

Analyzes UMTS Network across Iub, Iur, IuCs, and IuPs interfaces

Manages both Circuit and Packet Switched Data

Call Trace for IuCs and IuPs

Simultaneous Handling of AAL-2 and AAL-5 Virtual Channels over Full or Fractional T1/E1

Supports NBAP, RNSAP, RANAP, ALCAP, SSCOP, Iu-UP, AMR, Iub-FP, and more

Supports Real-time Filtering and Reassembly Options

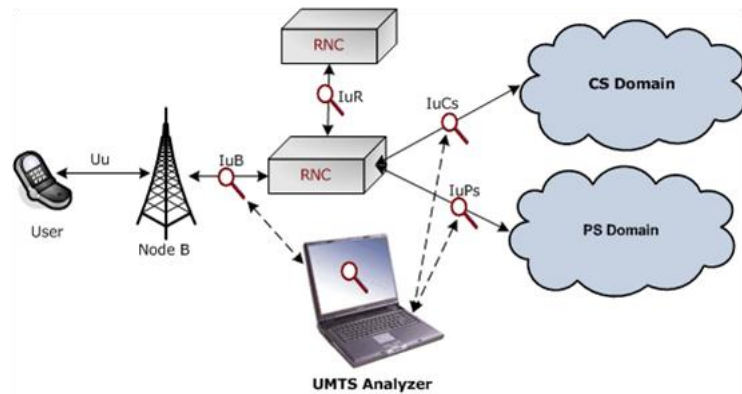
Summary, Detail, Hex-dump, Statistics, & Call-Detail Views

Supports SDH X⁴³⁺¹ Scrambling, & Inverse Multiplexing

Real-time and Offline Analysis w/ Filter & Search

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

T1/E1 UMTS Analyzer



UMTS (Universal Mobile Telecommunications System) being an access network in the mobile communication area provides a common interface to both GSM and GPRS core network. UMTS is capable of handling both Circuit-Switched (CS) as well as Packet-Switched (PS) data simultaneously through its UTRAN network.

GL's UMTS Analyzer adds capability to monitor various interfaces within UMTS network. The tool allows end user to capture, decode and collect essential information across various interfaces i.e. Iub, Iur, IuCs, and IuPs. Simultaneous handling of ATM based AAL2 and AAL5 virtual channels and reassembly, helps in fault diagnosis and troubleshooting UMTS network. The analyzer is also capable of capturing & reassembling frames that were transmitted with Inverse Multiplexing. IMA combines up to 8 T1/ E1 links to form a single high-speed connection with flexible bandwidth options. GL Communications supports the following types of UMTS analyzers:

- Real-time UMTS Analyzer (Pre-requisites: GL's T1/E1 internal cards or USB T1/E1 external units, required license, and Windows XP (or higher) Operating System.
- Offline UMTS Analyzers (Pre-requisites: Hardware dongle and Windows XP (or higher) Operating System)

Main Features

- Performs numerous measurements across Iub, Iur, IuCs and IuPs interfaces.
- Displays Summary, Detail, Hex-dump, Statistics, and Call Detail Record Views.
- Decodes different control plane protocols i.e. NBAP, RANAP, RNSAP, ALCAP, SSCOP etc and user plane protocols i.e. Iu-UP, Iub-FP, AMR and more.
- Decode NAS protocols (i.e. CC/MM/SM/SMS/GMM) along with the UTRAN specific protocols.
- 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.
- The following variations are accommodated in the software: inverted or non-inverted data, byte reversal or non-reversal, with or without inverse multiplexing over ATM (IMA).
- User can configure VPI/VCI values for PVCs carrying NBAP, RNSAP, RANAP and ALCAP messages to enable decoding of the said protocols.
- CRC verification for AAL5 carrying packet data.
- Capability to export Summary View details to comma separated values (CSV) format for subsequent import into a database or spreadsheet.
- Capability to export detail decode information to an ASCII.
- Ability to configure .ini file for VPI & VCI (for ALCAP, NBAP, RANAP, and so on).
- Supports simultaneous decode of multiple streams of UMTS traffic on different T1/E1 channels.

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



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Summary, Detail, and Hex dump Views

The analyzer displays Summary, Detail and Hex dump View in different panes. The Summary View displays Frame Number, Time, Length, Error, VPI, VCI, PT, HEC, OSF, AAL Type, CID, LI, UUI, CPI and Frame Type message. 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.

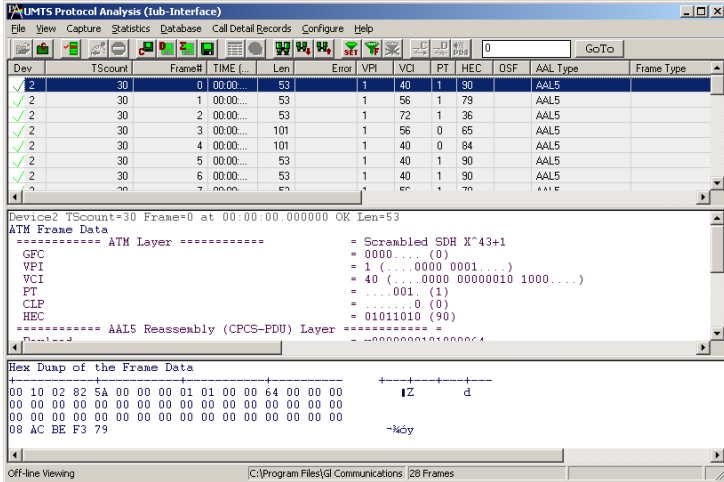


Figure: Summary, Detail, & Hex dump Views

Real-time and Offline Analysis

Users can analyze UMTS frames in real-time and record all or filtered traffic into a trace file. The recorded trace file can be used for offline analysis or exported to a comma-delimited file, or ASCII file.

UMTS analyzer is capable of capturing & reassembling frames that were transmitted with bit inversion, octet bit reversion, user/network side, ATM mapping, scrambling, and inverse multiplexing (IMA). The captured raw data can be transmitted using playback file application.

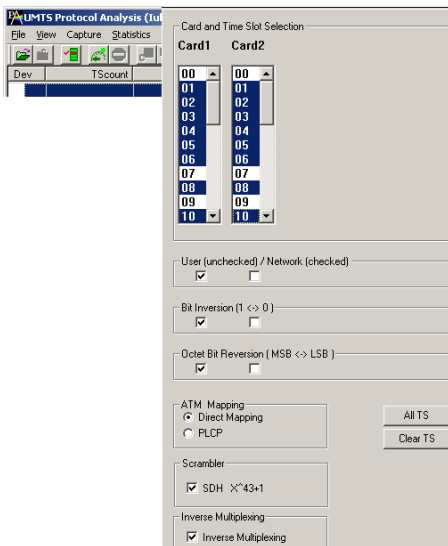


Figure: Stream / Interface Selection

Inverse Multiplexing over ATM (IMA)

The ATM Analyzer is enhanced to capture & reassemble frames that were transmitted with Inverse Multiplexing option. With Inverse Multiplexing over ATM (IMA) feature, up to 8 T1/E1 links can be configured to form a high-speed connection. ATM cells are transmitted across multiple interfaces in a cyclical fashion, and recombined to form the original stream.

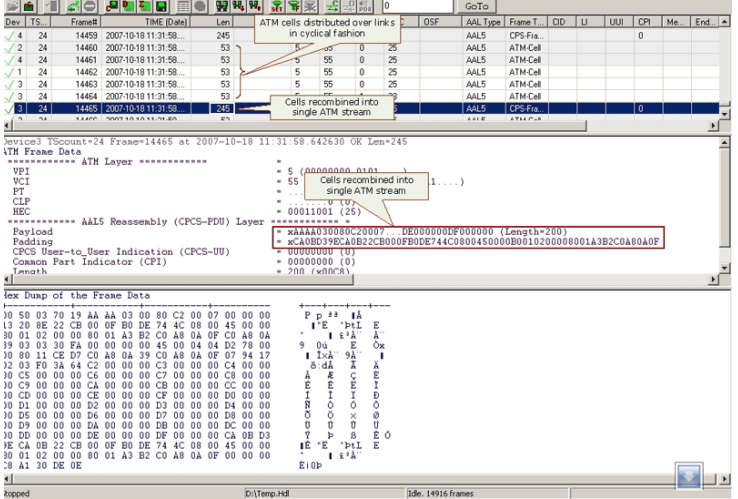


Figure: Captured ATM Frames with IMA

Filtering and Search

Users can record all or filtered traffic into a trace file. Filter and search capabilities adds a powerful dimension to the UMTS Analyzer. These features isolate required frames from 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 Frame Number, Time, Length, Error, VPI, VCI, PT, HEC, OSF, AAL Type, CID, LI, UUI, and more. Similarly, Search capability helps user to search for a particular frame based on specific search criteria.

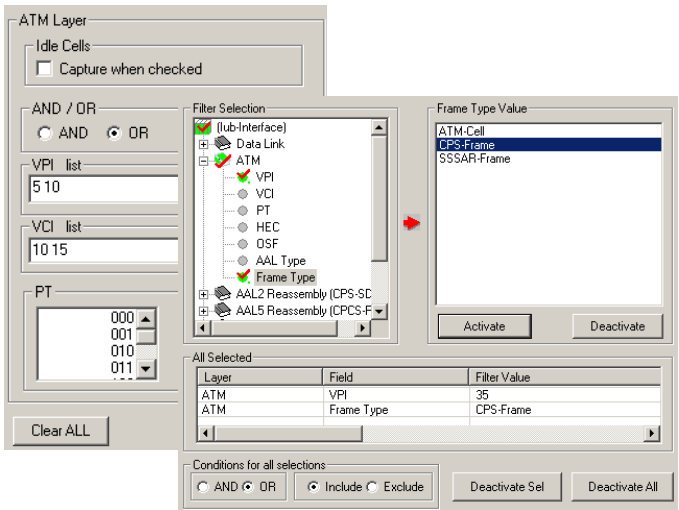


Figure: Real-time and Offline Filter

Reassembly

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

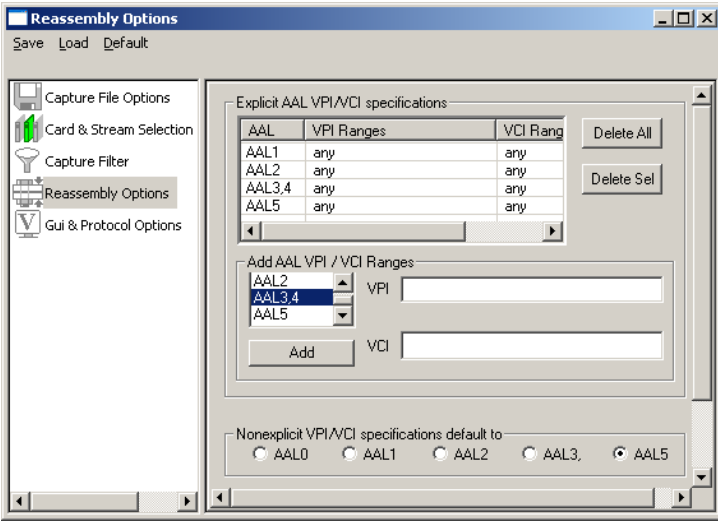


Figure: Reassembly Options

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, filter/search criteria and so on. All the configuration settings can be saved to a file and then loaded for future operations. Users may also just revert to the default settings using the default option.

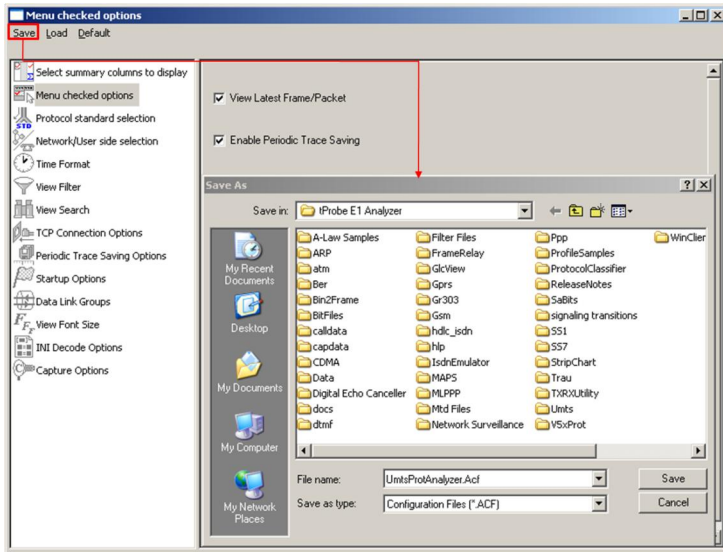


Figure: Save / Load Configuration

Call Detail Record & Statistics View

Important call specific parameters like Call ID, Call disposition, Call duration, Mobile ID, Called/Calling Number, Call type (SMS/PDP/Setup/Location update etc) are displayed in the Call Detail 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 UMTS network on protocol fields and parameters.

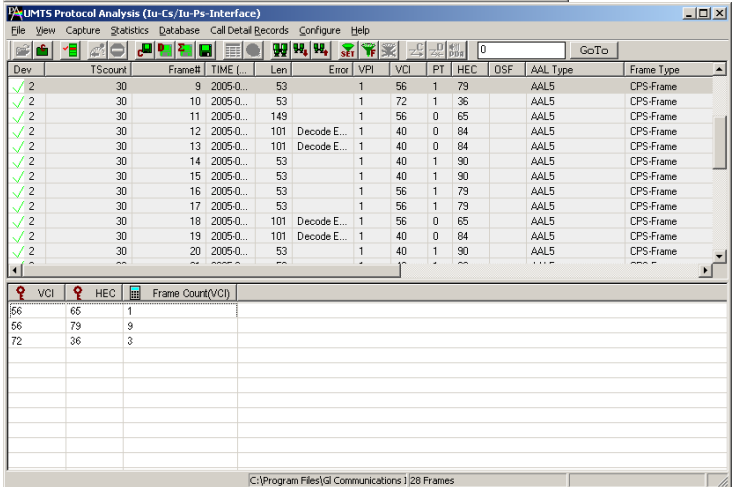
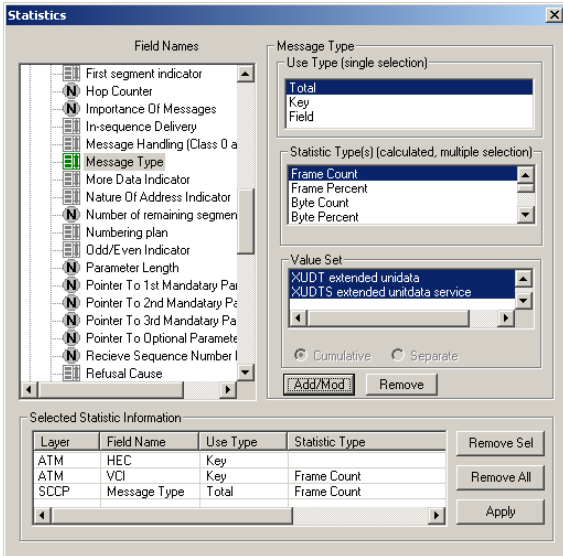


Figure: Statistics & Call Detail Record View

Available Standards	Supported Protocols	Standard / Specification Used
Iub-Interface	ATM	ITU-T I.361
Iu-Cs/Iu-Ps-Interface	AAL	ITU-T I.363
Iur-Interface	AAL2	Class B (ITU-T I.363.2)
	AAL5	Class C & D (ITU-T I.363.5)
	SSCOP	ITU-T Q.2110
	SSCF for UNI	ITU-T Q.2130 (07/94)
	AAL Type 2 (ALCAP)	ITU-T Recommendation Q.2630.1
	NBAP	3GPP TS 25.433 V6.3.0 (2004-09)
	Iub FP	GPP TS 25.427 V6.1.0 (2004-12) and 3GPP TS 25.435 V6.1.0(2004-03)
	RANAP	3GPP TS 25.413 V6.3.0 (2004-09)
	Iu-UP	GPP TS 25.415 V6.1.0
	MTP3-B	ITU-T Recommendation Q.2210
	RNSAP	3GPP TS 25.423 V6.4.0 (2004-12)
	SCCP ITU / ANSI	ITU-T Q.711-Q.714 / ANSI T1.112-1996
	SCTP	RFC 2960
	IP	RFC 791
	UDP	RFC 768
	GMM (GPRS Mobility Management) / SMG (GPRS Session Management)	3GPP TS 04.08 V7.19.0
	GSM CC / GSM MM	3GPP TS 04.08 V7.17.0
	SMS	3GPP TS 03.40 V7.5.0 & 3GPP TS 04.11 V7.1.0 GSM 03.38 version 7.2.0
	AMR	3GPP TS 26.101 V6.0.0
	SSSAR	ITU-T I.366.1
	UMTS MAC RLC	3GPP TS 25.321 V6.1.0 and 3GPP TS 25.322 V6.1.0
	RRC	3GPP TS 25.331 V6.4.0
	M3UA	RFC 3332
	SSCF-NNI (Service Specific Coordination Function - Network Node Interface) Protocol	ITU-T Recommendation Q.2140 (02/95)
	SAAL-NNI (Signaling ATM Adaptation Layer - Network Node Interface)	ITU-T Recommendation Q.2100 (07/94)

Buyers Guide:

[XX165](#) - T1/E1 UMTS Protocol Analyzer

[OLV165](#) - Offline UMTS Analyzer

Related Software

[XX120](#) - SS7 Analysis Software

[XX150](#) - GSM & TRAU Protocol Analyzer

[XX153](#) - TRAU Protocol Analyzer

[XX155](#) - GPRS Protocol Analyzer

Related Hardware

[UTA001/UEA001](#) – Basic USB based Dual T1/E1 Laptop Analyzer Software

[HUT001/HUE001](#) – Basic Universal HD T1/E1 Software

*Specifications and features subject to change without notice.



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