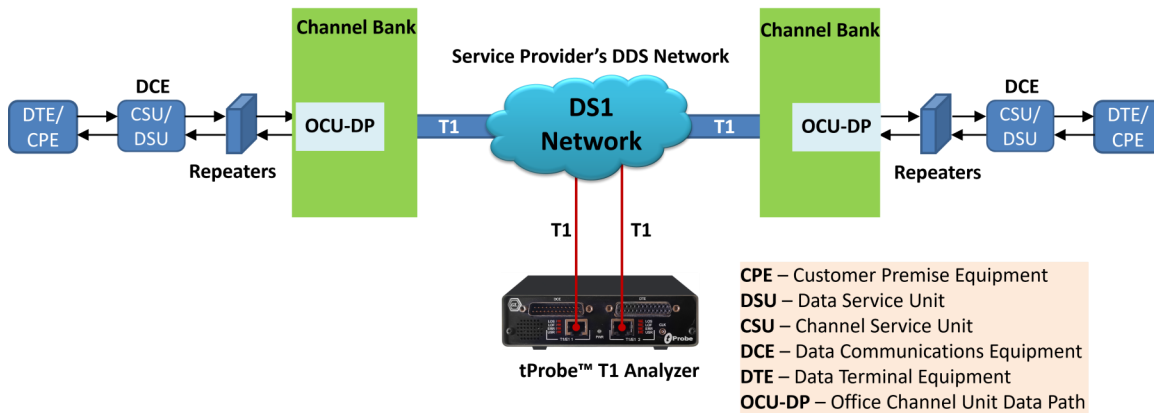


# DDS Analyzer



## Overview

Conventional Digital Signal Services (DDS) data channel may utilize multiple, all, or a fractional timeslot of the T1 line, with the transmission rates of 2.4 kbps, 4.8 kbps, 9.6 kbps, 19.2 kbps, and 56 kbps. As depicted in the main diagram, the DDS circuit starts with customer premises equipment that can include a computer or a Data Terminal Equipment (DTE), a Data Service Unit (DSU)/Channel Service Unit (CSU).

The Unformatted customer data are transmitted from the DTE, and then passed through a DSU/CSU before being transmitted over the local loop. Depending on the length of the loop, repeaters may be needed along the loop to regenerate the signal.

The local loop signal is formatted into a DS0 signal by the Office Channel Unit-Data-Port card (OCU-DP) and multiplexes the customer signal into one of the 24 timeslots of a T1 signal. DDS networks accept data from the customer at various standard rates.

Full-duplex, synchronous data transmission has been available at 56kbps and standard sub-rates of 2.4 kbps, 4.8 kbps, 9.6 kbps etc. To multiplex a sub rate signal into a 64 kbps time slot, DDS uses a technique known as Byte Stuffing, by which, customer information is repeated the required number of times to create a 64 kbps DS0 signal.

GL supports non-intrusive monitoring and analysis of DDS frames using T1 Analyzer hardware. The captured data can be decoded and analyzed by GL's DDS Protocol Analyzer. Currently the analyzer supports 9.6 kbps data rates only.

GL Communications supports real-time and offline DDS Protocol Analyzer (Pre-requisites: GL's field proven T1 internal PCI based analyzer cards or USB Laptop T1 based analyzer external units, required licenses and Windows® 10 and above operating system).

For more details, refer [DDS Protocol Analyzer](#) webpage.



818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
(Web) [www.gl.com](http://www.gl.com) - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [info@gl.com](mailto:info@gl.com)

## Main Features

### Display

- Displays Summary, Detail, Hex-dump, and Statistics Views
- Summary View displays all captured DDS frames, including its timeslot, sub channel, port number, relative time in a tabular format
- Detail View:
  - Provides options to display or hide the required protocol layers
  - Contents of this view can also be copied to clipboard
  - Provides option to toggle detail view vertically or horizontally as feasible for the user
- Hex dump View displays the frame information in HEX and ASCII format, the contents of this view can also be copied to clipboard
- Any protocol field can be added to the summary view, filtering, and search features providing users more flexibility to monitor required protocol fields
- Option to combine data from multiple columns under one column

### Capturing Streams

- Streams can be captured on the selected time slots (contiguous or non-contiguous), sub-channels, or full bandwidth
- Frames can be captured in either 64 kbps, 56 kbps, n x 64 kbps, or n x 56 kbps data channels (hyper-channels)

### Export Options

- Exports Summary View information to a comma delimited file for subsequent import into a database or spreadsheet
- Capability to export detailed decode information to an ASCII file

### Additional Features

- Captured frames can later be used for traffic simulation using HDLC Transmit/Receive/Playback application
- Recorded trace files can be played back using HDLC playback option

## Summary, Detail, and Hex dump Views

The DDS analyzer application is invoked from the main menu of GL's T1 Analyzer for real-time analyzer. The analyzer displays Summary, Detail and Hex dump View in different panes. The Summary View displays Frame Number, Time, Length, Error, Subchannel, and Timeslot. User can select a frame in Summary View to analyze and decode each frame in the Detail View. The selected frame is analyzed and decoded according to DDS frame specifications. The Hex dump View displays the frame information in HEX and ASCII. The contents of Detail and Hex Dump view the contents of this view can also be copied to clipboard.

The screenshot displays the DDS Protocol Analysis application interface. The window title is "DDS Protocol Analysis DDS 64-bit". The menu bar includes File, View, Capture, Statistics, Database, Configure, and Help. The toolbar contains various icons for file operations and analysis. The main window is divided into three panes:

- Summary View:** A table showing captured frames. The table has columns: Dev, TSlot, SubCh, Frame#, TIME (Date), Len, and Error. The first row is selected, showing Frame# 12655, TIME 2017-11-28 09:23:26, and Len 411.
- Detail View:** Displays the decoded data for the selected frame. It shows the DDS Layer structure with fields like DDS, BS-66, FQO=012, and various addresses and times.
- Hex Dump View:** Displays the raw hex data of the frame, with corresponding ASCII characters on the right side.

Red arrows on the right side of the screenshot point to each of these three panes, labeled "Summary View", "Detail View", and "Hex Dump View".

Figure: Summary, Detail, and Hex dump Views

## Real-time and Offline Analysis

Users can capture and analyze DDS frames using either real-time or offline analyzers, and record all into a trace file. The recorded trace file can be used for offline analysis or exported to a comma-delimited file, or ASCII file. Real-time capturing requires user to specify timeslots and data transmission rate. Sub channel and N x 56 hyper channel enables user to analyze data captured by fractional DSO and DS1 link respectively.

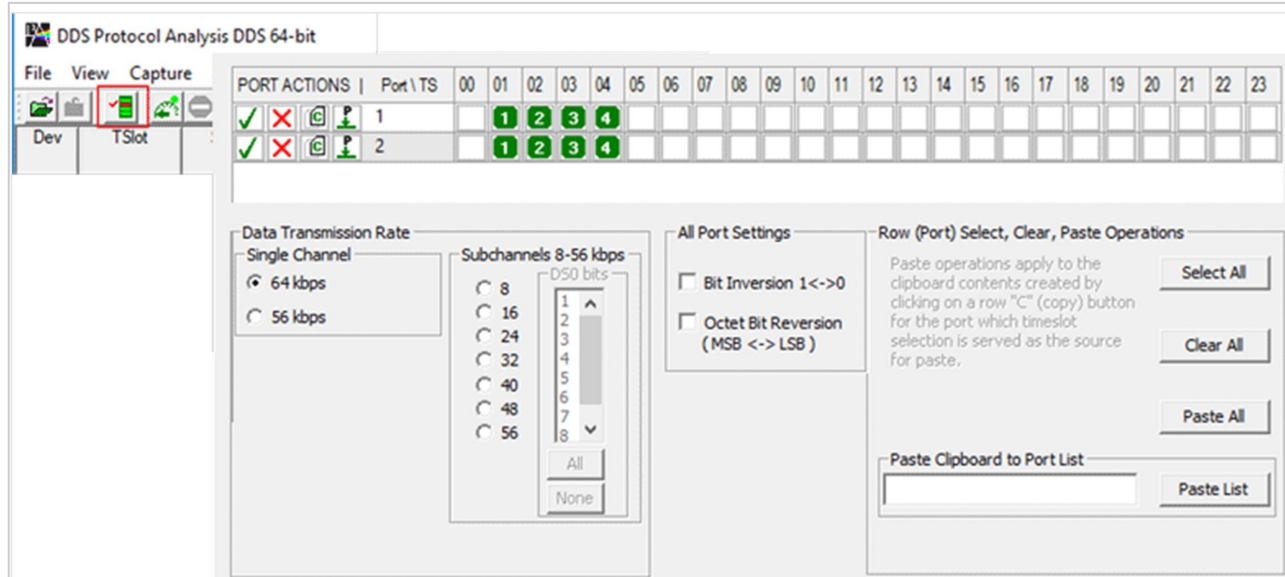


Figure: Stream/Interface Selection

## Save / Load All Configuration Settings

Protocol Configuration window provides a consolidated interface for all the important settings required in the analyzer. This includes various options such as protocol selection, startup options, stream/interface selection, and so on. All the configuration settings done in any of these options can be saved to a file, loaded from a configuration file, or user may just revert to the default values using the default option.

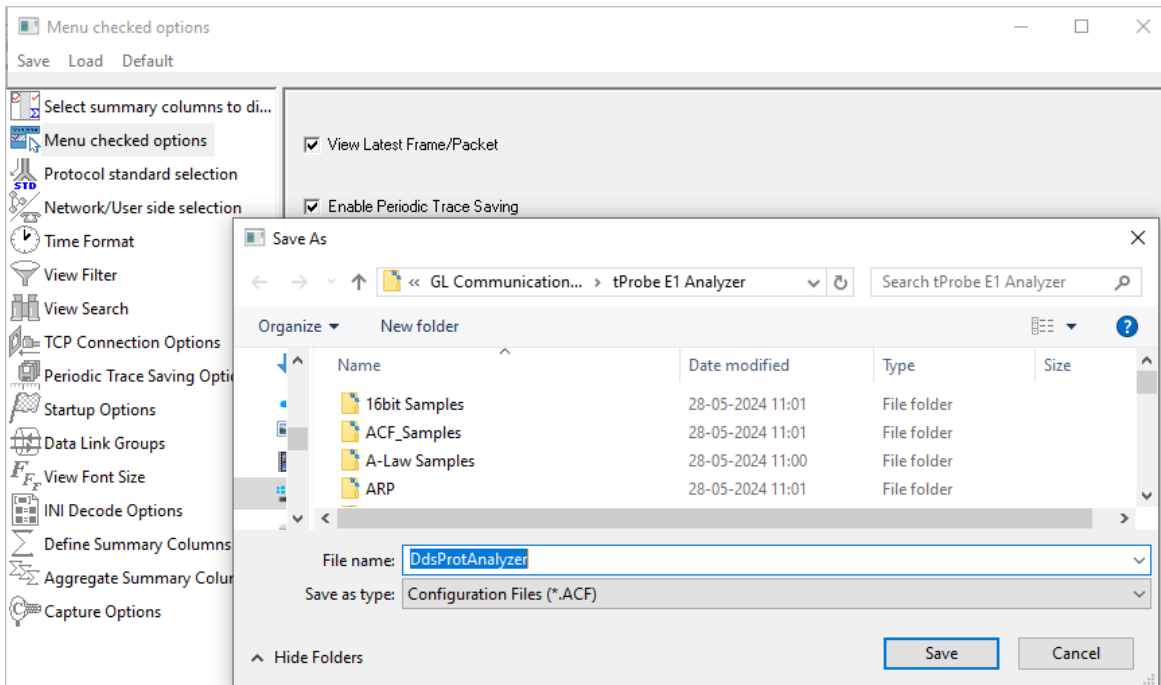


Figure: Save / Load Configuration

## Buyer's Guide

Item No	Product Description
<a href="#">XX102</a>	T1 Real-Time DDS Protocol Analyzer

Item No	Related Software
<a href="#">XX020</a>	Record/Playback File Software
<a href="#">CDR032</a>	Call Data Records
<a href="#">XX051</a>	Synchronous Trunk Record Playback

Item No	Related Hardware
<a href="#">PTE001</a>	tProbe™ Dual T1 E1 Laptop Analyzer (Require Basic Software)
<a href="#">PTE025</a>	Data Communications Board for Interfaces RS-232, RS-449, EIA-530, V.35, and many others
<a href="#">FTE001</a>	QuadXpress T1 E1 Main Board (Quad Port)
<a href="#">ETE001</a>	OctalXpress T1 E1 Daughter boards (Octal Port)
<a href="#">XTE001</a>	Dual Express (PCIe) T1 E1 Boards

For more details, refer [DDS Protocol Analyzer](#) webpage.



**GL Communications Inc.**

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A  
 (Web) [www.gl.com](http://www.gl.com) - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) [info@gl.com](mailto:info@gl.com)