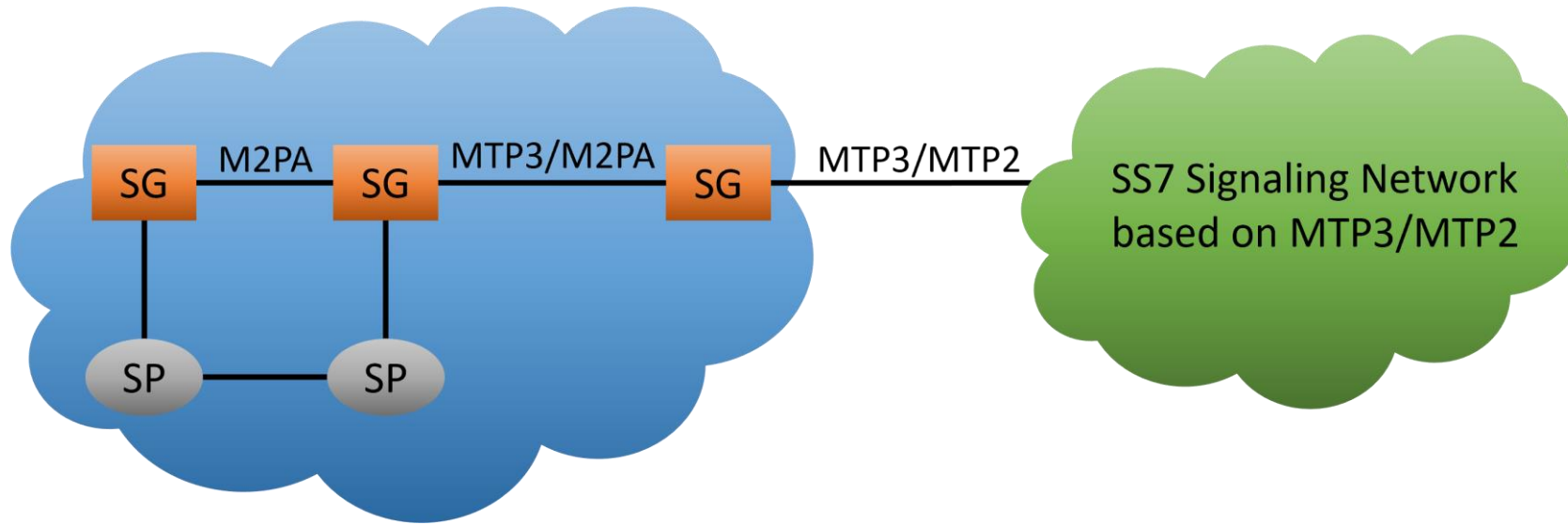

MAPS™ M2PA Conformance Emulator



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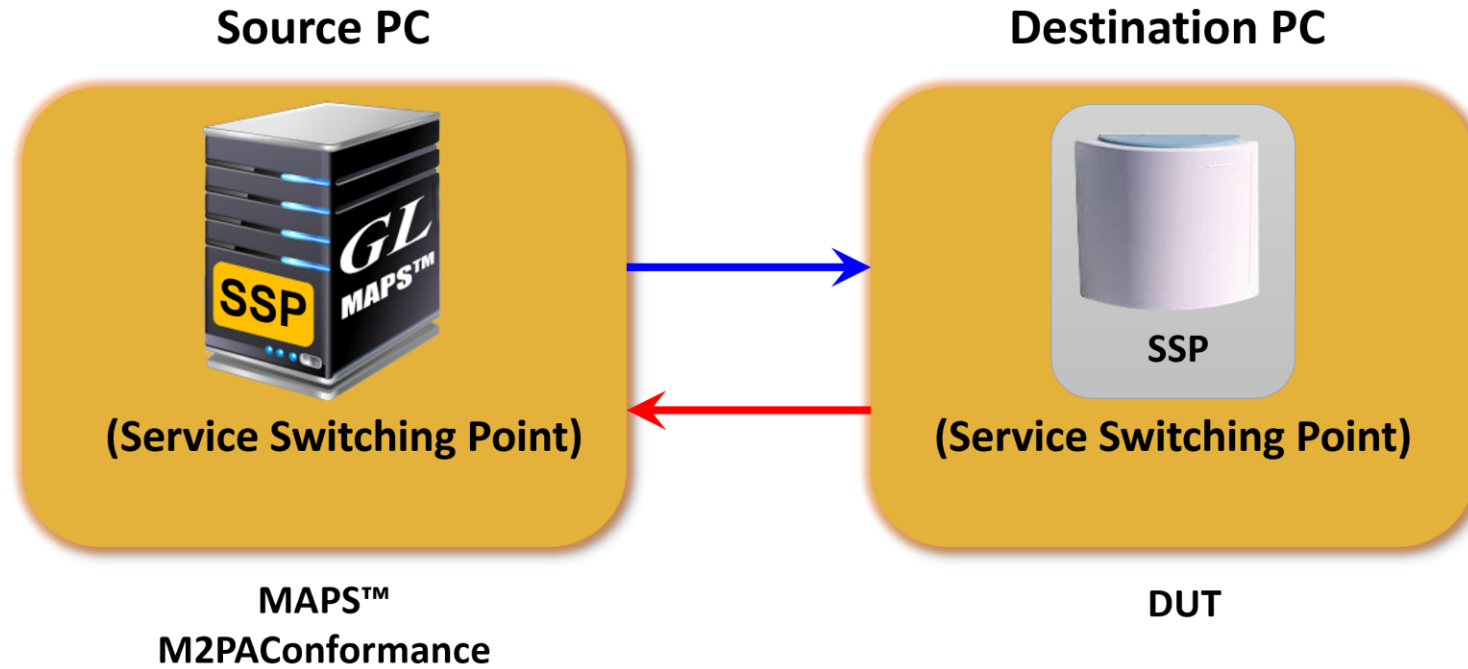
MAPS™ M2PA in SS7 Network



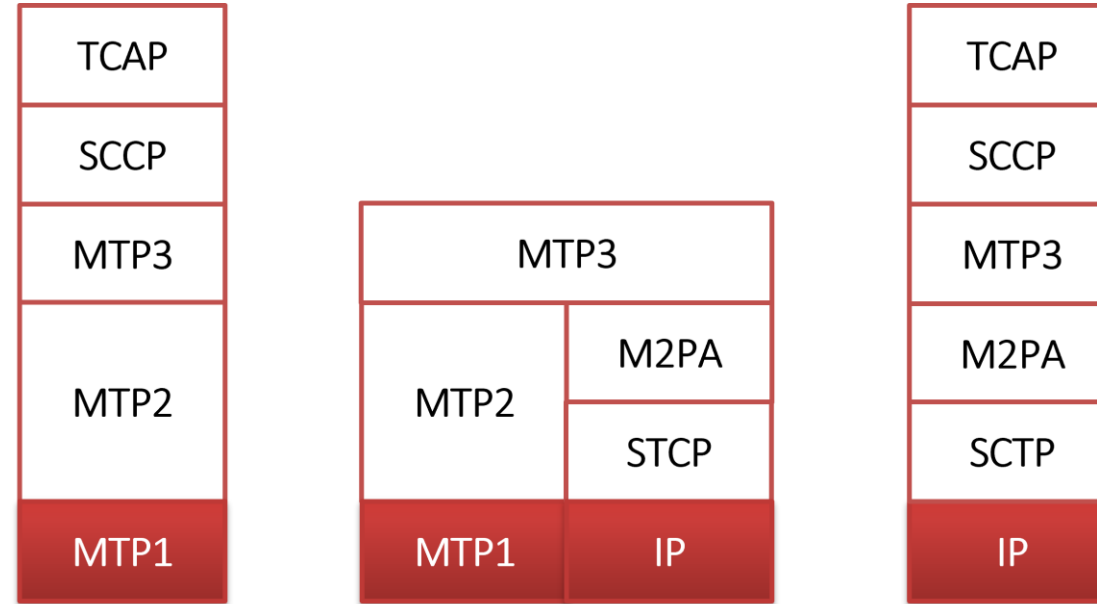
Main Features

- Emulates SSP (Service Switching Point).as both server and client nodes
- Generates and process M2PA (valid and invalid) messages
- Insertion of impairments to create invalid messages
- Supports customization of call flow and message templates using Script and Message Editor
- Ready-to-use scripts for quick testing
- Supports scripted call generation and automated call reception
- Provides Call Statistics and Events Status
- Automation, Remote access, and Schedulers to run tests 24/7

MAPS™ M2PA Conformance as SSP to test SSP (DUT)



Supported Protocol Stack and Standards



Supported Protocols	Standard / Specification Used
M2PA	RFC 4165
SCTP - Stream Control Transmission Protocol	RFC 4960
M2PA Conformance Test Suite	"ETSI TS 101 591 V1.1.1 (2012-10)" draft-bidulock-sigtran-m2pa-test-08

Testbed Configuration

The screenshot shows the MAPS (M2PAConformance ITU) configuration tool interface. The window title is "MAPS (M2PAConformance ITU) - [Testbed Setup - TestBedDefault]". The menu bar includes "Configurations", "Emulator", "Reports", "Editor", "Debug Tools", "Windows", and "Help". The toolbar contains various icons for file operations and tool functions. The main area displays a configuration tree with columns for "Config", "Value", and "Enable".

Config	Value	Enable
Signaling Gateway		<input checked="" type="checkbox"/>
SCTP Mode	Client	
Conformance Mode		
Conformance Spec	draft-bidulock-sigtran-m2pa-test...	
Signaling Gateway	1	
Signaling Gateway 1		
Source IP Address	192.168.12.112	
Source Port	3565	
Destination IP Address	192.168.12.11	
Destination Port	3565	
SSP	1	
SSP 1		
SSP Point Code	2.2.2	
Network Indicator	International	
Link Set Parameters	1	
Link Set Parameters 1		
Adjacent Destination Point Code	1.1.1	
Link Set Id	1	
Link	1	
Link 1		
Signaling Link Selection	1	
Destination SSP	1	
Destination SSP 1		
Destination Point Code	1.1.1	
Routes	1	
Route 1		
RoutingLinkSet	1	
Routing Destination Point Code	1.1.1	
End User Configuration	LinkProfiles.xml	

At the bottom right of the configuration table, there are "Start" and "Edit" buttons. Below the table, there are two status indicators: "Initialisation Errors" and "Error Even".

Profile Configuration

GL MAPS (M2PAConformance ITU) - [Profile Editor -ts_101591v010101p_M2PA]

Configurations Emulator Reports Editor Debug Tools Windows Help

Profiles (Edit-F2)

#	Profiles (Edit-F2)
1	M2PAALGNI01
2	M2PAALGNI02
3	M2PAALGNI05
4	M2PAALGNO01
5	M2PAALGNO02
6	M2PAALGNO03
7	M2PAALGNO04
8	M2PAALGNO05

Config

Config	Value
M2PAALGNI01	
M2PA Conformance	
Test Case Name	M2PA_ALGN_I_01
Proving Selection	
M2PAProving	Normal

Enable

Add Insert Delete

Properties

Insert Delete Clear

Initialisation Errors Error Events

Incoming Call Handler Configuration

GL MAPS (M2PAConformance ITU) - [Incoming Call Handlers Configuration - default]

Configurations Emulator Reports Editor Debug Tools Windows Help

Message Name	Script Name
Signalling Link Test Message	
SCCP	RecvSCCP_ISUP.gls
ISUP	RecvSCCP_ISUP.gls
Out of Service	Conformance_IHandler.gls
Alignment	Conformance_IHandler.gls

Scripts

Conformance_IHandler.gls

Sequence
 Random

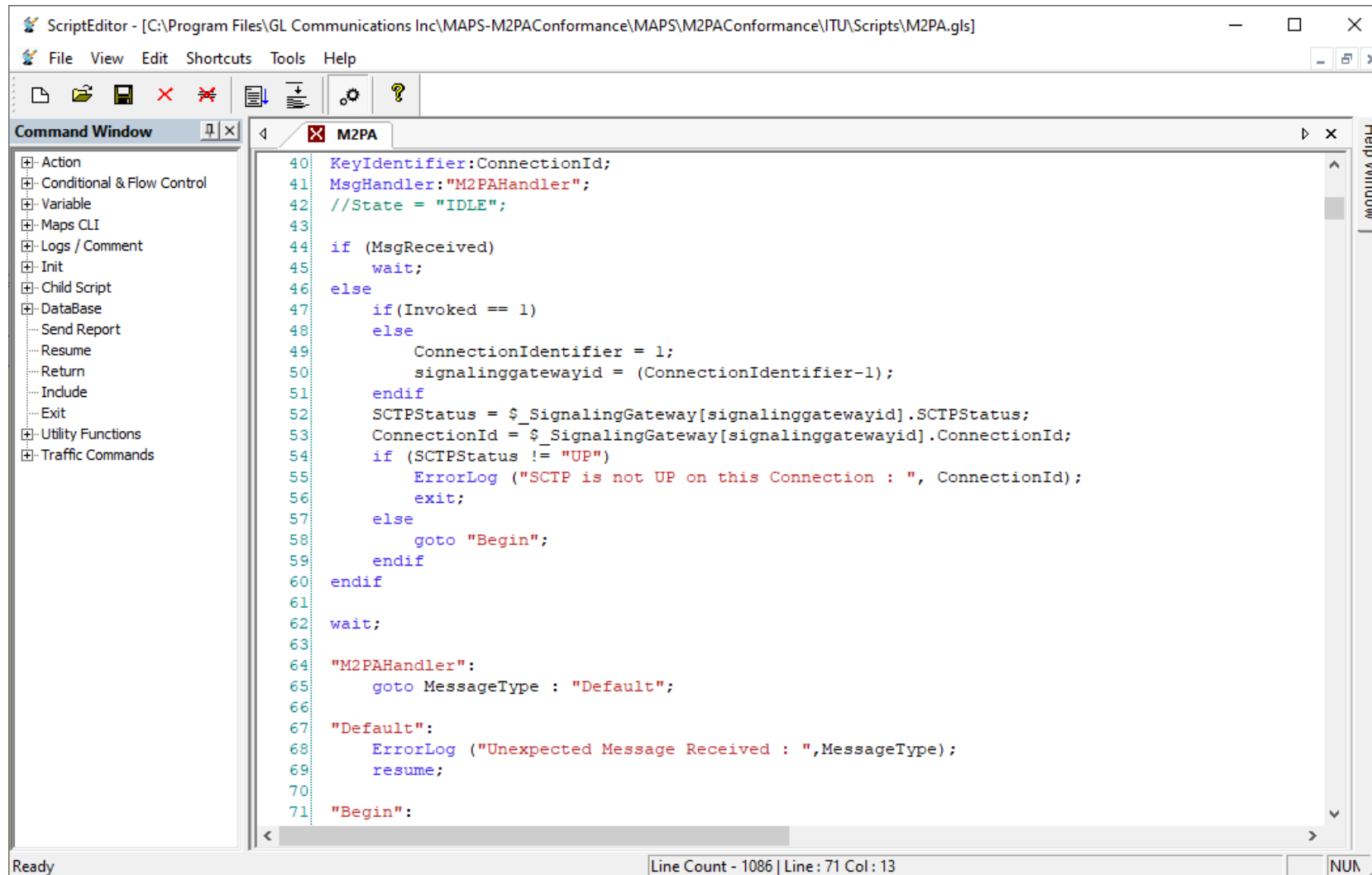
Up
Down

Add Delete

Add Delete Apply Scripts Clear Scripts

Initialisation Errors Error

Customizations - Call Flow (Scripts)



The screenshot shows a text editor window titled "ScriptEditor" with a menu bar (File, View, Edit, Shortcuts, Tools, Help) and a toolbar. A "Command Window" is open on the left, displaying a tree view of categories: Action, Conditional & Flow Control, Variable, Maps CLI, Logs / Comment, Init, Child Script, DataBase, Send Report, Resume, Return, Include, Exit, Utility Functions, and Traffic Commands. The main editor area shows a script for "M2PA" with the following code:

```
40 KeyIdentifier:ConnectionId;
41 MsgHandler:"M2PAHandler";
42 //State = "IDLE";
43
44 if (MsgReceived)
45     wait;
46 else
47     if(Invoked == 1)
48     else
49         ConnectionIdentifier = 1;
50         signalinggatewayid = (ConnectionIdentifier-1);
51     endif
52     SCTPStatus = $_SignalingGateway[signalinggatewayid].SCTPStatus;
53     ConnectionId = $_SignalingGateway[signalinggatewayid].ConnectionId;
54     if (SCTPStatus != "UP")
55         ErrorLog ("SCTP is not UP on this Connection : ", ConnectionId);
56         exit;
57     else
58         goto "Begin";
59     endif
60 endif
61
62 wait;
63
64 "M2PAHandler":
65     goto MessageType : "Default";
66
67 "Default":
68     ErrorLog ("Unexpected Message Received : ",MessageType);
69     resume;
70
71 "Begin":
```

The status bar at the bottom indicates "Line Count - 1086 | Line: 71 Col: 13".

Customizations - Protocol Messages

The screenshot shows the 'Message Editor - Untitled' window. The menu bar includes 'File', 'View', 'Direction', 'Tools', and 'Help'. The toolbar contains icons for file operations and help. The main area is divided into two panes. The left pane shows a tree view for 'MTP2 User Peer-To-Peer Adaptation' with fields: Version, Spare, Message Class, M2PA Message Type, Message Length, BSN, FSN, State, and Filler. The right pane has a dropdown menu currently set to 'M2PA Messages = 11'. Below these panes is a text area displaying the configuration for the 'MTP2 User Peer-To-Peer Adaptation Layer'.

```
===== MTP2 User Peer-To-Peer Adaptation Layer =====  
0000 Version = 00000001 Release 1.0 of M2PA protocol  
0001 Spare = 0 (x00)  
0002 Message Class = 00001011 M2PA Messages  
0003 M2PA Message Type = 00000010 Link Status  
0004 Message Length = 20 (x00000014)  
0009 BSN = 1048658 (x100052)  
000D FSN = 0 (x000000)  
0010 State = x00000009 Out of Service (OOS)
```

At the bottom of the window, the status bar shows 'Ready' and 'NUM SCRL' buttons.

MAPS™ M2PA Call Generation

GL MAPS (M2PAConformance ITU) - [Call Generation - Conformance Test_ts_101591v010101p]

Configurations Emulator Reports Editor Debug Tools Windows Help

Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Result	Total Iterations	Completed Iter
1	M2PA_Conformance_101591v010101p.gls	M2PAALGNI01	1	Start	Link Status : Out of Service	None	Pass	1	1
2	M2PA_Conformance_101591v010101p.gls	M2PAALGNI02	1	Start	Link Status : Alignment	None	Pass	1	1
3	M2PA_Conformance_101591v010101p.gls	M2PAALGNI05		Start		None	Unknown	1	0
4	M2PA_Conformance_101591v010101p.gls	M2PAALGNO01		Start		None	Unknown	1	0
5	M2PA_Conformance_101591v010101p.gls	M2PAALGNO02		Start		None	Unknown	1	0
6	M2PA_Conformance_101591v010101p.gls	M2PAALGNO03		Start		None	Unknown	1	0

Add Delete Insert Refresh Start Start All Stop Stop All Abort Abort All

Save Column Width Show Latest

MAPS DUT

Find

```

===== MTP2 User Peer-To-Peer Adaptation Layer =====
0000 Version = 00000001 Release 1.0 of M2PA protocol
0001 Spare = 1 (x01)
0002 Message Class = 00001011 M2PA Messages
0003 M2PA Message Type = 00000010 Link Status
0004 Message Length = 20 (x00000014)
0009 BSN = 1048658 (x100052)
000D FSN = 0 (x000000)
0010 State = x00000009 Out of Service (OOS)
                    
```

Scripts Message Sequence Event Config Script Flow M2PA Conformance Report

● Initialisation Errors ● Error Events ● Captured Errors ● Link Status Up=1 Down=0

M2PA SGP Conformance Report

The screenshot displays the MAPS (M2PAConformance ITU) application window. The title bar reads "GL MAPS (M2PAConformance ITU) - [Call Generation - Conformance Test_ts_101591v010101p]". The menu bar includes "Configurations", "Emulator", "Reports", "Editor", "Debug Tools", "Windows", and "Help". The toolbar contains various icons for file operations and testing. Below the toolbar is a table with the following data:

Sr No	Script Name	Profile	Call Info	Script Exe...	Status	Events	Event...	Result	Total Iterati...	Completed Iteratic
1	M2PA_Conformance_101591v010101p.gls	M2PAALGNI01	1	Start	Link Status : Out of Service	None		Pass	1	
2	M2PA_Conformance_101591v010101p.gls	M2PAALGNI02		Start		None		Unknown	1	
3	M2PA_Conformance_101591v010101p.gls	M2PAALGNI05		Start		None		Unknown	1	
4	M2PA_Conformance_101591v010101p.gls	M2PAALGNO01		Start		None		Unknown	1	
5	M2PA_Conformance_101591v010101p.gls	M2PAALGNO02		Start		None		Unknown	1	
6	M2PA_Conformance_101591v010101p.gls	M2PAALGNO03		Start		None		Unknown	1	

Below the table is a control bar with buttons: "Add", "Delete", "Insert", "Refresh", "Start", "Start All", "Stop", "Stop All", "Abort", and "Abort All".

The main area displays a table with headers "Headers" and "Value":

Headers	Value
Date/Time	2024-06-12 15:12:59.254000
Test Purpose Num...	M2PA_ALGN_I_01
Status	Mandatory
Precondition	Successfully established SCTP association between the SUT and the Tester. SUT has sent a Link Status (Out of Service) message
Reference	Section 2.1.3 [1]
Test Description	Ensure that the IUT upon reception of an Link Status (Out of Service) message with a version field different from 1 does not respond with a Link Status...
Software Test Res...	Pass
Manual User Verif...	
Failure Cause	N/A

At the bottom, there are tabs for "Scripts", "Message Sequence", "Event Config", "Script Flow", and "M2PA Conformance Report". The status bar at the very bottom shows indicators for "Initialisation Errors", "Error Events", "Captured Errors", and "Link Status Up".

Thank you