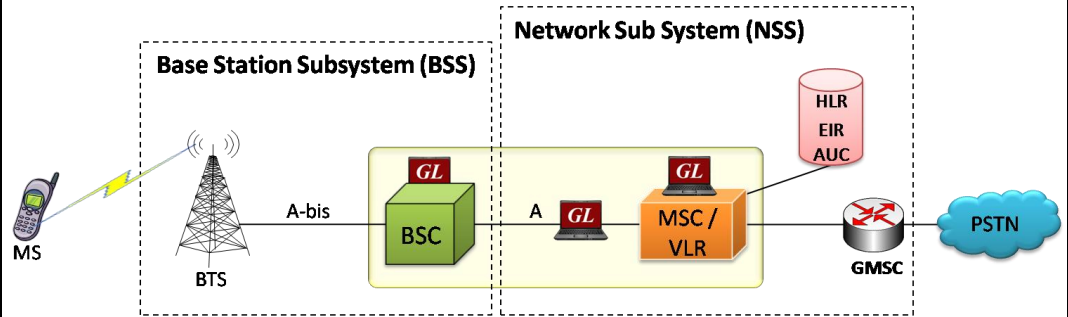


MAPS™ GSM - A Interface Emulator



GL MAPS™ GSM-A Interface
Simulate elements in GSM network

Overview

GL's Message Automation & Protocol Simulation (MAPS™) is a powerful Protocol Test platform supporting a wide range of protocols such as GSM over A interface, A-bis interface, SS7, ISDN, MGCP, UMTS, LTE, and many others.

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

GSM A Interface Emulator supports powerful utilities like Message Editor, Script Editor and Profile Editor which allow new scenarios to be created or existing scenarios to be modified using BSSMAP and DTAP messages and parameters.

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

Main Features

- GSM A Interface simulation over TDM (E1/T1)
- Supports transmission and detection of TDM traffic - digits, voice file, single /dual tones
- MAPS™ can be configured to act as either BSC or MSC
- User-friendly GUI for configuring the MTP Layers
- User Configurable Signaling Links
- Supports all Call Control, Mobility Management, and Radio Resource messages
- Access to all BSSMAP and DTAP Message Parameters like CM Service Request, Paging, Call Control messages, Release messages, 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, and Location Updating procedures

Deployment of Products with Multiple Features & Protocols

Simulates BSSMAP and DTAP Messages

Call Flow Customization with Message & Sequence Editors

Supports Call Control, Mobility Management, & Radio Resource Messages

Graphically Depicts Call Flows in Ladder Diagrams

Provides Fault Insertion, & Erroneous Call Flow Testing

High Volume Traffic Options

Multiple T1/E1 Interfaces

Ready Scripts for Simpler & Less Time Consuming Tests



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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.

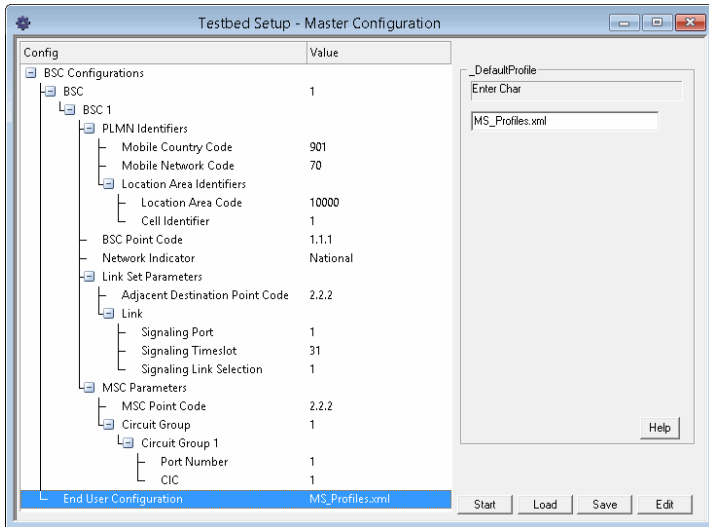


Figure: Testbed Setup

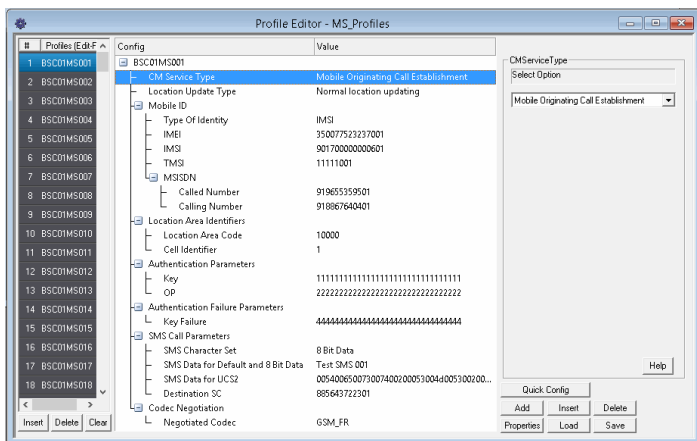
Pre-processing Tools

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 Send/Receive file, DTMF/MF digits, and Single/Dual tones.



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.

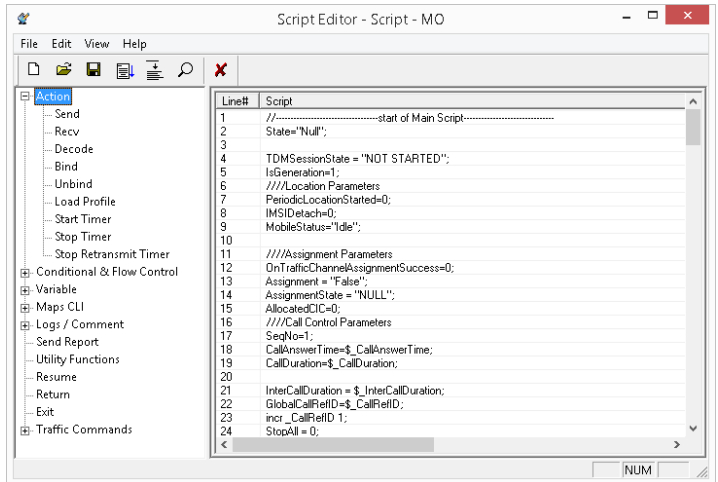


Figure: Script Editor

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.

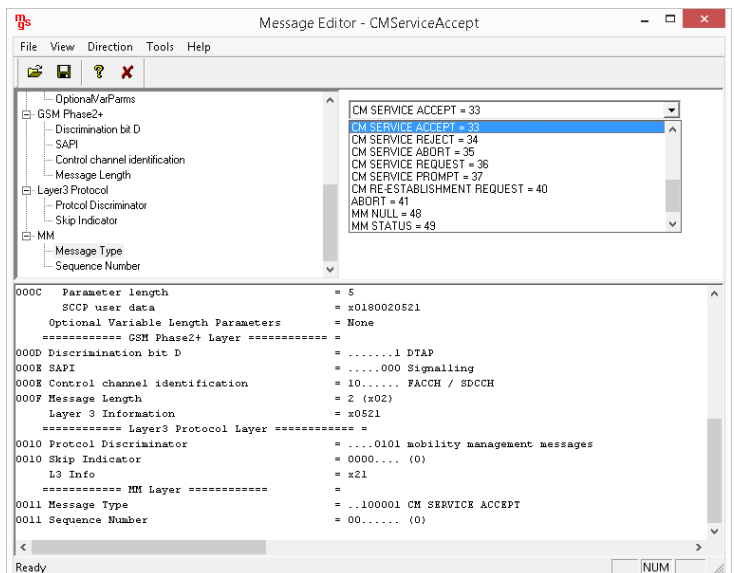


Figure: Message Editor



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Call Generation and Reception

In call generation, MAPS™ is configured for the outgoing 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.

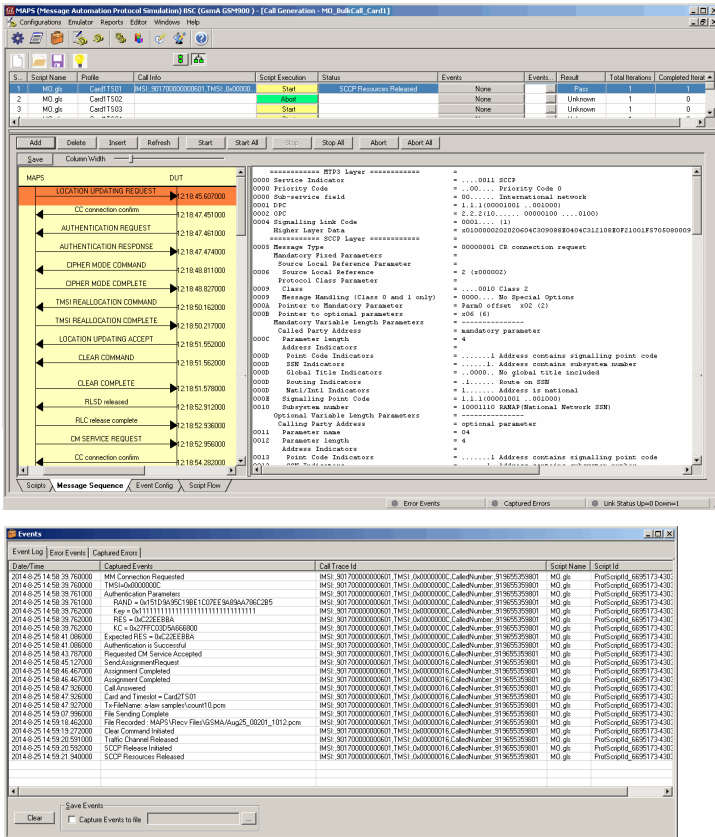


Figure: Call Generation & Events Log

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).

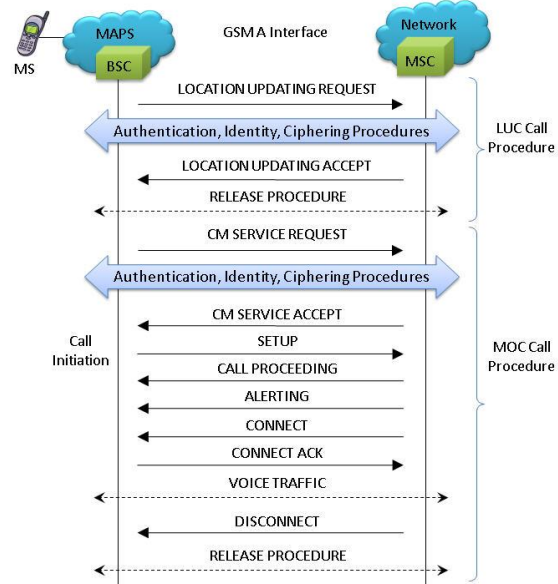


Figure: LUC and MOC Call Procedures

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.

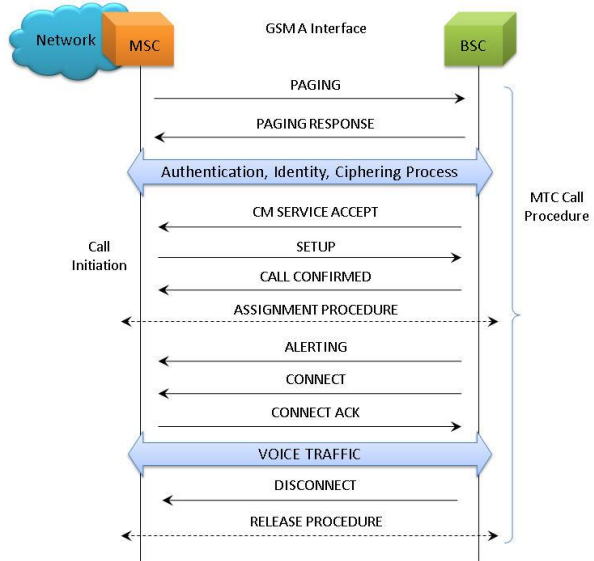


Figure: MTC Call Procedure



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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

[XX692](#) – MAPS™ GSM-A Interface Emulator

[xx610](#), [xx620](#)—TDM Traffic Options

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

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

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

Related Hardware

[HTE001](#) - Universal HD T1 or E1 PCI Cards

[UTE001](#) - USB based Dual T1 or E1 Laptop Analyzer

[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)

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



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