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SafeSeaNet
Incident Report Guidelines

Addendum – Reporting of the AIS Spoofing and GPS/GNSS spoofing and jamming events

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EMSA

Document History

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1. Introduction

SafeSeaNet is as a tool that can be used by Member States Authorities to facilitate the exchange of information on AIS Spoofing and GPS/GNSS spoofing and jamming events. The purpose of this addendum to the Incident Report Guidelines is to provide guidance to the Member States Authorities on how to use SSN Incident Report functionality for this reporting.

The current version 2.2 of the Incident Report Guidelines is available at EMSA website:

SSN Documentation - SSN Incident Report Guidelines (v2.2) - EMSA - European Maritime Safety Agency

2. How to use SSN Incident Report type "Others" for reporting of the AIS Spoofing and GPS/GNSS spoofing and jamming events

Member States may share with other Member States, on a voluntary basis and through the **Incident Report type "Others"**, additional information (other than those specifically mentioned in VTMIS Directive) that may consider posing a potential hazard to shipping or a threat to maritime safety, the safety of individuals or the environment.

Such case is the exchange of information on possible cases of AIS Spoofing and GNSS spoofing and jamming events. These are considered to be situations that may pose a hazard to shipping or a threat to maritime safety.

The **Incident Report type "Others"** may be used for serving this purpose.

Member States Authorities with permission to report Incident Reports to SafeSeaNet may use the **SSN web interface - "Send Notifications"** available through the EMSA Portal: https://portal.emsa.europa.eu

Clarifications on the use of Incident Report type "Others" are presented below:

2.1 Which cases should be reported

A) **Incident Report (IR) for a vessel that can be clearly identified** – when MMSI of the vessel is known, e.g. for the potential AIS spoofing indicator types:

- Indicator 1 - Continuous SOG, COG LAT/LONG in AIS.
- Indicator 2 - Perfect shape of the track or movement.
- Indicator 4 - T-AIS position reports continuously reported far, outside maximum range of the T-AIS coastal stations receiver(s).
- Indicator 5 - Sat- AIS positions reported outside the satellite footprint.
- Indicator 6 – A vessel remaining 'at anchor' or 'not under command' for a prolonged period.
- Indicator 7 - Duplicated AIS reported MMSI.
- Indicator 8 - Single transmission of false MMSI in AIS.
- Indicator 9 - Wrong GNSS/ GPS position reported in AIS (GNSS jamming/spoofing) – if it affects a single ship/ MMSI.
- Indicator 10 - Potential manipulation of other, voyage related AIS data (e.g. ETA, Destination).

- Indicator 11 - Other type of potential AIS spoofing- if it affects a single ship/ MMSI.

B) **Incident Report (IR) for a vessel that is not identified** – when the situation affects multiple ships e.g. mass spoofing or GNSS jamming; when MMSI is not conformant (e.g. contains 7 digits instead of 9); or when the ship identification cannot be unambiguously determined.

- Indicator 3 - Multiple AIS transmissions of false MMSIs.
- Indicator 9 - Wrong GNSS/ GPS position reported in AIS (GNSS jamming/spoofing) – if it affects multiple ships or an area.
- Indicator 11 - Other type of potential AIS spoofing - if it affects multiple ships or an area.

2.2 How to report in in SSN an Incident Report type 'Others' in case of potential AIS spoofing or GNSS spoofing/jamming

An example of the structured message included in the field "Description" is the following:

A) Incident Report (IR) for a vessel that can be clearly identified.

Example: "Potential AIS Spoofing – Indicator Type 1. There are multiple transmissions with fake MMSI starting with 9245….".

B) Incident Report (IR) for a vessel that can be clearly identified.

Example: "Potential AIS Spoofing – Indicator Type 3. This situation is currently affecting area NE off Port of X, VTS XX area of responsibility. All vessels and AtoNs in the port area report AIS- GPS based positions 15 NM from their radar detected, real positions."

An initial common message structure, referring to the potential AIS spoofing indicator facilitates an easy access and usage of the information.

2.3 Who is responsible for the transmission of such information

The messages will be inserted in SSN by the responsible authorities of the Member States to report Incident Reports in SSN. The information may be collected via different channels such as through Coastal Radio stations, VTSs, MRS, communication authorities based on available maritime picture information correlated with radar data, visual observation or other means (e.g. radio direction finders) or communicated by the competent authorities monitoring the quality of national GPS/GNSS or AIS network (national administrators).

2.4 To whom the information should be transmitted

The Incident Report should be sent to all Member States and EMSA in cases of:

- GNSS jamming or spoofing (Indicator 9).
- Mass AIS spoofing, when the situation affects multiple ships e.g. mass spoofing or GNSS jamming (Indicator 3).
- When the ship identification cannot be unambiguously determined or when it affects multiple ships or an area (Indicator 11).

In all other cases of individual ships, especially when the problem is limited to the Member States affected by the potential AIS spoofing, the Incident Report should be sent only to the Member States located on the planned route of the vessel and the next port of call, or in the same geographical area:

- In case of identified ship flying EU flag, the information should be also distributed to this EU Member State.
- EMSA (MSS 24/7) maintaining the central repository of the AIS spoofing cases should be notified in all cases.

In the field "Action Requested" the following information could be included:

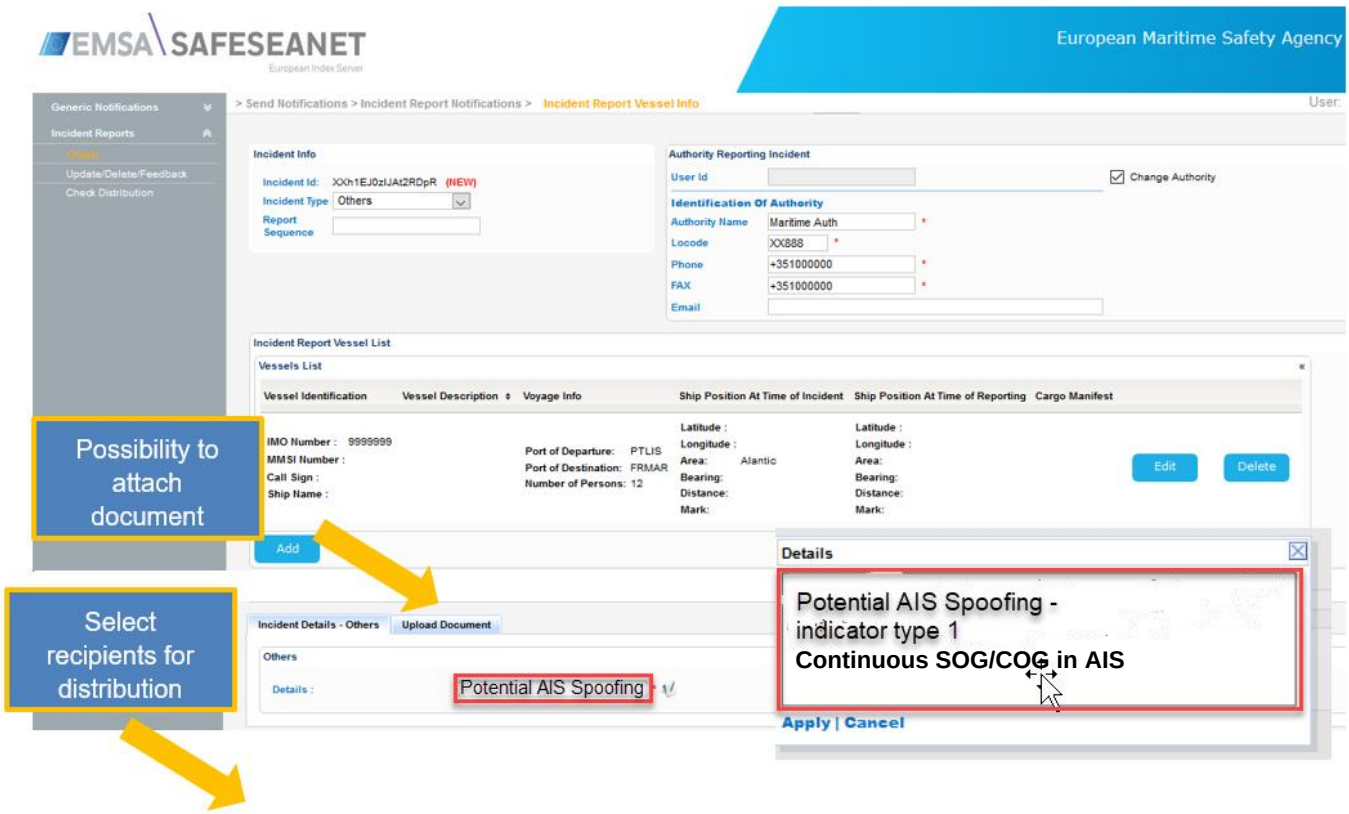
A) Vessel identified: “Request inspection of the radio equipment in the next port of call”.

B) Vessel not identified: “Notify shipping in the area of responsibility” or “Notify vessels bound to the affected area”

3. Examples

3.1 Example 1: Reporting potential AIS Spoofing

Allied services have reported to the coastal station of Member State “A” that there are multiple, presumably fake transmissions from an EU Flagged (EU Member State “C” flag) vessel, including continuous, identical values of the COG, SOG and LAT LONG values. It is known from a direct VHF radio communication with the ship that is it bound for a port X in EU Member State “B”. The MMSI of the ship is known and conformant. The Member State “A” decides to disseminate information to the other Member States.

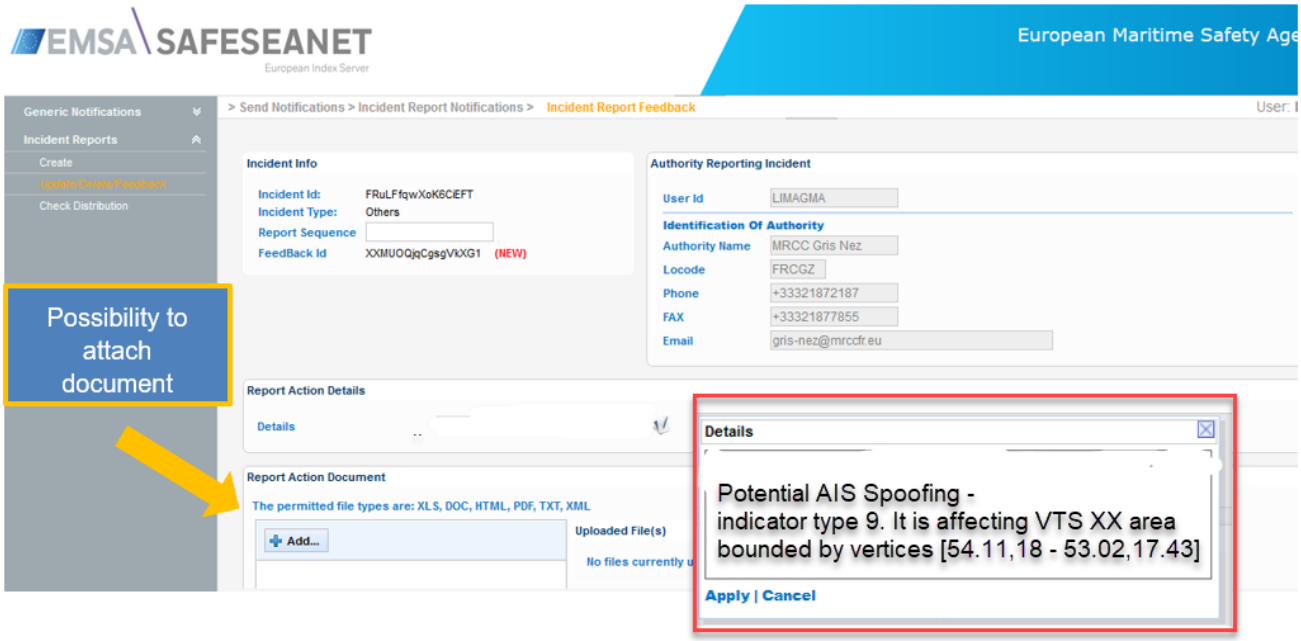


Following the reception of such information, the Member States concerned may take appropriate actions and the next port of call in Member State "C. The EU Member State "C" can follow own procedures related to the national, flag state legislation.

3.2 Example 2: GPS/GNSS spoofing or jamming

A SafeSeaNet National Competent Authority (NCA) from a Member State "B" received a report from a local VTS authority confirming that in an area of the VTS responsibility there are ships' and navigational aids' GPS positions, visible in AIS, that are displaced around 15 NM West from their radar detected, real locations.

The Member State "B" decides to disseminate information to all Member States and EMSA. The report includes the approximate location and description of the affected area.



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