOST_ind to the user), if any of the following parameters is reconfigured or updated: <ul style="list-style-type: none"> <li>• <b>Maximum Incoming Streams,</b></li> <li>• <b>Maximum Outgoing Streams,</b></li> <li>• <b>Initial RWND</b> (if decreased),</li> <li>• <b>ECN Capability,</b></li> <li>• <b>DNS Support,</b></li> <li>• <b>Stream Statistic Flag.</b></li> </ul>
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Table 1 Parameters and Descriptions

<b>Bi-directional Support Only</b>  Available since <b>R10AD</b>	Min: 0 Max: 1 Rec: - Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>Defines whether Bi-directional Support Only is enabled:</p> <p>0 – bi-directional support only is disabled,</p> <p>1 – bi-directional support only is enabled. It means that SCTP will enable the following behavior:</p> <ul style="list-style-type: none"><li>• SCTP does not clear the IP path error counter if SACK is received on not the same IP path where DATA was sent.</li><li>• SCTP silently ignores incoming HB ACK if it is received on not the same IP path where HB was sent.</li><li>• SCTP silently ignores incoming INIT ACK if it is received on not the same IP path where INIT was sent.</li><li>• SCTP silently ignores incoming COOKIE ACK if it is received on not the same IP path where COOKIE ECHO was sent.</li></ul> <p>Bi-directional Support Only adds robustness against a receiver side which does not respond on chunks received on cross paths or responds but only on straight paths.</p>
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Table 1 Parameters and Descriptions

<b>Cross Paths Mode</b>  Available since <b>R10AI</b>	Min: 0  Max: 2  Rec: -  Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.  Reconfiguration from 2 to 1 is never applied to an existing association if the sum of IP paths exceeds 16, syslog is used to report the case.	Defines Cross Paths mode:  0 – Cross to Primary Paths Blocking controlled by <b>Block Cross-Paths Flag</b> .  1 – Cross paths are enabled.  2 – Cross paths are disabled.  <b>Note:</b> Cross Paths modes 1 and 2 are supported for path selection scheme B “PATH” only. SCTP configuration will be rejected if <b>Path Selection Adjustment</b> has zero value and <b>Cross Paths Mode</b> has non-zero value.  In comparison with Cross to Primary Paths Blocking, Cross Paths modes 1 and 2 have some differences: <ul style="list-style-type: none"> <li>• SCTP defines straight and cross paths differently;</li> <li>• SCTP does not allow user requested HB to be sent through disabled cross path;</li> <li>• SCTP disables use of cross paths when the number of IP paths exceeds 16.</li> </ul> <b>Note:</b> Cross-paths are blocked only after association establishment.
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Table 1 Parameters and Descriptions

<b>Bundling Threshold</b>  Available since <b>R10AJ</b>	Min: 0  Max: 100  Rec: -  Def: 0	The behavior depends on <b>Reconfiguration Settings</b> value.	<p>If non-zero, it enables Adaptive Bundling feature and defines a part of association's MTU in percent which is compared by SCTP with the user's traffic rate per <b>Bundling Timer</b> to decide whether to bundle DATA chunks with delay or not. For more details about the feature see [E1].</p> <p><b>Note:</b> This parameter makes sense only if <b>Bundling Status</b> and <b>Bundling Timer</b> parameters have non-zero values.</p> <p><b>Note:</b> Value 100 is optimal in most cases where latency on low traffic is critical, but there can be sense to tune it for particular purposes and environment.</p>
Configuration Group parameters must be repeated ( <b>Number Of Optional Configuration Groups</b> + 1) times.			





Table 1 Parameters and Descriptions

<b>Number Of Remote Endpoint Blocks</b>  Available since <b>R10N</b>	Min: 0 Max: 65535 Rec: - Def: 0	Yes, takes effect on newly established associations only.	<p>Represents the number of blocks with remote endpoint information which follow.</p> <p>Each block is used to associate incoming association (which is established by the remote side) with Configuration Group.</p> <p>If “<b>Number Of Remote Endpoint Blocks</b>” is equal to 0, SCTP uses Configuration Group of the local endpoint which is connected with the incoming association during establishment.</p> <p>All blocks are listed after the parameter “<b>Number Of Remote Endpoint Blocks</b>” and repeated “<b>Number Of Remote Endpoint Blocks</b>” times. All blocks follow one after another without any dividers.</p> <p>It is recommended to configure Remote Endpoint Blocks in the following order: first, blocks with IP addresses which do not have wildcards, then blocks with IP addresses which have wildcards.</p>
<b>Remote Endpoint Blocks</b>  Parameters from <b>Remote Port</b> to <b>Match Type</b> must be repeated <b>Number Of Remote Endpoint Blocks</b> times.			
<b>Remote Port</b>  Available since <b>R10N</b>	Min: 0 Max: 65535 Rec: - Def: -	Yes, takes effect on newly established associations only.	Remote port number of the remote endpoint.  <b>Note:</b> 0 means any port number.
<b>Number of Remote Addresses</b>  Available since <b>R10N</b>	Min: 1 Max: 16 Rec: - Def: -	Yes, takes effect on newly established associations only.	<p>Represents the number of remote IP addresses and DNS Hostnames of the remote endpoint which follow.</p> <p><b>Note:</b> It is allowed to configure both DNS Hostnames and IP addresses in one matching entry for the remote endpoint block.</p>



Table 1 Parameters and Descriptions

<b>Remote IP address or DNS Hostname</b> in Internet Standard format  Available since <b>R10N</b>	Min: - Max: - Rec: - Def: -	Yes, takes effect on newly established associations only.	<p>IP address.</p> <p>The format of the IP address should be of Internet Standard format: “a.b.c.d”, example 150.168.200.18 for IPv4 addresses or “a:b:c:d:e:f:g:h”, example 2031:0:130F:0:0:9C:8A:130F for IPv6 addresses.</p> <p><b>Note:</b> IPv6 addresses in the compressed format are allowed, example: 2031:0:130F::9C:8A:130F.</p> <p><b>Note:</b> wildcards (* or ?) are allowed in IP addresses. * means any combination of decimal (in IPv4) or hexadecimal (in IPv6) numbers; ? means any decimal (in IPv4) or hexadecimal (in IPv6) numbers.</p> <p>DNS Hostname.</p> <p>Text string composed of the alphabet (A-Z), digits (0-9), minus sign (-), and period (.). No blank or space characters are permitted as a part of the name. The first character must be an alpha or digit character. The last character must not be a minus sign. DNS Hostname must not be in #.#.#.# dotted-decimal form.</p> <p>It is recommended to use wildcards in order to decrease the number of IP addresses and search time in SCTP.</p>
The field <b>Remote IP address or DNS Hostname</b> must be repeated <b>Number of Remote Addresses</b> times.			
<b>Configuration Group ID</b>  Available since <b>R10N</b>	Min: 0 Max: 254 Rec: - Def: -	Yes, takes effect on newly established associations only.	The ID of the Configuration Group which is used in order to set parameters of an incoming (which is established by the remote side) association.



Table 1 Parameters and Descriptions

<b>Action</b> Available since <b>R10S</b>	Min: 0 Max: 2 Rec: - Def: 0	Yes, takes an effect on newly received INIT chunks.	Defines how SCTP shall handle incoming INIT chunk matched by <b>Remote Port</b> and <b>Remote IP address or DNS Hostname</b> :  0 - Use Configuration Group defined in <b>Configuration Group ID</b> for the association establishment.  1 - Use Configuration Group defined for the related endpoint for the association establishment.  2 - Drop incoming INIT chunk.
<b>Match Type</b> Available since <b>R10S</b>	Min: 0 Max: 1 Rec: - Def: 0	Yes, takes an effect on newly received INIT chunks.	Defines addresses matching type:  0 (ALL) - All addresses received in INIT chunk should be matched with addresses defined in <b>Remote IP address or DNS Hostname</b> .  1 (ANY) - At least one address received in INIT chunk should be matched with address defined in <b>Remote IP address or DNS Hostname</b> .
Remote Endpoint Block parameters must be repeated <b>Number Of Remote Endpoint Blocks</b> times.			

**'NOT USED'** - marks the parameters which shall be specified in configuration file but they are ignored by SCTP

## 1.5 Examples

### 1.5.1 Example 1 - With general configuration group.

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10      File Version Number
512               Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2                Number of local IP and DNS Hostname addresses available
10.0.224.2       First local IP address
```



```
10.0.224.3      Second local IP address
22000           Size of outgoing IP buffer
0              Size of incoming IP buffer
1              CRC-calculationActivated
1              ICMPActivated
0              Bind to device
500000         ULM size
0              Total memory
70             ULM SFI part
0              Port range from
0              Port range to
1              Reconfiguration settings
500            PMTUD Accuracy
300000        PMTUD Interval
1000          PMTUD Wait Next Probe interval
5             PMTUD Number of attempts to discover Congested Paths
578           PMTUD Min IPv4 PMTU
12000         PMTUD Maximum IPv4 PMTU
14000         PMTUD Maximum IPv6 PMTU
0             Start Delay
30000        TakeoverProcessLimit
4096          UnloadMaxBurstAssoc
5000          UnloadGenDelay
1000          UnloadBurstDelay
70            WouldBlockCaseThreshold
0             FE ID
0             Number Of Optional Configuration Groups
#
0             Configuration Group ID
1000          minimum RTO in milliseconds
4000          maximum RTO in milliseconds
2000          Initial Retransmission time-out (RTO) in milliseconds
3             RTO alpha
2             RTO beta
#
60000        Valid Cookie Life in milliseconds
30000        Allowed Increment of Cookie Life in milliseconds
#
10            Assoc.Max.Rtx. in number of attempts
5            Path.Max.Rtx in number of attempts
#
8            Maximum initial retransmissions in number of attempts
5            Maximum shutdown retransmissions in number of attempts
#
30000        Heartbeat interval in milliseconds
50           HB Interval Reduction
0            hbStatus: 1, Active. 0, Inactive.
0            Hb.Max.Burst
5000        Min.Hb.Interval
0            Smooth Factor
#
```



```

10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1480    PMTU
1480    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag

```

## 1.5.2 Example 2 - With general configuration group.

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10    File Version Number
512             Number of Associations
10000           Number of millisec for lost user timer
4000            Key Change Period in milliseconds
# Local IP addresses available
2              Number of local IP and DNS Hostname addresses available
10.0.224.2      First local IP address
10.0.224.3      Second local IP address
22000          Size of outgoing IP buffer
0              Size of incoming IP buffer
1              CRC-calculationActivated
1              ICMPActivated
0              Bind to device
500000         ULM size
0              Total memory
70             ULM SFI part

```



```
0      Port range from
0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
0      Number Of Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
0      hbStatus: 1, Active. 0, Inactive.
0      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
```



```

2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag

```

### 1.5.3 Example 3 - CAA901548R10A Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10A      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU

```



```
14000 PMTUD Maximum IPv6 PMTU
0 Start Delay
30000 TakeoverProcessLimit
4096 UnloadMaxBurstAssoc
5000 UnloadGenDelay
1000 UnloadBurstDelay
70 WouldBlockCaseThreshold
0 FE ID
0 Number Of Optional Configuration Groups
#
0 Configuration Group ID
1000 minimum RT0 in milliseconds
4000 maximum RT0 in milliseconds
2000 Initial Retransmission time-out (RT0) in milliseconds
3 RT0 alpha
2 RT0 beta
#
60000 Valid Cookie Life in milliseconds
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
0 hbStatus: 1, Active. 0, Inactive.
0 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
```





```

1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag

```

#### 1.5.4 Example 4 - CAA901548R10B Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10B      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID

```



```
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
0      hbStatus: 1, Active. 0, Inactive.
0      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
```



```

1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor

```

### 1.5.5 Example 5 - CAA901548R10C Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10C      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100 AssociationsReleaseBurstTimer
512 AssociationsReleaseMaxBurstSize
0                  Number Of Optional Configuration Groups
#
0                  Configuration Group ID
1000               minimum RTO in milliseconds

```



```
4000    maximum RT0 in milliseconds
2000    Initial Retransmission time-out (RT0) in milliseconds
3       RT0 alpha
2       RT0 beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
0       hbStatus: 1, Active. 0, Inactive.
0       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millsec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
```



### 1.5.6 Example 6 - CAA901548R10D Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10D      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100 AssociationsReleaseBurstTimer
512 AssociationsReleaseMaxBurstSize
0                  Number Of Optional Configuration Groups
#
0                  Configuration Group ID
1000               minimum RTO in milliseconds
4000               maximum RTO in milliseconds
2000               Initial Retransmission time-out (RTO) in milliseconds
3                  RTO alpha
2                  RTO beta
#
```



```

60000 Valid Cookie Life in milliseconds
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
0 hbStatus: 1, Active. 0, Inactive.
0 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisecond until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
3 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts

```

### 1.5.7 Example 7 - CAA901548R10E Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10E      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  Number Of Optional Configuration Groups
#
0                  Configuration Group ID
1000               minimum RTO in milliseconds
4000               maximum RTO in milliseconds
2000               Initial Retransmission time-out (RTO) in milliseconds
3                  RTO alpha
2                  RTO beta
#
60000              Valid Cookie Life in milliseconds
```



```
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
0 hbStatus: 1, Active. 0, Inactive.
0 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
```

### 1.5.8 Example 8 - CAA901548R10E Configuration File Example with Two Configuration Groups.





```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10E      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
1                  Number Of Optional Configuration Groups
#
0                  Configuration Group ID
1000               minimum RTO in milliseconds
4000               maximum RTO in milliseconds
2000               Initial Retransmission time-out (RTO) in milliseconds
3                  RTO alpha
2                  RTO beta
#
60000              Valid Cookie Life in milliseconds
```



```
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
0 hbStatus: 1, Active. 0, Inactive.
0 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
1 Configuration Group ID
80 minimum RTO in milliseconds
200 maximum RTO in milliseconds
100 Initial Retransmission time-out (RTO) in milliseconds
3 RTO alpha
2 RTO beta
```



```
#
60000 Valid Cookie Life in milliseconds
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
1 hbStatus: 1, Active. 0, Inactive.
0 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
15 Maximum incoming streams (MIS)
15 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
1 SACK frequency
#
1 Bundling active
10 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
```

### 1.5.9 Example 9 - CAA901548R10F Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10F      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
0                  Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Number Of Configuration Groups
#
0                  Configuration Group ID
1000               minimum RTO in milliseconds
4000               maximum RTO in milliseconds
2000               Initial Retransmission time-out (RTO) in milliseconds
3                  RTO alpha
```



```

2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx   in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
0      hbStatus: 1, Active. 0, Inactive.
0      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
3      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts

```



### 1.5.10 Example 10 - CAA901548R10G Configuration File Example with Two Configuration Groups.

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10G      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
10000              Statistics 64bit Update Timer in msec
0 Number Of Optional Configuration Groups
#
0                  Configuration Group ID
```



```

1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
0       hbStatus: 1, Active. 0, Inactive.
0       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor

```



```
1      Primary.Path.Max.Rtx in number of attempts
1      Configuration Group ID
80     minimum RTO in milliseconds
200    maximum RTO in milliseconds
100    Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
1      hbStatus: 1, Active. 0, Inactive.
0      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
15     Maximum incoming streams (MIS)
15     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
1      SACK frequency
#
1      Bundling active
10     Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
```





```

1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts

```

### 1.5.11 Example 11 - CAA901548R10H Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10H      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000              PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578               PMTUD Min IPv4 PMTU
12000             PMTUD Maximum IPv4 PMTU
14000             PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000             TakeoverProcessLimit
4096              UnloadMaxBurstAssoc
5000              UnloadGenDelay
1000              UnloadBurstDelay
70                WouldBlockCaseThreshold
0                  FE ID
100               AssociationsReleaseBurstTimer
512               AssociationsReleaseMaxBurstSize
10000             Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port

```



```
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
0      hbStatus: 1, Active. 0, Inactive.
0      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
```



```

3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts

```

### 1.5.12 Example 12 - CAA901548R10I Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10I      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096               UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer

```



```
512      AssociationsReleaseMaxBurstSize
10000    Individual Takeover Process Time Limit in milliseconds
0        SCTP over UDP flag
0        Local UDP port
0        Remote UDP port
0        Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000     Interval For Lost Primitives Check
0        Number Of Optional Configuration Groups
#
0        Configuration Group ID
1000     minimum RTO in milliseconds
4000     maximum RTO in milliseconds
2000     Initial Retransmission time-out (RTO) in milliseconds
3        RTO alpha
2        RTO beta
#
60000    Valid Cookie Life in milliseconds
30000    Allowed Increment of Cookie Life in milliseconds
#
10       Assoc.Max.Rtx. in number of attempts
5        Path.Max.Rtx in number of attempts
#
8        Maximum initial retransmissions in number of attempts
5        Maximum shutdown retransmissions in number of attempts
#
30000    Heartbeat interval in milliseconds
50       HB Interval Reduction
0        hbStatus: 1, Active. 0, Inactive.
0        Hb.Max.Burst
5000     Min.Hb.Interval
0        Smooth Factor
#
10       Maximum incoming streams (MIS)
10       Maximum outgoing streams
#
131072   M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380    N(bytes): threshold on user-data storage for tx.
85       N Percentage
8192     Initial a_rwnd in number of bytes
50       Arwnd Update Threshold
#
2        OOB threshold counter
1000     Number of millisec until the OOB counter is reset
4        Max Burst
200      Tsack timer in milliseconds.
2        SACK frequency
#
0        Bundling active
8        Bundling Timer
#
```



```

1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts

```

### 1.5.13 Example 13- CAA901548R10J Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10J      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096               UnloadMaxBurstAssoc

```



```
5000    UnloadGenDelay
1000    UnloadBurstDelay
70      WouldBlockCaseThreshold
0       FE ID
100     AssociationsReleaseBurstTimer
512     AssociationsReleaseMaxBurstSize
10000   Individual Takeover Process Time Limit in milliseconds
0       SCTP over UDP flag
0       Local UDP port
0       Remote UDP port
0       Statistics 64bit Update Timer in msec
8640000 DNS Host Name Resolving Interval
5000    Interval For Lost Primitives Check
0       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
0       hbStatus: 1, Active. 0, Inactive.
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
```



```

2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval

```

### 1.5.14 Example 14 - CAA901548R10K Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10K      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval

```



```
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
0      hbStatus: 1, Active. 0, Inactive.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
```





```

85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval

```

### 1.5.15 Example 15 - CAA901548R10L Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10L      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device

```



```
500000 ULM size
0      Total memory
70     ULM SFI part
0      Port range from
0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
```



```

0      hbStatus: 1, Active. 0, Inactive.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval

```

## 1.5.16 Example 16 - CAA901548R10M Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10M      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer

```



```
4000      Key Change Period in milliseconds
# Local IP addresses available
2         Number of local IP and DNS Hostname addresses available
10.0.224.2 First local IP address
10.0.224.3 Second local IP address
22000     Size of outgoing IP buffer
0         Size of incoming IP buffer
1         CRC-calculationActivated
1         ICMPActivated
0         Bind to device
500000    ULM size
0         Total memory
70        ULM SFI part
0         Port range from
0         Port range to
1         Reconfiguration settings
500       PMTUD Accuracy
300000    PMTUD Interval
1000      PMTUD Wait Next Probe interval
5         PMTUD Number of attempts to discover Congested Paths
578       PMTUD Min IPv4 PMTU
12000     PMTUD Maximum IPv4 PMTU
14000     PMTUD Maximum IPv6 PMTU
0         Start Delay
30000     TakeoverProcessLimit
4096      UnloadMaxBurstAssoc
5000      UnloadGenDelay
1000      UnloadBurstDelay
70        WouldBlockCaseThreshold
0         FE ID
100       AssociationsReleaseBurstTimer
512       AssociationsReleaseMaxBurstSize
10000     Individual Takeover Process Time Limit in milliseconds
0         SCTP over UDP flag
0         Local UDP port
0         Remote UDP port
0         Statistics 64bit Update Timer in msec
86400000  DNS Host Name Resolving Interval
5000      Interval For Lost Primitives Check
1         Multi-home Robustness
0         Exhaustive IP Path Statistic Calculation
0         Number Of Optional Configuration Groups
#
0         Configuration Group ID
1000      minimum RTO in milliseconds
4000      maximum RTO in milliseconds
2000      Initial Retransmission time-out (RTO) in milliseconds
3         RTO alpha
2         RTO beta
#
60000     Valid Cookie Life in milliseconds
```



```

30000    Allowed Increment of Cookie Life in milliseconds
#
10       Assoc.Max.Rtx. in number of attempts
5        Path.Max.Rtx   in number of attempts
#
8        Maximum initial retransmissions in number of attempts
5        Maximum shutdown retransmissions in number of attempts
#
30000    Heartbeat interval in milliseconds
50       HB Interval Reduction
3        hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path
1        Hb.Max.Burst
5000     Min.Hb.Interval
0        Smooth Factor
#
10       Maximum incoming streams (MIS)
10       Maximum outgoing streams
#
131072   M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380    N(bytes): threshold on user-data storage for tx.
85       N Percentage
8192     Initial a_rwnd in number of bytes
50       Arwnd Update Threshold
#
2        OOB threshold counter
1000     Number of millisec until the OOB counter is reset
4        Max Burst
200      Tsack timer in milliseconds.
2        SACK frequency
#
0        Bundling active
8        Bundling Timer
#
1        Path Selection Adjustment
#
1280     PMTU
1280     IPv6 PMTU
0        ECN Capability
3        DNS Support
0        Stream Statistic Flag
0        Block Cross-Paths Flag
1        Minimum Activate Threshold
1        Maximum Activate Threshold
255     Activate Threshold Factor
1        Primary.Path.Max.Rtx in number of attempts
#
6        Number Of Attempts To Probe Unreachable IP Paths
7200000  Probing Unreachable IP Paths Interval

```



### 1.5.17 Example 17 - CAA901548R10N Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10N      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
```



```

0      Initial RWND Setting Timeout
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
3      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag

```



```
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
#
0      Number of Remote Endpoint Blocks
```

### 1.5.18 Example 18 - CAA901548R10N Configuration File Example with Two Remote Endpoint Blocks

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10N      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096               UnloadMaxBurstAssoc
```





```

5000    UnloadGenDelay
1000    UnloadBurstDelay
70      WouldBlockCaseThreshold
0       FE ID
100     AssociationsReleaseBurstTimer
512     AssociationsReleaseMaxBurstSize
10000   Individual Takeover Process Time Limit in milliseconds
0       SCTP over UDP flag
0       Local UDP port
0       Remote UDP port
0       Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000    Interval For Lost Primitives Check
1       Multi-home Robustness
0       Exhaustive IP Path Statistic Calculation
0       Initial RWND Setting Timeout
1       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
2       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
3       hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter

```



```
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
#
1       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
2       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
3       hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
```



```

131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
#
6 Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64 DSCP
#
2 Number of Remote Endpoint Blocks
#
1 Remote Port
2 Number of Remote Addresses
10.0.224.5 First local IP address
www.sctp.com First DNS Hostname
1 Configuration Group ID
#
0 Remote Port
4 Number of Remote Addresses
10.0.224.2 First local IP address
10.0.224.? Second local IP address
10.0.*.0?0 Third local IP address
*.*.*.* Forth local IP address
0 Configuration Group ID

```

### 1.5.19 Example 19 - CAA901548R100 Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R100      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMPActivated
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
0                  Initial RWND Setting Timeout
0                  Number Of Optional Configuration Groups
```



```

#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx   in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#              2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag

```



```
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64      DSCP
#
0      Number of Remote Endpoint Blocks
```

### 1.5.20 Example 20 - CAA901548R10P Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10P      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
4                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096               UnloadMaxBurstAssoc
```



```

5000    UnloadGenDelay
1000    UnloadBurstDelay
70      WouldBlockCaseThreshold
0       FE ID
100     AssociationsReleaseBurstTimer
512     AssociationsReleaseMaxBurstSize
10000   Individual Takeover Process Time Limit in milliseconds
0       SCTP over UDP flag
0       Local UDP port
0       Remote UDP port
0       Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000    Interval For Lost Primitives Check
1       Multi-home Robustness
0       Exhaustive IP Path Statistic Calculation
0       Initial RWND Setting Timeout
0       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
15      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#        2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#

```



```
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64     DSCP
#
0      Number of Remote Endpoint Blocks
```

### 1.5.21 Example 21 - CAA901548R10Q Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10Q      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
4                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
```





```

500000 ULM size
0      Total memory
70     ULM SFI part
0      Port range from
0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Number Of Optional Configuration Groups
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds

```



```

50      HB Interval Reduction
15      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#          2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000    Min.Hb.Interval
0      Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2      OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4      Max Burst
200     Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255     Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
#
0      Number of Remote Endpoint Blocks

```

## 1.5.22 Example 22 - CAA901548R10R Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module

```



```
#
CAA901548R10R      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
0                  Initial RWND Setting Timeout
64                 Maximum Number of Endpoint Users
0                  Number Of Optional Configuration Groups
#
```



```
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
```



```

1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
#
0      Number of Remote Endpoint Blocks

```

### 1.5.23 Example 23 - CAA901548R10S Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10S      File Version Number
512                Number of Associations
10000      Number of millisec for lost user timer
4000                Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2        First local IP address
10.0.224.3        Second local IP address
22000            Size of outgoing IP buffer
0                Size of incoming IP buffer
1                CRC-calculationActivated
1                ICMP Status: 0 bit - activation;
#                1 bit - ignoring ICMP with code "protocol unreachable";
#                2 bit - ignoring ICMP with type "destination unreachable".
0                Bind to device
500000    ULM size
0                Total memory
70            ULM SFI part
0                Port range from
0                Port range to
2            Reconfiguration settings
500    PMTUD Accuracy
300000    PMTUD Interval
1000    PMTUD Wait Next Probe interval
5    PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000    PMTUD Maximum IPv4 PMTU
14000    PMTUD Maximum IPv6 PMTU
0                Start Delay
30000    TakeoverProcessLimit
4096    UnloadMaxBurstAssoc

```



```
5000  UnloadGenDelay
1000   UnloadBurstDelay
70 0  WouldBlockCaseThreshold
0     FE ID
100  AssociationsReleaseBurstTimer
512  AssociationsReleaseMaxBurstSize
1000  Individual Takeover Process Time Limit in milliseconds
0     SCTP over UDP flag
0     Local UDP port
0     Remote UDP port
0     Statistics 64bit Update Timer in msec
0     DNS host name resolving interval
5000  Interval For Lost Primitives Check
1     Multi-home Robustness
0     Exhaustive IP Path Statistic Calculation
0     Initial RWND Setting Timeout
64    Maximum Number of Endpoint Users
0     Number Of Optional Configuration Groups
#
0     Configuration Group ID
1000  minimum RTO in milliseconds
4000  maximum RTO in milliseconds
2000  Initial Retransmission time-out (RTO) in milliseconds
3     RTO alpha
2     RTO beta
#
60000 Valid Cookie Life in milliseconds
30000 0 Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5     Path.Max.Rtx   in number of attempts
#
8     Maximum initial retransmissions in number of attempts
5     Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1     Hb.Max.Burst
5000  Min.Hb.Interval
0     Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
```



```
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
#
2      Number of Remote Endpoint Blocks
#
1      Remote Port
4      Number of Remote Addresses
10.0.224.2      First remote IP address
10.0.224.?      Second remote IP address
10.0.*.0?0      Third remote IP address
*.*.*.*        Fourth remote IP address
0      Configuration Group ID
0      Action
1      Match Type
#
0      Remote Port
2      Number of Remote Addresses
10.0.224.5      First remote IP address
www.sctp.com    First DNS Hostname
0      Configuration Group ID
2      Action
0      Match Type
```

## 1.5.24 Example 24 - CAA901548R10T Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10T      File Version Number
512                Number of Associations
10000             Number of millisec for lost user timer
4000              Key Change Period in milliseconds
# Local IP addresses available
2                 Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000             Size of outgoing IP buffer
0                Size of incoming IP buffer
1                CRC-calculationActivated
1                ICMP Status: 0 bit - activation;
#                1 bit - ignoring ICMP with code "protocol unreachable";
#                2 bit - ignoring ICMP with type "destination unreachable".
0                Bind to device
500000            ULM size
0                Total memory
70               ULM SFI part
0                Port range from
0                Port range to
1                Reconfiguration settings
500              PMTUD Accuracy
300000           PMTUD Interval
1000             PMTUD Wait Next Probe interval
5                PMTUD Number of attempts to discover Congested Paths
578              PMTUD Min IPv4 PMTU
12000            PMTUD Maximum IPv4 PMTU
14000            PMTUD Maximum IPv6 PMTU
0                Start Delay
30000            TakeoverProcessLimit
4096             UnloadMaxBurstAssoc
5000            UnloadGenDelay
1000            UnloadBurstDelay
70              WouldBlockCaseThreshold
0               FE ID
100             AssociationsReleaseBurstTimer
512             AssociationsReleaseMaxBurstSize
10000           Individual Takeover Process Time Limit in milliseconds
0              SCTP over UDP flag
0              Local UDP port
0              Remote UDP port
0              Statistics 64bit Update Timer in msec
86400000        DNS Host Name Resolving Interval
5000            Interval For Lost Primitives Check
1              Multi-home Robustness
0              Exhaustive IP Path Statistic Calculation
```





```

0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability

```



```
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
#
0      Number of Remote Endpoint Blocks
```

### 1.5.25 Example 25 - CAA901548R10U Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10U      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000 ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000 PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
```



```

0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
40     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Statistic Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Resolving Calculation
0      Initial RWND Setting Timeout
1      Maximum Number of Endpoint Users
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.

```



```

85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
1       Zero RWND Supervision Timer in milliseconds
0       Multiple Fast Retransmit
#
0       Number of Remote Endpoint Blocks

```

### 1.5.26 Example 26 - CAA901548R10V Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10V    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2               Number of local IP and DNS Hostname addresses available
10.0.224.2       First local IP address
10.0.224.3       Second local IP address

```



```

22000      Size of outgoing IP buffer
0          Size of incoming IP buffer
1          CRC-calculationActivated
1          ICMP Status: 0 bit - activation;
#          1 bit - ignoring ICMP with code "protocol unreachable";
#          2 bit - ignoring ICMP with type "destination unreachable".
0          Bind to device
500000    ULM size
0          Total memory
70         ULM SFI part
0          Port range from
0          Port range to
1          Reconfiguration settings
500        PMTUD Accuracy
300000    PMTUD Interval
1000      PMTUD Wait Next Probe interval
5          PMTUD Number of attempts to discover Congested Paths
578        PMTUD Min IPv4 PMTU
12000     PMTUD Maximum IPv4 PMTU
14000     PMTUD Maximum IPv6 PMTU
0          Start Delay
30000     TakeoverProcessLimit
4096      UnloadMaxBurstAssoc
5000      UnloadGenDelay
1000      UnloadBurstDelay
70         WouldBlockCaseThreshold
0          FE ID
100        AssociationsReleaseBurstTimer
512        AssociationsReleaseMaxBurstSize
10000     Individual Takeover Process Time Limit in milliseconds
0          SCTP over UDP flag
0          Local UDP port
0          Remote UDP port
0          Statistics 64bit Update Timer in msec
86400000  DNS Host Name Resolving Interval
5000      Interval For Lost Primitives Check
1          Multi-home Robustness
0          Exhaustive IP Path Statistic Calculation
0          Initial RWND Setting Timeout
64         Maximum Number of Endpoint Users
0          Management behaviour bitmask
0          Number Of Optional Configuration Groups
#
0          Configuration Group ID
1000      minimum RTO in milliseconds
4000      maximum RTO in milliseconds
2000      Initial Retransmission time-out (RTO) in milliseconds
3          RTO alpha
2          RTO beta
#
60000     Valid Cookie Life in milliseconds

```



```
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5     Path.Max.Rtx   in number of attempts
#
8     Maximum initial retransmissions in number of attempts
5     Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1     Hb.Max.Burst
5000   Min.Hb.Interval
0     Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2     OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4     Max Burst
200    Tsack timer in milliseconds.
2     SACK frequency
#
0     Bundling active
8     Bundling Timer
#
1     Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0     ECN Capability
3     DNS Support
0     Stream Statistic Flag
0     Block Cross-Paths Flag
1     Minimum Activate Threshold
1     Maximum Activate Threshold
255    Activate Threshold Factor
1     Primary.Path.Max.Rtx in number of attempts
#
6     Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64    DSCP
1     Zero RWND Supervision Timer in milliseconds
```



```
0      Multiple Fast Retransmit
#
0      Number of Remote Endpoint Blocks
```

## 1.5.27 Example 27 - CAA901548R10W Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10W      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096               UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
```



```
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Management behaviour bitmask
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
```





```
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
#
0      Number of Remote Endpoint Blocks
```

## 1.5.28 Example 28 - CAA901548R10X Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10X      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
10000000           ULM size
```



```
0      Total memory
70     ULM SFI part
0      Port range from
0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Management behaviour bitmask
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
```



```

30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
15 hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
# 2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
#
6 Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64 DSCP
1 Zero RWND Supervision Timer in milliseconds
0 Multiple Fast Retransmit
200 Slow Start CWND Increment Factor
#
0 Number of Remote Endpoint Blocks

```

### 1.5.29 Example 29 - CAA901548R10Y Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10Y      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
```



```

0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Management behaviour bitmask
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU

```



```
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
#
0      Number of Remote Endpoint Blocks
```

### 1.5.30 Example 30 - CAA901548R10Z Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10Z      File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000              PMTUD Wait Next Probe interval
```



```

5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
0      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
0      Management behaviour bitmask
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#

```



```
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       00B threshold counter
1000    Number of millisec until the 00B counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
1       Zero RWND Supervision Timer in milliseconds
0       Multiple Fast Retransmit
200     Slow Start CWND Increment Factor
0       Time Critical Service
10      Maximum Initial CWND
7       Maximum Initial CWND operation mode
#
0       Number of Remote Endpoint Blocks
```

### 1.5.31 Example 31 - CAA901548R10AA Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
```





```

CAA901548R10AA    File Version Number
512                Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2          First local IP address
10.0.224.3          Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
512                AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
0                  Initial RWND Setting Timeout
64                 Maximum Number of Endpoint Users
0                  Management behaviour bitmask
0                  Check IP Interfaces timer
0                  Number Of Optional Configuration Groups

```



```
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
```



```

1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
#
0      Number of Remote Endpoint Blocks

```

### 1.5.32 Example 32 - CAA901548R10AB Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AB    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2               Number of local IP and DNS Hostname addresses available
10.0.224.2       First local IP address
10.0.224.3       Second local IP address
22000           Size of outgoing IP buffer
0              Size of incoming IP buffer
1              CRC-calculationActivated
1              ICMP Status: 0 bit - activation;
#              1 bit - ignoring ICMP with code "protocol unreachable";
#              2 bit - ignoring ICMP with type "destination unreachable".
0              Bind to device
500000          ULM size
0              Total memory
70             ULM SFI part
0              Port range from
0              Port range to
1              Reconfiguration settings
500            PMTUD Accuracy
300000         PMTUD Interval
1000          PMTUD Wait Next Probe interval
5             PMTUD Number of attempts to discover Congested Paths
578           PMTUD Min IPv4 PMTU

```



```
12000 PMTUD Maximum IPv4 PMTU
14000 PMTUD Maximum IPv6 PMTU
0 Start Delay
30000 TakeoverProcessLimit
4096 UnloadMaxBurstAssoc
5000 UnloadGenDelay
1000 UnloadBurstDelay
70 WouldBlockCaseThreshold
0 FE ID
100 AssociationsReleaseBurstTimer
512 AssociationsReleaseMaxBurstSize
10000 Individual Takeover Process Time Limit in milliseconds
2 SCTP over UDP flag
0 Local UDP port
0 Remote UDP port
0 Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000 Interval For Lost Primitives Check
1 Multi-home Robustness
0 Exhaustive IP Path Statistic Calculation
0 Initial RWND Setting Timeout
64 Maximum Number of Endpoint Users
0 Management behaviour bitmask
0 Check IP Interfaces timer
0 Number Of Optional Configuration Groups
#
0 Configuration Group ID
1000 minimum RTO in milliseconds
4000 maximum RTO in milliseconds
2000 Initial Retransmission time-out (RTO) in milliseconds
3 RTO alpha
2 RTO beta
#
60000 Valid Cookie Life in milliseconds
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
15 hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
# 2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
```



```

10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
1       Zero RWND Supervision Timer in milliseconds
0       Multiple Fast Retransmit
200     Slow Start CWND Increment Factor
0       Time Critical Service
10      Maximum Initial CWND
7       Maximum Initial CWND operation mode
#
0       Number of Remote Endpoint Blocks

```

### 1.5.33 Example 33 - CAA901548R10AC Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AC    File Version Number

```



```
512          Number of Associations
10000        Number of millisec for lost user timer
4000         Key Change Period in milliseconds
# Local IP addresses available
2           Number of local IP and DNS Hostname addresses available
10.0.224.2   First local IP address
10.0.224.3   Second local IP address
22000       Size of outgoing IP buffer
0           Size of incoming IP buffer
1           CRC-calculationActivated
1           ICMP Status: 0 bit - activation;
#           1 bit - ignoring ICMP with code "protocol unreachable";
#           2 bit - ignoring ICMP with type "destination unreachable".
0           Bind to device
500000      ULM size
0           Total memory
70          ULM SFI part
0           Port range from
0           Port range to
1           Reconfiguration settings
500         PMTUD Accuracy
300000      PMTUD Interval
1000        PMTUD Wait Next Probe interval
5           PMTUD Number of attempts to discover Congested Paths
578         PMTUD Min IPv4 PMTU
12000       PMTUD Maximum IPv4 PMTU
14000       PMTUD Maximum IPv6 PMTU
0           Start Delay
30000       TakeoverProcessLimit
4096        UnloadMaxBurstAssoc
5000        UnloadGenDelay
1000        UnloadBurstDelay
70          WouldBlockCaseThreshold
0           FE ID
100         AssociationsReleaseBurstTimer
512         AssociationsReleaseMaxBurstSize
10000       Individual Takeover Process Time Limit in milliseconds
2           SCTP over UDP flag
0           Local UDP port
0           Remote UDP port
0           Statistics 64bit Update Timer in msec
86400000    DNS Host Name Resolving Interval
5000        Interval For Lost Primitives Check
1           Multi-home Robustness
0           Exhaustive IP Path Statistic Calculation
0           Initial RWND Setting Timeout
64          Maximum Number of Endpoint Users
0           Management behaviour bitmask
0           Check IP Interfaces timer
0           Number Of Optional Configuration Groups
#
```



```

0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold

```



```
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
#
0      Number of Remote Endpoint Blocks
```

### 1.5.34 Example 34 - CAA901548R10AD Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AD    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2                Number of local IP and DNS Hostname addresses available
10.0.224.2        First local IP address
10.0.224.3        Second local IP address
22000            Size of outgoing IP buffer
0                Size of incoming IP buffer
1                CRC-calculationActivated
1                ICMP Status: 0 bit - activation;
#                1 bit - ignoring ICMP with code "protocol unreachable";
#                2 bit - ignoring ICMP with type "destination unreachable".
0                Bind to device
500000           ULM size
0                Total memory
70              ULM SFI part
0                Port range from
0                Port range to
1                Reconfiguration settings
500              PMTUD Accuracy
300000           PMTUD Interval
1000             PMTUD Wait Next Probe interval
5                PMTUD Number of attempts to discover Congested Paths
578             PMTUD Min IPv4 PMTU
```





```

12000 PMTUD Maximum IPv4 PMTU
14000 PMTUD Maximum IPv6 PMTU
0 Start Delay
30000 TakeoverProcessLimit
4096 UnloadMaxBurstAssoc
5000 UnloadGenDelay
1000 UnloadBurstDelay
70 WouldBlockCaseThreshold
0 FE ID
100 AssociationsReleaseBurstTimer
512 AssociationsReleaseMaxBurstSize
10000 Individual Takeover Process Time Limit in milliseconds
2 SCTP over UDP flag
0 Local UDP port
0 Remote UDP port
0 Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000 Interval For Lost Primitives Check
1 Multi-home Robustness
0 Exhaustive IP Path Statistic Calculation
0 Initial RWND Setting Timeout
64 Maximum Number of Endpoint Users
0 Management behaviour bitmask
0 Check IP Interfaces timer
0 Number Of Optional Configuration Groups
#
0 Configuration Group ID
1000 minimum RTO in milliseconds
4000 maximum RTO in milliseconds
2000 Initial Retransmission time-out (RTO) in milliseconds
3 RTO alpha
2 RTO beta
#
60000 Valid Cookie Life in milliseconds
30000 Allowed Increment of Cookie Life in milliseconds
#
10 Assoc.Max.Rtx. in number of attempts
5 Path.Max.Rtx in number of attempts
#
8 Maximum initial retransmissions in number of attempts
5 Maximum shutdown retransmissions in number of attempts
#
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
15 hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
# 2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)

```



```
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       00B threshold counter
1000    Number of millisec until the 00B counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
0       Path Selection Adjustment
#
1280    PMTU
1280    IPv6 PMTU
0       ECN Capability
3       DNS Support
0       Stream Statistic Flag
0       Block Cross-Paths Flag
1       Minimum Activate Threshold
1       Maximum Activate Threshold
255     Activate Threshold Factor
1       Primary.Path.Max.Rtx in number of attempts
#
6       Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64      DSCP
1       Zero RWND Supervision Timer in milliseconds
0       Multiple Fast Retransmit
200     Slow Start CWND Increment Factor
0       Time Critical Service
10      Maximum Initial CWND
7       Maximum Initial CWND operation mode
0       Forced Activation of Parameters
0       Bi-directional Support Only
#
0       Number of Remote Endpoint Blocks
```

### 1.5.35 Example 35 - CAA901548R10AE Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
```



```
#
CAA901548R10AE    File Version Number
16249              Number of Associations
10000              Number of millisec for lost user timer
4000               Key Change Period in milliseconds
# Local IP addresses available
2                  Number of local IP and DNS Hostname addresses available
10.0.224.2         First local IP address
10.0.224.3         Second local IP address
22000              Size of outgoing IP buffer
0                  Size of incoming IP buffer
1                  CRC-calculationActivated
1                  ICMP Status: 0 bit - activation;
#                  1 bit - ignoring ICMP with code "protocol unreachable";
#                  2 bit - ignoring ICMP with type "destination unreachable".
0                  Bind to device
500000             ULM size
0                  Total memory
70                 ULM SFI part
0                  Port range from
0                  Port range to
1                  Reconfiguration settings
500                PMTUD Accuracy
300000             PMTUD Interval
1000               PMTUD Wait Next Probe interval
5                  PMTUD Number of attempts to discover Congested Paths
578                PMTUD Min IPv4 PMTU
12000              PMTUD Maximum IPv4 PMTU
14000              PMTUD Maximum IPv6 PMTU
0                  Start Delay
30000              TakeoverProcessLimit
4096                UnloadMaxBurstAssoc
5000               UnloadGenDelay
1000               UnloadBurstDelay
70                 WouldBlockCaseThreshold
0                  FE ID
100                AssociationsReleaseBurstTimer
16249              AssociationsReleaseMaxBurstSize
10000              Individual Takeover Process Time Limit in milliseconds
0                  SCTP over UDP flag
0                  Local UDP port
0                  Remote UDP port
0                  Statistics 64bit Update Timer in msec
86400000           DNS Host Name Resolving Interval
5000               Interval For Lost Primitives Check
1                  Multi-home Robustness
0                  Exhaustive IP Path Statistic Calculation
0                  Initial RWND Setting Timeout
64                 Maximum Number of Endpoint Users
0                  Management behaviour bitmask
0                  Check IP Interfaces timer
```



```
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#
30000  Heartbeat interval in milliseconds
50     HB Interval Reduction
15     hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#       2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1      Hb.Max.Burst
5000   Min.Hb.Interval
0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
```



```

0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
0      Bi-directional Support Only
#
0      Number of Remote Endpoint Blocks

```

### 1.5.36 Example 36 - CAA901548R10AF Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AF    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2                Number of local IP and DNS Hostname addresses available
10.0.224.2       First local IP address
10.0.224.3       Second local IP address
22000           Size of outgoing IP buffer
0                Size of incoming IP buffer
1                CRC-calculationActivated
1                ICMP Status: 0 bit - activation;
#                1 bit - ignoring ICMP with code "protocol unreachable";
#                2 bit - ignoring ICMP with type "destination unreachable".
0                Bind to device
500000          ULM size
0                Total memory
70              ULM SFI part
0                Port range from
0                Port range to
1                Reconfiguration settings
500             PMTUD Accuracy
300000          PMTUD Interval

```



```
1000    PMTUD Wait Next Probe interval
5       PMTUD Number of attempts to discover Congested Paths
578     PMTUD Min IPv4 PMTU
12000   PMTUD Maximum IPv4 PMTU
14000   PMTUD Maximum IPv6 PMTU
0       Start Delay
30000   TakeoverProcessLimit
4096    UnloadMaxBurstAssoc
5000    UnloadGenDelay
1000    UnloadBurstDelay
70      WouldBlockCaseThreshold
0       FE ID
100     AssociationsReleaseBurstTimer
512     AssociationsReleaseMaxBurstSize
10000   Individual Takeover Process Time Limit in milliseconds
2       SCTP over UDP flag
0       Local UDP port
0       Remote UDP port
0       Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000    Interval For Lost Primitives Check
1       Multi-home Robustness
0       Exhaustive IP Path Statistic Calculation
0       Initial RWND Setting Timeout
64      Maximum Number of Endpoint Users
1       Management behaviour bitmask
0       Check IP Interfaces timer
0       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
15      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#        2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1       Hb.Max.Burst
5000    Min.Hb.Interval
```



```

0      Smooth Factor
#
10     Maximum incoming streams (MIS)
10     Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380  N(bytes): threshold on user-data storage for tx.
85     N Percentage
8192   Initial a_rwnd in number of bytes
50     Arwnd Update Threshold
#
2      OOB threshold counter
1000   Number of millisec until the OOB counter is reset
4      Max Burst
200    Tsack timer in milliseconds.
2      SACK frequency
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
0      Bi-directional Support Only
#
0      Number of Remote Endpoint Blocks

```

### 1.5.37 Example 37 - CAA901548R10AG Configuration File Example



```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AG    File Version Number
512               Number of Associations
10000             Number of millisec for lost user timer
4000              Key Change Period in milliseconds
# Local IP addresses available
2                Number of local IP and DNS Hostname addresses available
10.0.224.2        First local IP address
10.0.224.3        Second local IP address
22000             Size of outgoing IP buffer
0                Size of incoming IP buffer
1                CRC-calculationActivated
1                ICMP Status: 0 bit - activation;
#                1 bit - ignoring ICMP with code "protocol unreachable";
#                2 bit - ignoring ICMP with type "destination unreachable".
0                Bind to device
500000           ULM size
0                Total memory
70               ULM SFI part
0                Port range from
0                Port range to
1                Reconfiguration settings
500              PMTUD Accuracy
300000           PMTUD Interval
1000             PMTUD Wait Next Probe interval
5                PMTUD Number of attempts to discover Congested Paths
578              PMTUD Min IPv4 PMTU
12000            PMTUD Maximum IPv4 PMTU
14000            PMTUD Maximum IPv6 PMTU
0                Start Delay
30000            TakeoverProcessLimit
4096             UnloadMaxBurstAssoc
5000             UnloadGenDelay
1000             UnloadBurstDelay
70              WouldBlockCaseThreshold
0               FE ID
100             AssociationsReleaseBurstTimer
512             AssociationsReleaseMaxBurstSize
10000           Individual Takeover Process Time Limit in milliseconds
2               SCTP over UDP flag
0               Local UDP port
0               Remote UDP port
0               Statistics 64bit Update Timer in msec
86400000        DNS Host Name Resolving Interval
5000            Interval For Lost Primitives Check
1               Multi-home Robustness
0               Exhaustive IP Path Statistic Calculation
0               Initial RWND Setting Timeout
```





```

64      Maximum Number of Endpoint Users
1       Management behaviour bitmask
0       Check IP Interfaces timer
1       CRC32C Algorithm
0       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
15      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#        2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#
131072  M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380   N(bytes): threshold on user-data storage for tx.
85      N Percentage
8192    Initial a_rwnd in number of bytes
50      Arwnd Update Threshold
#
2       OOB threshold counter
1000    Number of millisec until the OOB counter is reset
4       Max Burst
200     Tsack timer in milliseconds.
2       SACK frequency
#
0       Bundling active
8       Bundling Timer
#
1       Path Selection Adjustment
#
1280    PMTU

```



```

1280    IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000    Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
0      Bi-directional Support Only
#
0      Number of Remote Endpoint Blocks

```

### 1.5.38 Example 38 - CAA901548R10AH Configuration File Example

```

# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AH    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000            Key Change Period in milliseconds
# Local IP addresses available
2              Number of local IP and DNS Hostname addresses available
10.0.224.2      First local IP address
10.0.224.3      Second local IP address
22000          Size of outgoing IP buffer
0              Size of incoming IP buffer
1              CRC-calculationActivated
1              ICMP Status: 0 bit - activation;
#              1 bit - ignoring ICMP with code "protocol unreachable";
#              2 bit - ignoring ICMP with type "destination unreachable".
0              Bind to device
500000         ULM size
0              Total memory
70             ULM SFI part
0              Port range from

```



```

0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
2      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
1      Management behaviour bitmask
0      Check IP Interfaces timer
1      CRC32C Algorithm
65000  Maximum User Message Size
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
30000  Allowed Increment of Cookie Life in milliseconds
#
10     Assoc.Max.Rtx. in number of attempts
5      Path.Max.Rtx in number of attempts
#
8      Maximum initial retransmissions in number of attempts
5      Maximum shutdown retransmissions in number of attempts
#

```



```
30000 Heartbeat interval in milliseconds
50 HB Interval Reduction
15 hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
# 2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1 Hb.Max.Burst
5000 Min.Hb.Interval
0 Smooth Factor
#
10 Maximum incoming streams (MIS)
10 Maximum outgoing streams
#
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millsec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
#
6 Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64 DSCP
1 Zero RWND Supervision Timer in milliseconds
0 Multiple Fast Retransmit
200 Slow Start CWND Increment Factor
0 Time Critical Service
10 Maximum Initial CWND
7 Maximum Initial CWND operation mode
0 Forced Activation of Parameters
0 Bi-directional Support Only
#
```



0            Number of Remote Endpoint Blocks

### 1.5.39            Example 39 - CAA901548R10AI Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AI      File Version Number
512                  Number of Associations
10000                Number of millisec for lost user timer
4000                 Key Change Period in milliseconds
# Local IP addresses available
2                    Number of local IP and DNS Hostname addresses available
10.0.224.2           First local IP address
10.0.224.3           Second local IP address
22000                Size of outgoing IP buffer
0                    Size of incoming IP buffer
1                    CRC-calculationActivated
1                    ICMP Status: 0 bit - activation;
#                    1 bit - ignoring ICMP with code "protocol unreachable";
#                    2 bit - ignoring ICMP with type "destination unreachable".
0                    Bind to device
500000               ULM size
0                    Total memory
70                   ULM SFI part
0                    Port range from
0                    Port range to
1                    Reconfiguration settings
500                   PMTUD Accuracy
300000               PMTUD Interval
1000                  PMTUD Wait Next Probe interval
5                    PMTUD Number of attempts to discover Congested Paths
578                   PMTUD Min IPv4 PMTU
12000                PMTUD Maximum IPv4 PMTU
14000                PMTUD Maximum IPv6 PMTU
0                    Start Delay
30000                TakeoverProcessLimit
4096                  UnloadMaxBurstAssoc
5000                  UnloadGenDelay
1000                  UnloadBurstDelay
70                   WouldBlockCaseThreshold
0                    FE ID
100                  AssociationsReleaseBurstTimer
512                  AssociationsReleaseMaxBurstSize
10000                Individual Takeover Process Time Limit in milliseconds
2                    SCTP over UDP flag
0                    Local UDP port
0                    Remote UDP port
```



```
0      Statistics 64bit Update Timer in msec
86400000  DNS Host Name Resolving Interval
5000     Interval For Lost Primitives Check
1        Multi-home Robustness
0        Exhaustive IP Path Statistic Calculation
0        Initial RWND Setting Timeout
64       Maximum Number of Endpoint Users
1        Management behaviour bitmask
0        Check IP Interfaces timer
1        CRC32C Algorithm
65000    Maximum User Message Size
0        Number Of Optional Configuration Groups
#
0        Configuration Group ID
1000     minimum RTO in milliseconds
4000     maximum RTO in milliseconds
2000     Initial Retransmission time-out (RTO) in milliseconds
3        RTO alpha
2        RTO beta
#
60000    Valid Cookie Life in milliseconds
30000    Allowed Increment of Cookie Life in milliseconds
#
10       Assoc.Max.Rtx. in number of attempts
5        Path.Max.Rtx in number of attempts
#
8        Maximum initial retransmissions in number of attempts
5        Maximum shutdown retransmissions in number of attempts
#
30000    Heartbeat interval in milliseconds
50       HB Interval Reduction
15       hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#         2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1        Hb.Max.Burst
5000     Min.Hb.Interval
0        Smooth Factor
#
10       Maximum incoming streams (MIS)
10       Maximum outgoing streams
#
131072   M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380    N(bytes): threshold on user-data storage for tx.
85       N Percentage
8192     Initial a_rwnd in number of bytes
50       Arwnd Update Threshold
#
2        OOB threshold counter
1000     Number of millisec until the OOB counter is reset
4        Max Burst
200      Tsack timer in milliseconds.
2        SACK frequency
```



```
#
0      Bundling active
8      Bundling Timer
#
1      Path Selection Adjustment
#
1280   PMTU
1280   IPv6 PMTU
0      ECN Capability
3      DNS Support
0      Stream Statistic Flag
0      Block Cross-Paths Flag
1      Minimum Activate Threshold
1      Maximum Activate Threshold
255    Activate Threshold Factor
1      Primary.Path.Max.Rtx in number of attempts
#
6      Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64     DSCP
1      Zero RWND Supervision Timer in milliseconds
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
0      Bi-directional Support Only
0      Cross Paths Mode
#
0      Number of Remote Endpoint Blocks
```

### 1.5.40 Example 40 - CAA901548R10AJ Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AJ    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2               Number of local IP and DNS Hostname addresses available
10.0.224.2       First local IP address
10.0.224.3       Second local IP address
22000           Size of outgoing IP buffer
0               Size of incoming IP buffer
1               CRC-calculationActivated
```



```
1      ICMP Status: 0 bit - activation;
#      1 bit - ignoring ICMP with code "protocol unreachable";
#      2 bit - ignoring ICMP with type "destination unreachable".
0      Bind to device
500000 ULM size
0      Total memory
70     ULM SFI part
0      Port range from
0      Port range to
1      Reconfiguration settings
500    PMTUD Accuracy
300000 PMTUD Interval
1000   PMTUD Wait Next Probe interval
5      PMTUD Number of attempts to discover Congested Paths
578    PMTUD Min IPv4 PMTU
12000  PMTUD Maximum IPv4 PMTU
14000  PMTUD Maximum IPv6 PMTU
0      Start Delay
30000  TakeoverProcessLimit
4096   UnloadMaxBurstAssoc
5000   UnloadGenDelay
1000   UnloadBurstDelay
70     WouldBlockCaseThreshold
0      FE ID
100    AssociationsReleaseBurstTimer
512    AssociationsReleaseMaxBurstSize
10000  Individual Takeover Process Time Limit in milliseconds
2      SCTP over UDP flag
0      Local UDP port
0      Remote UDP port
0      Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000   Interval For Lost Primitives Check
1      Multi-home Robustness
0      Exhaustive IP Path Statistic Calculation
0      Initial RWND Setting Timeout
64     Maximum Number of Endpoint Users
1      Management behaviour bitmask
0      Check IP Interfaces timer
1      CRC32C Algorithm
65000  Maximum User Message Size
0      Number Of Optional Configuration Groups
#
0      Configuration Group ID
1000   minimum RTO in milliseconds
4000   maximum RTO in milliseconds
2000   Initial Retransmission time-out (RTO) in milliseconds
3      RTO alpha
2      RTO beta
#
60000  Valid Cookie Life in milliseconds
```





```

30000    Allowed Increment of Cookie Life in milliseconds
#
10       Assoc.Max.Rtx. in number of attempts
5        Path.Max.Rtx   in number of attempts
#
8        Maximum initial retransmissions in number of attempts
5        Maximum shutdown retransmissions in number of attempts
#
30000    Heartbeat interval in milliseconds
50       HB Interval Reduction
15       hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#         2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1        Hb.Max.Burst
5000     Min.Hb.Interval
0        Smooth Factor
#
10       Maximum incoming streams (MIS)
10       Maximum outgoing streams
#
131072   M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380    N(bytes): threshold on user-data storage for tx.
85       N Percentage
8192     Initial a_rwnd in number of bytes
50       Arwnd Update Threshold
#
2        OOB threshold counter
1000     Number of millisec until the OOB counter is reset
4        Max Burst
200     Tsack timer in milliseconds.
2        SACK frequency
#
0        Bundling active
8        Bundling Timer
#
1        Path Selection Adjustment
#
1280     PMTU
1280     IPv6 PMTU
0        ECN Capability
3        DNS Support
0        Stream Statistic Flag
0        Block Cross-Paths Flag
1        Minimum Activate Threshold
1        Maximum Activate Threshold
255     Activate Threshold Factor
1        Primary.Path.Max.Rtx in number of attempts
#
6        Number Of Attempts To Probe Unreachable IP Paths
7200000  Probing Unreachable IP Paths Interval
64       DSCP
1        Zero RWND Supervision Timer in milliseconds

```



```
0      Multiple Fast Retransmit
200    Slow Start CWND Increment Factor
0      Time Critical Service
10     Maximum Initial CWND
7      Maximum Initial CWND operation mode
0      Forced Activation of Parameters
0      Bi-directional Support Only
0      Cross Paths Mode
0      Bundling Threshold
#
0      Number of Remote Endpoint Blocks
```

### 1.5.41 Example 40 - CAA901548R10AK Configuration File Example

```
# A sample configuration file
# File name: sctp.cnf
# Configuration file example for SCTP R10 module
#
CAA901548R10AK    File Version Number
512              Number of Associations
10000            Number of millisec for lost user timer
4000             Key Change Period in milliseconds
# Local IP addresses available
2                Number of local IP and DNS Hostname addresses available
10.0.224.2        First local IP address
10.0.224.3        Second local IP address
22000            Size of outgoing IP buffer
0               Size of incoming IP buffer
1               CRC-calculationActivated
1               ICMP Status: 0 bit - activation;
#               1 bit - ignoring ICMP with code "protocol unreachable";
#               2 bit - ignoring ICMP with type "destination unreachable".
0               Bind to device
500000           ULM size
0               Total memory
70              ULM SFI part
0               Port range from
0               Port range to
1               Reconfiguration settings
500             PMTUD Accuracy
300000          PMTUD Interval
1000            PMTUD Wait Next Probe interval
5               PMTUD Number of attempts to discover Congested Paths
578             PMTUD Min IPv4 PMTU
12000           PMTUD Maximum IPv4 PMTU
14000           PMTUD Maximum IPv6 PMTU
0               Start Delay
30000           TakeoverProcessLimit
4096            UnloadMaxBurstAssoc
```



```

5000    UnloadGenDelay
1000    UnloadBurstDelay
70      WouldBlockCaseThreshold
0       FE ID
100     AssociationsReleaseBurstTimer
512     AssociationsReleaseMaxBurstSize
10000   Individual Takeover Process Time Limit in milliseconds
2       SCTP over UDP flag
0       Local UDP port
0       Remote UDP port
0       Statistics 64bit Update Timer in msec
86400000 DNS Host Name Resolving Interval
5000    Interval For Lost Primitives Check
1       Multi-home Robustness
0       Exhaustive IP Path Statistic Calculation
0       Initial RWND Setting Timeout
64      Maximum Number of Endpoint Users
1       Management behaviour bitmask
0       Check IP Interfaces timer
1       CRC32C Algorithm
65000   Maximum User Message Size
0       ULM Info Ind Part
0       Number Of Optional Configuration Groups
#
0       Configuration Group ID
1000    minimum RTO in milliseconds
4000    maximum RTO in milliseconds
2000    Initial Retransmission time-out (RTO) in milliseconds
3       RTO alpha
2       RTO beta
#
60000   Valid Cookie Life in milliseconds
30000   Allowed Increment of Cookie Life in milliseconds
#
10      Assoc.Max.Rtx. in number of attempts
5       Path.Max.Rtx in number of attempts
#
8       Maximum initial retransmissions in number of attempts
5       Maximum shutdown retransmissions in number of attempts
#
30000   Heartbeat interval in milliseconds
50      HB Interval Reduction
15      hbStatus: 0-bit - Active/Inactive; 1-bit - Assoc/Path;
#        2-bit - HBs with PMTU size; 3-bit T3 counter flag.
1       Hb.Max.Burst
5000    Min.Hb.Interval
0       Smooth Factor
#
10      Maximum incoming streams (MIS)
10      Maximum outgoing streams
#

```



```
131072 M(bytes): SCTP tx. buffer size per assoc. for user-data storage
98380 N(bytes): threshold on user-data storage for tx.
85 N Percentage
8192 Initial a_rwnd in number of bytes
50 Arwnd Update Threshold
#
2 OOB threshold counter
1000 Number of millisec until the OOB counter is reset
4 Max Burst
200 Tsack timer in milliseconds.
2 SACK frequency
#
0 Bundling active
8 Bundling Timer
#
1 Path Selection Adjustment
#
1280 PMTU
1280 IPv6 PMTU
0 ECN Capability
3 DNS Support
0 Stream Statistic Flag
0 Block Cross-Paths Flag
1 Minimum Activate Threshold
1 Maximum Activate Threshold
255 Activate Threshold Factor
1 Primary.Path.Max.Rtx in number of attempts
#
6 Number Of Attempts To Probe Unreachable IP Paths
7200000 Probing Unreachable IP Paths Interval
64 DSCP
1 Zero RWND Supervision Timer in milliseconds
0 Multiple Fast Retransmit
200 Slow Start CWND Increment Factor
0 Time Critical Service
10 Maximum Initial CWND
7 Maximum Initial CWND operation mode
0 Forced Activation of Parameters
0 Bi-directional Support Only
0 Cross Paths Mode
0 Bundling Threshold
#
0 Number of Remote Endpoint Blocks
```