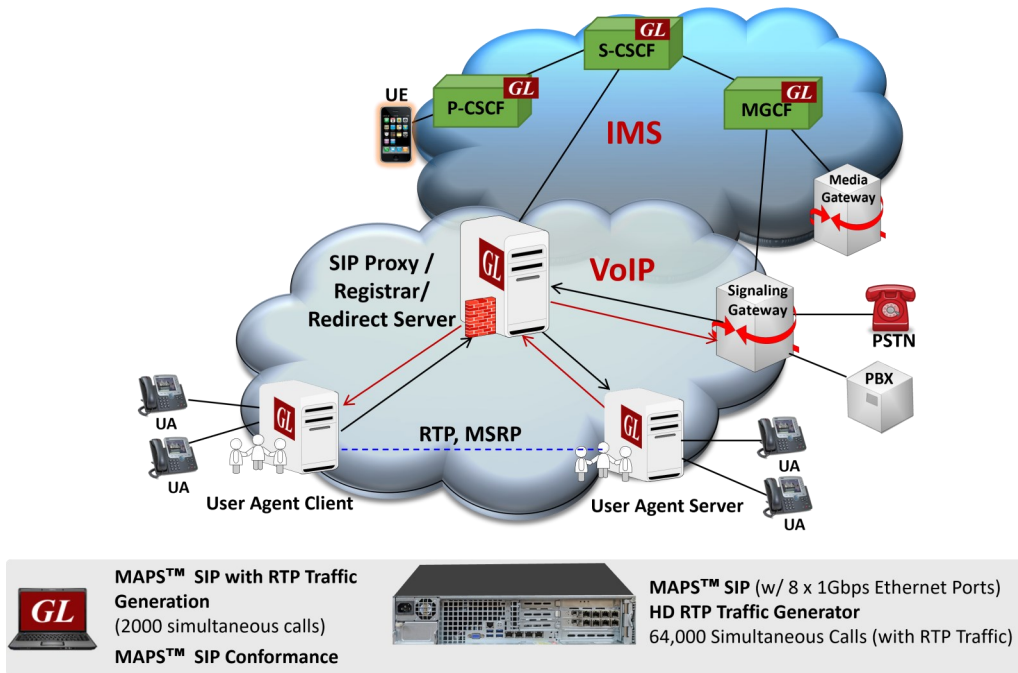


# MAPS™ SIP Conformance Test Suite



## Overview

GL's **MAPS™ SIP Conformance Suite (PKS121)** is designed with 400+ test cases, as per SIP specifications European Telecommunications Standards Institute (ETSI) TS 102 027-2 V3.1.1 (2004-11). The SIP Conformance Suite is based on the protocol standards used for testing the conformance of various SIP Server and Client entities. It includes inbuilt scripts (\*.gls) for Proxy conformance, Redirect Server conformance, Registrar conformance, UAC conformance, and UAS conformance to test the Proxy, Redirect Server, Registrar, UAC, and UAS as per ETSI standard.

The application is also available as **MAPS™ SIP (PKS120)**, which supports emulation of SIP signaling with various RTP traffic options and can be used to emulate any interface in a SIP network.

For more details on MAPS™ SIP Protocol Emulator refer to [MAPS™ SIP Protocol Emulator](#) webpage.

For more details on MAPS™ SIP Conformance Suite, refer to [MAPS™ SIP RTP Protocol Simulator](#) webpage.

## Main Features

- Generates and processes SIP valid and invalid messages
- Supports testing UAC, UAS, Proxy, Registrars, Registrants, Redirect Servers, and other SIP entities
- Handles strict routing and loose routing, when requests are routed through proxies
- Conformance Test Specification for SIP (IETF RFC 3261)
  - UA behaving as client server - User Agent Client (UAC) - User Agent initiating requests, and User Agent Server (UAS) - User Agent responding to requests
  - Redirect Server - User Agent Server redirecting requests
  - Proxy - making requests on behalf of other clients
  - Registrar - accepts REGISTER requests
  - Registrant - sends the REGISTER messages



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

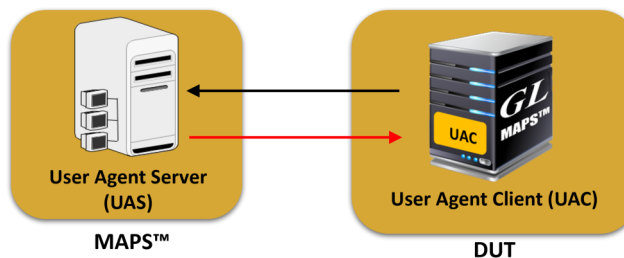
## Tested Sequences

- Test Purposes for Registration
  - Registrant endpoint Test cases
  - Registrar endpoint Test cases
- Test Purposes for Call Control (UAC)
  - Call Establishment from Originating endpoints
  - Call Release from Originating endpoints
  - Session Modification from Originating endpoints
- Test Purposes for Call Control (UAS)
  - Call Establishment from Terminating endpoints
  - Call Release from Terminating endpoints
  - Session Modification from Terminating endpoints
- Test Purposes for Proxy
  - Message Processing > Request Test cases
  - Message Processing > Response Test cases
  - Transaction > Client Test cases
  - Transaction > Server Test cases
- Test Purposes for Redirect Servers
  - Call Establishment Test cases
  - Call Release Test cases

## Configuration Scenarios

### Scenario 1: MAPS™ acting as UAS and testing UAC

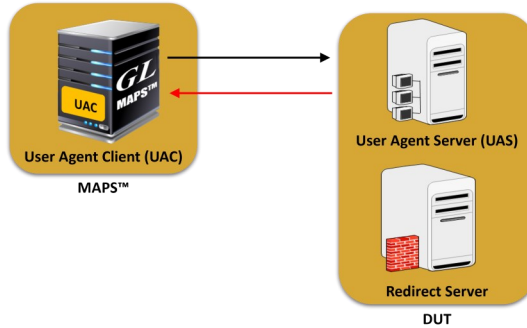
MAPS™ acting as UAS receives messages from UAC (DUT) that generates SIP messages.



## Configuration Scenarios (Contd.)

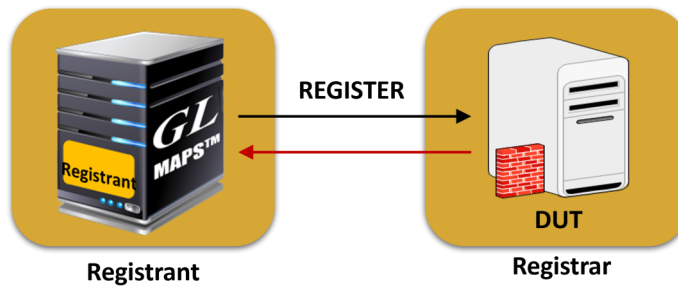
### Scenario 2: MAPS™ acting as UAC and testing Redirect Server / UAS

MAPS™ can be configured to act as UAC and to test Redirect Server and / or UAS. This allows the redirection call scenarios to be automated and test DUTs.



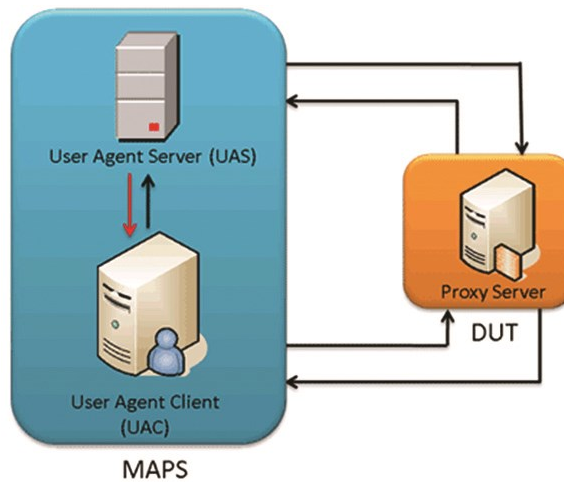
### Scenario 3: MAPS™ acting as Registrant to test Registrar

MAPS™ can be configured to act as Registrant and to generate registration request messages to automate the entire Registrar (DUT) testing.



### Scenario 4: MAPS™ acting as UAS and UAC to test Proxy Server

MAPS™ can be configured to act as UAC and UAS simultaneously so that entire Proxy testing can be automated.



## UAS Conformance Testing

MAPS™ acts as UAC and sends request messages to conform UAS (DUT). To emulate the messages generated by UAC, users can execute the set of UAS\_Conformance inbuilt scripts.

The following figure displays execution of UAS Conformance script **UAC\_SIP\_CC\_TE\_CE\_V\_001.gls**, which ensures that the DUT on receipt of an INVITE request sends a Success (200 OK) response or provisional response (100 trying and 180 Ringing).

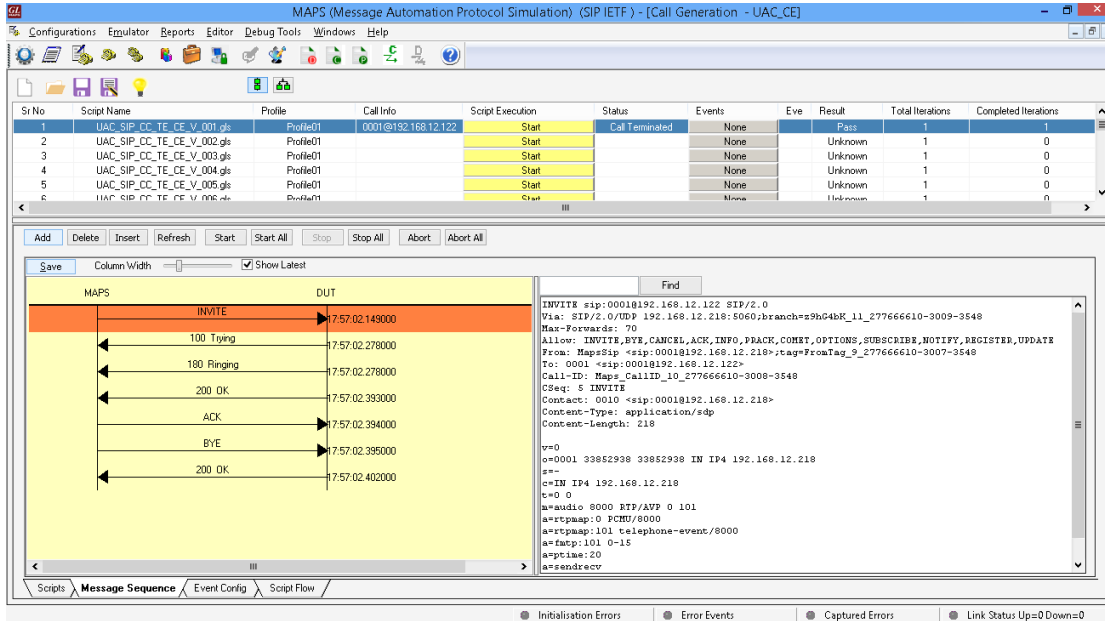


Figure: UAS Conformance Script

## UAC Conformance Testing

MAPS™ acts as UAS and receive request messages from UAC (DUT) and responds back conforming the endpoint. To emulate the reply messages generated by UAS, users can execute the set of UAC\_Conformance inbuilt scripts.

The following figure displays execution of UAC Conformance script **UAS\_SIP\_CC\_OE\_CE\_V\_002.gls**, which ensures that on receipt of request messages from UAC (DUT) are replied back with the reply messages as seen in the **Message Sequence**.

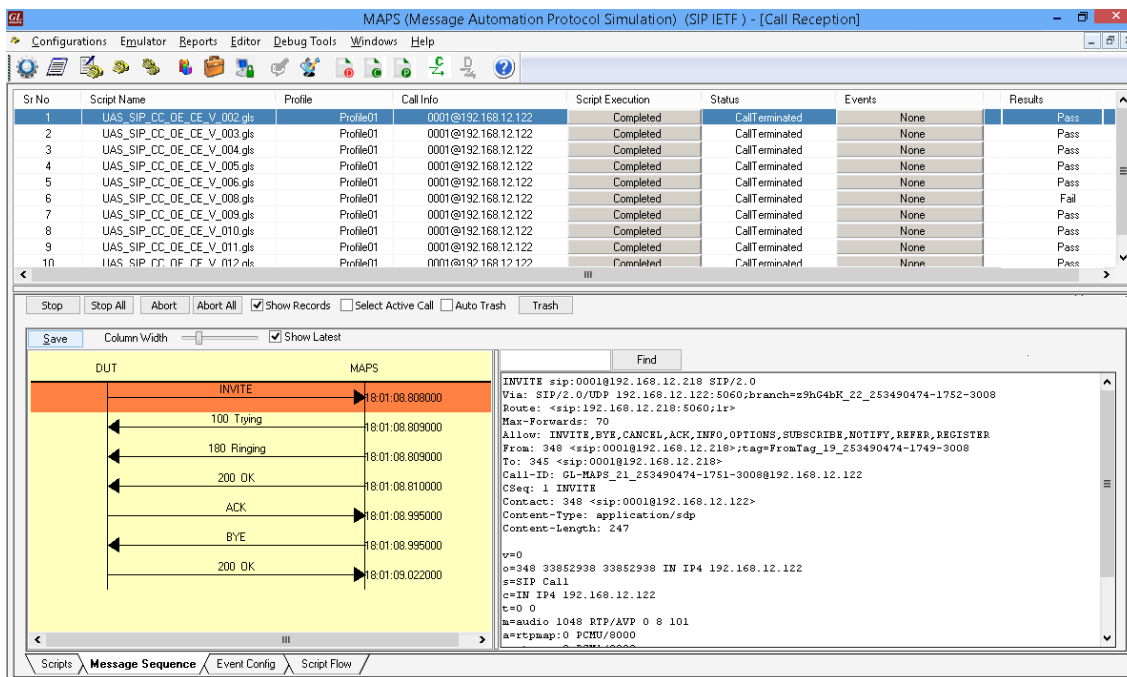


Figure: UAC Conformance Script

## Proxy Conformance Testing

MAPS™ can be configured to act as both UAS and UAC sending and receiving SIP messages while testing proxy (DUT).

As shown in the figure below, MAPS™ is configured to act as UAC and UAS simultaneously and the entire Proxy testing is automated. The third party Proxy Server (DUT) is used to receive and reply back to the Proxy Conformance messages.

The figure below shows **PROXY\_SIP\_CC\_PR\_MP\_RQ\_V\_002.gls** script is executed, which ensures that the DUT on receipt of INVITE request including a Max-Forward header is set to 0, sends an “Too many hops (483 Too many hops)” request failure as response.

The screenshot displays the MAPS software interface. At the top, a table shows the execution status of the script:

Sl No	Script Name	Profile	Call Info	Script Execution	Status	Events	Result	Total Iterations	Completed Iterations
1	PROXY_SIP_CC_PR_MP_RQ_V_002.gls	Profile01	0001@192.168.12.108	Start	4xxRequestFailure	None	Pass	1	1

Below the table, a message sequence diagram shows the interaction between MAPS and DUT:

- MAPS sends an INVITE message to DUT at 0:20:16.609000.
- DUT responds with a 483 Too Many Hops message to MAPS at 0:20:16.617000.
- MAPS sends an ACK message to DUT at 0:20:16.617000.

The right pane displays the SIP message details for the INVITE request:

```

INVITE sip:0001@192.168.12.108 SIP/2.0
Via: SIP/2.0/UDP 192.168.12.218:5060;branch=z9hG4bK_14_595877152-6431-4752
Max-Forwards: 0
Allow: INVITE,BYE,CANCEL,ACK,INFO,PRACK,COMET,OPTIONS,SUBSCRIBE,NOTIFY,REGISTER,UPDATE
From: MapsSip <sip:0001@192.168.12.218>;tag=FromTag_12_595877152-6429-4752
To: 0001 <sip:0001@192.168.12.108>
Call-ID: Maps_CallID_13_595877152-6430-4752
CSeq: 5 INVITE
Contact: 0010 <sip:0001@192.168.12.218>
Content-Type: application/sdp
Content-Length: 218

v=0
o=0001 33852938 33852938 IN IP4 192.168.12.218
s=-
c=IN IP4 192.168.12.218
t=0 0
m=audio 8000 RTP/AVP 0 101
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fbtr:101 0-15
  
```

Figure: Proxy Conformance Script

## Buyer's Guide

Item No	Product Description
<a href="#">PKS121</a>	MAPS™ SIP Conformance Test Suite (Test Scripts)
<a href="#">PKS120</a>	MAPS™ SIP
<a href="#">PKS102</a>	RTP Soft Core for RTP Traffic Generation
<a href="#">PKS108</a>	RTP Voice Quality Measurements
<a href="#">PKS106</a>	RTP Video Traffic Generation
<a href="#">PKS211</a>	T.38 Fax Simulation over UDPTL
<a href="#">PKS200</a>	RTP Pass Through Fax Emulation, requires one of the licenses below, (w/dongle)
<a href="#">PKS202</a>	2 Fax Ports, RO
<a href="#">PKS203</a>	8 Fax Ports, RO
<a href="#">PKS204</a>	30 Fax Ports, RO
<a href="#">PKS205</a>	60 Fax Ports, RO
<a href="#">PKS206</a>	120 Fax Ports, RO
<a href="#">PCD103</a>	AMR codec for MAPS™
<a href="#">PCD104</a>	EVRC codec for MAPS™
<a href="#">PCD105</a>	EVR_B codec for MAPS™
<a href="#">PCD106</a>	EVR_C codec for MAPS™
<a href="#">PCD108</a>	EVS codec for MAPS™
<a href="#">PCD109</a>	OPUS codec for MAPS™

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

For more details, refer to [MAPS™ SIP RTP Protocol Simulator](#) webpage.



**GL Communications Inc.**

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