

FLUX Vessel Position Implementation Document for NEAFC v1.0.1

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1. Introduction

This document aims to describe the implementation of Vessel Position XSD in the context of NEAFC.

Submissions of reports will be done through the FLUX Transportation Layer. The technical and functional documentation is published on the Master Data Register (MDR) page of NEAFC website¹.

2. References

UN/CEFACT P1000 FLUX Standard v1.0²:

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

UN/CEFACT FLUXVesselPositionMessage_4p0.xsd³

The code lists which are specific to Vessel Position domain are published on Master Data Register page of NEAFC.

3. Legal basis

NEAFC Scheme of Control and Enforcement⁴ and current NEAFC Management Measures and Recommendations⁵.

¹ <https://www.neafc.org/mdr>

² http://www.unece.org/cefact/brs/brs_index.html

³ http://www.unece.org/fileadmin/DAM/cefact/xml_schemas/D15B.zip

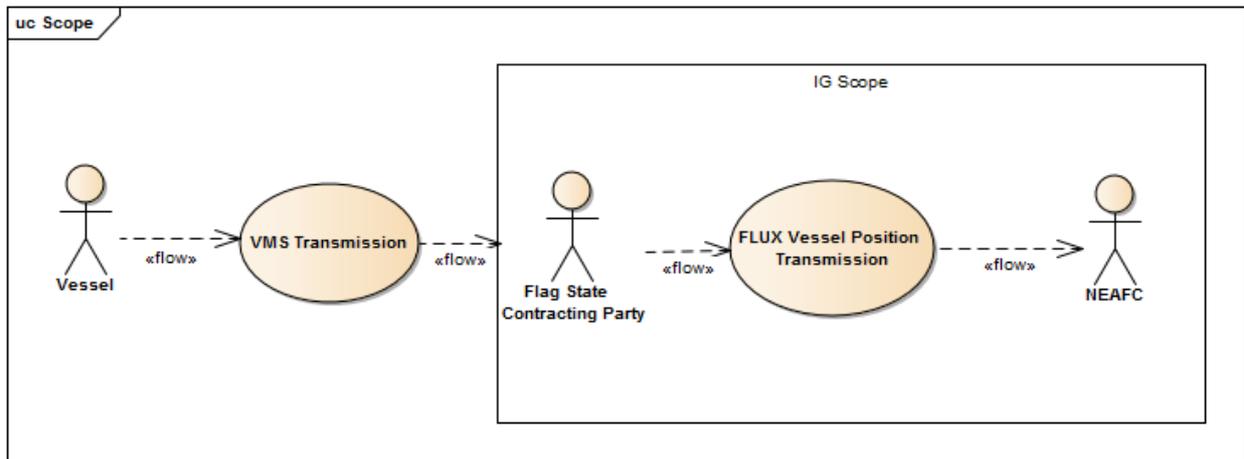
⁴ <https://www.neafc.org/scheme/contents>

⁵ https://www.neafc.org/managing_fisheries/measures/current

4. Scope

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 State FMC, which has received the Vessel Position message⁶, to NEAFC according to the NEAFC scheme.

Figure 1: Implementing Guide Scope diagram



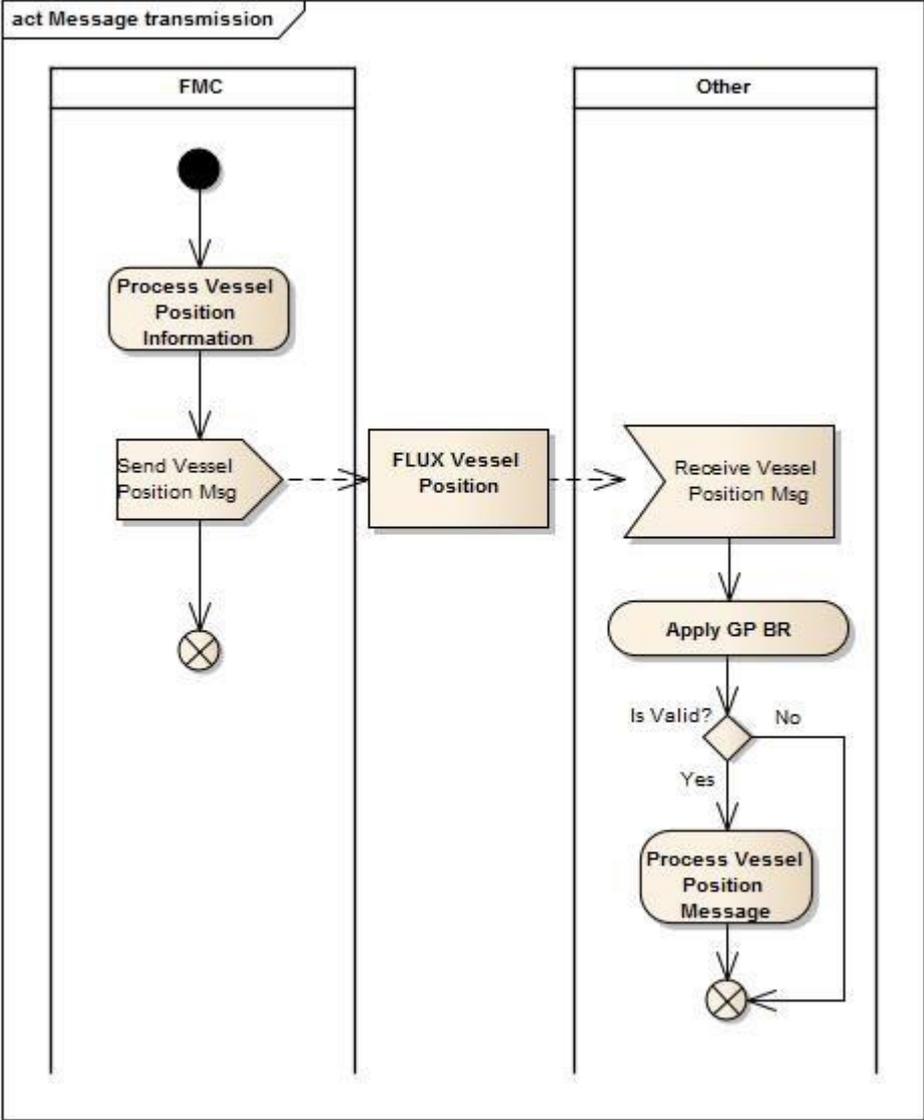
⁶ In theory, a FMC can use various methods for providing Geographical Position of a vessel, such as AIS device or a manual input based on a GPS, for filling-up Vessel Position message

5. Procedures

5.1. General principles

The following activity diagram describes the normal procedure defined for the submission of every Vessel Position Message exchanged between a Flag State FMC and NEAFC.

Figure 2: Message Transmission activity diagram



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

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 provided⁷.

Business Rules Validation level: a Business Rules Engine validates the content of XML according to the General Principles Business Rules definition⁸.

5.2. Business Continuity Plan

Business continuity provision for this system is provided for in Article 14.2 of NEAFC Information Security Management System (ISMS) that is available at <https://www.neafc.org/isms>

⁷ In general, only XSD elements are defined as mandatory. Element attributes and facets remain optional.

⁸ Some specific business rules of this domain can withdraw or overwrite the definition of FLUX General Principles.

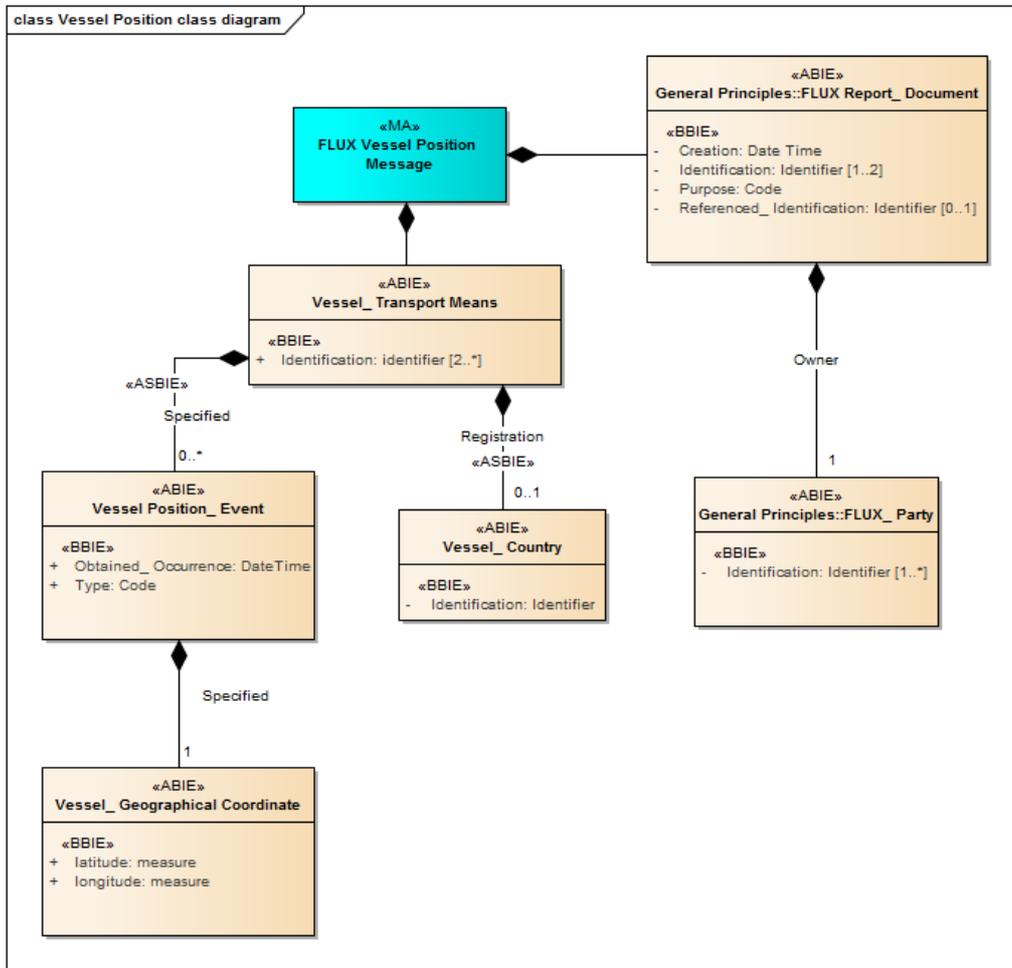
6. Data model (XSD) implementation

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`⁹;

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

Figure 3: Data model for the FLUX Vessel Position Message used within this implementation document



⁹ 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 up to 6 digits, not including the brackets; Z= time zone, which must be Z (i.e. UTC)

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

Table 1: Data elements and attributes of a Vessel Position Message

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 <i>schemeID=UUID</i>
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=FLUX_GP_PURPOSE</i> 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>schemeID=FLUX_GP_PARTY</i> 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	2	*	An identifier for this vessel	At least 2 vessel IDs of which one is schemeID=IRCS & Value= IRCS number must be provided. The other shall be schemeID=UVI where IMO is applicable to the vessel ¹⁰ alternatively the contracting party can use another identifier with schemeID from the code list FLUX_VESSEL_ID_TYPE
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.	<i>Use Code Countries code list in MDR.</i> <i>schemeID = TERRITORY</i> ISO 3166-1 alpha-3 code of the country where the vessel is registered (flag state).

¹⁰ Annex IV(a) of the Scheme: Radio Call sign and IMO number is required, where IMO is not applicable (for Vessels under IMO resolution A.1078 (28)), use of either CP Internal reference number or Vessel external registration is required.

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
Specified Vessel Position Event	Assoc.	1	*	The general information of the VMS message.	More than one position can be provided.
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> = FLUX_VESSEL_POSITION_TYPE 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 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.

7. XML Examples²⁰

```
<rsm:FLUXVesselPositionMessage
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 schemeID="UUID">c133b211-0b0e-4358-893c-7afb5437bd61</ram:ID>
    <ram:CreationDateTime>
      <udt:DateTime>2019-10-07T09:30:47.0Z</udt:DateTime>
    </ram:CreationDateTime>
    <ram:PurposeCode listID="FLUX_GP_PURPOSE">9</ram:PurposeCode>
    <ram:OwnerFLUXParty>
      <ram:ID schemeID="FLUX_GP_PARTY">SWE</ram:ID>
    </ram:OwnerFLUXParty>
  </rsm:FLUXReportDocument>

  <rsm:VesselTransportMeans>
    <ram:ID schemeID="CFR">SWE000007880</ram:ID>
    <ram:ID schemeID="EXT_MARK">S-381</ram:ID>
    <ram:ID schemeID="IRCS">EI6207</ram:ID>
    <ram:ID schemeID="UVI">1234567</ram:ID>
    <ram:RegistrationVesselCountry>
      <ram:ID schemeID="TERRITORY">SWE</ram:ID>
    </ram:RegistrationVesselCountry>

  <ram:SpecifiedVesselPositionEvent>
    <ram:ObtainedOccurrenceDateTime>
      <udt:DateTime>2019-10-07T09:29:00Z</udt:DateTime>
    </ram:ObtainedOccurrenceDateTime>
    <ram:TypeCode listID="FLUX_VESSEL_POSITION_TYPE">POS</ram:TypeCode>
    <ram:SpeedValueMeasure>8.3</ram:SpeedValueMeasure>
    <ram:CourseValueMeasure>50</ram:CourseValueMeasure>
    <ram:SpecifiedVesselGeographicalCoordinate>
      <ram:LatitudeMeasure>50.560</ram:LatitudeMeasure>
      <ram:LongitudeMeasure>9.123456</ram:LongitudeMeasure>
    </ram:SpecifiedVesselGeographicalCoordinate>
  </ram:SpecifiedVesselPositionEvent>
</rsm:VesselTransportMeans>
</ rsm:FLUXVesselPositionMessage >
```

²⁰ Note that a single Position in each message reflects a real time reporting implementation. It is possible to send more than one position in each position message which could be used for example when pulling data from another system

8. Code lists

All XSDs and code lists are listed in the NEAFC Master Data Register

The values mentioned in above tables for the *listID* or *schemeID* attribute refer to the code list alias on MDR. This *listID* or *schemeID* value can be used to retrieve the code values using the FLUX Master Data Management specifications¹².

Code list alias
FLUX_GP_PURPOSE
FLUX_GP_PARTY
FLUX_VESSEL_POSITION_TYPE
TERRITORY
FLUX_VESSEL_ID_TYPE

9. 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:unefact:data:standard:FLUXVesselPositionMessage:4	
Timeout DateTime	TODT	DateTime (in UTC) of creation of the envelope + 72 hours.	Value expressed as XSD DateTime in UTC. Must be according to the definition provided in 6(2) The FLUX TL will retry an undelivered envelope in a given schedule until the TODT is reached.
Acknowledge Receipt	AR	True	Each VP message will be positively acknowledged with 201 status code on receipt by the destination node. Note: a non-delivery message is always sent when the recipient cannot be reached and timeout (TODT) time has expired.

10. Contact

Please address enquiries to info@neafc.org so the query can be routed as appropriate

¹² FLUX BRS: P1000 – 10; MDM domain

11. Versioning

Version	Comment	Date
1.0	<p>Based on EU Implementation document v2.1. Changed legal references. Modified the cardinality of the vessel ID data element in Table 1, as well as in Figure 3 aligning it with the requirements of the Scheme. Changed the TODT offset value to 72 hours (4320 minutes). Document clean-up by DG MARE.</p>	08/10/2019
1.0.1	<p>General editorial review. -Added reference to schemeID for FLUXReportDocument/ID -Corrected code list to be used for FLUXReportDocument/FLUXOwnerParty/ID -Corrected the remarks field for the vessel identification to reflect actual practice. -Clarified remark related to the listID to be used for VesselTransportMeans/SpecifiedVesselPositionEvent/TypeCode -Corrected inconsistencies in the sample. -Corrected the list of code lists being used. -Changed the AR parameter so that the sender receives an acknowledgement for every single transmission.</p>	15/07/2020