SS7 Test Solutions

- **SS7 over T1 E1**
  - Scripted SS7 Emulation in MAPS™
  - SS7 MAP Protocol Emulation over T1 E1 using MAPS™
  - SS7 Analysis - Real-time/ Remote/ Offline
  - SS7 MAP Protocol Analysis
  - SS7 Triggered Call Capture and Analysis (CCA)
  - Storage and Analysis of SS7 Calls (CDR)

- **SS7 over IP**
  - Scripted SS7 over IP (SIGTRAN) Emulation in MAPS™
  - SS7 MAP Protocol Emulation over IP using MAPS™
  - SIGTRAN Protocol Analyzer - Real-time/ Offline
  - Packet Analysis - Real-time/ Offline

- **Network Surveillance and Monitoring**
  - Network Surveillance System for SS7 Networks
  - SS7 Console Based Decode Agent Clients
  - Automatic detection of SS7 Protocols
SS7 over T1 E1

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). The ISUP Signaling specification conforms to ITU-T and ANSI standards. MAPS™ SS7 functionality covers the ITU and ANSI variant of SS7 implementing MTP2, MTP3, and ISUP protocols. MAPS™ SS7 Conformance suite are readily available for conformance tests and functional tests, where test objects can be accurately, reliably and comfortably validated for compliance with ITU-T standard Q.761-764 and Q.784.

For more information, visit [http://www.gl.com/maps-isup.html](http://www.gl.com/maps-isup.html)

SS7 MAP Protocol Emulation over T1 E1 using MAPS™

GL’s MAPS™ product line bearing the same acronym, is used to emulate all the MAP signaling interfaces (C, D, E, F and Packet-switched interfaces such as Gc, Gr, Gf, Gd) in GSM/UMTS networks as defined by 3GPP standards. Emulator can be configured as MSC (VLR), HLR, GMSC, EIR, SMSC, SGSN and GGSN entities in the interface.

MAPS™ MAP also includes ready scripts for SMS Testing from within the Wireless Infrastructure, which has the ability to push the Short Message sent by mobile phones (Mobile Originated (SMS-MO)) and transmit a Short Message to a mobile phone (Mobile Terminated (SMS-MT)).

For more information, visit [http://www.gl.com/maps-map-emulator.html](http://www.gl.com/maps-map-emulator.html)
SS7 over T1 E1

SS7 (ISUP & MAP) Protocol Analyzer

GL Communications SS7 Protocol Analyzer performs SS7 analysis by capturing and analyzing frames on the SS7 links, such as A, B, C, D, E, and F.

GL Communications supports the following types of SS7 analyzers:

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

The Analyzer is also capable of decoding MAP protocol from GSM/GPRS network according to ANSI/ITU/ETSI/CHINA/UK standards and displayed in an organized fashion.

Interfaces supported are
- B (Interface b/w the MSC and its associated VLR)
- C (Interface b/w the HLR and the MSC)
- D (Interface b/w the HLR and the VLR)
- E (Interface b/w MSCs)
- F (Interface b/w MSC and EIR)
- J (Interface b/w the HLR and the gsmSCF)

Both real-time and off-line analysis present information in four layers:
- Raw HDLC Frame data as a hexadecimal and ASCII octet dump
- MTP2 and MTP3 information
- ISUP, TUP, SCCP, BICC, INAP, MAP, BTUP information

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 information on SS7 Protocol Analyzer, visit http://www.gl.com/ss7.html
SS7 over T1 E1

SS7 Triggered Call Capture and Analysis

The CCA gets triggered when any SS7 calls are placed. Capture occurs after the SS7 message, "IAM", is detected with the called/calling number that matches the filtering definition for SS7 Call Filtering Options.

SS7 voice calls are kept in CIC groups. When an SS7 call is detected, an Origination Point Code (OPC), a Destination Point Code (DPC), and a CIC # are retrieved. If the comparison holds good capture task is performed, otherwise the call is discarded.

For more information, visit http://www.gl.com/callrec1.html

Storage and Analysis of SS7 Calls (CDR)

Complete Storage and Analysis of every SS7 Call on any number of T1 or E1 lines.

Capture gets triggered when any SS7 call is placed. Called and calling number can be gathered as part of the capture process and attached to the captured file name. During call capture, the following parameters are displayed: SS7 message types, CIC, Time slot, card number, called and calling numbers.

For more information on SS7 call analysis, visit http://www.gl.com/calldatarecords.html
MAPS™ SIGTRAN (SS7 over IP) Protocol Emulator

GL's MAPS™ SIGTRAN is an advanced protocol simulator/tester for SS7 simulation over IP Networks. It can simulate a Signaling Gateway and Softswitch ISUP signaling specification as defined by ITU-T standards. MAPS™ SIGTRAN functionality covers the ITU and ANSI variant of SS7 implementing M3UA, and ISUP protocols. It is able to run pre-defined test scenarios against ISUP test objects in a controlled & deterministic manner.

MAPS™ SIGTRAN Conformance Scripts are suitable for compliance tests and functional tests, where test objects can be accurately and reliably validated for compliance with ITU-T standard Q.761-764 and Q.784.

For more information, visit [http://www.gl.com/maps-sigtran.html](http://www.gl.com/maps-sigtran.html)

MAPS™ MAP IP (SS7 MAP over IP) Protocol Emulator

GL's MAPS™ MAP IP is an advanced protocol simulator/tester for SS7 protocol over IP Networks. It can simulate MSC/VLR, RNC, HLR, EIR, SMSC, SGSN and GGSN entities to emulate C, D, E, F interfaces. Common services provided by MAP over IP are “location tracking”, “roaming”, “subscription information”, “short message service”, and many more.

For more information, visit [http://www.gl.com/maps-map-over-ip-emulator.html](http://www.gl.com/maps-map-over-ip-emulator.html)
SS7 over IP

SS7 SIGTRAN Protocol Analyzer

GL’s SIGTRAN protocol decoder software is a VoIP testing tool that permits real-time analysis, call trace, capture, and filtering of SS7 signaling messages over IP.

GL Communications supports the following types of SIGTRAN analyzers:

- Real-time SS7 Analyzer
- Remote and Offline SS7 Analyzers

For more information on SS7 SIGTRAN Protocol Analyzer, visit [http://www.gl.com/sigtran.html](http://www.gl.com/sigtran.html)

Packet Analysis (Real-time / Offline)

GL’s PacketScan™ software tool provides extensive real-time reporting using graphical charts and statistics of live IP, VoIP, and IP based Video traffic.

PacketScan™ Analyzer includes SIP-I and SIP-T decodes, these carry ISUP (ISDN) signaling.

For more information on Packet Analysis, visit [http://www.gl.com/packetscan.html](http://www.gl.com/packetscan.html)
SS7 Network Surveillance System

GL’s SS7 Network Monitoring System uses an open three tier distributed architecture driven by non-intrusive hardware probes, intelligent software, and a database engine.

NetSurveyor™ is a user-friendly web-based client which accesses the results provided by the GL’s SS7 signaling probes through a web server. As depicted in the screenshot, one can view real-time and historic data including call ID, probe name/location, call disposition, called and calling number, and call duration. Also available is the ability to filter the call records using a variety of filtering mechanisms including time/date, called/calling numbers, and SS7 OPC/DPC codes.

For more information, visit
http://www.gl.com/netsurveyor.html
http://www.gl.com/netsurveyordemo.html

SS7 Console Based Decode Agent Clients

ConsFldCdrToCsv is a console based client application for WCS Protocol Decode Agent Modules (PDAM). Currently the console client application monitors SS7 Links, decodes multiple SS7 protocol standards, filters user-specified protocol parameters, builds CDRs, and streams over TCP/IP to remote site. The client is controlled by an *.INI file that is passed as a parameter. SS7.ini is the INI configuration files comprising of the decoding parameters required to perform SS7 real-time analysis.

For more information, visit http://www.gl.com/ss7isdnpdainwcs.html
Automatic Detection of SS7 Protocols

The Protocol Identifier application can identify various protocols carried over T1 or E1 lines. It is capable of detecting SS7 signaling over T1 or E1 helping technicians to quickly identify the timeslot of signaling links for further protocol analysis.

For more information, visit [http://www.gl.com/protocol-identifier.html](http://www.gl.com/protocol-identifier.html)