



SUBSCRIBER AND DATA
MANAGEMENT

Product Data Sheet

Home Location Register (HLR)

✓ Business Benefits

- Shareable subscriber database across Virtual Network Functions (VNF) such as the Titan.ium's HSS, for seamless connectivity across multiple network domains comprising 2G, 3G, 4G, 5G-NSA and IMS
- Subscriber data centrally provisioned via SOAP API and/or GUI and distributed in real-time
- Feature rich environment for complex business and subscriber management use cases

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+ Overview

GSM and UMTS networks deploy the HLR application as the central database that contains details of each mobile phone subscriber authorized to use the operator's mobile core services. HLR primarily provides secure authentication procedures, location management, delivery of subscriber profiles and call/SMS/data routing information. Additional features include fault recovery, supplementary service management, CSI support, CSFB support, the support of gsmSCF servers, IP-SM Gateway, location-based services and subscriber tracing.

∨ The Titan.ium Solution

Titan.ium's Home Location Register (HLR) is one of several products supported by the Titan™ Centralized Signaling and Routing Control (CSRC) platform. The HLR application can be collocated with the Titan.ium HSS and/or EIR applications on the same Titan Edge instance. The Authentication Center (AuC) and Subscriber Data Management (SDM) applications are key components of the HLR product. Titan invokes AuC every time the HLR and HSS applications need GSM, UMTS, or EPS authentication vectors. AuC runs collocated on the same COTS HW node or on the same VM with the HSS/HLR. Titan.ium SDM delivers a shareable data model to be used, for example, in other applications such as the HSS.

Titan.ium HLR

☰ Sophisticated Database and Mobility Services for user and routing data required in the GSM and UMTS networks

Titan.ium HLR is part of the SDM framework allowing customer-defined interfaces for the provisioning of user data into HSS, HLR, ENUM, EIR.

Supplementary Services

Service Profiles and Subscriptions

IMSI/MSISDN, Basic CS/PS Bearer / Teleservices, Multiple PDP and EPS Subscriptions per IMSI/PLMN, Roaming, ODB, LCS, Supplementary Services profiles, Individual Supplementary Service Activation Status, MNO specific SCCP Addressing and Traffic Routing

Network Services

Mobility and Call Handling

Update/Cancel Location, MS Purging, Insert/Delete Subscriber Data, Data Inquiry for subscriber data, roaming number, location info, subscriber state, etc.

SMS and Location

SMSC, USSD, and GMLC Support

SMS GW Support, SMS Alert, SMS Message Waiting Data Management, Location Information for LCS, USSD Gateway

Location Based Services

Enable Requesting GMLC

Home GMLC Address and Privacy Profile Register (PPR) Address through optional MNO configuration, Visited GMLC Address associated with the SGSN, LCSLocationInfo

Security Procedures

Authentication Data

Delivery of GSM/UMTS authentication vectors from the integrated AuC

Lawful Interception

Provisioning and Event Notification

Provisioning and Event Notification for target (subscriber) activity in the CS and GPRS networks.

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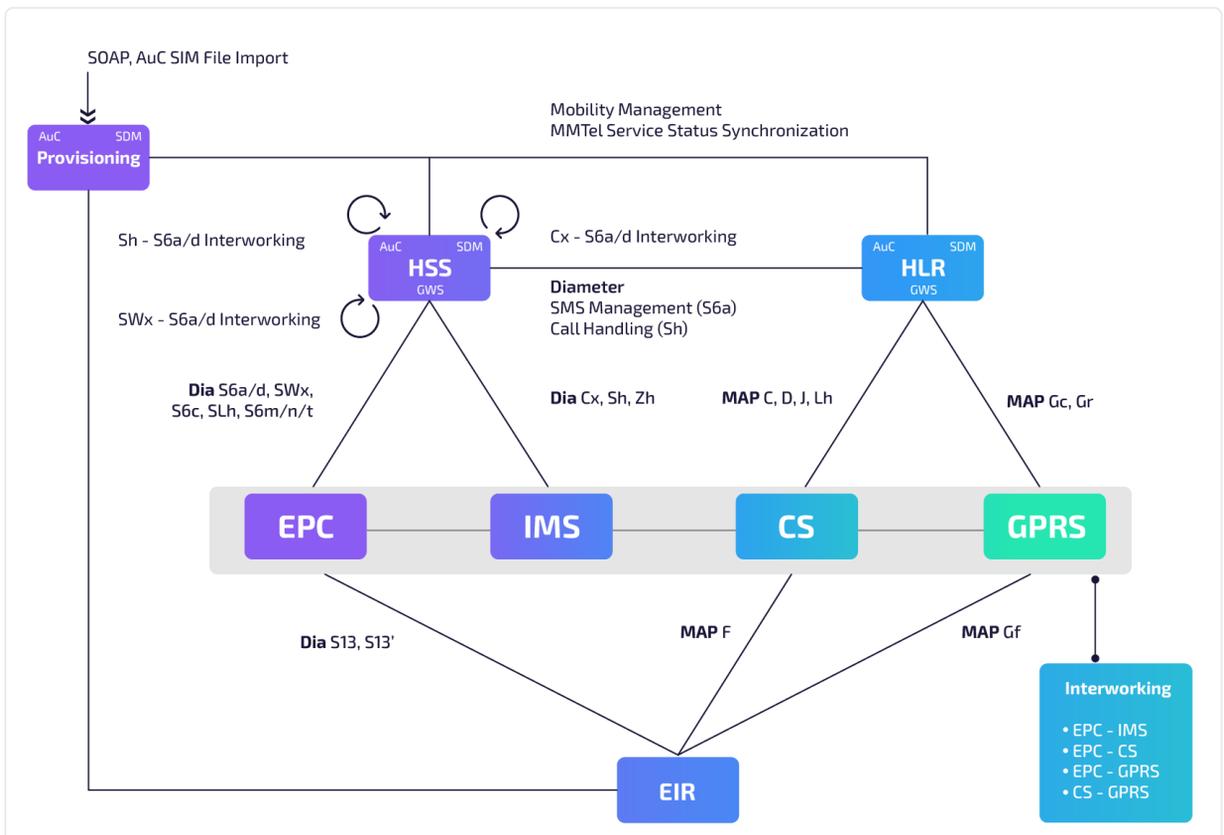
Subscriber Data Management

With the introduction of 5G and IMS (IP Multimedia System) services into their networks, carriers will be able to enable new revenue generating opportunities while consolidating older systems to an all-IP architecture. But with these new technologies there are complex signaling and migration challenges that are proving to be difficult and complex. Future 5G-IMS enabled mobile networks will host newer bandwidth hungry consumer mobile devices while simultaneously sharing the same network with a new generation of Internet of Things (IoT) devices that are expected to maintain its growth tendency for the next years.

SDM Solution for 2G/3G/4G/5G-NSA/IMS

The Titan.iium solution implements the Subscriber Data Management (SDM) applications to be upgradable software modules on a common platform. Titan™ hosts all subscriber management applications concurrently, serving 2G, 3G, 4G, 5G-NSA, IMS and VoWiFi on one infrastructure. All HSS and HLR service data can then be consolidated on a single, multi-tenant and highly scalable SDM and Authentication database with integrated Equipment Identity Register (EIR) capabilities.

Titan.iium's Subscriber Data Management does not sacrifice service, standards, or capabilities. It can be used as a front-end for existing hardware systems, giving carriers the ability to add the latest innovations without modifying or replacing their existing infrastructure. This non-disruptive approach preserves current assets yet makes new service rollouts painless, fast, and easy to maintain.



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Home Location Register (HLR)

Key Capabilities

Authentication

The HLR authenticates each SIM card that attempts to connect to the mobile core network based on authentication vectors the AuC generates. The request for authentication vectors is triggered from the VLR / SGSN node towards the HLR that invokes the AuC. The AuC uses the 3GPP Milenage or COMP-128 algorithms to create the authentication challenge and expected response. The AuC generates an encryption key that is subsequently used to encrypt all communications between the mobile phone and the mobile core network.

Location Management

The HLR manages the mobility of subscribers by updating their position in the Location Areas. Location Area procedures include updates, cancel or deletion.

Multiple Interfaces

The logical functions of the HLR interact with following the mobile core network elements:

- GMSC, SMSC (SMS-GMSC/SMS-IWMSC): MAP C interface
- MSC/VLR: MAP D interface
- SGSN: MAP Gr interface
- GGSN: MAP Gc interface
- gsmSCF, IP-SM-GW: MAP J interface
- GMLC: MAP Lh interface

Other features

The HLR provides other features such as, but not limited to:

- MNO specific addressing
- Roaming and Barring services
- Multi-Subscription
- Multi-Numbering
- IMSI Aliasing
- Forced Routing
- Mobile Terminated Roaming Forwarding (MTRF)
- HSS Interworking
- Event Notification Services
- Lawful Interception

Contact Titan.iium Today

Please visit www.titaniumplatform.com for product or solution information. For configuration and pricing details, please contact your local account representative via sales@titaniumplatform.com

About Titan.iium

Titan.iium Platform is a leader in signaling, routing, subscriber data management, and security software and services. Our solutions are deployed in more than 80 countries by over 180 companies, including eight of the world's top ten communications service providers and all of the top five. Titan.iium supports any network, domain, signaling protocol, and infrastructure with advanced routing capabilities and a unified end-user experience.

