

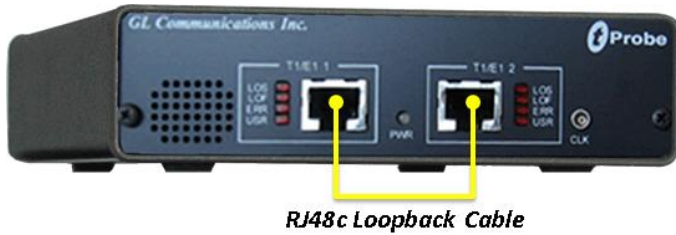
It is assumed that the T1/E1 Analyzer Hardware, Software and License installations are already performed referring to the purchased Hardware Installation Guide.

MAPS™ ISDN Application Verification

For functional verification, 2 instances of MAPS™ ISDN application is configured on a single PC, as source and destination nodes. The following steps explain MAPS™ ISDN configuration on the same PC in loopback mode to simulate ISDN call control scenario.

On the first instance, MAPS™ is configured as **Switch**, and on the second instance, MAPS™ is configured as **Subscriber** generating ISDN call control messages.

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

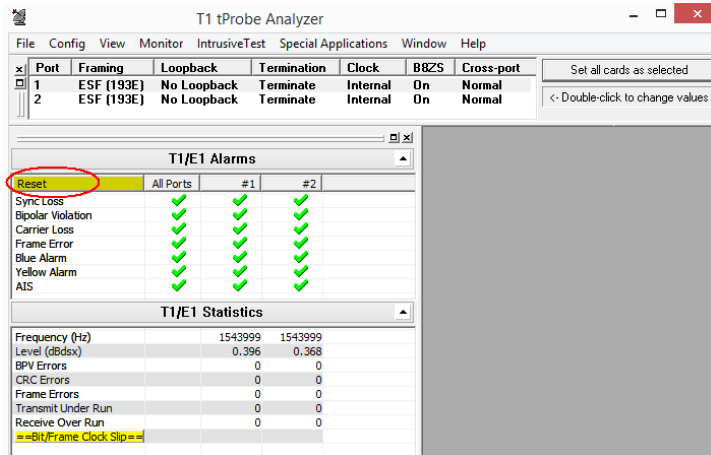


RJ48c Loopback Cable

- 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.

On the first MAPS™ ISDN (Switch) Instance

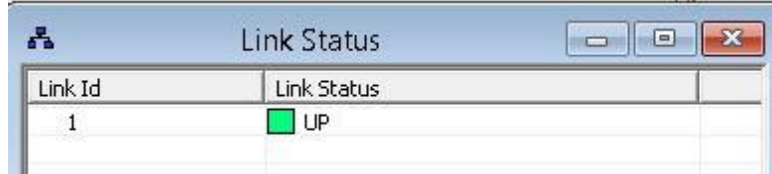
- From T1/E1 Analyzer main window, from **Special Applications > Protocol Emulation > MAPS™ ISDN**
- While invoking the first MAPS™ ISDN instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard = **ISDN**
 - Protocol Version = **ITU**
 - Node = **Switch**. Click **Ok**
- This instance of MAPS™ is configured for **Call Reception**
- By default, **Testbed Setup** window is displayed. Click  and select '1 Switch_Card2' and check for the following parameter default values:
 - Channel Mapping = **Timeslot Based**
 - T1/E1 Port Number = **2**
 - Signaling Timeslot = **16**
 - Signaling Subchannel = **1..8**
 - End User Configuration = **Switch_Profiles.xml**
- From MAPS™ ISDN main window, select **Configuration > Incoming Call Handler Configuration**. Verify that the **Recvcall.gls** script is loaded against the **SETUP** message. Close the window
- From MAPS™ ISDN main window, select “**Editor**” menu -> invoke **Profile Editor** window:
 - Click  and load “**Switch_Profiles**” file. Scroll down the left pane and select **Card2TS01** profile. Set **Card Number = 2**, and **Timeslot = 1** parameter values. Click  **Save** button.
 - In the same Profile Editor window, click  and load “**TrafficProfile**” file. Scroll down the left pane and select **Card2TS01** profile. Set **Enable Traffic** to **AutoTraffic-File** and **Traffic Direction for AutoTraffic** to **Tx-Rx**. Click  **Save** button.
 - Exit from the Profile Editor window.




On the second MAPS™ ISDN (Subscriber) Instance

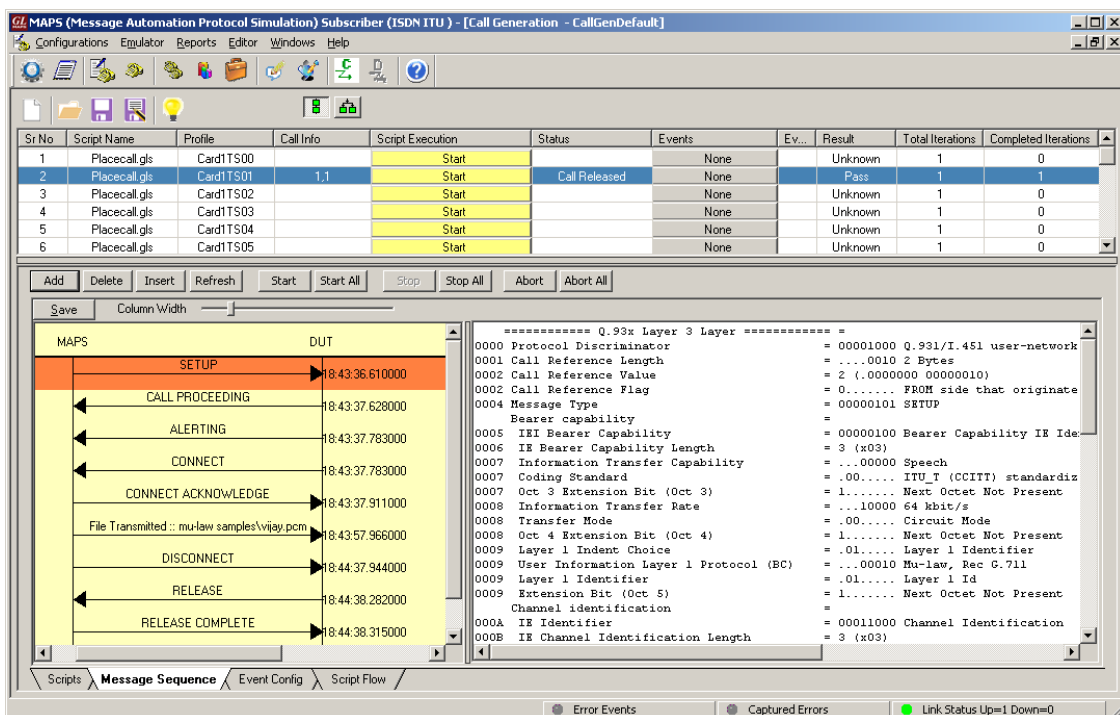
- From T1/E1 Analyzer main window, from **Special Applications > Protocol Emulation > MAPS™ ISDN**
- While invoking the second MAPS™ ISDN instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard = **ISDN**
 - Protocol Version = **ITU**
 - Node = **Subscriber**. Click **Ok**
- This instance of MAPS™ is configured for **Call Generation**
- By default, **Testbed Setup** window is displayed. Click  and select '1 Subscriber_Card1' and check for the configuration settings as below:
 - Channel Mapping = **Timeslot Based**
 - T1/E1 Port Number = **1**
 - Signaling Timeslot = **16**
 - Signaling Subchannel = **1..8**
 - End User Configuration = **Subscriber_Profiles.xml**
- From MAPS™ ISDN main window, select “**Editor**” menu -> invoke **Profile Editor** window.

- Click  and load “Subscriber_Profiles” file. From the left pane, select **Card1TS01** profile. Set **Card Number = 1**, and **Timeslot = 1** parameter values. Click  **Save** button.
- In the same Profile Editor window, click  and load “TrafficProfile” file. From the left pane, select **Card1TS01** profile. Set **Enable Traffic to AutoTraffic-File** and **Traffic Direction for AutoTraffic to Tx-Rx**. Click  **Save** button.

- **Start** the test bed setup on both the MAPS™ instances
- **Note:** Once the test bed setup is started on both the instances of MAPS™ ISDN (Switch and Subscriber), select **Reports** menu > invoke **Link Status** window. Verify that the **Link Status** is **UP** (indicated in Green color) before placing the call.



- In the second instance MAPS™ ISDN (Subscriber) main window, click  **Call Generation** icon from the top toolbar
 - By default, multiple call instances loaded with **Placecall.gls** script and **Card1TS**** profiles respectively are displayed.
 - Verify that **Parallel Execution**  is enabled in the Call Generation window to execute the scripts simultaneously
 - Select the instance loaded with **Placecall.gls** script and **Card1TS01** profile and click on the yellow **Start** button.
- Return to the first instance of MAPS™ ISDN (Switch), from the top toolbar, click  **Call Reception** icon. Observe that the calls are automatically received in the **Call Reception** window running the Rx (**Recvcall.gls**) script.
- Wait for the calls 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	Ev...	Result	Total Iterations	Completed Iterations
1	Placecall.gls	Card1TS00		Start		None		Unknown	1	0
2	Placecall.gls	Card1TS01	1,1	Start	Call Released	None		Pass	1	1
3	Placecall.gls	Card1TS02		Start		None		Unknown	1	0
4	Placecall.gls	Card1TS03		Start		None		Unknown	1	0
5	Placecall.gls	Card1TS04		Start		None		Unknown	1	0
6	Placecall.gls	Card1TS05		Start		None		Unknown	1	0


```

===== Q.931 Layer 3 Layer =====
0000 Protocol Discriminator           = 00001000 Q.931/I.451 user-network
0001 Call Reference Length            = ...0010 2 Bytes
0002 Call Reference Value             = 2 (.00000000 00000010)
0003 Call Reference Flag              = 0..... FROM side that originate
0004 Message Type                    = 00000101 SETUP
Bearer capability
0005 IE Bearer Capability             = 00000100 Bearer Capability IE Ide
0006 IE Bearer Capability Length      = 3 (x03)
0007 Information Transfer Capability  = ...00000 Speech
0007 Coding Standard                 = .00..... ITU_T (CCITT) standardiz
0007 Oct 3 Extension Bit (Oct 3)     = 1..... Next Octet Not Present
0008 Information Transfer Rate       = ...10000 64 kbit/s
0008 Transfer Mode                   = .00..... Circuit Mode
0008 Oct 4 Extension Bit (Oct 4)     = 1..... Next Octet Not Present
0009 Layer 1 Indent Choice            = .01..... Layer 1 Identifier
0009 User Information Layer 1 Protocol (BC) = ...00010 Mu-law, Rec G.711
0009 Layer 1 Identifier              = .01..... Layer 1 Id
0009 Extension Bit (Oct 5)           = 1..... Next Octet Not Present
Channel identification
000A IE Identifier                   = 00011000 Channel Identification
000B IE Channel Identification Length = 3 (x03)
  
```