Change ID: 5.1-30

Notes and descriptions - concept review

Summary

It is proposed to remove most of the properties that represent supplementary textual descriptions. Structured properties (where appropriate) and/or Notes shall be used instead, with the advantage that they can be provided in more than one language. In addition, it is proposed to introduce an attribute that allows the Notes to be classified by their intended purpose.

Background

AIXM 3 and 4

AIXM version 3 and 4 contained many properties of type TXT_RMK and TXT_DESCR to contain free text descriptions that supplement the other properties of a feature. For example, the Aerodrome / Heliport (AD_HP) feature of AIXM 4.5 includes:

- TXT_DESCR_REF_PT (Reference point description) A textual description of the aerodrome/heliport reference point.
- TXT_VER_DATUM (Vertical Datum) Attribute to take the "Vertical Datum"
- TXT_DESCR_SITE (Site description) A free text description of the site direction and distance from the city it serves or from another point easily distinguishable from the air.
- TXT_DESCR_ACL (Altimeter check location description) A textual description of the altimeter check locations.
- TXT_DESCR_SRY_PWR (Secondary power supply description) A textual description of the secondary power supply available at the aerodrome/heliport.
- TXT_DESCR_WDI (Wind direction indicator description] optional A textual description of the wind direction indicator (WDI) and its position at the aerodrome/heliport).

In addition, each AIXM 4.5 entity includes a TXT_RMK field to capture any other free text information about the entity.

AIXM 5

AIXM 5 includes an Object called Note that supports multi-lingual free text information about a feature, its attributes or its associations. A Note has the following characteristics:

- Every AIXM Feature and Object may have one or more Notes
- Each Note may be represented in multiple languages using one or more LinguisticNote Objects.
- A Note contains a propertyName property that can designate the Feature property or relationship for which the Note applies.

For example, a fragment of an AirportHeliport instance with one Note on the Feature and one Note on the AirportHeliport name property looks like:

```
<AirportHeliport>
        <annotation>
                <Name>Boston Logan Airport</Name>
                ...
                <Note>
                        <translatedNote>
                                <LinguisticNote lang="en">
                                        <note>This feature representation is not complete,
                                                but was written by the AIXM design team to
```

```
                                                illustrate Note</note>
                                        </LinguisticNote>
                                </translatedNote>
                        </Note>
                </annotation>
                <annotation>
                        <Note>
                                <propertyName>name</propertyName>
                                <translatedNote>
                                        <LinguisticNote lang = "en">
                                                <note>Also known as Boston Airport</note>
                                        </LinguisticNote>
                                </translatedNote>
                        </Note>
                </annotation>
</AirportHeliport>
```

Rationale for the change

New 'purpose' attribute for Note

In general, free text Notes attached to features and properties may be classified as:

- descriptions
- remark
- warning
- disclaimer
- etc.

There is no possibility in the current model to indicate the purpose of a Note. Introducing a "purpose" attribute in the Note class would better support application developers in deciding how the notes should be interpreted. For example, a "warning" should always be displayed for a human operator before the data is used, a "description" could be used for inclusion in documents and printed on charts, etc.

Values of propertyName

The current data type is TextDescriptionType which allows up to 10 000 characters. This is not necessary for a field that is expect to contain the real name of a feature property. TextNameType should be used instead, which is limited to 60 characters.

In addition, the propertyName should only allow as values the exact list of properties of a feature. For example, the Note associated with Apron should have as possible values for propertyName only "name", "status", "associatedAirportHeliport", "surfaceProperties", etc. It could also be left empty if the Note refers to the whole Apron. But it should not be possible to provide a Note for a property that does not exist in the feature.

Usage of Note class instead of "description" attributes

The AIXM 5.0 properties that provide free text descriptions appear as a duplication of the generic Notes concept. In addition, opposed to Note , the "description" attributes cannot be provided in multiple languages.

For example GroundLightSystem feature includes two descriptive properties:

- description - A textual description of the lighting system.
- emergency - A textual description of the emergency lighting system availability and its characteristics.

Our analysis of these free text properties suggests there are three main cases:

1) **Pure Descriptions**. These properties are purely annotations and should be represented using the Note object. The description property of the GroundLightSystem is an example of a property that could be represented as

a Note Object with no value for the propertyName. In other words, a Note Object that references the entire GroundLightSystem feature.

In this case, it is proposed to simply ***delete the property*** from the model and ***use Note*** to annotate the Feature or Object.

2) **Capability Description**. The property provides a description of a capability. Implicitly the existence of the description indicates that the capability is available for the Object or Feature. In the GroundLightSystem the emergency property is an example of a textual description that implies that there is an "emergency light system" capability in the GroundLightSystem. The emergency property provides further information about that emergency light system capability through the free text description.

In this case, it is proposed to replace the description property with a Yes/No property, indicating the availability of the capability. In addition, the class Note with propertyName set to the capability property can be used to provide free text descriptive information about the capability.

3) **Instruction**. Some free text fields are used to convey operational instructions that are currently too unstructured and complex to be encoded. An example of an operational instruction is communicationFailureDescription property of the Procedure feature. The communicationFailureDescription provides the pilot with textual instructions when communications are lost.

In this case, it is proposed to change the property name and definition to indicate that the field contains an instruction. Use a new datatype called TextInstructionType to constrain the content of an instruction property.

Note: There are also a few situations where the TextDescriptionType was used by error, instead of another data type. These are mentioned as "other" in the detailed analysis below.

Change proposal details

Insert a new "codelist" data type CodeNotePurposeType

- definition = " *A code list of values that indicate the goal with which a free text Note is provided*"
- list of values (open):
  - descriptions = " *A summary of the feature or property characteristics in a human readable form*"
  - remark = " *Additional information about the feature or property, to be considered by a human operator*"
  - warning = " *A notice that announces a hazard in relation with the feature or property characteristics*"
  - disclaimer = " *A denial or disavowal of legal claim with regard to the feature or property information*"

Insert a new "purpose" attribute in the Note class:

- definition = "An indication of the goal which led to the provision of the free text note".
- data type CodeNotePurposeType

Change the data type of the propertyName of the Note class into TextNameType
In the XML Schema, limit the list of values of propertyName to the exact list of feature properties.
Rename the data type TextDescriptionType into TextInstructionType and update the definition: " *A textual description of a sequence of elementary steps*".
The table below summarizes free text properties in AIXM 5.0, classifies the property as Case 1, Case 2 or Case 3 and provides a proposed resolution.

Feature/Object	Property	Classification	Disposition
AerialRefuelingAnchor	description	pure description	Delete (use Note instead)
AirportClearanceService	snowPlan	instruction	Change datatype to TextInstructionType
AirportGroundService	facilities	pure description	Delete (use Note instead)
AirportHeliport	referencePointDescription	pure description	Delete (use Note instead)
AirportHeliport	locationDescription	pure description	Delete (use Note instead)
AirportHeliport	altimeterCheckLocation	capability description	change type into CodeYesNoType
AirportHeliport	secondaryPowerSupply	capability description	change type into CodeYesNoType

AirportHeliport	windDirectionIndicator	capability description	change type into CodeYesNoType
AirportHeliport	landingDirectionIndicator	capability description	change type into CodeYesNoType
AirportHeliportCollocation	collocationDetails	pure description	Delete (use Note instead)
AirportHeliportProtectionArea	lighting	capability description	change type into CodeYesNoType
ApproachLightingSystem	descriptionFlashing	pure description	Delete (use Note to sequencedFlashing instead)
ArrestingGear	description	pure description	Delete (use Note instead)
ContactInformation	purpose	pure description	Delete (use Note instead)
FlightRestriction	operationalGoal	pure description	Delete (use Note instead)
FlightRestriction	description	instruction	Change property name into "instruction" and datatype to TextInstructionType
Fuel	Description	pure description	Delete (use Note instead)
GroundLightSystem	description	pure description	Delete (use Note instead)
GroundLightSystem	emergency	capability description	Change property name into emergencyLighting of type CodeYesNoType
HoldingPattern	description	instruction	Change property name into "instruction" and datatype into TextInstructionType
HoldingPattern	nonStandardHoldingReason	capability description	Change property name into nonStandardHolding of type CodeYesNoType (use Note to provide description of the reason)
InstrumentApproachProcedure	courseReversalDescription	instruction	Change property name into "courseReversalInstruction" and datatype to TextInstructionType
Marking	description	pure description	Delete (use Note instead)
MarkingElement	description	pure description	Delete (use Note instead)
MissedApproachGroup	missedApproachDescription	instruction	Change property name into "instruction" and datatype into TextInstructionType
MissedApproachGroup	alternateClimbInstruction	instruction	Change datatype to TextInstructionType
NavigationSystemCheckpoint	description	pure description	Delete (use Note instead)
Note	propertyName	other (wrong data type)	Change data type into TextNameType
ObstacleAssessmentArea	zoneUse	pure description	Delete (use Note instead)
Oil	description	pure description	Delete (use Note instead)
PilotControlledLighting	descriptionOfService	instruction	Change property name into "activationInstruction" and datatype to TextInstructionType
PrecisionApproachRadar	relativeLocation	pure description	Delete (use Note instead)
Procedure	communicationFailure Description	instruction	Change property name into "communicationFailureInstruction" and datatype to TextInstructionType
Procedure	description	instruction	Rename attribute into "instruction" and change datatype to TextInstructionType
ProcedureTransition	description	instruction	Rename attribute into "instruction" and change datatype to TextInstructionType
RadarSystem	model	other (data type error)	change data type into TextNameType
Runway	profile	pure description	Delete (use Note instead). The profile can be described in more detail through the elevation of the centreline points.
RunwayVisualRange	equipmentDescription	pure description	Delete (use Note instead)
StandardLevelTable	description	pure description	Delete (use Note instead)
SurveyControlPoint	description	pure description	Delete (use Note instead)

EquipmentUnavailableAdjustment	description	pure description	Delete (use Note instead)
HoldingUse	instruction	instruction	Change datatype to TextInstructionType