



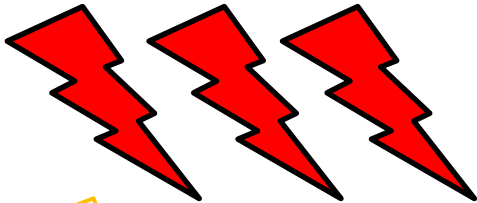
FIXM update

METP WG-MIE/MRI workshop

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28-Nov-2018

# **FIXM overview**

# FIXM History



**Peak of Inflated Expectations**

Massive scope expansion  
No change control board  
No global convergence

3.0.0

2014

2.0.0

2013

1.0.0

2012

**Innovation Trigger**

4.0.0

2016

**Trough of Disillusionment**

Global convergence based on FF-ICE/1  
Filtering of the FIXM content  
Change control board established

4.1.0

Dec 2017

**Slope of Enlightenment**

Focus on usability

**Plateau of Productivity**

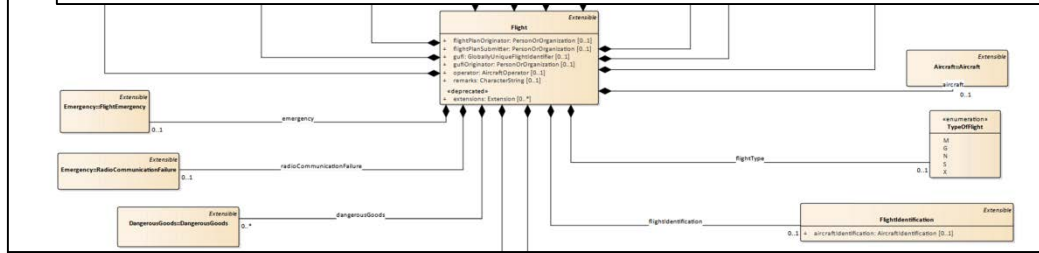
**Expectations**

**Time**

```

<complexType name="FlightType">
  <complexContent>
    <extension base="fb:ExtensibleType">
      <sequence>
        <element name="agreed" type="fx:RouteTrajectoryType" minOccurs="0" maxOccurs="1"/>
        <element name="aircraft" type="fx:AircraftType" minOccurs="0" maxOccurs="1"/>
        <element name="arrival" type="fx:ArrivalType" minOccurs="0" maxOccurs="1"/>
        <element name="current" type="fx:RouteTrajectoryType" minOccurs="0" maxOccurs="1"/>
        <element name="dangerousGoods" type="fx:DangerousGoodsType" minOccurs="0" maxOccurs="2000"/>
        ...
      </sequence>
    </extension>
  </complexContent>
</complexType>

```



Category	Item	Created By	Reply	Last Updated
Flight Reports	FIXM Core 4.0.0	SESRAR	0	01/12/2016 09:14
	Associations vs Attach	CHEKQA/Paul	0	23/05/2017 21:14
	Flight Capability package issues	CHEKQA/Paul	0	23/05/2017 22:26
	Flight Capability package issues	CHEKQA/Paul	0	23/05/2017 22:16
Flight Reports	Flight Capability package issues	CHEKQA/Paul	0	23/05/2017 22:16
	Flight Capability package issues	CHEKQA/Paul	0	23/05/2017 22:16

**FIXM Strategy**

**FIXM Change Management Charter**

**FIXM Primer**

**FIXM Implementation Guidance**

**FIXM Operational Data Description**

**FIXM Modelling Best Practices**

**4.1.0**

Dec 2017

**ICAO ATM RPP**

**FIXM Change Control Board (CCB)**

**FIXM Secretariat (CCBS)**

**FIXM Community of Interest (CoI)**

# FIXM driver = FF-ICE

Manual on Flight and Flow – Information for a Collaborative Environment

INTERIM ADVANCE EDITION

Doc (9965)

AN/xxx



Manual on Flight and Flow – Information for a Collaborative Environment (FF-ICE)

```
<complexType name="FlightType">
```

```
<complexContent>
```

```
<extension base="fb:ExtensibleType">
```

```
<sequence>
```

```
<element name="agreed" type="fx:RouteTrajectoryType" minOccurs="0" maxOccurs="1"/>
```

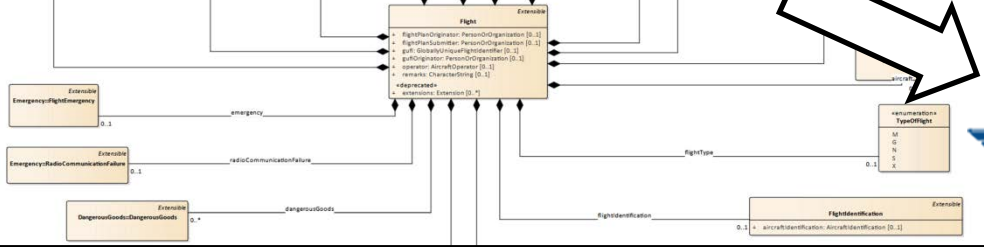
```
<element name="aircraft" type="fx:AircraftType" minOccurs="0" maxOccurs="1"/>
```

```
<element name="arrival" type="fx:ArrivalType" minOccurs="0" maxOccurs="1"/>
```

```
<element name="current" type="fx:RouteTrajectoryType" minOccurs="0" maxOccurs="1"/>
```

```
<element name="dangerousGoods" type="fx:DangerousGoodsType" minOccurs="0" maxOccurs="2000"/>
```

```
...
```



**FF-ICE**  
(ICAO Doc 9965)

Part I – Concept

Part II – Implementation Guidance

**SWIM**

/ AMHS

FF-ICE Services

Planning

Filing

Trial

Flight Plan Data Request

Notification

Publication

FF-ICE Procedures

General

Preliminary FP

Filed FP

Flight Plan Update

Evaluate/Re-Evaluate Flight

Cancel Flight

Flight Data Request

Trial Request

Flight Departure

Flight Arrival

Flight Publication

FF-ICE Messages

Preliminary FP

Filed FP

Flight Plan Update

Planning Status

Filing Status

Flight Cancellation

Flight Data Request

Flight Data Response

Trial Request

Trial Response

Flight Departure

Flight Arrival

Submission Response

All use

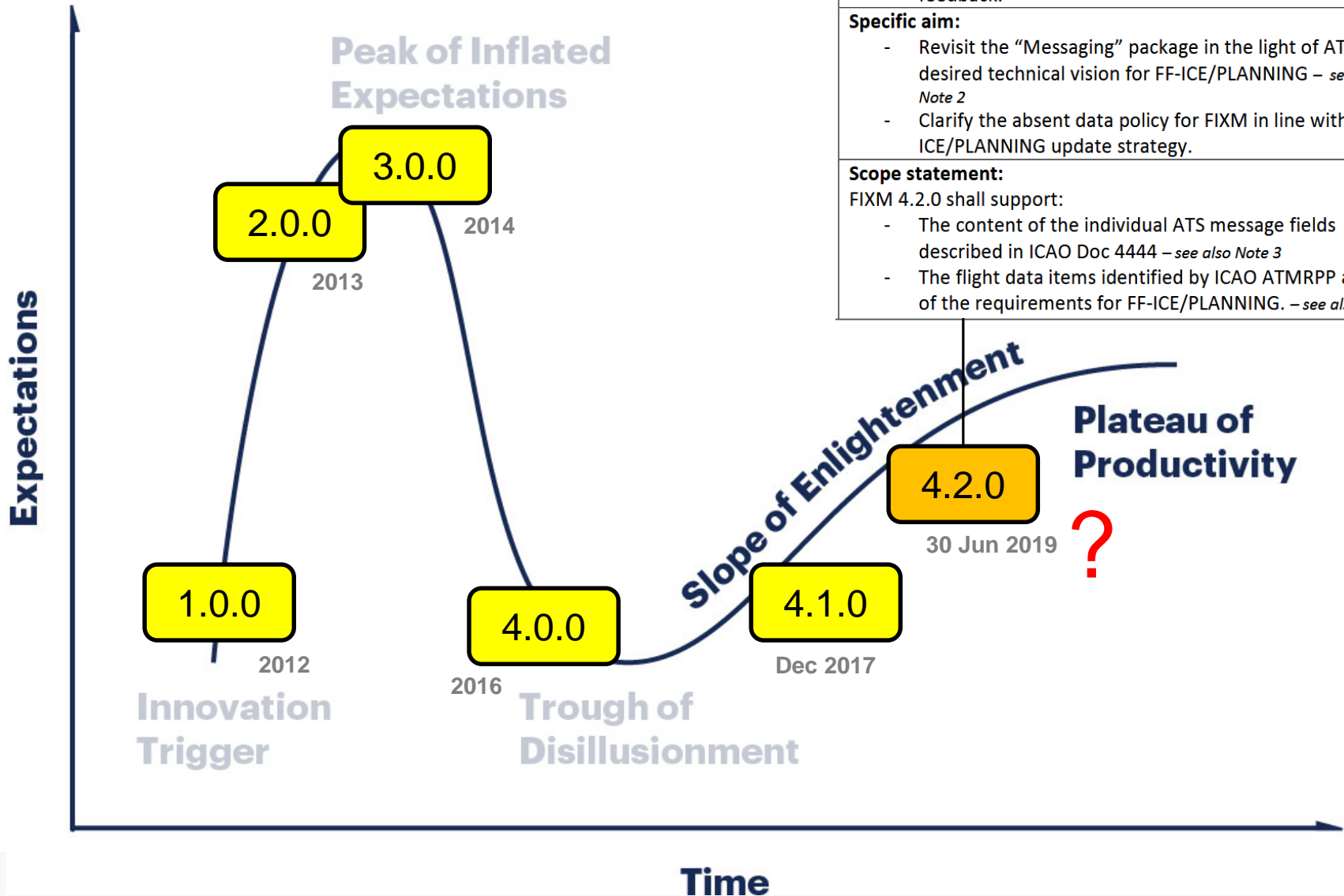
ICAO  
ATMRP

ICAO  
IMP

ICAO  
CP

IPTF on  
FF-ICE/1

# Future FIXM version



**General aim:**

- Align with the requirements for FF-ICE/PLANNING based on the Q4 2018 Intermediary version of ICAO Doc 9965;
- Optimise FIXM Core design based on implementers' feedback.

**Specific aim:**

- Revisit the "Messaging" package in the light of ATMRPP's desired technical vision for FF-ICE/PLANNING – *see also Note 2*
- Clarify the absent data policy for FIXM in line with FF-ICE/PLANNING update strategy.

**Scope statement:**

FIXM 4.2.0 shall support:

- The content of the individual ATS message fields described in ICAO Doc 4444 – *see also Note 3*
- The flight data items identified by ICAO ATMRPP as part of the requirements for FF-ICE/PLANNING. – *see also Note 2*

**Cross –XM coordination**  
**Some talking points**



## APPENDIX A - FIXM versioning policy

*Note: the versioning policy described below corresponds to the policy discussed and consolidated with the AIXM community over 2017 using [the cross-XM coordination workspace](#) and equally promoted to the AIXM documentation per AIXM Jira Issue 278.*

The applicable versioning policy for -XMs uses '[Semantic versioning 2.0.0](#)' as a common reference: **MAJOR.MINOR.PATCH**.

A **MAJOR (X.y.z)** version introduces major conceptual changes. Forward data mapping is not guaranteed. The changes justifying a new MAJOR release include, but are not limited to:

- Re-factoring a large part of the model
- Scope reduction of the -XM / deletion of model elements without prior deprecation or replacement
- Use of a different data encoding syntax, or withdrawal of a given physical realization of the -XM Logical Model

A **MINOR (x.Y.z)** version introduces new model elements and capabilities guaranteeing forward data mapping for non-deprecated elements or deprecated elements with replacement. Loss of information may happen for elements being no longer required. The changes allowed in a MINOR release include, but are not limited to:

- Inclusion of new model elements, in particular in support of evolving ICAO requirements (e.g. SARPS update)
- Deprecation of model elements, with or without replacement
- Deletion of model elements deprecated in a previous version
- Addition of a new physical realization of the -XM Logical Model

A **PATCH (x.y.Z)** version is limited to bug fixing. Forward and backward data mapping is guaranteed without loss of information. A PATCH version does not impose changes in a consuming system. A PATCH version may still require data conversion to be made ahead of the data entering in the consuming system (done by a mediator service). The changes allowed in a PATCH release include, but are not limited to:

- Clarification of definitions, changes to the -XM documentation package and/or to the -XM Logical Model with no impact on the physical realization(s).
- Correcting spelling mistakes, incl. in physical realisations
- Updating external references

Alpha, Beta or Release Candidate versions, if created, will be named as follows:



### FIXM Release Plan

The Flight Information Exchange Model (FIXM) is an exchange model capturing Flight and Flow information that is globally standardised. The requirement for it was identified by the International Civil Aviation Organisation (ICAO) Air Traffic Management Requirements and Performance Panel (ATMRPP) and endorsed at the 12th Air Navigation Conference as part of the Aviation System Block Upgrade (ASBU) and as described in Flight and Flow Information for a Collaborative Environment (FF-ICE).

The FIXM Release Plan describes the FIXM CCB roadmap for the FIXM core release and for the verified extensions to FIXM.



# Common misconception:

*FIXM does not use GML so FIXM is not interoperable with AIXM*

## Conceptually

**ISO19107**

Same reference!

**FIXM and AIXM understand and encode geometries in the same way !!!**

## Technically

[FIXM 4.1.0]

```
<fx:point4D srsName="urn:ogc:def:crs:EPSG::4326">  
  <fb:pos>56.84 -29.860000000000003</fb:pos>  
...
```

Equivalent structures!  
One-to-one mappable!

[AIXM 5.1]

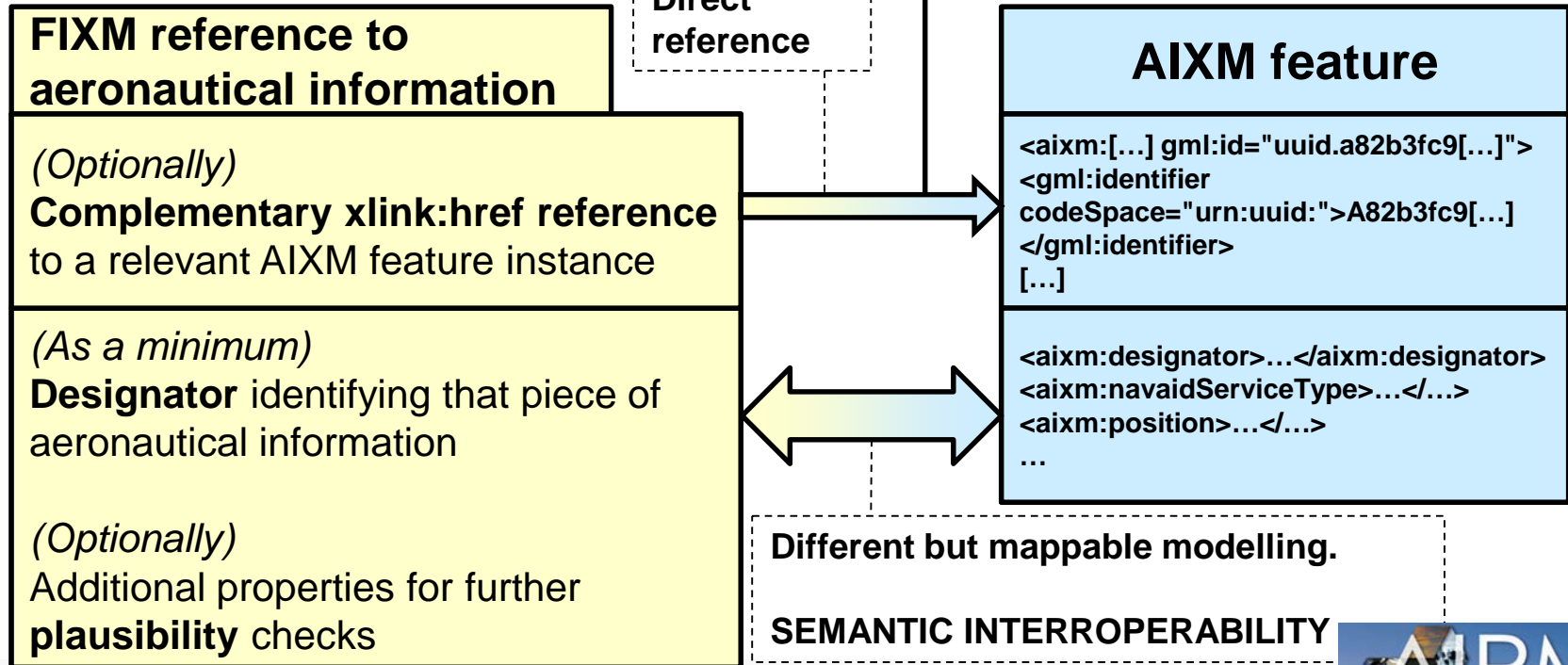
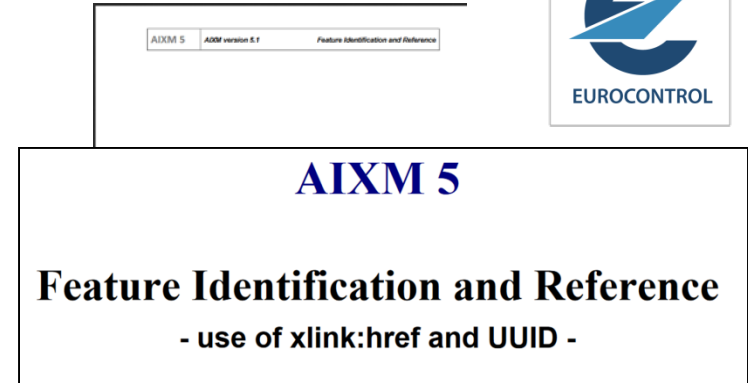
```
<aixm:ElevatedPoint srsName="urn:ogc:def:crs:EPSG::4326" gml:id="pTEMPO">  
  <gml:pos>56.84 -29.860000000000003</gml:pos>  
...
```

# Encoding references to published aeronautical information in FIXM 4.1.0

5. Example of a completed flight plan form

FLIGHT PLAN PLAN DE VOL	
1 PRIORITY Précédence FF	2 ADDRESSEE(S) Destinataires EHAA ZQZX EBURZQZX EDDYZQZX LFFFZQZX LFRR ZQZX LFBBZQZX LECMZQZX LPCCZQZX
4 FILING TIME Heure de dépôt 190936	5 ORIGINATOR Émetteur EHAMZPX
6 SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR Identification précise destinataires/émetteurs	
3 MESSAGE TYPE Type de message FPL	7 AIRCRAFT IDENTIFICATION Identification de l'aéronef ACF402
8 NUMBER Numéro E30	10 FLIGHT RULES Règles de vol N
13 DEPARTURE AERODROME Aérodrome de départ EHAM	14 TIME Heure 0940
15 CRUISING SPEED Vitesse croisière 4000	16 LEVEL Niveau E30
17 ROUTE Route UAG PON URION CHW UAS NTS B DCT STG UAS FTM FATIMIA	
16 DESTINATION AERODROME Aérodrome de destination LPPT	17 TOTAL FUEL Quantité totale carburant 0230
18 OTHER INFORMATION Autres renseignements REG / FBVGA SEL / EJFL EET / LPCC158	
19 ENDURANCE Autonomie E / 0345	
PERSONS ON BOARD Personnes à bord P / 300	
SURVIVAL EQUIPMENT Équipement de survie S / R	
POLAR Polaire X	
DESERT Désert X	
MARITIME Maritime M	
JUNGLE Jungle X	
LIGHT Lampes J / L	
FLUORESCENT Fluorescentes F	
NUMBER Numéro D / 11	
CAPACITY Capacité 330	
COVER Couverture C	
COLOUR Couleur YELLOW	
A / WHITE	
REMARKS Remarques X	
PILOT IN COMMAND Pilote commandant de bord C / DENKE	
FILED BY / Déposé par	
AIR CHARTER INT.	
SPACE RESERVE FOR ADDITIONAL REQUIREMENTS Espace réservé à des fins supplémentaires	

# Encoding references to published aeronautical information in FIXM 4.1.0



# Examples: references to Waypoints or Nav aids in FIXM 4.1.0

<p><b>OPTION 1</b></p> <p>designator</p>	<p>[Waypoint]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="TEMPO"/&gt;</pre> <p>[Navaid]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="BOR"/&gt;</pre>
<p><b>OPTION 2</b></p> <p>designator +position +navaidServiceType</p>	<p>[Waypoint]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="TEMPO"&gt;   &lt;fb:position srsName="urn:ogc:def:crs:EPSG::4326"&gt;     &lt;fb:pos&gt;56.84 -29.860000000000003&lt;/fb:pos&gt;   &lt;/fb:position&gt; &lt;/fx:routePoint&gt;</pre> <p>[Navaid]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="BOR" navaidServiceType="VOR_DME"&gt;   &lt;fb:position srsName="urn:ogc:def:crs:EPSG::4326"&gt;     &lt;fb:pos&gt;52.368333333333333 -32.375&lt;/fb:pos&gt;   &lt;/fb:position&gt; &lt;/fx:routePoint&gt;</pre>

Not for operational use  
Based on fictitious DONLON dataset

# Examples: references to Waypoints or Nav aids in FIXM 4.1.0

<p><b>OPTION 3</b></p> <p>designator +xlink:href</p>	<p>[Waypoint]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="TEMPO" xlink:href="urn:uuid:81e47548-9f00-4970-b641-8ff8f99098a5"&gt;</pre> <p>[Navaid]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="BOR" xlink:href="urn:uuid:08a1bbd5-ea70-4fe3-836a-ea9686349495"&gt;</pre>
<p><b>OPTION 4</b></p> <p>designator +position +navaidServiceType +xlink:href</p>	<p>[Waypoint]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="TEMPO" xlink:href="urn:uuid:81e47548-9f00-4970-b641-8ff8f99098a5"&gt;   &lt;fb:position srsName="urn:ogc:def:crs:EPSG::4326"&gt;     &lt;fb:pos&gt;56.84 -29.860000000000003&lt;/fb:pos&gt;   &lt;/fb:position&gt; &lt;/fx:routePoint&gt;</pre> <p>[Navaid]</p> <pre>&lt;fx:routePoint xsi:type="fb:DesignatedPointOrNavaidType" designator="BOR" navaidServiceType="VOR_DME" xlink:href="urn:uuid:08a1bbd5-ea70-4fe3-836a-ea9686349495"&gt;   &lt;fb:position srsName="urn:ogc:def:crs:EPSG::4326"&gt;     &lt;fb:pos&gt;52.36833333333333 -32.375&lt;/fb:pos&gt;   &lt;/fb:position&gt; &lt;/fx:routePoint&gt;</pre>

← URN based on the UUID of the referenced AIMX feature, as recommended by the AIMX Feature Identification and Reference document, chapter 3.4.1.

Not for operational use  
Based on fictitious DONLON dataset

# Contacts

## **FIXM Community**

- FIXM Secretariat: [fixm.secretariat@eurocontrol.int](mailto:fixm.secretariat@eurocontrol.int)
- FIXM CCB: [FIXM.CCB@eurocontrol.int](mailto:FIXM.CCB@eurocontrol.int)

## **FIXM Online Resources**

- [www.FIXM.aero](http://www.FIXM.aero)
- [FIXM Work Area](#) (register [here](#))

## **Cross-XM Coordination**

- [Common -XM work area](#)