

MAPS™ MEGACO (ETSI TS 102 374-2)

Simulates Signaling Gateway & Media Gateway Controller



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



Deployment of Products with Multiple Features & Protocols



Supports Add, Subtract, Notify, Modify, Move, ServiceChange, AuditValue, & AuditCapabilities



Call Flow Customization with Message & Sequence Editors



Registers Gateways, & Manages ServiceChange Requests



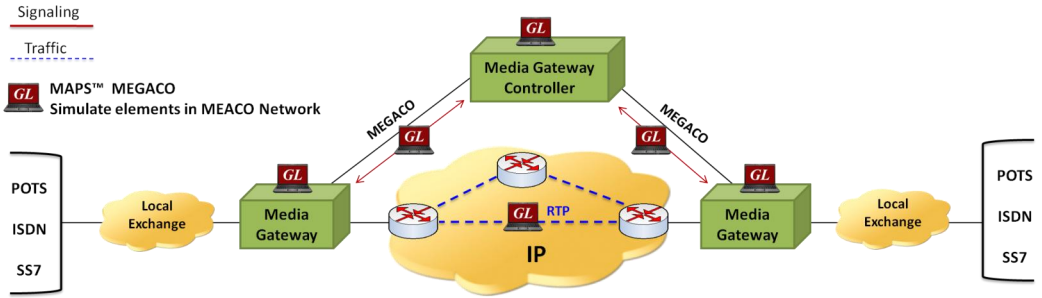
Graphically Depicts Call Flows in Ladder Diagrams



Provides Fault Insertion, & Erroneous Call Flow Testing



Ready Scripts for Simpler & Less Time Consuming Tests



Overview

The Media Gateway Control Protocol (Megaco) is a signaling and call control protocol used between the Media Gateway Controller (MGC) and Media Gateway (MG). MAPS™ MEGACO operates on two basic constructs called Terminations - media connections and Contexts - associations between terminations which can be added or deleted. The MGC uses Megaco to instruct MG about the events, media, signals to be played on Terminations, to create a Context, and to audit the status of the Terminations involved in the conversion of media from one type of network, to the media required in other type of the network.

GL's Message Automation & Protocol Simulation (MAPS™ Megaco) is an advanced protocol simulator/tester designed for Megaco testing, which can simulate MGC to test Media Gateways with various types of calls. It can also control scenario involved in Media conversion. This test tool is designed with 200+ test cases, as per ETSI TS 102 374-2 Megaco specifications. Test suite includes in-built scripts which tests the functionality of the Media Gateway for Megaco protocol valid and in-valid behavior.

The application is available as -

- MAPS™ Megaco Protocol Test Tool (Item # PKS122)
- MAPS™ Megaco Conformance Test Suite (Item # PKS123)

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

Main Features

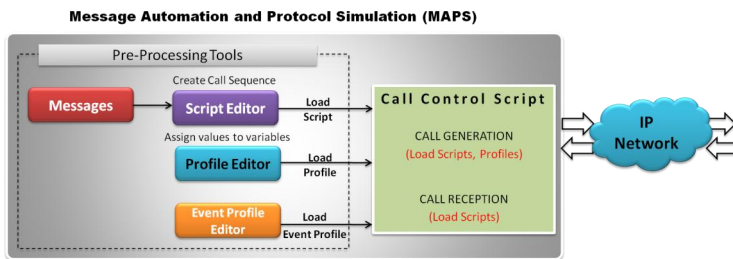
- Simulates Media Gateway Controller (MGC) and Media Gateway (MG) functionalities.
- Supports transmission and detection of RTP traffic - digits, voice file, single /dual tones
- Generates and processes Megaco valid and invalid messages.
- Fully integrated, complete test environment for Megaco.
- Supports automated call generation using scripts.
- Supports commands such as Add, Subtract, Notify, Modify, Move, ServiceChange, AuditValue, and AuditCapabilities.
- Customization of call and message flow with Profile and Script Editor options
- Supports message templates for each Megaco message and customization of the field values.
- Facilitates defining variables for the various protocol fields of the selected Megaco message type.
- Supported on Windows® 2000 and XP operating systems.
- Displays ladder diagram for the call flow with detail view of time stamp and message decode.
- Interactive GUI to view status, results, call information, total iterations to be done, and number of completed iterations
- Provides protocol trace with full message decoding, custom trace, and graphical ladder diagrams during active simulation



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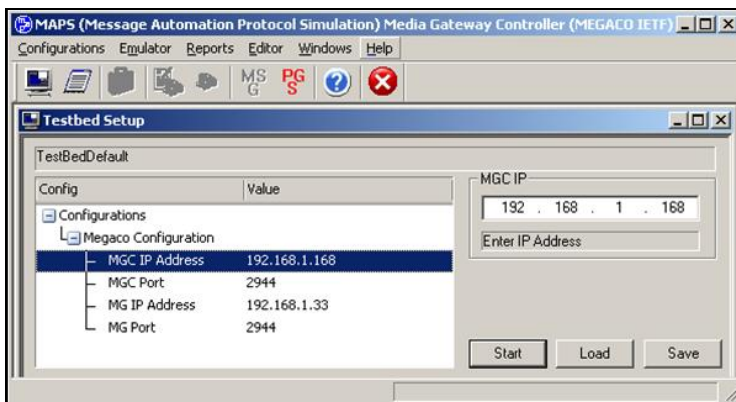
Working Principle

- **Message Editor** - Used to edit / create Message Templates
- **Message Templates** - Backbone of MAPS™ application that contains various protocol fields with default values
- **Script Editor** -
 - Creates a script for scenario based testing (call flow) with DUT
 - Uses pre-defined message templates in the script
 - Access protocol fields as variables using import/export files
- **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 value in the profiles can be changed during script execution.



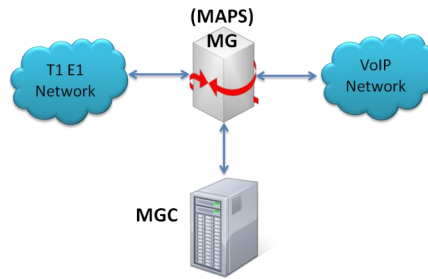
Testbed Setup Configuration

Test Bed setup is provided to establish communication between MAPS™-Megaco and the DUT. It includes configuration parameters to set MAPS™ to act as Media Gateway Controller (MGC) while testing Media Gateway (MG). With appropriate MGC and MG IP & Port Address configuration, MeGaCo messages can be transmitted and received over network.



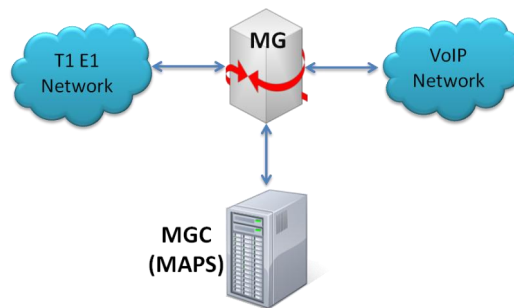
Scenario 1: MAPS acting as MG for MGC Conformance Testing

MAPS™ can be configured to act as MG, so that entire MGC testing can be automated.



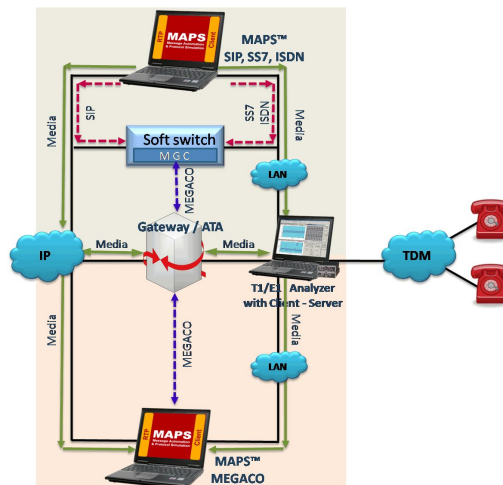
Scenario 2: MAPS acting as MGC for MG Conformance Testing

MAPS™ can be configured to act as MGC, so that entire MG (Media Gateway) testing can be automated.



Scenario 3: Testing ATAs and Gateways

MAPS™ MEGACO Conformance test tool is an ideal tool to evaluate Gateway / ATA product features such as call connectivity, call signaling, traffic generation, voice quality testing, codec, and hundreds of other features.



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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.

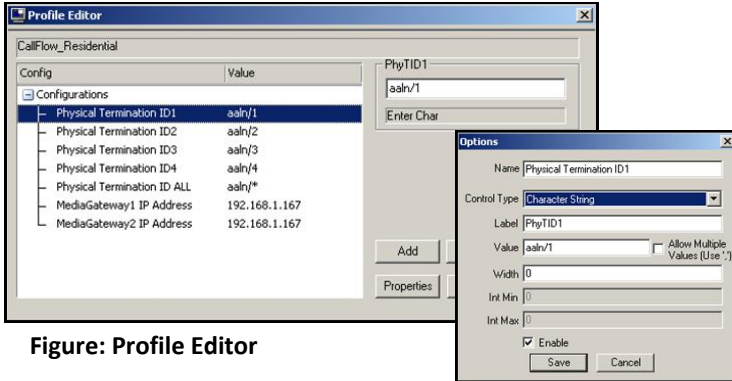


Figure: Profile Editor

Script Editor

The script editor allows the user to create / edit scripts and also import/export files that define variables for the message template parameters. The script uses pre-defined message templates to perform send and receive actions. 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).

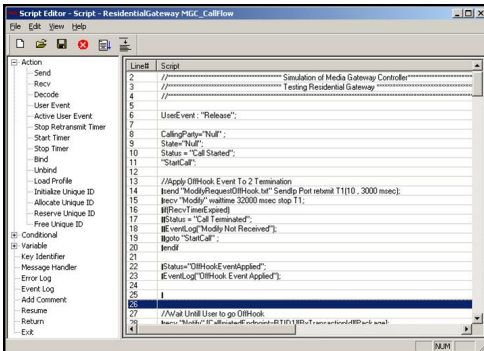


Figure: Script Editor

Incoming Call Handler Configuration

The script configuration option is used to preset the script required to handle all possible MEGACO signaling and call control messages against particular message expected to arrive.

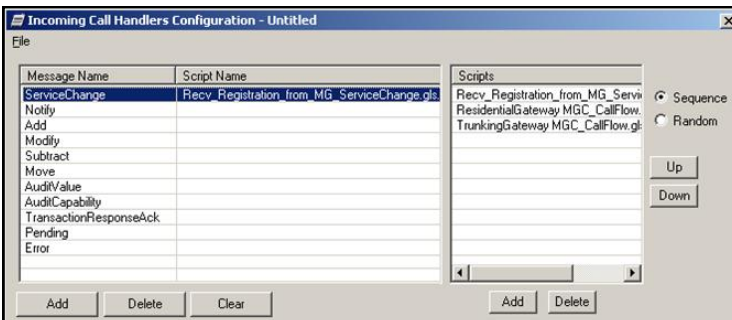


Figure: incoming Call Handler Configuration

MAPS™ - Megaco Conformance Testing

MAPS™ include inbuilt MGC-conformance, and MG conformance, scripts (*.gls) that allow testing the MGC and MG Megaco entities as per IETF RFC 3261 standard.

MAPS™ supports Add, Subtract, Notify, Modify, Move, ServiceChange, AuditValue, and AuditCapabilities.

Sequences Tested

- Test Purposes For Registration
- Test Purposes For Call Control

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 test scripts may be started manually or they can be automatically triggered by incoming messages. In receive mode, MAPS™ can be automated to respond to messages using script configuration dialog, where a receive script is preset against particular message expected to arrive.

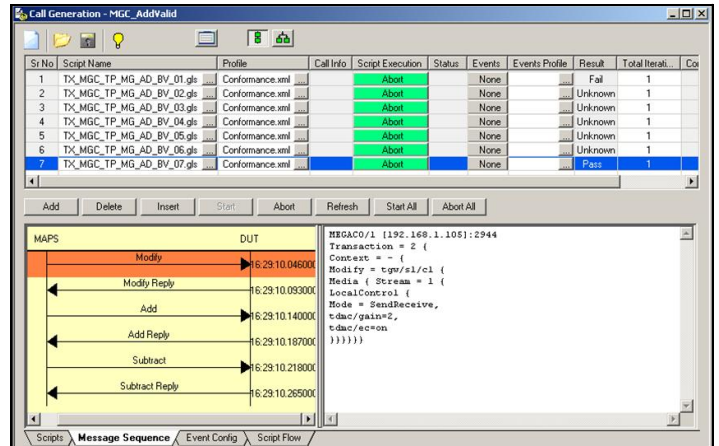


Figure: Call Generation

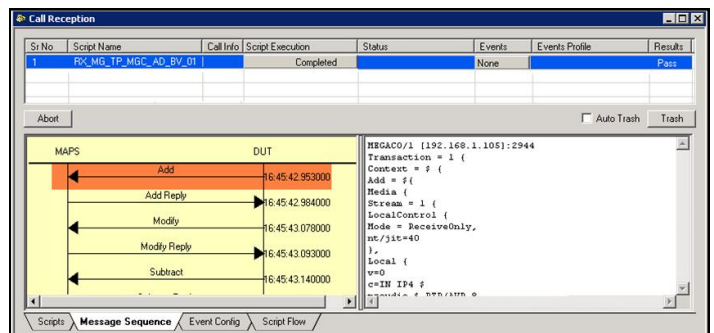


Figure: Call Reception



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MAPS Megaco Call Flow Scenarios

Scenario 1: MAPS™-MEGACO acting as MG & initiates registration with DUT (MGC)

MGC receives the ServiceChange message type and extracts the required contents to the templates defined within MAPS™.

MAPS™-Megaco acts as MG and initiates the registration process by sending SERVICECHANGE (registration) message to the DUT (MGC).

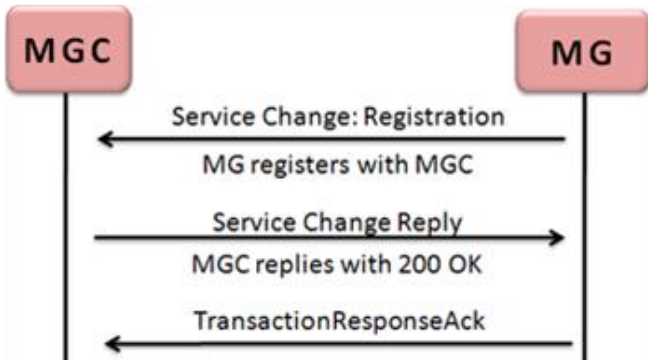


Figure: MG Registering with MGC

Sample Registration Script

```
recv "ServiceChange" [RxTransactionId]
[TerminationId][ContextId][Profile];
send "ServiceChangeReply " SendIp Port;
recv "TransactionResponseAck" wait rcvtime
msec;
```

Scenario 2: MAPS™-MEGACO acting as MGC

MAPS™ - MeGaCo is considered as the MGC (Network) initiating the call flow by sending Modify to MG and processing the received messages.

- Programs the Terminations using Modify command for Events, signals and so on
- Receives the Notify for the Detected Event and creates the context for associating the Termination using ADD command
- Audit the Terminations to get the statistics and releases the Terminations from the context using Subtract command

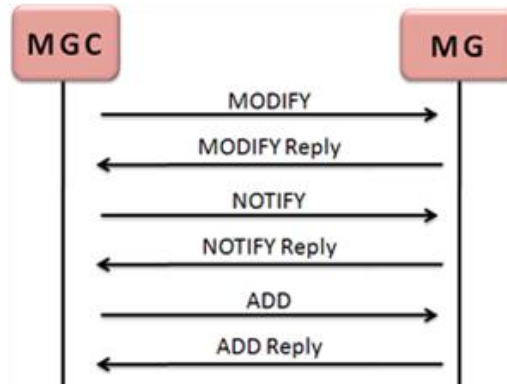


Figure: MGC initiating Call Flow

Sample Call Flow Script

```
send "ModifyReqst" SendIp Port;
recv "Modify" [TerminationId][ContextId];
recv "Notify" [RxTransactionId][Package];
send "NotifyReply" SendIp Port;
send "AddReqst" SendIp Port;
recv "Add" [ContextId][RtpTID2];
send "ModifysecReqst" SendIp Port;
recv "Modify";
send "ModifyThirdReqst" SendIp Port;
recv "Modify";
send "AuditReq" SendIp Port;
recv "AuditValue" ;
send "SubtractReq" SendIp Port;
recv "Subtract";
```



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Megaco Conformance Testing

MAPS™ include inbuilt scripts (*.gls) for Media Gateway-conformance, and Media Gateway Controller-conformance to test the MG and MGC entities as per IETF RFC 3261 standard.

Sequences Tested

Test Purposes For Media Gateway (MG)

- **Procedures using Add command (AD) -**
 - ⇒ Valid Behavior – Supports 7 (of 7) Test cases
 - ⇒ Invalid Behavior – Supports 9 (of 9) Test cases
- **Procedures using Modify command (MD) -**
 - ⇒ Valid Behavior – Supports 7 (of 7) Test cases
 - ⇒ Invalid Behavior - Supports 9 (of 9) Test cases
- **Procedures using Subtract command (SU) -**
 - ⇒ Valid Behavior – Supports 6 (of 6) Test cases
 - ⇒ Invalid Behavior - Supports 12 (of 12) Test cases
- **Procedures using Move command (MO) -**
 - ⇒ Valid Behavior – Supports 4 (of 4) Test cases
 - ⇒ Invalid Behavior - Supports 12 (of 12) Test cases
- **Procedures using Audit Value command (AV) -**
 - ⇒ Valid Behavior – Supports 8 (of 8) Test cases
 - ⇒ Invalid Behavior - Supports 8 (of 8) Test cases
- **Procedures using Audit Capabilities command (AC) -**
 - ⇒ Valid Behavior – Supports 8 (of 8) Test cases
 - ⇒ Invalid Behavior - Supports 8 (of 8) Test cases
- **Procedures using Notify command (NO) -**
 - ⇒ Valid Behavior – Supports 3 (of 3) Test cases
- **Procedures using Service Change command (SC) –**
 - ⇒ Valid Behavior – Supports 14 (of 14) test cases
- **Administration and Maintenance procedures (AM) -**
 - ⇒ Valid Behavior – Supports 13 (of 13) Test cases
- **Transport related procedures (TR) –**
 - ⇒ Valid Behavior – Supports 6 (of 6) Test cases

Sequences Tested...

Test Purposes For Media Gateway Controller (MGC)

- **Procedures using Add command (AD) -**
 - ⇒ Valid Behavior – Supports 7 (of 7) test cases
- **Procedures using Modify command (MD) -**
 - ⇒ Valid Behavior – Supports 7 (of 7) test cases
- **Procedures using Subtract command (SU) -**
 - ⇒ Valid Behavior – Supports 5 (of 5) test cases
- **Procedures using Move command (MO) -**
 - ⇒ Valid Behavior – Supports 4 (of 4) test cases
- **Procedures using Audit Value command (AV) -**
 - ⇒ Valid Behavior – Supports 8 (of 8) test cases
- **Procedures using Audit Capabilities command (AC) -**
 - ⇒ Valid Behavior – Supports 8 (of 8) test cases
- **Procedures using Notify command (NO) -**
 - ⇒ Valid Behavior – Supports 3 (of 3) test cases
 - ⇒ Invalid Behavior - Supports 14 (of 14) test cases
- **Procedures using Service Change command (SC) –**
 - ⇒ Valid Behavior – Supports 13 (of 15) test cases
 - ⇒ Invalid Behavior - Supports 13 (of 13) test cases
- **Administration and Maintenance procedures (AM) -**
 - ⇒ Valid Behavior – Supports 8 (of 8) test cases
- **Transport related procedures (TR) -**
 - ⇒ Valid Behavior – Supports 3 (of 5) test cases

Buyer's Guide

[PKS122](#) – MAPS™ MEGACO

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

[PKS102](#) - RTP Traffic Option

Related Software

[PKS120](#) - MAPS™ SIP

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

[PKS124](#) - MAPS™ MGCP

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

[PKS164](#) - MAPS™ UMTS-IuPS Interface Emulation

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

[PKS140](#) - MAPS™ LTE-S1 Interface

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

[PKS160](#) - MAPS™ UMTS-IuCS and IuH Interface Emulation

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



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