

**2nd Meeting of the LRIT NCA's
SafeSeaNet workshop no 13
Lisbon, 29 March 2010**

**Agenda Item 9
SSN 13/1/2
23 April 2010**

LRIT data distribution through SSN

Submitted by EMSA

<i>Executive summary</i>	<ul style="list-style-type: none"> • Proposes relevant changes to the SSN XML Reference Guide to implement LRIT XML messages for distribution through SSN; • Identifies the consequent impacts upon MSs' systems from the above; and • indicates the plan and milestones for implementing the XML mechanism by EMSA.
<i>Action to be taken</i>	As per paragraph 6
<i>Related documents</i>	<ul style="list-style-type: none"> a. SSN XML RG V 2.03 b. Directive 2009/17/EC amending Directive 2002/59/EC on vessel traffic monitoring system; c. Council Resolution of October 2007 on EU LRIT DC; d. Council Resolution of December 2008 on EU LRIT DC; e. Commission's Communication of 15 October 2009; and f. EMSA paper on "Implementing the integration of AIS and LRIT data within SSN/STIRES"

1. INTRODUCTION

Directive 2009/17/EC amending 2002/59 and Council Resolution of October 2007 foresee the use of the existing SafeSeaNet system communication platform to facilitate the sharing of LRIT information between Member States (MSs). Plans are advanced to deliver LRIT through the SSN (STIRES) web interface. SafeSeaNet should also be modified, at central and national level (depending on the applications a MS may wish to develop), to provide for LRIT data transmission and management according to SOLAS Chapter V requirements.

It is proposed to introduce relevant changes to the SSN XML reference guide to implement, **on an optional basis**, the XML request and notification mechanisms via XML. An internal EMSA technical group is working on these issues, with an objective of developing a plan and identifying technical solutions. Potential new options were identified that would allow MS users to visualise, request and receive LRIT position reports through SSN. These are listed below in table 1 (specifically in rows C to H):

Table 1: Visualisation and distribution of LRIT data through SSN

	Option (A) First phase of integration project (2nd Q 2010)	Option (B1) Second phase of integration project (4th Q 2010)	Option (B2) Third phase of integration project (June 2011)
A. Request via the EU LRIT DC web-interface	*	*	*
B. Request via the SSN (STIRES) web interface		*	*
C. Request via an XML mechanism (<i>optional</i>)		*	*
D. Visualisation of periodic reports/standing orders/results of specific position/SAR/SAR SURPIC requests in EU LRIT DC web-interface.	*	*	*
E. Visualisation of periodic reports/standing orders in the SSN (STIRES) web-interface for flag/coastal state consultation. i.e. a Composite LRIT/AIS traffic image	*		
F. Visualisation of periodic reports/standing orders/results of specific position/SAR/SAR SURPIC requests in SSN (STIRES) web-interface (for flag or coastal or port state consultation)		*	*
G. Distribution to MS of periodic reports/standing orders/results of specific requests via the SSN proxy application in ITU/IEC "AIS-like" format. Data are to be subsequently distributed nationally to the authorised LRIT users according to LRIT access rules (<i>on an optional basis</i>)		*	*
H. Receiving LRIT periodic reports/standing orders and results of specific requests (been part of flag/coastal or port state consultation) into the national system, via XML. Data are to be subsequently distributed nationally to the authorised LRIT users according to LRIT access rules(<i>optional</i>)			*

2. LRIT XML REQUEST MECHANISM

By using the proposed options, a MS will receive LRIT position report(s) through SSN. Such a service could be implemented by a MS by exchanging XML messages between the LRIT data requester acting as an external system/service (ES) and the EU LRIT Data centre component of SSN. A web-services (SOAP-based) interface is to be used for sending the request.

The relevant message (ES2LRIT_Position_Req) is described in the annex. It could be used by a Member State (*data requester*) in order to request EU LRIT DC for one of the following:

- One time poll of a single ship
- 15 min, 30 min, 1 h, 3 h, 6 h, 12 h, 24 h periodic rate reports
- Archived LRIT information reports
- Most recent position report reports
- Restart/reset of the LRIT notification service
- Stop/don't start sending position reports
- Position reports received from ships within an area during a previous 24 hour period

3. LRIT XML NOTIFICATION

The EU LRIT DC will provide periodic reports, positions related to standing orders and responses related to LRIT position, SAR and SAR SURPIC request utilising a notification mechanism implemented via the **LRIT2ES_Not** message (refer to the Annex). MS wishing to receive LRIT position reports via XML could implement, on an optional basis, a web-service allowing them to receive the position reports. Upon receipt, based on own distribution mechanisms the MS would distribute the LRIT data to the authorised requestors.

The notification mechanism will be used for notifying:

- Periodic reports for a flag state's fleet
- Standing orders of a flag or coastal state
- Response to SAR SURPIC requests
- Responses to position or SAR request of the following types for a single ship:
 - One time poll of a single ship
 - 15 min, 30 min, 1 h, 3 h, 6 h, 12 h, 24 h periodic rate reports
 - Archived LRIT information reports
 - Most recent position report reports
 - Position reports received from ships within an area during the past 24 h
 - Position reports of ships within an area

4. IMPACTS UPON MS

The table (table 2) below outlines the impacts for MS should they choose to implement one or more of the options (rows A to H) made available to them for visualising/requesting/receiving LRIT data. The consequent impacts upon MSs systems are related to implementation of the new XML messages and depend upon the options chosen (see the annexes to this document).

Table 2 Options for request, visualisation and distribution of LRIT data through SSN

	Option (A) First phase of integration project (2 nd Q 2010)	Option (B1) Second phase of integration project (4 th Q 2010)	Option (B2) Third phase of integration project (June 2011)
A. Request via the EU LRIT DC web-interface	No impact		
B. Request via the SSN (STIRES) web interface		No technical impact. For user management/operationa impact see paper on "Integration of AIS and LRIT data within SSN/STIRES"	
C. Request via an XML mechanism (on an optional basis)		A national application allowing authorised data requestors to submit the request and send it to SSN must be implemented.	
D. Visualisation of periodic reports/ standing orders/results of specific position/SAR/SAR SURPIC requests in EU LRIT DC web-interface.	No impact		
E. Visualisation of periodic reports/ standing orders in SSN (STIRES) web-interface for flag/coastal state consultation, Composite LRIT/AIS traffic image	No impact		
F. Visualisation of periodic reports/ standing orders/results of specific position/ SAR/SAR SURPIC requests in SSN (STIRES) web-interface (for flag or coastal or port state consultation)		No impact	
G. Distribution to MS of periodic reports/ standing orders/results of specific requests via the SSN proxy application in ITU/IEC "AIS-like" format. Data are to be subsequently distributed nationally to the authorised LRIT users according to LRIT access rules (on an optional basis)		Should the national applications be upgraded to allow them to receive enriched AIS data from SSN and distributed to authorised users , there will be no further impacts upon activation of the LRIT distribution via the proxy.	
H. Receiving LRIT periodic reports/ standing orders and results of specific requests (been part of flag/ coastal or port state consultation) into the national system, via XML. Data are to be subsequently distributed nationally to the authorised LRIT users according to LRIT access rules (on an optional basis)			A national application allowing authorised data requestors to submit the request and send it to SSN must be implemented

⁽¹⁾ Should the MS wish to implement the relevant mechanism on an optional basis

5. TIMETABLE OF KEY ACTIONS RELATED TO THE INTEGRATION PROJECT

The actions listed in the table below are currently planned by EMSA to enable the implementation by the MS of an XML-based LRIT data request and distribution mechanism.

Ref.	Action proposed	Who	Deadline
1	Implementation of the first phase of SSN/LRIT integration (actions related to SSN (STIRES) upgrade to support phase (A) of integration	EMSA	April 2010
2	Finalisation of the LRIT XML reference guide on the basis of the messages currently included in the Annex (in order to be submitted for approval during SSN14)	EMSA	June 2010
3	Approval of the revised XML RG by the MS	MS	SSN14
4	Implementation of the second phase of SSN/LRIT integration	EMSA	End of 2010
5	Commissioning tests of the LRIT request mechanism for the MS implementing it on an optional basis .	MS and EMSA	During 2011
6	SSN ready to provide a Maritime Common Information Sharing Environment	EMSA	June 2011

6. ACTION REQUIRED

MSs are invited to note the proposals and to provide comments (preferably in advance of the meeting). The XML structure will be embedded in the new version of the SSN XML Reference Guide to be presented to the SSN 14 for adoption.

Annex

Description for LRIT messages (draft text to be integrated into the SSN XML Reference guide)

Section (*TBD in the revised XML RG*) - Get LRIT position reports

Overview

Introduction

A Member State may opt for the LRIT DC service of SafeSeaNet to provide its LRIT position report(s) to its authorized users. When the service is implemented, XML messages will be exchanged between the LRIT *data requester* acting as an External System (ES) (e.g. a MS system or the SSN web interface component of SSN and: the *LRIT Data centre* using a web-services (SOAP-based) interface. (SOAP protocol, version 1.2).

The EU LRIT DC will act both as the Server, when receiving LRIT requests from ES, and as the Client whenever it sends a response, e.g. a position report, back to the ES.

All LRIT request and response messages will be exchanged in an asynchronous way (excluding SOAP Faults).

All messages exchanged through the XML Interface are of a specific type ("EU LRIT DC Message Type"). EU LRIT DC Message Type values are in the range of: 600-650.

All messages exchanged through the XML Interface should be logged in the EU DC Journal.

Data volume limitation

The EU DC will likely limit the volume of response messages generated by a request in order to maintain service quality and system availability. If the volume of response messages exceeds the limit, further requests are rejected by the EU DC and an LRIT_Negative_Response message returned to the ES identifying the reason for the rejection.

The EU DC Operator will be alerted through the EU DC Monitoring Interface, where an ES sends an abnormal number of messages to the EU DC, e.g. due to a malfunction in the remote system.

Exception Handling

If the EU DC encounters a problem in parsing and processing a request sent by an ES, for example in case of an invalid XML Schema or XML format error, then the EU DC should generate and return immediately ("synchronously") a SOAP Fault message linked to a HTTP status code 500.

The SOAP Fault response is formatted according to the SOAP 1.2 guidelines (<http://www.w3.org/TR/soap12-part1/#soapfault>).

The EU DC should ensure that the communication with the ESs is reliable and that in case of problems in sending a position report message the EU DC should perform several attempts to re-send the message to the requesting ES.

In case of unavailability of the connection the outgoing messages should be stored in a queue and be sent as soon as the link is re-established.

SSL Infrastructure

"2-way SSL" will ensure the security of the communication.

An ES that sends a request to the EU DC will be authenticated, therefore the EU DC stores a Server SSL certificate and the ES uses a matching Client SSL Certificate in order to connect to the EU DC.

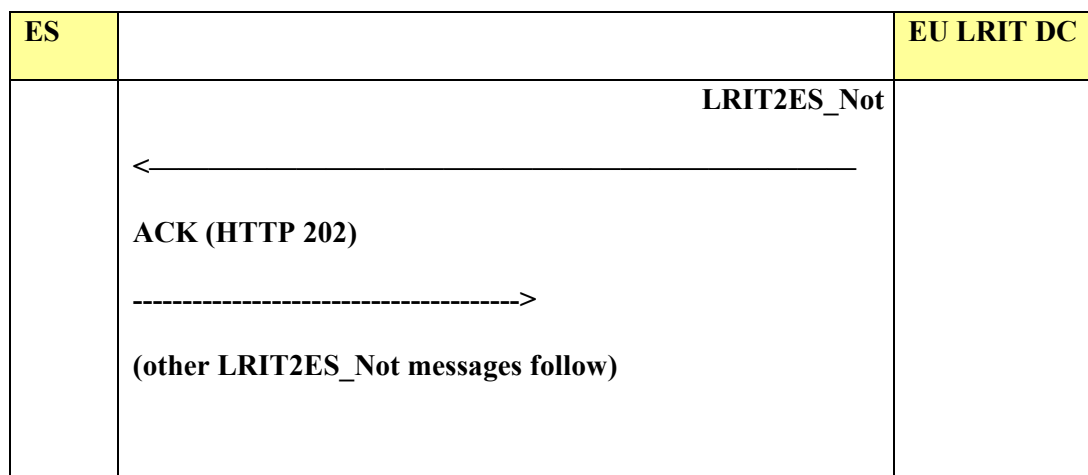
The EU DC that sends a response message to an ES will be authenticated, therefore the ES stores a Server SSL certificate and the EU DC uses a matching Client SSL Certificate in order to connect to the ES.

SSL Certificates will be issued by EMSA (Certification Authority).

The following diagrams are some examples of the message flow between the EU DC and an ES.

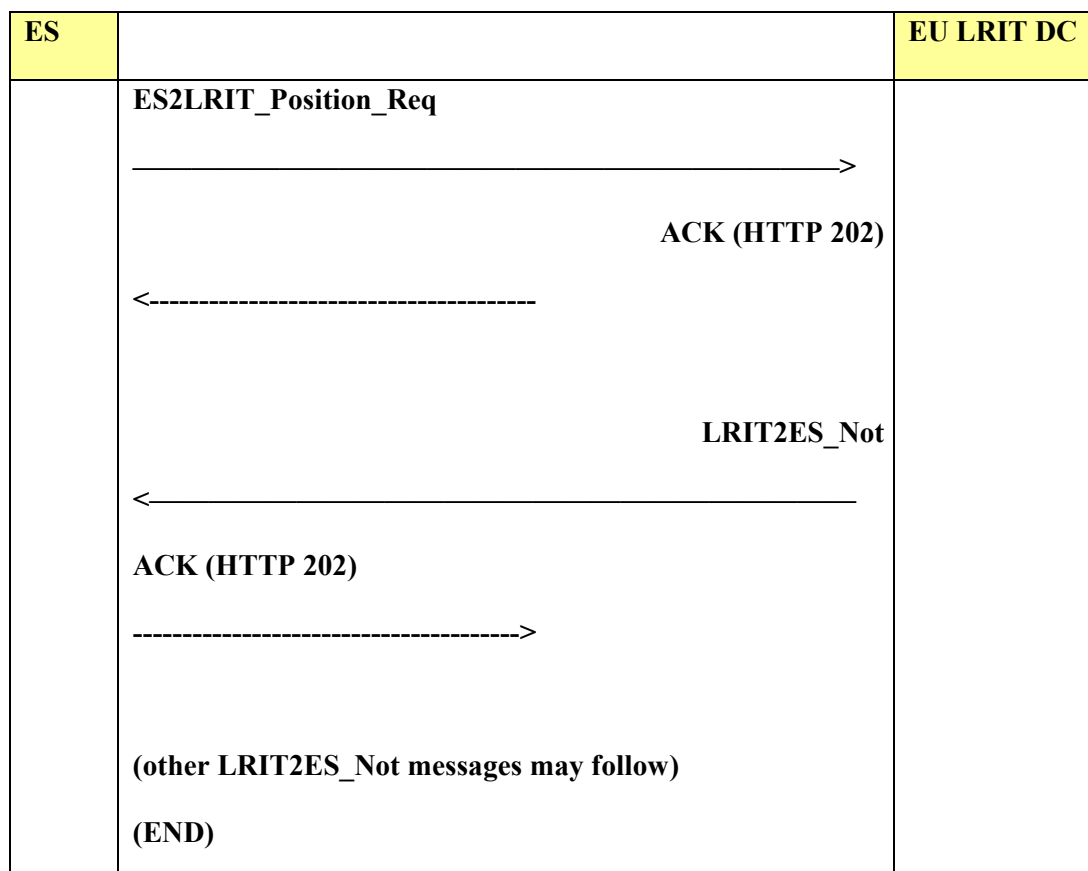
LRIT Mandatory Position Reports/Standing Orders

Periodic position reports sent by the EU DC without an initiating request message.



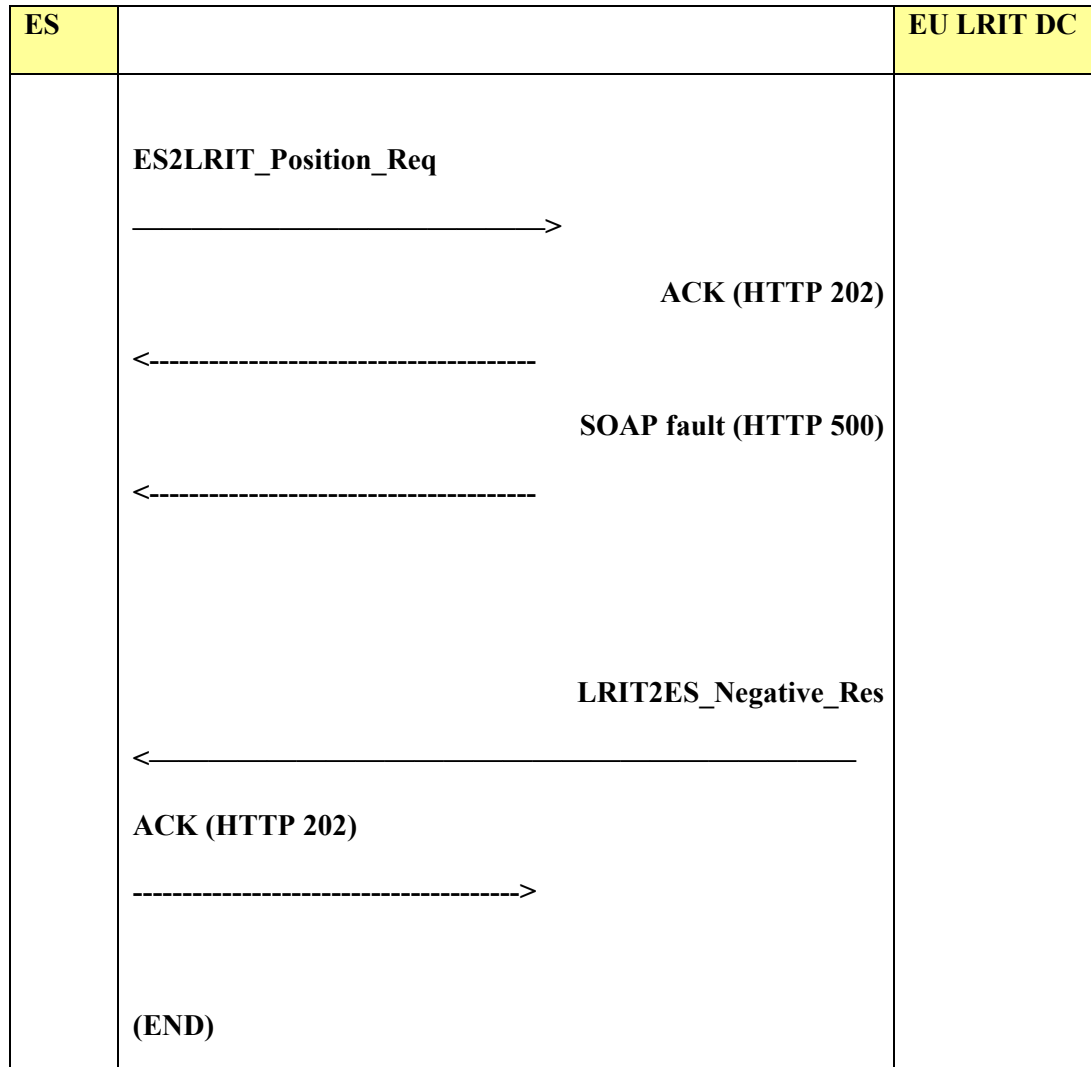
LRIT Request / LRIT Position Report

LRIT Ship Position request with positive response; one or more LRIT Position Reports (message LRIT2ES_Not) are returned.



LRIT Request / LRIT Negative Response

LRIT Ship Position request with negative response; LRIT negative response (LRIT2ES_Negative_Res message) is returned.



Contents

This section contains the following topics:

Topic	See Page
ES2LRIT_Position_Req	TBD
LRIT2ES_Not	TBD
LRIT2ES_Negative_Res	TBD

LRIT Request message

General flow of the XML messages

MS enabling LRIT position reports via XML may implement, **on an optional basis**, a web-service allowing them to receive the position reports. For this purpose, a new request message is introduced to SSN. The following figure outlines the expected flow of XML messages related to the transaction.

The message structure allows the transmission of requests relevant to all the IMO specified messages; that is, the LRIT Position request, (IMO LRIT Message 4) SAR position request (IMO LRIT message 5) and SAR SURPIC requests (IMO LRIT message 6. Refer to IMO specification as per the annex of MSC.1/Circ.1259/Rev.2 for the definitions of the IMO LRIT messages. Therefore the message could be used to request EU LRIT DC for:

- One time poll of a single ship
- 15 min periodic rate reports for a single ship
- 30 min periodic rate reports for a single ship
- 1 h periodic rate reports for a single ship
- 3 h periodic rate reports for a single ship
- 6 h periodic rate reports for a single ship
- Archived LRIT information reports for a single ship
- Most recent position report reports for a single ship
- 12 h periodic rate reports for a single ship
- 24 h periodic rate reports for a single ship
- Position reports received from ships within an area during the past 24 h
- Restart/reset of the LRIT notification service for a given ship
- Stop / don't start sending position reports for a single ship

The response from the LRIT DC will be normally delivered using the **LRIT2ES_Not message** (refer to page *TBD*) or (in case of problems) a **LRIT2ES_Negative_Res** (refer to page *TBD*).

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Message description

The following table describes the XML message used for the transaction.

Elements			Attributes	Occ	
Header				1	
			Version	1	
			TestId	0-1	
			ESRefId	1	
			SentAt	1	
			TimeoutValue	1	
			From	1	
			To	1	
Body				1	
	SearchCriteria			1	
	VesselIdentification			0-1	
		IMONumber		0-1	
		MMSINumber		0-1	
	ServiceArea			0-1	
		CircularArea		0-1	
		RectangularArea		0-1	
	LRIT_RequestPosOrSAR			0-1	
		LRIT_RequestIdentification			1
			EULRITDC_MessageType		1
			LRIT_MessageType		1
			LRIT_MessageId		0-1
			LRIT_DataUserRequestor		1
		LRIT_PositionRequest			0-1
				LRIT_DataUserProvider	1
				LRIT_AccessType	1
				LRIT_RequestType	1
				LRIT_Distance	0-1
		Port_PortFacility_or_Place			0-1
				LRIT_Port	0-1
				LRIT_PortFacility	0-1
				LRIT_Place	0-1
		LRIT_RequestDuration			0-1
				startTime	0-1
				stopTime	1
		LRIT_SAR_SURPIC_Request			0-1
			NumberOfPositions		1

Business Rules

The following table describes the XML message used for the transaction and the applicable business rules. The detailed definition of the attributes is included in the *TBD* section of the XML RG this document.

Element (bold) / Attribute (plain)	Occ	Description
Header	1	
Version	1	XML Schema version
TestId	0-1	If the TestId is set (TestId = "1") the EU DC should just receive and validate the message without further processing.
ESRefId	1	Unique identifier of the request generated by the ES. The ESRefId parameter in any response to this request should have the same value.
SentAt	1	Format "YYYY-MM-DDThh:mm:ssTZD" Where TZD = time zone designator (Z or +hh:mm or -hh:mm).
TimeoutValue	1	The Timeout is ignored by the EU DC. The LRIT System does not foresee the use of a Timeout
From	1	
To	1	"EU_LRIT_DC"
Body	1	
SearchCriteria	1	
VesselIdentification	0-1	Mandatory for a request concerning a single vessel. If VesselIdentification is included in the request then the ServiceArea element should be ignored
IMONumber	1	7 digit in accordance to IMO algorithm
MMSINumber	0-1	9 digit, relevant only for ships present in the EU DC database; is to be discarded should it be necessary to forward the request to another LRIT DC
ServiceArea	0-1	To be ignored if the VesselIdentification element is included. Mandatory for a SAR SURPIC request or an Archive request with GeoFilter
CircularArea	0-1	CircularArea and RectangularArea cannot be both set. If both parameters are populated, then the providing DC should ignore the contents of the RectangularArea parameter and use the contents of the CircularArea parameter in responding to the SAR SURPIC request message. See IMO docs for other details.

Element (bold) / Attribute (plain)	Occ	Description
RectangularArea	0-1	<p>CircularArea and RectangularArea cannot be both set.</p> <p>If both parameters are populated, then the providing DC should ignore the contents of the RectangularArea parameter and use the contents of the CircularArea parameter in responding to the SAR SURPIC request message</p> <p>This parameter is only valid if the parameter is populated and indicates that the SAR service wishes to perform a search based on a rectangular area. No side of any rectangular search area should exceed 2000 nautical miles. If a processing DC encounters a side of the rectangular area that is greater than 2000 nautical miles, the processing DC will send a receipt message with receipt code 7 to the requestor.</p> <p>If the latitude of the Southwest corner of the rectangular area is 90 degrees North or South, or if adding the North offset to the latitude of the Southwest corner results in a latitude of 90 degrees North or South, then the processing DC may, in the course of processing the request, modify the 90 degree latitude by a maximum of one minute to ensure proper geospatial processing (i.e. In the maximum allowable modification, the latitude should be set to 89 degrees 59 minutes).</p> <p>See IMO docs for other details.</p>
LRIT_RequestPosOrSAR	0-1	
LRIT_RequestIdentification	1	
EULRITDC_MessageType	1	<p>602 (for IMO requests)</p> <p>611 (for non-SAR EU DC archive request)</p>

Element (bold) / Attribute (plain)	Occ	Description
LRIT_MessageType	1	<p>Possible values:</p> <p>4: non-SAR position request; the element LRIT_PositionRequest must be present</p> <p>5: SAR position request; the element LRIT_PositionRequest must be present</p> <p>6: SAR SURPIC request; the element LRIT_SAR_SURPIC_Request must be present</p> <p>a) If the value is set to 4 the LRIT_request_POSorSAR element must be included in the message. This is to be used in case an LRIT Data User (other than SAR service) wants to: poll the position of a specific ship (i.e. on-demand polling command), request pre-set 6-h reports, change the rate of transmission of LRIT information by a ship (i.e. on demand request to change the rate of pre-scheduled position reports⁶), request most recent position report in the database, request archived LRIT information or stop or restart receiving LRIT information transmitted by a given ship.</p> <p>b) If the value is set to 5 the LRIT_request_POSorSAR element must be included in the message. This is to be used for requests by a SAR service to: poll the position of a specific ship (i.e. on-demand polling command), or request the most recent position report in the database transmitted by a given ship</p> <p>If the value is 6 the LRIT_LRIT_SAR_SURPIC_request element must be included in the message. Is a request by a SAR service for the provision of the most recent position reports already in a DC's database, within a specific geographical area</p> <p>See IMO docs for other details.</p>
LRIT_MessageId	0-1	Unique identifier of the message generated by the ES
LRIT_DataUserRequestor	1	LRIT ID of the requesting CG (Flag, Coastal or Port State)
LRIT_PositionRequest	0-1	Mandatory unless LRIT_MessageType = 6 (SAR_SURPIC)
LRIT_DataUserProvider	1	LRIT ID of the CG (Flag State) that provides the requested LRIT ship position reports
LRIT_AccessType	1	<p>Possible values: [0-6] ;</p> <p>LRIT_AccessType 0 and LRIT_RequestType 0 are only valid with LRIT_MessageType=4, and LRIT_RequestType 0 should only be used with LRIT_AccessType 0 and vice versa</p> <p>To make a port State request for a one time poll (LRIT_RequestType 1), archive LRIT information requests (LRIT_RequestType 7) or most recent LRIT information (LRIT_RequestType 9), LRIT_AccessType 5 should be used</p> <p>For port with distance trigger (LRIT_AccessType 3), LRIT_RequestTypes 1, 7 and 9 are not valid.</p> <p>Refer to IMO LRIT specs for further details</p>

Element (bold) / Attribute (plain)	Occ	Description
LRIT_RequestType	1	<p>Possible values: [0-11]</p> <p>The LRIT_RequestType parameter should indicate whether the request is for: a restart/reset; a one-time poll; a specified periodic rate; archived data; most recent position report; stop tracking; or do not start sending position reports. The do not start sending position reports message option provides Contracting Governments with the ability to temporarily override standing orders in the DDP.</p> <p>Consider the scenario where a Contracting Government is tracking a ship via port State access and does not want to receive LRIT information as a coastal State. The Contracting Governments could build a request message with coastal for the "LRIT_AccessType parameter and stop/don't start sending for the LRIT_RequestType. The providing DC, after receiving such a request message, should not start sending any coastal LRIT information for the period of time stated in the LRIT_RequestDuration parameter.</p> <p>LRIT_AccessType 0 and LRIT_RequestType 0 are only valid with LRIT_MessageType=4, and LRIT_RequestType 0 should only be used with LRIT_AccessType 0 and vice versa</p> <p>LRIT_RequestTypes 1 (one time poll) and 9 (most recent position report) are the only valid values for LRIT_MessageType 5 (SAR position request)</p> <p>For port with distance trigger (LRIT_AccessType 3), LRIT_RequestTypes 1, 7 and 9 are not valid.</p> <p>See IMO specs for further details</p>
LRIT_Distance	0-1	Distance trigger for Port State requests (LRIT_AccessType 3 and 5)
Port_PortFacility_or_Place	0-1	Parameter is valid only for LRIT_AccessType 3 and 5
LRIT_Port	0-1	UN Locode
LRIT_PortFacility	0-1	IMO port facility number
LRIT_Place	0-1	IMO place code
LRIT_RequestDuration	0-1	See IMO specs for details
startTime	0-1	See IMO specs for details
stopTime	1	See IMO specs for details
LRIT_SAR_SURPIC_Request	0-1	Mandatory if LRIT_MessageType = 6 (SAR_SURPIC)
NumberOfPositions	1	Possible values: [1-4]

Example

To be included in the XML RG

LRIT position notification message

Introduction

MS wishing to receive LRIT position reports via XML could implement, **on an optional basis**, a web-service allowing them to receive the position reports. Upon receipt, based on own distribution mechanisms the M.S. would distribute the LRIT data to the authorised requestors.

The **LRIT2ES_Not** message is sent by the LRIT DC component of SafeSeaNet to a MS in order to notify an external system (of the EU LRIT DC) about LRIT position reports. The message is used to communicate:

- Periodic (mandatory) reports for a flag state's fleet
- Standing orders
- Response to SAR SURPIC requests
- Responses to position or SAR request of the following types:
 - One time poll of a single ship
 - 15 min periodic rate reports for a single ship
 - 30 min periodic rate reports for a single ship
 - 1 h periodic rate reports for a single ship
 - 3 h periodic rate reports for a single ship
 - 6 h periodic rate reports for a single ship
 - 12 h periodic rate reports for a single ship
 - 24 h periodic rate reports for a single ship
 - Position reports received from ships within an area during the past 24 h
 - Archived LRIT information reports for a single ship
 - Most recent position report reports for a single ship

Message description

The following table describes the XML message used for the transaction.

Elements		Attributes	Occ		
<i>Header</i>			<i>I</i>		
	Version		1		
	TestId		0-1		
	EULRITDCRefId		1		
	ESRefId		0-1		
	SentAt		1		
	From		1		
	To		1		
	StatusCode		0-1		
	StatusMessage		0-1		
<i>Body</i>			<i>I</i>		
	<i>PositionReportDetails</i>		<i>I</i>		
		<i>LRIT_NotificationDetails</i>		<i>I</i>	
			<i>ShipborneEquipment</i>		<i>I</i>
				LRIT_Latitude	1
				LRIT_Longitude	1
				LRIT_TimeStamp1	1
				LRIT_ShipborneEquipmentId	0-1
			<i>ASP</i>		<i>I</i>
				LRIT_ASPIId	1
				LRIT_CSPIId	1
				LRIT_ReportedIMONum	1
				LRIT_ReportedMMSINum	1
				LRIT_TimeStamp2	1
				LRIT_TimeStamp3	1
			<i>DC</i>		<i>I</i>
				LRIT_DCId	1
				EULRITDC_MessageType	1
				LRIT_MessageType	1

Elements			Attributes	Occ
			LRIT_MessageId	1
			LRIT_ReferenceId	1
			LRIT_TimeStamp4	1
			LRIT_TimeStamp5	1
			LRIT_ResponseType	1
			LRIT_DataUserRequestor	1
			LRIT_ReportedShipName	0-1
			LRIT_DataUserProvider	1
			LRIT_DDPVersionNum	1
			LRIT_Test	0-1
			LRIT_SchemaVersion	1

Business Rules

The following table describes the XML message used for the transaction and the applicable business rules. The detailed definition of the attributes is included in the **XXXX** of this document.

Element (bold) / Attribute (plain)	Description
Header	
Version	XML Schema version
TestId	Corresponds to the attribute value of the original request message
EULRITDCRefId	Unique ID of the message generated by the LRIT DC data centre.
ESRefId	The value of the ESRefId parameter in the request associated with this position report. Not included or empty in case of mandatory periodic reports and reports resulting from coastal standing orders.
SentAt	Format “YYYY-MM-DDThh:mm:ssTZD” Where TZD = time zone designator (Z or +hh:mm or -hh:mm).
From	Constant value: “EU_LRIT_DC”
To	The value of the From parameter in the request associated with this position report.
StatusCode	According to SSN defined status codes (see SSN XML ref. guide)
StatusMessage	According to SSN defined status messages (see SSN XML ref. guide)
Body	
PositionReportDetails	
LRIT_NotificationDetails	
ShipborneEquipment	
LRIT_Latitude	GNSS latitude position of ship (based on the WGS84 datum) in degrees, minutes and decimal minutes to two decimal places N (North) /S (South)
LRIT_Longitude	GNSS longitude position of ship (based on the WGS84 datum in degrees, minutes and decimal minutes to two decimal places E (East) /W (West)
LRIT_TimeStamp1	
LRITShipborneEquipmentId	

Element (bold) / Attribute (plain)	Description
ASP	
LRIT_ASPIId	
LRIT_CSPIId	
LRIT_ReportedIMONumber	Value of the IMONum parameter of the corresponding LRIT position report
LRIT_ReportedMMSINumber	Value of the MMSINum parameter of the corresponding LRIT position report
LRIT_TimeStamp2	
LRIT_TimeStamp3	
DC	
LRIT_DCId	
EULRITDC_MessageType	Constant value: 601
LRIT_MessageType	Possible values: 1: Periodic report 2: Polled report 3: SAR report
LRIT_MessageId	Unique identifier of the message, generated by the EU DC
LRIT_ReferenceId	The value of the LRIT_MessageId parameter in the request associated with this position report. Not included or empty in case of mandatory periodic reports and reports resulting from coastal standing orders.
LRIT_TimeStamp4	
LRIT_TimeStamp5	
LRIT_ResponseType	Possible values: 1: Coastal 2: Flag 3: Port 4: SAR
LRIT_DataUserRequestor	The LRIT ID of the requestor.
LRIT_ReportedShipName	Value of the ShipName parameter of the corresponding LRIT position report

Element (bold) / Attribute (plain)	Description
LRIT_DataUserProvider	The LRIT ID of the provider (Flag State) of the LRIT position report
LRIT_DDPVersionNum	The LRIT DDP version number
LRIT_Test	Value of the Test parameter of the corresponding LRIT position report
LRIT_SchemaVersion	The version of the set of XML schema files that define the LRIT messages exchanged between the EU DC and the IDE. This parameter is informative only and no processing action is required by the receiving ES.

Example of an
LRIT position
notification from
the LRIT DC

To be included in the XML PRG

LRIT negative response message

Introduction

The EU LRIT DC sends a LRIT Negative Response by calling a remote Web Service made available by the requesting ES.

The LRIT Negative Response message corresponds to the IMO Receipt message (message type 7) as per the IMO LRIT specifications. However the message keeps the **same function and return codes** as defined in the LRIT systems specifications for Message Type 7.

The Negative Response is returned by the EU LRIT DC whenever the requested position report is not available or the requestor is not entitled to the data.

The reason of the non availability of the LRIT data is specified in the parameter “Message” (see IMO docs for further details).

Possible situations that cause an LRIT2ES_Negative_Res message to be returned is the following:

- The user is not entitled to the data according to the LRIT rules;
 - The message passed XML Schema validation but contains invalid parameters or an invalid combination of parameters;
 - The request generates a volume of response messages which exceeds the allowed limit;
 - The IDE, the LRIT DataUserProvider DC or another essential LRIT component is not available;
 - Any other situations that block the data delivery.
-

Message
description

The following table describes the XML message used for the transaction.

Elements	Attributes	Occ
Header		1
	Version	1
	TestId	0-1
	EULRITDCRefId	1
	ESRefId	0-1
	SentAt	1
	From	1
	To	1
Body		1
NegativeResponseDetails		1
	EULRITDC_MessageType	1
	LRIT_MessageType	1
	LRIT_ReferenceId	1
	LRIT_ReceiptCode	1
	LRIT_Destination	1
	LRIT_Originator	1
	LRIT_Message	1
	LRIT_TimeStamp	1
	LRIT_DDPVersionNum	1
	LRIT_Test	0-1
	LRIT_SchemaVersion	1

Business Rules

The following table describes the XML message used for the transaction and the applicable business rules. The detailed definition of the attributes is included in the Annex of the XML Reference guide.

Element (bold) / Attribute (plain)	Description
Header	
Version	XML Schema version
TestId	
EULRITDCRefId	Unique ID of the message generated by the LRIT DC data centre.
ESRefId	The value of the ESRefId parameter in the request associated with this response.
SentAt	Format “YYYY-MM-DDThh:mm:ssTZD” Where TZD = time zone designator (Z or +hh:mm or -hh:mm)
From	Constant value: “EU_LRIT_DC”
To	The value of the From parameter in the request associated with this response.
Body	
EULRITDC_MessageType	Constant value: 607
LRIT_MessageType	Constant value: 7
LRIT_MessageId	Unique identifier of the message, generated by the EU DC
LRIT_ReferenceId	The value of the LRIT_MessageId parameter in the request associated with this response.

Element (bold) / Attribute (plain)	Description
LRIT_ReceiptCode	<p>ReceiptCode 0 – Not entitled to data Receipt message should be generated by a DC when it determines that the requesting LRIT Data User is not entitled to receive the LRIT information it has requested;</p> <p>ReceiptCode 1 - No ship in SAR SURPIC area should be generated in response to a SAR SURPIC request message if a DC that is processing a SAR SURPIC request message determines that there are no ships within the geographical area specified in the SAR SURPIC request message;</p> <p>ReceiptCode 2 - IDE not available should be generated when the IDE is not available for any reason. The Receipt message should typically be generated by a DC in order to indicate that the IDE is off line. A DC is able to detect this type of error by using the System status message transmitted from the IDE;</p> <p>ReceiptCode 3 - DC not available should be generated when a DC is not available. The IDE should be responsible for determining if all DCs are on line, as indicated by the System status message;</p> <p>ReceiptCode 4 - CSP not available should be generated when a DC has determined a CSP is off line. The DC is responsible for detecting when the CSP is not available;</p> <p>ReceiptCode 5 - Ship not responding should be generated by a DC if a ship that transmits to that DC is not responding. All DCs should be detecting if ships associated with that DC are transmitting LRIT information at the preset MSC.1/Circ.1259/Rev.2 time intervals. If a LRIT Data User requests LRIT information from a ship that is not responding, then the DC to which the ship transmits should generate a Receipt message with text content stating how long the ship has not been responding;</p> <p>ReceiptCode 6 - Ship not available should be generated by a DC when a request has been made for LRIT information associated with a ship that should be transmitting to that DC but which has never transmitted information to the DC;</p> <p>ReceiptCode 7 - System fault should be generated when a fault occurs in the system that is not covered by the other Receipt Codes;</p> <p>ReceiptCode 8 - Could not load DDP should be generated when a DC or the IDE is unable to process the received DDP. The message should be sent to the DDP server; and</p> <p>ReceiptCode 9 - Incorrect DDP version, message discarded should be generated by the IDE when the DDPVersionNum parameter contained within the message does not match the DDPVersionNum being used by the IDE. The IDE should discard the message and build a Receipt message with the ReferenceId populated with the MessageId of the discarded message.</p>
LRIT_Destination	The LRIT ID of the requestor
LRIT_Originator	LRIT ID of the component generating the message
LRIT_Message	Text message indicating the reason of the negative response
LRIT_TimeStamp	
LRIT_DDPVersionNum	The LRIT DDP version number
LRIT_Test	Value of the Test parameter of the corresponding LRIT position report

Element (bold) / Attribute (plain)	Description
LRIT_SchemaVersion	The version of the set of XML schema files that define the LRIT messages exchanged between the EU DC and the IDE. This parameter is informative only and no processing action is required by the receiving ES.

Examples of
Negative
Response
Message

To be included in the XML RG

(TO AMEND THE RELEVANT ANNEX OF THE XML RG)

Attributes used in LRIT messages

Attribute name	Type	Len	Description and general rules
CircularArea	Text	0-256	Centre: Radius provided in format : nn.nn. c :nnn.nn. c :nnn <xs:pattern value="O)((((([0-8][0-9]\.[0-5][0-9]\.[nNsS]) (90\.[00\.[nNsS]) ((([0-1][0-7][0-9]\.[0-5][0-9]\.[eEwW]) ([0][8-9][0-9]\.[0-5][0-9]\.[eEwW]) (180\.[00\.[eEwW]) ([0-9]{3})))"/> Centre of the circular area should be indicated by the latitude and longitude on the basis of the WGS 84 datum in degrees and minutes with North/South (latitude) and East/West (longitude). Radius is the radius of the circle in nautical miles.
ESRefId	Text	1-36	Reference identifier specified by the original caller. It will be inserted by LRIT DC in the ESRefId attribute of the LRIT_Receipt.xml response.
EULRITDC_MessageType	INT	2	Message type number: Format:nn
EULRITDCRefId	Text	1-36	Reference identifier specified by EU LRIT DC.
From	Text	3-15	The UserID of the originator of the message (as defined in SafeSeaNet). Best practice for the field is to include the reference identification of the originator of the data included in the message.
IMONumber	Text	7	IMO number, IMO Res A.600 (15)

Attribute name	Type	Len	Description and general rules
LRIT_AccessType	ENUM		<p>Possible values:</p> <ul style="list-style-type: none"> 0 - Restart/reset for all entitlements of LRIT Data User 1 - Coastal 2 - Flag 3 - Port with distance trigger from port or port facility 2 4 - Reserved for future use 5 - Port with time trigger 6 - SAR
LRIT_DataUserProvider	Text	4	LRIT ID of the LRIT Data User (i.e. the Administration) associated with that ship Format: nnnn
LRIT_DataUserRequestor	Text	4	LRIT ID of the LRIT Data User requesting the LRIT information as a result of a request message or a standing order.. Format: nnnn
LRIT_DDPVersionNum	Text	1-36	DDP version number of the DDP used by the LRIT component transmitting the message Format: n1..nn:n1..nn
LRIT_Destination	Text	4	LRIT ID of the LRIT Data User Format: nnnn
LRIT_Distance	Text	4	Distance in nautical miles from the port or port facility where tracking should commence Format: nnnn
LRIT_Message	Text	0-256	Contains text providing information in relation to the nature of the Negative Response message

Attribute name	Type	Len	Description and general rules
LRIT_MessageId	Text	0-23	Identifier that LRIT components should use to identify individual messages within the LRIT system. Format: nnnnYYYYMMDDHHmmssnnnn An example of a MessageId is 1999200701301155231111 where the LRIT ID of the LRIT Data User = 1999, year = 2007, month = 01, day = 30, hour = 11, minute = 55, second = 23, and unique number = 11111
LRIT_MessageType	INT	2	Message type number: Format:nn
LRIT_ReceiptCode	INT	1-256	<ul style="list-style-type: none"> 0 Not entitled to data 1 - No ships in SAR SURPIC area 2 - IDE not available 3 - DC not available 4 - CSP not available 5 - Ship not responding 6 - Ship not available 7 - System fault 8 - Could not load DDP 9 - Incorrect DDP version, message discarded
LRIT_ReferencId	Text	0-23	(Identifier of the associated message that has been received) Format: nnnnYYYYMMDDHHmmssnnnn or empty)

Attribute name	Type	Len	Description and general rules
LRIT_RequestType	ENUM		<p>Possible values (integer)</p> <ul style="list-style-type: none"> 0 - Restart/reset 1 - One time poll of ship 2 - 15 min periodic rate 3 - 30 min periodic rate 4 - 1 h periodic rate 5 - 3 h periodic rate 6 - 6 h periodic rate 7 - Archived LRIT information request 8 - Stop / don't start sending position reports 9 - Most recent position report 10 - 12 h periodic rate 11 - 24 h periodic rate
LRIT_Originator	Text	4	LRIT ID of the LRIT Data User Format: nnnn
LRIT_TimeStamp	DT		LRIT timestamp are all in in UTC. An example of a valid timestamp would be 2009-10-10T12:00:00Z or 2009-10-10T12:00:00.067Z
LRIT_TimeStamp1			
LRIT_TimeStamp2			
LRIT_TimeStamp3			
LRIT_TimeStamp4			

Attribute name	Type	Len	Description and general rules
LRIT_TimeStamp5			
LRIT_SchemaVersion	Decimal number	Not defined	Decimal number Format : n1...n _n .n1...n _n
LRIT_Test	ENUM		Setting indicates if the message is a test message or a regular message 0 - Regular message 1 - Test message
MMSINumber	Text	9	MMSI number of the vessel. MID according to the ITU regulation. Length of the MMSI number should always be 9
NumberOfPositions	INT	1	The number of position reports received from ships within the area during the past 24 h that the SAR service wishes to receive
Place	Text	6	IMO port facility number for the port facility, or a unique code for places under the jurisdiction of Contracting Governments that the ship is planning on entering Pattern value <xs:pattern value="[A-Z]{3}([0-9]){3}"/>
Port	Text	5	UN/LOCODE code for the port. xs:pattern value="[A-Z]{2}([A-Z0-9]){3}"/>
PortFacility	Text	9	IMO port facility number for the port facility, or a unique code for places under the jurisdiction of Contracting Governments that the ship is planning on entering <xs:pattern value="[A-Z]{2}([A-Z0-9]){3}([0-9]){4}"/>

Attribute name	Type	Len	Description and general rules
RectangularArea	Text	1-256	<p>The RectangularArea parameter defines the rectangular geographical area within which the SAR service wishes to check for ships. The rectangular area should be indicated by the latitude and longitude on the basis of the WGS 84 datum of the southwest corner of the rectangular area in degrees and minutes with North/South (latitude) and East/West (longitude), and the north and east offsets are expressed as: degrees.minutes.North and East from the Southwest corner.</p> <p>Format: nn.nn.c:nnn.nn.c: nn.nn.N:nnn.nn.E <xs:pattern value="O)(([0-8][0-9]\.[0-5][0-9]\.[nNsS])((90\.[00\.[nNsS])):((([0-1][0-7][0-9]\.[0-5][0-9]\.[eEwW]) ([0][8-9][0-9]\.[0-5][0-9]\.[eEwW])):(([0-8][0-9]\.[0-5][0-9]\.[nN]) (90\.[00\.[nN])):((([0-1][0-7][0-9]\.[0-5][0-9]\.[eE]) ([0][8-9][0-9]\.[0-5][0-9]\.[eE]) (180\.[00\.[eE]))"/></p>
SentAt	DT		Date and time the message was sent. If local time is used MS application has to adjust the time to UTC.
startTime	DT		Starting point of a time window declared to define a query
stopTime	DT		End point of a time window declared to define a query
TestId	Text	0-8	Test Case identification. Only useful for testing.
TimeoutValue	Int		Timeout value (in seconds) indicating when the request should be considered as expired and must not be processed
To	Text	3-15	The reference identification of the recipient of the message ('SSN')
Version	Text	3	SafeSeaNet request current version ('x.x')