

We locate
your target

ARCHITECTS
IN SAFETY AND
INTELLIGENCE

LIMA LOCATION SERVICES

On demand Location Tracking. For tactical or emergency situations.

Comply to Regulations. Provide access location information for MVNO's and MNO's.

Flexible Architecture. Easy to integrate with other location based systems.

INTRODUCTION

In many cases location information is a vital source of input for Law Enforcement. This means that regulations often require location information to be supplied as part of an intercepted call. This can be driven by criminal investigations in which case Lawful Interception and Data Retention law mandate the availability of location information to complement information about intercepted calls or stored call records. Regulation that applies to emergency calls (911 / 112) also demands location information to be available when a call is made.



LIMA Location Services

Operators have various options when it comes to collecting location data in which precision is a very important factor. If the precision is higher, the location data is of more value to the applications that use it. However, this precision comes at a cost, explaining why location information used for regulatory purposes is often no more accurate than an indication of the cell tower and a sector within the coverage range of that tower, if available at all.

For commercial Location Based Services, operators tend to invest in a location system to obtain more precise location data. If this type of commercial LBS is available it might also be used as a source for more accurate location data for regulatory purposes, provided it can meet the performance and security aspects of an LI service.

One example of the latter is the visibility of the location requests. Generally, for commercial applications, it is not a problem when location requests are logged in files as long as this information is not made publicly available. If these requests come from a Lawful Interception solution however, the request and any information therein must be kept confidential as they pertain to an Authority-issued warrant.

Location Tracking

LIMA Location Services is part of the LIMA portfolio suite. Based on the LIMA Management System, it inherits all the purpose-built functionality and security features required for regulatory applications. Examples are user and group management based on strong authentication, extensive audit logging, encryption and system hardening to protect the system and data from unauthorized access.

The Location Services solution consists of a Location Tracking application and a LIMA Location Server. The Location Tracking application is an add-on to the LIMA Management System. It complements interception platforms that do not originally support the delivery of location data.

These data sources can be anything ranging from a commercial LBS system, to a third party Lawful Interception system. The LIMA Location Tracking application can be integrated with any of these, providing the correct location data at the right time.

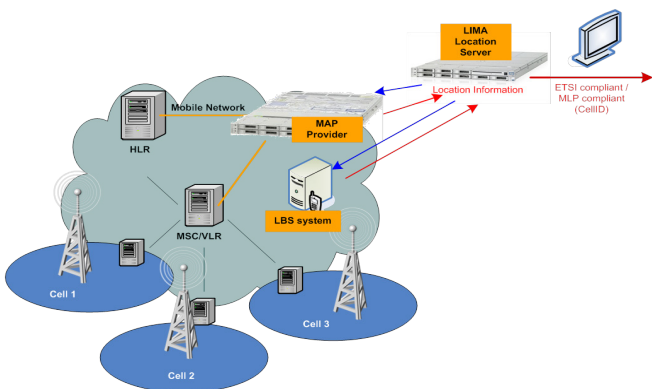
The LIMA Location Server provides the integration capabilities for connections to the network. It has plug-in modules called Location Providers for interfacing to third party location systems based on

standard protocols MLP (Mobile Location Protocol) defined by OMA (Open Mobile Alliance) or proprietary protocols when necessary. The LIMA Location Server provides a MLP interface, which allows itself to be integrated with other third party LBS applications.

In situations where no third party LBS system are available for retrieving location information, a LIMA MAP Location Provider can be used. This module directly integrates with an SS7 network and queries network nodes like HLR and MSC-VLR with MAP (Mobile Application Part) messages in case of 2G/3G or Diameter messages to nodes like the HSS and VLR in case of 4G LTE to retrieve the location of a mobile device. As the LIMA MAP and Diameter Location Provider makes use of standard MAP and Diameter messages it can be applied in any mobile network, offering a genuine vendor-independent location solution at a very attractive price. The precision that can be achieved by the LIMA MAP and Diameter Location Provider is Cell-ID. As cell sizes vary, precision depends on the location of the mobile devices in the radio network.

Application Examples

Standard Lawful Interception solutions may provide location information as part of an interception event, like starting a data session or making a phone call. However, this 'event-linked' delivery of location information may not be good enough for some LEAs. With regard to target tracing, the location of a target must be probed at a regular interval, independent of any communication events. For this type of request, the Location Tracking application retrieves the target location at pre-defined intervals, thus providing a trail of locations to the Monitoring Centre or to a mobile device for tactical purposes. LIMA Location Services can be used in situations where Lawful Interception solutions do not have direct access to location information. One example of such a case is a full MVNO (Mobile Virtual Network Operator), where the core network and lawful interception solution are separated from the MNO (Mobile Network Operator) radio network. A LIMA Location Services Server deployed in an MNO network can work together with the LIMA Lawful Interception solution in the MVNO network, enabling enhancement of the lawful interception data (IRI) with the required location information. This Location Services Server can integrate with an existing (commercial) Network Operator LBS system, an existing Lawful Intercept solution or use the LIMA MAP Location Provider to get Cell ID information autonomously. LIMA Location Services can also provide a solution in cases where specific location requests are required. This may be necessary when on-demand location information is needed, for example in tactical or emergency situations. Standard Lawful Interception solutions as well as commercial LBS platforms generally provide a location on request or as part of a lawful interception event. LIMA adds functionality to track the location on-demand or on scheduled intervals. It controls access to such privacy-sensitive actions by requiring a lawful interception warrant for these requests if applicable.



KEY BENEFITS

- On-demand location tracking for tactical and emergency situations.
- Comply to regulations by providing access to location information for MVNO's and MNO's.
- Flexible architecture provides easy integration with other location information systems.
- Complements interception platforms that do not originally support the delivery of location data.
- Single consistent user experience with other LIMA applications
- Extensive security features as required for regulatory applications.

OUR LIMA SOLUTIONS



LIMA PORTFOLIO

Comprehensive solutions for service providers, enterprises, law enforcement, and intelligence agencies.

- LIMA Lawful Intercept
 - Warrant management with workflow support
 - Provisioning and mediation
 - Passive and active IP interception
 - E-mail monitors
 - VoIP monitors
 - Mobile data monitors
- LIMA Disclosure Management
 - Workflow support
 - Data retention storage solutions
 - Data collection and mediation
- LIMA SS7 Secure
- LIMA Location Services
- LIMA Network Protect
- LIMA Cell Monitor
- LIMA Intrusion Detector
- LIMA Oversight
- LIMA Élite

ARCHITECTS IN SAFETY AND INTELLIGENCE

WHY GROUP 2000?

- Group 2000 is an independent global solutions provider of interception and intelligence solutions
- Group 2000 delivers and preserves essential and reliable interception knowledge
- Group 2000 has global experience in the public and telecommunication domain
- Group 2000 minimizes complexity delivering end to end solutions
- Group 2000 has technology partnerships with leading suppliers
- Group 2000 is an active member of ETSI
- Group 2000 LIMA solutions are modular and scalable to support the largest networks

■ Group 2000 Nederland B.V.

■ Van der Hoopweg 1
P.O. Box 333
7600 AH Almelo
The Netherlands

■ Tel: +31 (0)546 482 400
info@group2000.com
www.group2000.com

■ Group 2000 also has offices
in Norway, Switzerland, and
the USA.