Enhanced Group Call Application Programming Interface Correspondence Group (EGC-API CG)

Submitted by Australia / Australian Maritime Safety Authority

SUMMARY

Executive Summary:	WWNWS13 endorsed the API proposed in WWNWS13-3-4-4 and reported progress on its development to NCSR 9. NCSR 9 considered a proposal to invite WWNWS-SC to include SAR-related information (shore-to-ship) and distress communication (ship-to-shore) within scope of the API. This paper proposes WWNWS14 re-establish a correspondence group to develop and maintain an API to enable machine-to-machine transfer of (shore-to-ship) MSI and SAR-related information between information and RMSS providers for promulgation by EGC.
Action to be taken:	4
Related documents:	WWNWS11-7; WWNWS13-3-4-4; NCSR 9/13, NCSR 9/24 and NCSR 9/WP.7

1 Background

1.1 The eleventh meeting of the International Hydrographic Organization (IHO) Sub-Committee on the World-Wide Navigational Warning Service (WWNWS-SC) agreed to (paragraph 3.5.1 of WWNWS11-7):

> *"… establish a correspondence group to explore the feasibility, creation and implementation of an API in order to allow NAVAREA and METAREA Coordinators to use only one interface for the broadcast and monitoring of their warnings."*

1.2 The NAVAREA X Coordinator (Australia) agreed to lead the correspondence group with assistance from the NAVAREA XVII and XVIII Coordinator (Canada). A report to WWNWS13 is provided in WWNWS13-3-4-4.

1.3 Membership of the correspondence group included representatives from NAVAREA, METAREA and Rescue Coordination Centre (RCC), Inmarsat, Iridium, Cospas-Sarsat, IHO, International Mobile Satellite Organization (IMSO) and the World Meteorological Organization (WMO).

1.4 The scope of work limited the correspondence group to shore-to-ship information exchange, excluding implementation of shore-to-ship SAR-related information[1]. This means that the application programming interface (API) is not applicable to ship-to-shore distress alerting (and hence search and rescue (SAR) application).

1.5 The correspondence group acknowledged the need to progress development of a ship-to-shore capability, and support for shore-to-ship SAR-related information broadcast. This was brought to the attention of the ninth session of the International Maritime Organization (IMO) Sub-Committee on Navigation, Communication and Search and Rescue (NCSR).

2 Discussion

SAR-related information (shore-to-ship)

2.1 NCSR 9 considered a recommendation of the ICAO/IMO Joint Working Group (JWG) concerning the possible inclusion of SAR-related information (shore-to-ship) as part of the API (NCSR 9/13 paragraph 2.2).

2.2 Following discussion in the *Working Group on SAR and other technical matters* (WG 3), NCSR 9 invited the WWNWS to include SAR-related information (shore-to-ship) within scope of further API development (NCSR 9/24 paragraph 10.47.1).

Distress communication (ship-to-shore)

2.3 NCSR 9 also considered whether the API should be used for distress communication (ship-to-shore) between recognized mobile-satellite service (RMSS) providers and SAR authorities, in addition to shore-to-ship communication (NCSR 9/WP.7 paragraph 23).

2.4 Following discussion in WG 3, NCSR 9 noted the expansion of the scope of the API to include distress communication would provide benefits for the SAR authorities to use a single interface for all RMSS (NCSR 9/WP.7 paragraph 24.3). However, and as advised by the Chair of WWNWS, expansion of the scope would fall outside the mandate of the WWNWS (NCSR 9/WP.7 paragraph 24.4).

2.5 NCSR 9 encouraged RMSS providers to continue their work on distress communication (ship-to-shore) within the context of the API and invite them to provide relevant updates to the ICAO/IMO JWG (NCSR 9/24 paragraph 10.47.2).

Interoperability

2.6 NCSR 9 considered developments in GMDSS services, including technical solutions for the dissemination and reception of MSI and SAR-related information over multiple services, including interoperability and interconnectivity issues and broadcast monitoring (NCSR 9/WP.7 paragraph 3.1.1).

[1] SAR related information means distress alert relays and other urgent SAR related information broadcast to ships.

2.7 NCSR 9 noted the API enabled interoperability between the MSI providers and the RMSS providers; but it did not provide a direct link (interconnectivity) between the RMSS providers (NCSR 9/WP.7 paragraph 5.2).

2.8 To assist future discussions, NCSR 9 endorsed (NCSR 9/24 paragraph 10.42.1) provisional working definitions of *interoperability* and *interconnectivity* in the context of dissemination of MSI and SAR-related information via EGC over multiple RMSS providers:

"Interoperability: a system using an agreed communication format between an MSI and/or SAR-related information provider and multiple RMSSs, without significant differences between the information sent, and providing confirmation of the information received.

Interconnectivity: the ability for RMSS providers to transfer received MSI and/or SAR-related information between themselves to allow all RMSSs to access MSI and/or SAR-related information from a specific provider without having a direct connection."

2.9 To further progress consideration of matters concerning dissemination of MSI and SAR-related information via EGC over multiple RMSS providers, NCSR 9 agreed on the need for an intersessional correspondence group, to *inter alia*, consider interoperability and interconnectivity, with a view to addressing the increased operational burden of dissemination of MSI and SAR-related information and financial burden of disseminating MSI to ships (NCSR 9/24 paragraph 10.43).

2.10 Development of a single API to be used by the RMSS, MSI and SAR-related information providers as their machine-to-machine interface would improve interoperability.

2.11 To achieve this, the membership of the correspondence group will require individuals who can provide a technical (e.g., programming) or operational contribution to the development of the API in an online development environment (i.e., GitHub).

User interface

2.12 A further area the correspondence group could consider is the development of a user interface, integrating the API, to assist information providers in promulgating MSI and SAR related information. How, and if, WWNWS can achieve this is worth discussing. The draft terms of reference in Annex A include yellow highlight text which could be considered.

3 Recommendation

3.1 SAR-related information (shore-to-ship) for promulgation by EGC should be included within scope of the API (paragraphs 2.1 and 2.2).

3.2 NAVAREA and METAREA Coordinators should be are encouraged to participate in the intersessional correspondence group on *Dissemination of MSI and SAR-related information* established by NCSR 9 (paragraph 2.9).

3.3 The terms of reference (Annex A) should develop a single API to be used by all RMSS to promote interoperability (paragraph 2.10).

4 Action to be taken

4.1 The WWNWS-SC is invited to:

a. note the background provided in paragraph 1;

b. discuss further development of the API with the inclusion of SAR-related information (shore-to-ship), and the possibility of developing a user interface, provided in paragraph 2;

c. agree the recommendations provided in paragraph 3, reflecting discussions in 4.1.b;

d. appoint a correspondence group coordinator to provide direction, facilitate correspondence, distribute documentation and distribute drafts/records of discussion/decisions, as appropriate; and

e. approve the draft terms of reference in Annex A, reflecting discussions in 4.1.b., and the recommendations in 4.1.c.

Annex(es):

A. Draft Terms of Reference for the Enhanced Group Call Application Programming Interface Correspondence Group (EGC-API CG)

Annex A: Draft Terms of Reference for the Enhanced Group Call Application Programming Interface Correspondence Group (EGC-API CG)

1. Objective

To develop and maintain an application programming interface (API) and user interface (UI), conforming to international regulation and guidance, to enable machine-to-machine transfer between authorized, certified and registered[2] information providers (paragraph 5.a.) and the recognized mobile satellite service providers (RMSS)[3].

2. Scope

The following issues are to be addressed in the EGC-API CG:

a. Development and maintenance of an API to enable machine-to-machine transfer between information providers and the RMSS of:

   i. (shore-to-ship) maritime safety information (MSI)[4] for promulgation by EGC, and

   ii. (shore-to-ship) search and rescue (SAR) related information[5] for promulgation by EGC.

b. Compatibility between information providers and the RMSS.

c. Integrity and security of communications between information providers and the RMSS.

d. Development of a UI, integrating the API in paragraph 2.a., to assist information providers in promulgating MSI and SAR related information.

e. Conformance with international regulation and guidance developed by International Maritime Organization (IMO), World Meteorological Organization (WMO) and International Hydrographic Organization (IHO).

3. Governance

a. The EGC-API CG is a subsidiary of the IHO World-Wide Navigational Warning Service – Sub Committee (WWNWS-SC).

b. On completion or update of the API or UI, the Coordinator[6] of the EGC-API CG will submit it to WWNWS-SC for approval.

c. The Coordinator of the EGC-API CG is appointed by the Chair of WWNWS-SC and will provide direction, facilitate correspondence, distribute documentation and distribute drafts/records of discussion/decisions, as appropriate.

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[2] The procedures for authorization, certification and registration of EGC information providers are described in the IMO Enhanced Group Call Coordinating Panel, Annex 2 of MSC.1/Circ.1635.
[3] As defined in SOLAS regulation IV/2, recognized mobile satellite service means any service which operates through a satellite system and is recognized by the Organization, for use in the global maritime distress and safety system (GMDSS).
[4] As defined in SOLAS regulation IV/2, MSI means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.
[5] SAR related information means distress alert relays and other urgent SAR related information broadcast to ships.
[6] [TBA]

d. The Membership will respond in a timely manner to requests for feedback, participate in the correspondence group and provide input, as appropriate.

e. The EGC-API CG will conduct its work by correspondence, but may meet virtually, as required.

f. Recommendations or decisions of the EGC-API CG should be made by consensus.

g. The EGC-API CG will liaise with IMO, IHO and WMO, as appropriate.

4. Procedures

The EGC-API CG should deliver an API (paragraph 2.a.), by:

a. articulating the requirements with which the API must comply.

b. ensuring open formats, protocols and technologies are implemented with a focus on security and interoperability.

c. validating the functionality of the API against the requirements in paragraph 4.a..

d. submission to WWNWS-SC for approval.

The EGC-API CG should deliver a UI (paragraph 2.d), by:

e. articulating the requirements with which the UI must comply.

f. ensuring open formats, protocols and technologies are implemented with a focus on security and interoperability.

g. validating the functionality of the UI against the requirements in paragraph 4.d.

h. submission to WWNWS-SC for approval.

5. Membership

Membership of the EGC-API CG is open to:

a. authorized, certified and registered information providers. This includes:

   i. NAVAREA Coordinators: for NAVAREA warnings and other urgent safety-related information.

   ii. National Coordinators: for coastal warnings and other urgent safety-related information.

   iii. METAREA Coordinators: for meteorological warnings and forecasts.

   iv. Rescue Coordination Centres (RCC)[7]: for shore-to-ship distress alert relays, SAR related information and other urgent safety-related information.

b. recognized (and prospective) mobile satellite service providers

c. accredited non-governmental international organizations

d. individuals who provide a technical (e.g., programming) or operational contribution.

[7] RCC applies to aeronautical (ARCC), maritime (MRCC) or joint (JRCC) rescue coordination centres.