



Fostering synergies between –XMs

Concrete examples of ongoing cross –XMs coordination

ATIEC 2017

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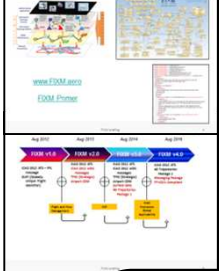
EUROCONTROL

05-Oct-2017

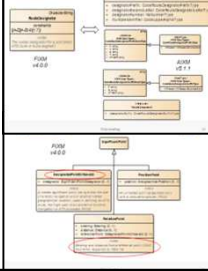
Ongoing AIXM ↔ FIXM coordination

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 Spax 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

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 5.2, 5.3 = "regular" / "minor"
 - AIXM 5.2, 5.3 = "regular" / "minor"
 - Proposed
 - 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

13 DEPARTURE AIRPORT: E H A M

15 CRUISING SPEED: 0 9 0 0

16 DESTINATION AIRPORT: L P P T

18 OTHER INFORMATION: REG / FBVGA SEL / EJFL
EET / LPPC0158

19 SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGE):
PERSONS ON BOARD: P / 3 0 0
SURVIVAL EQUIPMENT: S / X
POLAR: X
DESERET: X
MARITIME: M
JUNGLE: X
LIGHT: J / L
FLUORESC: F
SMOKE: X
NUMBER: D / 1
CAPACITY: 3 3 0
COVER: C
COLOUR: YELLOW
REMARKS: A / WHITE
PILOT IN COMMAND: C / DENKE

AIRCRAFT IDENTIFICATION: NOR

FLIGHT RULES: NOR

TYPE OF FLIGHT: / C

ROUTE: UAG PON URION CHW UAS NTS D
DCT STG UAS FTM FATIMIA

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


Versioning policy

- Naming convention?
- Requirements per version type?

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

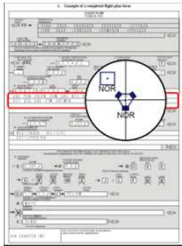
Namespace policy

- Rules for changing the namespace?



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 Docpro-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 APIs
<input type="checkbox"/> FIXM Logical Model	<input type="checkbox"/> FIXM Tools
<input type="checkbox"/> Other: ...	

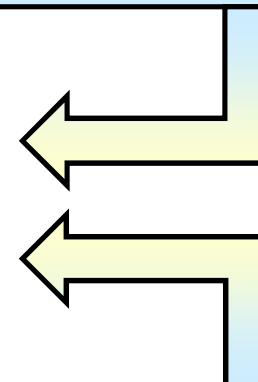
Verified extension: ...

Target FIXM Release:

FIXM core version: 4.1.2

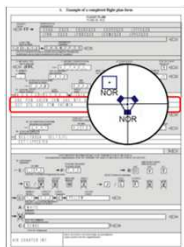
Verified extension version: ...

Related FIXM CRs:
[None listed]



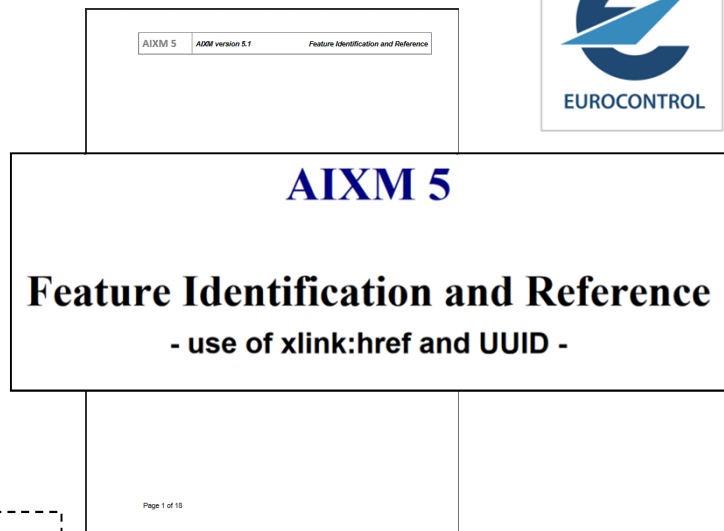
Navaid – the en-route nav aids (VOR, DME, NDB) designator is supposed to be unique (according to ICAO Annex 11) within 600 NM [...] **The only combination that would make it unique is type, designator and position.**

**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

AIXM feature

```
<aixm:[...] gml:id="uuid.a82b3fc9[...]">
<gml:identifier
codeSpace="urn:uuid:">A82b3fc9[...]
```

```
<aixm:designator>...</aixm:designator>
...
```

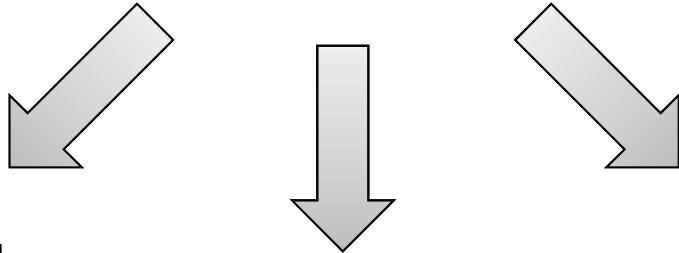
Different but mappable
modelling.

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

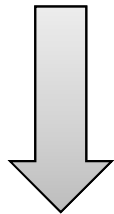
Proposed policy will be already applied starting with the next versions of AIXM (5.2.0) and FIXM (4.1.0).

Still under discussion

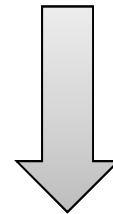
PROPOSED PATTERN FOR NAMESPACE

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

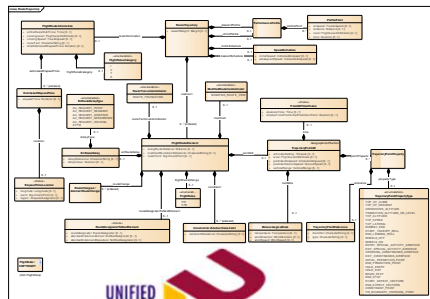
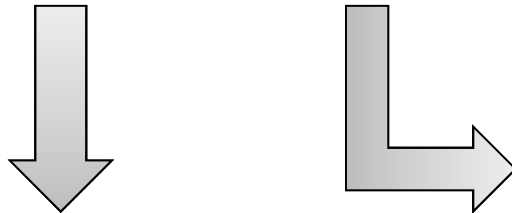
Proposed policy will be already applied starting with the next versions of AIXM (5.2.0) and FIXM (4.1.0).

DEPRECATION \neq **DELETION**

Requirements for deprecation information

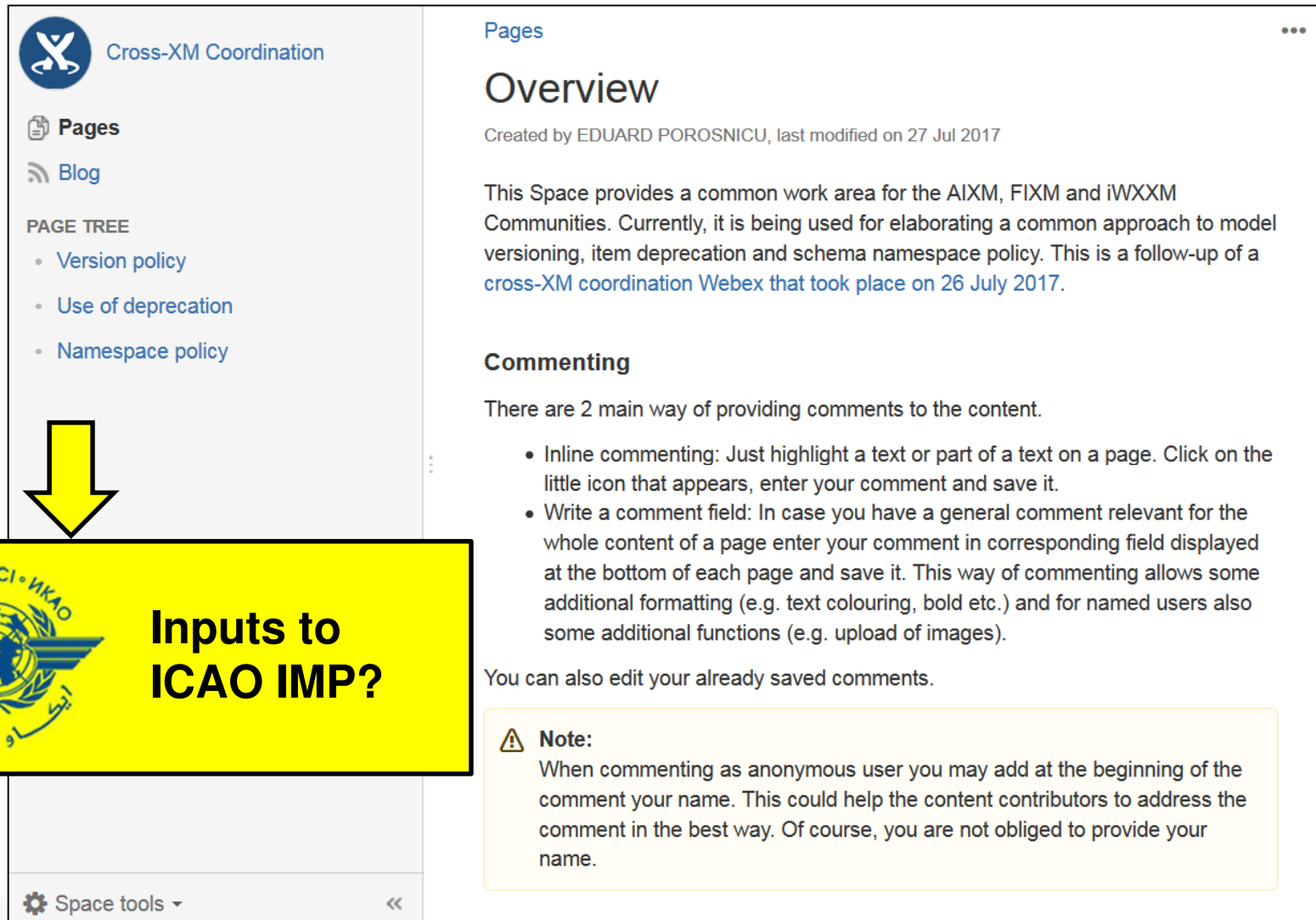
- Rationale
- Replacement
- Deprecation version
- Deletion version

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 workspace titled "Cross-XM Coordination" with a sidebar on the left and a main content area on the right. The sidebar includes a "Pages" section with a "Blog" link and a "PAGE TREE" section with three items: "Version policy", "Use of deprecation", and "Namespace policy". A yellow arrow points from the "Namespace policy" item to a yellow box at the bottom left. The main content area has a "Pages" header, an "Overview" section with a paragraph of text, a "Commenting" section with a paragraph and a bulleted list, and a "Note" box at the bottom right. The "Note" box contains text about commenting as an anonymous user.

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
- <https://aixmccb.atlassian.net/login>
Guest user login (user id/password) : aixmccbguest/viewonly

AIXM CCB co-chairs

- Deborah Cowell: deborah.cowell@faa.gov
- Eduard Porosnicu: eduard.porosnicu@eurocontrol.int



FIXM resources

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

Contacts

- FIXM Secretariat: fixm.secretariat@eurocontrol.int
- FIXM CCB: FIXM.CCB@eurocontrol.int

Cross –XM coordination

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