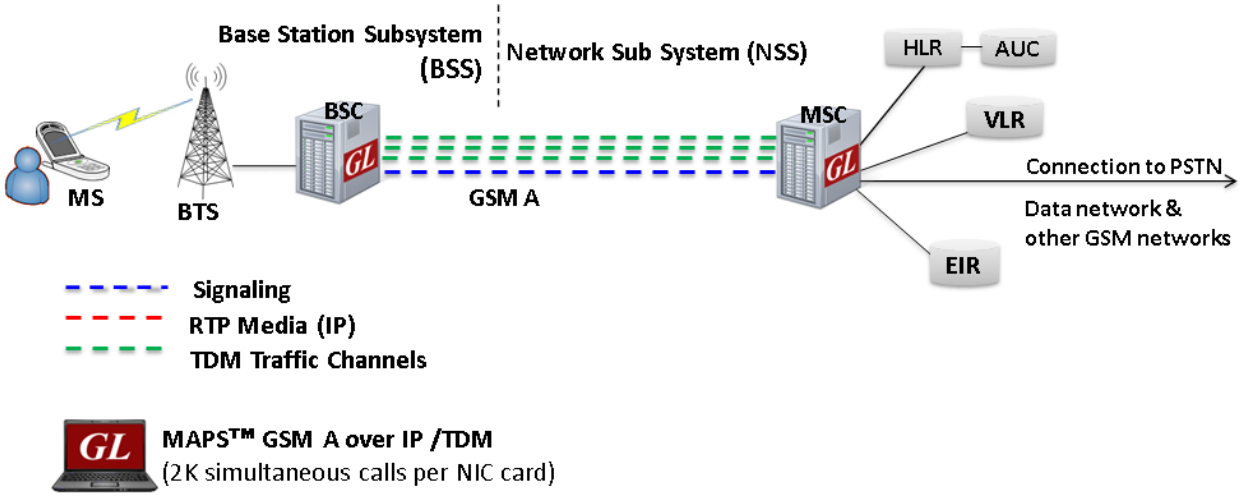
MAPS™ GSM - A Interface Emulator

(GSM A Interface Emulation over TDM)



Overview

GL's MAPS™ GSM A Interface Emulator is an advanced protocol simulator/tester for GSM simulation over A Interface that can simulate MSC and BSC network elements for exchanging BSSMAP and DTAP messages as defined by 3GPP standards. The tester supports Error tracking, regression testing, conformance testing, load testing/call generation and generation of high volumes of GSM traffic over TDM. It is able to run pre-defined test scenarios against GSM A interface test objects in a controlled & deterministic manner.

MAPS™ GSM A over TDM supports mobility management procedures over GSM A interface such as Location Management Procedure, Mobile Originating and Terminating Procedures, and Handover Management Procedures. It supports send/receive SMS simultaneously using signaling channel with the voice/data/fax services over a GSM network.

GSM A Interface Emulator supports powerful utilities like **Message Editor, Script Editor** and **Profile Editor** which allow custom call scenarios to be created or existing scenarios to be modified.

With the purchase of TDM traffic licenses (xx610, xx620, xxFT0) GSM traffic can be simulated over T1/E1 interfaces. Supported traffic includes transmission and detection of digits, voice files, single tone, dual tones, FAX, Dynamic VF, User defined Traffic, IVR, and VQT.

For more information, please visit MAPS™ GSM A Interface Emulator webpage.

Main Features

- GSM A Interface simulation over TDM (E1/T1)
- GSM A Interface Emulator can be configured to act as either BSC or MSC
- Call simulation over single or multiple T1/E1 timeslots along with high volume automated traffic
- User-friendly GUI for configuring the MTP Layers
- Supports all Call Control, Mobility Management, and Radio Resource Management messages
- Access to all BSSMAP and DTAP message parameters like TMSI, IMSI, CIC, MCC, LAC, and more
- User controlled access to optional parameters such as timers
- Supports Authentication, TMSI Reallocation, Encryption, and other optional procedures
- Ready scripts for Mobile Originating, Mobile Terminating, Location Updating procedures and SMS call procedures
- Logging of all messages in real-time
- Automation, Remote access, and Schedulers to run tests 24/7

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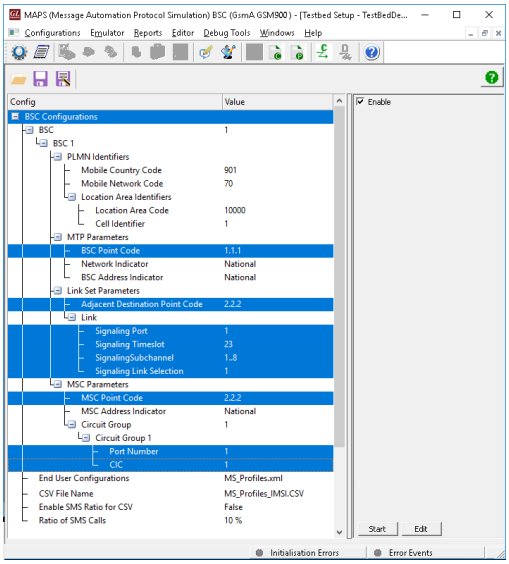
Testbed Setup Configuration

Test Bed setup is provided to establish communication between MAPS™ GSM A and the DUT. It includes Source and Destination node parameter configurations, MTP signaling, Link Set parameters, Circuit Group parameters, and end user configuration to transmit and receive GSM A messages.

Default profile used to configure MAPS™ GSM A with BSC and MSC end terminal parameters.



Testbed Setup

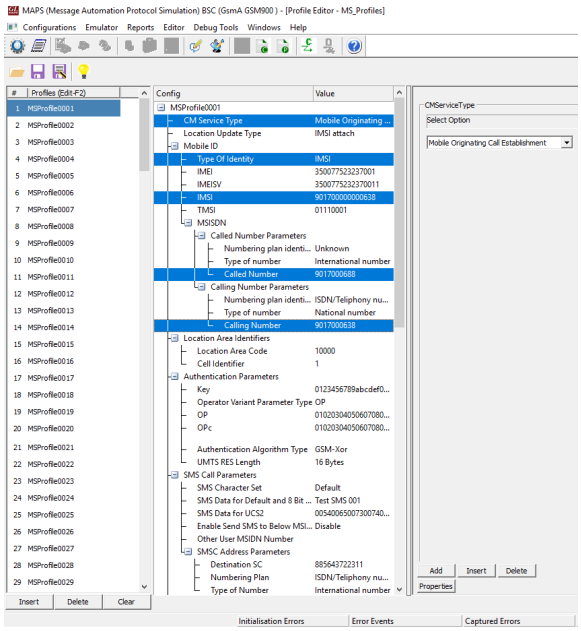
Pre-processing Tools

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.

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.

Users can configure the traffic options for Auto traffic type or User-defined traffic type. Supported traffic configuration includes Voice file, Digits, Tones, FAX, Dynamic VF, VQT, and IVR.

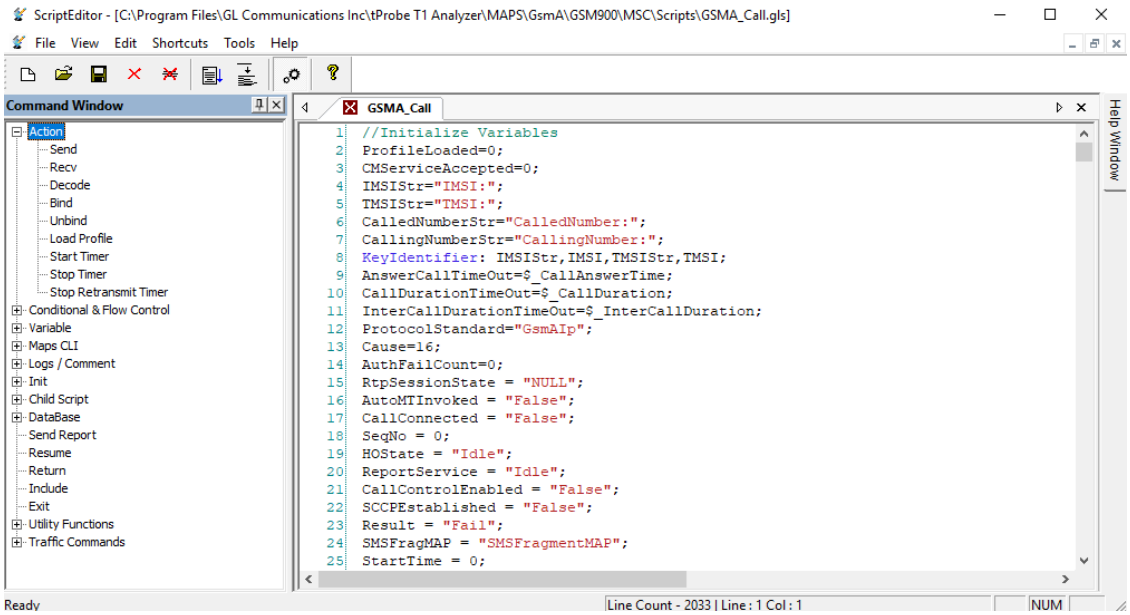


Profile Editor

Pre-processing Tools...

Script Editor

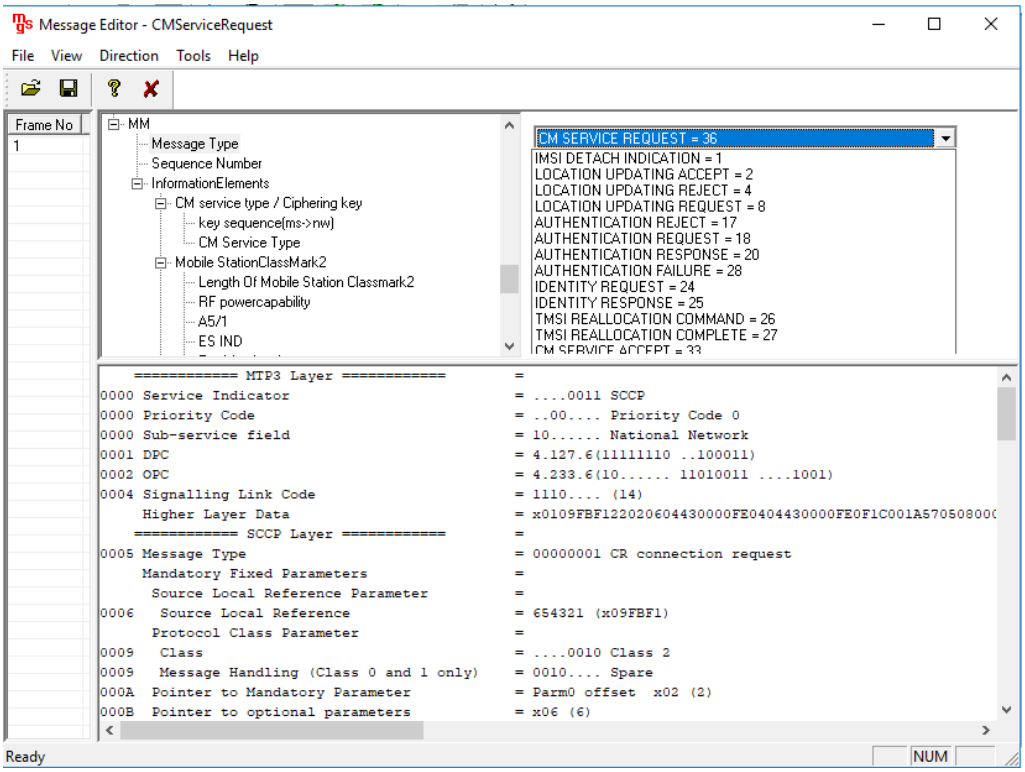
The script editor allows the user to create / edit scripts and access protocol fields as variables for the message template parameters. The script uses pre-defined message templates to perform send and receive actions.



Script Editor

Message Editor

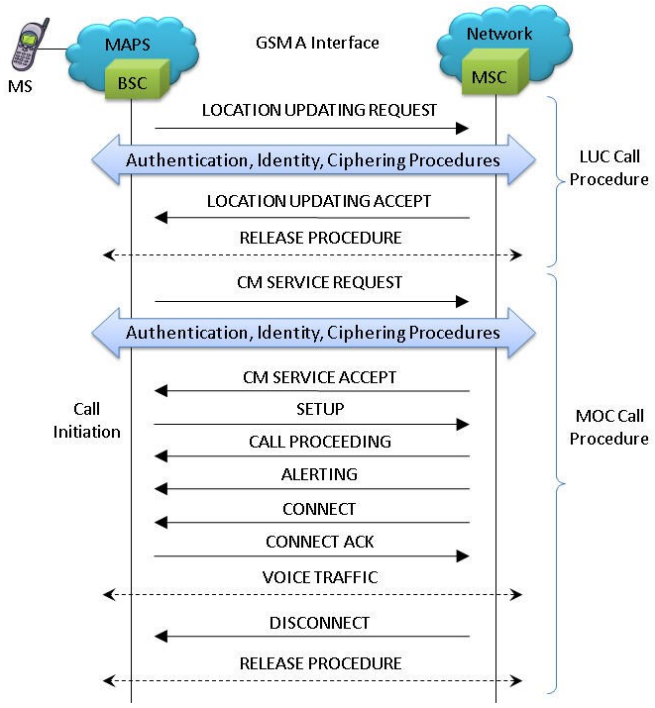
With message editor, users can build a template for each protocol message type. The value for each field may be changed in the message template prior to testing. The protocol fields comprises of mandatory fixed parameters, mandatory variable parameters, and optional variable parameters.



Message Editor

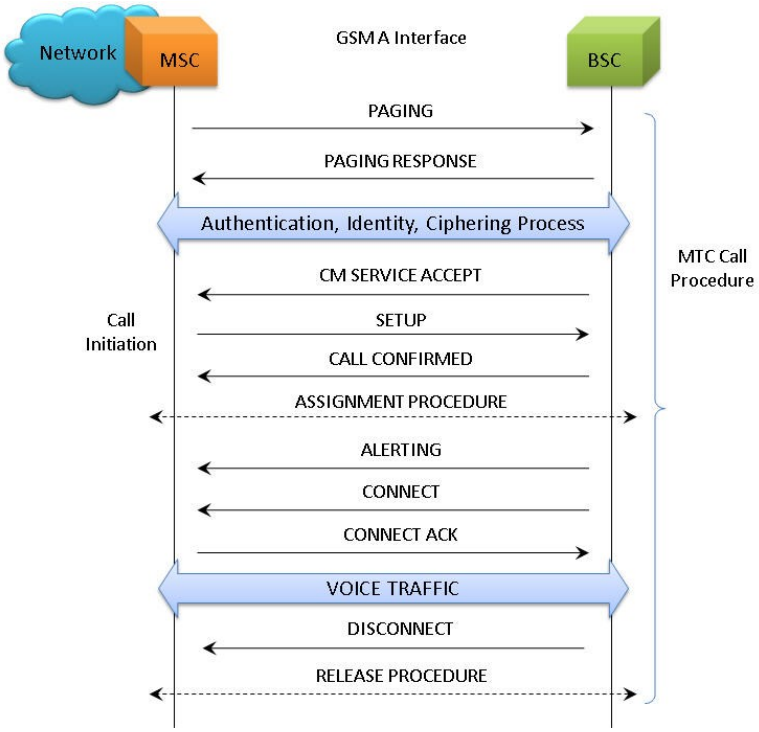
Typical GSM A Interface Call Procedures

MAPS™ GSM A can be configured as Base Station Controller (BSC) and at the network as MSC. Location Update procedure is initiated by sending request message to the Network (MSC), and following the LUC procedure the Mobile Originating Call (MOC) is initiated with CM Service Request sent to the Network (MSC).



LUC and MOC Call Procedures

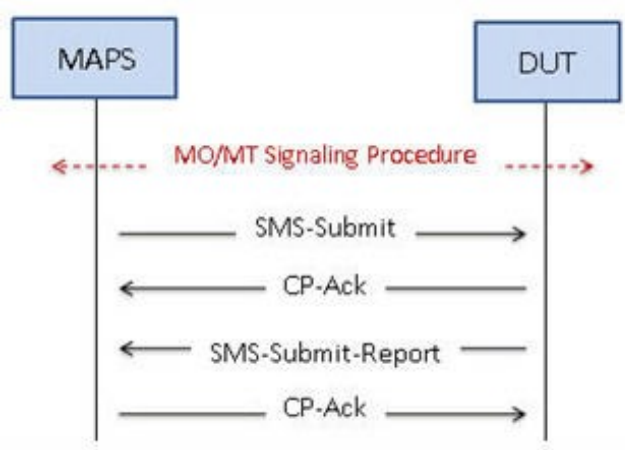
MAPS™ GSM A at network can be configured to act as Mobile Station Controller (MSC) initiates the MTC procedure by sending the Paging Request message to the Mobile Station (BSC). The DUT (BSC) on receipt of a Paging message, sends a Paging Response message back to MSC. Also, simulates the complete call flow as in Mobile Terminating Call (MTC) call flow.



MTC Call Procedure

SMS Call Procedures

Short Message Service (SMS) is a mechanism of short messages delivery over the mobile networks. It is a store and forward way of transmitting messages to and from mobile phones. The messages (text only) from the sending mobile is stored in a central short message center (SMC) which then is forwarded to the destination mobile.).

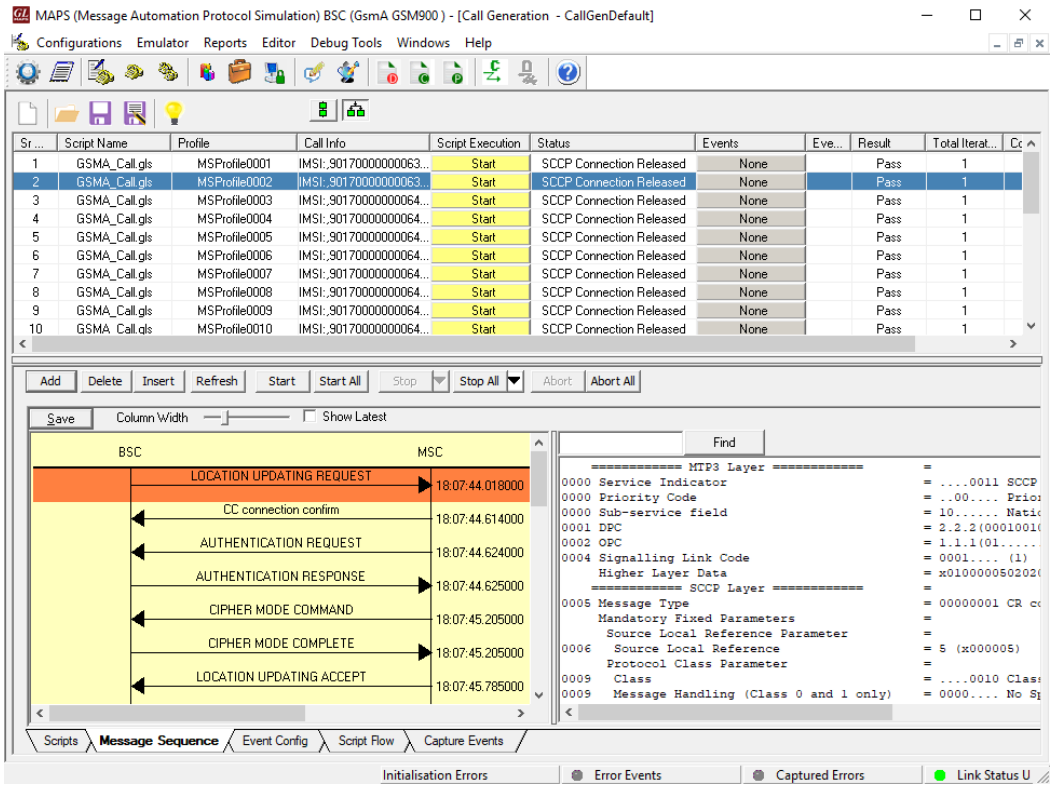


SMS Call Procedures

Call Generation and 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.



Call Generation

Supported Protocol Standards

Supported Protocols	Standard / Specification Used
SCCP	Q.713, CCITT (ITU-T) Blue Book
MTP3	Q.703, ITU-T Blue Book
BSSMAP/DTAP	3GPP TS 08.08 V8.9.0
MM / CC	3GPP TS 04.08 V7.17.0
RR	3GPP TS 04.18 V8.13.0
SMS	3GPP TS 03.40 V7.5.0 & 3GPP TS 04.11 V7.1.0 GSM 03.38 version 7.2.0 Release 1998

Buyer's Guide

Item No	Product Description
XX692	MAPS™ GSM-A Interface Emulator
xx610, xx620	TDM Traffic Options

Item No	Related Software
XX648	MAPS™ ISDN
XX642	MAPS™ ISDN LAPD Conformance Test Suite
XX693	MAPS™ GSM-Abis
PKS130	MAPS™ SIGTRAN (SS7 over IP)
PKS132	MAPS™ MAP over IP
PKS140	MAPS™ LTE- S1 Interface
PKS142	MAPS™ LTE- eGTP (S3, S4, S5, S8, S10, S11 and S16) Interfaces
PKS164	MAPS™ UMTS - IuPS Interface Emulation
PKS160	MAPS™ UMTS - IuCS and Iuh Interface Emulation
PKS135	MAPS™ ISDN-SIGTRAN (ISDN over IP)
PKS120	MAPS™ SIP
PKS121	MAPS™ SIP Conformance Test Suite (Test Scripts)
PKS122	MAPS™ MEGACO
PKS123	MAPS™ MEGACO Conformance Test Suite (Test Scripts)
PKS124	MAPS™ MGCP & Conformance Test Suite (Test Scripts)

Item No	Recommended Software
XX120	SS7 Analysis Software
PKV107	LTE Protocol Analyzer
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
XX100	ISDN Analyzer Software

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Buyer's Guide...

Item No	Related Hardware
PTE001	tProbe™ T1 E1 Base Unit
FTE001	QuadXpress T1 E1 Main Board (Quad Port– requires additional licenses)
ETE001	OctalXpress T1 E1 Main Board plus Daughter Board (Octal Port– requires additional licenses)
TTE001	tScan16™ T1 E1 Boards
XTE001	Dual Express (PCIe) T1 E1 Boards

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

For more information, please visit Signaling-and-traffic-simulator webpage.

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