



# Fostering synergies between –XMs

*Concrete examples of ongoing cross –XMs coordination*

ATIEC 2017

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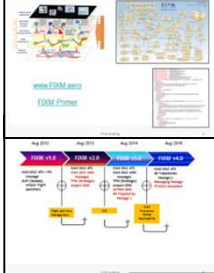
EUROCONTROL

05-Oct-2017

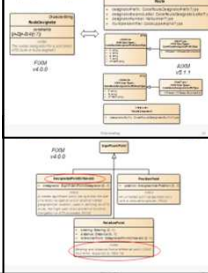
# Ongoing AIXM ↔ FIXM coordination

## FIXM briefing to AIXM CCB

**Part 1  
FIXM overview**



**Part 2  
FIXM talking points for the AIXM CCB**





**AIXM 5.2**

- Planned for mid-2018
- ... (table of contents)

**FIXM-AIXM INTEROPERABILITY**

- FIXM Uses
  - significant points
  - restrictions
  - ADIRMS
  - Altitude restriction capabilities
  - etc.
- AIXM
  - provides geographical, physical and operational characteristics
  - to Significant Points, Routes, etc. (M, Approach, Airport, Runways, etc.)
  - Uses event navigation capabilities for expressing operational restrictions/permissions
- Coordination proposal
  - Feature identifying capabilities
  - Technical -> use of sdxkeyref (based on UUID)

**AIXM 5.1.1**

- Main objectives
  - Migrate to Spaxx EA (from BM Rational Rose)
  - Alignment with latest sdx spec (coming from GML 3.2.1)
  - Inclusion of the GML profile XSD
  - Also, validate the AIXM CCB process
- Minor content updates
  - AIXM 5.1 <- 100% mapping -> AIXM 5.1.1
- See [www.aimn.com/maintenance](http://www.aimn.com/maintenance)

**CROSS-XM COORDINATION**

- Versioning policy
  - terminology such as major/minor/patch
    - AIXM 5.1.1 = "minor" / "patch"
    - AIXM 5.2, 5.3 = "regular" / "minor"
    - AIXM 6.0, 6.1 = "major" / "minor" (expected for the next 5-10 years!)
  - Proposal
    - Common AIXM-FIXM-WOXM terminology and version policy
    - Joint paper for the next IIMP
- Future releases calendar
  - 5.2, 5.3, etc. - expected every 2-3 years
  - aligned with the ICAO 20 years cycle for SARPS updates
  - alignment probably possible only after 2020!
  - different implementation status of AIXM, FIXM, WOXM

## AIXM briefing to FIXM CCB

# Collaboration opportunities

5. Example of a completed flight plan form

FLIGHT PLAN  
PLAN DE VOL

PRIORITY: FF

ADDRESS (s): E H A A Z Q Z X E B U R Z Q Z X E D D Y Z Q Z X L F F F Z Q Z X  
L F R R Z Q Z X L F B B Z Q Z X L E C M Z Q Z X L P P C Z Q Z X

FILING TIME: 190836

ORIGINATOR: E H A M Z P Z X

MESSAGE TYPE: FPL

NUMBER: 1

13 DEPARTURE AIRPORT: E H A M

15 CRUISING SPEED: 0 9 4 0

16 DESTINATION AIRPORT: L P P T

ROUTE: U A G P O N U R I O N C H W U A S N T S D  
D C T S T G U A S F T M F A T I M 1 A

18 OTHER INFORMATION: REG / F B V G A SEL / E J F L  
E E T / L P P C 0 1 5 8

19 SUPPLEMENTARY INFORMATION

PERSONS ON BOARD: P / 3 0 0

SMR AGENCY RADIO: R / U V E

NUMBER: D / 1 1

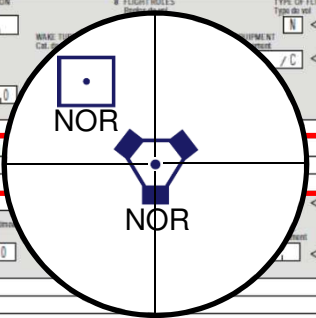
CAPACITY: 3 3 0

COVER: C / YELLOW

COLOUR: YELLOW

REMARKS: A / WHITE  
C / DENKE

AIR CHARTER INT.



v.5.1.1 - v.4.1.0  
v.2.0.1 - ...

## Versioning policy

- Naming convention?
- Requirements per version type?


---

namespace="http://www.afxm.a  
namespace="http://www.fixm.ae

## Namespace policy

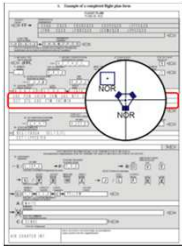
- Rules for changing the namespace?

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## Deprecation policy

- Which information is required?
- How to implement?



## Improving FIXM references to aeronautical information

**Waypoint** - the 5-letter coded designator is supposed to be unique world-wide (according to ICAO Annex 11), but in reality it is not. There are at least 5% duplicates/triplicates/even more [...] **The only combination that would make it unique is 5-letter designator and position.**



**FIXM** CR Status: approved

### Improving FIXM references to aeronautical information

Change Request created by: LSPO/Rubart

**Subject:**  
Building on Doc 8168-12 results and ANM CR recommendations, this CR proposes a set of changes to the FIXM logical model aiming to enhance references to aeronautical information using natural keys.

**FIXM Component(s)**

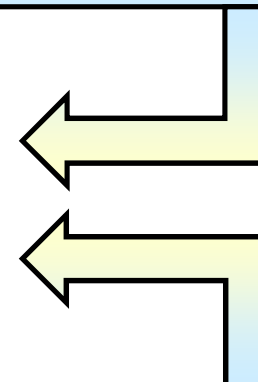
<input checked="" type="checkbox"/> FIXM Logical Model	<input type="checkbox"/> FIXM Implementation Guidance Package
<input checked="" type="checkbox"/> FIXM OVL Schemas	<input type="checkbox"/> FIXM Web/DBs
<input type="checkbox"/> FIXM Logical Model	<input type="checkbox"/> FIXM Tools
<input type="checkbox"/> Other: ...	

Verified extension: ...

**Target FIXM Release:**

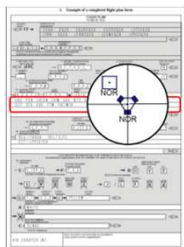
<input checked="" type="checkbox"/> FIXM core version	4.1.2
<input type="checkbox"/> Verified extension version	

**Related FIXM CRs:**  
[None listed]



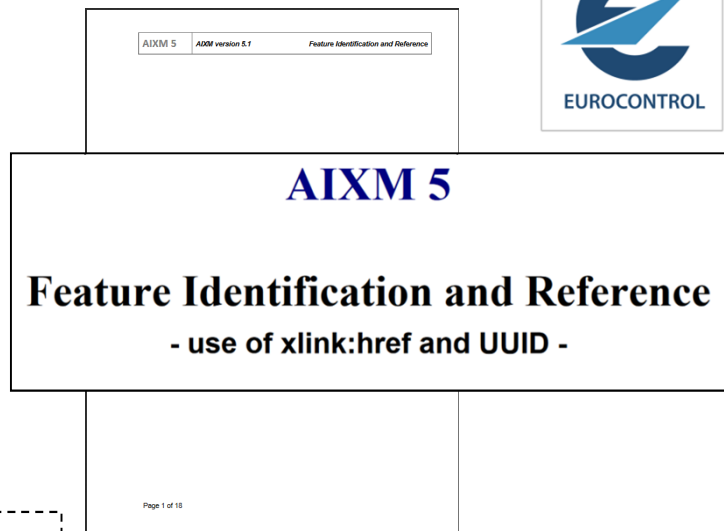
**Navaid** – the en-route nav aids (VOR, DME, NDB) designator is supposed to be unique (according to ICAO Annex 11) within 600 NM [...] **The only combination that would make it unique is type, designator and position.**

**FIXM  
CR#7**



# Improving FIXM references to aeronautical information

Approved for  
FIXM 4.1.0



***FIXM  
CR#29***

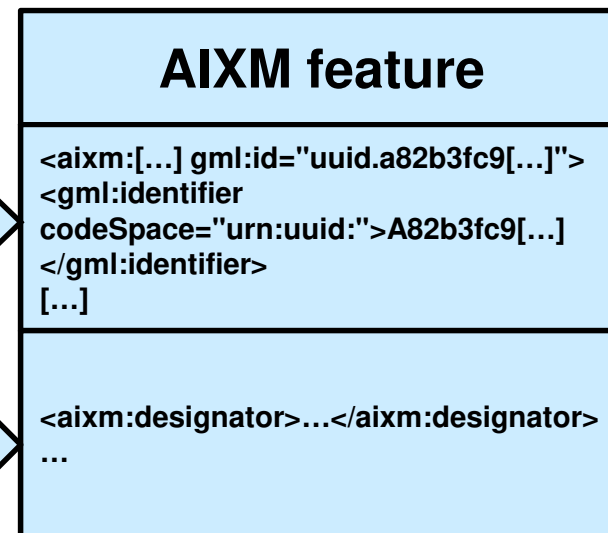
**FIXM reference to aeronautical information**

*(Optionally)*  
**Complementary xlink:href reference**  
to a relevant AIXM feature instance

***FIXM  
CR#7***

*(As a minimum)*  
**Natural key** uniquely identifying that  
piece of aeronautical information

Direct  
reference



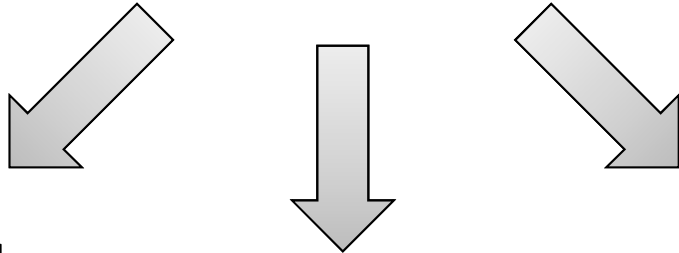
Different but mappable  
modelling.

# Common versioning policy

Proposed policy will be already applied starting with the next versions of AIXM (5.2.0) and FIXM (4.1.0).

Still under discussion

Use '[Semantic versioning 2.0.0](#)' as a common reference:  
**MAJOR.MINOR.PATCH**



(**X**.y.z)

## MAJOR

- Major conceptual changes
- Forward data mapping NOT guaranteed
- Examples of allowed changes
  - Re-factoring a large part of the model
  - Scope reduction
  - Use of a different data encoding syntax

(x.**Y**.z)

## MINOR

- New model elements and capabilities
- Forward data mapping guaranteed for non-deprecated elements or deprecated elements with replacement.
- Examples of allowed changes
  - New model elements
  - Deprecation of model elements
  - Deletion of previously deprecated model elements

(x.y.**Z**)

## PATCH

- Limited to bug fixing
- Forward and backward data mapping is guaranteed without loss of information
- No change imposed to consuming system, although data conversion may still be needed
- Examples of allowed changes
  - Clarification of definitions
  - Correcting spelling mistakes
  - Updating external references

# Common namespace policy

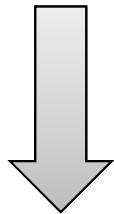
Proposed policy will be already applied starting with the next versions of AIXM (5.2.0) and FIXM (4.1.0).

Still under discussion

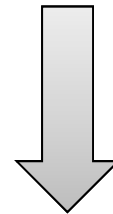
## PROPOSED PATTERN FOR NAMESPACE

The XM namespace pattern shall be '<http://www.??xm.aero/schema/{X}.{Y}>' where:

- {X}.{Y} are the first two version levels from the version designator of the corresponding XM release



- Use only the first two numbers of the version designator



- Third number in a version designator is not used
- Users should only use the latest patch version

# Common deprecation policy

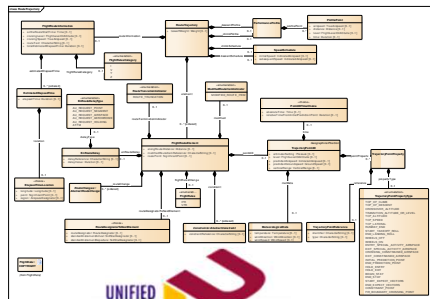
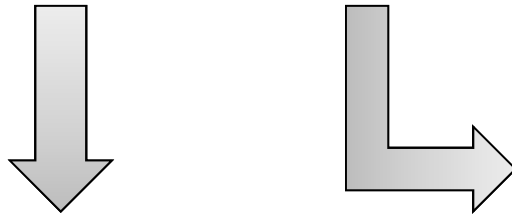
Proposed policy will be already applied starting with the next versions of AIXM (5.2.0) and FIXM (4.1.0).

**DEPRECATION**  $\neq$  **DELETION**

## Requirements for deprecation information

- Rationale
- Replacement
- Deprecation version
- Deletion version

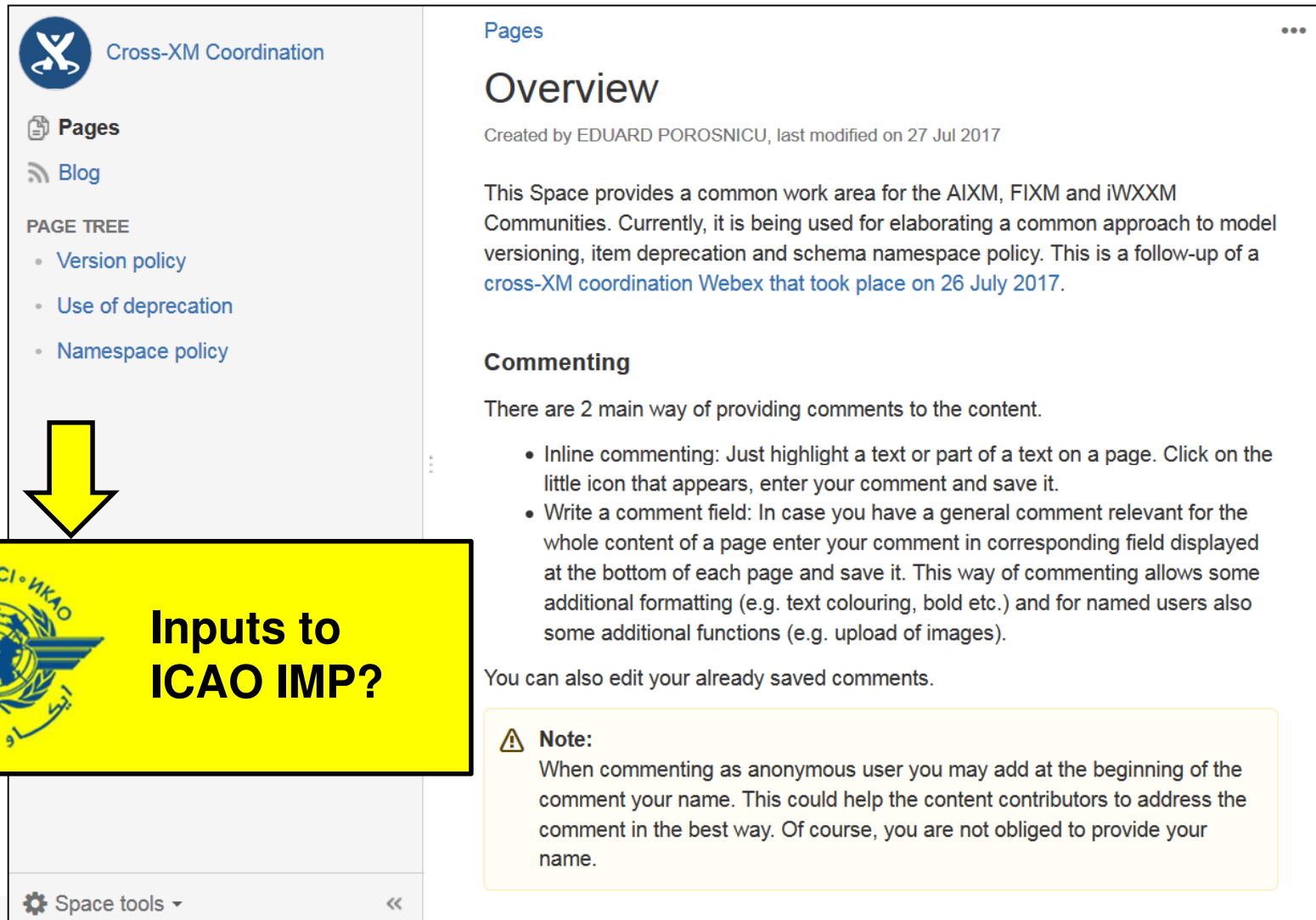
Still under discussion



```
<annotation>  
  <appinfo>deprecated</appinfo>  
  <documentation>  
    <deprecated>  
      <rationale>[...]</rationale>  
      <replacement>[...]</replacement>  
      <deprecationVersion>X.Y.Z</deprecationVersion>  
      <deletionVersion>[...]</deletionVersion>  
    </deprecated>  
  </documentation>  
</annotation>
```



# Common workspace for –Cross-XM coordination (kindly hosted by the AIXM community)



The screenshot shows a Confluence workspace page for 'Cross-XM Coordination'. The left sidebar contains a 'Pages' section with a 'Blog' link and a 'PAGE TREE' with items: 'Version policy', 'Use of deprecation', and 'Namespace policy'. A yellow arrow points from the 'Namespace policy' link to a yellow box. The main content area has a title 'Overview' and a sub-header 'Commenting'. The 'Commenting' section lists two ways to provide comments: 'Inline commenting' and 'Write a comment field'. A 'Note' box at the bottom states: 'When commenting as anonymous user you may add at the beginning of the comment your name. This could help the content contributors to address the comment in the best way. Of course, you are not obliged to provide your name.'



**Inputs to ICAO IMP?**

# CALL FOR PARTICIPATION

# Candidate topics for future cross-XM coordination

## Cross -XMs

Common policies for Extensions

### AIXM-FIXM

AIXM Flight restrictions as business rules for FIXM



...

### AIXM-FIXM

Improve FIXM references to constraints at trajectory points, such as restricted/reserved airspace references (FF-ICE req).

### **AIXM resources**

- [www.aixm.aero](http://www.aixm.aero)
- <https://aixmccb.atlassian.net/login>  
*Guest user login (user id/password) : aixmccbguest/viewonly*

### **AIXM CCB co-chairs**

- Deborah Cowell: [deborah.cowell@faa.gov](mailto:deborah.cowell@faa.gov)
- Eduard Porosnicu: [eduard.porosnicu@eurocontrol.int](mailto:eduard.porosnicu@eurocontrol.int)



### **FIXM resources**

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

### **Contacts**

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

### **Cross –XM coordination**

- [Common workspace for cross –XM coordination](#)