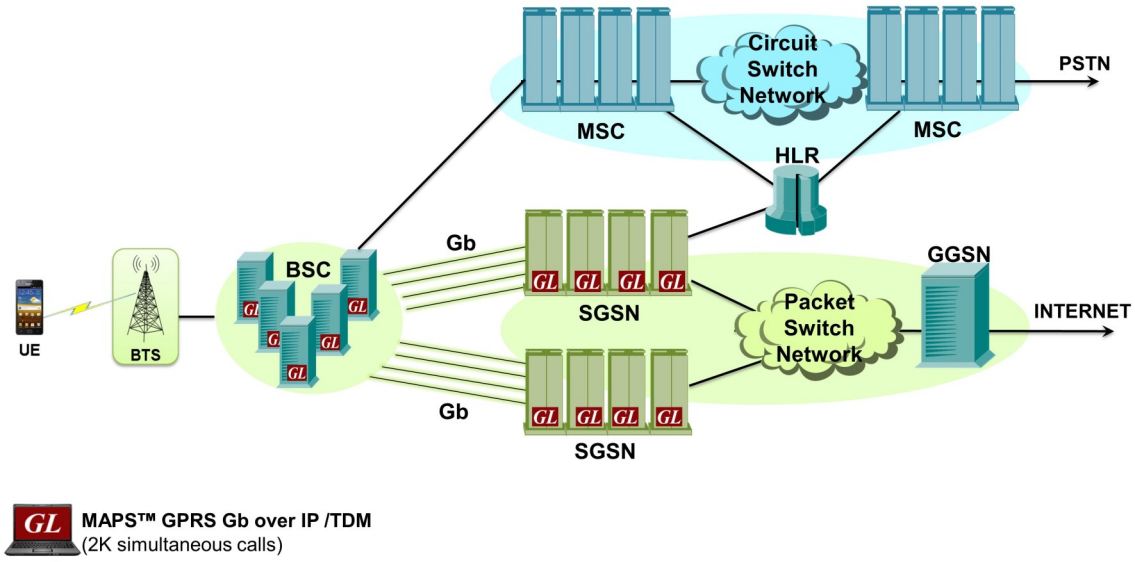
MAPS™ GPRS Gb Interface Emulation over IP/TDM



Overview

GPRS or General Packet Radio Service, was introduced (in the late 90's and early 2000's) to enhance data carrying capabilities of the basic GSM Network. Initially it used the conventional T1 E1 transport and Frame Relay protocol. As the wireless infrastructure evolved towards IP, the migration of 2G systems to IP interface provided many advantages including increased throughput, capacity and economy.

To permit our customers to emulate, test, and verify GPRS Gb over IP, GL offers **MAPS™ GPRS Gb** (Message Automation & Protocol Simulation), a multi-protocol, multi-technology platform that also supports many other protocol families including TDM, IP, ATM and Wireless.

MAPS™ GPRS Gb supports simulation of **BSS (Base Station Subsystem)** and **SGSN (Serving GPRS Support Node)** network elements over IP transmission protocol. MAPS™ GPRS Gb also supports **SGSN Pooling** feature to test and verify redundancy, load balancing, and scalability of network. SGSN pooling solution introduces a new routing mechanism which allows a BSC belonging to an SGSN Pool, connect to all SGSNs in that pool. This permits a mobile station to roam freely without a need to change the serving SGSN.

With the purchase of ETH103 - Mobile Traffic GPRS Gb, MAPS™ GPRS Gb supports Mobile traffic simulation over Gb interface. Currently, this module transmits the pre-canned HTTP file (*.txt) between BSC and SGSN nodes. It multiplexes both signaling and traffic over Gb interface.

For more information, please visit MAPS™ GPRS Gb Interfaces Emulation webpage.

Main Features

- Simulates SGSN and BSS over GPRS Gb interface.
- Simulates control plane Gb mode.
- Supports SGSN pooling to test and verify redundancy, load balancing, and scalability of network.
- Generates hundreds of Control Signaling (Load Testing).
- Generates and processes NS (Network Service), BSSGP (Base Station Subsystem GPRS Protocol) messages.
- Supported procedures includes Network Service Control, Identity Check, Combined GPRS / IMSI Attach, and Routing Area Update
- Simulates user plane GPRS Gb traffic supporting pre-canned HTTP file transmission.
- Insertion of impairments to create invalid messages.
- Supports customization of call flows and message templates using Script and Message Editors.
- Supports scripted call generation and automated call reception.
- Supports powerful utilities like Message Editor, Script Editor, and Profile Editor which allow new scenarios to be created or existing scenarios to be modified using various protocol messages and parameters.

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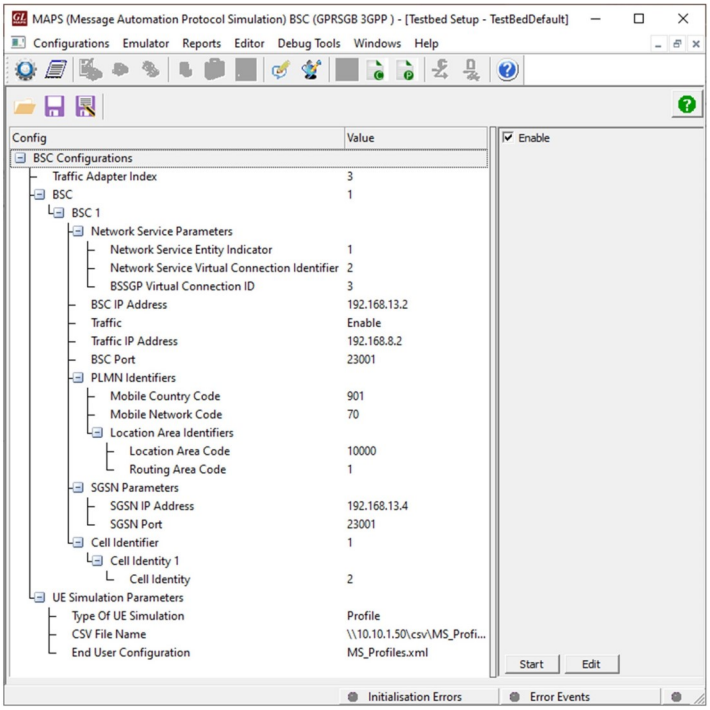
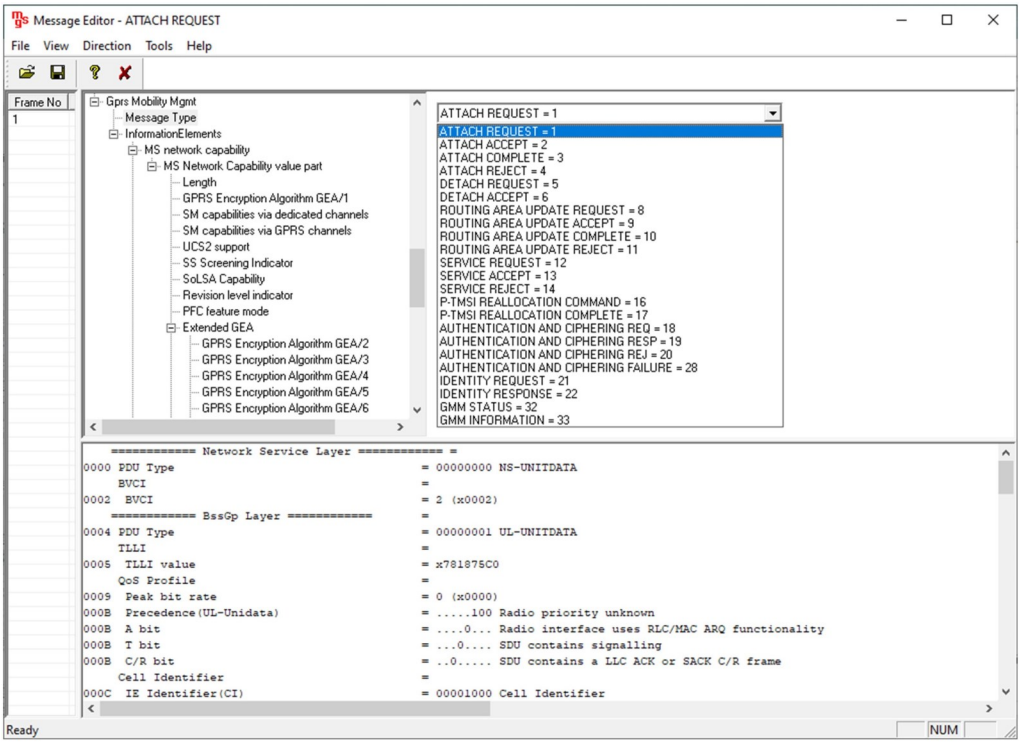
Testbed Configuration

Test Bed Setup provides options to establish communication between MAPS™ and the DUT. It includes configuration parameters to be set for UDP configuration. Once the testbed is setup, messages can be transmitted and received over IP network to the DUT. Default profile used to configure MAPS™ GPRS Gb with SGSN or BSC parameters.



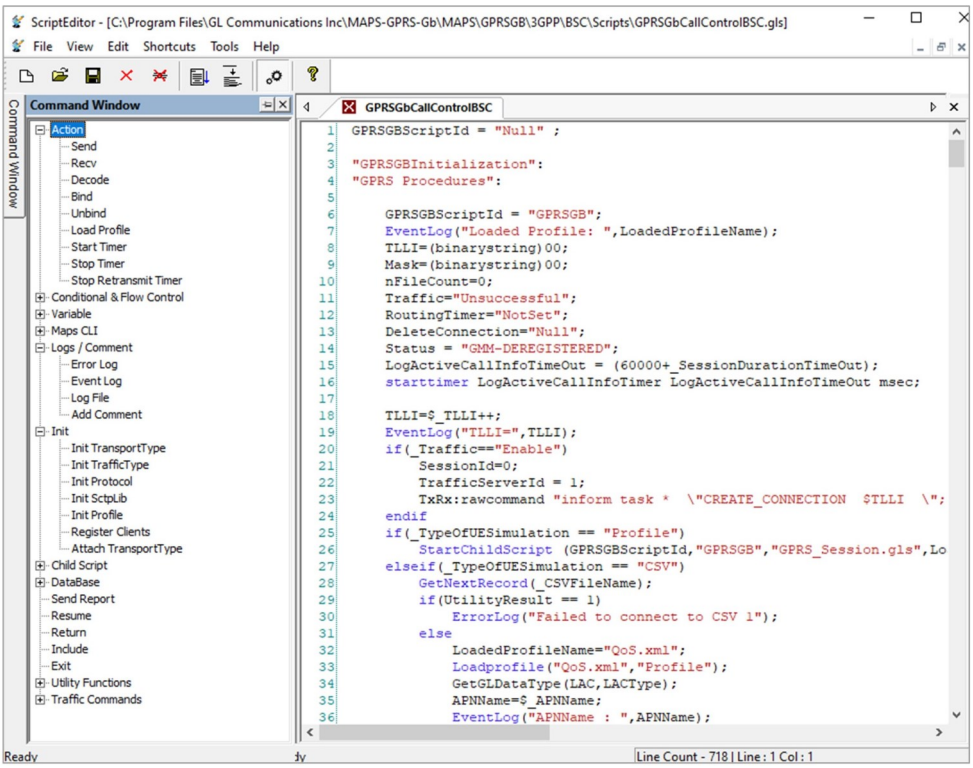
Pre-processing Tools

Message Editor - With message editor, users can build a template for each protocol message type. The value for each field may be changed in the message template prior to testing. The protocol fields comprises of mandatory fixed parameters, mandatory variable parameters, and optional variable parameters.

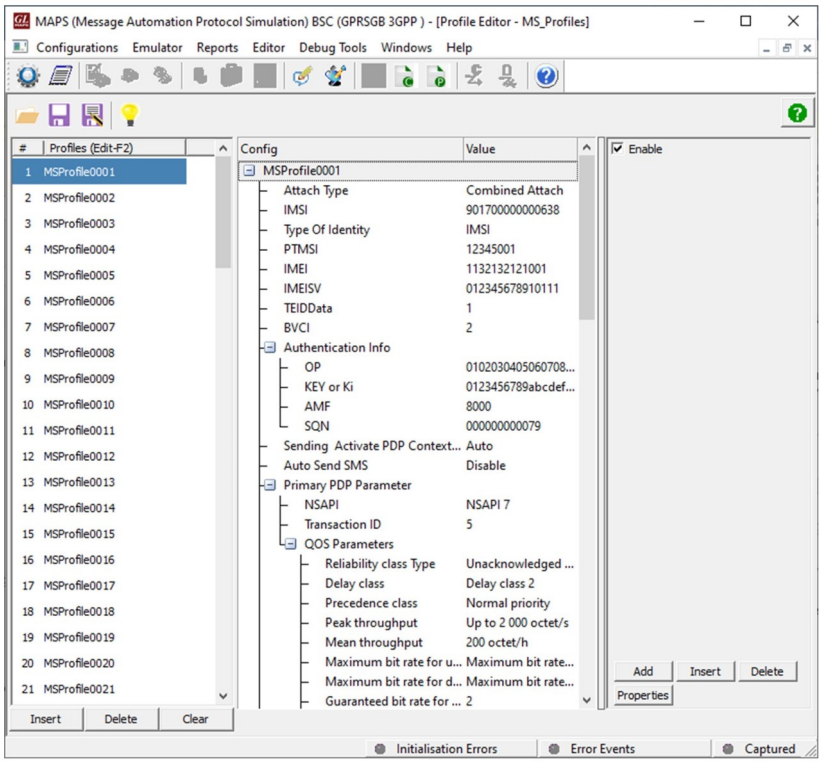


Pre-processing Tools (*Contd...*)

Script Editor - The script editor allows the user to create / edit scripts and access protocol fields as variables for the message template parameters. The script uses pre-defined message templates to perform send and receive actions.



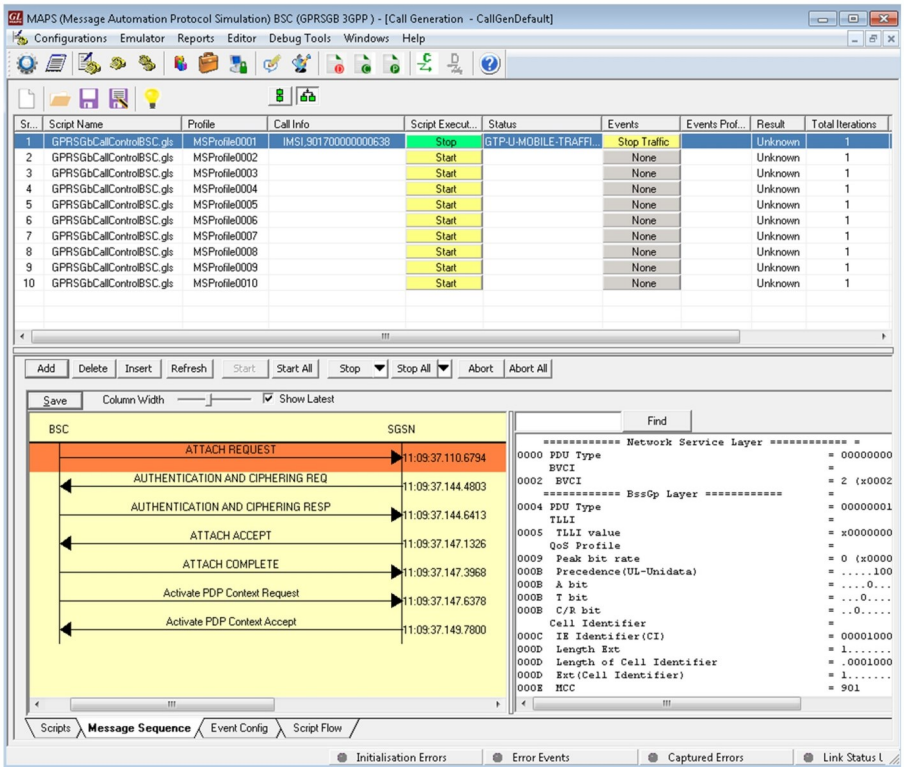
Profile Editor - This feature allows loading profile to edit the values of the variables using GUI, replacing the original value of the variables in the message template. A XML file defines a set of multiple profiles with varying parameter values that allow users to configure call instances in call generation and to receive calls.



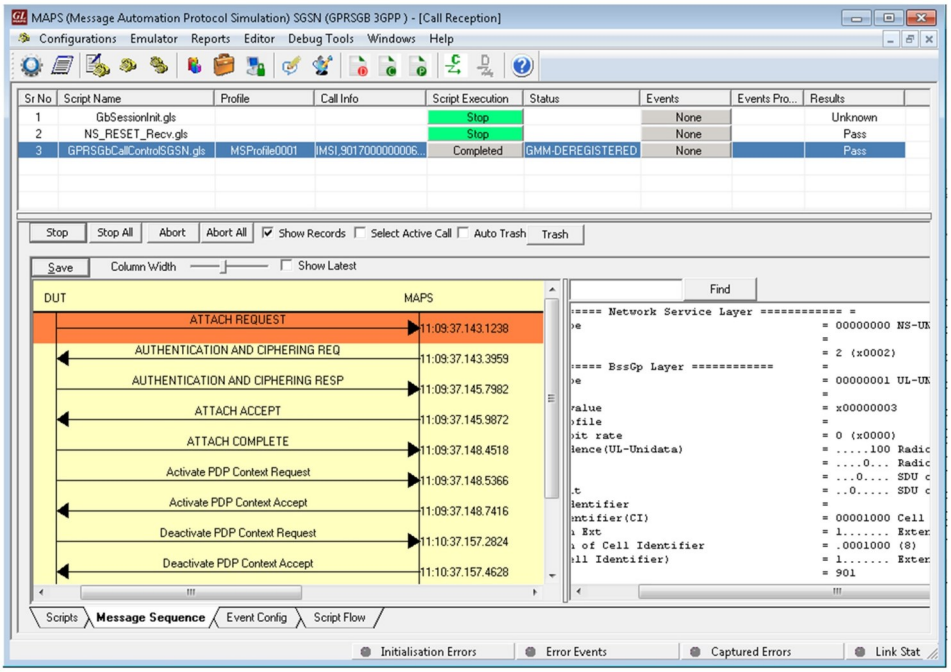
Call Generation and Call Reception

In call generation, MAPS™ is configured for the out going messages, while in call receive mode, it is configured to respond to incoming messages. Tests can be configured to run once, multiple iterations and continuously. Also, allows users to create multiple entries using quick configuration feature.

The editor allows to run the added scripts sequentially (order in which the scripts are added in the window) or randomly (any script from the list of added script as per the call flow requirements). The test scripts may be started manually or they can be automatically triggered by incoming messages**.**



Call Generation

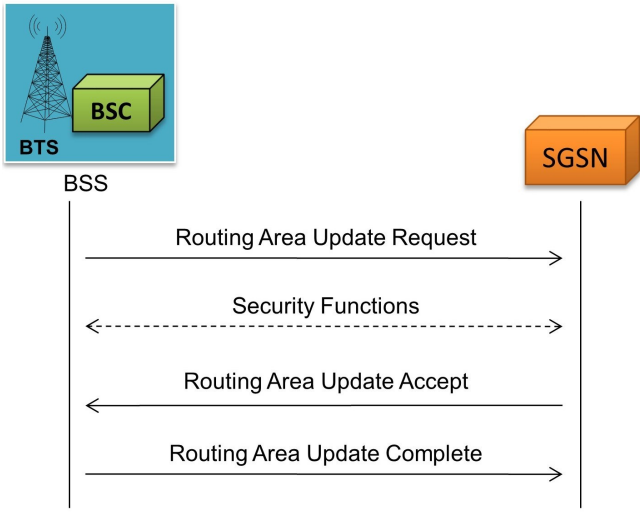


Call Reception

MAPS™ GPRS Gb Procedures

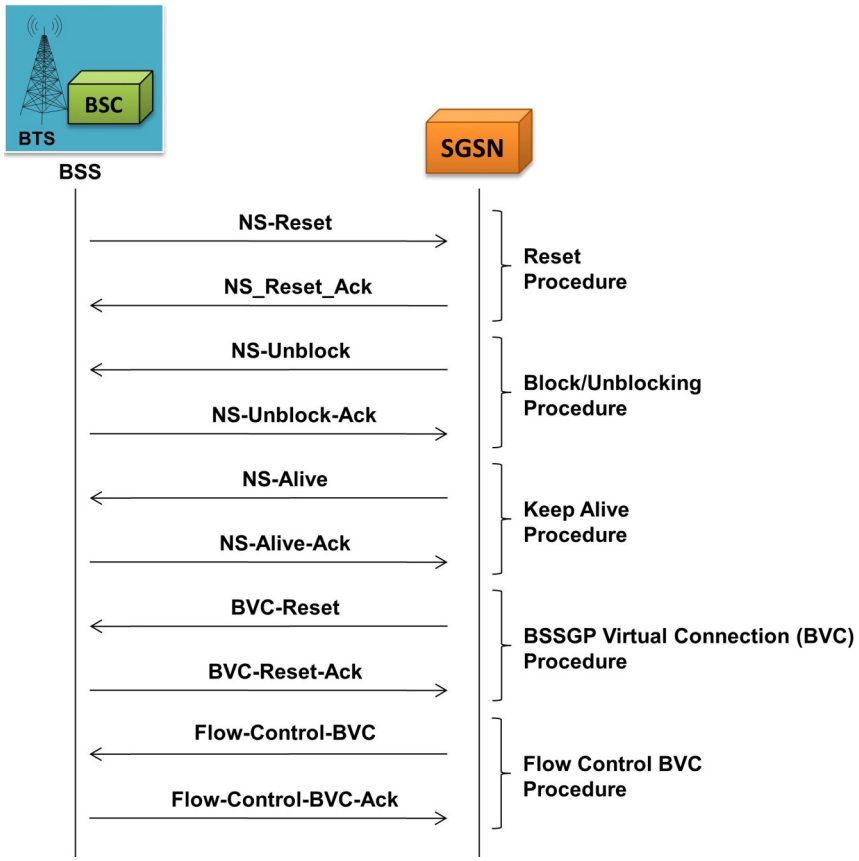
Routing Area Update Procedure

MAPS™ GPRS Gb configured as BSC sends a routing area update request when a GPRS-attached MS detects that it has entered a new RA, or when the periodic RA update timer has expired, or when the MS has to indicate new access capabilities to the network or, when a suspended MS is not resumed by the BSS



Network Service Control Procedure

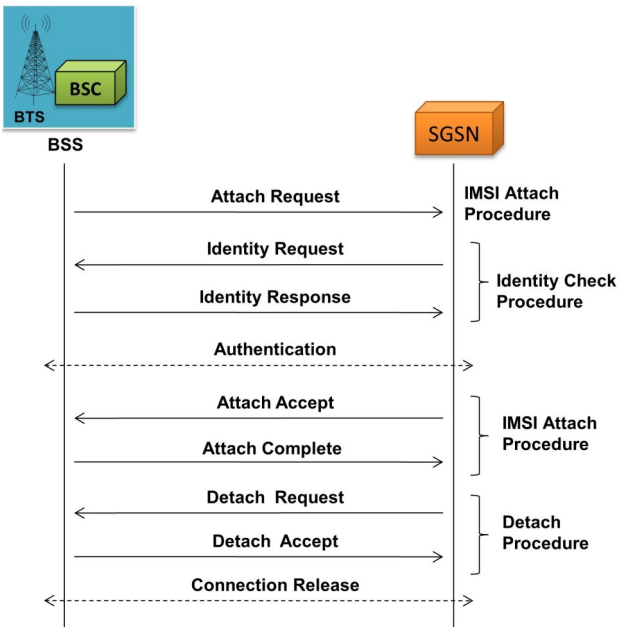
MAPS™ GPRS Gb configured as BSS uses this Network Service Control test procedure to check end-to-end communication with its peer entity (SGSN) on NS-VC.



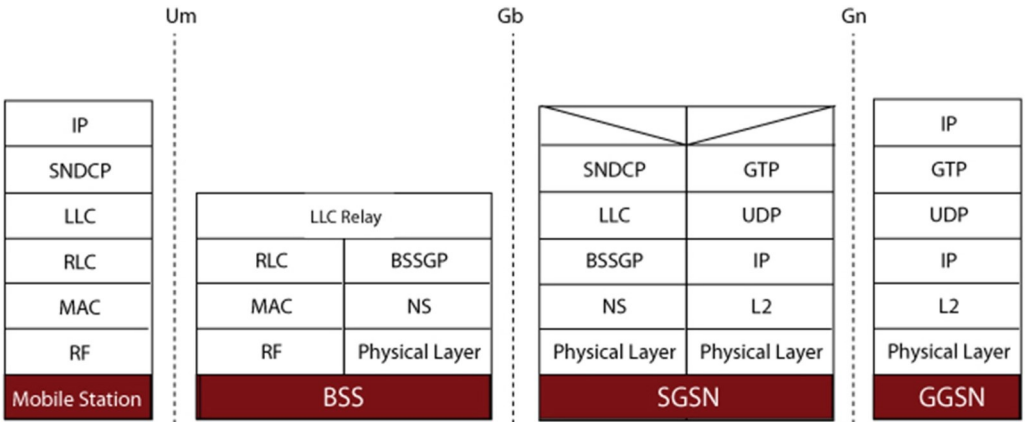
MAPS™ GPRS Gb Procedures (*contd..*)

IMSI Attach/Detach Procedure

MAPS™ GPRS Gb configured as BSC allows a GPRS attach request to be made to the SGSN. The SGSN sends Identity Request (Identity Type) to the MS. The MS responds with Identity Response (Mobile Identity).



Supported Protocols and Specifications



Supported Protocols	Standard / Specification Used
BSSGP	3GPP TS 08.18 V8.10.0 (2002-05)
LLC	3GPP TS 04.64 V8.7.0 (2001-12)
NS (Network Service)	GSM 8.16 (ETSI TS 101 299 V8.0.0)
GMM	3GPP 24.008
SMG (GPRS Session Mgmt)	3GPP TS 24.008 V5.16.0 (2006-06) (Release 5)
SNDCP	3GPP TS 04.64 V8.7.0 (2001-12)

Buyer's Guide

Item No	Product Description
PKS131	MAPS™ Gb Emulator over IP
ETH100	Mobile Traffic - PacketCheck™
ETH101	MobileTrafficCore - GTP
ETH102	MobileTrafficCore - Gateway
ETH103	MobileTrafficCore - Gb
PKV100	PacketScan™ - All IP Protocol Analyzer

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

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