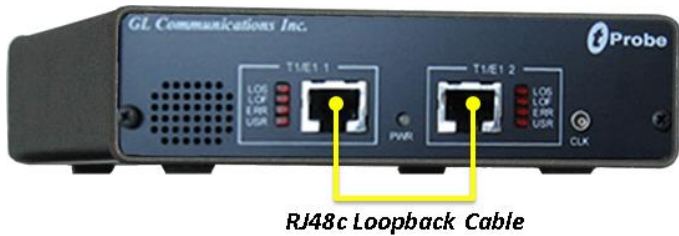


It is assumed that the T1/E1 Analyzer Hardware, Software and License installations are already performed referring to the purchased Hardware Installation Guide.

MAPS™ SS7 Application Verification

For functional verification, 2 instances of MAPS™ SS7 application can be configured on a single PC as source and destination SSP (Signaling Switching Point) nodes.

Cross-connect T1/E1 Port #1 and Port #2 of the Hardware unit back-to-back using RJ48c loopback cable.

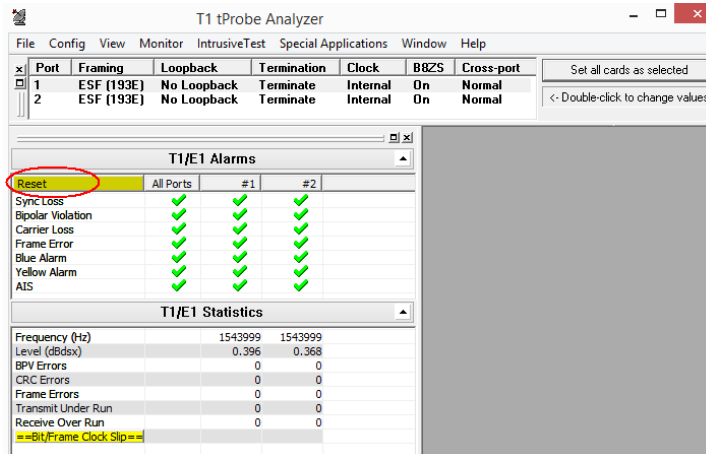


RJ48c Loopback Cable

- Click on the **T1/E1 Analyzer** icon created on the desktop (or) from the installation directory, click on **UsbNGT1.exe** and launch T1/E1 Analyzer application.






Note: The application may take some time to get started due to hardware and software initializations.

- Verify the following **Interface** settings in the T1/E1 main GUI
 - For **T1 Analyzer**, configure Port #1 and Port #2 with the following
Framing = ESF, Loopback = No Loopback, Termination = Terminate, Clock = Internal, Cross Port = Normal
 - For **E1 Analyzer**, configure Port #1 and Port #2 with the following
Framing = CCS, Loopback = No Loopback, Termination = Terminate, Clock = Internal, Cross Port = Normal








- Verify the **Sync and Alarm Status** between the ports are indicated in **Green ✓** in **T1/E1 Alarms** pane. Click **Yellow Reset** button to reset the alarms.
- From T1/E1 Analyzer main window, invoke the **WCS Server: Special Applications > Windows Client Server (WCS) > WCS Server**. Configure WCS as follows -
 - Listen Port = 17080 (for T1 systems); 17090 (for E1 systems)
 - Messaging = Binary
 - Version = 4
- Click on **Start GL Server** button. Minimize the window.

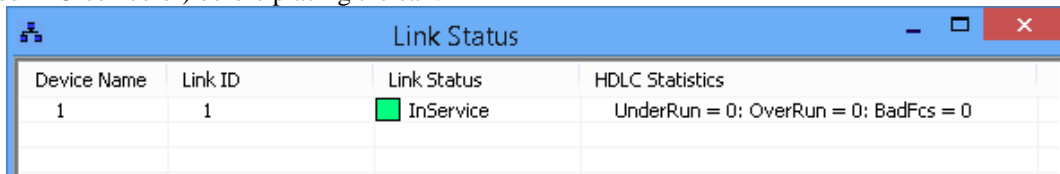
MAPS™ SS7 (GUI) on Card2

- This instance of MAPS™ is configured for **Call Reception**
- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation > MAPS™ SS7**
- While invoking this instance of MAPS™ SS7, choose the following in the **Protocol Selection** window -
 - **Protocol Standard = ISUP**
 - **Protocol Version = ITU**
 - **Node = SSP**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **Sig-Card2_B-Port_2**. Verify the default parameter values as listed below:
 - **Exchange Type = Non Control**
 - **CIC to Circuit Mapping = Timeslot Based**
 - **SSP Point Code = 2.2.2**
 - **Adjacent Destination Point Code = 1.1.1**
 - **Signaling Port = 2**
 - **Signaling Timeslot = 31 (for E1); 23 (for T1)**
 - **Destination Point Code = 1.1.1**
 - **Circuit Group 1 - Port Number = 2**
 - **Routing Destination Point Code = 1.1.1**
- From MAPS™ SS7 main window, select **Configuration** > invoke **Incoming Call Handler Configuration** window
 - Verify that the **Isup_Call.gls** script is loaded against the **Initial Address** message. Exit from the window
- From MAPS™ SS7 main window, select **“Editor”** menu -> invoke **Profile Editor** window and verify the following default parameter values:
 - Click  and load **“ISUP_Profiles”** file. Scroll down the left pane, and select, **Card2TS01** profile from the left pane.
Set **Card number = 2, Timeslot = 1, OPC = 2.2.2, DPC = 1.1.1** parameter values. Click  **Save** button.
 - In the same Profile Editor window, click  and select **“TrafficProfile”** file. Scroll down the left pane, and select **Card2TS01** profile. Set **Traffic Type to AutoTraffic-File** and **Traffic Direction for AutoTraffic to Tx-Rx**. Click  **Save** button.


MAPS™ SS7 (GUI) on Card1

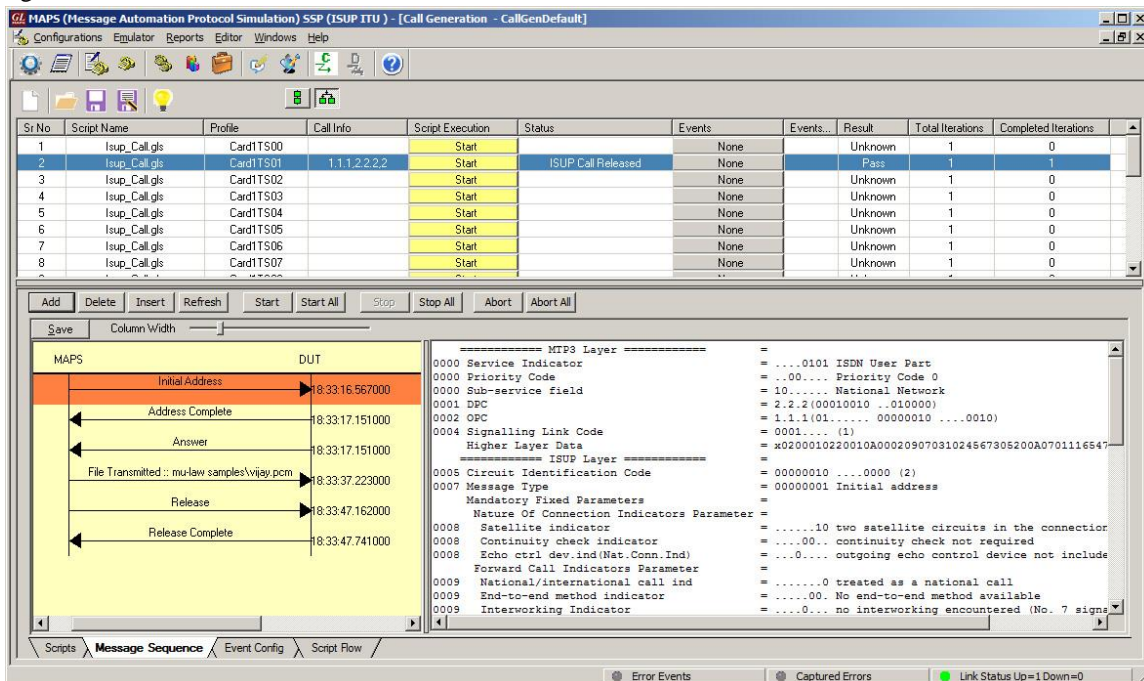
- This instance of MAPS™ SS7 is configured for **Call Generation**
- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation > MAPS™ SS7**
- While invoking MAPS™ SS7, choose the following in the **Protocol Selection** window -
 - **Protocol Standard = ISUP**
 - **Protocol Version = ITU**
 - **Node = SSP**
 - Click **Ok**
- By default, **Testbed Setup** window is displayed, click  and select **Sig-Card1_B-Port_1** and check for the configuration settings as below:
 - **Exchange Type = Control**
 - **CIC to Circuit Mapping = Timeslot Based**
 - **SSP Point Code = 1.1.1**
 - **Adjacent Destination Point Code = 2.2.2**
 - **Signaling Port = 1**
 - **Signaling Timeslot = 31 (for E1); 23 (for T1)**
 - **Destination Point Code = 2.2.2**

- **Circuit Group 1 - Port Number = 1**
- **Routing Destination Point Code = 2.2.2**
- From MAPS™ SS7 main window, select “**Editor**” menu -> invoke **Profile Editor** window and verify the following default parameter values:
 - Click  and load “**ISUP_Profiles**” file. Scroll down the left pane, and select, **Card1TS01** profile from the left pane. Verify **Card number = 1, Timeslot = 1, OPC = 1.1.1, DPC = 2.2.2** parameter default values. Click  **Save** button.
 - In the same Profile Editor window, click  and select “**TrafficProfile**” file. Scroll down the left pane, and select **Card1TS01** profile. Set **Traffic Type** to **AutoTraffic-File** and **Traffic Direction for AutoTraffic** to **Tx-Rx**. Click  **Save** button.
- **Start** the testbed on both the MAPS™ instances
- From MAPS™ SS7 main window, select **Reports** menu > invoke **Link Status** window. Verify that the **Link Status** is **UP** (indicated in Green color) before placing the call.



Device Name	Link ID	Link Status	HDLC Statistics
1	1	■ InService	UnderRun = 0: OverRun = 0: BadFcs = 0

- On the same MAPS™ SS7 instance (Card1), select **Emulator** menu > **Call Generation** window
 - By default, multiple call instances loaded with **Isup_Call.gls** script and **Card1TS**** profiles respectively are displayed. Select the instance loaded with Card1TS01 profile and click on the yellow **Start** button.
- Return to first instance of MAPS™ SS7 (Card2), click  icon and open **Call Reception** window. Observe that the calls are automatically received at the **Call Reception (SSP)** window.
- Wait for the call to terminate, and verify the **Message Sequence** flow at both generation and reception end.
- Select any message in the ladder diagram and observe the respective decode message on the right pane for the respective message.



Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Events...	Result	Total Iterations	Completed Iterations
1	Isup_Call.gls	Card1TS00		Start		None		Unknown	1	0
2	Isup_Call.gls	Card1TS01	1.1.1.2.2.2	Start	ISUP Call Released	None		Pass	1	1
3	Isup_Call.gls	Card1TS02		Start		None		Unknown	1	0
4	Isup_Call.gls	Card1TS03		Start		None		Unknown	1	0
5	Isup_Call.gls	Card1TS04		Start		None		Unknown	1	0
6	Isup_Call.gls	Card1TS05		Start		None		Unknown	1	0
7	Isup_Call.gls	Card1TS06		Start		None		Unknown	1	0
8	Isup_Call.gls	Card1TS07		Start		None		Unknown	1	0

Time	MAPS	DUT
18:33:16.567000	Initial Address	18:33:16.567000
18:33:17.151000	Address Complete	18:33:17.151000
18:33:17.151000	Answer	18:33:17.151000
18:33:37.223000	File Transmitted: mu-law samples/wjwv.pcm	18:33:37.223000
18:33:47.162000	Release	18:33:47.162000
18:33:47.741000	Release Complete	18:33:47.741000

```

===== MTP3 Layer =====
0000 Service Indicator           = ...0101 ISDN User Part
0000 Priority Code              = ...00.... Priority Code 0
0000 Sub-service field         = 10..... National Network
0001 DPC                       = 2.2.2(00010010 ..010000)
0002 OPC                       = 1.1.1(01..... 00000010 ....0010)
0004 Signalling Link Code     = 0001.... (1)
Higher Layer Data             = x0200010220010A00020907031024667905200A0701116547
===== ISUP Layer =====
0005 Circuit Identification Code = 00000010 ....0900 (2)
0007 Message Type              = 00000001 Initial address
Mandatory Fixed Parameters
Nature Of Connection Indicators Parameter = .....10 two satellite circuits in the connector
0008 Satellite indicator       = .....00.. continuity check not required
0008 Continuity check indicator = .....00.. outgoing echo control device not include
0008 Echo ctrl dev.ind(Nat.Conn.Ind) = .....00.. outgoing echo control device not include
Forward Call Indicators Parameter
0009 National/international call ind = .....0 treated as a national call
0009 End-to-end method indicator = .....00. No end-to-end method available
0009 Interworking Indicator     = .....0... no interworking encountered (No. 7 signs
  
```