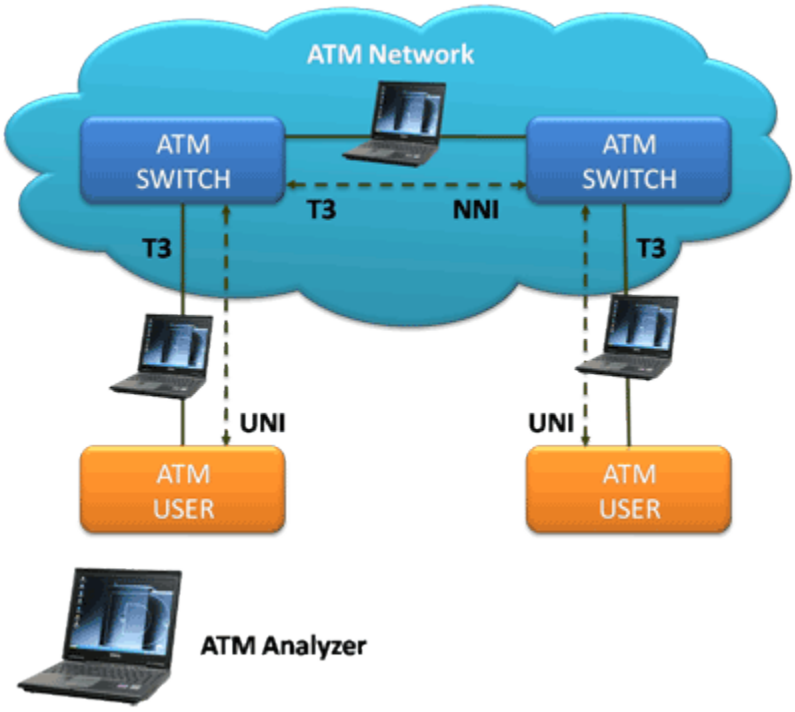
T3/ E3 ATM Protocol Analyzer



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.

For more details, visit T3 / E3 ATM Protocol Analyzer webpage.

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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

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.

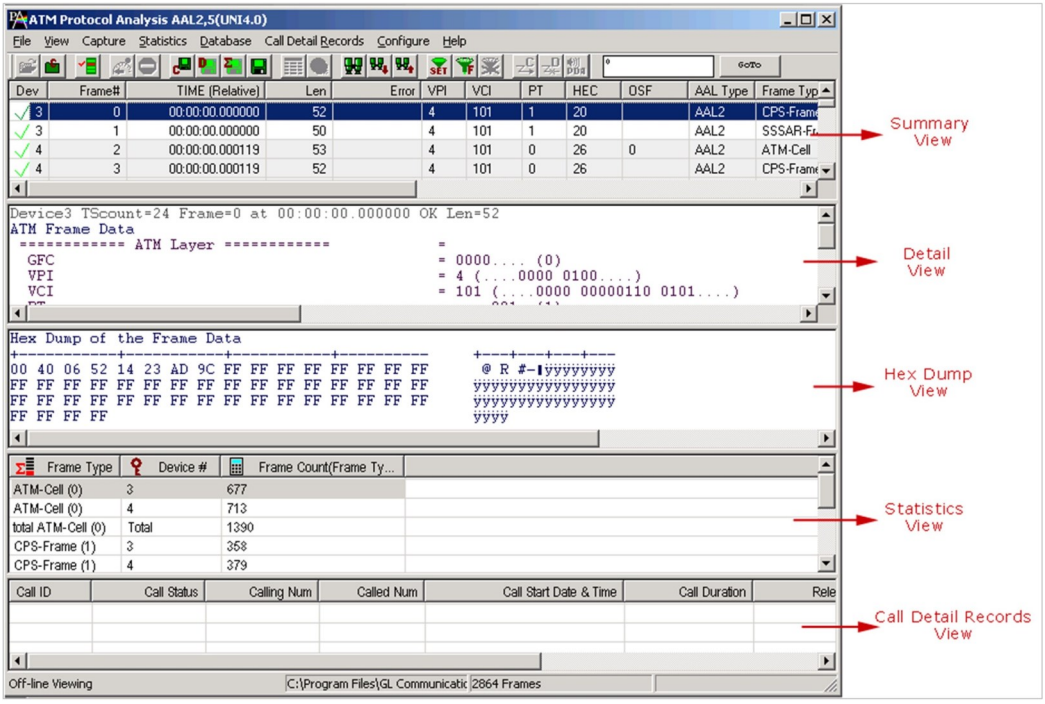

Figure: Summary, Detail, and Hex dump Views

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.

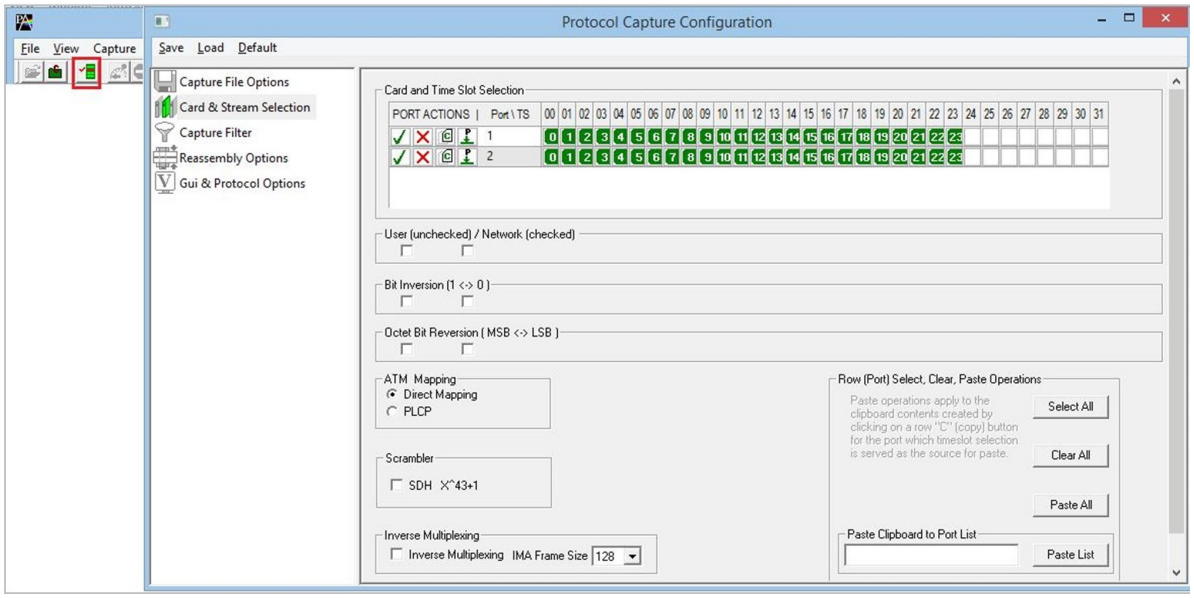

Figure: Stream / Interface Selection

Filtering and Search

Users can record all or filtered traffic into a trace file. Filter and search capabilities adds a powerful dimension to the ATM Analyzer. These features isolate required frames from all the captured frames in real-time, as well as offline. Users can specify custom VPI, VCI, and PT type values to filter frames during real-time capture. The frames can also be filtered after completion of capture based on Time Slot, Frame #, Time, Length, Error, VPI/VCI, PT (Payload Type), HEC, and more. Similarly, Search capability helps user to search for a particular frame based on specific search criteria.

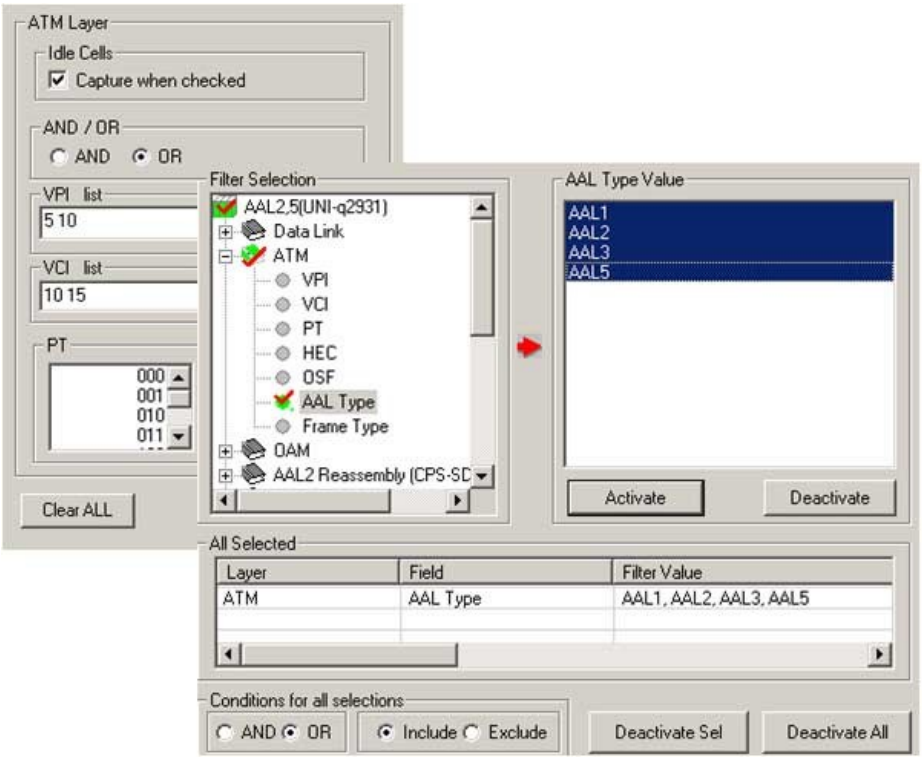

Figure: Real-time and Offline Filter

Reassembly

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

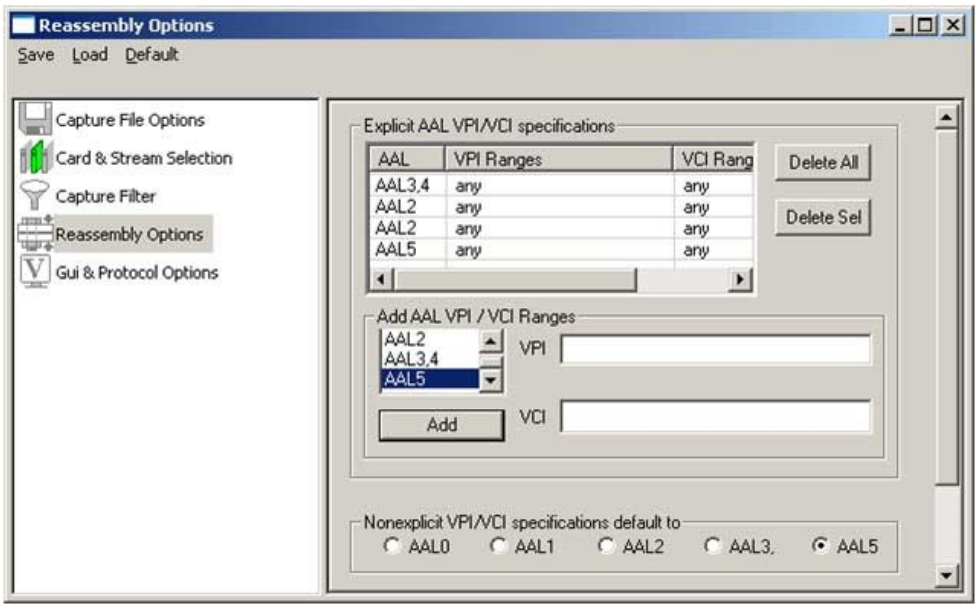

Figure: Reassembly Options

Call Detail Record and Statistics View

Important call specific parameters like Call ID, Call disposition, Call duration, VPI/VCI, Call type (point-to-point/point-to-multipoint and more) calculated based on UNI signaling messages are displayed in Call Detail Record view. Additionally, users are provided with the option to search a particular call detail record from the captured traces.

Various statistics can be obtained in Statistics View to study the performance and trend in the ATM network based on protocol fields and parameters.

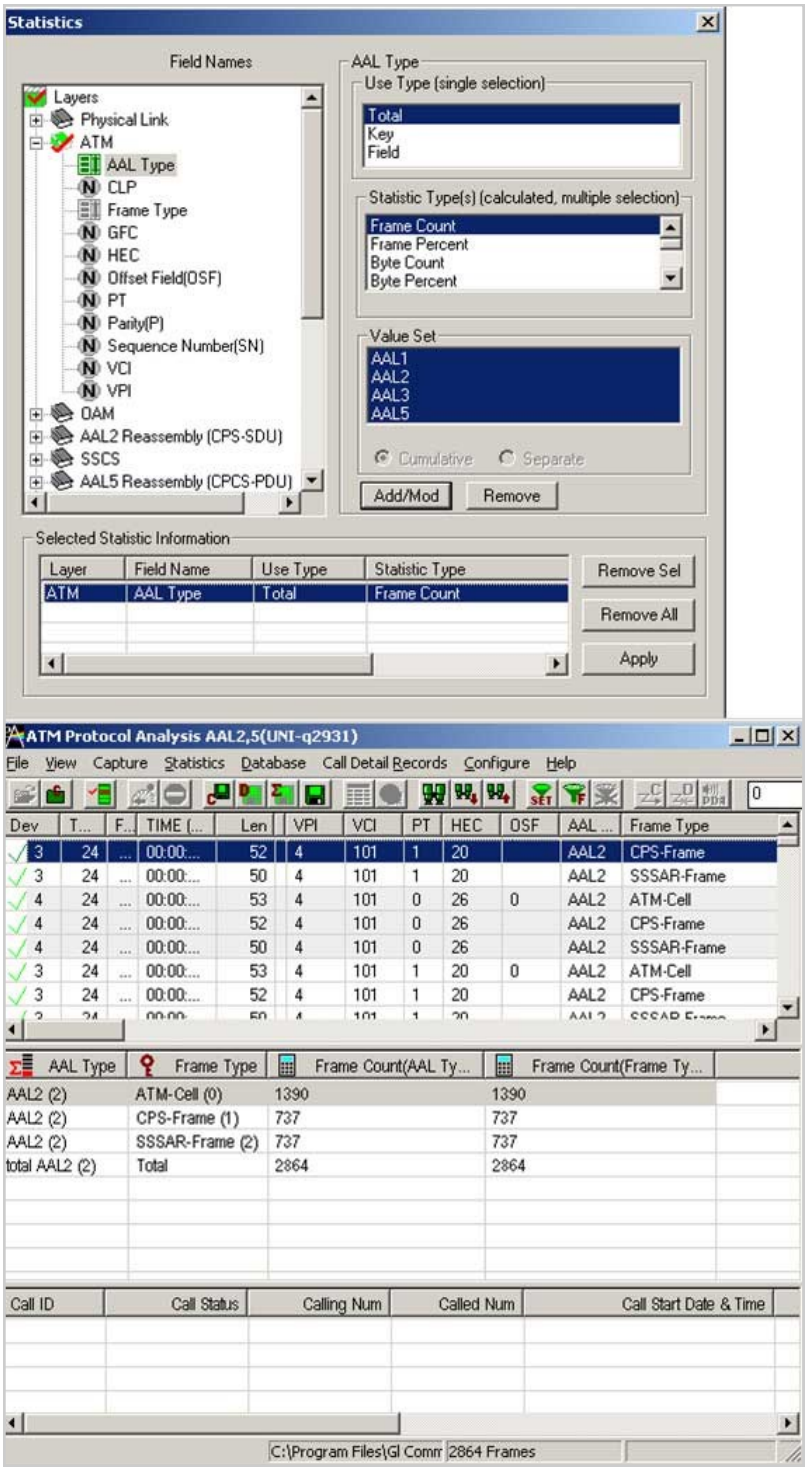

Figure: Statistics and Call Detail Record View

Supported Protocols Standards and Specifications

Supported Protocols	Specification 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
OAM	IM for ATM Version 1.1 AF-PHY-0086.001 March, 1999
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
Border Gateway Protocol 4 (BGP-4)	RFC 1771, RFC 1997, RFC 2842, RFC 1965

Buyer's Guide

Item No	Product Description
TT3160	T3 ATM Analyzer (GUI) Analysis and decode of ATM cells over T3

Item No	Related Hardware
TE3001	Portable (USB) Dual T3 E3 / T1 E1 Hardware Unit– requires TT3001 or EE3001
TE3005	Rack Enclosure for T3/E3 System – up to 6 T3/E3s
LTS100	Lightspeed1000™ - Dual OC-3/12 STM-1/4 PCIe Card
LTS105	Lightspeed1000™ - Portable Dual OC-3/12 STM-1/4 USB Unit

Item No	Related Software
TT3020/ EE3020	T3/ E3 Record Playback Software (GUI)
TT3600 / EE3600	T3 / E3 Basic Client Server

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