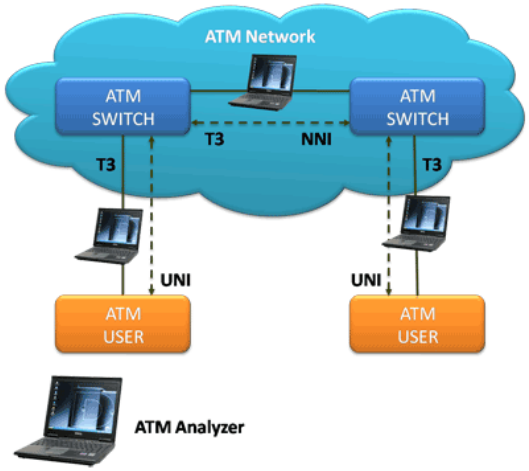
T3 E3 ATM Protocol Analyzer



Supports UNI 4.0, 3.1, & Q 2931 Signaling Protocols

Analyze across UNI & NNI Interfaces

Supports SDH X^43+1 Scrambling

Supports Filtering and Reassembly Options

Supports ATM, AAL2, & AAL5

Summary, Detail, Hex-dump, Statistics, and Call-Detail Views

Search & Filtering Capabilities

Real-time & Offline Analysis

Statistics Based on Frame-Count, Byte-Count, and more

Overview

Asynchronous Transfer Mode (ATM) is a flexible network protocol carrying voice, video, and data payload carried in fixed length cells. ATM network basically has two kinds of interfaces i.e. **UNI** (Interface between ATM User and Public ATM switch) and **NNI** (Interface between two Public ATM switches). Similar to the OSI Protocol model, ATM has an ATM Layer as Layer 2, ATM Adaptation Layer (AAL) as Layer 3 and other higher layers depending on C-Plane, U-Plane or Layer Management Plane. User information is transferred across U-Plane and Signaling messages is transferred across C-Plane. ATM-UNI signaling is used to create and release SVCs along with a particular QoS attached to it depending bandwidth on demand.

GL's T3 ATM Analyzer is used to analyze and decode AAL2 (CPS-SDU, SSSAR-SDU, and SSCS), AAL5 (CPCS), UNI, and others across U plane and C plane of UNI and NNI interface.

Main Features

- Displays Summary, Detail, Hex-Dump, Statistics, and Call Detail Views.
- Any protocol field can be added to the summary view, filtering, and search features providing users more flexibility to monitor required protocol fields
- Supports decoding of Classical IP over ATM, Multi-Protocol Over ATM, and SS7 over ATM.
- Detail view displays decodes of a user-selected frame from the summary view.
- Hex dump view displays raw frame data as hexadecimal and ASCII octet dump of a user-selected frame from the summary view.
- Statistics view displays statistics based on frame count, byte count, frames/sec, bytes/sec, etc., for the entire capture data.
- Call traces capability based on UNI signaling parameters, VPI/VCI etc.
- CRC verification for AAL5 carrying packet data.
- Support of various UNI Signaling Protocols i.e. UNI 4.0, UNI 3.1 and UNI Q-2931.
- Search and filtering capabilities.
- Ability to configure .ini file for PVC carrying UNI signaling messages to get the proper decoding options
- Capability to export summary to the comma separated values (CSV) format for subsequent import into a database or spreadsheet
- Capability to export detailed decode information to an ASCII file.
- Captures, decodes, filters, and reassembles AAL-2 and AAL-5 frames in real-time, from within the ATM cells according to user defined VPI/VCI.
- Unscrambling of ATM cells based on SDH X^43 + 1 algorithm.
- Streams may be captured on selected ports
- Multiple streams of ATM traffic on various T3/E3 ports can be simultaneously decoded

For more details, please visit our web page http://www.gl.com/t3-e3-atm-analysis.html

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Summary, Detail, and Hex dump Views

The analyzer displays Summary, Detail, and Hex dump in different panes. The Summary View displays Dev#, Time Slot, Frame#, Time, Length, Error, VPI/VCI, PT, HEC, OSF, AAL Type, Frame Type, CID, LI, CPI, UUI, SSSAR CID, and so on. User can select a frame in Summary View to analyze and decode each frame in the Detail View. The Hex dump View displays the frame information in HEX and ASCII format. The contents of detail and hex dump view can also be copied to clipboard.

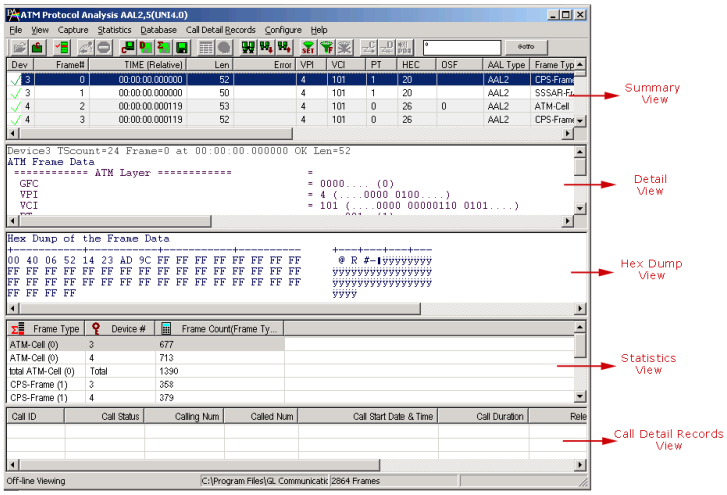

Figure: Summary, Detail, & Hex dump Views

Real-time and Offline Analysis

Multiple ports can be selected in a single instance of the analyzer to capture frames simultaneously. Users can analyze the captured trace files for UNI and NNI interfaces offline. The recorded trace file can be exported to an ASCII file, or printed. Real-time capturing requires a user to specify ports, user/ network side, and scrambling options. Captured raw data can be transmitted using playback file application.

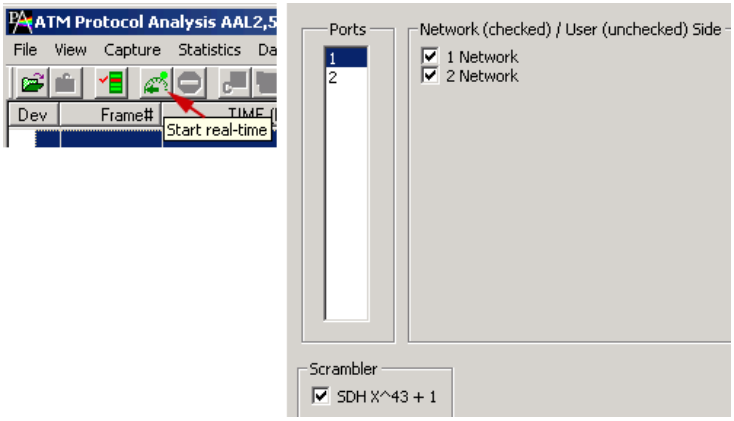

Figure: Stream / Interface Selection

Filtering and Search

There are two types of filters: capturing filter and view filter. The capturing filter is used to limit frames captured to a trace file. The view filter applies to the trace file before it is displayed.

Filtering and search capabilities add a powerful dimension to the ATM Analyzer. These features isolate frames of interest from all frames in real-time, as well as offline. Users can specify custom VPI, VCI, and PT type values to filter frames for real-time capture. The view filter applies to the captured frames and is based on the data link and decoded protocol field values: Frame #, Time, Length, Error, VPI/VCI, PT (Payload Type), HEC, etc. Similarly, Search capability helps user to search for a particular frame based on a specific search criteria.

Reassembly

Using reassembly option user can specify VPI /VCI value to reassemble using the segmentation and reassembly rules defined by the specified AAL type.

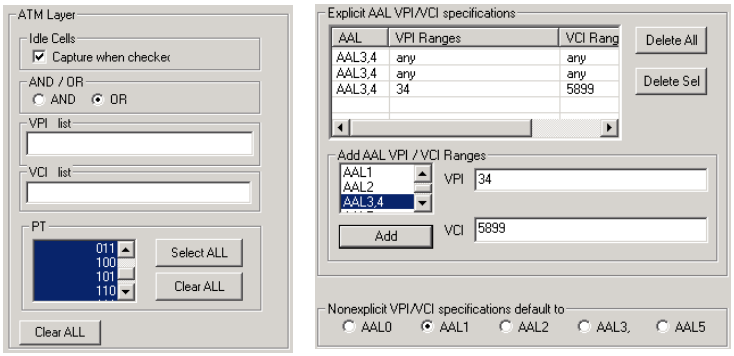

Figure: Filter and Reassembly Options

Call Detail Record & Statistics View

Call trace defining important call specific parameters: Call ID, Call disposition, Call duration, VPI/VCI, Call type (point-to-point/point -to-multipoint, etc) calculated based on UNI signaling messages are displayed in Call Detail Record view. Various statistics can be obtained for all frames based on protocol fields both in real-time as well as in the offline mode to study the performance and trend in an ATM network.

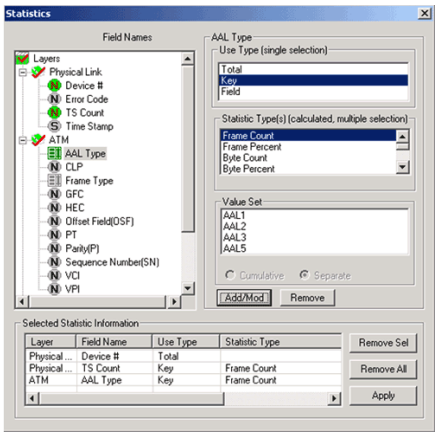

Figure: Define Statistics View

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Supported Protocol Standards

The supported protocol standards in ATM analyzer are AAL2,5 (UNI 3.1), AAL2,5 (UNI 4.0), AAL2,5 (UNI Q.2931), SS7 ITU, SS7 ANSI, SS7 ETSI.

Supported Protocols	Specifications Used
ATM	ITU-T I.361
AAL	ITU-T I.363
SSSAR	ITU-T I.366.1
SSCS	ITU-T I.366.2
AAL2	Class B (ITU-T I.363.2)
AAL5	Class C & D (ITU-T I.363.5)
SSCOP	ITU-T Q.2110
UNI	Q.2931 & Q.2971
UNI31	ATM User-Network Interface Specification Version 3.1
UNI40	ATM User-Network Interface Specification Version 4.0
MAC	IEEE 802.3
IP	RFC 791
IPv6	RFC 2460, RFC 2402, RFC 2406
TCP	RFC 793
UDP	RFC 768
ICMP	RFC 792
ICMPv6	RFC 2463, 2461, 1885, 2894, 3122, 3810, 3775, 3971, 4286, 4066
Payload (Multiprotocol Encapsulation over AAL)	RFC2684
Classical IP and ARP over ATM	RFC 2225
MTP3b	ITU-T Q.2210
SSCF UNI	ITU-T Q.2130
SSCF NNI	ITU-T Q.2140

Buyers Guide

TT3160 – T3 ATM Analyzer (GUI) Analysis and decode of ATM cells over T3

Related Hardware

TE3001 – Portable (USB) Dual T3 E3 / T1 E1 Hardware Unit– requires TT3001 or EE3001

LTS100 – Dual OC-3/ STM-1 OC-12 / STM-4 PCI Express Card

LTS200 – OC-3 / STM-1 ATM Monitor, BERT, Tx/Rx Test, RAW

UT301 / UT302 – T3 Analysis PCI Card w/ Basic Software and Client / Server and Command Line Utility

Related Software

TT3020/ EE3020 – T3/ E3 Record Playback Software (GUI)

TT3090 / EE3090 – T3 / E3 HDLC Tx/Rx Test + Analyzer (GUI)

TT3135 / EE3135 – T3 / E3 PPP Analyzer (GUI) Analysis

TT3130 / EE3130 – T3 / E3 Frame Relay Analyzer (GUI)

TT3160 – T3 ATM Analyzer (GUI) Analysis

TT3600 / EE3600 – T3 / E3 Basic Client Server

*Specifications and features subject to change without notice.

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