

Analyzes Multiple SS7 Links

Non-Intrusive Analysis Using GL's T1/E1 Analyzers

Supports MTP2, MTP3, TUP, ISUP, SCCP, TCAP, IS - 41, INAP CS1, CS2, BICC & more

Supports National and International Variants

Summary, Detail, Hexdump Statistics, & Call Detail Views

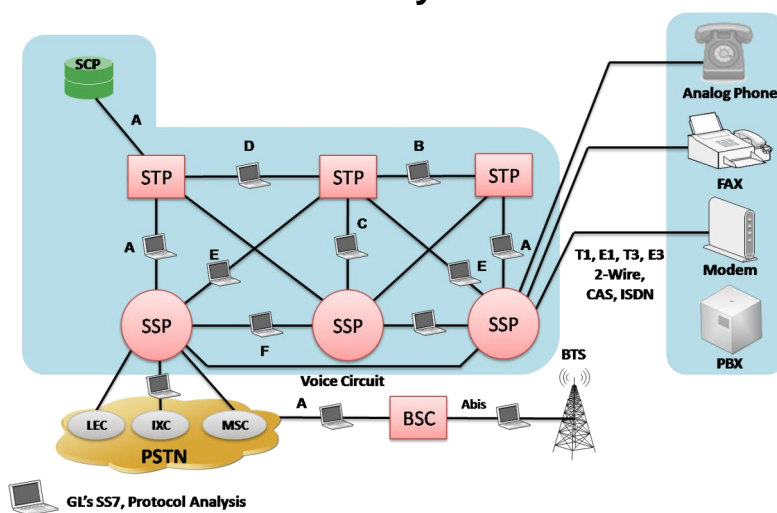
Real-time Filter and Search

Real-time & Offline Analysis

Playback of Recorded Traces

Statistics based on frame count, byte count etc.

SS7 Analyzer



SS7 (Signalling System 7) separates the information required to set up and manage telephone calls in the Public Switched Telephone Network (PSTN) onto a separate packet switched network (Signalling Network). It uses Message Signal Units (MSUs), Link Status Signal Units (LSSUs), and Fill-In Signal Units (FISUs) as signal units. The main protocols include MTP (Message Transfer Part – Level 1 to 3), SCCP (Signalling Connection Control Part), and ISUP (ISDN User Part).

GL's SS7 analyzer can decode different layers like MTP2, MTP3, ISUP, SCCP, TUP, INAP CS1 / CS2, IUP, BICC, BISUP, BTUP, and many application layer protocols from GSM/GPRS network like MAP, CAMEL (CAP), IS 41 etc are decoded. GL Communications supports the following types of SS7 analyzers:

GL Communications supports the following types of Frame Relay analyzers:

- Real-time SS7 Analyzer (Pre-requisites: GL's T1/E1 internal cards or USB T1/E1 external units, required licenses and Windows XP (or higher) Operating System.
- Remote/Offline SS7 Analyzers (Pre-requisites: Hardware dongle and Windows XP (or higher) Operating System)

Main Features

- Supports decoding of encapsulated protocols, and long frames up to 16 Kbytes.
- Displays Summary, Detail, Hex-dump, Statistics, and Call Detail views.
- Summary View displays MTP2, MTP3 information, SS7 Message types, Called and Calling number, SCCP message type, SSN, INAP information, IUP information, BICC message type, and more in a tabular format.
- Capable of decoding many important protocols from GSM/GPRS network i.e. MAP, CAP.
- Statistics View displays call and MSU statistics at any link or entire link set.
- Call Detail Recording feature includes data link groups that help in defining the direction of the calls in a given network and form logical groups comprised of unidirectional (either 'Forward' or 'Backward') data links.
- Supports filter and search features on various SS7 message types.
- Capability to export Summary View information to a comma delimited file for subsequent import into a database or spreadsheet.
- Capability to export detail decodes information to an ASCII file.
- Streams can be captured on the selected time slots (contiguous or non-contiguous), sub-channels or full bandwidth. Frames can be transmitted/captured in either, n x 64 kbps, or n x 56 kbps data channels.
- Remote monitoring capability using GL's Network Surveillance System.
- Ability to configure the .ini file for custom decoding options such as SSN value of INAP, MAP, CAP, TCAP, and IS41, and more. For more details, visit <http://www.gl.com/ss7.html>.



GL Communications Inc.

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A

(Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) gl-info@gl.com

Summary, Detail, and Hex dump Views

The analyzer displays Summary, Detail, and Hex Dump Views in different panes. The Summary View displays Frame Number, Time, Length, BSN, BIB, FSN, FIB, SCCP message type, called / calling number, and so on. The 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 octet dump format.

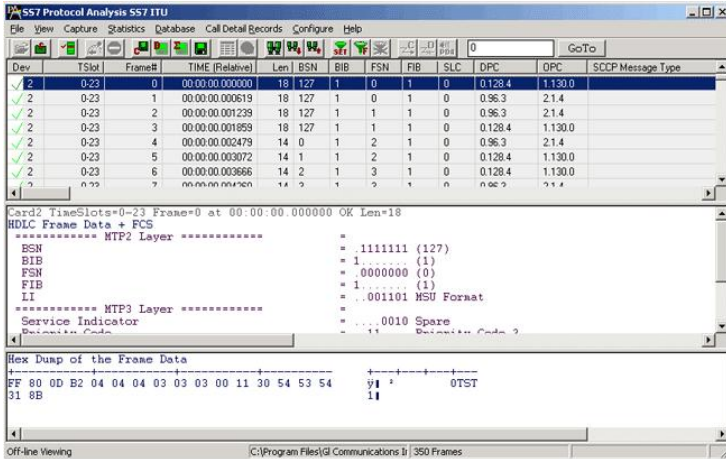


Figure: Summary, Detail, & Hex dump Views

Real-time and Offline Analysis

Users can capture and analyze SS7 frames using either real-time or remote analyzers, 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. The raw data capturing requires user to specify timeslots, bit inversion, octet bit reversion, user/network side, FCS, and hyper channel selection options.

Recorded trace file can be played back on T1/E1 using the HDLC file Playback application.

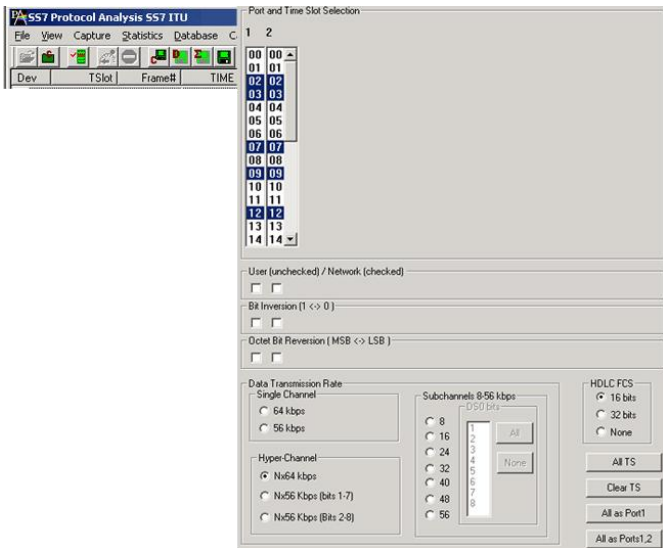


Figure: Stream / Interface Selection

Filtering and Search

Users can record all or filtered traffic into a trace file Filter and search capabilities adds a powerful dimension to the SS7 Analyzer. These features isolate required frames from the captured frames in real-time/remote/off-line.

In real-time capturing, filter based on length of frames can be set. The frames can be filtered after completion of capture based on BSN, BIB, FSN, FIB, Status Field, OPC, DPC, SSN, CIC, Called and more.

Similarly, search capability helps user to search for a particular frame based on specific search criteria.

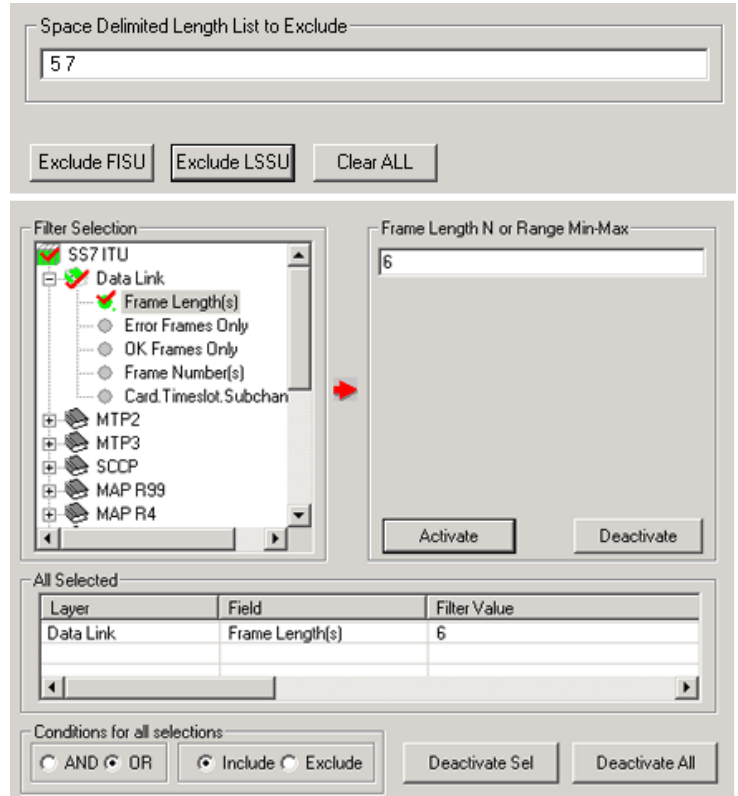


Figure: Real-time and Offline Filter



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

Call Detail Record & Statistics View

Important call specific parameters like Call Id, Calling No, Called No, Call duration, status of each call (i.e. active/completed), OPC, DPC, CIC, and more are calculated based on signalling messages and 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 to study the performance and trend in the Frame Relay network based on protocol fields and parameters.

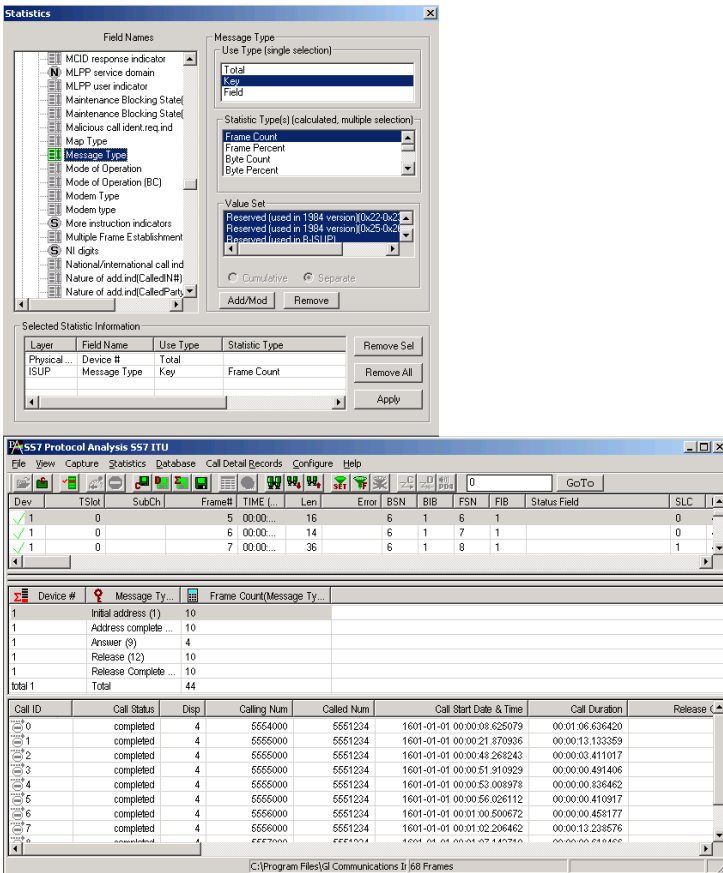


Figure: Statistics & Call Detail Record View

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, or user may just revert to the default values using the default option.

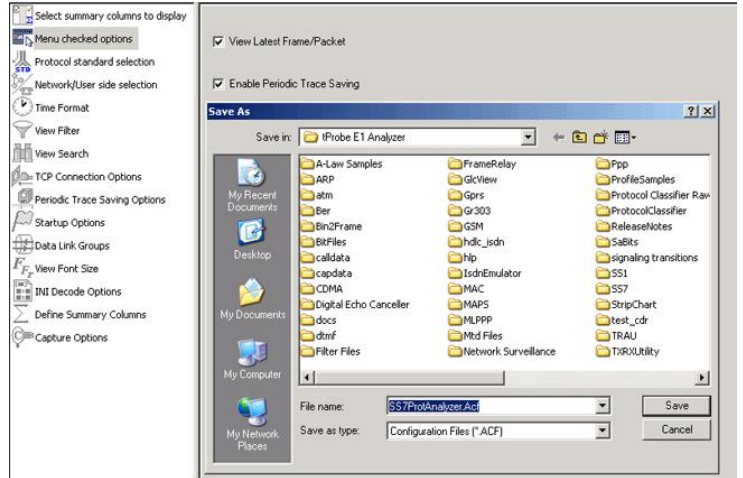


Figure: Save / Load Configuration

Scripted ISUP Emulation using MAPS™

GL's MAPS-SS7 is an advanced protocol simulator/tester for ISUP simulation over TDM (E1/T1). MAPS-SS7 can simulate Service Switching Point (SSP) and ISUP Signalling specification as defined by the ITU-T standards. MAPS-SS7 functionality covers the ITU and ANSI variant of SS7 implementing MTP2, MTP3, and ISUP protocols. For more details, visit <http://www.gl.com/maps-isup.html>.

Scripted MAP Emulation using MAPS™

GL's MAPS™ MAP (Mobile Application Part) Emulator is an advanced protocol simulator to simulate MAP messages and signalling over D & H interface in GSM/UMTS networks as defined by 3GPP standards. For more details, visit <http://www.gl.com/maps-map-emulator.html>



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

Supported Protocol Standards

The supported protocol standards in SS7 analyzer are SS7 ITU, SS7 ANSI, SS7 ETSI, SS7 CHINA, and SS7 UK.

Supported Protocols	Specification Used
MTP2 (ITU)	ITU-T Q.703
MTP3 (ITU)	ITU-T Q.704
MTP2, MTP3 ANSI	T1.111.4-1996
ISUP ITU / ANSI / ETSI / UK / CHINA	ITU - Q.761, Q.762, Q.763 and Q.764 / ANSI - T1.113.1 to T1.113.4 / EN 300 356 -1 V3.2.2(1998-08) Part 1/ ND1007:2007/01 TSG/SPEC/007 / Ministry of Posts and Telecommunications of the People's Republic of China, Technical Specification of ISUP, 1996
Test & Network Management Messages (ITU, CHINA / ANSI)	ITU-T Q.703, Q.704 / ANSI T1.111.4, ANSI T1.111.7
SCCP ITU / ANSI / ETSI	ITU-T Q.711-Q.714 / ANSI rec. T.112 (1996), T1.116.2 (1996) / EN 300 009 -1, Sept 1996, 3rd edition
TCAP ANSI IS-41	TIA/EIA, IS41.1-C / IS-41.5-C
TUP ITU	T-REC-Q.723-11/1988
TCAP ITU / ANSI / ETSI	ITU-T Q.771 to Q.775 / T1.114-2000 / ETSI ETS 300 134
INAP CS1 ITU / ETSI	Q1218 (10 / 95) and ETSI 300 374 1, Sept, 1994
INAP CS2 ITU / ETSI	INAP - Capability Set 2. (Q.1228) / INAP - Capability Set 2. (EN 301 140-1-v1.3.4-1999-06)
CAMEL V3 / CAMEL V6	3GPP TS 29.078 V3.15.0 (2003-03) / 3GPP TS 29.078 6.3.0 (2004-09)
MAP R99 / MAP R4	3GPP TS 09.02 V7.14.0 (2003-09) / 3GPP TS 29.002 V4.18.0 (2007-09)
BISUP	Q.2763, Q.2931, Q.2933, Amendment 2 of Q.2931, Q.2941.1 etc T-REC-Q.1902.1-200107
BICC	T-REC-Q.1902.2-07/2001, T-REC-Q.1902.3-07/2001 T-REC-Q.1902.4-200107 (pl-080r1),
IUP ITU (BTUP)	ND1006:2005/02 PNO-ISC/SPEC/006/
Proprietary Extensions To C7 Interconnect User Part (IUP).	ND1104:2004/11 PNO-ISC/INFO/004

Buyer's guide

XX120 - SS7 Analyzer Software

OLV120 - Off-line SS7 Analyzer Software

Related Hardware

PKV105 - SIGTRAN Analysis

XX170 – NetSurveyor™ - Network Surveillance Software

XX600 – Basic Client/Server Scripted Control Software

XX649 – Scripted SS7 Emulation using MAPS™

PKS130 – Scripted SIGTRAN Emulation using MAPS™

Related Software

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.



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