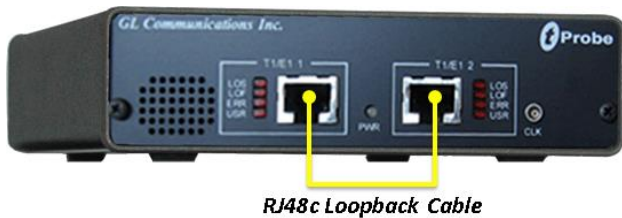


*It is assumed that the T1/E1 Analyzer Hardware, Software and License installations are already performed referring to the purchased Hardware Installation Guide.*

**MAPS™ ISDN Conformance Application Verification**

For functional verification, 2 instances of MAPS™ ISDN Conformance application can be configured on a single 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.**

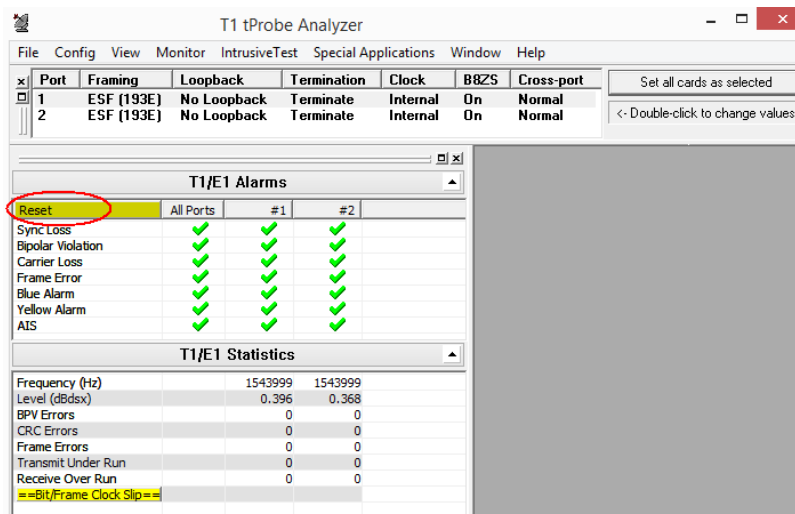


**RJ48c Loopback Cable**

- 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.

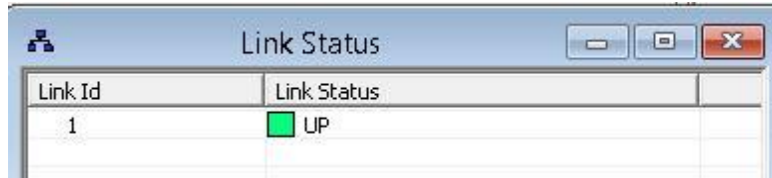
### **On the first MAPS™ ISDN Conformance (Subscriber) Instance**



- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation > MAPS™ ISDN Conformance Emulator**
- While invoking the first MAPS™ ISDN Conformance instance, verify the following in the **Protocol Selection** window -
  - Protocol Standard = **ISDN Conformance**
  - Protocol Version = **ITU**
  - Node = **Subscriber**
  - Click **Ok**
- This instance of MAPS™ is configured for **Call Reception**
- By default, **Testbed Setup** window is displayed. Click  and select '1 Subscriber\_Card1' and check for the settings as below:
  - T1/E1 Port Number = 1
  - Signaling Timeslot = **23 (for T1); 31 (for E1)**
  - Signaling Subchannel = **1..8**
  - End User Configuration = **Subscriber\_Profiles.xml**
- From MAPS™ ISDN Conformance main window, select **Configuration > Incoming Call Handler Configuration**. Click  and select 'Rx\_SUB\_U0' file. Verify the scripts loaded against the following messages:
  - **SETUP** message: **Rx\_Sub\_10005.gls, Rx\_Sub\_10006.gls, Rx\_Sub\_10007.gls, and Rx\_Sub\_10008.gls** scripts.
  - **Release** message: **Rx\_Sub\_10002.gls**
  - **Release Complete** message: **Rx\_Sub\_10001.gls**
  - Click  **Save** button. Exit from the window.

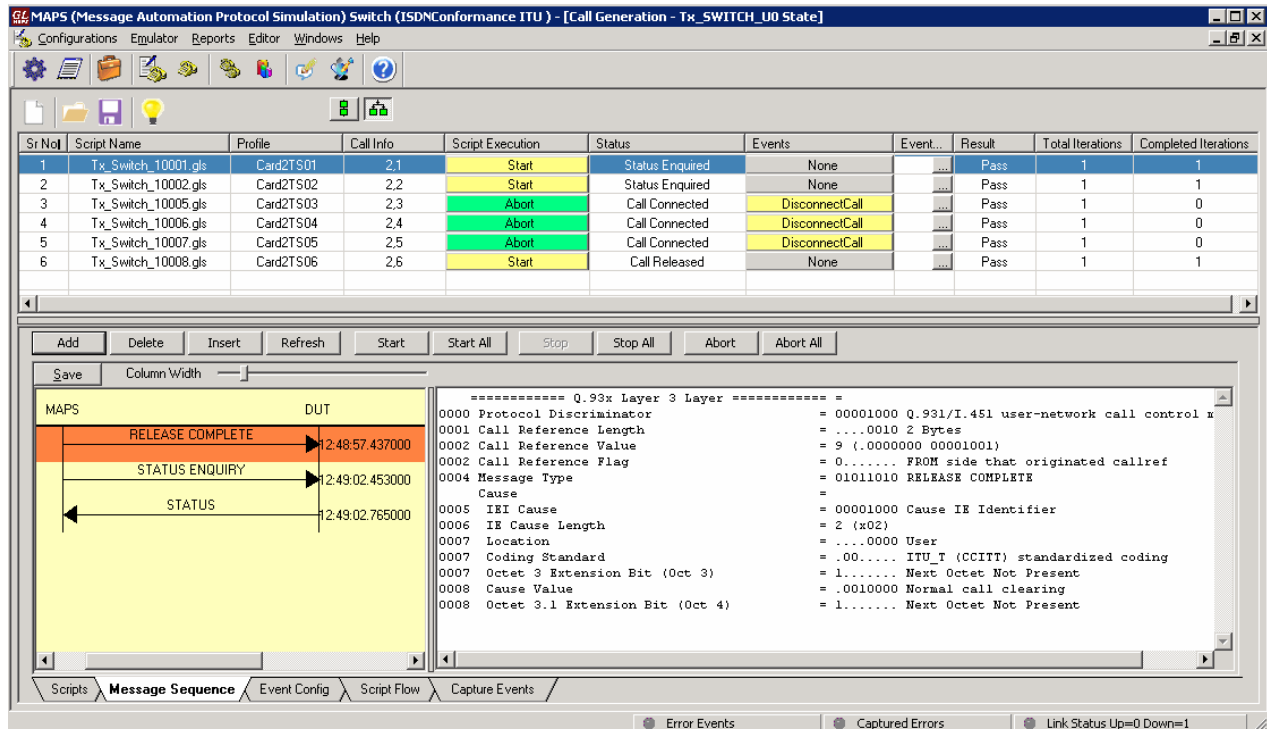
### **On the second MAPS™ ISDN Conformance (Switch) Instance**

- From T1/E1 Analyzer main window, from **Special Applications > Protocol Emulation > MAPS™ ISDN Conformance Emulator**.
- While invoking the second MAPS™ ISDN Conformance instance, verify the following in the **Protocol Selection** window -
  - Protocol Standard = **ISDN Conformance**
  - Protocol Version = **ITU**
  - Node = **Switch**
  - Click **Ok**
- This instance of MAPS™ is configured for **Call Generation**
- By default, **Testbed Setup** window is displayed. Click  and select '1 Switch\_Card2' and check for the configuration settings as below:
  - T1/E1 Port Number = 2
  - Signaling Timeslot = **23 (for T1); 31 (for E1)**

- Signaling Subchannel = 1..8
- End User Configuration = **Switch\_Profiles.xml**
- **Start** the test bed setup on both the instances
- **Note:** Once the test bed setup is started on both the instances of MAPS™ ISDN Conformance (Switch and Subscriber), select **Reports** menu > invoke **Link Status** window. Verify if the **Link Status** is **UP** (indicated in Green color) before placing the call.



- In the second instance MAPS™ ISDN Conformance (Switch) main window, from **Emulator** menu > select **Call Generation**
  - Click **Open Configuration** icon available on the **Call Generation** window, select **Tx\_SWITCH\_U0 State** pre-saved configuration file.
  - This configuration loads multiple call instances with **Tx\_SWITCH\_\*.gls** scripts and **Card2TS\*\*** profiles respectively.
  - Verify that **Parallel Execution**  is enabled in the Call Generation window to execute the scripts simultaneously.
- Click **Start All** button to initiate all the ISDN U0 state conformance scripts.
- Return to the first instance of MAPS™ ISDN (Subscriber), click  icon and open **Call Reception** window. Observe that the calls are automatically received in the **Call Reception** window running the Rx (U0 State Conformance) scripts.
- 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	Event...	Result	Total Iterations	Completed Iterations
1	Tx_Switch_10001.gls	Card2TS01	2.1	Start	Status Enquired	None	...	Pass	1	1
2	Tx_Switch_10002.gls	Card2TS02	2.2	Start	Status Enquired	None	...	Pass	1	1
3	Tx_Switch_10005.gls	Card2TS03	2.3	Abort	Call Connected	DisconnectCall	...	Pass	1	0
4	Tx_Switch_10006.gls	Card2TS04	2.4	Abort	Call Connected	DisconnectCall	...	Pass	1	0
5	Tx_Switch_10007.gls	Card2TS05	2.5	Abort	Call Connected	DisconnectCall	...	Pass	1	0
6	Tx_Switch_10008.gls	Card2TS06	2.6	Start	Call Released	None	...	Pass	1	1

Message Sequence Diagram:

```

===== Q.93x Layer 3 Layer =====
0000 Protocol Discriminator      = 00001000 Q.931/I.451 user-network call control x
0001 Call Reference Length      = ...0010 2 Bytes
0002 Call Reference Value       = 9 (.0000000 00001001)
0002 Call Reference Flag        = 0..... FROM side that originated callref
0004 Message Type               = 01011010 RELEASE COMPLETE
Cause
0005 IEI Cause                  = 00001000 Cause IE Identifier
0006 IE Cause Length            = 2 (x02)
0007 Location                   = ...0000 User
0007 Coding Standard            = .00.... ITU_T (CCITT) standardized coding
0007 Octet 3 Extension Bit (Oct 3) = 1..... Next Octet Not Present
0008 Cause Value                = .0010000 Normal call clearing
0008 Octet 3.1 Extension Bit (Oct 4) = 1..... Next Octet Not Present
  
```

Sequence Diagram Labels:

- RELEASE COMPLETE (12:48:57.437000)
- STATUS ENQUIRY (12:49:02.453000)
- STATUS (12:49:02.785000)