Enhanced Group Call (EGC) Application Programming Interface (API) Definition

Submitted by Australia / Australian Maritime Safety Authority

SUMMARY

Executive Summary:	This paper proposes development of a single interoperable API definition for the dissemination of MSI and SAR-related information over multiple RMSS based on the EGC API definition developed by AMSA.
Action to be taken:	Paragraph 20
Related documents:	WWNWS11-7, WWNWS13-3-4-4, WWNWS14-2-1-2

Background

1. WWNWS11 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.*"

2. The NAVAREA X Coordinator (Australia) agreed to lead the correspondence group which developed the first iteration of requirements for an EGC API which are published on the WWNWS website.

3. At WWNWS14, Australia proposed to re-establish the correspondence group, noting the request of NCSR 9 inviting the WWNWS to include SAR-related information (shore-to-ship) within scope of further API development (NCSR 9/24 paragraph 10.47.1).

4. In the intervening period, the correspondence group has not convened; however, implementation of an API by both Inmarsat and Iridium has occurred, and there are examples of its practical use.

5. Based on the discussions at WWNWS14 and subsequent recognition at NCSR 10 that an interoperable API is a suitable technical approach for the dissemination of MSI and SAR-related information over multiple RMSS, it is imperative that a single API definition is developed to achieve interoperability.

Discussion

6. The Australian Maritime Safety Authority (AMSA) operates a bespoke incident management system (known as NEXUS) to support Joint Rescue Coordination Centre

(JRCC) Australia for promulgation of SAR-related information, the NAVAREA X Coordinator and Australian National Coordinator for promulgation of navigational warnings.

7. NEXUS includes a specific GMDSS module to handle incoming distress alerts from our GMDSS systems (including 406 MHz beacons, Inmarsat, Iridium and HF digital selective calling (DSC)) for presentation to the SAR Officers (SARO), and to enable SARO to generate maritime safety information (MSI) and SAR-related information and broadcast it via EGC and HF DSC.

8. The current architecture of the GMDSS module only permits email exchange for Inmarsat SafetyNET I services. It has no capability to interact with Iridium SafetyCast services and cannot be upgraded to support Inmarsat SafetyNET II.

9. AMSA has been working to advance the capabilities of the GMDSS module to improve stability of its incident management system and we have considered implementation of the Inmarsat and Iridium APIs.

Difficulties encountered

10. A review of the Inmarsat and Iridium APIs identified several issues which meant it didn't meet the design guidelines for AMSA systems and we will defer operationalising the Iridium and Inmarsat API offerings until these difficulties are resolved.

11. This meant that on 1 July 2023, we operationalised the Iridium SafetyCast system for SAR-related information and navigational warnings using the web interface, rather than through our incident management system – this means dual handling for disseminating critical maritime safety information.

12. For example, difficulties identified included the need to use an international standard for defining the API (adds rigour to the API definition and allows developers to leverage publicly available tools to streamline their implementation efforts), varying user management, poor fault-tolerance, unnecessary visibility of the implementation details of an individual satellite service provider, security problems and incomplete documentation.

13. Despite this, the Inmarsat and Iridium APIs did give AMSA a framework to develop an internal AMSA EGC API definition[1] (fronting the Inmarsat email-based offering) of what we believe the EGC API could look like (using OpenAPI v3 as the API design standard).

Moving forward

14. This development has allowed us to test the AMSA EGC API definition and enhance it, confirming the general viability of the proposed definition. The developers have established a publicly available GitHub repository (https://github.com/amsa-code/egc-api) for development of this open-source, common and fully defined REST API.

[1] Which meets the Australian Governments API design standard, https://api.gov.au/

15. If the intention remains to develop a single interoperable API definition for the dissemination of MSI and SAR-related information over multiple RMSS, then the EGC API definition being developed by AMSA offers a way forward.

16. A single interoperable API definition for EGC may also simplify future efforts to develop a ship-to-shore distress alert API.

Proposal

17. It would be beneficial to hear the experiences of other information providers who have implemented the Inmarsat and Iridium APIs and the possibility of working closely to develop a single API definition.

18. In this regard, AMSA would like to invite the information providers, recognised mobile satellite service providers and their respective software developers to work with us on building the API definition.

19. Further detail on the API definition and GitHub repository (https://github.com/amsa-code/egc-api) should be directed to Stuart Shepard (stuart.shepard@amsa.gov.au) or you can create a free GitHub account to access the publicly available repository and engage in discussion on issues and API definition.

Action to be taken

20. The WWNWS-SC is invited to:

    a. note the development of the AMSA EGC API definition,

    b. confirm its preference for a single interoperable API definition for the dissemination of MSI and SAR-related information over multiple RMSS,

    c. invite information providers, recognised mobile satellite service providers and their respective software developers to work collaboratively on building the API definition.