

ARL Gateway

Location based service access gateway

The Thorcom® Automatic Resource Location Gateway is a central gateway and server solution that provides access to location information from vehicles, mobile devices and staff using digital communications systems and equipment including TETRA, GSM/GPRS locator units and Smartphones.

The Thorcom® Automatic Resource Location (ARL) Gateway is a central gateway and server solution that provides access to GPS based Automatic Vehicle Location (AVL) and Automatic Personal Location (APL) information from devices operating on one or more digital communications networks.

Based on Thorcom's proven Short Message Gateway (SMG) software, ARL Gateway connects to networks such as Airwave TETRA or a corporate GSM/GPRS network like Orange or Vodafone and provides a universal interface to Command and Control systems and GIS/mapping systems using well defined and open ASCII and XML protocols.

Location information is received, processed, checked for transmission errors and converted into a standard form, including translation of the GPS based position data in to Ordnance Survey co-ordinate system and made available via the Simple Vehicle Location Protocol (SVLP) - a simple ASCII format or the Thorcom Resource Location Protocol (TRLP) - a full XML format.

Data can be delivered to host computer systems, job despatch systems, or command and control systems via the ARL Gateway, or

inserted into a corporate databases or Business Intelligence system or can be directed to web-based mapping systems such as Xlocate®.

Information provided

Each location update contains:

- date and time stamp
- resource identifier (alias or callsign)
- position (latitude & longitude)
- position (OS Eastings and Northings)
- speed
- heading
- reason for report (eg. distance travelled, timed update, speed exceeded, etc.)

Network support

ARL Gateway supports connections to digital communications systems including Motorola TETRA (SDR), TETRA devices via PEI, GSM Short Message Service, MPT1327 analogue trunk radio systems and GPRS/3G networks.

Motorola Dimetra-P TETRA networks from Revision 3.4 to Revision 6.2 are supported via an IP connection to the Short Data Router (SDR) which has been conformance tested for use on the Airwave network in the UK.

GPRS/3G networks are supported with either a corporate leased line connection or VPN

Key features

- Multiple network support
- Wide range of mobile devices
- Technology neutral
- Multi-vendor support
- Unit addressing via 'aliases'
- Expandable for new devices
- Long-term logging and audit trail
- High availability options
- Conformance tested for Airwave in UK
- Browser configuration management

Applications

- Automatic vehicle location
- Staff and resource location
- Resource planning and allocation
- VIP and guarding
- High value goods
- Lone worker systems

Network connectivity

- Motorola Dimetra-P Rev 3.4 - Rev 6.2
- GSM SMS and GPRS (3GPP Release 99)
- MPT1327 trunked radio

Supported devices

- Motorola MTM/MTH/MTP 800 TETRA
- Sepura SRP/SRM/SRG 2000/3000 TETRA
- Cleartone CM9000 TETRA
- EADS THR800/850/880 series TETRA
- Thorcom VLR200 GPRS locator
- Matrix MTX65G GPRS tracker
- BlackBerry Smartphones†

† - not all models suitable - please consult Thorcom

Supported devices correct at time of printing - please consult Thorcom for updated list

"ARL Gateway provides a network independent and technology neutral approach to AVL that maximises compatibility and avoids vendor lock-in"



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Technical Specifications

Hardware

Dell® R210 1U 19" rack server, or
Dell® R710 2U 19" rack server platform
Intel® Xeon E5500 family quad core processor
250Gb-2Tb hard drive as SATA, SAS or RAID5 array
4-16Gb memory

Software

Operating System: Ubuntu Linux Server 8.04 LTS
Message Switch: Thorcom Short Message Gateway (SMG) 1.22
Web Management: Thorcom Mobile Data Manager (Webmin) 1.03

Radio network interfaces

TETRA: Motorola Dimetra-P Rev3.4 to Rev6.2 Short Data Router (SDR) interface
GPRS: GSM Release 99, 3GPP GGSN support for APN with RADIUS and data transmission via UDP/IP
MPT1327: Analogue trunk networks MAP27 V1.4 using SDM-II

Location transmission protocols

ETSI Location Interface Protocol (LIP) EN 100 293-18
Motorola Location Request-Response Protocol (LRRP)
Thorcom VLR200 UDP/IP type 15

Command & Control interfaces

Simple Vehicle Location Protocol (SVLP) V4.05
Thorcom Resource Location Protocol (TRLP) V1.00

Vendor Support

Command and Control systems

MIS Emergency Services - Alert-2000 and C3
Intergraph
Steria - Storm
Fortek - Vision
3tc Software (Asset Co.)

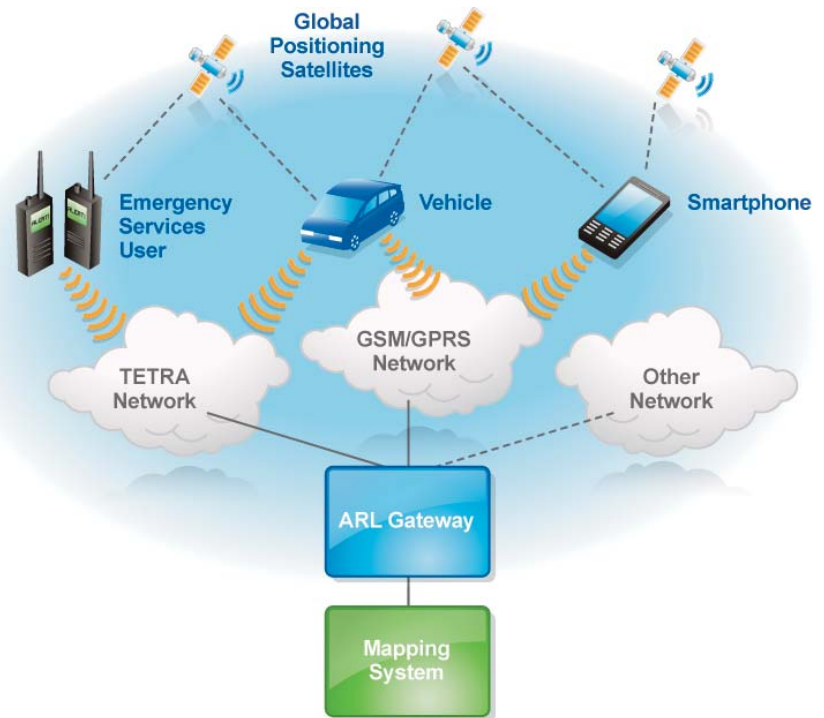
GIS/mapping systems

Northgate/Blue-8
Thorcom - Traksys-CS GIS
Xlocate Web-based GIS/mapping SaaS platform

Thorcom reserves the right to amend the product description and specification in line with its policy of continued improvement.

Errors & Omissions Excepted.

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connection to a private APN. ARL Gateway's in-built RADIUS server supports network access control (authentication) and IP address assignment.

TETRA devices

Supported TETRA devices include mobile and hand portable radios compatible with ETSI Location Information Protocol (LIP) including current models from Sepura, Motorola and EADS. In addition, ARL Gateway also supports Motorola mobiles and hand portables with Location Request-Response Protocol (LRRP) and proprietary GPS formats from earlier devices such as NMEA used by Cleartone CM9000.

GSM/GPRS locator units

ARL Gateway supports dedicated vehicle locator units including the Thorcom® VLR200 and Matrix MTX65. Thorcom can also supply dedicated tracking devices for goods/cargo containers, hand portable devices and covert tracking devices - please contact Thorcom.

BlackBerry support

BlackBerry® Smartphones that include a GPS receiver can support ARL operation by installing the Thorcom BlackBerry ARL software. The BlackBerry ARL software allows the smart phone to be used as normal for voice, SMS/text, email and web access but adds a background service that also allows the location of

the device to be reported via GPRS to ARL Gateway allowing the device location to be monitored.

Address management

ARL Gateway provides a translation from the addresses used by the network technology, for example TETRA ISSIs or IP addresses on GPRS, to customer centric 'aliases' or 'callsigns' - this allows the Command and Control system or application host to operate without knowledge of the underlying technology and enables mixed fleet and mixed vendor interoperation.

Logging and audit trail

ARL Gateway maintains a detailed logs for all data received for all resources for up to one year - this is accurately time-stamped and can be used for audit purposes and post incident analysis.

High availability

ARL Gateway can be supplied as a single, stand-alone, server solution or as a pair of servers operating as a main-standby pair with automatic failover. For mission critical systems servers can be installed at two or more sites (points of presence) allowing load sharing across sites and wide-area enhanced resilience with no single point-of-failure.