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Proposed Standards, Specifications and Procedures (SSPs) for the SIOFA VMS

VMS Working Group Chair

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Abstract

Following the adoption of the CMM 16 (2023) (Vessel Monitoring System), the 10th Meeting of the Parties (MoP10) established an intersessional working group to *inter alia*, develop the Specifications, Standards and Procedures (SSPs) for the SIOFA VMS (VMS-WG). The VMS-WG met three times in 2024.

These proposed SSPs are the result of the work undertaken by the VMS-WG and take into consideration discussions and comments from CCPs in the process. They are organized into 8 sections covering the purpose, scope of application, general provisions, methods to compliance of ALCs with SIOFA standards, rules for polling and programming for vessels reporting to the Secretariat in accordance with Paragraph 6 b of CMM 16 (2023), the responsibilities of the Secretariat in administering the SIOFA VMS, and data formats (NAF and UN/FLUX).

Despite the good progress made during the VMS-WG discussions, two issues remain unresolved:

- How ALC details should be treated, notably whether they should be considered confidential information (only accessible to relevant SIOFA staff members) or rather as restricted information (only accessible to relevant SIOFA staff members and competent authorities of CCPs) – see paragraph 17 of the proposed SSPs;
- Which data fields should be included in Annex 1 (NAF Format) given that one CCP:

¹ Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).

² Documents available only to members invited to closed sessions.

- sought clarification on which listed item 1 – 5 in paragraph 1 F of CMM 16 (2023) corresponds to IR and, if it corresponds to item 1 “unique vessel identifier”, whether there a need to also have IR considering RC is available to serve as “unique vessel identifier”.
- noted that Latitude or Longitude defined by LA/LO format does not seem to meet the requirement stipulated in paragraph 9 of Annex 1 to CMM 16 (2023) which provides that “*positions derived from the data forwarded must be accurate to within 100 metres*”. LA/LO format expresses a position fix with much a higher resolution than 1km, since the format uses only degree and minute of integer. The CCP proposes to delete LA and LO from the table, since LT/LG which has a higher resolution is a more preferable format for Latitude and Longitude.

Rev1 of this document considers comments from the CC08

Recommendations

- That the CC08 reviews the proposed Standards, Specifications and Procedures (SSPs) for the SIOFA VMS;
- The CC08/ MoP11 provides guidance on remaining issues, in particular the treatment of ALC Details (Restricted/ Confidential) and the data fields to be included in Annex 1.
- That the CC08 recommends the adoption of the proposed Standards, Specifications and Procedures (SSPs) for the SIOFA VMS to the MoP11.
- That the MoP11 adopts the proposed Standards, Specifications and Procedures (SSPs) for the SIOFA VMS

Proposed Standards, Specifications and Procedures (SSPs) for the SIOFA VMS.

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Background

Vessel Monitoring Systems (VMS) are satellite-based monitoring systems that enable flag States and regional fisheries management organisations (RFMOs) to track and monitor the activities of fishing vessels in a defined geographical area through the transmission of position data by fishing vessels at regular intervals. They are a cornerstone of monitoring control and surveillance (MCS) programmes at national and international levels and a key instrument in the fight against illegal, unreported and unregulated (IUU) fishing.

Article 6(1)(h) of the Southern Indian Ocean Fisheries Agreement (SIOFA) requires SIOFA to develop rules and procedures for the monitoring, control and surveillance of fishing activities to ensure compliance with SIOFA conservation and management measures (CMM), including a system of verification incorporating vessel monitoring and observation of vessels operating in the SIOFA Area. [CMM 10 \(2023\) \(Monitoring\)](#) also requires SIOFA to develop specifications and propose rules and procedures for establishing a SIOFA VMS. While flag Contracting Parties, Participating Fishing Entities and Cooperating non-Contracting Parties (collectively: CCPs) are required to track and monitor their vessels' activities using VMS, SIOFA does not currently operate a VMS system. In this respect, it is behind other RFMOs that have installed and operate a VMS.

To close this gap, the 10th Meeting of the Parties to the SIOFA (MoP10) adopted [CMM 16 \(2023\) \(Vessel Monitoring System\)](#) setting out the framework of the SIOFA VMS covering all critical aspects, including the scope of application, definitions, nature and specifications of the VMS, prevention of tampering and actions in case of suspected breach, use and release of VMS data requiring / not requiring the consent of CCPs, closed and interim protected areas, as well as data security and confidentiality. However, this framework needs to be further completed through the development of Standards, Specifications and Procedures (SSPs) as required by paragraph 9 of CMM 16 (2023) prior to the entry into operation of the SIOFA VMS.

To this end, the VMSWG has developed these SSPs for the consideration and adoption by the Meeting of the Parties.

The proposed SSPs assume that Cooperating Non-Contracting Parties (CNCPs) will be treated similarly as CPs and PFEs, recalling that CNCPs do not currently contribute to the budget, which may be impacted by the implementation of the SIOFA VMS.

For the purpose of this document, all terms used shall have the same meaning as those in CMM 16 (2023) unless otherwise specified.

1. Purpose

1. The purpose of these Standards, Specifications and Procedures (SSPs) is to complement measures established under CMM 16 (2023) so as to achieve the objectives of the CMM, which are to monitor in an automatic, continuous and cost-effective manner the movements and activity of fishing vessels operating in the Agreement Area to ensure compliance with SIOFA Conservation and Management Measures (CMMs).

2. Application

2. These SSPs shall apply to all fishing vessels flying the flag of a Contracting Party, Participating Fishing Entity or Cooperating non-Contracting Party (collectively CCPs), that are entered onto the SIOFA Record of Authorized Vessels (RAV) and operating within the Agreement Area (Area), as defined in Article 3 of the Agreement.
3. These SSPs do not prejudice the right of CCPs to apply additional or more stringent measures to vessels flying their flag.

3. General Provisions

4. For the purposes of these SSPs, the term “VMS data” shall refer to all data associated with the SIOFA VMS, including VMS position reports and Automatic location communicator (ALC) details.
5. CCPs shall:
 - a. For vessels entered onto the SIOFA Record of Authorized Vessels (RAV) prior to the entry into force of CMM 16 (2023), provide ALC details specified in paragraph 6 for each vessel registered on the SIOFA RAV no later than 30 days before the entry into operation of the SIOFA VMS.
 - b. For vessels to be entered onto the SIOFA RAV after the entry into operation of the SIOFA VMS, provide ALC details specified in paragraph 6 at the time of the submission of information required by [CMM 07 \(2022\) \(Vessel Authorization\)](#).³
6. CCPs shall provide the following ALC details:
 - a. Model and Brand
 - b. ALC Unique Identifier
 - c. Service Provider (Inmarsat/Iridium/ARGOS etc...)
7. For the purposes of CMM 16 (2023), the term Unique Vessel Identifier (UVI) shall have the following meaning:
 - a) For CCPs transmitting VMS position reports pursuant to paragraph 6 a), of CMM 16 (2023) the UVI shall be the International Radio Call Sign (IRCS), the International Maritime Organization (IMO) Number or the ALC Unique Identifier.

³ Conservation and Management Measure for Vessel Authorisation and Notification to Fish.

- b) For CCPs transmitting VMS position reports pursuant to paragraph 6 b) of CMM 16 (2023) the UVI shall be the ALC Unique Identifier.

4. Methods to ensure ALCs comply with SIOFA Standards

Explanatory Notes

Paragraph 12 of CMM 16 (2023) sets out the general standards by which ALCs are expected to be installed and operated. Paragraphs 18 and 19 expand on the requirements to have tamper-proof ALCs while also prohibiting the tampering of ALCs. The minimum standards for ALCs are further described in Annex 1 of CMM 16 (2023).

This section of the SSPs provides for the possibility of the MoP adopting a list of approved ALCs and clarifies that it is the responsibility of flag CCPs to ensure that ALCs installed on their vessels comply with SIOFA specifications and standards.

8. The MoP may adopt a list of approved ALCs to be used by vessels entered onto the SIOFA Record of Authorized Vessels (RAV), taking into account lists approved by existing regional and subregional VMS programs and by CCPs.
9. CCPs shall be responsible for ensuring that the ALCs on board vessels flying their flag and entered onto the SIOFA RAV [and operating in the SIOFA Area] meet the specifications and standards set out in paragraph 12 and Annex 1 of CMM 16 (2023). To this end, CCPs are encouraged to conduct periodic audits of a representative sample of ALCs. Any findings shall be reported as part of CCPs' annual compliance assessment reporting under paragraph 12 of CMM 11 (2020) (Compliance Monitoring Scheme).

5. Rules for Polling and Programming for Vessels Reporting to the Secretariat in accordance with Paragraph 6 b)

Explanatory Notes

Paragraph 6 b) of CMM 16 (2023) allows for simultaneously reporting VMS position reports automatically to the Secretariat. In this regard, there may be a need to interact with the ALCs to program its automatic reporting and to change its reporting frequency based on location (programming) and also to "query" an unscheduled position report (polling). It should be noted that while CMM 16 (2023) does not provide for polling of ALCs, it may be required during diagnosis when the good reception of position reports cannot be achieved. Other cases may be to stop the reporting temporarily or indefinitely based on scenarios, such as the deletion of the vessels from the SIOFA RAV, repairs, flagging and decommissioning of fishing vessels.

As such, these SSPs suggest procedures for the same.

10. CCPs shall ensure that the ALCs on board of vessels flying their flag are configured to comply with paragraph 8 of CMM 16 (2023) and, where applicable, shall send programming commands.
11. CCPs which opt for simultaneous reporting under paragraph 6. b) of CMM 16 (2023) shall ensure that their ALC service provider is capable of providing simultaneous reporting to multiple destinations (receivers) and shall bear the cost for reporting to their FMC and to the Secretariat as well as for programming command sending. The Secretariat (SIOFA VMS) shall receive the "simultaneously reporting" in accordance with the protocol provided by the CCP's service provider.

6. Responsibilities of the Secretariat

Explanatory Notes

These SSPs set out the responsibilities of the Secretariat in administering the SIOFA VMS.

12. The Secretariat shall:

- a. ensure that data, once received by the SIOFA VMS, are not altered, manipulated, copied or interfered with in any way, and that the data is only used in accordance with CMM 03 (2016), and with any such additional data security and confidentiality rules adopted by the Meeting of Parties for the purposes of the SIOFA VMS.
- b. provide a stable, reliable, fully maintained and supported SIOFA VMS that is in compliance with CMM 03 (2016), and any additional data security and confidentiality rules adopted by the Meeting of Parties.
- c. utilise the SIOFA VMS in a manner consistent with the Agreement, CMMs and these SSPs.
- d. compile and report annually to the MoP, through the Compliance Committee, an overview of potential issues identified by vessel and flag with regard to their compliance with CMM 2016 (2023) and these SSPs.
- e. monitor and report annually to the Compliance Committee on the implementation and performance of the SIOFA VMS and its application and, as necessary, make recommendations for improvements or modifications to the system and these SSPs established to support it.

7. Data format for data transmission

Explanatory Notes

Paragraph 6 a) of CMM 16 (2023) allows CCPs to choose to report VMS positions automatically to the Secretariat via their FMC. However, these provisions do not provide for the data format and standards that will allow these transfers to take place.

There are at least two globally accepted data formats for data exchange of fisheries information. These are the North Atlantic Format (NAF) and the Fisheries Language for Universal Exchange (UN/FLUX). NAF is recognised as an older format with some limitations, therefore there are ongoing efforts to improve NAF or develop new standards for the exchange of fisheries information altogether.

UN/FLUX is one such proposed standard that has already gained recognition by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), with more states and regional organisations adopting its use for VMS data exchange, among others. The most significant advantage of UN/FLUX over NAF is its ability to cater to other data types, such as inspection reports, catch and effort reporting, etc. However, the uptake of UN/FLUX is still relatively low, and implementation may present challenges to the Secretariat and CCPs.

Noting the above, the SSPs recognise the two data formats and provide standards to enable CCPs to exchange data using those formats.

13. VMS position reports sent to the SIOFA VMS in accordance with paragraph 6 a) of CMM 16 (2023) shall be transferred using the following data formats;
 - a. The North Atlantic Format (NAF) (Annex 1)
 - or
 - b. Fisheries Language for Universal Exchange (UN/FLUX) (Annex 2)
14. VMS position reports sent using NAF shall follow the structure of NAF messages provided in Annex 1, and shall be transferred using one of the following application layers (secured connection):
 - a. Hypertext Transfer Protocol Secure (HTTPS)
 - b. File Transfer Protocol (FTP) with Transport Layer Security (TLS) (FTPS)
 - c. Email
15. VMS position reports sent using FLUX shall adhere to the specifications of the Flux P1000-1 (General Principles) and Flux P1000-7 (Vessel Position Domain), as described in Annex 2.⁴

⁴ <https://unece.org/trade/uncefact/unflux>

8. Data Confidentiality and Security Provisions

Explanatory Notes

These SSPs covers the Confidentiality and Security procedures required to ensure the secure and confidential treatment of VMS data being exchanged between CCPs and the Secretariat.

16. CCPs and the Secretariat shall only use VMS data for the purposes specified in CMM 16 (2023).
17. The Secretariat shall maintain a database of the ALC details attributed to all vessels entered onto the SIOFA RAV. ~~[ALC details shall not be public domain data but shall be provided to CCPs' VMS points of contact upon request pursuant to paragraphs 23 to 28 of CMM 16 (2023). shall be available on the secured part of the SIOFA website only.]~~
18. The Secretariat shall only provide VMS position reports to the contact point designated pursuant to Paragraph 11 of CMM 16 (2023).
19. CCPs shall immediately delete VMS position reports received for the purposes set out in paragraph 28 of CMM 16 (2023) once the VMS position reports have served their intended purpose, and confirm their deletion to the Secretariat in writing without delay.
20. CCPs and the Secretariat shall take appropriate measures to protect VMS data against accidental or unlawful destruction, loss, alteration, unauthorised disclosure or access, and against all inappropriate form of processing.
21. The following security measures shall be mandatory for the SIOFA VMS:
 - a. System Access Control: The Secretariat shall ensure that the system can withstand break-in attempts from unauthorised persons.
 - b. Authenticity and data access control: The Secretariat shall ensure that the system is able to limit access of Secretariat staff only to the data necessary for them to carry out their tasks via a flexible user identification and password mechanism.
 - c. Communication Security: VMS position reports shall be securely communicated.
 - d. Data Security: All VMS data received by the Secretariat shall be securely stored for a predetermined time and shall not be tampered with.
 - e. Security Procedures: The Secretariat shall implement an Information System Security Policy adopted by the Meeting of the Parties to ensure proper access to the system (hardware and software), system administration and maintenance, backup and general usage of the system.
22. The system shall have the following mandatory access control features:
 - a. Stringent password and authentication system, attributed to each designated user. The user shall only have access to functions and data that they are designated to have access to;
 - b. All access to physical computer systems shall be controlled by the Secretariat;

- c. The system shall automatically record all events for analysis and detection of potential security breaches;
 - d. Time-based access control: Access to the system can be specified in terms of times-of-day and days of the week that each user is allowed to log into the system;
 - e. Terminal access control: the system shall specify for each workstation which user(s) are allowed to access it.
23. Communication between CCPs, the SIOFA VMS Service Provider, and the Secretariat shall use secure internet protocols. The exchange of VMS position reports may also require the use of digital certificates that correctly identify and validate the party submitting the VMS position reports.
24. The Secretariat shall periodically review access to and the logs of the VMS software and ensure the proper maintenance of system security.

Annex 1: Description of the North Atlantic Format (NAF)⁵*Data Elements of NAF Messages*

All NAF Messages sent to the SIOFA VMS shall contain, at minimum, the information required in paragraph 1. f) of CMM 16 (2023). The general structure and data elements are as below

Data Element	Field Code	Definition	Contents
Start Record	SR	Defines the start of the message structure.	No Data
Address	AD	Indicates the destination. Provider and Secretariat to define code for SIOFA VMS	3-Alpha code
From	FR	3-alpha code describing the country which FMC is submitting the report.	3-Alpha code
Sequence Number	SQ	Message Sequence Number	0-999999
{Internal Reference Number}_*	IR	Unique Number attributed by the flag state	3-Alpha code. 0-999999999
Type of Message	TM	Letter code of the type of message	POS = position report, MAN = manual report, ENT = entry report, EXI = exit report
Radio Call Sign (IRCS)	RC	Vessel detail: international radio call sign of the vessel	IRCS
Latitude (decimal)	LT	Latitude expressed in degrees and decimals (WGS-84)	+(-)DD.ddd
Longitude (decimal)	LG	Longitude expressed in degrees and decimals (WGS-84)	+(-)DD.ddd
{Latitude}	LA	Latitude expressed in degrees and minutes (WGS-84)	N(S)DDMM}
{Longitude}	LO	Longitude expressed in degrees and minutes (WGS-84)	E(W)DDDMM}
Vessel Speed	SP	Speed of the vessel	Knots * 10
Vessel Course	CO	Heading of the vessel in degrees	1-360
Flag State	FS	State of registration of the vessel.	3-Alpha code
Date	DA	Date of reported event	YYYYMMDD
Time	TI	Time of reported event	HHMM
End of Record	ER	Indicates the end of the message/report	No Data

⁵ <https://www.naf-format.org/index.htm>

* Submission of IR is optional

Structure of the position report

Each data transmission shall be structured as follows:

- double slash (//) and the characters 'SR' indicate the start of a message,
- a double slash (//) and field code indicate the start of a data element,
- a single slash (/) separates the field code and the data,
- pairs of data are separated by space,
- the characters 'ER' and a double slash (//) indicate the end of a record.

Annex 2: Description of the Fisheries Language for Universal Exchange (UN/FLUX)

2 I: UN/FLUX format : mandatory data to be transmitted in position reports

Data	Mandatory/optional	Comments
Addressee	M	Message detail — Addressee Alpha-3 country code [(ISO-3166)] Note: Part of the FLUX TL envelope
From	M	Message detail — Sender Alpha-3 country code [(ISO-3166)]
Unique message identifier	M	UUID according to RFC 4122 defined by IETF
Date and time of transmission	M	Date and time when the message was created in UTC according to ISO 8601, using the format YYYY-MM-DDThh:mm:ss[.000000]Z ⁶
Flag State	M	Message detail – Flag of flag State, Alpha-3 country code [(ISO-3166)]
Type of message	M	Message detail – Type of message The following codes are to be used: ENTRY: first position recorded after entering the fishing zone) EXIT: first message recorded after leaving the fishing zone POS: positions transmitted while being in the fishing zone) MANUAL: position transmitted manually
Radio call sign	M	Vessel detail – Vessel international radio call sign (IRCS)
Contracting party internal reference number	O	Vessel detail – Unique contracting party vessel identifier

⁶ YYYY= year; MM= month, including leading 0 where month number is less than 10; DD= day of the month including leading 0 where day number is less than 10; T= the letter T to indicate the part of the time section; H24= hours of the day expressed with 2 digits using the 24-hour notation; MI=minutes expressed as 2 digits; SS=seconds expressed as 2 digits; [.000000]= optionally fractions of seconds may be included, not including the brackets; Z= time zone, which must be Z (i.e. UTC)

Unique Vessel Identifier (UVI)	O	Vessel detail – IMO number
External registration number	O	Vessel detail – Number on side of vessel [(ISO 8859.1)]
Latitude	M	Vessel position detail – Position in degrees and decimal degrees DD.ddd (WGS-84) Positive coordinates for positions north of the Equator; Negative coordinates for positions south of the Equator.
Longitude	M	Vessel position detail – Position in degrees and decimals DD.ddd (WGS-84) Positive coordinates east of the Greenwich meridian; Negative coordinates west of the Greenwich meridian.
Course	M	Vessel course 360° scale
Speed	M	Vessel speed in knots
Date and time	M	Vessel position detail – date and time of recording of the position in UTC according to ISO 8601, using the format YYYY-MM-DDThh:mm:ss[.000000]Z ⁷

The transmission of data in UN/FLUX format is to be structured in the manner set out in the separate Technical Implementation Document to be developed and agreed by the Parties before the date of application of the Protocol.

⁷ YYYY= year; MM= month, including leading 0 where month number is less than 10; DD= day of the month including leading 0 where day number is less than 10; T= the letter T to indicate the part of the time section; H24= hours of the day expressed with 2 digits using the 24-hour notation; MI=minutes expressed as 2 digits; SS=seconds expressed as 2 digits; [.000000]= optionally fractions of seconds may be included, not including the brackets; Z= time zone, which must be Z (ie. UTC)

2.II FLUX Vessel Position Implementation Document

1. INTRODUCTION

This document aims to describe the implementation of Vessel Position in the context of the SIOFA VMS. Submissions of reports will be done through the FLUX Transportation Layer.

2. REFERENCES

UN/CEFACT P1000 FLUX Standard v1.0 ²:

- FLUX BRS: P1000 – 1; General principles (version 2.1).
- FLUX BRS: P1000 – 7; Vessel Position domain (version 2.0).

UN/CEFACT FLUXVesselPositionMessage_4p0.xsd

3. SCOPE

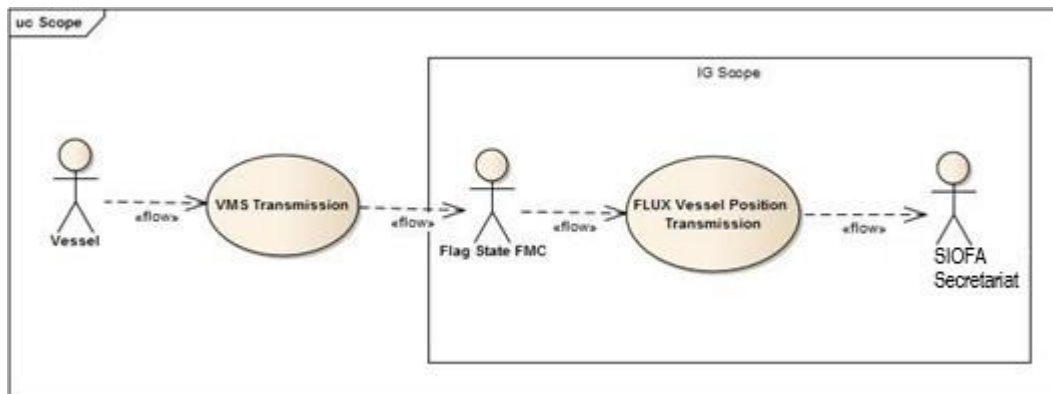


Figure 1: Implementing Guide Scope diagram

As shown on Figure 1, even if the message is provided by a Vessel, the scope of this document is limited to the transmission from a Flag CCP FMC, which has received the Vessel Position message, coming in most cases from aa ALC to the SIOFA Secretariat.

4. PROCEDURES

4.1. General principles

The following activity diagram describes the normal procedure defined for the submission of every Vessel Position Messages sent between the FMC of a Flag CCP to the SIOFA Secretariat:

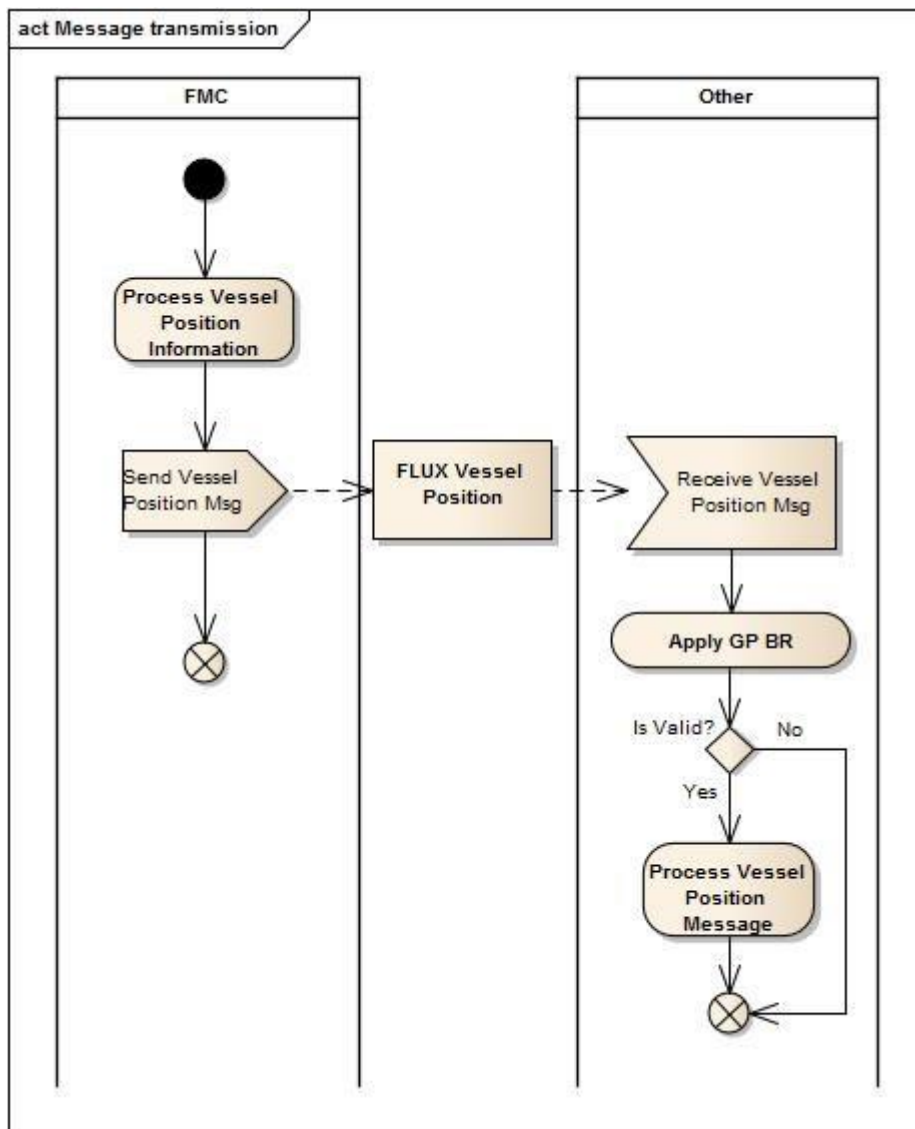


Figure 2: Message Transmission activity diagram

As shown in the diagram, Apply General Principles (GP) Business Rules (BR) is a validation process which does:

1. XML Validation level: Based on the definition in the XSD, the parser validates the structure and cardinality as well as compliance for mandatory elements of the XML provided.⁸

⁸ In general, only XSD element are defined as mandatory. Element attributes and facets remain optional.

Note: Comparing XML vs. XSD defined by the namespace can make the parser generating error having technical information when the basic information requested by General Principles is not correct.

2. Business Rules Validation level: a Business Rules Engine validates the content of XML according to the General Principles Business Rules definition.⁹

⁹ Some specific business rules of this domain can withdraw or overwrite the definition of FLUX General Principles

5. DATA MODEL (XSD) IMPLEMENTATION

The implementation of the Vessel Position Data Model applies the following general constraints at the level of XSD Element attributes:

- (1) For Code & Identifier DataType: *listID* or *schemeID* attribute must be provided if it is not specifically defined in the definition of the element;
- (2) For DateTime DataType: only *udt:DateTime* (of type *xsd:dateTime*) choice is used. The date and time must be in line with ISO8601 and expressed in UTC, unless explicitly mentioned otherwise. The format shall be *YYYY-MM-DDThh:mm:ss[.000000]Z*;¹⁰

The following diagram describes the Vessel Position Data Model used for the implementation of transmission of *VesselPositionMessage*:

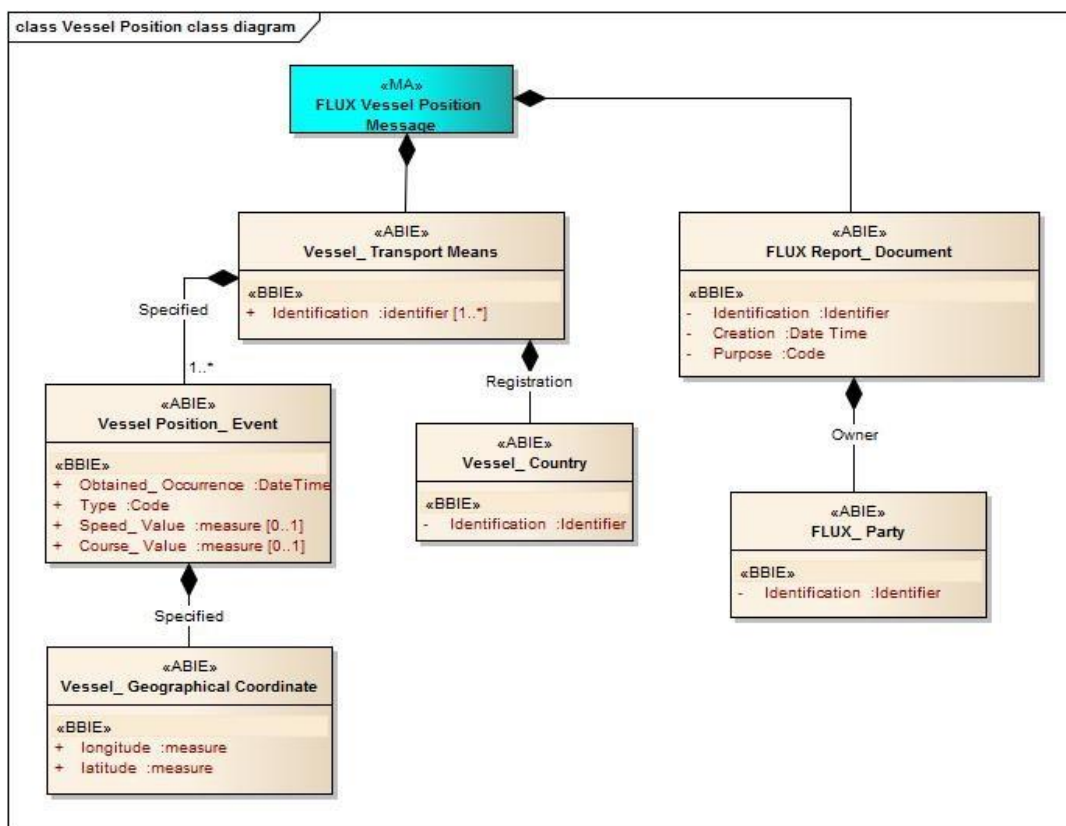


Figure 3: Vessel Position Message Data Model

¹⁰ YYYY= year; MM= month, including leading 0 where month number is less than 10; DD= day of the month including leading 0 where day number is less than 10; T= the letter T to indicate the part of the time section; H24= hours of the day expressed with 2 digits using the 24-hour notation; Ml=minutes expressed as 2 digits; SS=seconds expressed as 2 digits; [.000000]= optionally fractions of seconds may be included up to 6 digits, not including the brackets; Z= time zone, which must be Z (ie. UTC)

The table below describes for each fields defined in the Data Model (XSD) the values that can be used:

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
FLUX Report_Document		1	1	The document details for this FLUX vessel position message.	FLUX General Principles Entity
Identification	Identifier	1	1	The unique identification of the FLUX vessel position message	A UUID as defined in the RFC 4122
Creation	DateTime	1	1	The date, time, date time of the creation of the FLUX vessel position message.	A UTC date time. Must be according to the definition provided in 6(2)
Purpose	Code	1	1	The code specifying the purpose of this FLUX report document, such as original, cancellation or replace.	Attribute <i>listID</i> = FLUX_GP_PURPOSE Reference: EDIFACT Code List 1225 (qDT UN02000125 - Message Function_Code). <u>Restriction:</u> only value 9 is used in this context.
Owner. FLUX_Party	Assoc.	1	1	Entity used to provide information on an individual, a group, or a body having a role in a Fisheries Language for Universal eXchange (FLUX) business function. Party has a legal connotation in a business transaction.	FLUX General Principles Entity
Identification	Identifier	1	1	An identifier of this FLUX party.	Attribute <i>listID</i> = TERRITORY ISO 3166-1 alpha-3 code of the country owning this report. e.g.: SWE

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
Vessel_ Transport Means		1	1	Entity used to provide the identification and characteristic information of a ship or boat.	
Identification	Identifier	1	*	An identifier for this transport means vessel UVI, as defined by the SIOFA VMS SSPs,	Attribute <i>schemeID</i> must be provided with a value from list = FLUX_VESSEL_ID_TY PE
Registration. Vessel_ Country	Assoc.	1	1	The country of registration of this transport means vessel.	
Identification	Identifier	1	1	The identifier for this vessel country.	Use Code Countries code list in MDR. <i>listID</i> = TERRITORY ISO 3166-1 alpha-3 code of the country where the vessel is registered (flag state).
Specified. Vessel	Assoc.	1	*	The general information of the VMS message.	More than one position can be provided.

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
Position_Event					
Obtained_Occurrence	DateTime	1	1	The date and time when the position of the vessel was taken by the vessel's navigation equipment.	The UTC date time when the position was obtained by the vessel navigation equipment, transmitted by the VMS system on-board of the vessel. Must be according to the definition provided in 6(2)
Type	Code	1	1	The code specifying the type of vessel position event.	Attribute <i>listID</i> must be provided with a value from list = FLUX_VESSEL_POSITION_T Y PE Example of values are: "ENTRY","EXIT","POS"," MANUAL".
Speed_Value	Measure	0	1	The measure of speed of the vessel for this vessel position event.	Mandatory. In knots. Maximum 2 significant decimals. Optional in case the following conditions are all met: - TypeCode= EXIT - Message addressed to Third party or RFMO - The element is defined as optional in the agreement with the Third Party or RFMO
Course_Value	Measure	0	1	The measure of course of the vessel for this vessel position event.	Mandatory. In degrees and decimal degrees. Maximum 2 significant decimals.

					Optional in case the following conditions are all met: - TypeCode= EXIT - Message addressed to
--	--	--	--	--	--

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
					Third party or RFMO - The element is defined as optional in the agreement with the Third Party or RFMO
Specified. Vessel_Geographical Coordinate	Assoc.	1	1	The latitude and longitude of a specified place, by which a vessel's relative situation on the globe is known. The height above the sea level constitutes a third coordinate.	Geographical Coordinates Position of the vessel transmitted by the VMS system at Obtained DateTime. Altitude and System information are not used in context of this implementation.
Latitude	Measure	1	1	The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of a specific place for this vessel geographical coordinate.	Reference ISO 6709. Coordinate expressed in WGS84, decimal degree notation, using a precision of at least 3 and maximum 6 decimal positions. Positive coordinate refers to North of equator. Negative coordinate refers to South.
Longitude	Measure	1	1	The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of a specific place for this vessel geographical coordinate.	Reference ISO 6709. Coordinate expressed in WGS84, decimal degree notation, using a precision of at least 3 and maximum 6 decimal positions. Positive coordinate refers to East of Greenwich meridian. Negative coordinate refers to West.

6. XML EXAMPLES

```

<rsm:FLUXVesselPositionMessage
xsi:schemaLocation="urn:un:unece:uncefact:data:standard:FLUXVesselPositionMessage:4
FLUXVesselPositionMessage_4p0.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:rsm="urn:un:unece:uncefact:data:standard:FLUXVesselPositionMessage:4"
xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformationEntity:18"
xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:18">
<rsm:FLUXReportDocument>
<ram:ID> c133b211-0b0e-4358-893c-7afb5437bd61</ram:ID>
<ram:CreationDateTime>
<udt:DateTime>2001-12-17T09:30:47.0Z</udt:DateTime>
</ram:CreationDateTime >
<ram:PurposeCode >9</ram:PurposeCode>
<ram:OwnerFLUXParty>
<ram:ID >SWE</ram:ID>
</ram:OwnerFLUXParty>
</rsm:FLUXReportDocument>

<rsm:VesselTransportMeans>
<ram:ID schemeID=" CFR ">SWE000007880</ram:ID>
<ram:ID schemeID=" EXT_MARKING">S-381</ram:ID>
<ram:ID schemeID=" IRCS ">EI6207</ram:ID>
<ram:RegistrationVesselCountry>
<ram:ID>SWE</ram:ID>
</ram:RegistrationVesselCountry>

<ram:SpecifiedVesselPositionEvent>
<ram:ObtainedOccurrenceDateTime>
<udt:DateTime>2001-12-17T09:30:47.0Z </udt:DateTime>
</ram:ObtainedOccurrenceDateTime>
<ram:TypeCode >POS</ram:TypeCode>
<ram:SpeedValueMeasure>8.3</ram:SpeedValueMeasure>
<ram:CourseValueMeasure>50</ram:CourseValueMeasure>
<ram:SpecifiedVesselGeographicalCoordinate>
<ram:LatitudeMeasure >50.563</ram:LatitudeMeasure>
<ram:LongitudeMeasure>009.252</ram:LongitudeMeasure>
</ram:SpecifiedVesselGeographicalCoordinate>
</ram:SpecifiedVesselPositionEvent>
  </rsm:VesselTransportMeans>
</rsm:FLUXVesselPositionMessage>

```

```
<rsm:FLUXVesselPositionMessage
xsi:schemaLocation="urn:un:unece:uncefact:data:standard:FLUXVesselPositionMessage:4
FLUXVesselPositionMessage_4p0.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:rsm="urn:un:unece:uncefact:data:standard:FLUXVesselPositionMessage:4"
xmlns:ram="urn:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformationEntity:18"
xmlns:udt="urn:un:unece:uncefact:data:standard:UnqualifiedDataType:18">
<rsm:FLUXReportDocument>
<ram:ID> c133b211-0b0e-4358-893c-7afb5437bd61</ram:ID>
<ram:CreationDateTime>
<udt:DateTime>2018-12-17T11:31:47.0Z</udt:DateTime>
</ram:CreationDateTime >
<ram:PurposeCode >9</ram:PurposeCode>
<ram:OwnerFLUXParty>
<ram:ID >SWE</ram:ID>
</ram:OwnerFLUXParty>
</rsm:FLUXReportDocument>
```

```
<rsm:VesselTransportMeans>
<ram:ID schemeID=" CFR "> SWE000007880</ram:ID>
<ram:ID schemeID=" EXT_MARKING">S-381</ram:ID>
<ram:ID schemeID=" IRCS ">EI6207</ram:ID>
<ram:RegistrationVesselCountry>
<ram:ID>SWE</ram:ID>
</ram:RegistrationVesselCountry>
```

```
<ram:SpecifiedVesselPositionEvent>
<ram:ObtainedOccurrenceDateTime>
<udt:DateTime>2018-12-17T09:30:47.0Z </udt:DateTime>
</ram:ObtainedOccurrenceDateTime>
<ram:TypeCode >POS</ram:TypeCode>
<ram:SpeedValueMeasure>8.3</ram:SpeedValueMeasure>
<ram:CourseValueMeasure>50</ram:CourseValueMeasure>
<ram:SpecifiedVesselGeographicalCoordinate>
<ram:LatitudeMeasure >50.563</ram:LatitudeMeasure>
<ram:LongitudeMeasure>009.252</ram:LongitudeMeasure>
</ram:SpecifiedVesselGeographicalCoordinate>
</ram:SpecifiedVesselPositionEvent>
```

```
<ram:SpecifiedVesselPositionEvent>
<ram:ObtainedOccurrenceDateTime>
<udt:DateTime>2018-12-17T11:30:47.0Z </udt:DateTime>
</ram:ObtainedOccurrenceDateTime>
<ram:TypeCode >POS</ram:TypeCode>
<ram:SpeedValueMeasure>8.3</ram:SpeedValueMeasure>
<ram:CourseValueMeasure>50</ram:CourseValueMeasure>
<ram:SpecifiedVesselGeographicalCoordinate>
<ram:LatitudeMeasure >50.123456</ram:LatitudeMeasure>
<ram:LongitudeMeasure>009.132</ram:LongitudeMeasure>
</ram:SpecifiedVesselGeographicalCoordinate>
</ram:SpecifiedVesselPositionEvent>
```

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</rsm:VesselTransportMeans>
</rsm:FLUXVesselPositionMessage>

7. CODE LISTS

Vessel Transport Means²

Description: the entity containing the details of the identification and characteristic information of a ship or boat.

Mult.	Business term	Rel.	Type	Description
0..n	Identification	Att	Identifier	An identifier for this transport means vessel, such as an identifier defined by the Food and Agriculture Organisation (FAO), the radio call sign, or an external marking.
0..1	Registration	Ass	Vessel_ Country Entity	The country of registration of this transport means vessel.
0..n	Specified	Ass	Vessel Position_ Event Entity	A position event specified for this vessel transport means.

Vessel Country¹¹

Description: the entity containing the details of a country associated to a vessel.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this vessel country.

Vessel Position Event

Description: The entity containing information obtained related to the position of a vessel.

Mult.	Business term	Rel.	Type	Description
1	Obtained_ Occurrence	Att	DateTime	The date and time when the position of the vessel was taken by the vessel's navigation equipment.
1	Type	Att	Code	The code specifying the type of vessel position event.

¹¹ For sake of clarity, the description of Vessel_ Transport Means; Vessel Country entities contains only the part that is necessary for this domain. The complete definition of such entities can be found in the Vessel domain document of the UN/FLUX standard.

0..1	Speed	Att	Measure	The measure of speed of the vessel for this vessel position event.
0..1	Activity_Type	Att	Code	The code specifying the type of activity, such as of the vessel or the crew, at this vessel position event.
1	Specified	Ass	Vessel_Geographical Coordinates Entity	The set of geographical coordinates specified for this vessel position event.

Vessel_Geographical Coordinates

Description: The latitude and longitude of a specified place, by which its relative situation on the globe is known. The height above the sea level constitutes a third coordinate.

Mult.	Business term	Rel.	Type	Description
1	Latitude	Att	Measure	The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of a specific place for this vessel geographical coordinate.
1	Longitude	Att	Measure	The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of a specific place for this vessel geographical coordinate.
0..1	Altitude	Att	Measure	The measure of the altitude that reflects the vertical elevation of an object above a surface for this vessel geographical coordinate.
0..1	System	Att	Identifier	The identifier of the system used for measuring this specified geographical coordinate.

8. FLUX TL ENVELOPE PARAMETERS

The following FLUX TL parameters must be used for transmission of Vessel Position Messages.

Common name	FLUX TL Envelope Tag name	Value	Remark
Dataflow name	DF	urn:un:unece:uncefact:data:standard:FLUXVesselPositionMessage:4	

Timeout DateTim e	TODT	DateTime (in UTC) of creation of the envelope + 60 minutes.	Value expressed as XSD DateTime in UTC. Must be according to the definition provided in 6(2).
Acknowledg e Receipt	AR	False	Note: a non-delivery message is always sent when the recipient cannot be reached and timeout (TODT) time has expired.