

Metadata in AIXM 5

DNSWG #2

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Metadata

- Metadata is structured information about data
- It provides information about a particular dataset, which can be a message or a single feature
 - e.g. the origin of the data, the citation for the resources, an abstract, the purposes, credits, the status and points of contact

AIXM Requirements

- AIXM has a high-level requirement:
 - Compliance with the ISO 19100 series
- AIXM specific needs should also be considered:
 - CRC
 - Data Integrity

Main Sources

- International Standardization Organization (ISO)
 - 19115 (Geographic information – Metadata) and Corrigendum
 - 19139 (Geographic information – Metadata – XML Schema Implementation)
 - ISO 19139 = XML Schema based encoding for ISO 19115 metadata
 - Defines geographic metadata XML encoding (gmdXML)

Main Sources

- ISO 19115 UML model online: <http://www.isotc211.org/>
- ISO 19139 schema available at: <http://www.isotc211.org/2005/>

Suitability of ISO 19115

- ISO 19115 defines over 400 metadata elements
- Answers:
 - Does a dataset on a specific topic exist ('what')?
 - For a specific location ('where')?
 - For a specific date or period ('when')?
 - A point of contact to learn more about or order the dataset ('who')?
- Primarily describes metadata for catalogue services

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Early AIXM Metadata Model

- An AIXM metadata profile was developed
 - based on ISO19115
 - not intended to be a substitution for ISO 19115
 - does not completely conform to ISO19115

Differences

- The AIXM metadata model:
 - Did not include *topic category* as mandatory
 - Included extended metadata elements required to describe aeronautical information exchange data

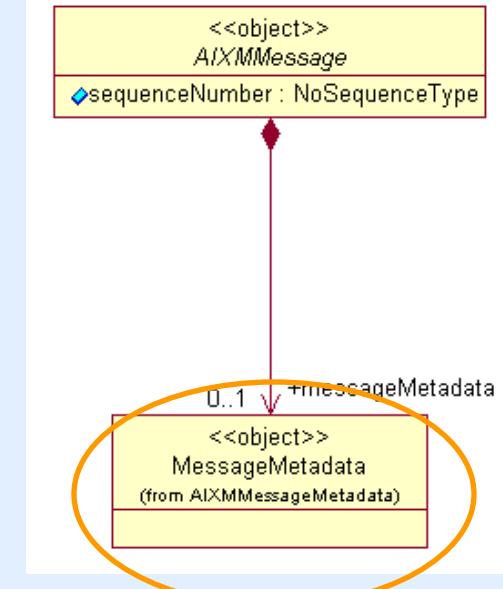
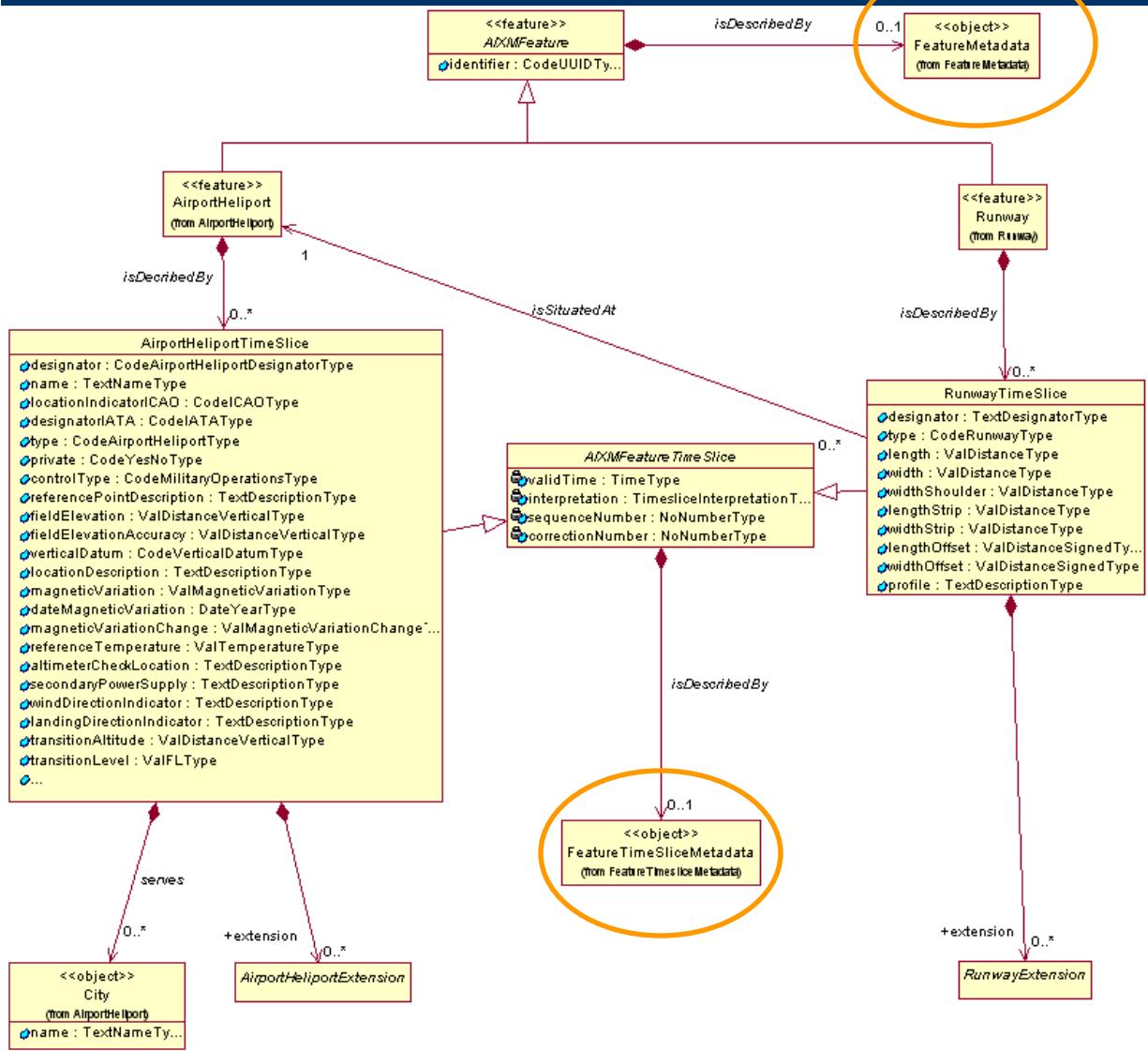
Consideration

- However, AIXM users have requested Metadata elements that were not included in the Profile
- Better extensibility provided by incorporating the ISO Schema directly
- Elements of the Profile, e.g. CRC, better handled by applications

Metadata Layers

- AIXM allows Metadata at four levels:
 - For the entire dataset or package, i.e. AIXM message
 - For each feature within a message
 - For each timeslice within a feature
 - For each geometry object

Metadata Layers



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Optional

- It is optional to include metadata in AIXM
- Metadata can be easily captured and it is highly recommended that it be sent with an AIXM message

Message Metadata (1)

```
<aixm:messageMetadata>  
  <!--The Message Metadata will always contain information about the system that created the message. In  
      this case it will be the Digital NOTAM Trial System. The data will always be of the same format.-->  
  <gmd:MD_Metadata>  
    <gmd:contact>  
      <!--ISO:19115 - Party responsible for the metadata information-->  
      <gmd:CI_ResponsibleParty>  
        <gmd:organisationName>  
          <gco:CharacterString>EUROCONTROL Digital NOTAM Trial System</gco:CharacterString>  
        </gmd:organisationName>
```

Message Metadata (2)

```
<gmd:positionName>  
  <gco:CharacterString>test data provider</gco:CharacterString>  
</gmd:positionName>  
<gmd:contactInfo>  
  ...  
<gmd:phone>  
  <gmd:CI_Telephone>  
    <gmd:voice>  
      <gco:CharacterString>+32 02...<!--Support phone number.-->  
    </gco:CharacterString>  
  </gmd:voice>  
  </gmd:CI_Telephone>  
</gmd:phone>
```

Message Metadata (3)

```
...  
<gmd:role>  
  <gmd:CI_RoleCode codeList="../ISO_19139_Schemas/resources/codeList.xml#CI_RoleCode"  
    codeListValue="processor"/>  
</gmd:role>
```

```
...  
<gmd:dateStamp>  
  <!--ISO:19115 - Date that the metadata was created.-->  
  <gco:DateTime>2007-09-10T16:12:54</gco:DateTime>  
</gmd:dateStamp>
```

```
...
```

Feature Metadata

```
<aixm:featureMetadata>  
  <!--This gives details on the 'owner' of the feature. ISO 19139 expects a few elements. These should be  
      made nil, with nilReason provided if the data is not given.-->  
  <gmd:MD_Metadata>  
    <gmd:contact>  
      <gmd:CI_ResponsibleParty>  
        <gmd:individualName>  
          <gco:CharacterString>operator</gco:CharacterString>  
        </gmd:individualName>  
        ...  
      <gmd:positionName>  
        <gco:CharacterString>NOTAM officer</gco:CharacterString>  
      </gmd:positionName>
```

Timeslice Metadata

```
<aixm:timeSliceMetadata>  
  <!--This metadata will be more concerned about who changed the data and why it was changed, etc-->  
  <gmd:date>  
    <gmd:CI_Date>  
      <gmd:date>  
        <gco:Date>2007-10-09</gco:Date>  
      </gmd:date>  
      <gmd:dateType>  
        <gmd:CI_DateTypeCode codeList=".//ISO_19139_Schemas/resources/codeList.xml#CI_DateTypeCode"  
          codeListValue="revision" />  
      </gmd:dateType>  
    </gmd:CI_Date>  
  </gmd:date>
```

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Digital NOTAM

- Use of Metadata for digital NOTAMs is being developed as a common approach between FAA and EUROCONTROL

Next Steps

- Guidelines will be provided on how certain metadata fields shall be used
- This will lead to harmonised encodings of certain information, such as
 - accountable source,
 - date when the information was issued,
 - contact details.

Metadata Forms

- <http://geonetwork-opensource.org/>

The screenshot shows two Mozilla Firefox windows side-by-side. The left window displays the GeoNetwork metadata editor interface, where a metadata record for a file identifier is being edited. The right window shows an XML document viewer displaying the structure of an XML file.

Left Window (GeoNetwork Metadata Editor):

- File Identifier:** 1d170c3e-f550-4557-9f6c-6be1384c8a33
- Language:** en
- Character Set:** UTF8
- Date Stamp:** 2007-09-07T14:04:38
- Metadata Standard Name:** ISO 19115
- Metadata Standard Version:** FDIS

Right Window (XML Document Viewer):

```
<- <MD_Metadata>
    - <fileIdentifier>
        <gco:CharacterString>9636c620-9439-48e6-803f-0fe9fc12c58b</gco:CharacterString>
    </fileIdentifier>
    - <language>
        <gco:CharacterString>en</gco:CharacterString>
    </language>
    - <characterSet>
        <MD_CharacterSetCode codeListValue="utf8" codeList="/resources/codeList.xml#MD_CharacterSetCode"/>
    </characterSet>
    - <contact>
        - <CI_ResponsibleParty>
            - <individualName>
                <gco:CharacterString/>
            </individualName>
            - <organisationName>
                <gco:CharacterString>EUROCONTROL</gco:CharacterString>
            </organisationName>
            - <positionName>
                <gco:CharacterString/>
            </positionName>
            - <contactInfo>
                - <CI_Contact>
                    - <phone>
                        - <CI_Telephone>
                            - <voice>
                                <gco:CharacterString/>
                            </voice>
                            - <facsimile>
                                <gco:CharacterString/>
                            </facsimile>
                        </CI_Telephone>
                    </phone>
                </CI_Contact>
            </contactInfo>
        </CI_ResponsibleParty>
    </contact>
</MD_Metadata>
```

Thank you