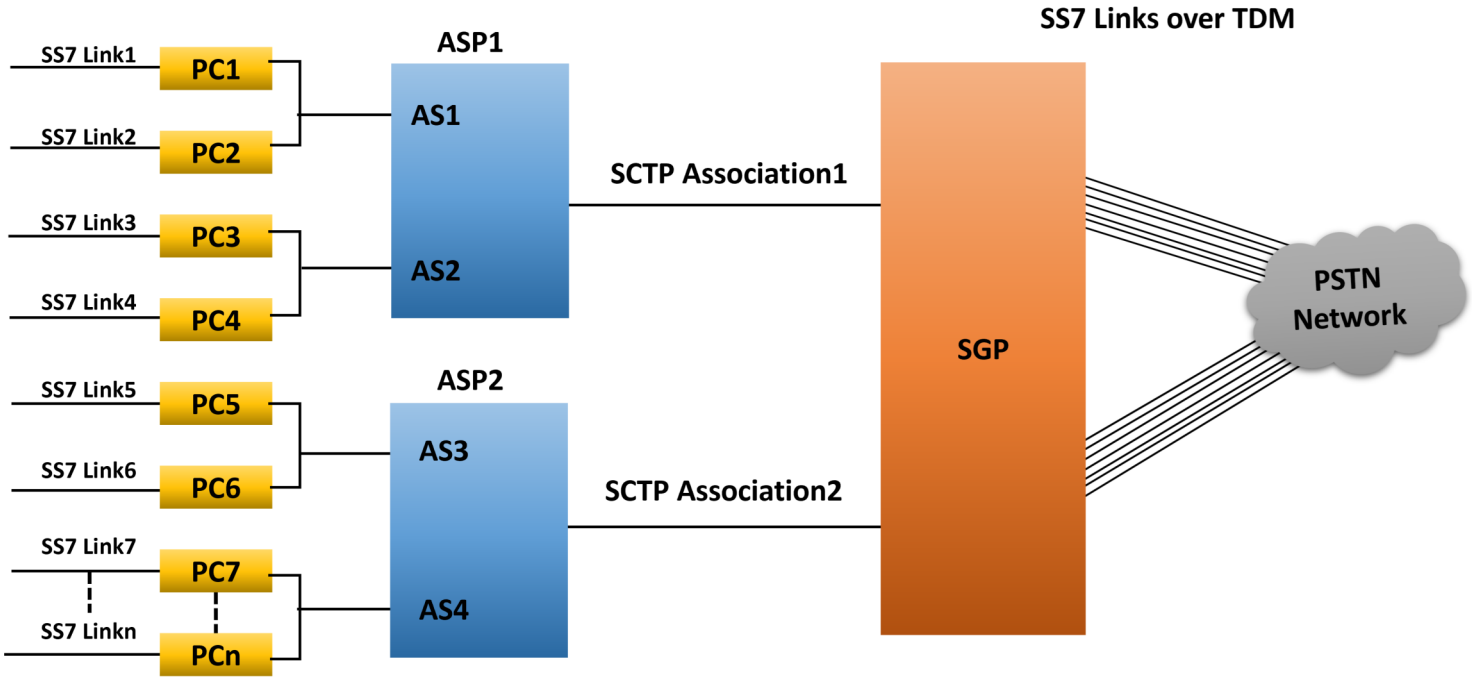
MAPS™ M3UA Conformance



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 atop the Internet Protocol (IP): Stream Control Transport Protocol (SCTP) and M3UA (MTP3 User Adaptation Layer).

The M3UA is a protocol for the transport of any SS7 MTP3-User signaling (e.g. ISUP and SCCP messages) over IP using the Stream Control Transport Protocol (SCTP) or any other suitable transport protocol. This protocol would be used between a Signaling Gateway (SG) and an Application Service Provider (ASP) (e.g. Media Gateway Controller - MGC) or IP-resident Database.

GL's Message Automation and Protocol Simulation (MAPS™) M3UA Conformance Test Suite (requires an additional license) is a comprehensive test suite designed with over 100 test cases, following the specifications of IETF RFC 3332 (M3UA Conformance). It includes built-in conformance scripts (*.gls) for M3UA interfaces in accordance with 3GPP standards. MAPS™ M3UA 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

- ASP State Maintenance Procedures
- ASP Traffic Maintenance procedures
- Message Transfer
- Routing Key Management procedures

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

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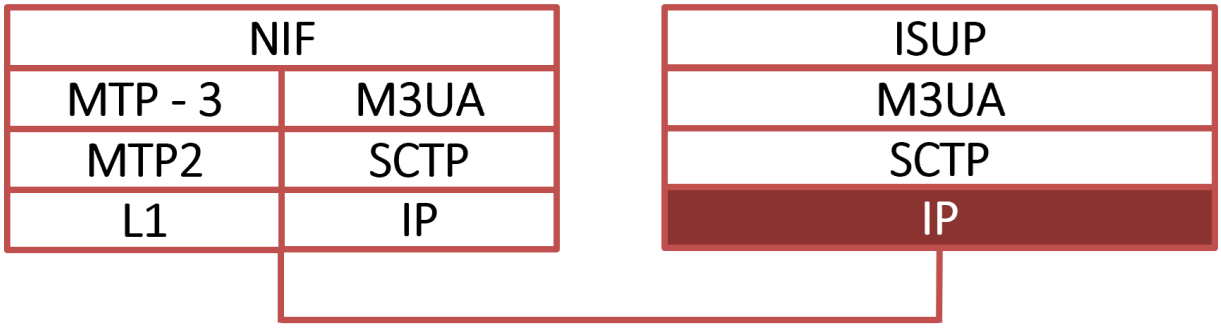
Key Features

- Emulates ASP and SGP nodes.
- Generates and process M3UA (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
NIF - Nodal Interworking Function	TS 102 381 [1]
M3UA	RFC 3332
SCTP - Stream Control Transmission Protocol	RFC 9260
MTP2 - Message Transfer Part 2	Q.703, ITU-T Blue Book
MTP3 - Message Transfer Part 3	Q.703, ITU-T Blue Book

Testbed Setup Configuration

Testbed Setup provides options to establish communication between MAPS™ M3UA and the DUT. It includes configuration for M3UA conformance and association mode. Once the testbed setup is configured properly, the M3UA association messages can be transmitted and received over IP network using M3UA to the DUT. End user configuration profile is used to configure MAPS™ M3UA Conformance with end terminal parameters.

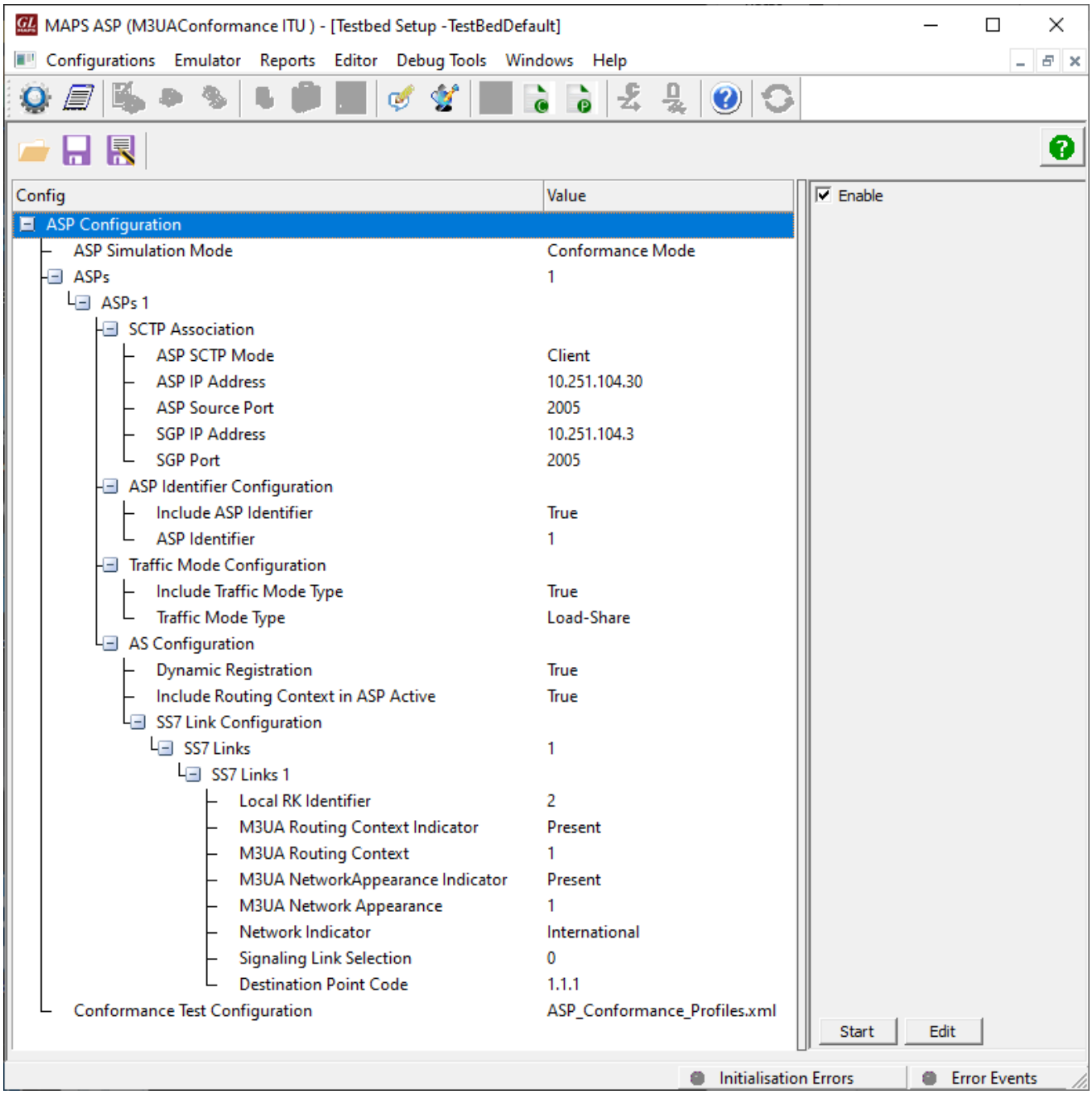


Figure: Testbed Configuration

Script Editor

The script editor allows the user 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.

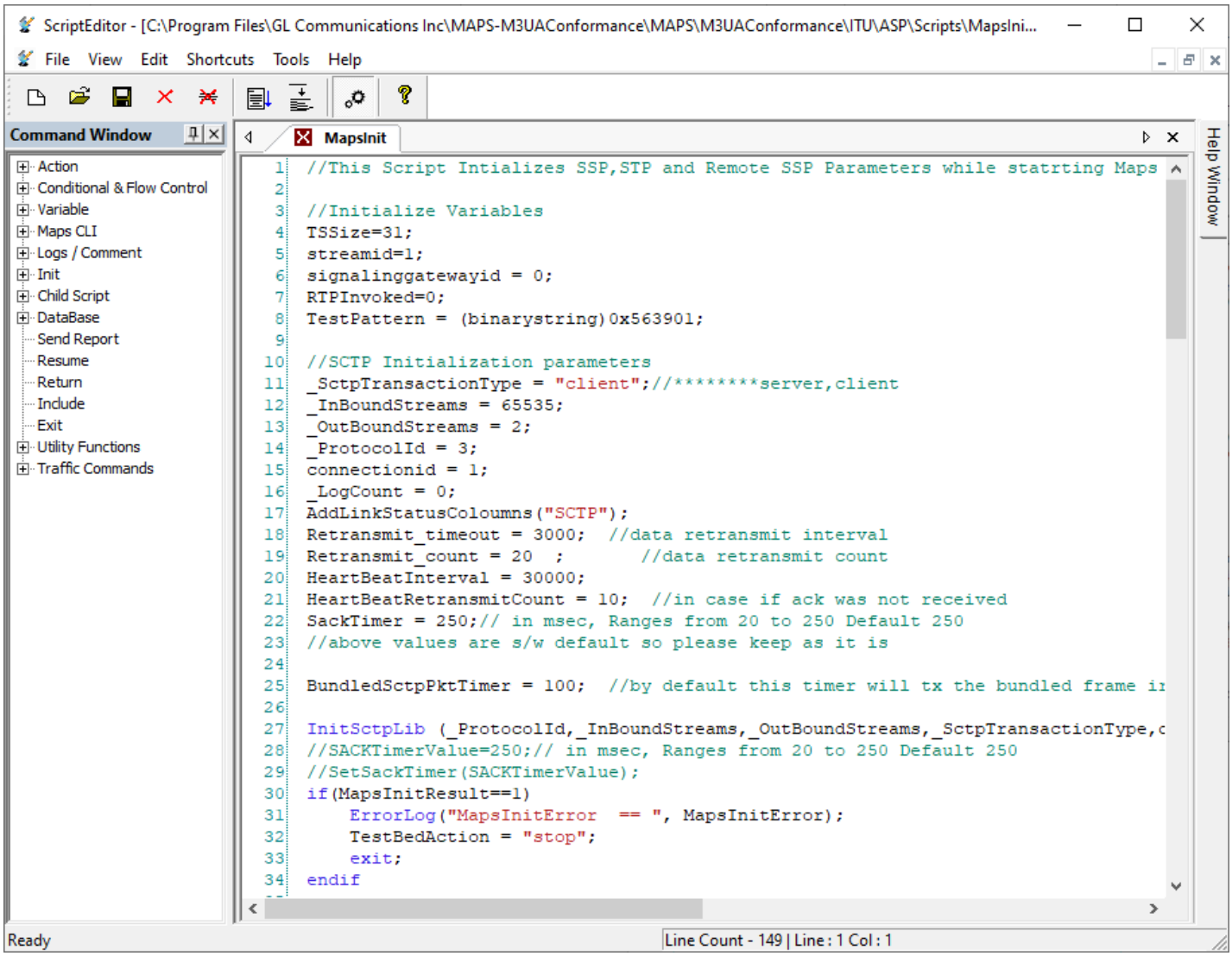


Figure: Script Editor

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.

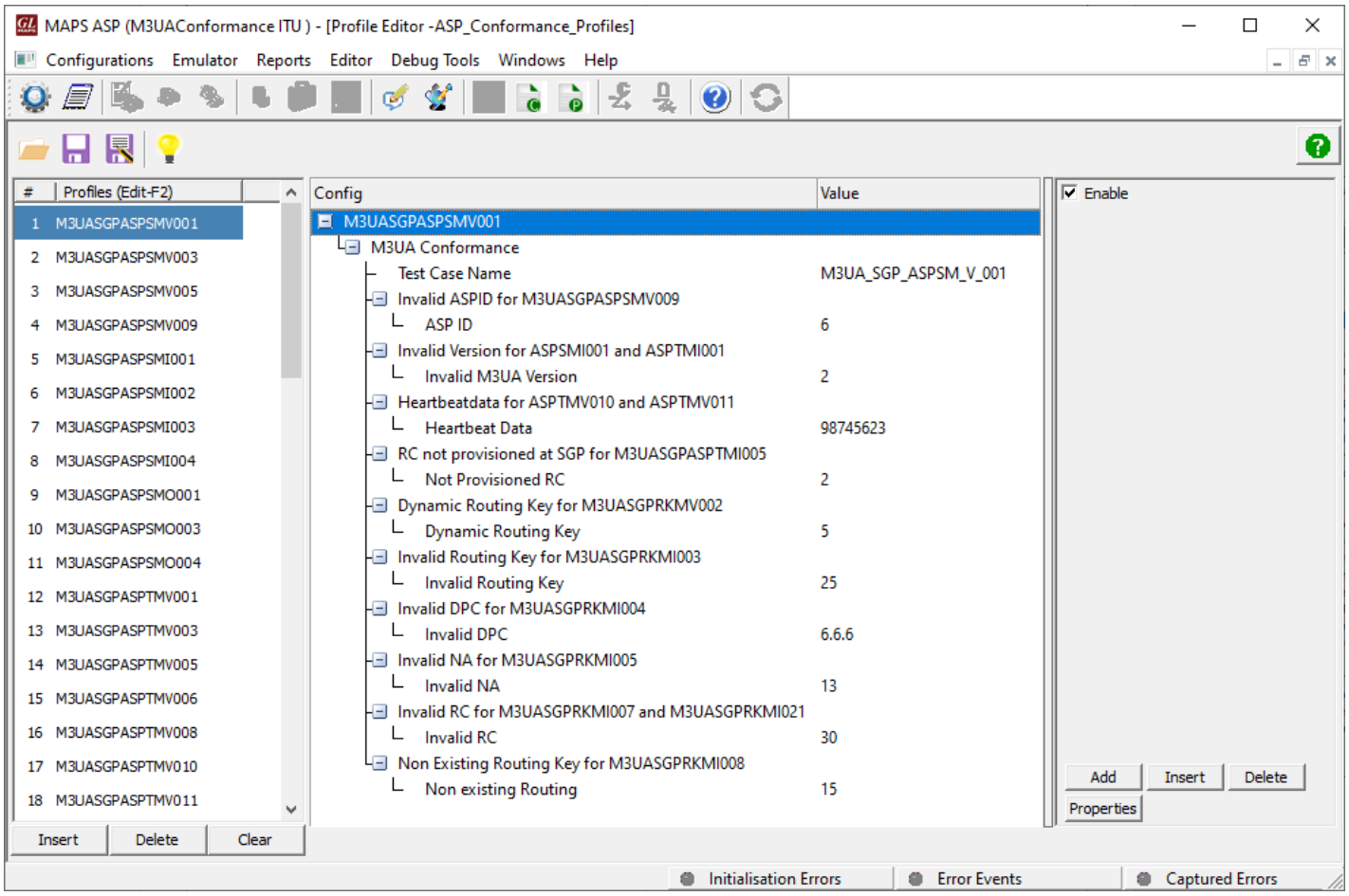


Figure: Profile Editor

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.

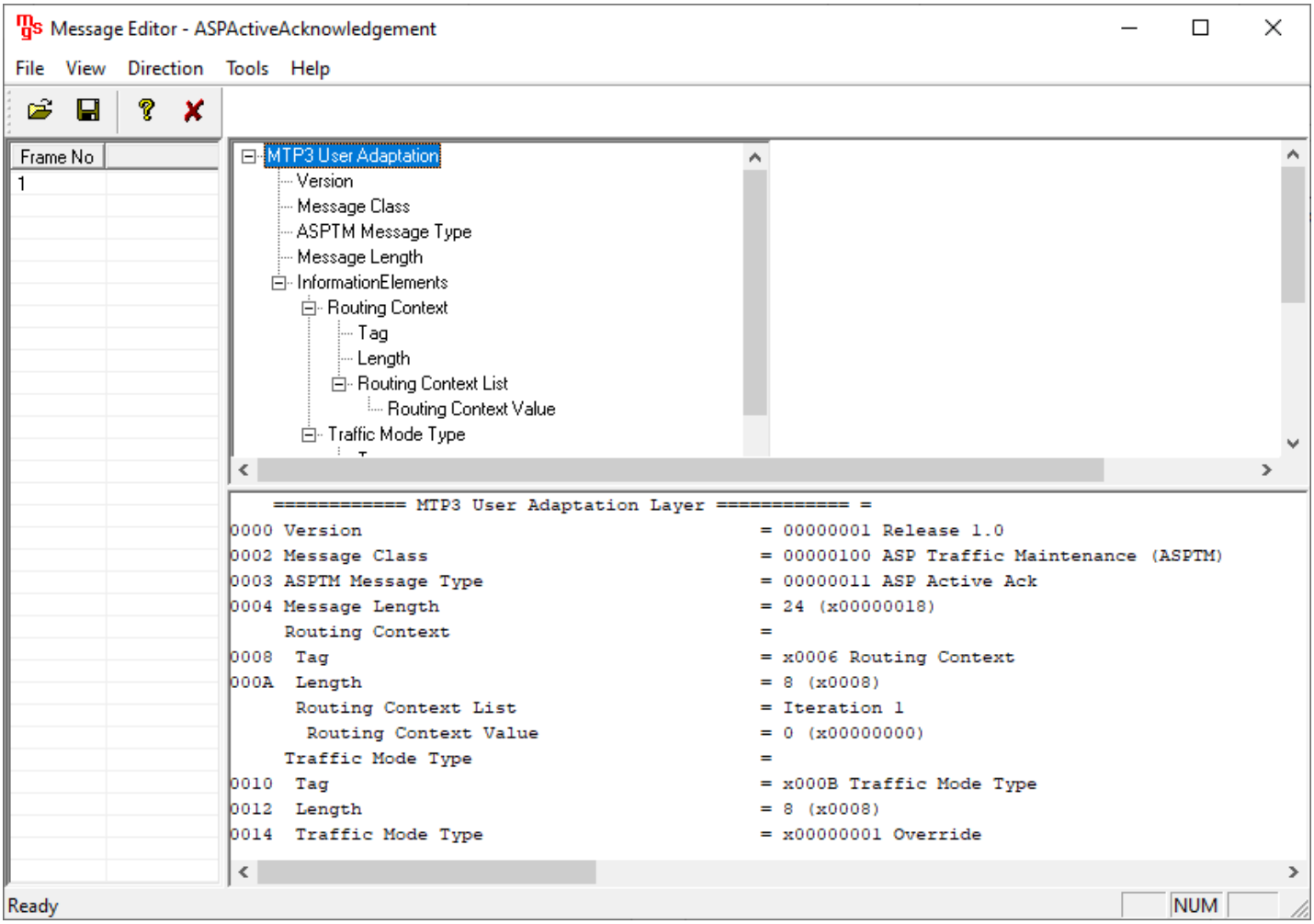


Figure: Message Editor

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). The test scripts may be started manually or they can be automatically triggered by incoming messages.

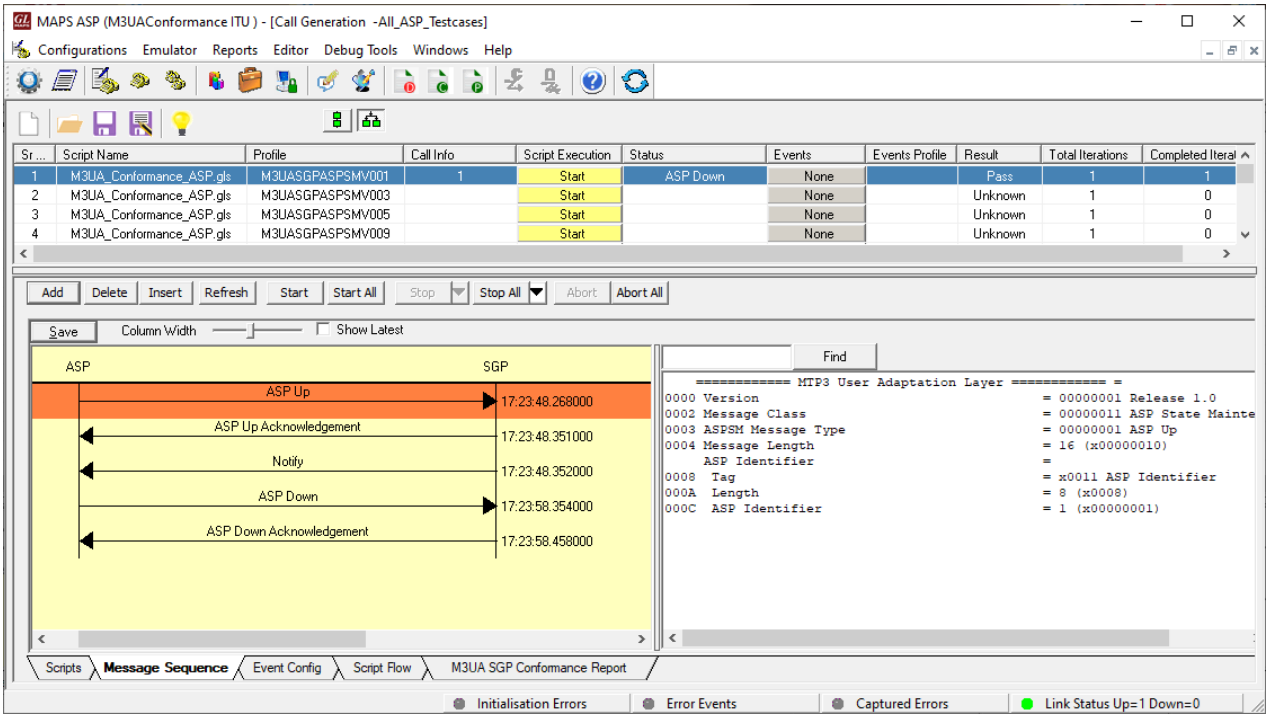


Figure: Call Generation

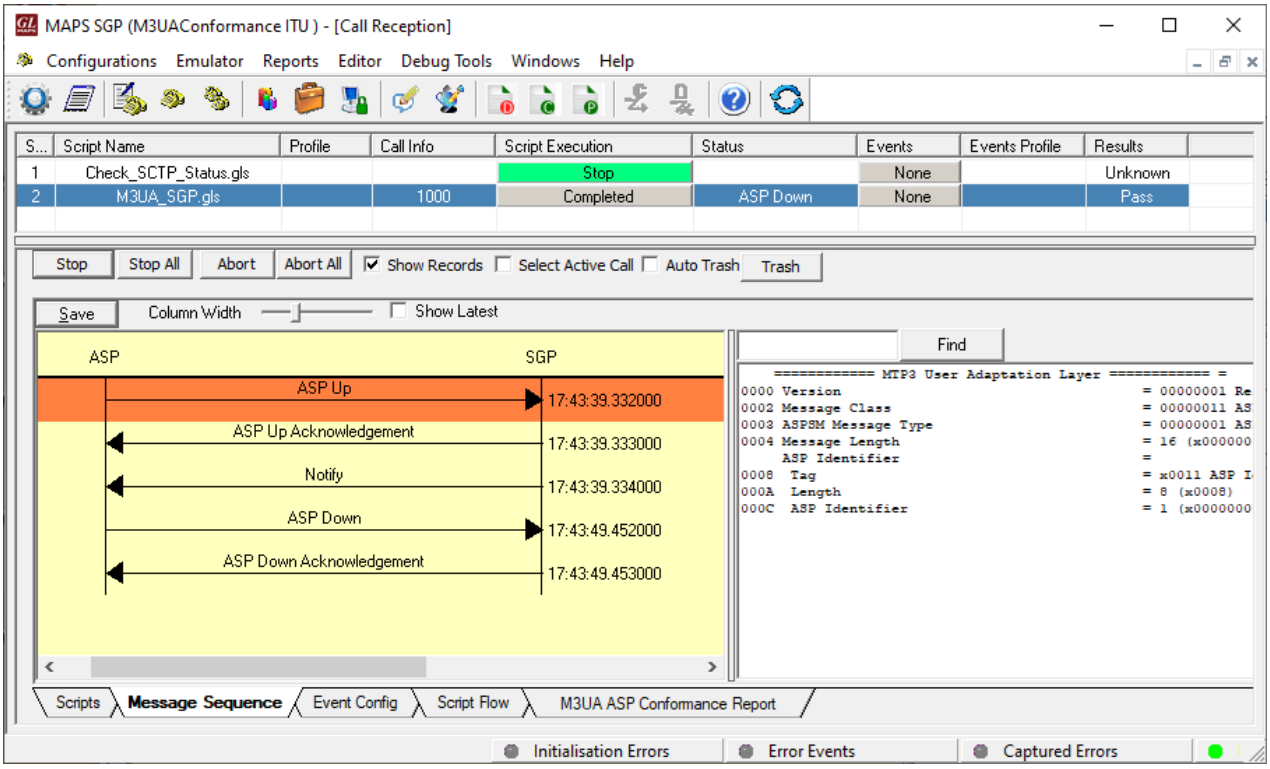


Figure: Call Reception

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.

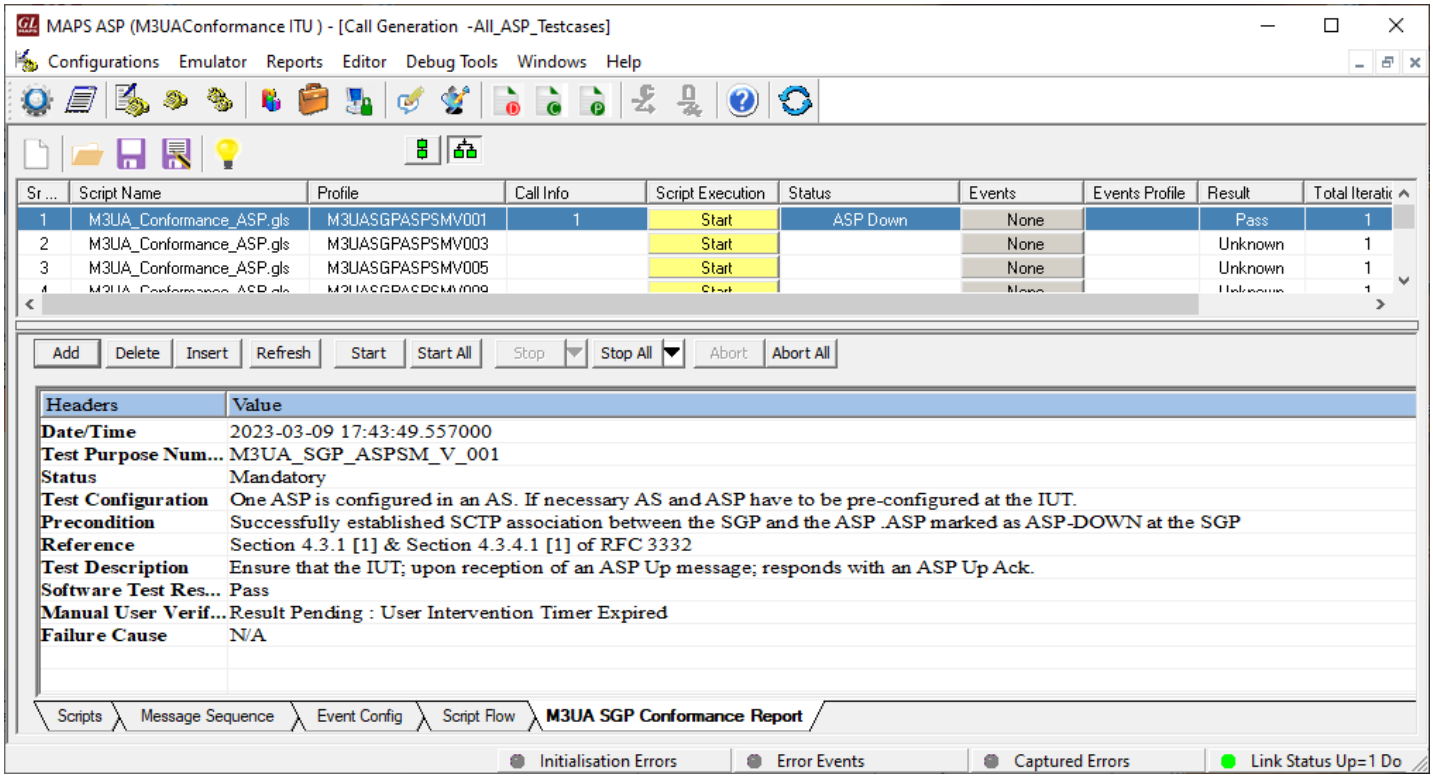


Figure: SCTP Conformance Test Report

Buyer's Guide

Item No	Product Description
PKS130	MAPS™ M3UA Conformance
	MAPS™ SIGTRAN Emulator

Item No	Related Software
PKS129	MAPS™ SCTP Conformance
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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