

Configuring SS7, SCTP

OPERATING INSTRUCTION

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1 Overview

1.1 Description

This instruction describes, using an example, how to configure Stream Control Transmission Protocol (SCTP). The procedure in this example shows a complete working configuration, but the values will be different for each specific use case.

1.2 Prerequisites

1.2.1 Documents

Not applicable

1.2.2 Tools

Signaling Manager.





2 Procedure

This procedure describes how to create an SCTP Front End and its Local IP Address table.

2.1 Creating SCTP Layer

In the **Signaling Manager** perform the following steps:

1. Expand **Signaling System** to view the underlying structure, if it is not already expanded.
2. Add element on **SCTPs**. An instance of SCTP with **Instance ID** 0 will be added. The value of the **Instance ID** is automatically calculated and set depending on the previously added Front End instances. It is the instance ID of the previous Front End instance plus one. See Figure 1.

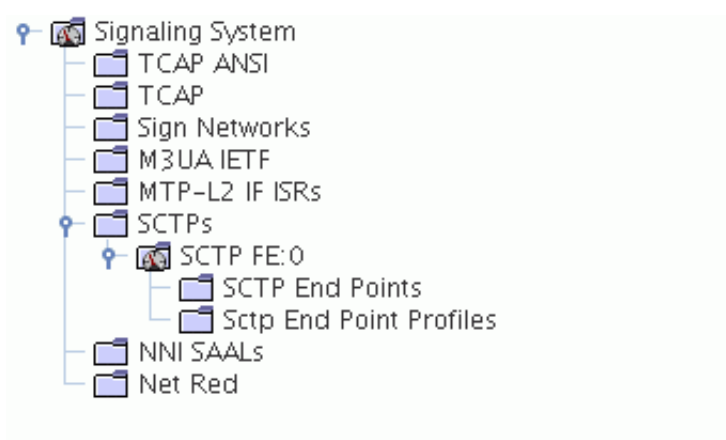


Figure 1 Added an Instance of SCTP

No SCTP End Point instance is added by default.

2.2 Configuring SCTP

2.2.1 SCTP Properties

All the properties are using default values. If some properties are not visible in the SCTP property sheet, it is due to that **Expert mode** has not been selected in the **Tools** menu.

2.2.2 Creating Local IP Address Table

In order to create Local IP Address Table/SCTP End Point element you may need to:

1. Add an element on **SCTP End Points**. An instance of IP Address Table , called **IP Address Table #1**, is added. See Figure 2.

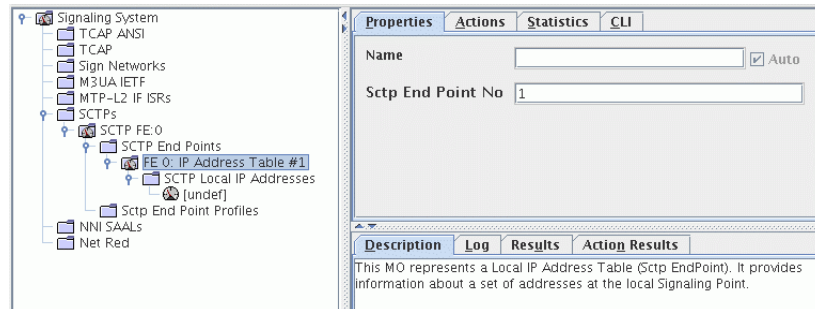


Figure 2 Added an Instance of SCTP Local IP Address Table

Note: By default an instance of an SCTP Local IP address, called **[undef]** is added in the **SCTP Local IP Addresses** element. In order to make this IP address valid, its **Address** property must be set. The **Port Number** property, that is visible in **Expert Mode** only, is not exported to the SCTP protocol layer when configuring pure SCTP (Signaling Manager configuration parameter **imc.names** set to "**signalingssystem,sctp**").

2. Set the **Address** property of the added SCTP Local IP Address, **[undef]**. The IP Address element will be updated with its set IP address. See Figure 3

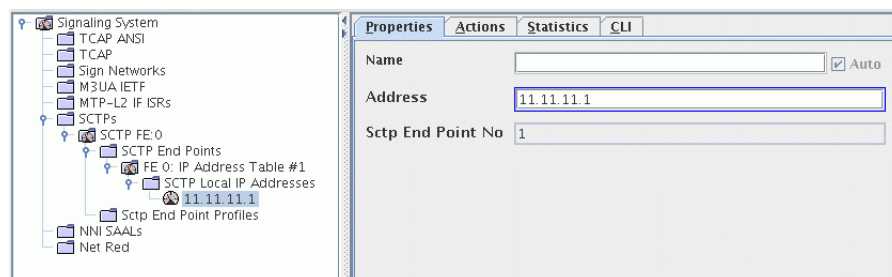


Figure 3 Address Field Which is Set with a Valid IP Address

2.2.3 Creating More Local IP Address

One Local IP Address was added during the steps in “Creating Local IP Address Table” in Section 2.2.2 on page 4. In order to add more Local IP Address for a certain Local IP Address Table, for instance **IP Address Table #1**, perform the following steps:



1. Add element on **SCTP Local IP Addresses**. An instance of SCTP Local IP Address, called **[undef]** is added in the **SCTP Local IP Addresses** element.
2. Set the **Address** property of the added SCTP Local IP Address, **[undef]**. The Local IP Address element will be updated with the set IP address, see Figure 3.

Note: You can also create a Local IP Address by making a copy of one already created instance. Its **Address** property must be updated. Duplicate IP Addresses are not allowed.

2.2.4

Creating More Sctp End Points

1. Select the previously added **FE 0: IP Address Table #1** and press the insert key or right click and select add. A second instance called **FE 0: IP Address Table #2** is added.
2. Set the **Address** property of the added SCTP Local IP Address. The Local IP Address element will be updated with the set IP address.

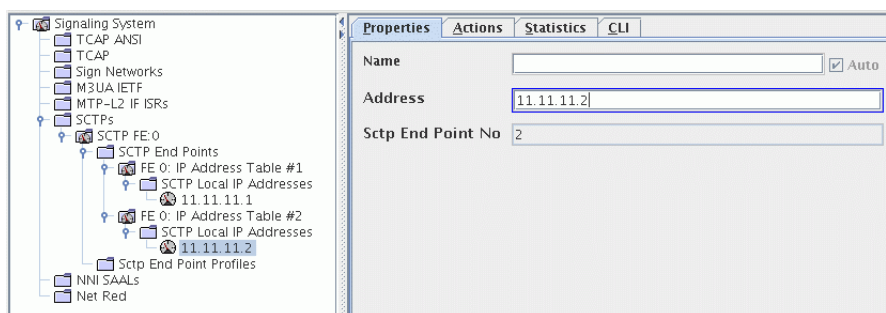


Figure 4 Added a second SCTP End Point.

2.2.5

Validate SCTP

In order to validate, you select **Validate** from the **Edit** menu. The result will be displayed in the Results field below the Property sheet. If the configuration is not valid the incorrect properties will be listed in different lines. By Selecting a line, Signaling Manager will prompt to the location to edit the property with proper values to make the configuration valid.





3 Recommended SS7 Parameters

This section contains information about specific SS7 parameters or options. When performing a complete configuration procedure or using a template configuration, Signaling Manager provides default values. Most of these values will work for an SS7 stack in a running network and are not described specifically here. In some case though, parameters may need to be modified. For instance, if Ethernet is used the **PMTU, Threshold of Userdata Transmit Buffer Size** and **Userdata Transmit Buffer Size** properties in the **Signaling System/SCTPs/SCTP FE:<inst ID>** element are interesting.

3.1 SCTP FE

Table 1 SCTP FE Property Sheet

Property Name	Recommended value	Comments
Use All Local IP Addresses	See comments	If set to Yes, all local IP addresses available to the FE process will be used. If set to No, only the ones that are configured in Local IP Address tables will be used.
Userdata Transmit Buffer Size	21780(PMTU*15)	Expert property Also known as "M". Recommended value: PMTU * 15. Sets the size of the buffer used to store user-data pending to send or retransmit in an association, that is establish the maximum amount of data that SCTP shall store before discarding user messages. (number of bytes).



Property Name	Recommended value	Comments
Threshold of Userdata Transmit Buffer Size	16335 (3/4 * M)	Expert property Also known as “N”. Sets the value of the threshold used to ask the SCTP user to stop the delivery of data on an association. Once N or more bytes are queued and are pending to send, the SCTP layer shall issue an indication to the user. The value of N should be less than M (see above) to be an effective threshold.
InitRTO	200	Expert property This is the initial value that the RTO will take, prior to the first RTT measure. The recommended value is based on running telecom traffic over SCTP and not according to RFC. When you set the Initial RTO value please mind that it must be greater than the Minimum RTO value at least by one.
Maximum RTO	400	Expert property 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 RTO.max. The recommended value is based on running telecom traffic over SCTP and not according to RFC.



Property Name	Recommended value	Comments
Min RTO	100	Expert property 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 RTO.min. The recommended value is based on running telecom traffic over SCTP and not according to RFC.
SACK Timer	40	Expert property Number of milliseconds for the SACK chunk to be sent after a DATA chunk reception. The recommended value is based on running telecom traffic over SCTP and not according to RFC.
Assoc Max RTX	8	Expert property This is the maximum number of consecutive retransmissions to a remote peer (on all the destination addresses of the peer if it is multi-homed). In IETF RFC 4960, the recommended value is 10. Must be greater than or equal to PathMaxRTX.
Path Max RTX	8	Expert property Maximum number of consecutive retransmissions to a remote address. In IETF RFC 4960, the recommended value is 5. Must be less than or equal to AssocMaxRTX.





Glossary

SCTP

Stream Control Transmission Protocol

VIP

Virtual IP address

M3UA

MTPL3 User Adaptation layer

SS7

Signaling System Number 7

FE

Front End