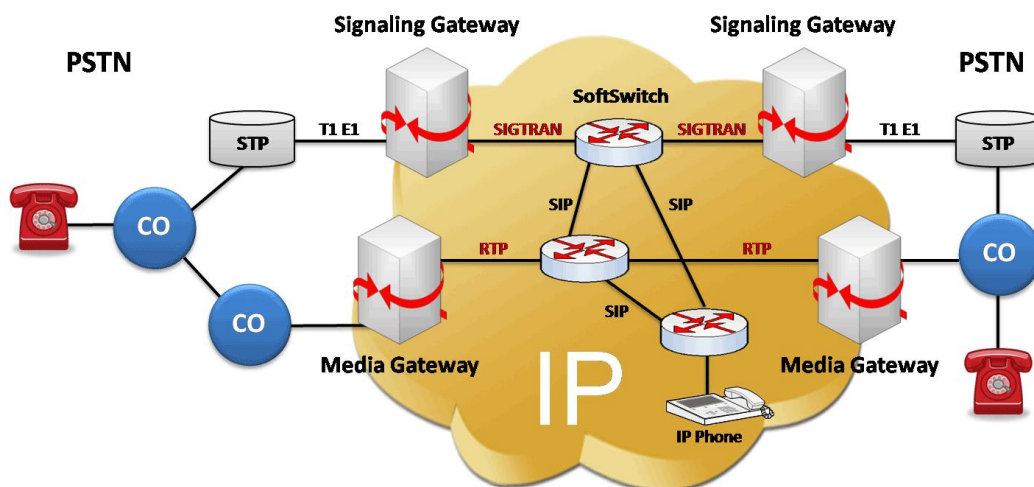


## MAPS™ - SIGTRAN (SS7 over IP)



### Overview

GL's MAPS-SIGTRAN™ is an advanced protocol simulator/tester for SS7 simulation over IP Networks. It can simulate a Signaling Gateway and Softswitch ISUP signaling specification as defined by ITU-T standards. The tester supports testing network elements, error tracking, regression testing, conformance testing, load testing/call generation and generation of high volumes of ISUP traffic.

MAPS-SIGTRAN™ functionality covers the ITU and ANSI variant of SS7 implementing M3UA, and ISUP protocols. It is able to run pre-defined test scenarios against ISUP test objects in a controlled & deterministic manner.

MAPS-SIGTRAN™ Conformance Scripts are suitable for compliance tests and functional tests, where test objects can be accurately and reliably validated for compliance with ITU-T standard Q.761-764 and Q.784. It is suitable for manufacturers, network operators and service providers to address all stages of the development cycle, regression testing through to type approval, and acceptance testing.

Also available is an independent GUI based [SIGTRAN \(SS7 over IP\) Protocol Analyzer](#) for online capture and decode of the signaling in real-time both during tests and as a stand-alone tracer for live systems.

For more details, refer to <http://www.gl.com/maps-sigtran.html>.

### Main Features

- SS7 Simulation over IP
- User-friendly GUI for configuring the SS7 M3UA Layers
- Supports M3UA and SCTP protocol machine
- Supports powerful utilities like Message Editor and Script Editor to create real-time scenarios
- Access to all ISUP Message Parameters Initial Address, Subsequent Address, Release messages, and more
- User controlled access to optional ISUP parameters such as timers
- Subsequent Address Message (SAM) configurations available
- Fully Supported Continuity Testing (COT) that includes COT messages
- Ready scripts for conformance testing
- Logging of all SS7 Messages in real-time

### SS7 Simulation over IP



Analysis and Simulation Capability on par with any Protocol Tester in the Market



Deployment of Products with Multiple Features & Protocols



Simulates Signaling Gateways & Softswitch



Call Flow Customization with Message & Sequence Editors



Supports Various ISUP Messages such as IAM, ANM, and more



Graphically Depicts Call Flows in Ladder Diagrams



Provides Fault Insertion, & Erroneous Call Flow Testing



Ready Scripts for Simpler & Less Time Consuming Tests



**GL Communications Inc.**

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A

(Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [gl-info@gl.com](mailto:gl-info@gl.com)

## Working Principle

- **Message Templates** - Forms the backbone of the MAPS™ application that contains various protocol fields with default values
- **Script Editor** -
  - Creates a script for scenario based testing (call flow)
  - Uses pre-defined message templates in the script
  - Access protocol fields as variables using import/export files
- **Message Editor** - Used to edit / create Message Templates
- **Profile Editor** – Creates or edit profiles containing values assigned to the variables replacing the original values.
- **Event Profile Editor** - Allows you to create Event Profiles for user-defined events in a script. The values of the variables in the user-events can be changed during script execution.

## Pre-processing Tools

**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.

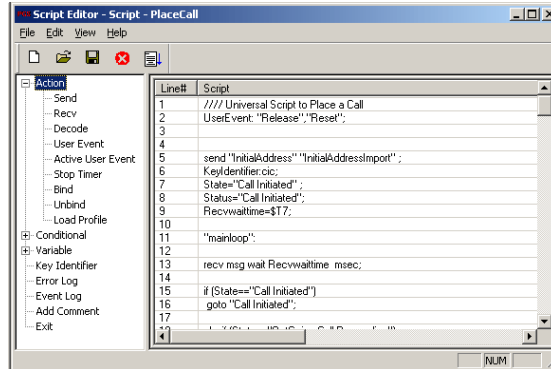


Figure: Script Editor

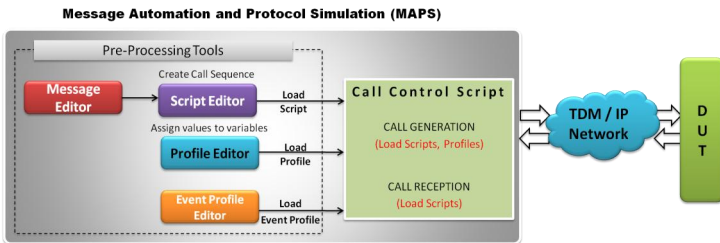


Figure: MAPS™ application Working Principle

**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.

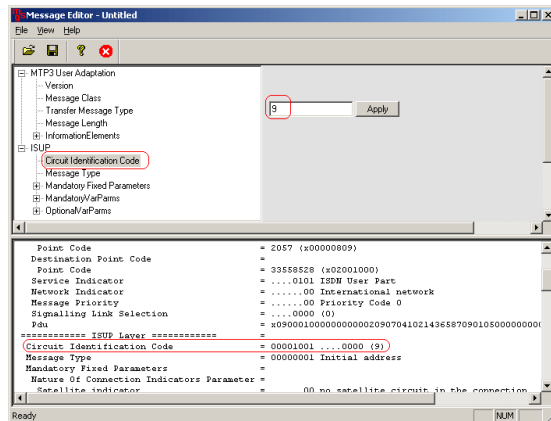


Figure: Message Editor

## Test Bed Setup

Test Bed Setup provides options to establish communication between MAPS™-SIGTRAN and the DUT. It includes configuration parameters to be set for SCTP configuration. Once the testbed setup is configured properly, ISUP messages can be transmitted and received over IP network using SCTP to the DUT.

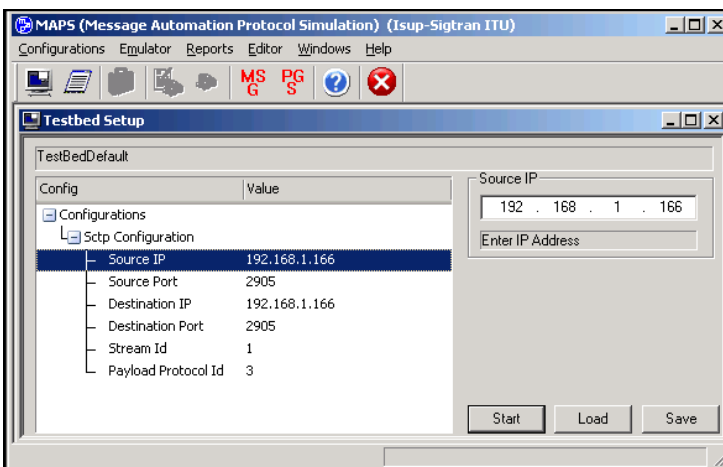


Figure: Testbed Setup

**Profile Editor** - The profile editor This feature allows loading profile to edit the values of the variables using GUI, replacing the original value of the variables in the message template.

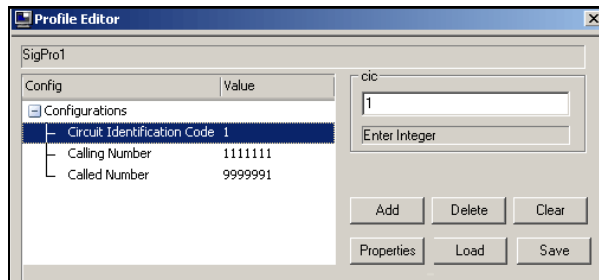


Figure: Profile Editor

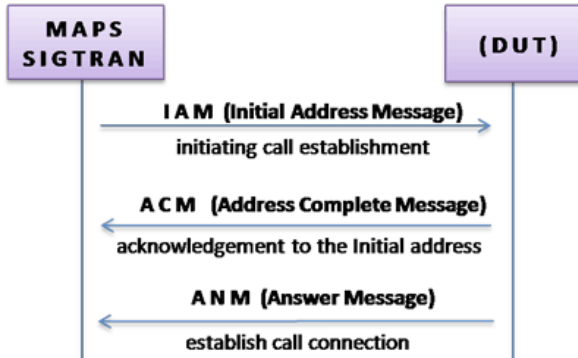


818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
 (Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [gl-info@gl.com](mailto:gl-info@gl.com)

## MAPS™-SIGTRAN Call Flow Scenarios

### Scenario 1: MAPS™-SIGTRAN acting as Signaling Point (Caller) and testing DUT

MAPS™-SIGTRAN is considered as Caller (Signaling Point - SP) and initiates the call flow by sending Initial address message (IAM) to the DUT.



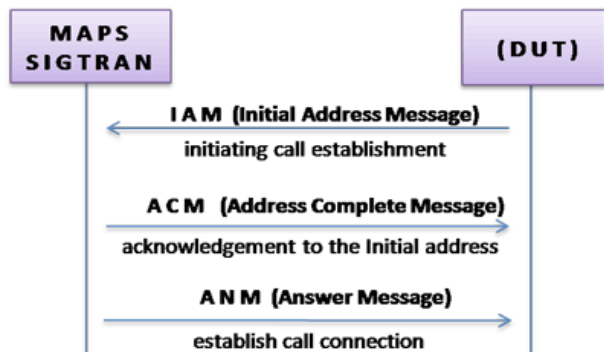
#### Sample Place Call Script

```

send "InitialAddress" "InitialAddressImport";
recv "Address complete" "AddressCompleteExport";
recv "Answer" "AnswerExport";
    
```

### Scenario 2: MAPS™-SIGTRAN resides at the network terminal acting as DUT

MAPS™-SIGTRAN is considered as the DUT (Network) processing the call flow by receiving the Initial address message (IAM) from the caller (Signaling Point – SP).



#### Sample Answer Call Script

```

recv "Initial address" "InitialAddressExport";
send "AddressComplete" "AddressCompleteImport";
send "Answer" "AnswerImport";
recv "Release" "ReleaseExport";
    
```

## 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.

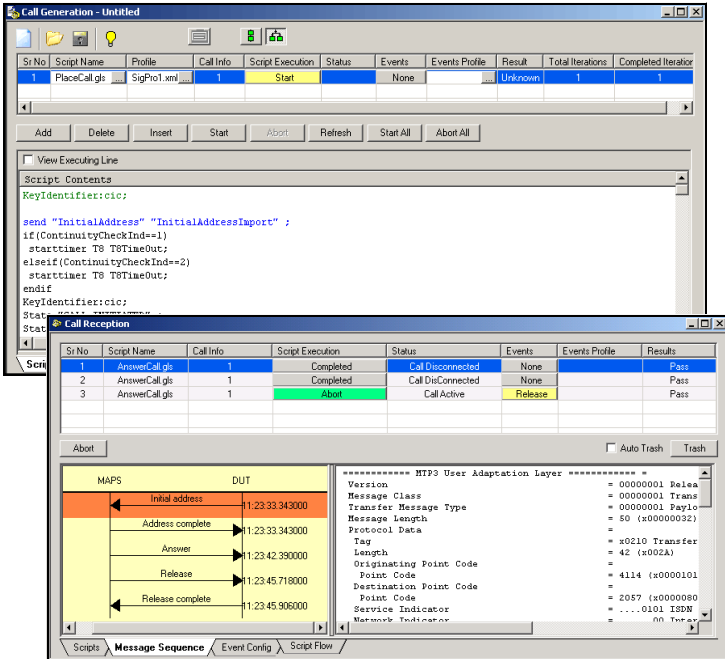


Figure: Call Generation and Reception

## Incoming Call Handler Configuration

Incoming Call Handlers configuration option is used to preset the script required to handle all possible signaling and call processing messages for responding to the call requests in Call Receive part of the MAPS™.

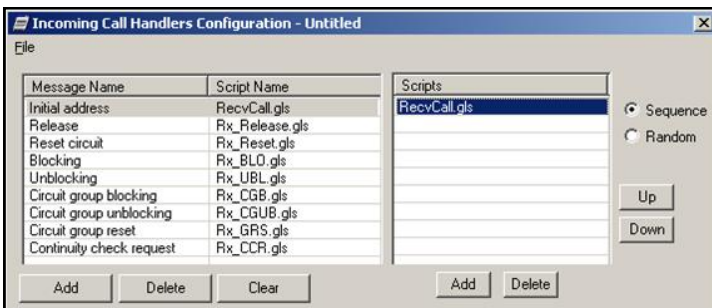


Figure: Incoming Call Handler Configuration



818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
 (Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [gl-info@gl.com](mailto:gl-info@gl.com)

## Supported Protocols and Specifications

Supported Protocols	Standard / Specification Used
MTP3 (ITU)	ITU-T Q.704
ISUP (ITU)	ITU - Q.761, Q.762, Q.763 and Q.764
ISUP Conformance testing	ITU - Q.784.1
ISUP CHINA	Ministry of Posts and Telecommunications of the People's Republic of China, Technical Specification of ISUP, 1996
MTP3 (ANSI)	T1.111.4-1996
ISUP (ANSI)	ANSI - T1.113.1 to T1.113.4
Test & Network Management Messages (ANSI)	ANSI T1.111.4, ANSI T1.111.7

### Buyer's Guide

[PKS130](#) - MAPS™ - SIGTRAN (SS7 over IP)

### Related Software

[PKS140](#) - MAPS™ - LTE S1 Interface

[PKS142](#) - MAPS™ - LTE eGTP (S11, S5/S8) Interfaces

[PKS164](#) - MAPS™ - UMTS – Iu-PS Interface Emulation

[PKS160](#) - MAPS™ - UMTS – Iu-CS and Iuh Interface Emulation

[XX165](#) - T1 or E1 UMTS Protocol Analyzer

[OLV165](#) - Offline UMTS Protocol Analyzer

[LTS206](#) - OC-3 / STM-1 UMTS Protocol Analysis

[LTS306](#) - OC-12 / STM-4 UMTS Protocol Analysis

[XX120](#) - SS7 Analysis Software

[PKS135](#) - MAPS™ - ISDN SIGTRAN (ISDN over IP)

[XX100](#) - ISDN Analyzer Software

[PKV107](#) - LTE Protocol Analyzer

[PKS120](#) - MAPS™ - SIP

[PKS121](#) - MAPS™ - SIP Conformance Test Suite (Test Scripts)

[PKS122](#) – MAPS™ - MEGACO

[PKS123](#) – MAPS™ - MEGACO Conformance Test Suite (Test Scripts)

### Related Software...

[PKS124](#) - MAPS™ - MGCP

[PKS125](#) - MAPS™ - MGCP Conformance Test Suite (Test Scripts)

[PKB100](#) - RTP Toolbox™

[PKS100](#) - PacketGen™

[PKV100](#) - PacketScan™ (Online and Offline)

For complete list of MAPS™ products, refer to <http://www.gl.com/maps.html> webpage.



818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
 (Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [gl-info@gl.com](mailto:gl-info@gl.com)