

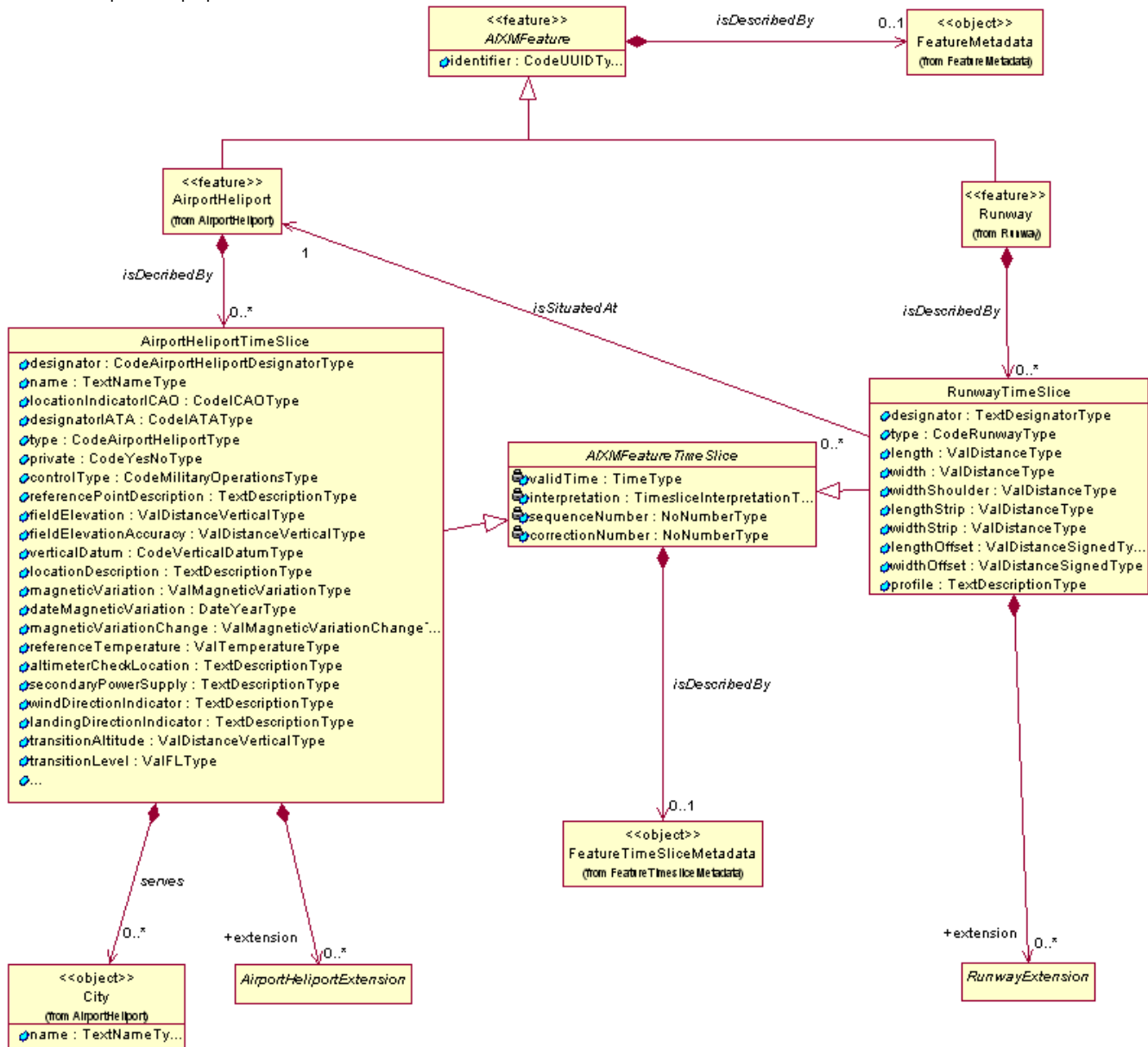
Abstract model - TimeSlices and Metadata

To simplify the UML model some convenience steps have been taken. Some elements are not shown on every diagram and some relationships are 'assumed'.

The model should contain a set of abstract AIXM classes that are used as the building blocks for the AIXM XML Schema. However, for simplicity, these relationships are not shown on any diagram and do not really exist in the UML. They are just assumed to exist, when converting from the UML model to the XML Schema of AIXM.

AIXMFeature and AIXMFeatureTimeSlice Class

The UML below shows how each and every <<feature>> inherits from the abstract AIXMFeature class. The concrete features are described by TimeSlices which are composed of properties. The TimeSlice inherits from the abstract AIXMFeatureTimeSlice class.



The diagram above is quite complex. If applied to the whole set of AIXM classes, it might undermine the readability of the UML diagrams. Therefore, the Design Team has decided to provide a simplified UML model, without visible inheritance of all features from the abstract AIXMFeature and without visible SomeFeatureTimeSlice classes.

However, all of these relationships and classes must be mapped in the AIXM XML Schema.

All attributes are optional

In AIXM, all class properties (both attributes and associations) are optional, in order to enable the encoding of "PERMDELTA" and "TEMPDELTA" TimeSlices. By definition, such TimeSlices contain only the properties that have an actually new/modified/removed value. If any class property was mandatory, then that property would have to be included in any TimeSlice (so that the file is valid against the XSD) even if it did not change its values. This would undermine the "delta" encoding principle of the AIXM Temporality Concept.

This rule is hardcoded in the scripts – all properties are generated with minOccurs="0", whatever minimal cardinality the UML model indicates.

The solution for specifying "mandatory" attributes is through Business Rules, which complement the core and extension model. For example the current AIXM set of Business Rules contains rules that are classified as "Minimal data rule".

Metadata

The diagram also shows that each AIXM Feature and each TimeSlice is described by metadata. The AIXM XML schema incorporates the ISO 19139 metadata elements - see 3.2.2.

Extension

Finally, each TimeSlice may contain an Extension. The Extension mechanism allows each user of AIXM5 to define and use his own specific attributes and classes.