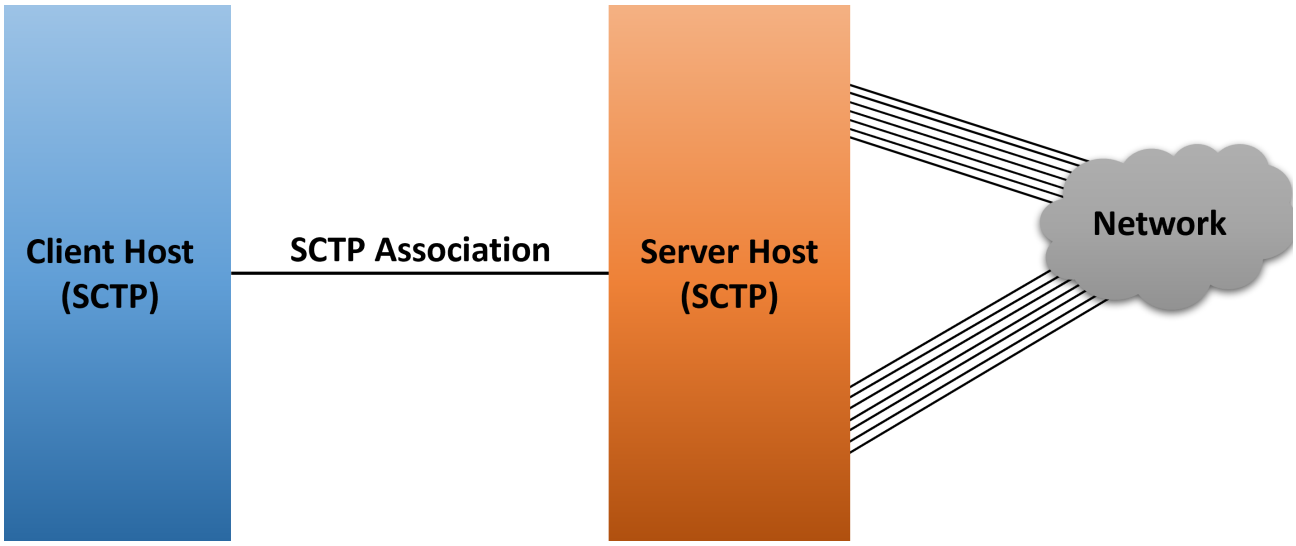
MAPS™ SCTP Conformance



Overview

SIGTRAN protocols are an extension of the SS7 protocol family, transmitted over IP networks. A Signaling Gateway (SG) converts SS7 TDM layers into SIGTRAN IP format. It maintains the same application and call management functions as SS7 but operates through two protocol layers on top of the Internet Protocol (IP): Stream Control Transport Protocol (SCTP) and M3UA (MTP3 User Adaptation Layer).

SCTP, defined by the IETF in RFC 9260, functions at the transport layer of the IP. As a connection-oriented protocol, SCTP supports the concurrent transmission of multiple data streams between two networked endpoints. It merges the message-oriented features of the User Datagram Protocol (UDP) with the dependable, sequential data delivery and congestion management found in the Transmission Control Protocol (TCP). SCTP improves the handling of multimedia data transfers and ensures stable connections over wireless networks.

GL's Message Automation and Protocol Simulation (MAPS™) SCTP Conformance Test Suite (requires an additional license) is a comprehensive test suite designed with over 100 test cases, following the specifications of IETF RFC 9260 (SCTP Conformance). It includes built-in conformance scripts (*.gls) for SCTP interfaces in accordance with 3GPP standards. MAPS™ SCTP Conformance can be configured as a server with a conformance script to emulate various network-side procedures, conforming to various UP/Down test cases and automating the entire DUT testing process.

Supported Test Cases

- Association Setup (AS) procedures
- Association Termination (AT) procedures
- Invalid Message Handling (IMH) procedures
- Duplicate Messages (DM) procedures
- Fault Handling (FH) procedures
- Error procedures
- Bundling of Data Chunks with control chunks procedures
- Data (D) procedures
- Acknowledgement (A) procedures
- Miscellaneous Test Cases (M) procedures
- Retransmission Timer (RT) procedures

For more information, refer to MAPS™ SIGTRAN (SS7 over IP) Protocol Emulator webpage.

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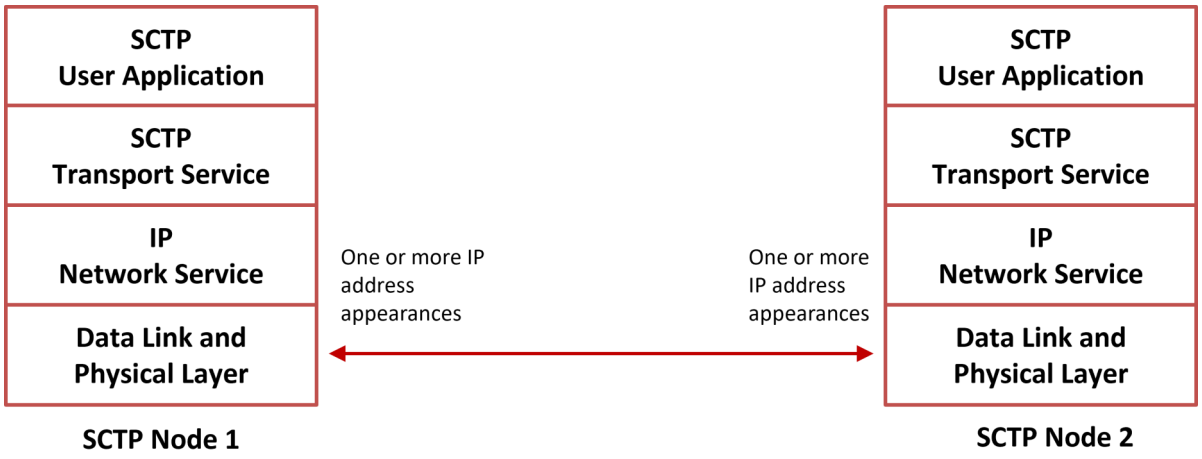
Key Features

- Emulates server and client nodes
- Generates and process SCTP (valid and invalid) messages
- Insertion of impairments to create invalid messages
- Supports customization of call flow and message templates using Script and Message Editor
- Ready-to-use scripts for quick testing
- Supports scripted call generation and automated call reception
- Provides Call Statistics and Events Status
- Automation, Remote access, and Schedulers to run tests 24/7

Protocol Stack and Standards



Supported Protocols	Standard / Specification Used
SCTP - Stream Control Transmission Protocol	RFC 9260
SCTP Reference	ETSI TS 102 144
SCTP Conformance Test Suite	ETSI TS 102 369 V1.1.1 (2004-11)

Testbed Setup Configuration

Testbed Setup provides options to establish SCTP association between MAPS™ SCTP and the DUT. It includes configuration for SCTP conformance and association mode. Once the testbed setup is configured properly, the SCTP association messages can be transmitted and received over IP network using SCTP to the DUT. End user configuration profile is used to configure MAPS™ SCTP Conformance with end terminal parameters.

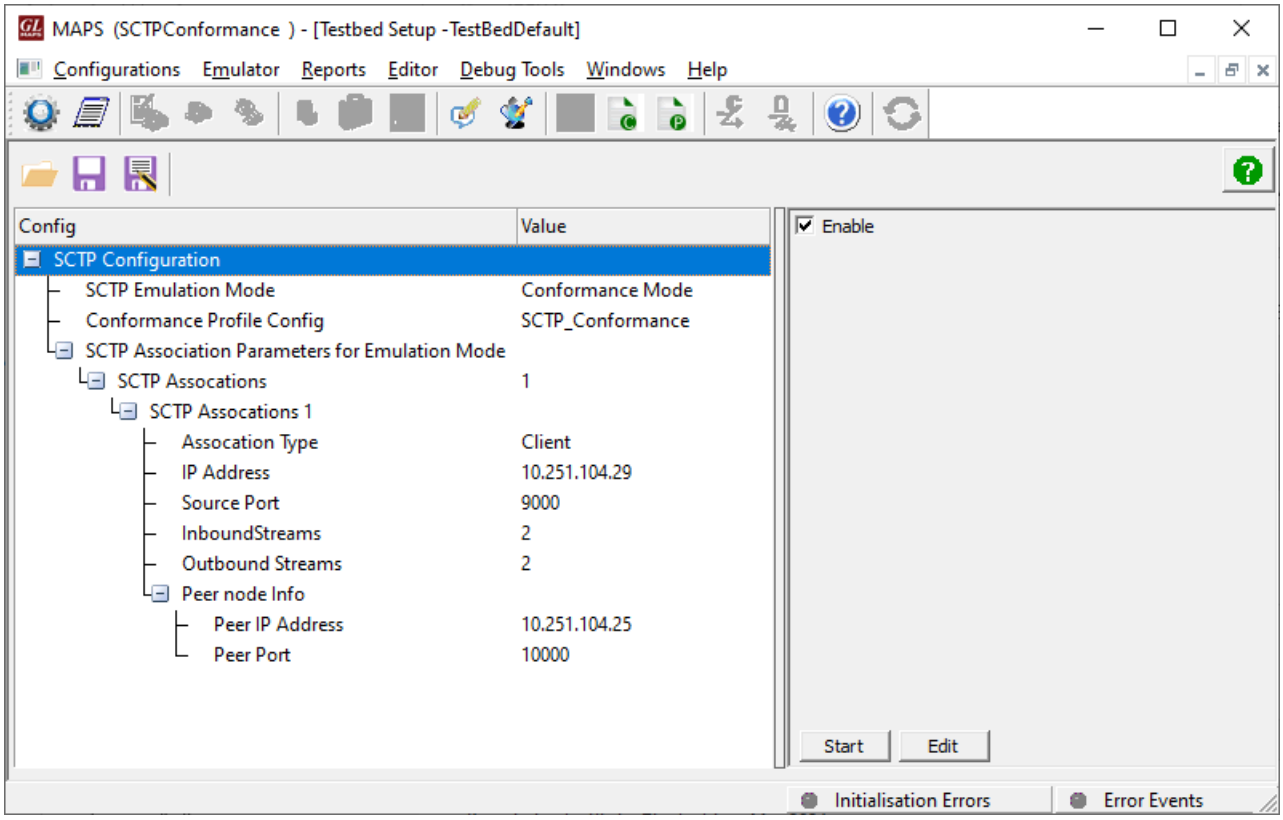


Figure: Testbed Configuration

Script Editor

The script editor allows the users to create / edit scripts and access protocol fields as variables for the message template parameters. The script uses pre-defined message templates to perform send and receive actions.

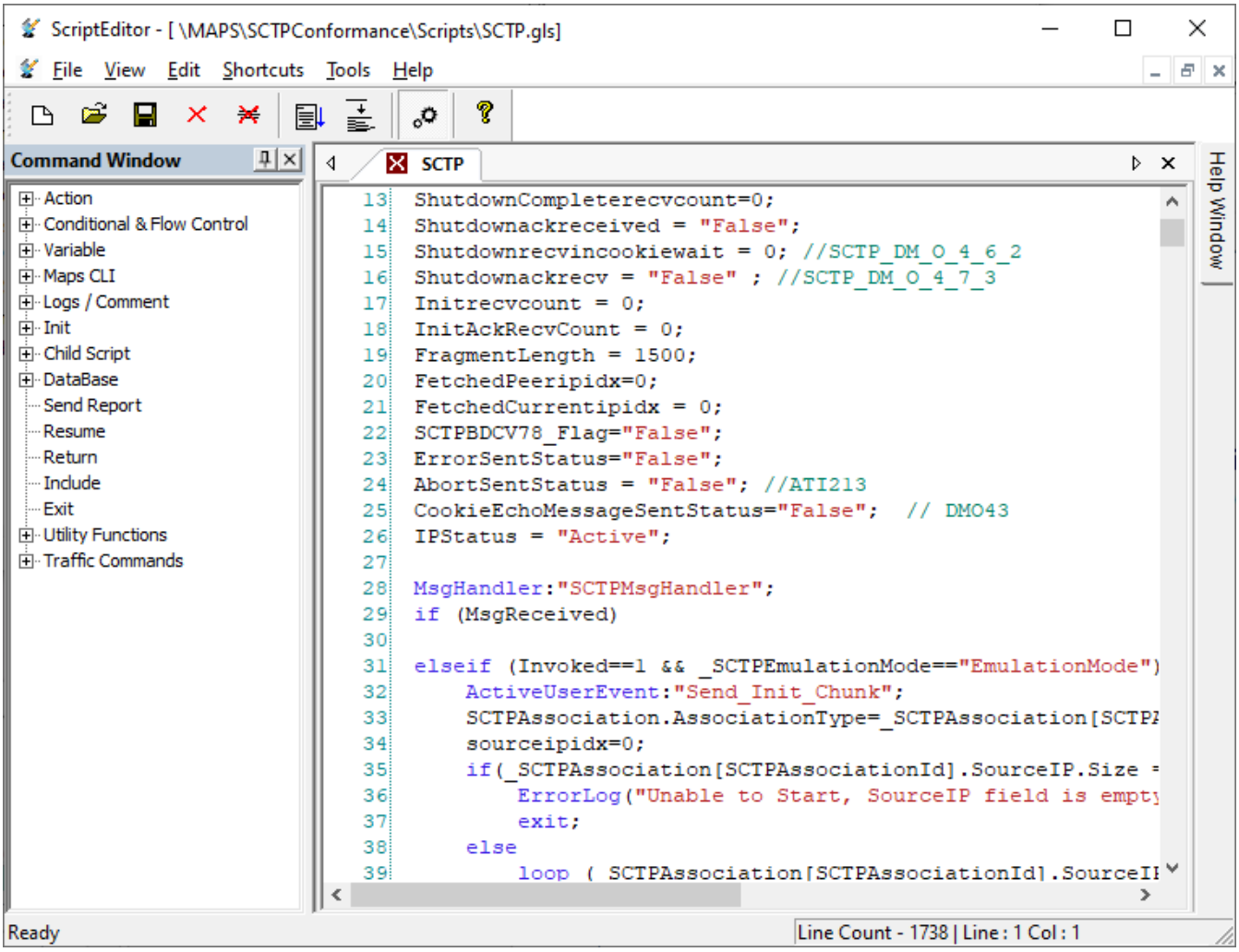


Figure: Script Editor

Profile Editor

The profile editor feature allows loading profile to edit the values of the variables using GUI, replacing the original value of the variables in the message template. An XML file defines a set of multiple profiles with varying parameter values that allow users to configure call instances in call generation and to receive calls and to perform conformance testing.

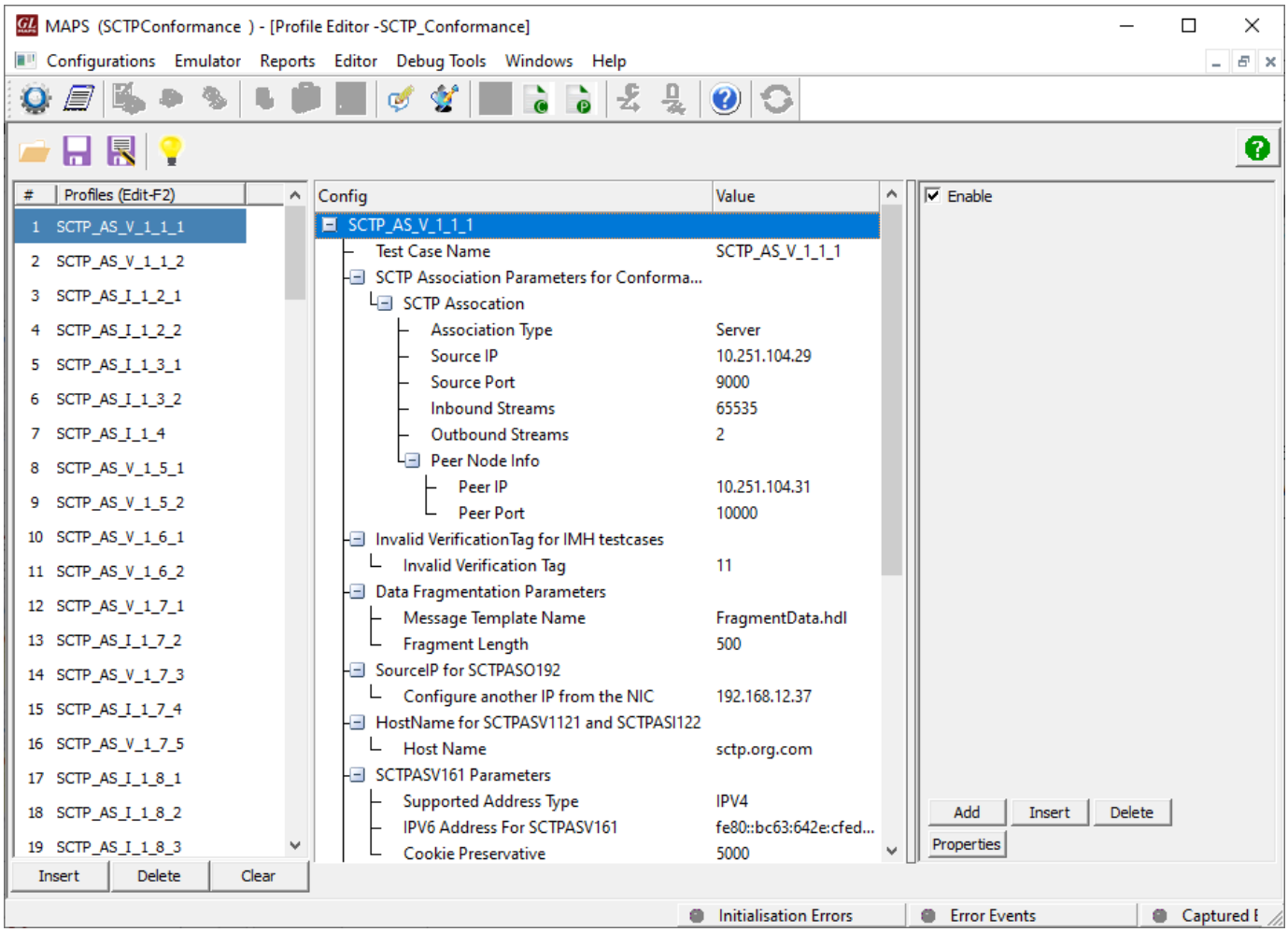


Figure: Profile Editor

Message Editor

With message editor, users can build a template for each protocol message type. The value for each field may be changed in the message template prior to testing. The protocol fields comprises of mandatory fixed parameters, mandatory variable parameters, and optional variable parameters.

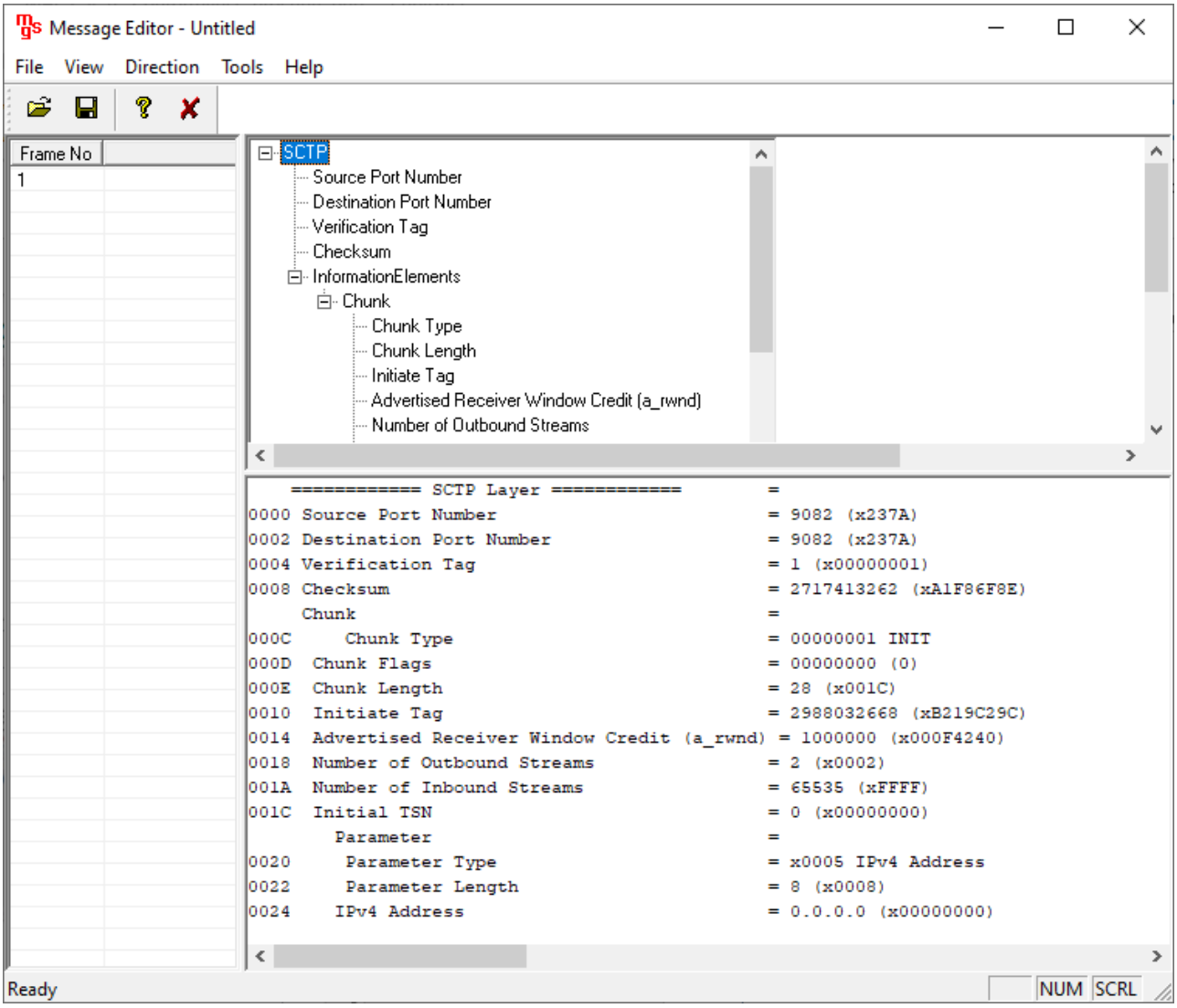


Figure: Message Editor

Call Generation and Call Reception

In call generation, MAPS™ is configured for the out going messages, while in call receive mode, it is configured to respond to incoming messages. Tests can be configured to run once, multiple iterations and continuously. Also, allows users to create multiple entries using quick configuration feature. The editor allows to run the added scripts sequentially (order in which the scripts are added in the window) or randomly (any script from the list of added script as per the call flow requirements).

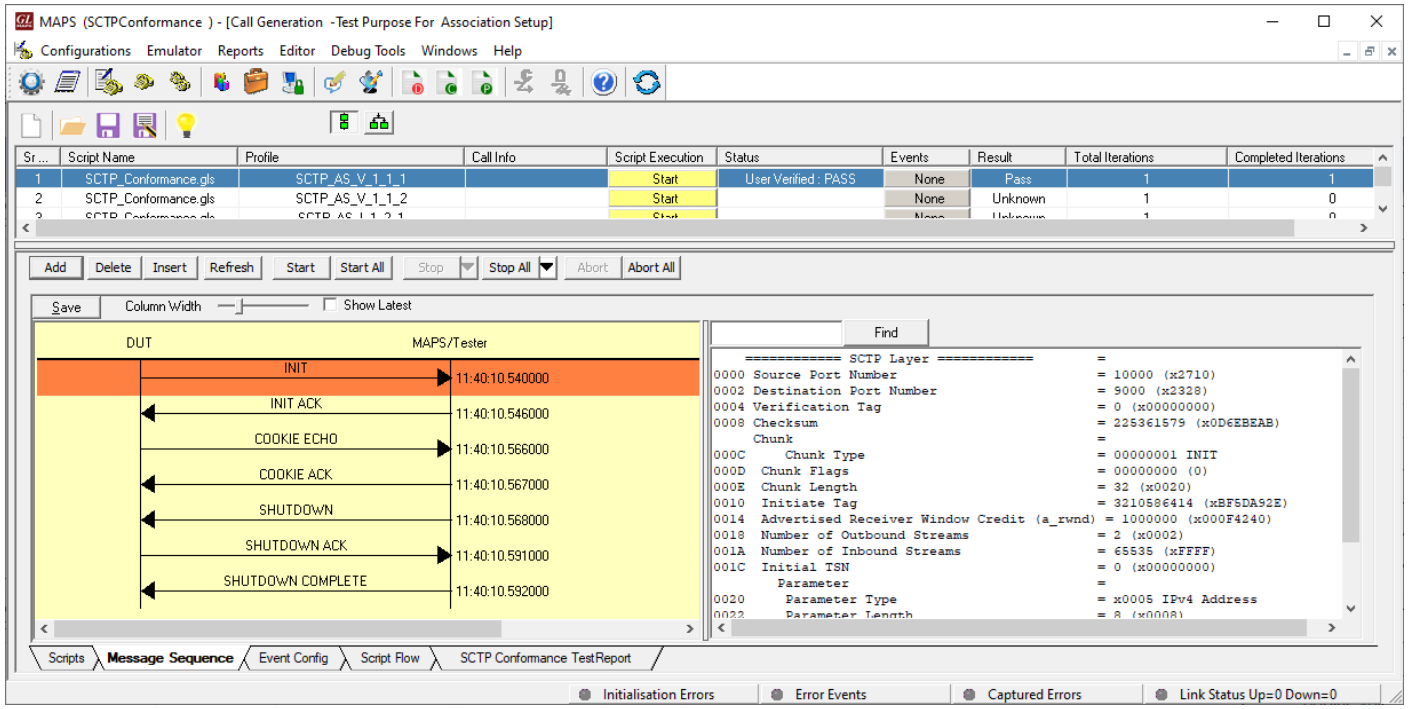


Figure: Call Generation

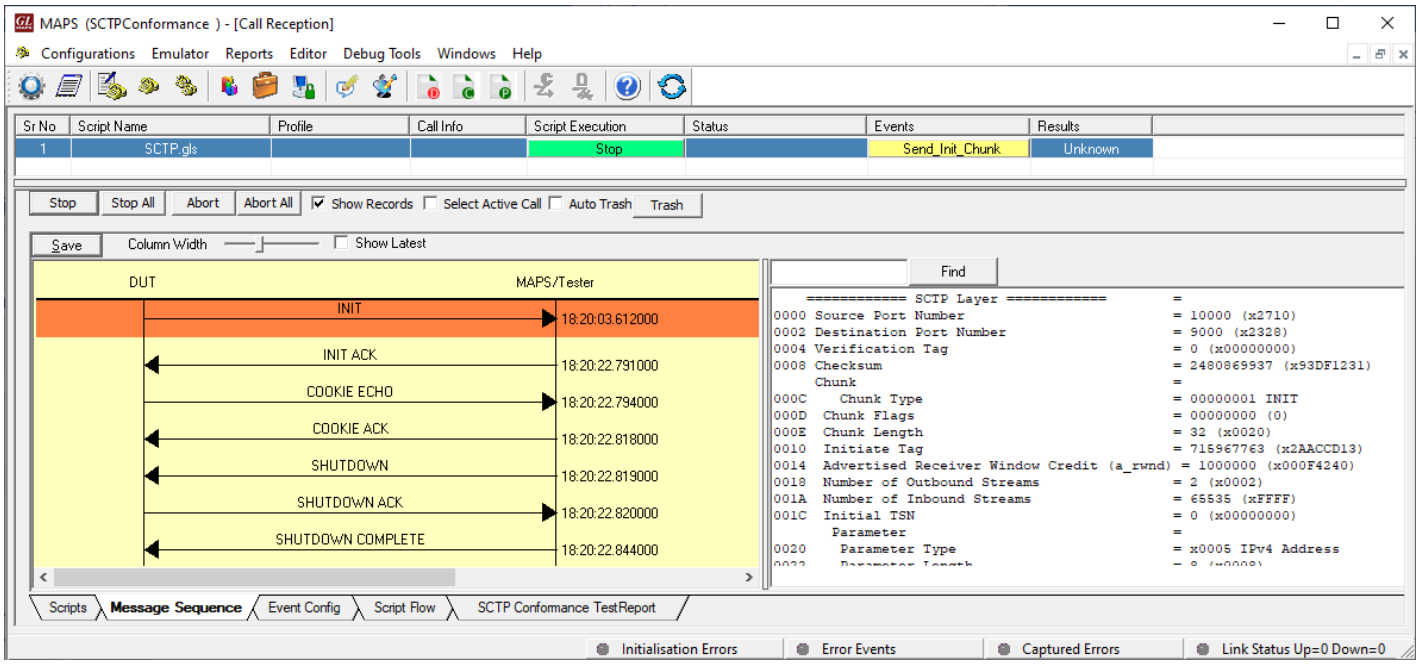


Figure: Call Reception

SCTP Conformance Test Report

The SCTP Conformance Test Report tab displays Date/Time, Test Purpose Number, Status, Test Configuration, Precondition, Reference, Test Description, and Test Result for the selected test case. This information is provided to verify the conformance result, as shown below.

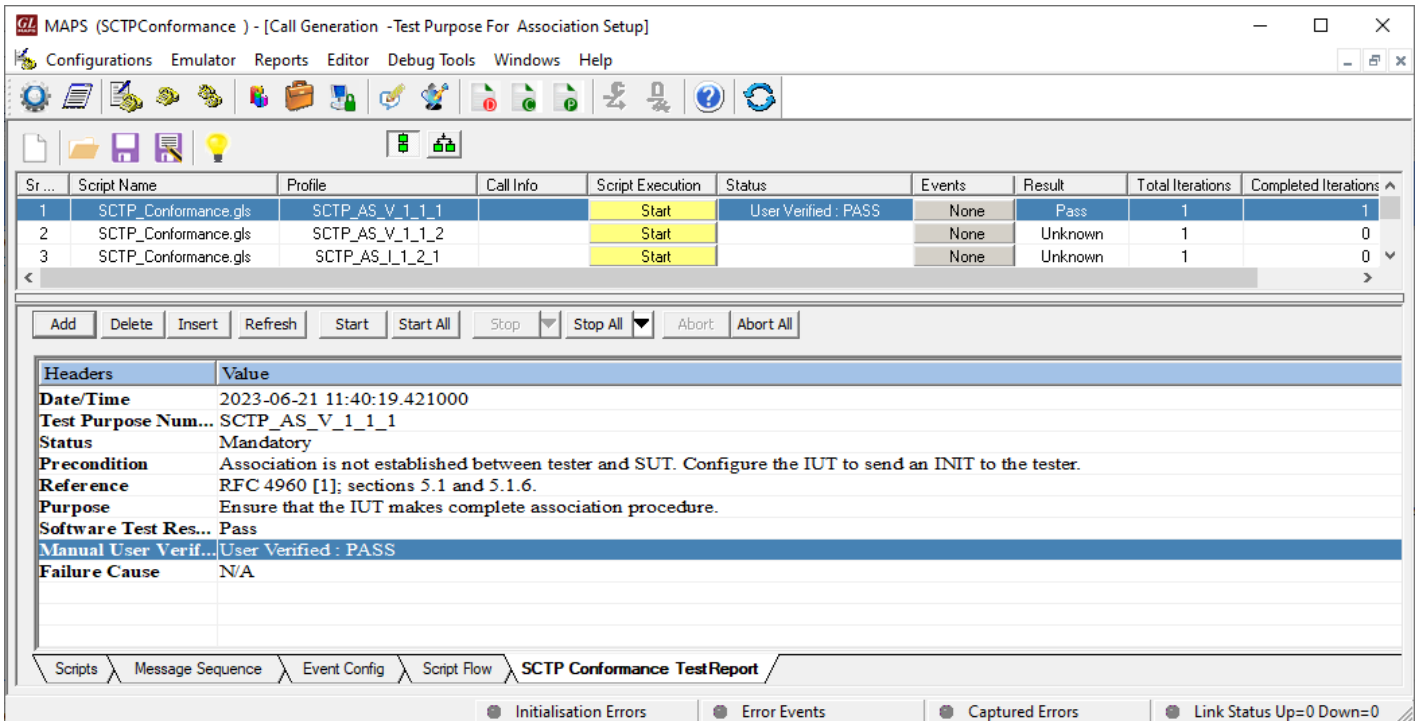


Figure: SCTP Conformance Test Report

Buyer's Guide

Item No	Product Description
PKS129	MAPS™ SCTP Conformance
PKS130	MAPS™ SIGTRAN Emulator

Item No	Related Software
PKS135	MAPS™ ISDN SIGTRAN (ISDN IP)
PKS136	MAPS™ INAP over IP Emulator (ANSI, ITU)
PKS152	MAPS™ SIGTRAN ANSI MAP

For more information, refer to MAPS™ SIGTRAN (SS7 over IP) Protocol Emulator webpage.

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