

FDL Analysis and Emulation

Analysis according to Q.921, TR54016, T1.403, T1.408, I.431, G.963, G.704

Non-intrusive Analysis using GL's T1 Analyzers

Real-time and Off-line Analysis

Summary, Detail, and Hex-Dump Views

Playback of Recorded Traces

View and Save the Received Bytes into a File

FDL can be Analyzed Using VB Client

The screenshot displays two windows from the FDL Analysis software. The top window, titled 'FDL Analysis', shows a table of captured messages with columns for Dev, Msg #, Time, Length, Error, Address, Ctrl, From, Type, and Information. Below the table, it shows 'Card2 Frame=0 at 0:00:00.009400 OK' and 'LAPD Information' including SAPI, Command/Response, TEI, and Control. The bottom window, titled 'Off-line FDL Protocol Analysis G.704', shows a detailed view of a frame with columns for Dev, TSut, SubCh, Frame#, TIME (Relative), Len, Error, Control FDL, Current Status F-bit, Current Status U-bit, Current Status L-bit, and EK. It displays 'Card2 TimeSlot=0 Frame=0 at 00:00:00.000000 OK Len=75' and provides a hex dump of the frame data.

Overview

The Facility Data Link Analyzer (FDL) is available as a real-time (XX021) as well as offline analyzer (OLV021) application. It can perform FDL decode and analysis on T1 channels in real-time and off-line. The FDLA requires T1 E1 analyzer to be set in ESF mode.

Both real-time and off-line analysis present information in two layers:

- Raw HDLC Frame data as a hexadecimal and ASCII octet dump
- FDL message information

The real-time mode of operation is used to capture stream of HDLC frames and the embedded bit-patterned ESF data link messages on the selected cards. Captured information can be saved to disk for later off-line analysis.

HDLC frames are parsed according to Q.921; FDL messages are decoded based on the AT&T TR54016, ANSI T1.403, T1.408, I.431, G.963 and G.704. Multiple instances of FDL analyzer can run simultaneously capturing data from several T1 lines.

Captured Frames can later be used for traffic simulation using the FDL playback application. The captured bytes can be saved into a file and raw hex bytes being received can be viewed.

For more details, visit <http://www.gl.com/flddoc.html>

Main Features

- Supports Windows® 7/8.1 Operating System with user-friendly GUI.
- Real-time as well as off-line analysis.
- Summary view displays LAPD information.
- Detail view displays decodes of a user selected frame from the Summary View.
- Hex dump view displays the frame information in HEX and ASCII format.
- Raw HDLC frame data as a hexadecimal and ASCII octet dump.
- Capability to export detail decode information to an ASCII.



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Summary and Detail Views

FDL Analyzer user interface has two panes: the summary view at the top and the detail view at the bottom. The splitter separating the summary and the detail views allows dividing screen according to user preferences. The summary view columns can be resized and reordered using drag and drop mouse operation. The detail view displays frame summary information, LAPB or LAPD address and control, message details, and hexadecimal dump of all.

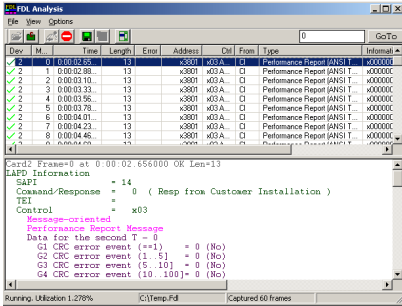


Figure: Summary and Detail View

Facility Data Link Real-time and Off-line Analysis

The real-time analysis is used to capture data on one or multiple T1 lines. The captured data is always stored in a temporary file. Before capturing is started, the capturing options and timeslots must be specified. These settings are saved in the Windows registry and can be reused between FDLA sessions. The off-line mode of operation can be used to analyze a trace saved in a file during real-time analysis.

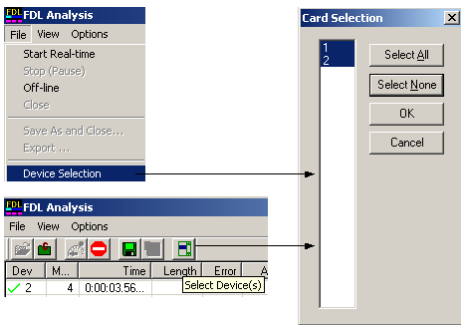


Figure: Data Link Real-time and Off-line Analysis

Buyer's guide

- [XX021](#) – FDL Software for ESF (T1 only)
- [OLV021](#) – FDL Offline Analysis (T1 only)

Related Software

- [XX660](#) – w/ FDL Option and VB Client to Control FDL

Related Hardware

- [UTE001](#) – Portable USB based Dual T1 or E1 Laptop Analyzer
- [HTE001](#) – Universal HD T1 or E1 PCI Cards
- [PTE001](#) – tProbe™ Dual T1 E1 Laptop Analyzer
- [FTE001, ETE001](#) – Quad and Octal T1 E1 Analyzer Boards
- [TTE001](#) – tScan16™ T1/E1 Boards

FDL Playback and View Save Data

The Playback File module of the FDL analyzer allows the user to transmit data directly into the FDL bit stream. The user may transmit valid HDLC frames (properly formed HDLC frame file required), or the user may transmit raw data from a file of raw (hex) bytes (codeword strings, etc.). When transmitting HDLC frames, the number of flags between frames may be selected. The View and Save Data module allows the user to view, the raw hex bytes being received from the FDL bit stream, the Framing bit stream, or the CRC bit stream during real time analysis and to save the received bytes into a file.

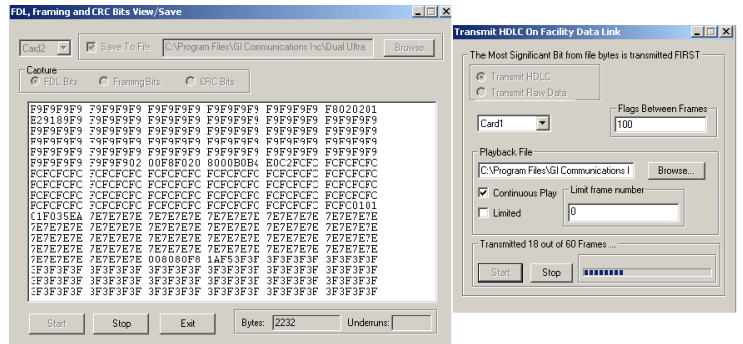


Figure: FDL Playback and View Save Data

FDL Analysis In VB Client (Optional Software)

The FDL utility allows the transmission and reception of FDL messages. FDL messages include the performance report (PRM), the performance report with supplementary performance report (SPRM), the network performance report (NPRM) and the code words. These messages are defined in the ANSI T1.403 specification. The FDL utility window has transmission interface, message definition, PRM monitoring, event list.

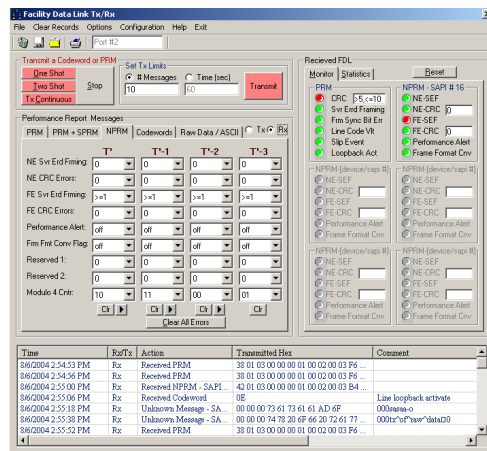


Figure: FDL Playback and View Save Data

Bin2Frm.exe & Frm2Bin.exe Utilities

Bin2Frm.exe utility converts binary input files to HDLC framed output files (.hdl file). It accepts single or multiple binary files as input and assembles them to have a single output HDLC file. Frm2Bin.exe utility accepts a HDLC file input and converts it to a binary file output.



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