EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR MARITIME AFFAIRS AND FISHERIES

FISHERIES POLICY ATLANTIC, NORTH SEA, BALTIC AND OUTERMOST REGIONS
Data Management

THE INTEGRATED FISHERIES DATA MANAGEMENT PROGRAMME

Subject: FLUX Vessel Position Implementation Document v2.1.2

1. INTRODUCTION

This document aims to describe the implementation of Vessel Position XSD in the context of **European Union usage**.

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 the European Commission Fisheries website[1].

[1] See CIRCABC Website for documents details (Path: /CircaBC/MARE/IFDM DEL/Library/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]

The documents Code Lists which are specific to Vessel Position domain are published on Master Data Register page of the European Commission Fisheries website[4].

3. LEGAL BASIS

The implementation of the standard within EU-context applies within the scope of the Control Regulation, as defined in art. 2 and 3 of EC No 1224/2009 (CR). Only electronic exchanges of Vessel Monitoring System (VMS) messages between countries are covered by the present document. For sake of clarity the document mentions sometimes the exchanges between the master of the fishing vessel and the flag state authorities.

The definition of mandatory and optional data elements are based on requirements defined in the following regulations:

- Control Regulation (EC) No 1224/2009(a), as amended by regulation (EU) No 1380/2013(b). In particular, but not limited to article 9.
- Commission Implementing Regulation (EU) No 404/2011, as amended by "Omnibus" Regulation (EU) 2015/812 and (EU) 2015/1962;

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

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

[4] http://ec.europa.eu/fisheries/cfp/control/codes/index_en.htm

4. SCOPE

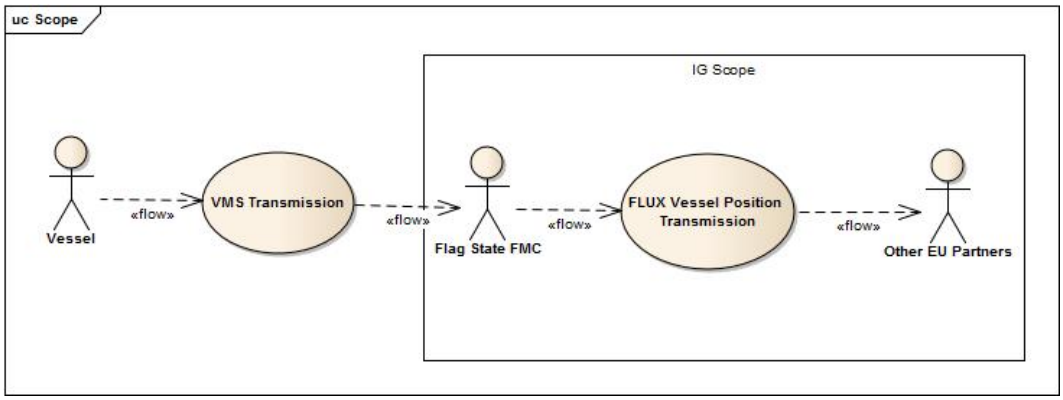

Figure 1: Implementing Guide Scope diagram

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 State FMC, which has received the Vessel Position message, coming in most cases from a VMS device[5], to any other European Union partners who can handle a FLUX Vessel Position message.

[5] In theory, a FMC can use by any other kind of devices 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 Messages sent between a Flag State FMC and other EU partner receiving the message:

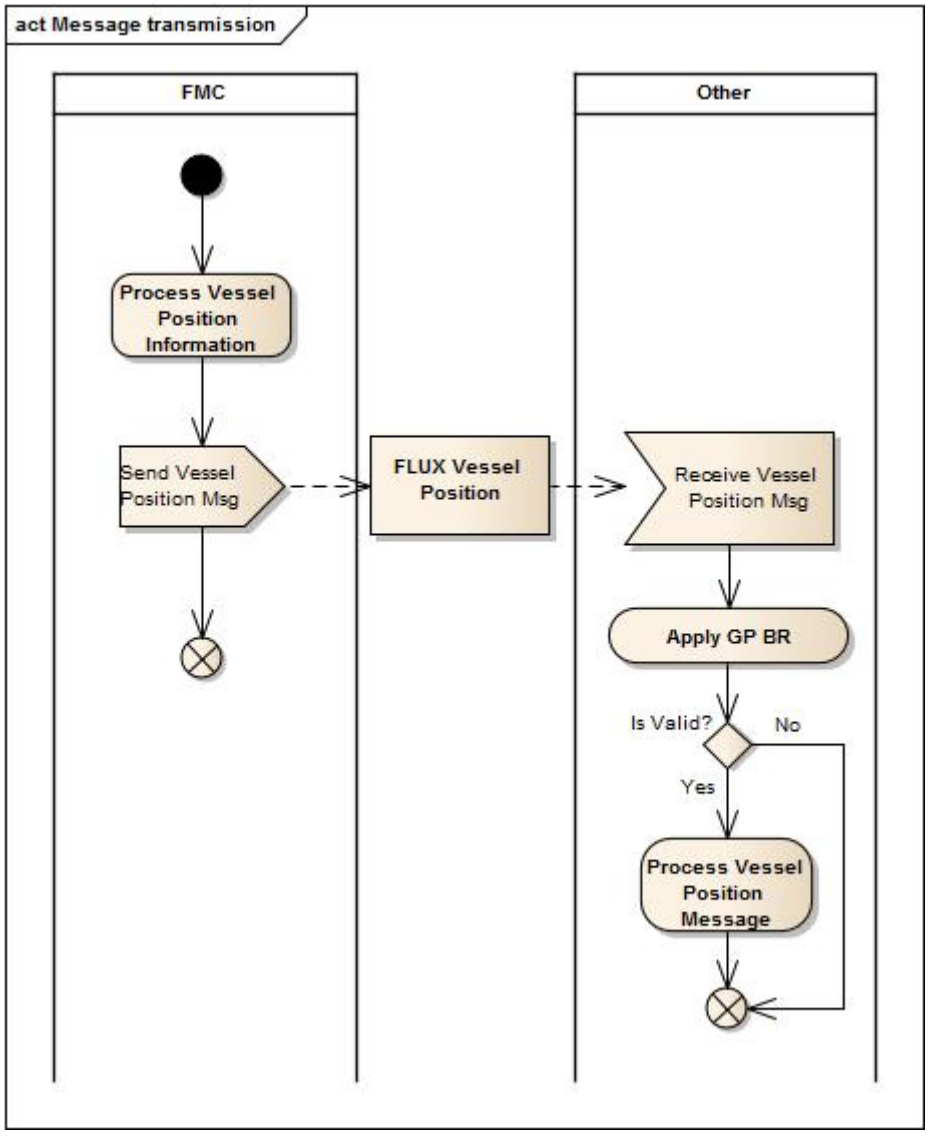

Figure 2: Message Transmission activity diagram

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[6].

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[7].

5.2. Business Continuity Plan

The document "FLUX Business Continuity Plan.docx" for the Vessel Position domain is available on the on the Master Data Register page of the European Commission Fisheries website.

In that document, in the paragraph related to the communication with the DG MARE FIDES helpdesk, the examples given for the title for an issue should be read "BEL:PROD: Vessel Position: Error Message XYZ" and for the unique identifier, ""20150216-01 BEL:PROD:Vessel Position: Error Message XYZ".

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

[7] 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[8];

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

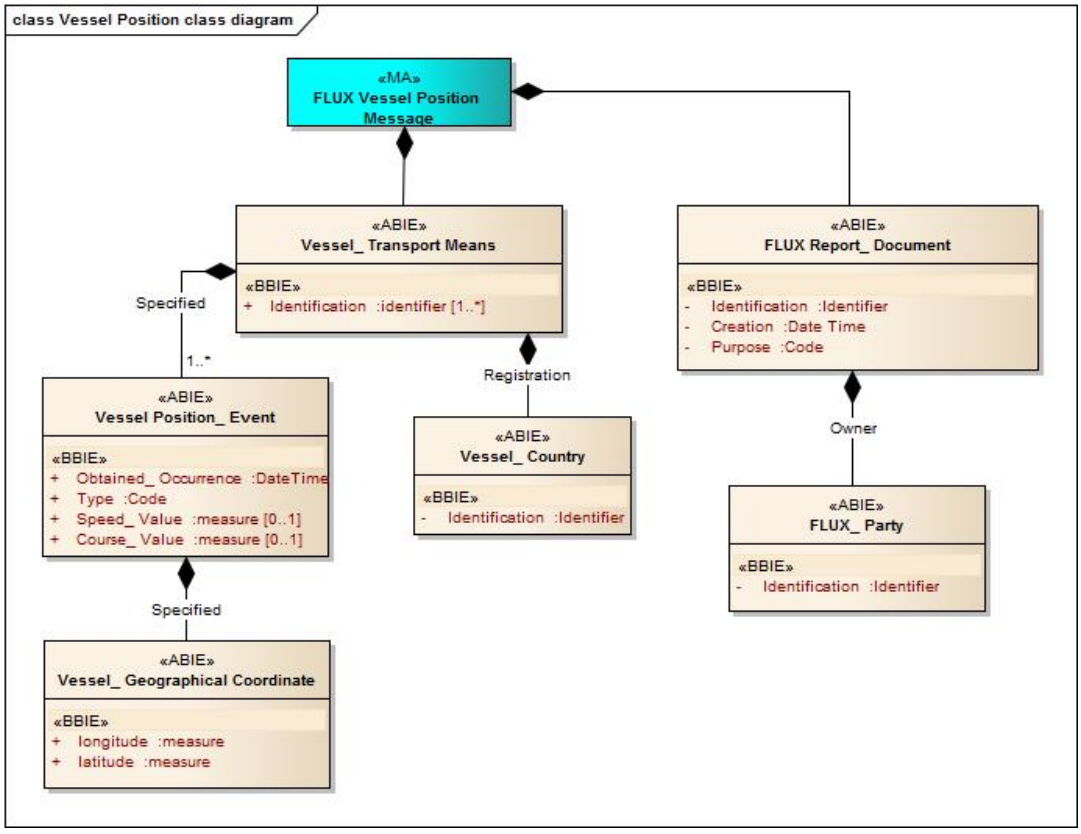

Figure 3: Vessel Position Message Data Model

[8] 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 (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. *schemeID*=UUID
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 *listID*= FLUX_GP_PURPOSE Reference: EDIFACT Code List 1225 (qDT UN02000125 - Message Function_ Code). Restriction: 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 *schemeID*= FLUX_GP_PARTY 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, such as an identifier defined by the Food and Agriculture Organisation (FAO), the radio call sign, or an external marking.	Attribute *schemeID must be provided with a value from list* **FLUX_VESSEL_ID_TYPE** **For EU vessels:** schemeID=CFR & Value= CFR number **For non-EU vessels:** schemeID=IRCS & Value= IRCS number and schemeID=EXT_MARK & Value= side (hull) number **For any vessels:** (in addition to the identifiers mentioned above and if available) schemeID=UVI & Value=IMO number Under BFT rules: (in addition to the other identifiers, if available) schemeID=ICCAT & Value=ICCAT register number Under GFCM rules: (in addition to other identifiers, if available) schemeID=GFCM & Value=GFCM register number
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.* *schemeID* = TERRITORY ISO 3166-1 alpha-3 code of the country where the vessel is registered (flag state).
Specified.	Assoc.	1	*	The general information	More than one position can

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
Vessel Position_ Event				of the VMS message.	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 *listID* = 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

Entity/Field Name	DataType	Cardinality		Description	Remarks
		Min	Max		
					- 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 EXAMPLES

```
<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>2001-12-17T09:30:47.0Z</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>2001-12-17T09:30:47.0Z</udt:DateTime>
                        </ram:ObtainedOccurrenceDateTime>
                        <ram:TypeCode listID="FLUX_VESSEL_POSITION_TYPE" >POS</ram:TypeCode>
                        <ram:SpeedValueMeasure>8.35</ram:SpeedValueMeasure>
                        <ram:CourseValueMeasure>50.2</ram:CourseValueMeasure>
                        <ram:SpecifiedVesselGeographicalCoordinate>
                                <ram:LatitudeMeasure >50.500</ram:LatitudeMeasure>
                                <ram:LongitudeMeasure>9.123456</ram:LongitudeMeasure>
                        </ram:SpecifiedVesselGeographicalCoordinate>
                </ram:SpecifiedVesselPositionEvent>
        </rsm:VesselTransportMeans>
</rsm:FLUXVesselPositionMessage>
```

```
<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>2018-12-17T11:31:47.0Z</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>2018-12-17T09:30:47.0Z</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>009.000</ram:LongitudeMeasure>
                        </ram:SpecifiedVesselGeographicalCoordinate>
                </ram:SpecifiedVesselPositionEvent>

                <ram:SpecifiedVesselPositionEvent>
                        <ram:ObtainedOccurrenceDateTime>
                                <udt:DateTime>2018-12-17T11:30:47.0Z</udt:DateTime>
                        </ram:ObtainedOccurrenceDateTime>
                        <ram:TypeCode listID="FLUX_VESSEL_POSITION_TYPE">POS</ram:TypeCode>
                        <ram:SpeedValueMeasure>8.3</ram:SpeedValueMeasure>
                        <ram:CourseValueMeasure>50.2</ram:CourseValueMeasure>
                        <ram:SpecifiedVesselGeographicalCoordinate>
                                <ram:LatitudeMeasure >50.123456</ram:LatitudeMeasure>
                                <ram:LongitudeMeasure>9.130</ram:LongitudeMeasure>
                        </ram:SpecifiedVesselGeographicalCoordinate>
                </ram:SpecifiedVesselPositionEvent>
        </rsm:VesselTransportMeans>
</rsm:FLUXVesselPositionMessage>
```

8. CODE LISTS

- All XSDs and code lists are listed in the Master Data Register of DG MARE of European Commission: http://ec.europa.eu/fisheries/cfp/control/codes/index_en.htm

The values mentioned in above tables for the *listID or schemeID* attributes refer to code list alias on MDR. This *listID or schemeID* value can be used to retrieve the code values using the FLUX Master Data Management specifications[9].

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:uncefact:data:standard:FLUXVesselPositionMessage:4	
Timeout DateTime	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).
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.

[9] FLUX BRS: P1000 – 10; MDM domain

10. CONTACT

MARE-DATA-MANAGEMENT@ec.europa.eu

11. VERSIONING

Version	Comment	Date
2.0	First draft –based on v1.0.1	19/02/2016
2.0.1	Second draft – including remarks from ERS WG held on April 19-2.	02/05/2016
2.0.2	Final version– approved ERS WG during May 26 meeting.	27/05/2016
2.1	-Correction: Speed and course are mandatory for all position reports for EU vessels, except for type EXIT when messages are transmitted to RFMO/3rd party where these elements are defined as optional in the agreement. -Clarified and aligned with FA domain the descriptions of required vessel IDs. -Clarified date/time format, aligning with FA domain. -Included example with multiple position events in one message. -Included reference to FLUX TL parameters. -Updated contact information. -Some editorial changes. Final version approved by Recommendation 60 of 8/3/2019.	14/02/2019
2.1.1	Change the FLUX TL parameter AR from “False” to “True” (Chapter 9) in order ensure each VP message is positively acknowledged (status 201) upon receipt by the destination node. Final version approved by Recommendation 88 of 6/3/2020.	19/02/2020
2.1.2	Correction of the following elements: -Added reference to schemeID for FLUXReportDocument/ID -Corrected attribute name and code list to be used for FLUXReportDocument/FLUXOwnerParty/ID -Corrected attribute name for VesselTransportMeans/RegistrationVesselCountry/ID -Clarified remark related to the listID to be used for VesselTransportMeans/SpecifiedVesselPositionEvent/ TypeCode -Corrected inconsistencies in the sample.	01/07/2020

	-Corrected the list of code lists being used. Final version approved by Recommendation 98 of 24/09/2020.	