European Maritime Safety Agency

SafeSeaNet Workshop no. 19 **SSN 19/3/6** (v.1.0)
Agenda item III **Lisbon, 19 March 2013**
22 & 23 May 2013

SAFESEANET TECHNICAL ASPECTS

Proactive provision of voyage data/ship status information

Submitted by EMSA

Summary	This paper reports the results of the feasibility study concerning the potential use of the SSN receipt message and/or a new "voyage push" mechanism for providing proactive warnings to Member States (MS) on the availability of voyage data/ship status information in the central SSN system.
Action to be taken	As per paragraphs 3
Related documents	a. SSN HLSG 3.5-XML enhancements (Ireland) b. HLSG7 meeting report – point 3.5

1. BACKGROUND INFORMATION

During the 7th meeting of the SafeSeaNet High Level Steering Group (HLSG) in July 2012, EMSA presented a paper on the enhancement of the XML interface which introduced the conclusions of the preliminary analysis related to the following proposals from Ireland:

• Proposal (A): Use of the SSN receipt message by adding additional information.

• Proposal (B): Automatic "push" mechanism for voyage related information.

MSs gave an overall positive reaction to the initiative, and charged EMSA with further investigating the proposal and reporting progress to the next HLSG meeting.

As a follow-up, EMSA conducted a feasibility study and assessed the technical and cost impacts for the SSN central system and MS applications.

This paper outlines the conclusions of the feasibility study.

2. SUMMARY AND CONCLUSIONS OF THE FEASIBILITY STUDY

The study examined the technical feasibility of the potential alternative ways of proactively distributing information on vessel status (indicating a vessel is banned, single hull tanker, carries hazmat or has incident report) and vessel voyage (e.g. ship position, destination) to Member States. The analysis covered the strengths, weaknesses opportunities and threats related to both of the proposals discussed during the HLSG7

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meeting. Furthermore, it assesses the technical impacts, together with their associated costs. The conclusions of the study are as follows:

2.1. Modification of the SSN receipt

Some of the information requested to be included in the SSN receipt, such as that related to the vessel status indicator (SHT, banned, etc.), is "static," and can relatively quickly be retrieved from the system. Other information (such as the incident and hazmat indications) is "dynamic," which forces the SSN central system to perform time consuming queries to retrieve it.

The SSN receipt message is sent synchronously, and its objective is to report ONLY the successful receipt of a message. Although SSN is not fully coherent with this pattern (since the SSN_Receipt to a notification message reports back the notification processing status, which arguably is partially relevant to the acknowledgement of receipt), it is not advisable that additional operational data should be introduced which diverts from the original purpose of the SSN_Receipt message.

However, should the MS wish to amend the SSN Receipt to include static or dynamic data, the SSN protocol would have to be amended to re-define the purpose, content and dialogue for the SSN Receipt, as follows:

a. Purpose: This must be updated to indicate that the new SSN_Receipt will be the propagation medium of vessel status and voyage information for NCA applications.
b. Contents: The new elements and attributes to accommodate the new data must be defined.
c. Dialog: The method by which the NCA application will process these details should be defined, together with clarification of whether there is a need to respond to the central SSN system in cases where there is inconsistency in the reported data.

Both the SSN Central and NCA applications will need to be amended to accommodate updates.

For the potential inclusion of dynamic data in the receipt, the study concludes that there will be a performance overhead for the central SSN system, in that it will have to process, in real time, all of the incoming messages (notification/requests), acknowledge them (XML compliance) and, at the same time, retrieve the necessary information and insert it in the receipt message. This implementation would delay the sending of SSN Receipts to the NCA applications as the http session of the NCA application (acting as a client) would need to stay active until the dynamic data are queried, retrieved from the central SSN database and inserted in the SSN receipt.

Although not recommended by the analysis, should MSs decide to enhance the SSN_Receipt to include static data, the analysis highlights the following:

a. Static vessel data can be included in the StatusMessage in the format:

   StatusMessage: "IsSHT:[Y], IsBanned:[N], ……. The message processed successfully."

   The XML RG should be amended to include a new *StatusCode* = *"Warning"* instead of "*OK*" indicating that:

   - The notification has been successfully processed.
   - The vessel status raises a warning.

The new status code will trigger the SSN_Receipt processor of the data provider/requestor to raise a warning.

b. The impact of implementing the changes required to include static data in the central SSN and MS systems is minor. The degree of difficulty encountered in amending MS applications will depend on the nature of implementation in each MS.

2.2. Voyage data push mechanism

The voyage notification push mechanism can be based on an XML or SOAP-based message service. MSs interested in the service should "subscribe" in accordance with their operational requirements. Two services are foreseen, as follows:

a. Should interest be related to expected ship calls for ships carrying dangerous goods, the service will "push" the information reported by the port of departure to the subscriber (including Hazmat summary information).
b. Should the interest be in receiving voyage and vessel status information when vessels enter pre-defined geographical areas (see example in the figure below), the central SSN system will send the available information for the current voyage at the time that the vessel enters the area.

Figure 1 Voyage data push based on geographical criteria

In both cases mentioned above, based in the information included in the pushed message and on their operational needs, MSs may initiate a request/response dialogue in order to fetch, for example, the Hazmat related details.

The subscription to the service should either use a dedicated message implemented at national level or the SSN central system management console (new function that has to be implemented) offering the voyage push notification service.

A first proposal of the voyage push notification is included in the Annex.

The impact on EMSA/MS of implementing the voyage push mechanism is potentially significant, and the degree of difficulty related to amending MS applications will depend on the implementation in each MS.

However, the benefits are considerable:

- Proactive notification of vessel status and voyage information. The central SSN system provides customised information to interested parties.
- More efficient use of the request/response mechanism by MSs which already have information registered at SSN central level, based on pre-defined needs set up by the NCAs (service subscription). Users will be in a position to fine tune the requests for details based on the available pushed information.

Way forward

Considering the results of the analysis, EMSA will prepare a proposal for the SSN HLSG9:

a. suggesting no further work on the SSN receipt message, and;

b. suggesting the implementation of the voyage push mechanism by MSs on a voluntary basis (as part of the changes for SSNv3).

3. ACTION REQUIRED FROM MS

SSN group participants are invited to take note of the information and provide their comments.

Attachments:

Annex: Draft proposal for the voyage push notification

Annex
Draft proposal for voyage push notification

The following table describes the proposed XML message to be used for the transaction.

Elements			Attributes	Occ
Header				***1***
			Version	1
			TestId	0-1
			MSRefId	1
			SSNRefId	1
			SentAt	1
			From	1
			To	1
			StatusCode	1
			StatusMessage	1
Body				***1***
	NotificationStatus			***0-1***
			UpdateStatus	1
		UpdateNotifications		***0-99***
			UpdateSSNRefId	1
	Notification			***1***
		VesselIdentification		***1***
			IMONumber	0-1
			MMSINumber	0-1
			CallSign	0-1
			ShipName	0-1
			Flag	0-1
			IR_Number	0-1
			ER_Number	0-1
		VesselStatus		***0-1***
			ServiceIndicator	0-1
			IsSHT	0-1
			IsBanned	0-1
			IsDetained	0-1
		VoyageInformation		***1***
			SSNvoyageID	0-1
			ShipCallId	0-1
			LastPort	0-1
			PortOfCall	0-1
			PositionInPortOfCall	0-1
			ETDFromLastPort	0-1
			ETAToPortOfCall	0-1

Elements					Attributes	Occ
					ETDFromPortOfCall	0-1
					NextPort	0-1
					ETAToNextPort	0-1
		PreArrival3DaysNotificationDetails				***0-1***
					PossibleAnchorage	0-1
					PlannedOperations	0-1
					PlannedWorks	0-1
					ShipConfiguration	0-1
					CargoVolumeNature	0-1
					ConditionCargoBallastTanks	0-1
		PreArrival24HoursNotificationDetails				***0-1***
					POBVoyageTowardsPortOfCall	1
		ArrivalNotificationDetails				***0-1***
					ATAPortOfCall	0-1
					Anchorage	0-1
		DepartureNotificationDetails				***0-1***
					ATDPortOfCall	0-1
		HazmatNotificationInfoNonEUDepartures				***0-1***
			HazmatCargoInformation			***1***
					INFShipClass	0-1
				DG		***0-99***
					DGClassification	1
			HazmatNotificationDetails			***0-1***
				UrlDetails		***0-1***
					Url	1
					DocType	1
				ContactDetails		***0-1***
					LastName	0-1
					FirstName	0-1
					LoCode	1
					Phone	1
					Fax	1
					EMail	0-1
			CargoManifest			***0-1***
				UrlDetails		***0-1***
					Url	1
					DocType	1
				ContactDetails		***0-1***
					LastName	0-1
					FirstName	0-1

Elements					Attributes	Occ
					LoCode	1
					Phone	1
					Fax	1
					EMail	0-1
		HazmatNotificationInfoEUDepartures				***0-1***
			HazmatCargoPOBInformation			***1***
					INFShipClass	0-1
					POBVoyageTowardsNextPort	1
				DG		***0-99***
					DGClassification	1
			HazmatNotificationDetails			***0-1***
				UrlDetails		***0-1***
					Url	1
					DocType	1
				ContactDetails		***0-1***
					LastName	0-1
					FirstName	0-1
					LoCode	1
					Phone	1
					Fax	1
					EMail	0-1
			CargoManifest			***0-1***
				UrlDetails		***0-1***
					Url	1
					DocType	1
				ContactDetails		***0-1***
					LastName	0-1
					FirstName	0-1
					LoCode	1
					Phone	1
					Fax	1
					EMail	0-1