

*Global Harmonization  
Through Collaboration*

# Aeronautical Information Exchange Model (AIXM) - Updates

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Eurocontrol*

*Date: August 28, 2012*



**Federal Aviation  
Administration**

**AIR TRANSPORTATION INFORMATION  
EXCHANGE CONFERENCE - (FEATURING  
AIXM, WXXM AND FIXM)**

August 28, 2012 - August 31, 2012  
NOAA Auditorium and Science Center  
Silver Spring, Maryland



# Content



Air Transportation Information  
Exchange Conference - (featuring  
AIXM, WXXM and FIXM)

- AIXM Versions in use
- AIXM 5.1 progress since ATIEC 2011
  - Encoding guidelines
  - Mappings guidelines
  - Digital NOTAM Event Specification
  - Business Rules
  - Support: tools, training, sample data, etc.
  - Known Extensions
- Global adoption
- Future versions



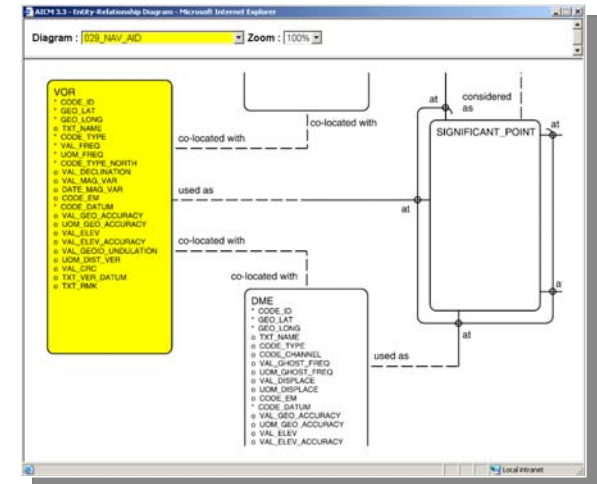
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# Versions in use - AIXM 4.5



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

- Published: 2005
  - Entity/Relationship
  - Custom XML schema
  - Core AIP data
- Use:
  - European AIS Database (EAD) and national systems
  - A few national systems world-wide



```
<AIXM-Snapshot>
  <Vor>
    <VorUid>
      <codeID>AML</codeID>
      <geoLat>34.3928N</geoLat>
      <geoLon>123.4333W</geoLon>
    </VorUid>
    ...
  </AIXM-Snapshot>
```

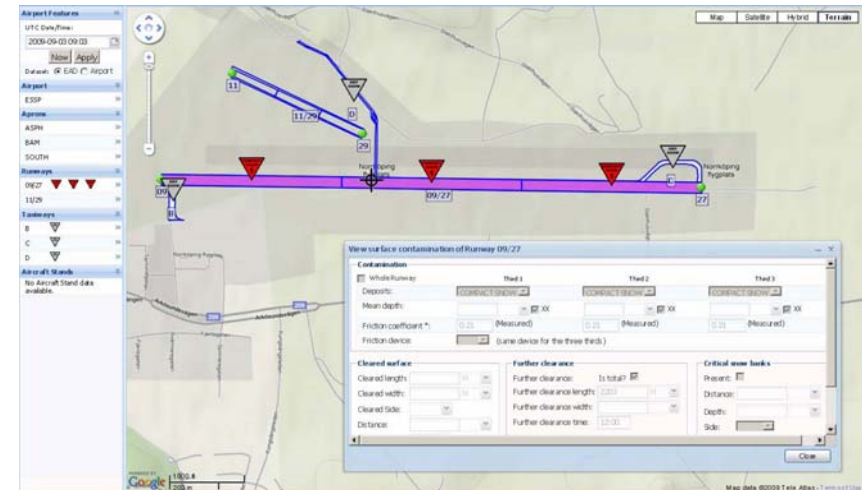


# Versions in use – AIXM 5.1



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

- Published: FEB 2010
- Update of AIXM 5.0
  - Usage/availability model
  - Notes vs. descriptions
  - Other adjustments to facilitate Digital NOTAM encoding
- Use
  - FAA – Digital NOTAM
  - Eurocontrol/NM (CFMU) and EAD
  - In implementation in several national systems world-wide
  - Industry solutions in development



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# AIXM 5.1 Guidelines



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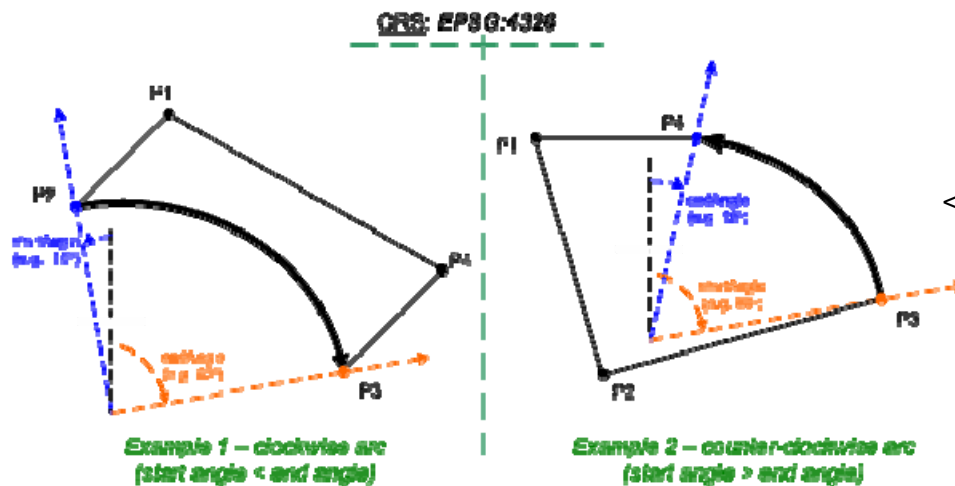
- AIXM Temporality Concept (FEB 2010)
- Metadata Guidelines for Aviation Data (MAR 2011)
- Feature Identification and Reference (APR 2011)
- Use of GML for Aviation Data (MAY 2012)

# AIXM 5.1 Guidelines



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- Guidance and Profile of **GML** for use with Aviation Data
  - Published: MAY 2012 by OGC (produced by the Aviation Domain WG)
  - Status: OGC Discussion Paper  
([https://portal.opengeospatial.org/files/?artifact\\_id=47859](https://portal.opengeospatial.org/files/?artifact_id=47859))
  - 1<sup>st</sup> part - Encoding guidelines for positions, lines, areas, circles, arcs, references to Geo Border, etc.

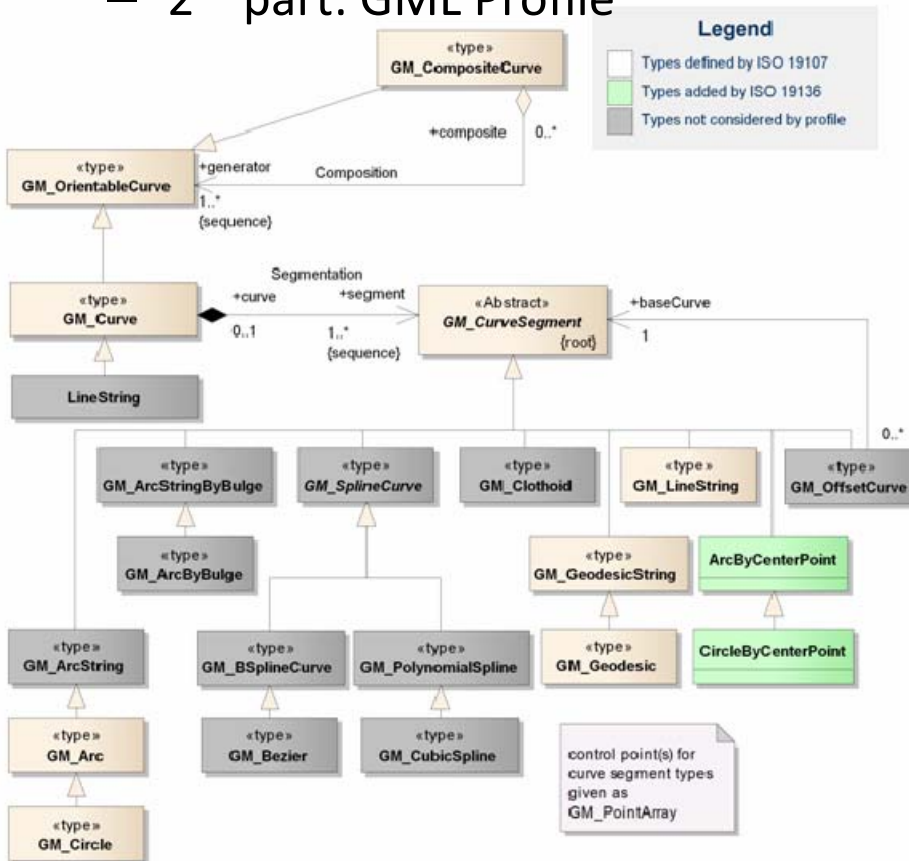


```
</gml:GeodesicString>  
<gml:ArcByCenterPoint gml:id="A01">  
  <gml:pos>lat_Pc long_Pc</gml:pos>  
  <gml:radius uom="m">radius</gml:radius>  
  <gml:startAngle uom="deg">calculated_start_angle</gml:startAngle>  
  <gml:endAngle uom="deg">calculated_end_angle</gml:endAngle>  
</gml:ArcByCenterPoint>  
</gml:GeodesicString>
```

# AIXM 5.1 Guidelines



- Guidance and Profile of GML for use with Aviation Data
  - 2<sup>nd</sup> part: GML Profile



XSD Element	<b>gml:Circle</b>
Type	<b>gml:CircleType</b>
BaseType	<b>gml:ArcType</b> (see section 9.4.13)
Restriction	Use of the child elements "gml:pointRep" and "gml:coordinates" is deprecated.
Usage	To define a circle that is given via three control points – usually to define the boundary of a circular airspace.
Definition	A Circle is an arc whose ends coincide to form a simple closed loop. The three control points shall be distinct non-co-linear points for the circle to be unambiguously defined. The arc is simply extended past the third control point until the first control point is encountered.
Comments	Other than CircleByCenterPoint (see section 9.4.12), Circle has a well defined direction.
Used in	As child of GM_Arc (see section 9.4.13), usually to represent a segment of a GM_Curve (see section 9.4.9) that forms a circle.
XML Schema File	(./ISO_19136_Schemas/) geometryPrimitives.xsd
XML Schema Component	<pre>&lt;element name="Circle" type="gml:CircleType" substitutionGroup="gml:Arc"/&gt; &lt;complexType name="CircleType"&gt;   &lt;complexContent&gt;     &lt;extension base="gml:ArcType"/&gt;   &lt;/complexContent&gt; &lt;/complexType&gt;</pre>
Example	<pre>&lt;gml:Circle ...&gt;   &lt;gml:posList&gt;0 1 -1 0 0 -1&lt;/gml:posList&gt; &lt;/gml:Circle&gt;</pre>



# AIXM 5.1 Guidelines



Air Transportation Information  
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- Requirements for Aviation **Metadata** & Guidance on the Aviation Metadata Profile
  - Published: MAR 2011 by the OGC Aviation Domain WG
  - Status: OGC Discussion Paper  
([http://portal.opengeospatial.org/files/?artifact\\_id=41667](http://portal.opengeospatial.org/files/?artifact_id=41667) and [http://portal.opengeospatial.org/files/?artifact\\_id=41668](http://portal.opengeospatial.org/files/?artifact_id=41668) )



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# AIXM 5.1 Guidelines



- Requirements for Aviation Metadata



Requirement/Source	Annex 15	ADQ	INSPIRE IR	OWS-6
5.1.1 Resource Title				
5.1.2 Resource Abstract				
5.1.3 Resource Language				
5.2.1 Topic Category				
5.3.1 Geographic Bounding Box				
5.3.2 Spatial Reference System				
5.4.1 Temporal Extent				
5.4.2 Date of Publication				
5.4.3 Date of Last Revision				
5.4.4 Date of Creation				
5.4.5 Temporal Reference System				
5.5.1 Lineage				
5.5.2 Accuracy of Numerical Data				
5.6.1 Conditions Applying to Access and Use				
5.6.2 Limitations on Public Access				
5.7.1 Responsible Party				
5.7.2 Responsible Party Role				
5.8.1 Metadata Point of Contact				
5.8.2 Metadata Date				
5.8.3 Metadata Language				

# AIXM 5.1 Guidelines



- Guidance on the Aviation Metadata Profile
  - maps the Requirements for an Aviation Metadata to ISO 19115 elements
  - Includes XML examples

```

<gmd:MD_Metadata>
...
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>SDO
            Update</gco:CharacterString>
          </gmd:title>
          </gmd:CI_Citation>
        </gmd:citation>
      </gmd:MD_DataIdentification>
    </gmd:identificationInfo>
  ...
</gmd:MD_Metadata>
    
```

Requirement	Reference	5.1.1
	Element Name	Resource Title
	Obligation / Condition	Mandatory
	Multiplicity	[1]
ISO 19115	Number	360
	Name	title
	Definition	Name by which the cited resource is known
	XPath	gmd:MD_Metadata/gmd:identification/ gmd:MD_DataIdentification/gmd:citation/ gmd:CI_Citation/gml:title/gco:CharacterString
	Data type	CharacterString
	Domain	Free text
	Example	SDO Update 27
Implementing Instructions		-
See Diagrams		2, 3

# AIXM 5.1 Guidelines



Air Transportation Information  
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- Feature Identification and Reference
  - Published: APR 2011
  - Recommendations:
    - UUID for gml:identifier

```
<gml:identifier codeSpace="urn:uuid:">a82b3fc9-4aa4-4e67-8def-aae1ac595j</gml:identifier>
```

- Xlink:href with abstract references

```
<aixm:clientAirspace xlink:href="urn:uuid:a82b3fc9-4aa4-4e67-8def-aae1ac595j"/>
```

- Xlink:href with local references

```
<aixm:clientAirspace xlink:href="#uuid.a82b3fc9-4aa4-4e67-8def-aae1ac595j"/>
```

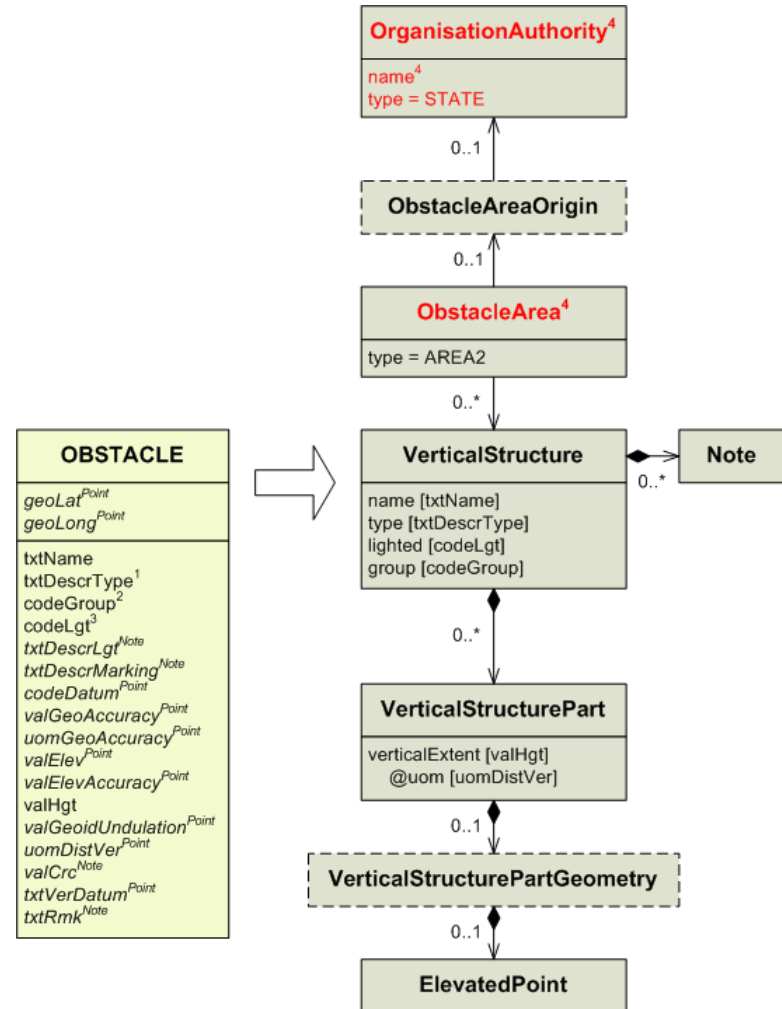


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# AIXM 5.1 Mappings



- AIXM 4.5 Conversion Guidelines
  - See [www.aixm.aero/wiki](http://www.aixm.aero/wiki) -> Mappings
  - Status: proposed release
  - More detailed mapping developed by EAD
    - Based on actual EAD data



# AIXM 5.1 Mappings



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

- Aeronautical Information Publication (AIP) into AIXM 5.1
  - See [www.aixm.aero/wiki](http://www.aixm.aero/wiki) -> Mappings
  - Status: review in progress

## A.1.1 ENR

AIP	Status	Mapping with AIXM v5.1
PART 2 — EN-ROUTE (ENR)		All mappings are in the sub-sections
ENR 0.		All mappings are in the sub-sections
ENR 0.6 Table of contents to Part 2		Not applicable. AIP document editorial element.
ENR 1. GENERAL RULES AND PROCEDURES		All items mapped
ENR 1.1 General rules		All items mapped
ENR 1.2 Visual flight rules		All items mapped
ENR 1.3 Instrument flight rules		All items mapped
ENR 1.4 ATS airspace classification		All items mapped
ENR 1.5 Holding, approach and departure procedures		All items mapped
ENR 1.5.1 General		All items mapped
ENR 1.5.2 Arriving flights		All items mapped
ENR 1.5.3 Departing flights		All items mapped
ENR 1.6 ATS surveillance services and procedures		All items mapped
ENR 1.6.1 Primary radar		All items mapped
ENR 1.6.2 Secondary surveillance radar (SSR)		All items mapped
ENR 1.6.3 Automatic dependent surveillance — (ADS-B)		All items mapped

1. Item to be mapped "obstacle position, represented by geographical coordinates in degrees, minutes and seconds;"

AIXM 5.1 Mapping:

Figure 297. Short Mapping Description

```
VerticalStructure
    .part
        .VerticalStructurePart
        .horizontalProjection
        .VerticalStructurePartGeometry
        .location
        .ElevatedPoint [coordinates=" "]
```

. AIXM 5.1 Mapping of AIP-TS-ENR-5.4/3

Class	VerticalStructure
Association	part (isMadeOf)
Class	VerticalStructurePart
Association	horizontalProjection (isRepresentedAs)
Class	VerticalStructurePartGeometry
Association	location (hasPointShape)
Class	ElevatedPoint
Attribute (name and value)	coordinates = " "

# AIXM 5.1 Mappings



## • Airport Mapping Requirements

- See [www.aixm.aero/wiki](http://www.aixm.aero/wiki) -> Mappings
- ED 99/DO 272 (A/B/C) into AIXM 5.1
- Status: review in progress
  - Includes an AIXM 5.1-AMDB extension

ED-99B	AIXM 5.1
idnumber	identifier
restacn	availability.ManoeuvringAreaAvailability.usage.ManoeuvringAreaUsage[type="FORBID"].selection.ConditionCombination.aircraft.AircraftCharacteristics.typeAircraftICAO

ED-99C	AIXM 5.1
stfeat	featureLifetime.gml:TimePeriod.gml:beginPosition
endfeat	featureLifetime.gml:TimePeriod.gml:endPosition
stvalid	validTime.gml:TimePeriod.gml:beginPosition
endvalid	validTime.gml:TimePeriod.gml:endPosition
interp	interpretation
restacft [= restacn]	<i>Note: See restacn above</i>

### 1.1 AM\_RUNWAYELEMENT

ED-99A Definition: Part of a runway.

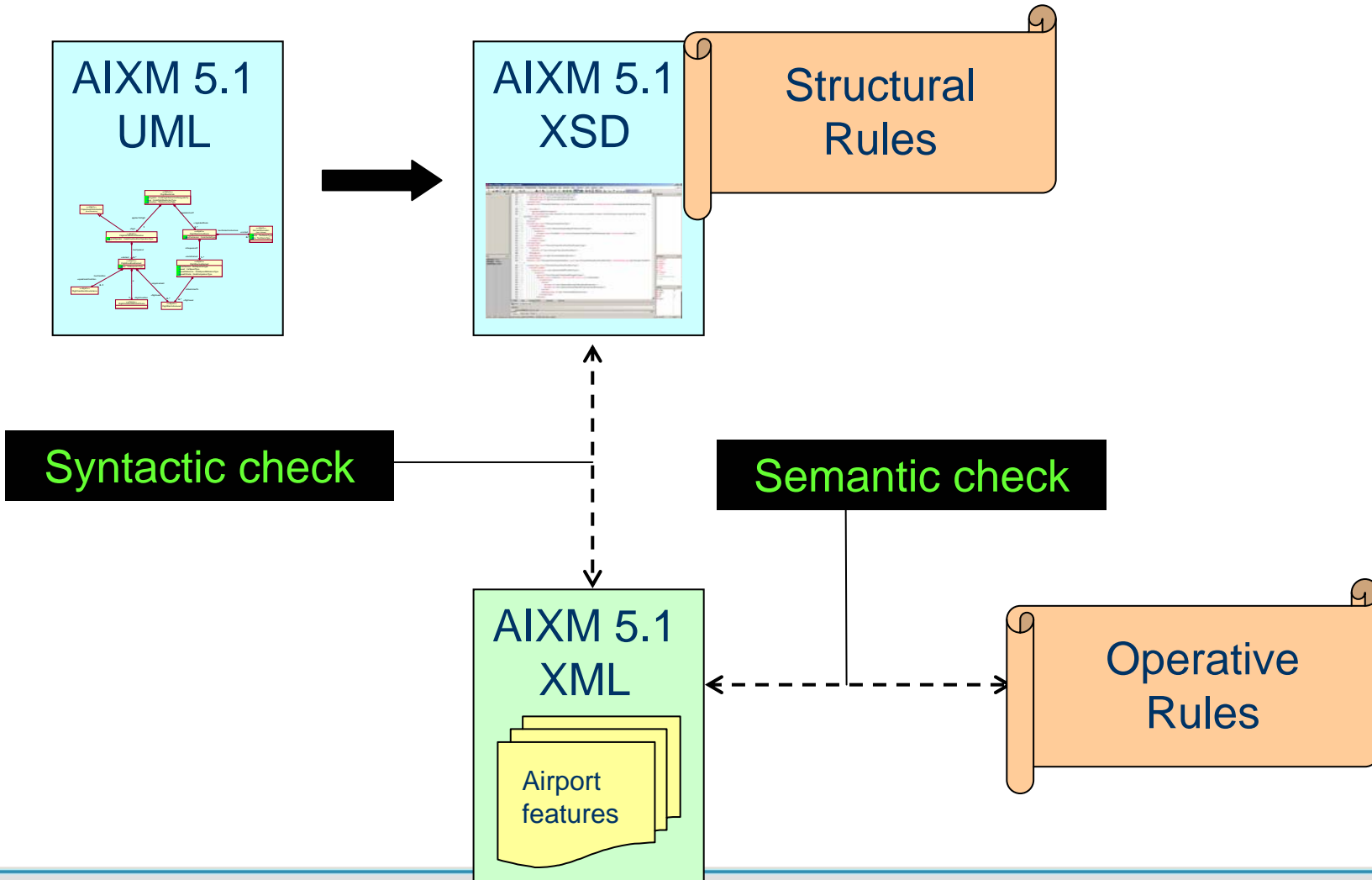
AIXM 5.1 Definition: Runway element may consist of one ore more polygons not defined as other portions of the runway class.

ED-99A	AIXM 5.1
AM_RunwayElement	RunwayElement[type='NORMAL']
idarpt	associatedRunway.Runway.associatedAirportHeliport.AirportHeliport.locationIndicatorICAO
idrwy	associatedRunway.Runway.designator
pcn	surfaceProperties.SurfaceCharacteristics.classPCN
width	width <i>Note: there is also nominalWidth on Runway</i>
length	length <i>Note: there is also nominalLength on Runway</i>
surftype	surfaceProperties.SurfaceCharacteristics.composition <u>AND</u> surfaceProperties.SurfaceCharacteristics.preparation
geopoly	extent.ElevatedSurface
featype	<i>Note: Can be implied</i>
vacc	extent.ElevatedSurface.verticalAccuracy
vres	extent.ElevatedSurface.verticalResolution
hacc	extent.ElevatedSurface.horizontalAccuracy
hres	extent.ElevatedSurface.horizontalResolution
integr	<i>integrity</i>
source	<i>source</i> <u>OR</u> gmd:MD_Metadata.gmd:dataQualityInfo.gmd:lineage.gmd:LI_Lineage.gmd:processStep.gmd:LI_ProcessStep <i>Note: Needs processor with a role set to "originator".</i>
revdate	<i>revisionDate</i>





# Business Rules



# Business Rules



- Sources
  - AIXM 4.5 business rules
    - Include mandatory attributes/associations from AIXM 4.5
  - ICAO Annex 10, 11, 14 and 15 and the ICAO PANS-OPS
  - Temporality Concept document
  - Activation/Usage concept
  - GML profile?
  - Arinc424 and PANS-OPS
- Rules
  - Using Semantics of Business Vocabulary and Business Rules (SBVR)
  - Including, where feasible, an implementation of the rule in Schematron language
  - See [www.aixm.aero](http://www.aixm.aero) -> Business Rules (Excel)
  - Status: Work in progress



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# Support to implementation

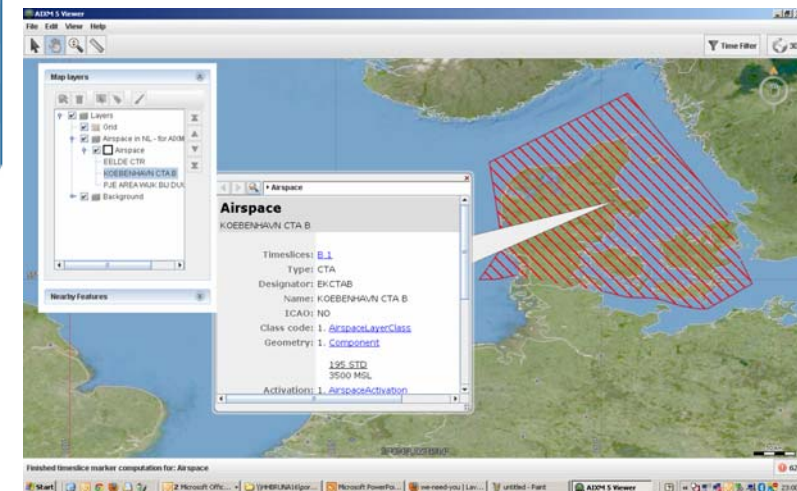
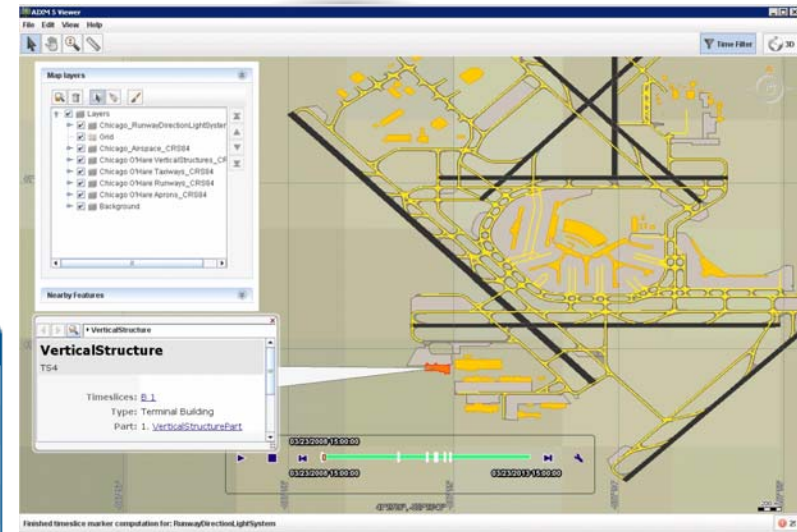


Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

- FAA AIXM Viewer

## Traffic Analysis

Total visits:	<a href="#">1,087</a>
Total page views:	<a href="#">1,345</a>
Average visits per day:	<a href="#">5</a>
Average visits per week:	<a href="#">32</a>
Average visits per month:	<a href="#">139</a>
Average pages viewed per day:	<a href="#">6</a>
Highest volume time of day:	<a href="#">15:00 - 16:00</a>
Highest volume day of the week:	<a href="#">Wednesday</a>
Highest volume day:	<a href="#">Tuesday, 17 Jan. 2012</a>



# Support to implementation



Air Transportation Information  
Exchange Conference - (featuring  
AIXM, WXXM and FIXM)

- AIXM 5.1 Sample Data
  - See [www.aixm.aero/wiki](http://www.aixm.aero/wiki) -> XML Encodings
  - Individual feature encodings
  - “Donlon” Data Set
  - Digital NOTAM
  - Other samples -> **Yours are welcome!**



EXPORT ▾ MORE ACTIONS ▾

AIXM Wiki - Home > AIXM - XML data encoding examples

## AIXM - XML data encoding examples

Last modified by EDUARD POROSNICU on 2012/08/07 08:41 Comments (0) | Attachments (1) | History | Information

A few sample AIXM files were initially made available in the [Download](#) section of the [www.aixm.aero](http://www.aixm.aero) Web site. With the publication of encoding Guidelines (such as for the use of xlink:href, use of GML, etc.) these initial examples had to be updated. More sample data is expected to become available as the implementation of AIXM 5.1 progresses in operational systems. The purpose of this page is to make available such sample data and also to provide links towards external AIXM 5 data sources.

Table of contents:

- Feature Examples
- Digital NOTAM Examples
- Donlon data set
- Other data samples
  - Latvia (LGS)



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# Support to implementation



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

- Training material
  - AIXM 4.5 CBT still partially useful
  - AIXM Wiki
- AIXM Classes and Seminars
  - See [www.aixm.aero](http://www.aixm.aero) ->Archive

**AIXM / AIXM Introduction**

Be aware of the differences between these two models:  
AICM - the foundation and the conceptual model and, AIXM - model based on AICM, uses XML schema

AICM was created first. Then AIXM was developed, providing an exchange format based on AICM.

AIXM is the conceptual model, which defines every single piece of information and groups them at an abstraction level defined by domain experts. It defines the vocabulary of the common language, the concepts and the relations between the concepts.

AIXM is the exchange format used as data exchange points. AIXM defines the format and the grammar of the common language or, in other words, it specifies how to combine the words of the language (these words are individual data items in structured messages exchanged between systems). This grammar is formalized using an XML-based grammar language (called a schema). XML stands for extensible Markup Language. XML is a standardized computer language that enables communication between different systems. XML allows a concrete implementation of AICM and the schema validates the XML.

**AIXM Conceptual Model**

**AIXM Exchange Format**

Navigation: Previous Page 3 of 8 Next  
Glossary: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Topics: Foreword AIXM

**AIXM**  
Aeronautical Information Exchange Model

EUROCONTROL > FAA > Archive > [2011/12] AIXM 5.1 Seminar

Home Introduction Key Concepts Download Implementation Community Archive

This page contains the presentations that were used at the AIXM 5.1 Seminar, which took place in Brussels on 12-13 December 2011.

**Day 1**

- Introduction
- AIXM Overview
- AIXM - UML Introduction
- AIXM Packages - Obstacle Airport Navaid
- AIXM Packages - Airspace Route
- AIXM Temporality Concept
- EAD - AIXM 4.5 to 5.1 Mapping
- EAD - AIXM 5.1 Implementation

**Day 2**

- Review Day 1
- Metadata
- AIXM Packages - Procedures (SID, STAR, IAP)
- AIXM Business Rules
- GML Guidelines for aeronautical data
- Digital NOTAM Overview
- Digital NOTAM Event Specification

Archive

- [2011/12] AIXM 5.1 Seminar
- [2011/08] ATIEC Conference
- ARC-WEB 1.2
- [2010/03] AIXM XML Developers' Seminar #6
- [2010/05] AIXM/WXXM Conference
- Wiki Archives
- ARC-WEB 1.1
- [2010/03] AIXM XML Developers' Seminar #5
- [2010/03] AIXM XML



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# Support to implementation



- AIXM Forum
  - 1800 members
  - World-wide coverage
  - 5-20 messages per month in 2011-2012
  - registration required
    - also gives access to the FAA AIXM Viewer

A screenshot of the AIXM Forum website. At the top, there are logos for EUROCONTROL and the Federal Aviation Administration. The forum title "Forum AIXM" is prominently displayed. Below the header, there is a navigation bar with links for "contact us", "FAQ", "your privacy", "policy", and "disclaimer". The main content area shows a list of forum posts, including titles like "AKULA, Chandra Sekhar Babu - Need AIXM 5.1 Sample for New Obstacle NOTAM" and "LEE, Pie - how to get the .ebs files to generate xsd". On the left side, there is a sidebar with a "Home" button and a "Forum List" containing links for "AI Operations", "AIS Agora", "AIXM Forum", and "eTOD Forum". Below the forum list, there are options to "View postings by:" Author, Posting Date, AIXM Version, Conceptual Model, Digital NOTAM, Events, and XML Schema. A "Customise" button is located at the bottom of the sidebar.



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# Support to implementation



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- Code generation using AIXM XML Schema (.xsd)
  - Popular topic on AIXM Forum
  - Difficult code generation if using:
    - Full XSD for Metadata
    - Full XSD for GML
    - Full XSD for AIXM
- Proposed solution : **Profile**
  - Sub-set of the GML schema
    - including/excluding sub-set of the GMD/GCO schema
  - AIXM Profiling possibility
    - Select features of interest
  - Organised as a open-source project?



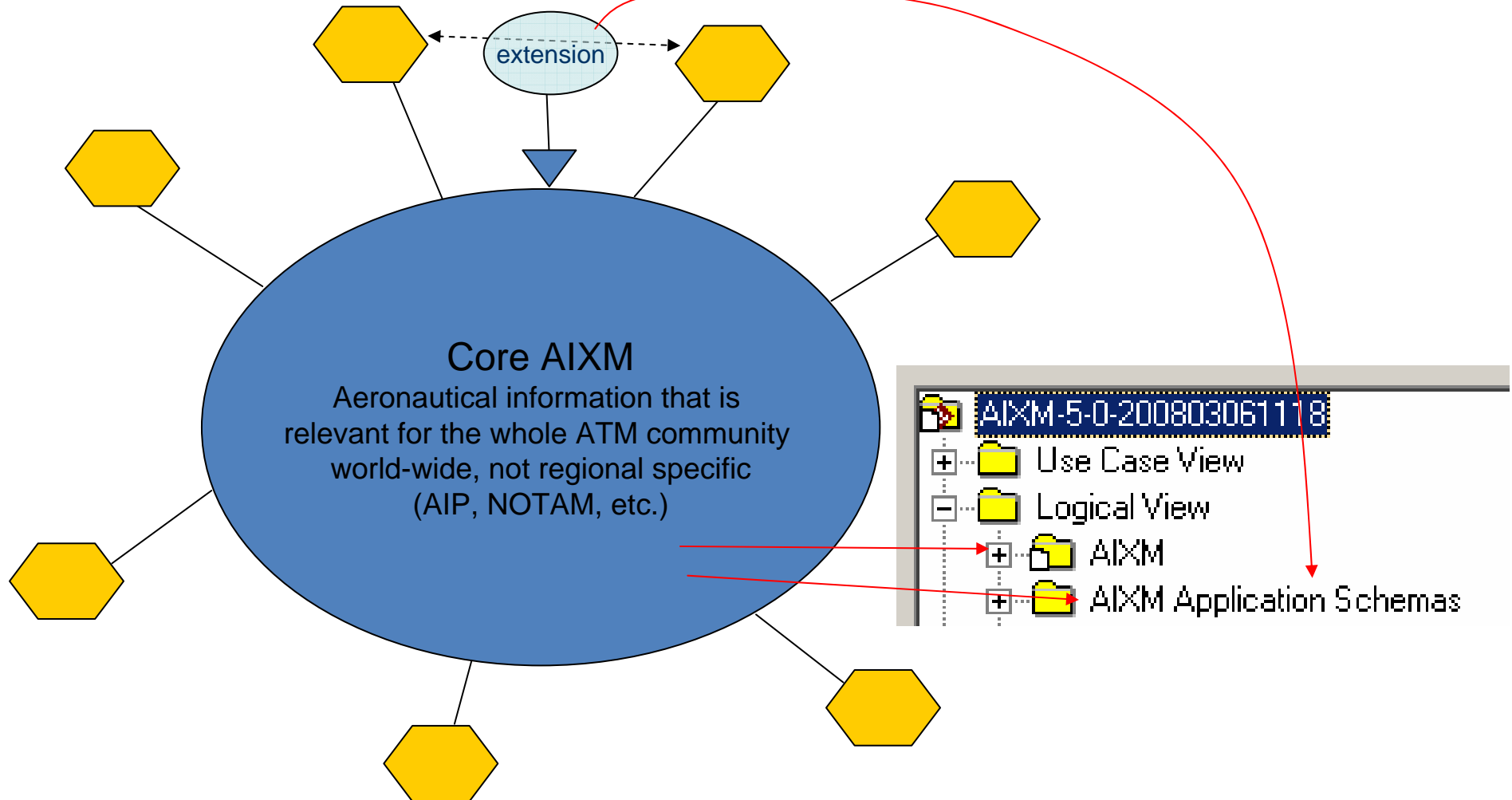
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# AIXM 5.1 Extensions



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

*Additional information exchanged between selected partners*



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# AIXM 5.1 Public Extensions



Air Transportation Information  
Exchange Conference - (featuring  
AIXM, WXXM and FIXM)

- Eurocontrol “Airspace Data Repository”
  - Conditional Routes / Flexible use of Airspace
  - NM/ADR custom “TimeTable”
- Eurocontrol EAD
  - “Slot” management
- FAA Federal NOTAM System
  - US NOTAM specific elements
- MXIA
  - Reverse associations
    - Airport has Runways
    - Route has RouteSegments
    - Etc.

index of AIXM schema/5.1 - Mozilla Firefox

index of AIXM schema/5.1

www.aixm.aero/gallery/content/public/schema/5.1/

Most Visited AIXM EAD eAIP EUROCONTROL SJU Aviation Other Business xNOWTAM

**Index of schema/5.1/**

Name	Last modified	Size	Description
<a href="#">Parent Directory</a>			
<a href="#">event/</a>	08-Jun-2011	1K	
<a href="#">extensions/</a>	14-Oct-2011	1K	
<a href="#">ISO 19136 Schemas/</a>	24-Sep-2007	1K	
<a href="#">ISO 19139 Schemas/</a>	24-Sep-2007	1K	
<a href="#">message/</a>	02-Feb-2010	1K	
<a href="#">xlink/</a>	30-Jul-2007	1K	
<a href="#">AIXM AbstractGML ObjectTypes.xsd</a>	02-Feb-2010	12K	
<a href="#">AIXM DataTypes.xsd</a>	02-Feb-2010	243K	
<a href="#">AIXM Features.xsd</a>	02-Feb-2010	544K	

**Index of schema/extensions/EUR/ADR/**

Name	Last modified	Size	Description
<a href="#">menu Parent Directory</a>			
<a href="#">xsd ADR DataTypes.xsd</a>	02-APR-2012	7K	
<a href="#">xsd ADR Features.xsd</a>	02-APR-2012	19K	



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# AIXM 5.0/5.1 Extensions



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Exchange Conference - (featuring  
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- Do you have another one?
  - Please make it available on [www.aixm.aero/wiki](http://www.aixm.aero/wiki)
  - Required Documentation
    - UML Model
      - Nice to have: document explaining the need for the extension
    - XML Schema (suggested namespace URI [www.aixm.aero/schema/5.1/extensions/...](http://www.aixm.aero/schema/5.1/extensions/...) )
    - Example files

**WE NEED YOU**



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# ICAO Adoption



Air Transportation Information  
Exchange Conference - (featuring  
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- Annex 15 AMDT 37 Proposal

## 3.6.5 3.6 Use of automation

3.6.1 **Recommendation.** Automation ~~enabling digital data exchange should~~ shall be introduced with the objective of improving the ~~timeliness~~ speed, quality, efficiency and cost-effectiveness of aeronautical information services.

3.6.2 Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

3.6.3 In order to meet the data quality requirements, automation shall:

- enable digital aeronautical data exchange between the parties involved in the data processing chain; and
- use aeronautical information exchange models and data exchange models designed to be globally interoperable.

3.6.6 **Recommendation.**— *The aeronautical data exchange model used should:*

- apply a commonly used data encoding format;
- cover all the classes, attributes, data types and associations of the aeronautical information model detailed in paragraph 3.6.5; and
- provide an extension mechanism, by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.

3.6.4 **Recommendation.**— *The aeronautical information model used should encompass the aeronautical data and aeronautical information to be exchanged.*

3.6.5 **Recommendation.**— *The aeronautical information model used should:*

- use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations, and data types;
- include data value constraints and data verification rules;
- include provisions for metadata as specified in section 3.4.2; and
- include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.

- AIXM as means of compliance

- More details in AIS Manual (DOC 8126) and later possibly in a PANS-AIM



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# European ADQ Regulation



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AIXM, WXXM and FIXM)

- COMMISSION REGULATION (EU) No 73/2010
  - “laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky”
  - Basically turning Annex 15 into European Law
  - Compliance dates: 2013-2017
  - Means of Compliance for Data Set/Exchange Format – AIXM 5.1
    - AIX Specification in public review

EUROCONTROL  
Specification for  
Aeronautical Information  
Exchange

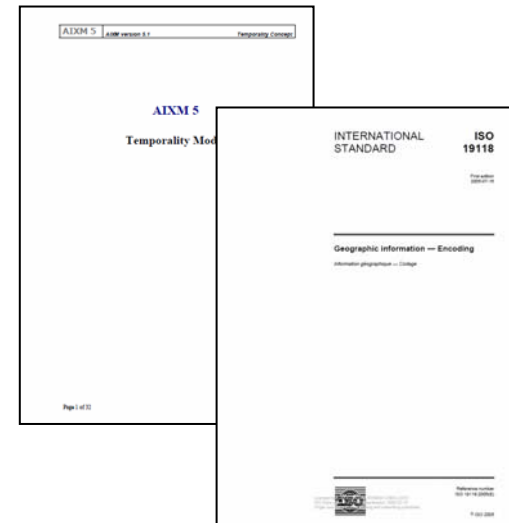
SPECIFICATION DOCUMENT IDENTIFIER: EUROCONTROL-SPEC-AIX

Edition Number	:	0.16
Edition Date	:	5 September 2011
Status	:	Working Draft
Intended for	:	Restricted
Category	:	EUROCONTROL Specification

EUROCONTROL Guideline  
for AIXM 5.1  
implementation compliant  
with EUROCONTROL  
Specification for AIX

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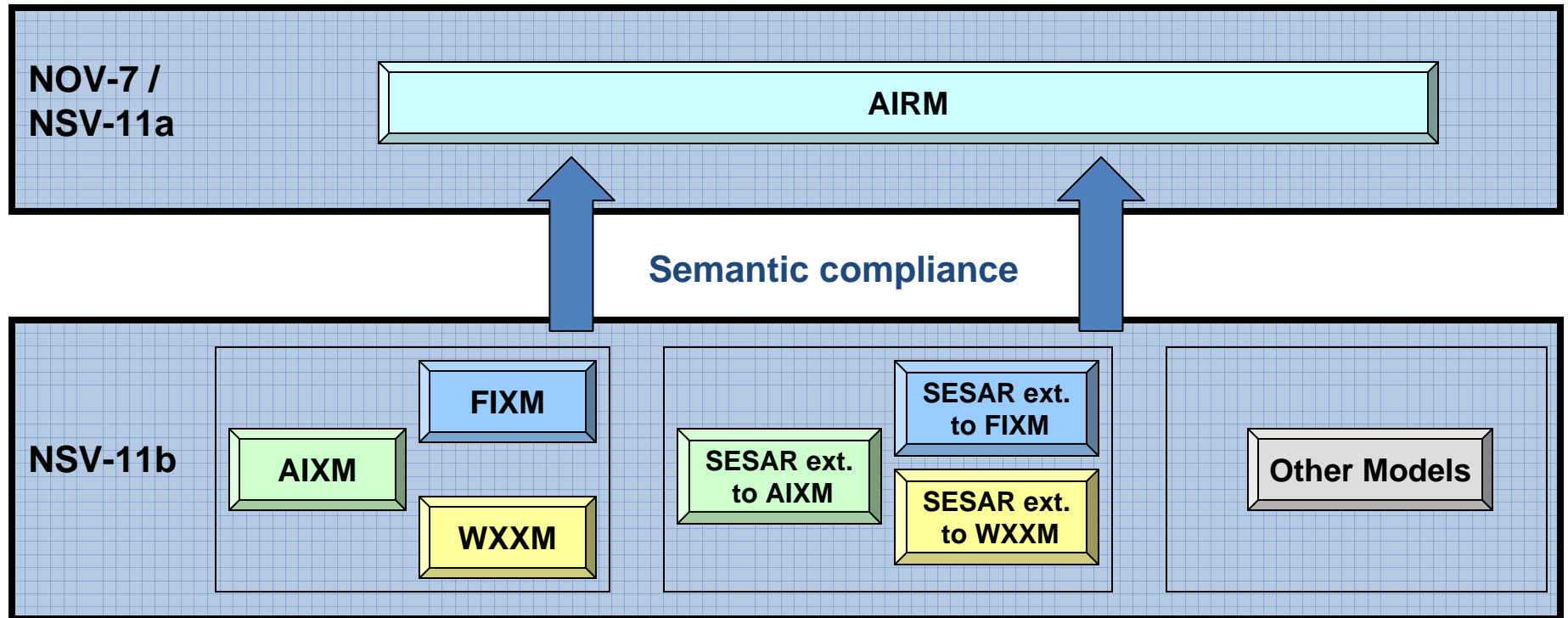


Federal Aviation  
Administration

# AIXM in SESAR



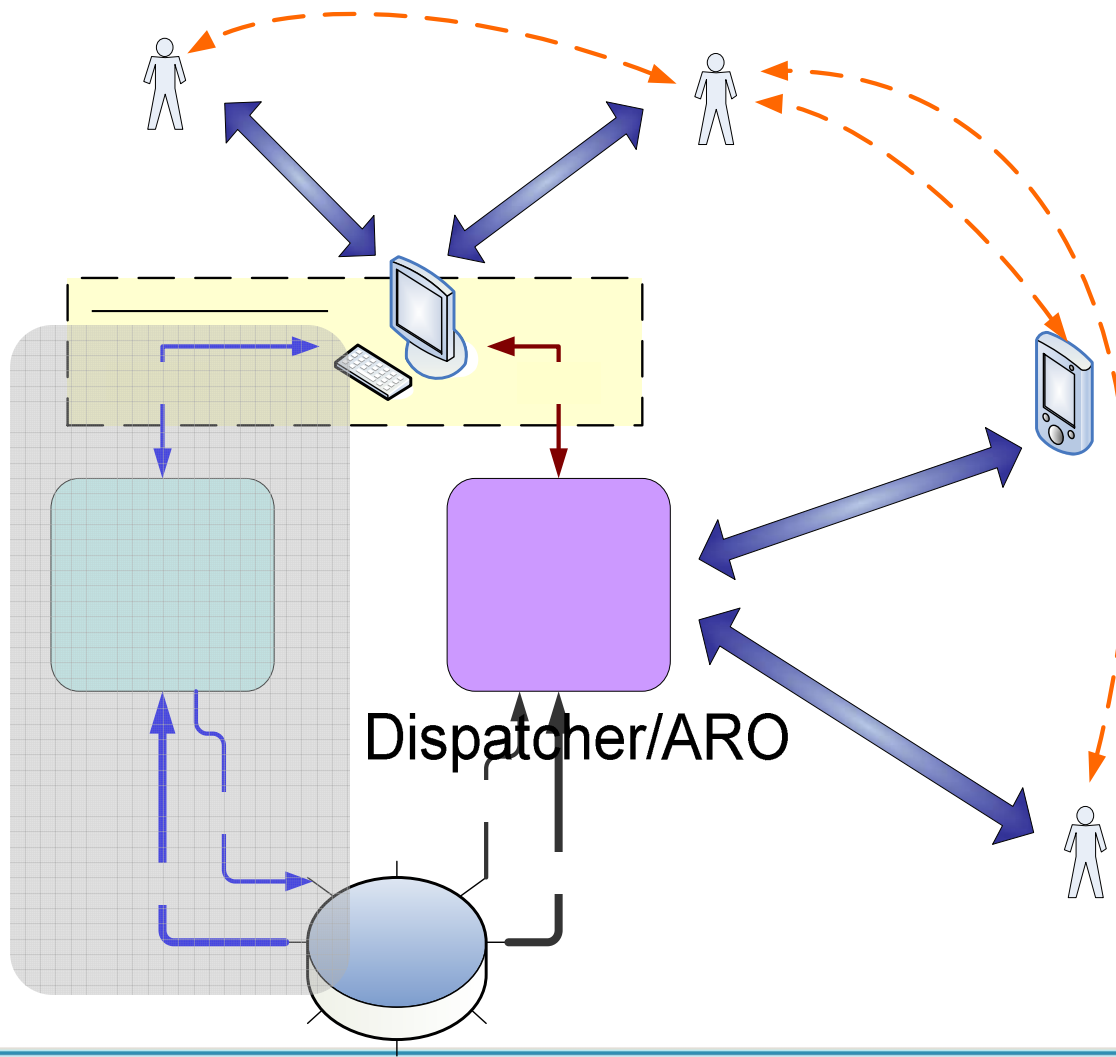
Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)



# AIXM in SESAR



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)



Digital NOTAM &  
Digital Integrated Briefing  
(Project 13.2.2)

# Industry implementations



## OGC test beds (OWS-9)

## Links page on [www.aixm.aero](http://www.aixm.aero)

**OGC** Making location count.

**OWS-8 Demonstration**

- Introduction
- Sponsors
- Participating Developers
- Milestone Schedule
- Demonstration Scenarios
- Deliverables
- Activity Threads
- Aviation**
  - Observation Fusion: Earth Observation Coverages
  - Cross-Community Interoperability
  - Geosynchronization and Bulk Geodata Transfer
  - Observation Fusion: Moving-Object Tracking
- Social Media
- Launching Video Viewer

**Aviation Thread**

Slide: 1 2 3 4 5 6 7 8 9 10 11 12 13

*Building on previous initiatives...*

OWS-8 Aviation builds on the outcomes of three previous initiatives. For this reason, the demonstrations will get technical at times. This is because after 3 initiatives, we're truly getting into the unescapable nitty gritty details of the work. Click an area on diagram to launch prior demonstration in new browser tab or window.

Diagram showing OWS-6 Aviation, OWS-7 Aviation, SAA Pilot, and OWS-8 Aviation.

**Home**

**AIXM Implementations - Industry**

**Introduction**  
EUROCONTROL and FAA maintain this page in the interest of the information exchange within the AIXM community.

**Key Concepts**  
The companies listed here claim to provide services or products using AIXM. The order is chronological (latest received announcements are inserted at the bottom).

**Download**  
To have your product/service inserted on this page, please provide the following information (by e-mail to the addresses listed in "Contacts", see page bottom):

- the logo of the company (max size 180 x 180 pixels);
- a short description of the product/service (maximum 500 words; no formatting is possible, except for bold, italic, bullet points);
- optional, two images that are representative for the product/service, both in two sizes: once in small size (max 300 x 300 pixels) and another larger (max 1024 x 768 pixels).

**Disclaimer**  
The inclusion of a company name and product description in this (alphabetical) list does not imply in any way the endorsement of their products/services (or of the organisation itself) by EUROCONTROL or FAA. Users and buyers should make sure that these products and services are really AIXM compliant.

**Implementation**

- ▶ AIXM Viewer
- ▶ Digital NOTAM
- ▶ Industry
  - COMSOFT
  - Egis Avia
  - Esri
  - IDS
  - Luciad
  - Pulsar
  - Safe Software
  - Snowflake Software
  - TCPSI
- ▶ Open Source Projects

**Community**

- ▶ Avitech AG  
Avitech products
- ▶ COMSOFT  
COMSOFT's AIXM 5 Database
- ▶ Egis Avia  
The ATALIS product of Egis Avia
- ▶ Esri  
The Esri Aeronautical Solution for Enterprise Aeronautical Data Management
- ▶ Frequentis  
Aeronautical Information Management Product: smartAIM - The smart™ way of managing aeronautical information
- ▶ IDS  
IDS's IAS AERODB Suite for AIS/AIM
- ▶ Luciad  
LuciadLightspeed – Unparalleled performance in AIXM 5 visualization
- ▶ Pulsar Consulting  
Pulsar Consulting ATM Department
- ▶ Safe Software  
Safe Software's FME
- ▶ Snowflake Software  
Snowflake Software - GO Loader & GO Publisher
- ▶ TCPSI  
TCP Sistemas e Ingeniería

**Archive**



Federal Aviation Administration



# Future versions



- Proposed
  - Minor Release AIXM 5.1.1 by end 2012
    - XML Schema improvements/corrections, such as:
      - gml:identifier for <<object>>
      - allow empty AIXM\_BasicMessage
      - bug corrections (spelling errors)
    - UML model
      - No changes to classes, attributes, associations
      - Possibly, improvements of definitions
      - Migration from RationalRose (IBM) to EA (Sparx)



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# Future versions



- Proposed
  - Regular update AIXM 5.2 by end 2013
    - **backwards compatible** with AIXM 5.1
      - deprecation instead of simple removal
      - allow new classes, properties, associations where **operationally** required
    - Including mapping rules to AIXM 5.1
      - eventually mapping code (XSLT) provided as part of the release



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# Questions



Air Transportation Information  
Exchange Conference - (featuring  
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# Contact Information



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