

AIXM 5.1.1 from UML to XSD - core model and extensions

Introduction

The AIXM Data Model is provided using UML Class Diagrams. Since version 5.1.1, it is maintained using [Sparx Enterprise Architect](#). The AIXM exchange format is based on XML and it is formally specified using XML Schema (XSD). There is a direct link between the AIXM Data Model and the AIXM XML Schema, the later being actually generated with a script from the UML class diagrams model.

AIXM was developed to be extensible, allowing greater flexibility for international use, in particular to meet individual needs of the AIXM Community of Interest (COI). The following concept are supported:

- extending the core AIXM classes (features and objects) with new attributes or associations;
- defining new aeronautical information features, which are only relevant for that community.
- the definition of dedicated message types, which may have additional properties and might eventually restricting their content to a subset of the AIXM features. However, it is not obligatory that specific AIXM messages are defined. Data exchange can be instantiated through standard "feature services". An example is the OGC Web Feature Service (WFS), which enables the direct provision of individual AIXM features or collections of AIXM features. The AIXM core model also provides a "Basic Message", which is simply a collection of any AIXM features. It can be used with both core AIXM features and extensions.

The purpose of this document is to describe the conventions (stereotypes) used in the AIXM UML model and the rules by which the AIXM XML Schema is extracted from the AIXM UML model. This covers both the core model and extensions. It also includes the user manual for the script that is used to execute the XML schema generation.

- [XML Schema Mapping](#)
 - [Abstract model - TimeSlices and Metadata](#)
 - [Classes with <<feature>> stereotype](#)
 - [Classes with <<object>> stereotype](#)
 - [Association to <<feature>> class](#)
 - [Associations to <<object>> class](#)
 - [Classes with <<choice>> stereotype](#)
 - [Associations Classes](#)
 - [Classes with <<datatype>> stereotype](#)
 - [Classes with <<odelist>> stereotype](#)
- [Extensions](#)
 - [UML Package for Extensions](#)
 - [Extension classes](#)
 - [Extension Messages](#)
 - [Migration of previous AIXM 5.1 extension](#)
- [Using the UML to XSD script](#)

References

1. Geographic Information – Spatial Schema. ISO 19107. First Edition, 2003-05-01
2. ISO 19136:2007 - Geographic information – Geography Markup Language (GML)
3. UML 2.0 In a Nutshell. Dan Pilone. O'Reilly Media Inc. 2005.
4. AIXM UML to XML Schema Mapping, www.aixm.aero
5. AIXM Temporality Model, www.aixm.aero
6. OGC Web Feature Service (WFS)
7. AIXM Schema generation scripts for EA Sparx (temporary location): <https://drive.google.com/open?id=0BxlGN-YBj-q0cF93NExWNTBQVVU+>
8. Geographic Information – Spatial Schema. ISO 19107. First Edition, 2003-05-01
9. ISO 19136:2007 - Geographic information – Geography Markup Language (GML)
10. UML 2.0 In a Nutshell. Dan Pilone. O'Reilly Media Inc. 2005.
11. AIXM Temporality Model, www.aixm.aero (see Downloads)