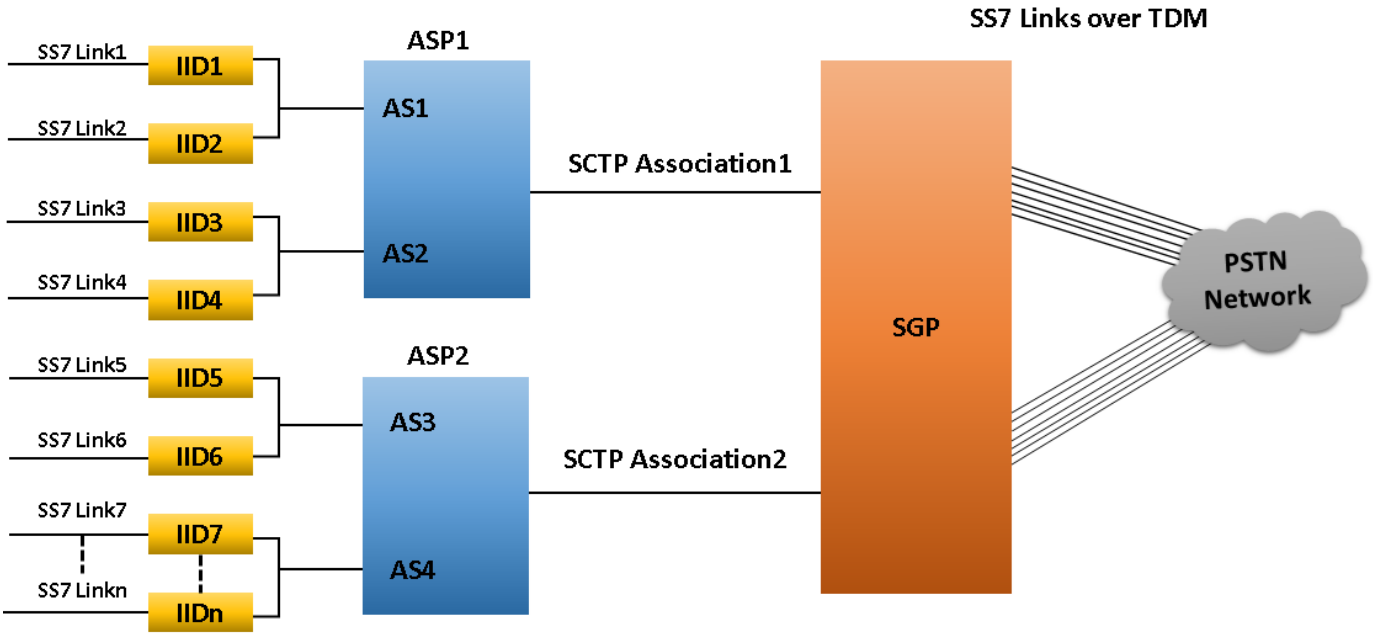
MAPS™ M2UA Conformance



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 M2UA is a protocol for the transport of any SS7 MTP2-User signaling (e.g. MTP3 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 Server Process (ASP) (e.g. Media Gateway Controller - MGC) or IP-resident Database.

GL's Message Automation and Protocol Simulation (MAPS™) M2PA Conformance Test Suite (requires additional licenses) is designed with 50+ test cases, as per IETF RFC 3331 (M2UA Conformance) specifications. It includes inbuilt conformance scripts (*.gls) for ASP conformance and SGP Conformance in M2UA interface as per 3GPP standards.

The MAPS™ M2UA Conformance tool can be configured to act as either an ASP (Application Server Process) or an SGP (Signaling Gateway Process). When set up as an ASP with the appropriate conformance script, it can simulate various network-side procedures, enabling the automation of SGP (Device Under Test) testing across multiple UP/Down test cases. Similarly, when configured as an SGP with the relevant conformance script, it can simulate network-side procedures to automate ASP (Device Under Test) testing for the same range of UP/Down test cases.

Test cases include ASPM State and traffic Transactions Management, Interface Identifier MGMT (IIM) and MTP2 User Adaptation.

Supported Test Cases

- ASPM State and traffic Transactions Management
- Interface Identifier MGMT (IIM) Messages
- MTP2 User Adaptation Messages

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

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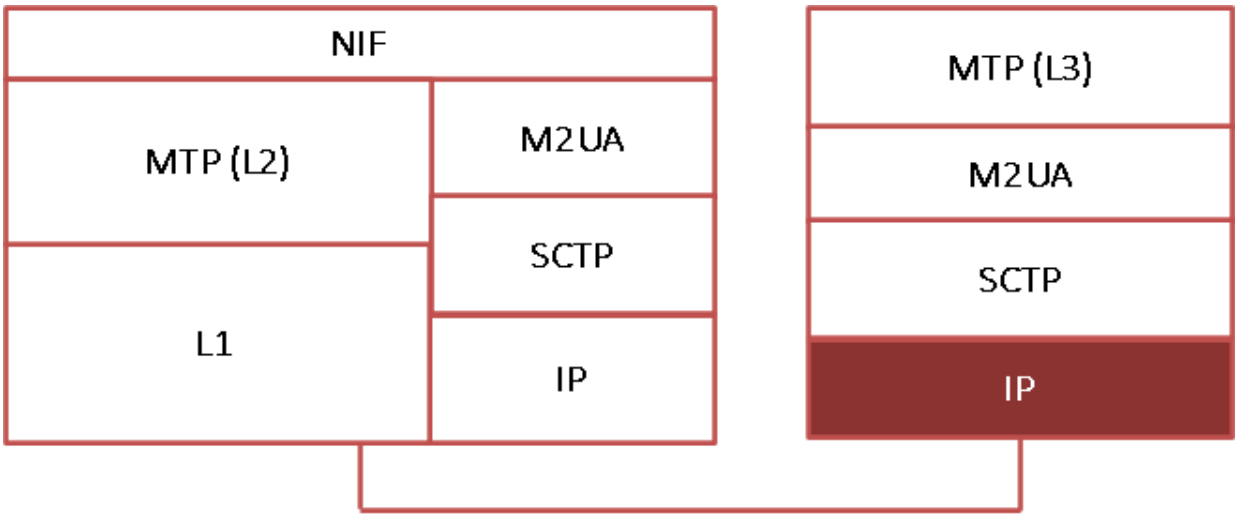
Key Features

- Emulates ASP and SGP nodes
- Generates and process M2UA (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 102 380 [1]
M2UA RFC 3331	RFC 3331
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™ M2UA Conformance and the DUT. It includes configurations of SCTP mode, Conformance mode, Signaling Gateway, and Signaling Switching Point parameters. Once the testbed setup is properly configured, the Conformance messages can be transmitted and received over the IP network using SCTP to the DUT. The end-user configuration profile is used to configure MAPS™ M2UA Conformance with end terminal parameters.

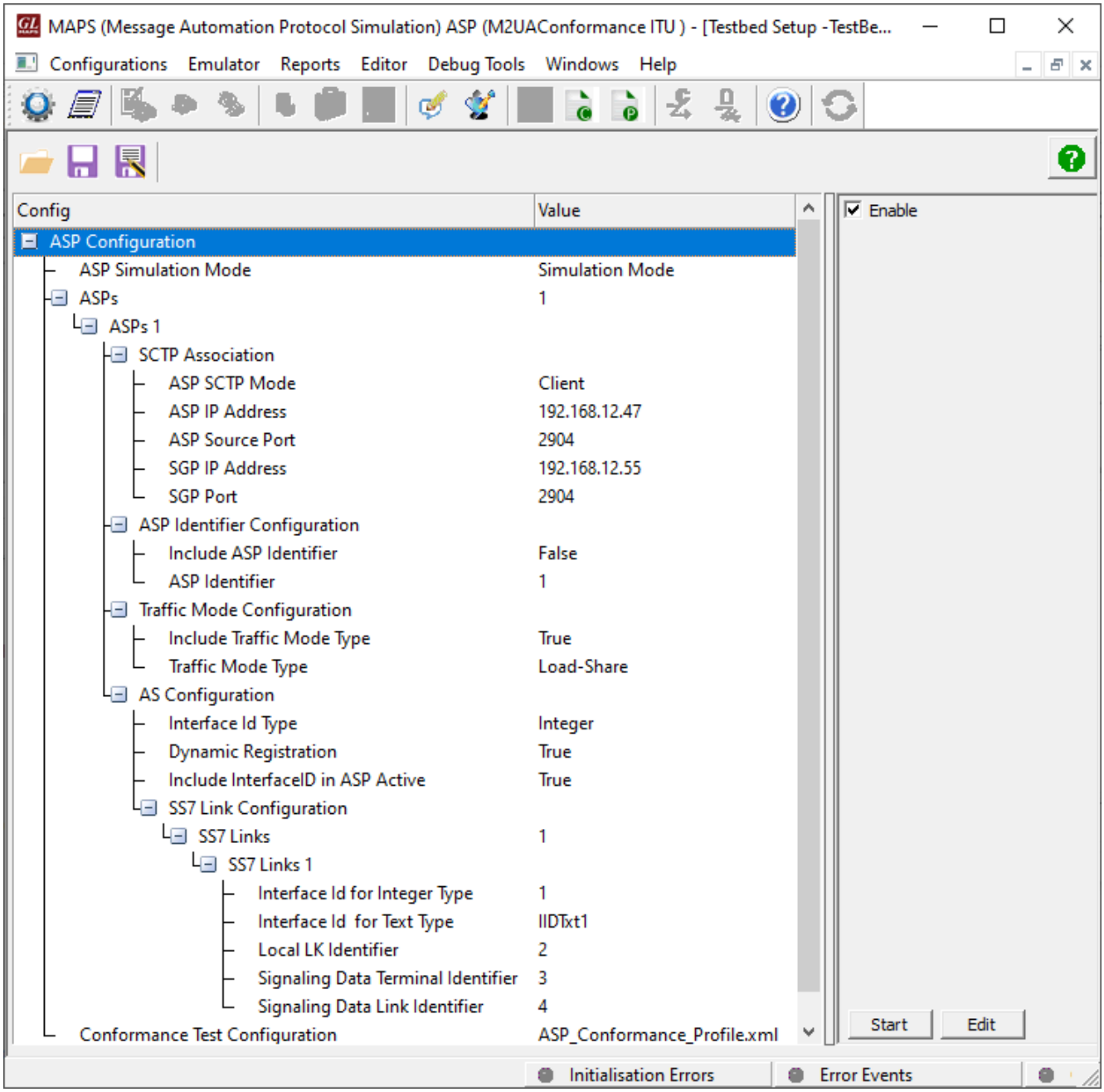


Figure: Testbed Configuration

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.

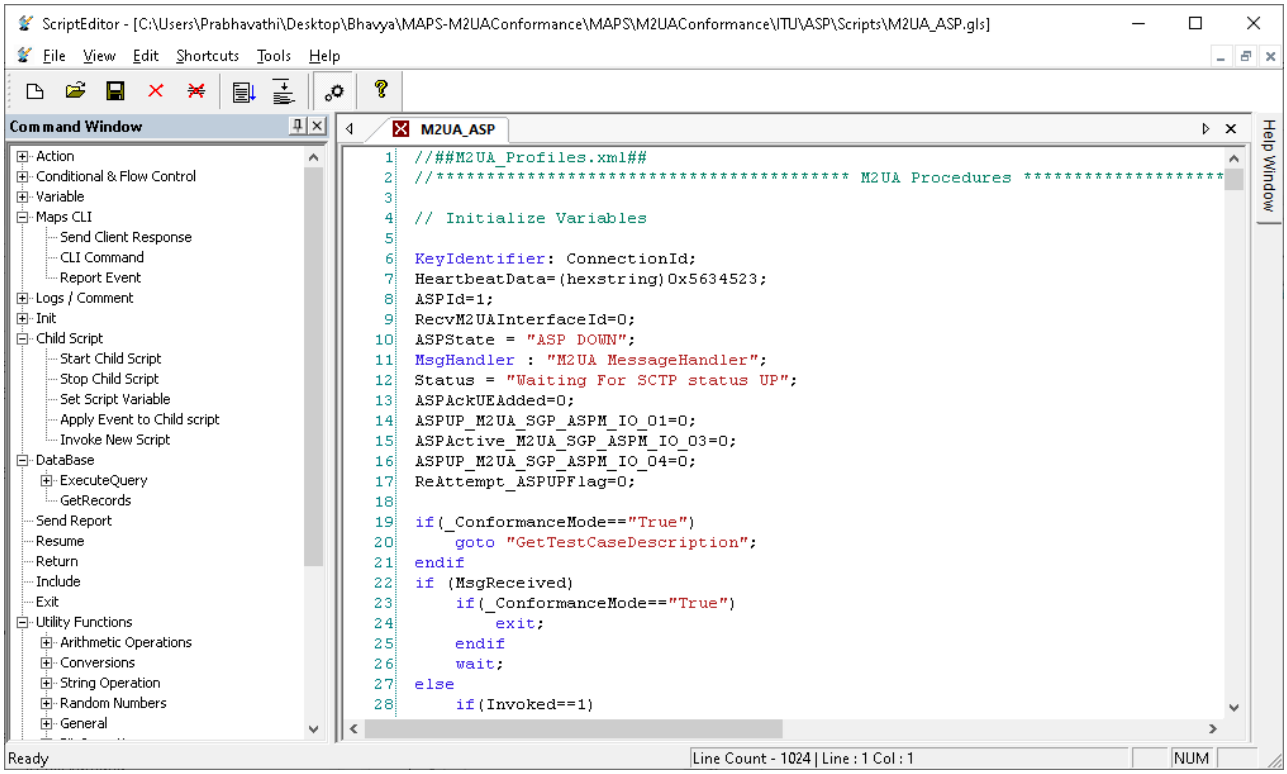


Figure: Script Editor

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.

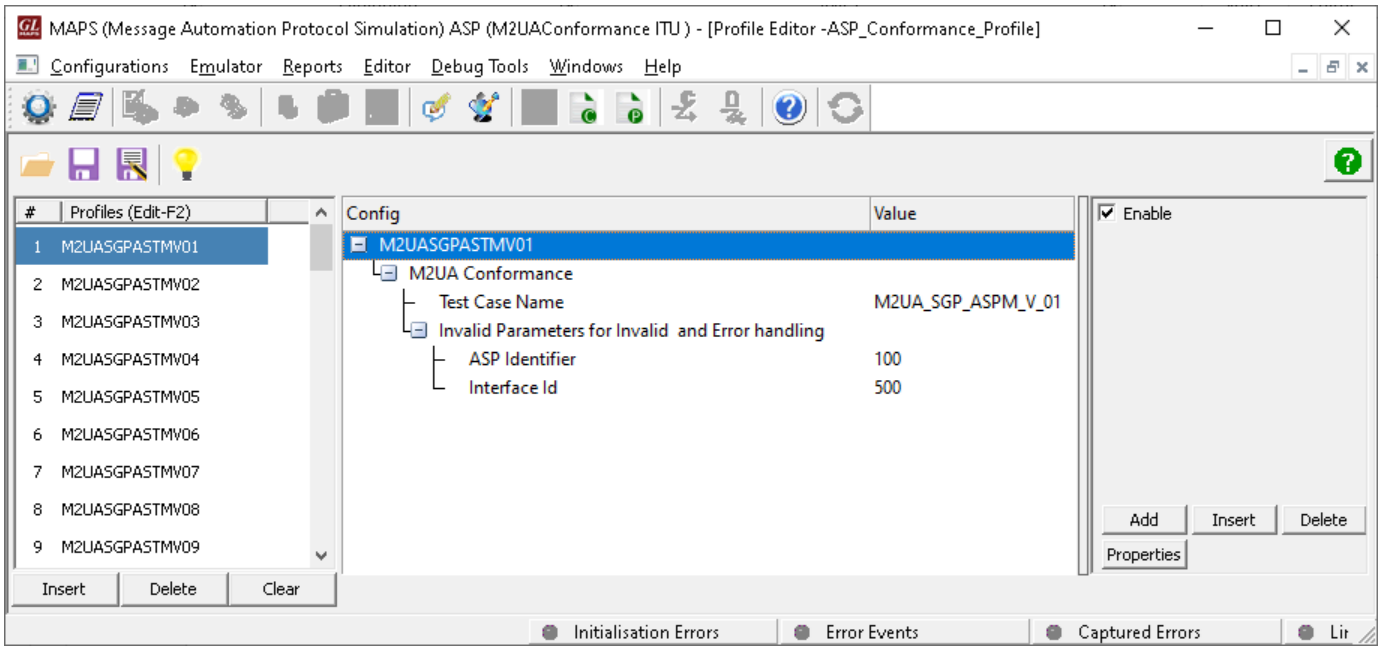


Figure: Profile Editor

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.

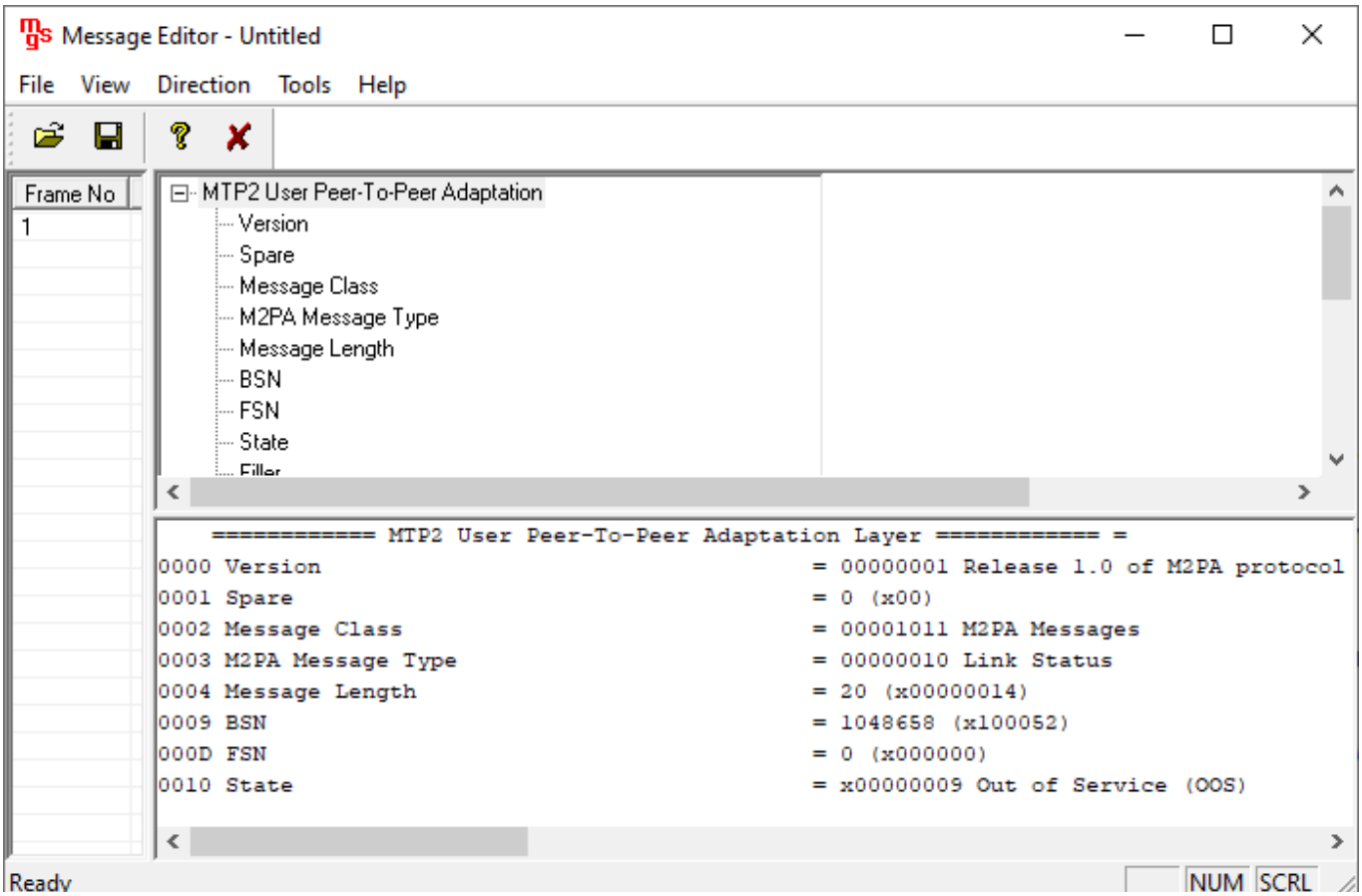


Figure: Message Editor

Call Emulation

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.

Call Emulation for SGP Conformance

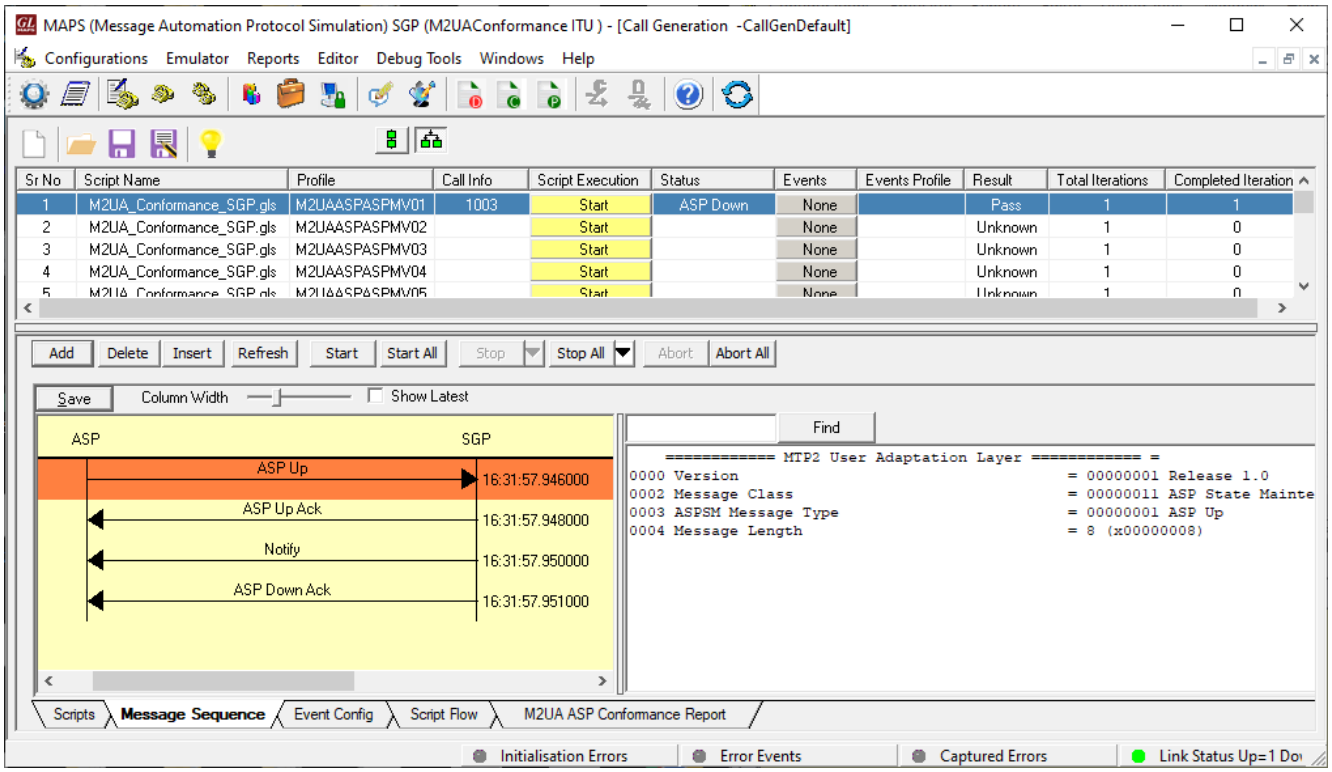


Figure: Call Generation

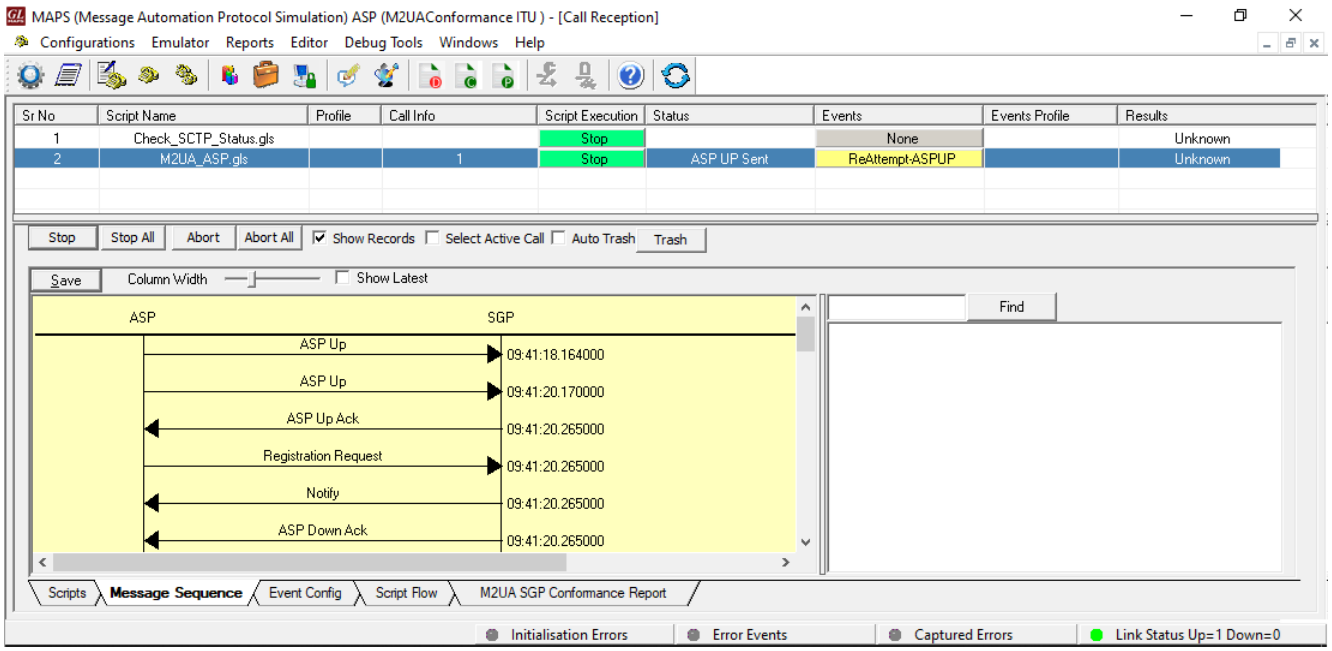


Figure: Call reception

Call Emulation for ASP Conformance

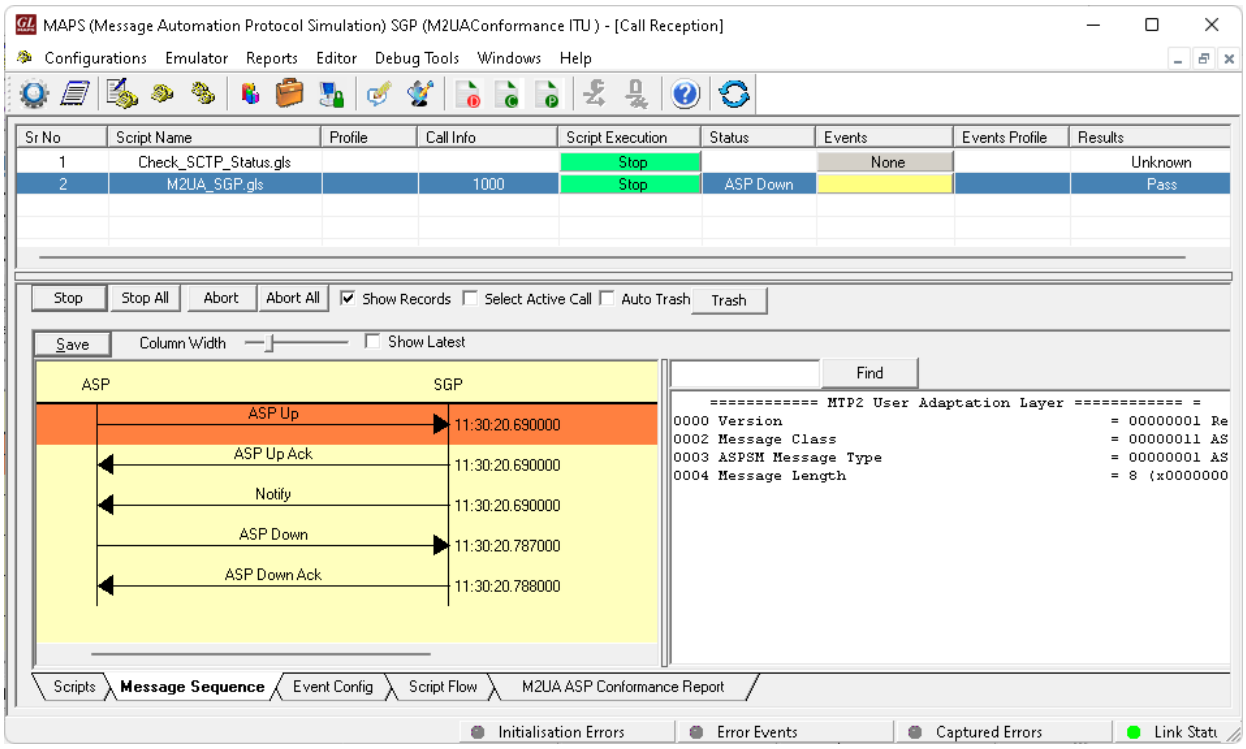


Figure: Call Generation

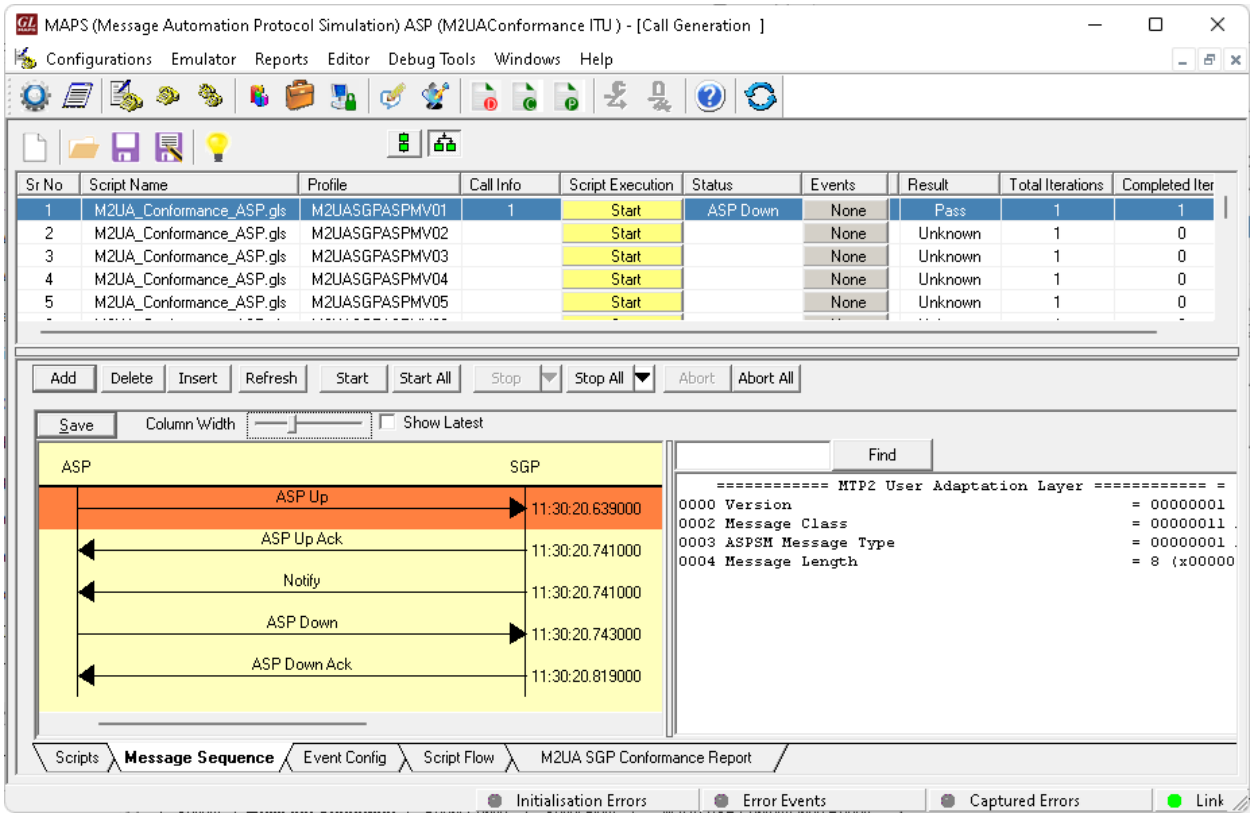


Figure: Call reception

M2PA Conformance Test Report

The M2UA 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.

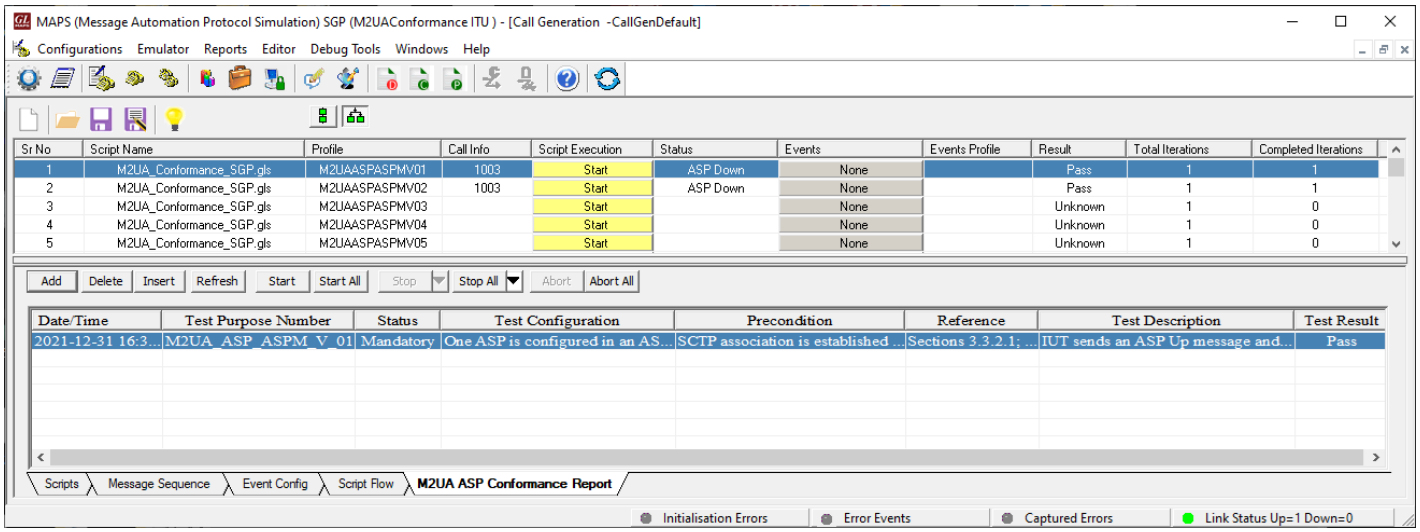


Figure: M2PA SGP Conformance Test Report

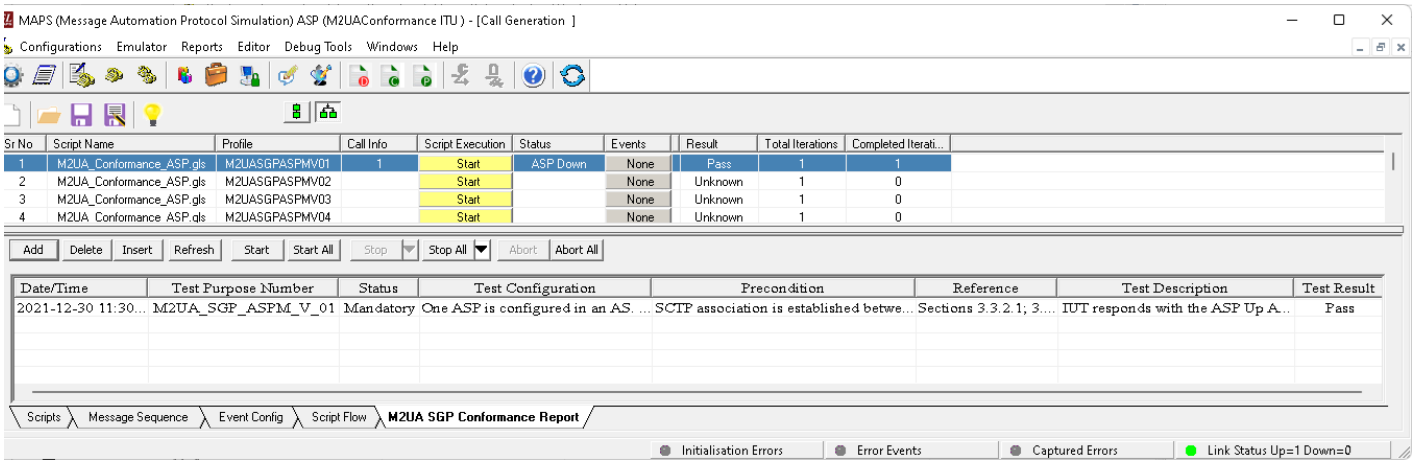


Figure: M2PA ASP Conformance Test Report

Buyer's Guide

Item No	Product Description
PKS130	MAPS™ M2UAConformance 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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