Global Vessel Information Service – the different faces of long range identification and tracking

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Introduction
Long, long ago, in a galaxy not so far away, we all knew where we were, all the time, by instinct. And this instinct remains today – for some... Wolves know their way back to the lair, salmon know what river to swim up for spawning, and even the smallest humming bird can migrate thousands of kilometres.

Mankind, however, seems to have lost this ability along the way to our modern mechanised world. We use Global Positioning Systems (GPS) on ships, planes and in our cars to tell us where we are, and where we want to go. In addition, there are regulations to ensure we can all get to where we want, safely and as efficiently as possible, while sharing the routes with many other users.

These points were presented by James Taylor, Northern Lighthouse Board (NLB) at the recent IALA Seminar on Global Tracking of Vessels, and he went on to note that cars have roads and highways, airplanes have corridors. Ships have existing forms of control with restricted areas, Traffic Separation Schemes (TSS), etc. – could the next step be the establishment of 'highways' of the sea?

The realities of modern shipping, with larger and less manoeuvrable ships, localised areas of traffic congestion, varied hazardous cargoes, environmental and security concerns has pressured Competent Authorities to take sophisticated measures to reduce risks. Discussions on Long Range Identification and Tracking, taking place at many international forums, are expanding what was a strictly security approach (Long Range Identification and Tracking – LRIT) to a more global concept of vessel information sharing.

It has been widely agreed that the sharing of information between VTSs, MRCCs, Port Authorities and ships offers benefits for safety, security and traffic management. What is required is clearly defined policy, functional and technical specifications for an LRIT system that goes beyond security, and provides value-added services at all levels.

Clive Davidson, Australian Maritime Safety Administration (AMSA) and President of IALA, noted at the same seminar that the world of marine navigation is on the cusp of change as computerised methods are set to augment and then replace traditional labour intensive processes. No longer will mariners rely solely on the taking of compass bearings and radar ranges, and their subsequent plotting on a paper chart, to determine their position when coasting. Already mariners are being exposed to electronic chart systems and ‘private’ chart data and thus are increasingly becoming aware of the potential benefits and possibilities on offer from the use of electronic navigation.

All these aspects, and more, are setting the scene for Long Range Tracking of Vessels.

What has happened? What is coming?

IMO
While there is good progress at IMO on the requirements and mechanisms for LRIT, much can be done to augment those efforts.

MSC
The MSC Working Group on Maritime Security, LRIT, was held at IMO from 17 – 19 October, 2005. While significant progress was made, agreement is still required on key points.

The terms of reference of the group were to develop draft SOLAS amendments on the Long-range identification and tracking (LRIT) of ships, taking into account the summing up by the Chairman of the MSWG at MSC 80. In addition, the group was asked to note that the obligation to transmit LRIT information should be extended to include cargo ships between 300 and 500 gross tonnes, engaged on international voyages.

Although discussions resolved some issues, as the group consisted of only 36 out of the 155 SOLAS Contracting Governments, and keeping in mind the nature of the issues involved, it was decided that consensus on the draft text of SOLAS amendments on the issue was not possible during the October meeting.

Some key points of the draft regulation include:

Application:
It is being proposed that this regulation would apply to the following types of ships engaged on international voyages:
- Passenger ships, including high-speed passenger craft
- Cargo ships, including high-speed craft, of 300 gross tonnage and upwards
- Mobile offshore drilling units

Implementation: Suggested date of [1 January 2008] is being discussed.

Information: ‘What’ – It is being proposed that ships shall automatically transmit the following long-range identification and tracking information:
1. The identity of the ship
2. The position of the ship (latitude and longitude)
3. The date and time of the position provided

Information: ‘Who’ – Discussions are focused on Contracting Governments, and it is being suggested that they shall:
- Be entitled to receive information about ships flying their flag irrespective of where such ships may be located
- Be entitled to receive information about ships which have indicated their intention to enter a port facility, or a place under the jurisdiction of that Contracting Government

Responsibilities: Some of the responsibilities being discussed for the Contracting Government include:
- Recognise and respect the commercial confidentiality and sensitivity of any long range identification and tracking information they may receive
- Protect the information they may receive from unauthorised access or disclosure
- Use the information they may receive in a manner consistent with international law
- Bear all costs associated with any long-range identification and tracking information they may seek to receive

COMSAR
The draft performance standards for LRIT were developed at COMSAR 9 in February 2005 and forwarded to the Maritime Safety Committee (MSC 80) as ‘works in progress.’ COMSAR 9 established a Correspondence Group under U.S. chairmanship, to resolve the outstanding LRIT technical issues. During MSC 80 additional guidance was provided to the Correspondence Group. The Group has 14 tasks to resolve on matters such as international databases, data security, archiving and destruction of data, information latency, and system architecture. The Group is also addressing the cost of this system, the types of information needed, and other uses of LRIT (e.g., RCC use of LRIT information for SAR). The result of this work will be a robust set of draft performance standards to be used as input for COMSAR 10.

The COMSAR Interim Working Group will meet at IMO Feb. 27 – March 3, 2006, just prior to COMSAR 10.

Seminars
To promote the concepts of LRIT, many seminars and discussions have taken place. In Nov. 2004, IALA and the Canadian Coast Guard co-hosted a seminar titled ‘Tracking all the Way?’ in Victoria, BC, Canada. Results from this seminar were presented to IMO, and a follow-up seminar was held in Nov. 2005. The IALA Seminar on ‘Global Tracking of Vessels’ was held in Kuala Lumpur (KL), Malaysia, co-hosted by the Malaysian Light Dues Board Peninsular, and the results have been submitted to IMO COMSAR 10.

Related discussions include the concept of ‘e-Navigation’. B. Wadsworth, UK dept. for Transport, provided a presentation on ‘e-Navigation, a System for the 21st Century’ at the IALA Seminar in KL. In the presentation, he noted that fundamental changes are taking place in marine navigation technologies and practices. Through the adoption of GPS and the development of related systems such as AIS and LRIT, some of the key building blocks of marine e-navigation have already been put in place. What is required now is a careful examination of how these building blocks can be developed, and others added, to deliver a truly comprehensive and integrated, global system for marine e-Navigation.

The concept of e-Navigation takes the discussion on LRIT as one element of a larger, coordinated approach to information sharing in an environment. In his presentation, B. Wadsworth noted that e-Navigation will need to meet some basic requirements:
- Key structural components, including Electronic Navigation Charts (ENCs), Principle Position Systems (GPS, Galileo), Failsafe back-up systems
- Standardised electronic format for ship/shore; ship/shore; shore/shore
- Means to prioritise data

B. Wadsworth also provided a list of elements that need to be addressed in the discussions on e-Navigation:
- ENCs – expand zones, promote development/surveys, move towards modern internet based service model for ENC
- Common standards for bridge/shore e-navigation systems – standards, but without limiting commercial development
- Security – require effective protocols
- Shore support systems – redesign for navigation, develop international/multi-national system (similar to air navigation)
- Close collaboration – with all related agencies, including hydrography/training/equipment/design and provision of aids to navigation (AtoN) to achieve plug-play result.

A paper has been submitted to IMO MSC81 proposing that a new item on e-Navigation be added to the work programme of the Sub-Committee of Navigation (NAV), with reference as well to COMSAR.

Looking ahead
There have been many seminars, presentations and discussions on Long Range Tracking or a Global Vessel Information System. The link to aviation is inevitable, as is reference to the overall multi-modal approach to transportation. The maritime environment cannot afford to stagnate in discussions. The technology for long range tracking, indeed global tracking, exists and is in use. Without a coordinated approach, and agreement on the key issues, regional solutions will continue to develop, swelling the scope of the work required for a harmonised, internationally accepted system.

Any approach to a global tracking system must supplement and mesh with existing systems, including reference to existing on-board carriage requirements. In addition, from an overall organisational point of view, the system must enhance the existing VTS and waterspace management systems. Just as with all existing processes, the structures and organisations designed for a world of ‘traditional’ marine navigation cannot survive unchanged in the e-navigation world.

The challenge is being presented not only to the IMO, but also to each and every person involved in the maritime transportation field. It is time to grasp the technology by the horns, and begin to consciously direct the optimum use of technology, in an e-navigation world, to meet the fundamental requirements of safe, effective, efficient and secure marine transportation.

ABOUT THE ORGANISATION

The International Association of Lighthouse Authorities (IALA) established in 1957, gathers together marine aids to navigation authorities, manufacturers and consultants from all parts of the world and offers them the opportunity to compare their experiences and achievements. IALA is encouraging its members to work together in a common effort to harmonise aids to navigation world-wide and to ensure that the movement of vessels are safe, expeditious and cost effective.

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