



Long Range Identification and Tracking

1. BACKGROUND

The International Maritime Organization (IMO) adopted an amendment to Chapter V of the International Convention for the Safety of Life at Sea 1974 (SOLAS) that introduces new mandatory position reporting obligations for SOLAS ships. SOLAS Chapter V, Regulation 19-1, on Long Range Identification and Tracking (LRIT) refers to a system that requires vessels to automatically transmit their identity, position and date/time of the position at 6-hour intervals. As indicated in the Regulation, SOLAS Contracting Governments bear operating costs of the system. The SOLAS amendment came into force on 1 January 2008 with compliance required from 31 December 2008.

In December 2008, at MSC85, transitional arrangements were agreed to cover the time period between 31 December 2008 and 30 June 2009.

The LRIT system architecture, as provided in the IMO Performance Standards for LRIT (MSC.263(84)) is shown in Figure 1. The architecture offers governments choices ranging from:

- creation of a National LRIT Data Centre;
- participation in a Regional or Cooperative Data Centre; through to
- reliance on an International Data Centre.

2. WHAT IS LRIT?

The development of LRIT is a result of many discussions dating from February 2002, as part of the 'Security Package' developed in the aftermath of the terrorist attacks of '9/11', including extensive deliberations at IMO supported by two workshops on 'Global Tracking of Vessels' held by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

LRIT is a maritime domain awareness (MDA) initiative to allow Member States to receive position reports from vessels operating under their flag, vessels seeking entry to a port within their territory, and vessels operating in proximity to a Member State's coastline. MDA includes enhanced security, environmental protection and safety/search-and-rescue benefits.

The basis of the LRIT system is that all ships will automatically report their identity and position to a receiving entity every six hours.

3. OPERATIONAL CONCEPT OF LRIT

The LRIT system design is based on a multi-tiered receiving system of data centres comprising of distributed data centres that report to a central International Data Exchange (IDE). Receiving systems are referred to as LRIT data centres and can be as simple as a small data base connected to a satellite service provider and the IDE enabling the receipt and transmission of position reports.

Vessel position reports are to be made available to other Member States for purchase, whenever a vessel is within 1000 nautical miles of the purchasing coast, or when a vessel seeking entry to a Member State's port is at a pre-determined distance or time period from that port. IMO has established a central Data Distribution Plan (DDP) that facilitates the exchange of the position reports and routes reports based on each Member State's desire to purchase reports.

The initial operational concept provided an opportunity for member States to deploy one of three styles of LRIT data centre:

- a National LRIT Data Centre (NDC) to service their own flagged vessels only;
- a Regional LRIT Data Centre (RDC) or Cooperative LRIT Data Centre (CDC) that services two or more Member State's flagged vessels; or
- an International LRIT Data Centre (IDC) that would provide services to those Member States not using an NDC, CDC or RDC.

At the IMO Maritime Safety Committee session in October 2007 (MSC83) it was determined that LRIT could initiate implementation without the formation of an IDC although efforts continue to identify options to provide an IDC.

Data flows from a vessel through the communications and Application Service Provider (ASP) to the IDE, and then back out to the requesting contracting government. Figure 1 depicts the model.

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Examples of approaches could include:

- Canada National LRIT Data Centre
- USA National LRIT Data Centre
- EU Regional/Cooperative Data Centre (27 countries)

3.1 Applicability and Requirements

The LRIT regulation will apply to the following ships engaged on international voyages:

- all passenger ships including high speed craft;
- cargo ships, including high speed craft, of 300 gross tonnage and above; and
- mobile offshore drilling units.

Ships operating exclusively in Sea Area A1¹ and fitted with an Automatic Identification System (AIS) will be exempt, while ships operating in Sea Area A2 not fitted with Inmarsat C GMDSS equipment will be required to fit a dedicated LRIT terminal. Ships operating into Sea Area A4 will require a dedicated LRIT terminal that operates in conjunction with an approved low-earth orbit satellite communication service provider.

MSC.1/Circ.1295 provides further guidance in relation to certain types of ships.

Any ship with SOLAS certification will be required to comply with SOLAS Regulation V/19-1 unless:

- the vessel is on domestic operations; and
- an exemption has been issued.

LRIT equipment on board ships must be capable of being configured to transmit the following minimum information set in an automatically generated position report (APR):

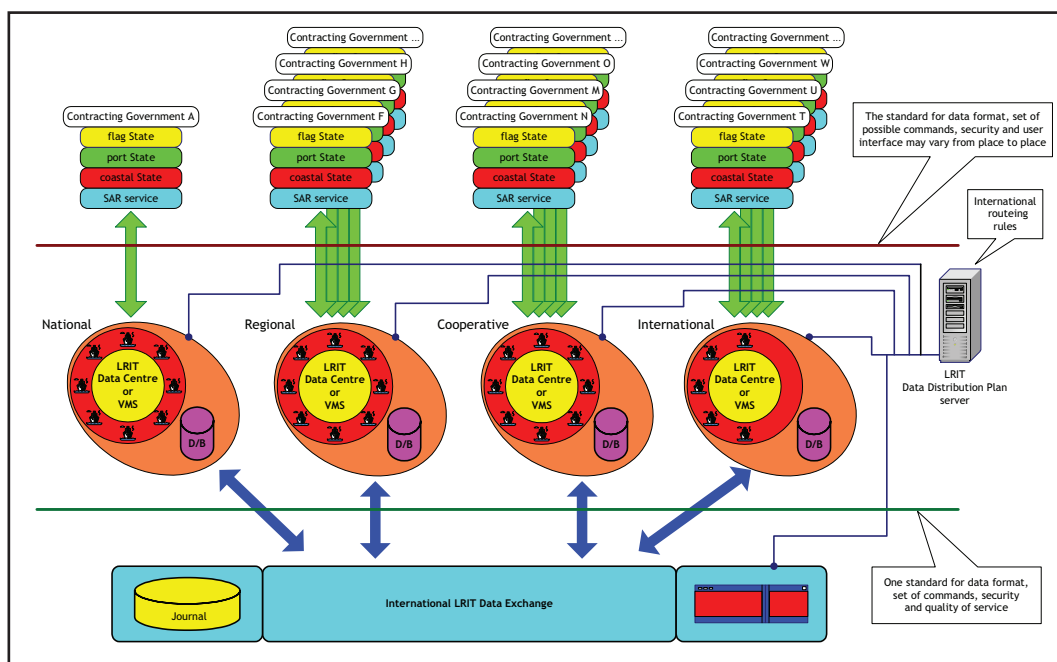
- the identity of the ship;
- the latitude and longitude of the ship; and
- the date and time of the position.

In addition, ship LRIT equipment must be able to respond to poll requests for an on-demand position report and be able immediately to respond to instructions to modify the APR interval to a frequency of a maximum of one every 15 minutes. APRs will be transmitted as a minimum 4 times per day (every 6 hours) to a National Data Centre or to a Cooperative or Regional Data Centre nominated by the Maritime Administration / Flag Register (the “Flag”).

4. TRANSITIONAL ARRANGEMENTS

MSC85 reviewed the progress made in relation to the establishment and completion of the elements of the LRIT system and noted that the design, construction, testing and integration of components was still in progress and would continue after 31 December 2008. To respond to this, the Committee adopted MSC.1/ Circ.1299 on Transitional Arrangements and measures for accelerating the completion of the establishment of the LRIT system.

Figure 1
LRIT System Architecture
(from MSC.263(84))



¹Sea Areas are as determined by GMDSS (link below)
http://www.amsa.gov.au/search_and_rescue/distress_and_safety_communications/gmdss_concept.asp

These arrangements apply to Contracting Governments which have established LRIT Data Centres or those in the process of establishing LRIT Data Centres. These participating Governments have been encouraged to share knowledge and expertise where practicable to expedite implementation of the LRIT system.

There is provision for accessing data in the system as it continues to develop, as well as an option for Contracting Governments to set the reports of their vessels to intervals greater than the 6-hour interval specified in the performance standards.

The arrangements also note that this situation is outside of the control of the ships entitled to fly the flags of Contracting Governments whose LRIT Data Centres have not been integrated into the LRIT system.

5. THE AUSTRALIAN RESPONSE TO LRIT

Australia has participated in the development of LRIT, and has put in place a commercial data centre solution to enable effective and timely response to the SOLAS Amendment. Through inter-agency cooperation, Australia has taken a whole-of-government approach to the implementation of LRIT.

Australia has contracted the services of a commercial data centre provider – Pole Star (www.polestarglobal.com). Australian registered vessels to which the LRIT regulation applies work with Pole Star directly to ensure their 6 hourly reports are received and forwarded, as required, to the International Data Exchange. In this manner, Australia is well placed to respond to the obligations for LRIT and the data received through the system will be made available to relevant Commonwealth agencies to enhance MDA. In this manner, Australia has an established LRIT Data Centre which is being integrated into the LRIT system.

It is confirmed that within the identified LRIT response solution, Inmarsat C will be specified as the main LRIT communication system, as the majority of ships required to comply with the regulation are already fitted with compatible Inmarsat C systems. Under this strategy, major additional hardware investment should not be required by shipowners, however experience has shown that some existing equipment does not meet LRIT conformance testing.

The LRIT technology will be reviewed again in the future to ensure that LRIT continues to leverage as much as possible equipment already carried under existing carriage requirements.

To promote timely implementation of LRIT, Australia is also in discussion with other IMO Member States to form a Cooperative Data Centre.

5.1 Technical Aspects

The IMO has identified the importance of making maximum use of existing equipment for LRIT, however various technical constraints limit this practice.

In order to ensure that the system operates effectively, MSC84 agreed to equipment testing and certification. IMO MSC.1/Circ.1296 provides guidance on the survey and certification of ships' compliance with requirements to transmit LRIT information. It specifically requires Contracting Governments to provide names and contact details of authorised Application Service Providers (ASP) to the IMO.

For Australia, the authorised ASP is Pole Star. AMSA has also identified a review process to identify other authorised testing ASPs, as per MSC.1/Circ.1296.

5.2 Equipment Conformance Testing

Guidance stemming from review of MSC.1/Circ.1257 during MSC 85 identified a need for greater clarity regarding the approach necessary to survey and certify the compliance of ships required to transmit LRIT information. This resulted in MSC.1/Circ.1296, which replaces MSC.1/Circ.1257.

It was agreed that conformance tests are to be undertaken by either a recognised ASP or by an authorised testing ASP by which the requirements of SOLAS Regulation V/19-1 should be satisfied. MSC.1/Circ.1296 applies to the following:

- Ships constructed on or after 31 December 2008 prior to the issue of a radio related certificate will be fitted with a compliant system that automatically transmits LRIT information.
- Ships constructed before 31 December 2008 and certified for operations in Sea Areas A1 & A2 as well as those certified for operations within areas A1, A2 and A3 must undertake conformance testing no later than the first survey of their respective radio installations after 31 December 2008.
- Any ship constructed before 31 December 2008 certified to operate in areas A1, A2, A3, and A4, will be given until the first survey of their respective radio installations after 1 July 2009 to comply.

Ships fitted with an Automatic Identification System (AIS) and operating exclusively in Sea Area A1 will not be required to comply with the provisions of SOLAS Regulation IV/2.1.12 irrespective of the date of construction.

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The following is a listing of the ASPs that ship owners may contact to carry out the equipment testing and certification process:

Pole Star Space Applications Ltd

Suite 301-303,
3rd Floor, Whiteleys Centre,
London W2 4YN,
United Kingdom.

Tel: +44 (0) 20 7313 7400

Fax: +44 (0) 20 7313 7401

Email: lrittesting@polestarglobal.com

Website: www.polestarglobal.com

Fulcrum Maritime Services Ltd

Park Mews, Suite 3,
15 Park Lane,
Hornchurch,
Essex RM11 1BB,
United Kingdom.

Tel: +44 (0) 1708 788400

Fax: +44 (0) 1708 788402

Email: asptesting@fulcrum-maritime.com

Website: www.fulcrum-maritime.com

Securewest International Incorporated

420 North Center Drive,
Bldg 11, Suite 206,
Norfolk, Virginia 23502, U.S.A.

Tel: +1 757 461 4343

Fax: +1 757 461 8666

Email: info@securewest.com

Website: www.securewest.com

5.3 Exemptions

An Australian ship that carries full SOLAS certification, and does not undertake international voyages, is required to hold:

1. LRIT equipment and certification (certified as noted above); or,
2. LRIT exemption certificate, initially issued by AMSA.

Instructions to Class have noted these options, and shipowners are asked to ensure one or the other option is chosen in the time-line indicated for LRIT – i.e. for ships constructed on or after 31 December 2008, linked to the initial survey of the radio installation and for vessels constructed before 31 December 2008, linked to the date on which the ship would need to demonstrate compliance with SOLAS Regulation V/19-1.

Shipowners who wish to apply for an exemption are asked to seek this exemption through Class who will liaise with AMSA for the initial issue of the exemption.

For more information on LRIT, please consult the various IMO related documents, or contact the Vessel Tracking Manager, AMSA. Vesseltracking@amsa.gov.au

6. REFERENCES

IMO Resolution MSC.202(81) [[http://www.imo.org/includes/blastData.asp/doc_id=10664/MSC.202\(81\).pdf](http://www.imo.org/includes/blastData.asp/doc_id=10664/MSC.202(81).pdf)]

IMO Resolution MSC.211(81) [[http://www.imo.org/includes/blastData.asp/doc_id=10665/MSC.211\(81\).pdf](http://www.imo.org/includes/blastData.asp/doc_id=10665/MSC.211(81).pdf)]

IMO Resolution MSC.263(84) [[http://www.imo.org/includes/blastData.asp/doc_id=10667/MSC.263\(84\).pdf](http://www.imo.org/includes/blastData.asp/doc_id=10667/MSC.263(84).pdf)]

IMO Resolution MSC.276(85) [[http://www.imo.org/includes/blastData.asp/doc_id=10670/MSC.276\(85\).pdf](http://www.imo.org/includes/blastData.asp/doc_id=10670/MSC.276(85).pdf)]

IMO MSC.1/Circ.1295 (on exemptions for LRIT) [http://www.imo.org/includes/blastData.asp/doc_id=10672/1295.pdf]

IMO MSC.1/Circ.1296 (on testing and certification of compliance for LRIT equipment) [http://www.imo.org/includes/blastData.asp/doc_id=10673/1296.pdf]

IMO MSC.1/Circ.1297 (on LRIT for SAR services) [http://www.imo.org/includes/blastData.asp/doc_id=10674/1297.pdf]

IMO MSC.1/Circ.1298 (on implementation of LRIT) [http://www.imo.org/includes/blastData.asp/doc_id=10677/1298.pdf]

IMO MSC.1/Circ.1299 (on transitional arrangements for LRIT) [http://www.imo.org/includes/blastData.asp/doc_id=10679/1299.pdf]

AMSA Marine Orders Part 21 [<http://www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrumentCompilation1.nsf/0/E950CA735F0E396DCA2573D3007F1247?OpenDocument>]

AMSA Marine Notice 5/2009

Html version - [http://www.amsa.gov.au/Shipping_Safety/Marine_Notices/2009/05-2009.asp]

or

Pdf version - [http://www.amsa.gov.au/Shipping_Safety/Marine_Notices/2009/0509.pdf]