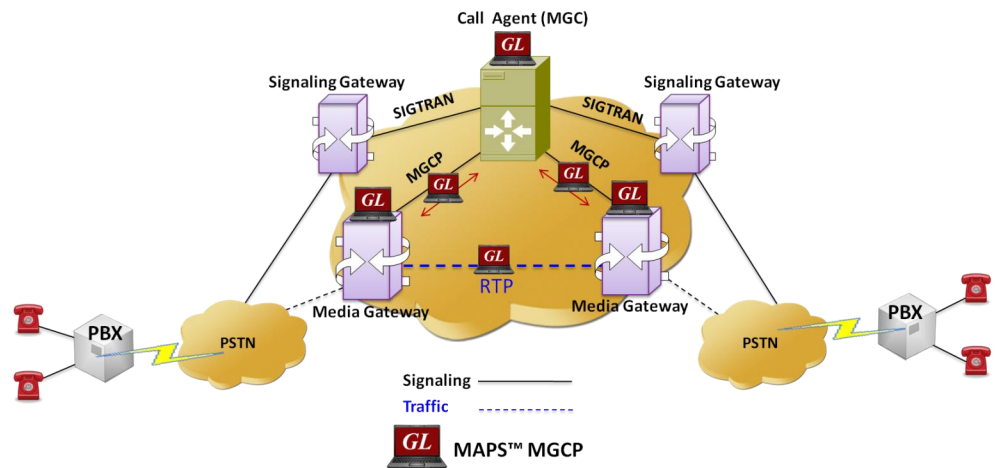


MAPS™ MGCP (RFC 3435 - IETF)



Overview

The Media Gateway Control Protocol (MGCP) is a signaling and call control protocol used between the Media Gateway Controller (MGC) and Media Gateway (MG). The MGC uses MGCP to instruct MG about the events, media, signals to be played on Endpoint, to create a Connection, and to audit the status of the Endpoints and connections involved in the conversion of media from one type of network, to the media required in other type of the network. The Media Gateway uses MGCP to report events (such as off-hook, or dialed digits) to the Call Agent.

GL's Message Automation & Protocol Simulation (MAPS™) designed for MGCP Testing can simulate Media Gateway Controller (MGC) as a set of transactions and can also simulate RTP traffic with additional license. The transactions are composed of a command and a mandatory response. The commands from MGC to MG includes - Create Connection (CRCX), Modify Connection (MDCX), Delete Connection (DLCX), Notification Request (RQNT), Audit Endpoint (AUEP), and Audit Connection (AUCX). The commands from MG to MGC include - Notify (NTFY), Restart in Progress (RSIP).

The application is available as -

- MAPS™ MGCP Protocol Test Tool (Item # PKS124)
- MAPS™ MGCP Conformance Test Suite (Item # PKS125)

This test tool can be also be used to perform protocol conformance testing (MGCP protocol implementations) as per MGCP IETF (RFC 3435) and ITU standards. The MAPS™ - MGCP Protocol Conformance Test Suite is designed with 70+ test cases used to verify conformance of actions such as call control using MGCP signaling.

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

Main Features

- Simulates Media Gateway Controller (MGC) and Media Gateway (MG).
- Supports transmission and detection of RTP traffic - digits, voice file, single /dual tones
- Used to test Media Gateway and Media Gateway Controller functionalities.
- User-defined configuration MAPS as MGC with required IP address and port address to establish communication channel.
- Generates and processes MGCP valid and invalid messages.
- Supports all MGCP commands such as CRCX, NTFY, MDCX, RQNT, AUEP, AUCX, DLCX, EPCF, and RSIP.
- Provides protocol trace with full message decoding, custom trace, and graphical ladder diagrams during active simulation.
- Supports message templates for each MGCP message and customization of the field values.
- Facilitates defining variables for the various protocol fields of the selected MGCP message type.

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 CRCX, NTFY, MDCX, RQNT, AUEP, AUCX, DLCX, EPCF, & RSIP



Call Flow Customization with Message & Sequence Editors



Registers Gateways, Creates & Manages Connection Requests



Graphically Depicts Call Flows in Ladder Diagrams



Provides Fault Insertion, & Erroneous Call Flow Testing



Ready Scripts for Simpler & Less Time Consuming Tests



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Working Principle

- **Message Templates** - Forms the backbone of MAPS™ application that contains 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
- **Message Editor** - Uses Notepad® 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.

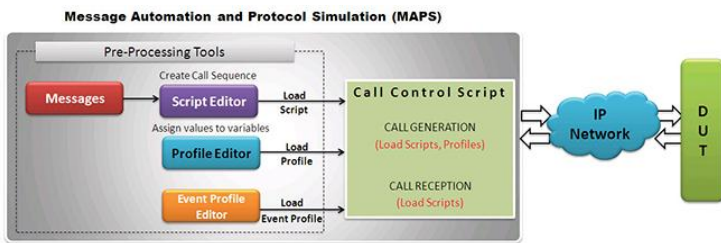


Figure: MAPS™ application Working Principle

Testbed Setup Configuration

The configuration window allows users to setup the required test environment to establish communication between MAPS™ 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, MGCP messages can be transmitted and received over network.

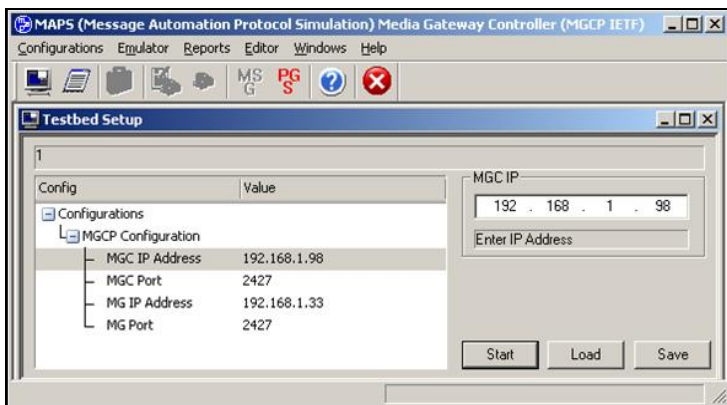


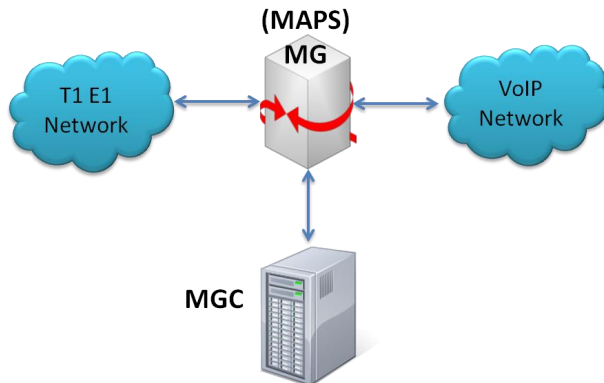
Figure: Testbed Setup

Configuration

This allows setting up test environment while configuring MAPS™ to simulate Media Gateway Controller (MGC) while testing Media Gateway (MG). For MGCP, the setup is configured with Source IP and Port address, which establishing a communication channel between the MAPS™ (MGC) and the test unit Media Gateway (MG).

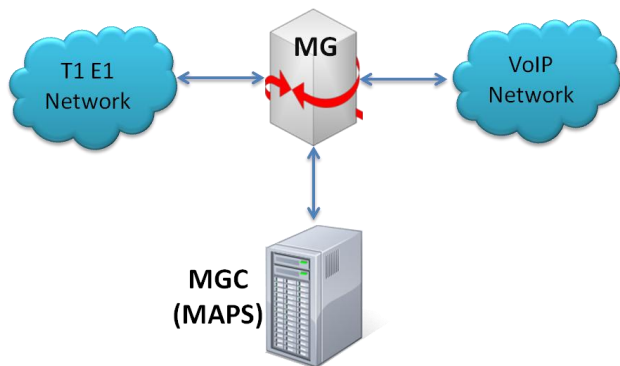
Scenario 1: MAPS™ acting as MG for MGC Conformance Testing

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



Scenario 2: MAPS™ acting as MGC for MG Conformance Testing

As seen in the figure below, MAPS™ can be configured to act as MGC, so that Gateway testing can be automated.



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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.

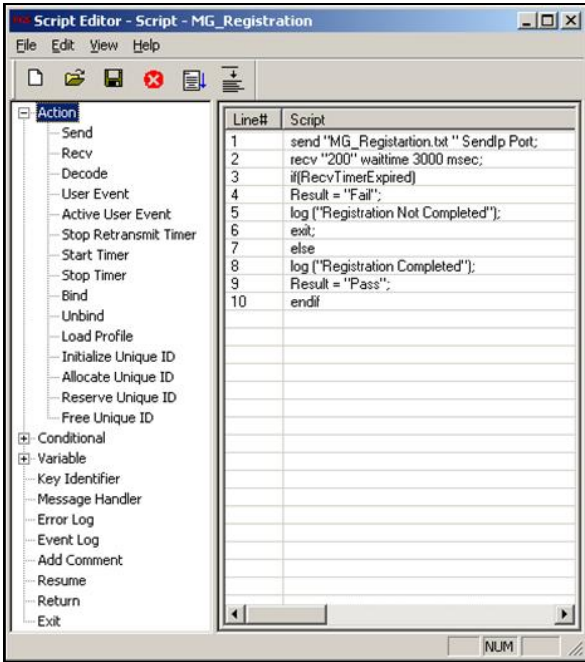


Figure: Script Editor

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.

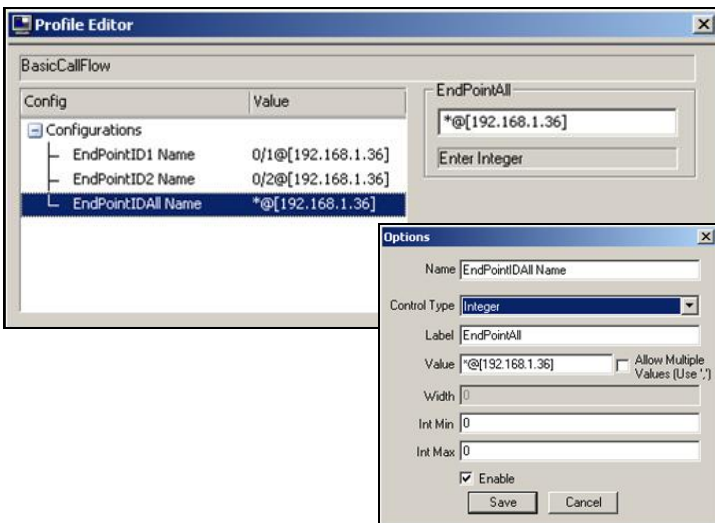


Figure: Profile Editor

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.

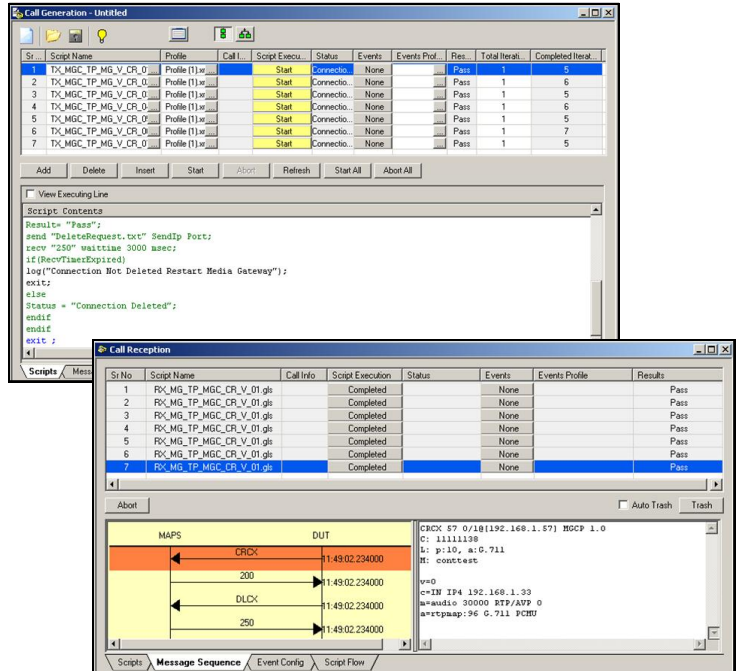


Figure: Call Generation and Call Reception

Incoming Call Handler Configuration

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

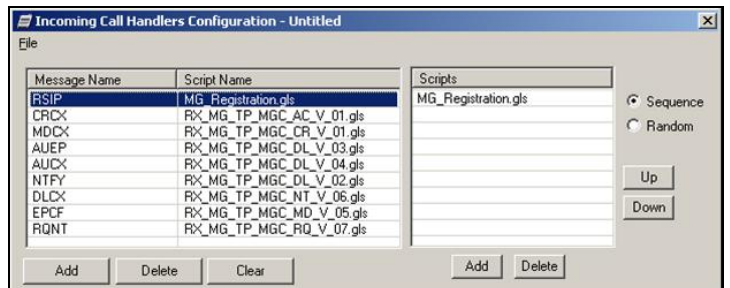


Figure: Incoming Call Handler



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MAPS™ MGCP Conformance Testing

MAPS™ includes inbuilt MGC-conformance, and MG conformance, scripts (*.gls) that allow testing the MGC and MG MGCP entities as per IETF RFC 3435 standard.

MAPS™ supports CRCX, RQNT, NTFY, MDCX, DLCX, RSIP, AUCX, AUEF, EPCF and EH.

Conformance Tests Includes

- Test Purposes For Registration
- Test Purposes For Call Control

Buyer's Guide

[PKS124](#) - MAPS™ MGCP

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

[PKS102](#) - RTP Traffic Option

Related Software

[PKS122](#) – MAPS™ MEGACO

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

[PKS120](#) - MAPS™ SIP

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

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

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

[PKS140](#) - MAPS™ LTE- S1 Interface

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

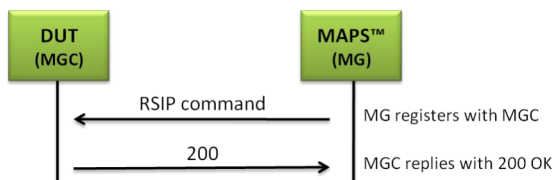
[PKS160](#) - MAPS™ UMTS –IuCS and Iuh Interface Emulation

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

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

MAPS™ MGCP Call Flow Scenarios

Scenario 1: MAPS™ MGCP acting as MG. MAPS™ acts as MG and sends RSIP (Restart In Progress) message to the DUT (MGC) indicating that it is in the process of restarting.

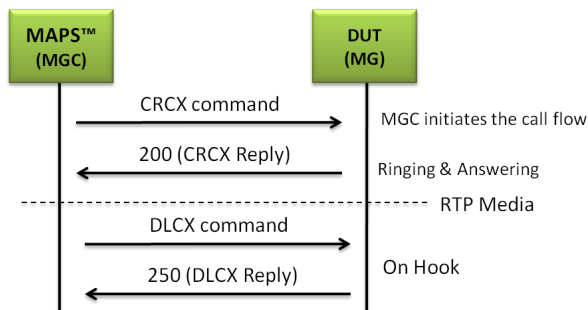


Sample Registration Script

```
send "RSIP command " SendIp Port;
recv "200" waittime 3000 msec;
```

Scenario 2: MAPS™ MGCP acting as MGC

After receiving Registration request from Media Gateway and informed about the resources available in the Gateway to place a Call, MAPS™ as MGC (Network) initiates the call flow. To manage the connection on a Media Gateway, MGC uses Create Connection (CRCX) command to create the connection. Now, the two-way call is established to exchange the media. Media Gateway sends a Delete Connection (DLCX) command to delete the connection for its self-management.



Sample Call Flow Script

```
send "CreateRequest.txt" SendIp Port;
recv "200" [ConnectionID1] waittime 3000 msec;
if (RecvTimerExpired)
Result = "Fail";
log ( "Fail");
exit;
else
Status = "Connection Created";
Result= "Pass";
send "DeleteRequest.txt" SendIp Port;
recv "250" waittime 3000 msec;
if (RecvTimerExpired)
log("Connection Not Deleted Restart Media Gateway");
exit;
else
Status = "Connection Deleted";
endif
endif
exit ;
```



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