*It is assumed that the GL's T1 E1 Hardware, Software, and License installations are already performed by referring to the respective T1 E1 hardware Quick Installation Guide (for example, T1 E1-Dual-USB-tProbe-Analyzer-Quick-Install-Guide.pdf). Also perform license installation for the purchased protocol analyzer software.*

<u>*Note*</u>*: Proceed to the verification steps below after successfully installing the T1E1 hardware, software, and verifying the required T1 E1 hardware licenses (for example, PTA001, PEA001 applicable for tProbe™ T1 E1 Analyzer).*
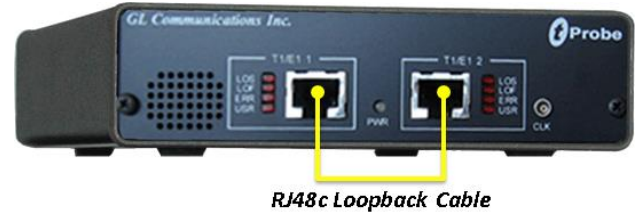
RJ48c Loopback Cable

Physical Connection: - Cross-connect T1/E1 Port #1 and Port #2 of the Hardware unit back-to-back using RJ48c loopback cable as shown in the figure.

Verification

The below example depicts selection of required ports and timeslots, specifying capture file options, starting Real-time capture of T1E1 frames for further analysis.

- After successful installation of T1E1 hardware, double-click on the T1 application short-cut icon created on the desktop.


> 📓 **Note:**
> To simulate T1 E1 MAPS CAS application, refer to T1 E1-MAPS-CAS-Quick-Verification-Guide.pdf

- Select **Special Applications → Windows Client Server (WCS) → WCS Server.** Start the Server by clicking on **Start GL Sever** before invoking the CAS application.

- Once you click on **Start** button, Server window will be opened. Note that it is necessary to keep this window opened (keep the window minimized) to proceed with the test.

- Select **Special Applications → Protocol Analysis → CAS Analysis**.

- Select **Capture → Capture File Options**, click on browse button, select the desired location and enter the temporary file name to store the captured T1 E1 traffic in HDL file format with the specified file name. Close the window.

- Select **Configure → Protocol and GUI Options**. From the left pane, click on **Protocol Standard Selection** and select the protocol standard as required. Close the window.

- Select **Capture → Stream Interface Selection** or click on **Card & Stream Selection** on the protocol analyzer and specify the following options as required.

  ➢ Click on ✔ for **PORT #1** to select all timeslots on the selected port to capture the T1/ E1 traffic.
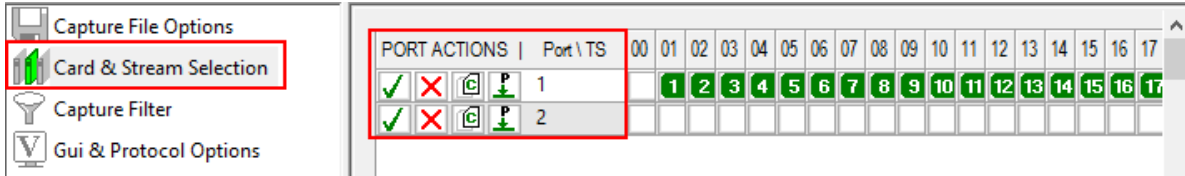
- After configuring **Stream/Interface** options, close the window.
- On the protocol analyzer, click **File → Start Real-time** or click on the icon to start the Real-time analyzer.
- If the Temp.hdl file already exists in the T1 E1 installation directory, a warning message will appear to replace Temp.hdl file, click Yes to overwrite the file
- From the main window, select **Intrusive Test → Transmit Tone** this will invoke Tx Tone application.

  ➢ On the **Tx Tone** application, select **Device Selection** tab and select **Card#2**. Similarly, click on **Timeslots** tab and click on **Select All** to select all the timeslots.

  ➢ Now, go back to the **Tx Tone** tab and make sure that under Tone Frequencies the 1st tone option is set to 1004 Hz and Tone Power Level dBm is set to -10 dBm.

  ➢ Click on **Send** to transmit tone. After few seconds stop the transmission.

- Observe the T1 E1 traffic being captured in the Protocol Analyzer on the selected port and timeslots.
- Columns can be defined on the **Summary View** by selecting **Configure Menu → Protocol and GUI Options → Define Summary Columns**.
- Column Search can be performed to search for a particular value on the selected column. Right-click on the column for which column search is required and select **Summary Column Search**, this will display **Single Column String Search** window to search the required value.

  ➢ For example, in the **Single Column String Search** window specify the value as 10, 11, or 12 and click on (Next) or (Previous) button to search specified value on the selected column.

  ➢ In the search option, wildcards can also be used to search for a specific pattern such as "1?", this will search any value after 1 like 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.

- Set the filtering criteria by Selecting **View** > **Filtering Criteria** or on the protocol analyzer click on **View Filter**, this will display **Filter Selection** dialog window. Expand the protocol field and set the filter value as required by clicking on the **Activate** button.

- After the filtering criteria have been set, select **View** > **Activate Filter** or on the protocol analyzer click on icon to activate the filter and observe the summary view to see the filtered values.

Troubleshoot

If the captured T1E1 traffic show decode errors then, troubleshoot with the following steps:

- Check if the analyzer software invokes with the following alarm errors then, ensure that T1E1 Crossover cables are properly plugged-in.

- Check if the Card settings for **Termination** is set to **Terminate** mode for all the ports and click on Reset button to get the sync on both the ports.

T1/E1 Alarms			
Reset	All Ports	#1	#2
Sync Loss	✗	✗	✓
Bipolar Violation	. H	✓	. H
Carrier Loss	✗	✗	✓
Frame Error	. H	✓	. H
Blue Alarm	✓	✓	✓
Yellow Alarm	✓	✓	✓
AIS	✓	✓	✓

- Check if proper **Protocol Standard** is selected, if wrong protocol standard is selected then, decode error will occur. Select the proper protocol standard as explained in the Verification section.

- In case of **Bridge** mode, make sure that **Y-Bridge** cables are connected properly to capture T1 E1 traffic non-intrusively