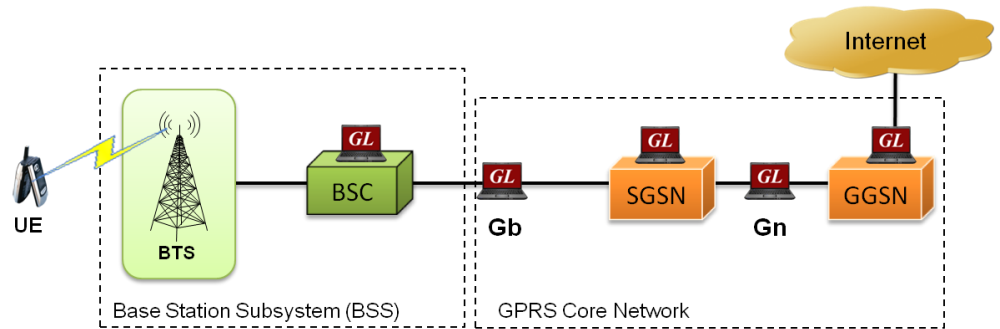


PacketScan™ GPRS Protocol Analyzer for Wireless & IP Networks



GL PacketScan™ - GPRS Gb Gn over IP

Overview

GPRS, or General Packet Radio Service, was introduced (in the late 90's and early 2000's) to provide data carrying capabilities to basic GSM networks and 3G networks.

GL's [GPRS Protocol Analyzer](#) within [PacketScan™-All IP Protocol Analyzer](#) is an optional module (PKV103) available with additional licensing with PacketScan analyzer (PKV100).

With the support of additional license, the PacketScan™ permits continuous GPRS data connectivity over wireless GSM networks. The GPRS Analyzer when connected between SGSN and BSS elements of a GPRS network, permits the monitoring of Gb interface. Similarly, when connected between SGSN and GGSN elements, permits monitoring of the Gn interface.

GL's [GPRS Protocol Analyzer](#) analyzer offers powerful features to capture, monitor, decode, and collect statistics of GPRS messages over IP.

For more details, visit <http://www.gl.com/packetscan-all-ip-packet-analyzer.html>.

Features

- Decode and analyze signaling and user data protocols over Gb and Ga/Gn interfaces.
- Provides details about routing area update, PDP activation, and traffic patterns in the network.
- Any protocol field can be added to the summary view, filtering, and search features providing users more flexibility to monitor required protocol fields.
- Trigger intelligent actions based on signaling and traffic conditions.
- Support for Multi-technology, Multi-protocol.
- Displays Summary, Detail, Hex dump, Statistics, and Call Detail Views.
- Hex dump View displays the frame information in HEX and ASCII format, the contents of this view can also be copied to clipboard.
- Statistics View displays statistics based on frame count, byte count, frames/sec, bytes/sec etc for the entire capture data.
- Call Detail View displays called/ calling number, released calls, call status, & more.
- Provides a consolidated interface for all the important settings required in the analyzer. All the configuration settings done in any of these options can be saved to a file, loaded from a configuration file.
- Allows the captured frames to be saved to a trace file using different conventions such as user-defined prefixes, date-time prefixes, total number of files, file size, frame count, or time limit.
- Supported on Windows® 7/8.1 (32 bit and 64 bit) OS.

Capture, Decode, and Analysis of Calls in 2G, 2.5G Networks

Real-time and Offline Analysis

Includes Call Detail & Statistics Views

Advanced Filter and Search Features

Powerful and Customizable Reporting Tools

Call Detail Records Capability

Supports Intelligent Triggers and Actions

Customize Decode Options



GL Communications Inc.

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Protocol Stack and Standards

Entire GPRS IP stack supported by PacketScan™.

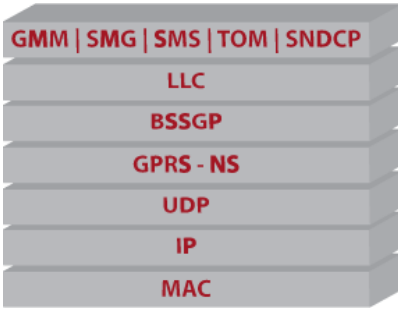


Figure: GPRS Gb over IP Protocol Stack

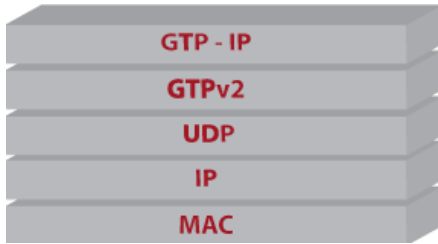


Figure: GPRS Gn over IP Protocol Stack

Supported Protocols	Standard / Specification Used
GPRS Gb Interface	
BSSGP	3GPP TS 08.18 V8.10.0
LLC	3GPP TS 04.64 V8.7.0
GMM	3GPP TS 04.08 V7.19.0
SMS	3GPP TS 03.40 V7.5.0 / GSM 03.38 version 7.2.0
TOM	3GPP TS 04.64 V8.7.0 (2001-12)-Annex B
SNDPCP	3GPP TS 04.64 V8.7.0
SMG	3GPP TS 04.08 V7.19.0
NS (Network Service Frame Relay)	GSM 8.16 ETSI TS 101 299 V8.0.0
GPRS Gn Interface	
GTP / GTPv2 / GTP'	3GPP TS 09.60 V7.9.0 / 3GPP TS 29.060 V6.5.0 / 3GPP TS 32.005 V3.7.0 and 3GPP TS 32.015 V3.12.0

Summary and Detail View of GPRS over IP

User can select a frame in Summary View to analyze and decode each GPRS over IP frame in the Detail View.

The detail view of GPRS over IP call displays the following:

- MAC Layer
- IP Layer
- UDP Layer
- GTP Layer
- GTP IP Layer
- GTP UDP Layer

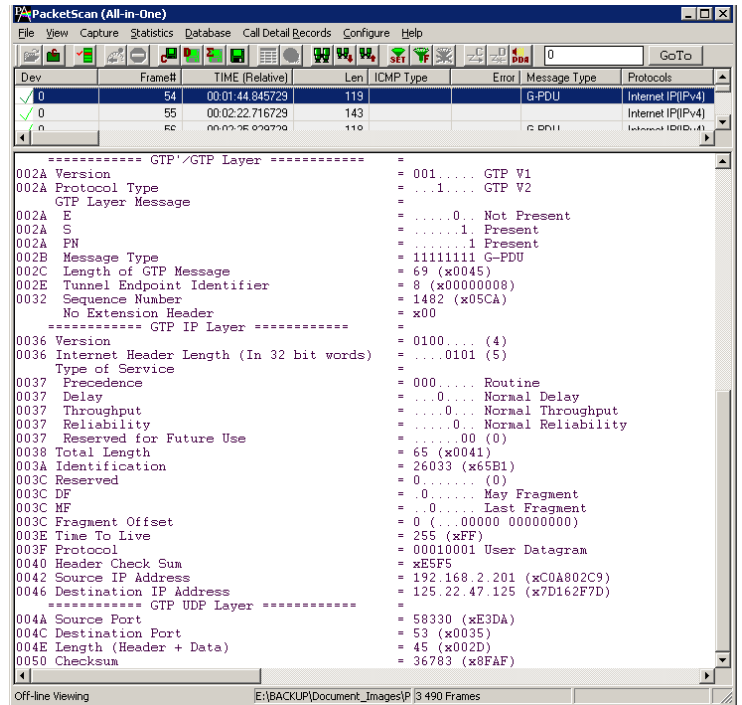


Figure: Detail View of GPRS over IP

INI Decode Options

The .INI file configuration enables the user to enter the required custom value for each protocol in the PacketScanProt.ini file (located in Program Files\GL Communication Inc) to get proper decodes. For GPRS protocols, enter the minimum and maximum UDP source and destination port values to decode GPRS messages over IP.

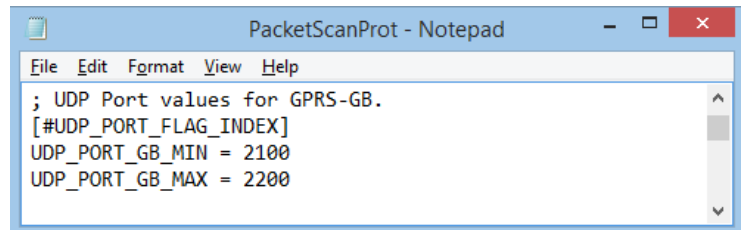


Figure: INI Decode Option for GPRS



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GPRS Statistics

The Statistics are calculated based on the GPRS protocol fields. The figure below depicts statistic data based on **Create PDP Context Request** and **Delete PDP Context Request** message types of GPRS protocol decodes in PacketScan™.

Dev	Frame#	TIME (Relative)	Len	Error	Message Type	Protocols	Source IP Address	Destination IP Address	GTP UDP Des.
✓ 0	44	00:00:31.181000	113		G-PDU	Internet IP(IPv4)	192.168.2.102	192.168.2.101	53
✓ 0	45	00:04:45.347459	213		G-PDU	Internet IP(IPv4)	192.168.2.101	192.168.2.102	64423
✓ 0	46	00:04:47.972459	234			Internet IP(IPv4)	192.168.2.102	192.168.2.150	
✓ 0	47	00:04:48.347459	209		G-PDU	Internet IP(IPv4)	192.168.2.101	192.168.2.102	58330
✓ 0	48	00:04:51.004459	230			Internet IP(IPv4)	192.168.2.102	192.168.2.150	
✓ 0	49	00:05:07.976459	143			Internet IP(IPv4)	192.168.2.150	192.168.2.102	
✓ 0	50	00:05:10.145459	118		G-PDU	Internet IP(IPv4)	192.168.2.102	192.168.2.101	53
✓ 0	51	00:04:46.365459	222		G-PDU	Internet IP(IPv4)	192.168.2.101	192.168.2.102	60826
✓ 0	52	00:04:49.026459	243			Internet IP(IPv4)	192.168.2.102	192.168.2.150	
✓ 0	53	00:01:41.919729	144			Internet IP(IPv4)	192.168.2.150	192.168.2.102	

Message Type	Frame Count(Message Type)
Create PDP Context Request (16)	2
Create PDP Context Response (17)	2
Delete PDP Context Request (20)	2
Delete PDP Context Response (21)	2
G-PDU (255)	1167

E:\BACKUP\Document_Images\Packet: 3 490 Frames

Figure: Statistic View

Network-Wide Monitoring of GPRS Network

GL's [NetSurveyorWeb™](#) is a web-based client that can connect to GPRS protocol analyzer probe for monitoring the entire GPRS network through a web server that facilitates display of call data records, protocol frames, and KPIs. This system allows you to deploy multiple GPRS Analyzer probes to be deployed at strategic locations in a network, transmit and collect voice, data, protocol, statistics, and performance information, and relay this information to a central / distributed network management system (NMS).

For more information, please <http://www.gl.com/networkmonitoring.html#voip>.

Buyers Guide

- [PKV103](#) – IP Based GSM and UMTS Analyzer, requires PKV100
- [PKV109](#) – Offline GSM and UMTS Analyzer, requires PKV101
- [PKV100](#) – PacketScan™ (Real-time and Offline)
- [PKV120](#) – PacketScan™ HD – includes PKV100
- [PKV121](#) – PacketScan™ FB - (Offline Analyzer)
- [PKV101](#) – PacketScan™ - Offline

Related Software

- [PKV105](#) – SIGTRAN Offline Analyzer, requires PKV100
- [PKV106](#) – Offline SIGTRAN Analyzer, requires PKV101
- [PKV107](#) – LTE (Long Term Evolution) Analyzer, requires PKV100
- [PKV108](#) – Offline LTE Analyzer, requires PKV101
- [PKV104](#) – FaxScan™ - Decodes Fax images in TIFF format from PCAP files
- [PKV170](#) – NetSurveyorWeb™ for IP Network



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