

# **xSNOWTAM – TEC**

## **Mapping Document From AIXM 4.5 Files Into AIXM 5.0 Database**

### ***TECHNICAL ANALYSIS***

Version 0.9

**DOCUMENT DISTRIBUTION LIST**

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## 1 Purpose

The purpose of this document is to describe technical details of the mapping from AIXM 4.5 features to the digital SNOWTAM Database. The scope of the mapping is limited to the features necessary for Digital SNOWTAM Trial (xSNOWTAM). Therefore, it is not an exhaustive mapping of all possible data from AIXM 4.5 but a subset containing the following features:

- *Airport Heliport;*
- *Runway;*
- *Runway Direction;*
- *Runway Centreline Point;*
- *Taxiway;*
- *Apron;*
- *Gate Stand.*

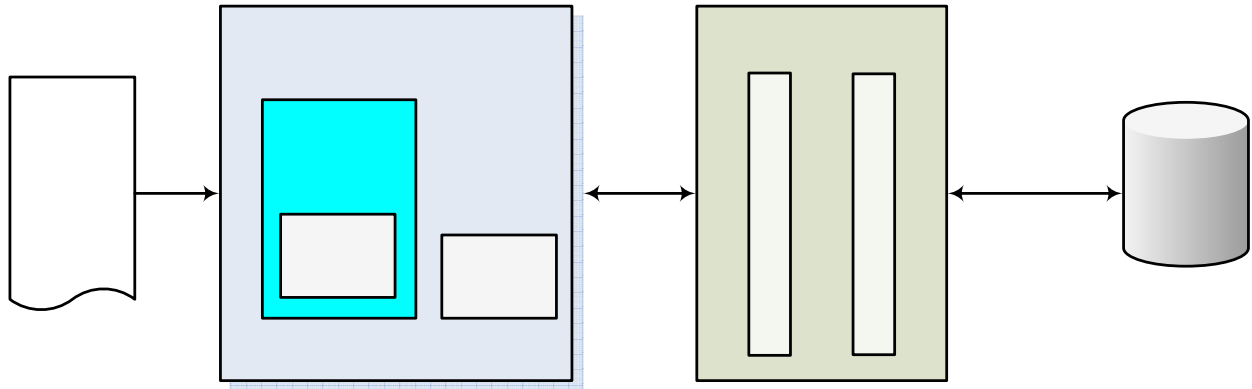
(This includes associated objects such as ElevatedSurface, City, SurfaceCharacteristics, etc.)

### Remarks:

- Not all the fields have a mapping from AIXM 4.5 to AIXM 5.0. This document will not talk about those “deprecated” or “no more used” fields. They are just not mapped.
- This document is based on the AIXM 4.5-r2 version.

## 2 Architecture

The mapping will be implemented in Java. It will be based on a generic architecture also used for other mappings (SNOWTAM to AIXM5, AMDB to AIXM5, etc...):



### 2.1 Architecture Modules

- The *AIXM 4.5 MODEL* is a set of Java Classes representing AIXM 4.5. This set of classes is directly generated from the AIXM 4.5 xsd files;
- The *AIXM 4.5 INPUT MODULE* will read an AIXM4.5 XML file and transform it into the *AIXM 4.5 MODEL*;
- The *AIXM 5.0 MODEL* a set of Java Classes representing AIXM 5.0. This set of classes is directly generated from the xSNOWTAM Database.
- The Converter will transform AIXM 4.5 features to AIXM 5.0 features using, if necessary, the SNOWTAM Kernel to retrieve associated data in database (see chapter 2.3). The final step is to save the feature (and/or timeslice) in the SNOWTAM database also via the SNOWTAM Kernel.

### 2.2 AIXM 4.5 XML Files

#### 2.2.1 Snapshot

The first population of the database will be done by an AIXM 4.5 Snapshot containing all the data required for the SNOWTAM Trial.

Remark: the first population will be in fact made by an AIXM 4.5 update containing only <new> features (see chapter 2.2.2).

**AIXM 4.5  
XML FILE**

#### 2.2.2 Updates

AIXM 4.5 Update messages will come from the EAD database during the SNOWTAM Trial. It can contain three different tags/operations:

- <New> meaning the feature doesn't exist yet in the Digital SNOWTAM database;

AIXM 4.5  
Database

AIXM  
INPUT M  
(load m

AIXM  
MOD

- <Changed>: meaning the feature already exists in the Digital SNOWTAM database but some properties have changed;
- <Withdrawn> meaning the feature is already in the Digital SNOWTAM database and will no longer exist starting from the effective date of the AIXM-Update message.

## **2.3 Associated Features**

---

### **2.3.1 General Case**

Many features are associated to another feature. For example, a Runway is always associated to an Airport/Heliport. Generally, the associated feature will already be in the database. The Converter will ask the SNOWTAM Kernel to retrieve this feature, identified by its natural key, and will link the new feature to it.

### **2.3.2 Specific Case**

It is also possible that the AIXM 4.5 Message contains both the feature and its associated feature. For example: an Airport/Heliport Address and an Airport/Heliport. The Airport Heliport will be treated first, and therefore, when the Airport/Heliport Address will be processed, the Airport Heliport will already be in the SNOWTAM Database. This means that there is no difference with the general case described above.

### **2.3.3 Error Case**

If the associated feature is not found in the SNOWTAM Database, the feature is not treated and an error is logged in either a log file or log table in database (to be determined).

## 3 Fields Mapping

### 3.1 Common Fields

Followings fields are found in most of the features, timeslices or objects and have default values. They are described only once, in the table below:

Feature	
Column	Default value
<i>SEQID</i>	Technical key (Sequence)
<i>CREATED_BY</i>	'MAPPING 4.5'
<i>CREATED_ON</i>	sysdate
<i>LAST_MODIFIED_BY</i>	'MAPPING 4.5'
<i>LAST_MODIFIED_ON</i>	sysdate

### 3.2 Timeslices Common Fields

Some timeslices fields concerning temporality are common to all timeslices, they are described only once, depending of the AIXM 4.5 message type:

- In case of a <New> AIXM 4.5 message, following steps have to be done:
  - o Create a new feature;
  - o Create a PERMDELTA and a BASELINE associated to this new feature, with the following field values:

Timeslice	
Column	Default value
<i>INTERPRETATION</i>	BASELINE or PERMDELTA
<i>SEQUENCE_NUMBER</i>	1
<i>CORRECTION_NUMBER</i>	0
<i>START_DATE</i>	EffectiveDate of the AIXM 4.5 Update message
<i>START_OF_LIFE</i>	EffectiveDate of the AIXM 4.5 Update message

- In case of a <Changed> AIXM 4.5 message, following steps have to be done:
  - o Retrieve the current baseline and update its end date with the effective date of the AIXM-Update message;
  - o Create a PERMDELTA and a BASELINE (the new BASELINE is a merge between the AIXM-Update message properties (containing updated values) and the old baseline properties (containing unchanged values));
  - o For these new timeslices, the following fields values must be set :

Timeslice	
Column	Default value
<i>INTERPRETATION</i>	BASELINE or PERMDELTA
<i>SEQUENCE_NUMBER</i>	previous sequence number + 1
<i>CORRECTION_NUMBER</i>	0
<i>START_DATE</i>	EffectiveDate of the AIXM 4.5 Update message

- In case of a <Withdrawn> AIXM 4.5 message, following steps have to be done:
  - o Retrieve the current baseline and update its end date and end of life with the effective date of the AIXM-Update message. The correction number of this baseline will be increased by one:

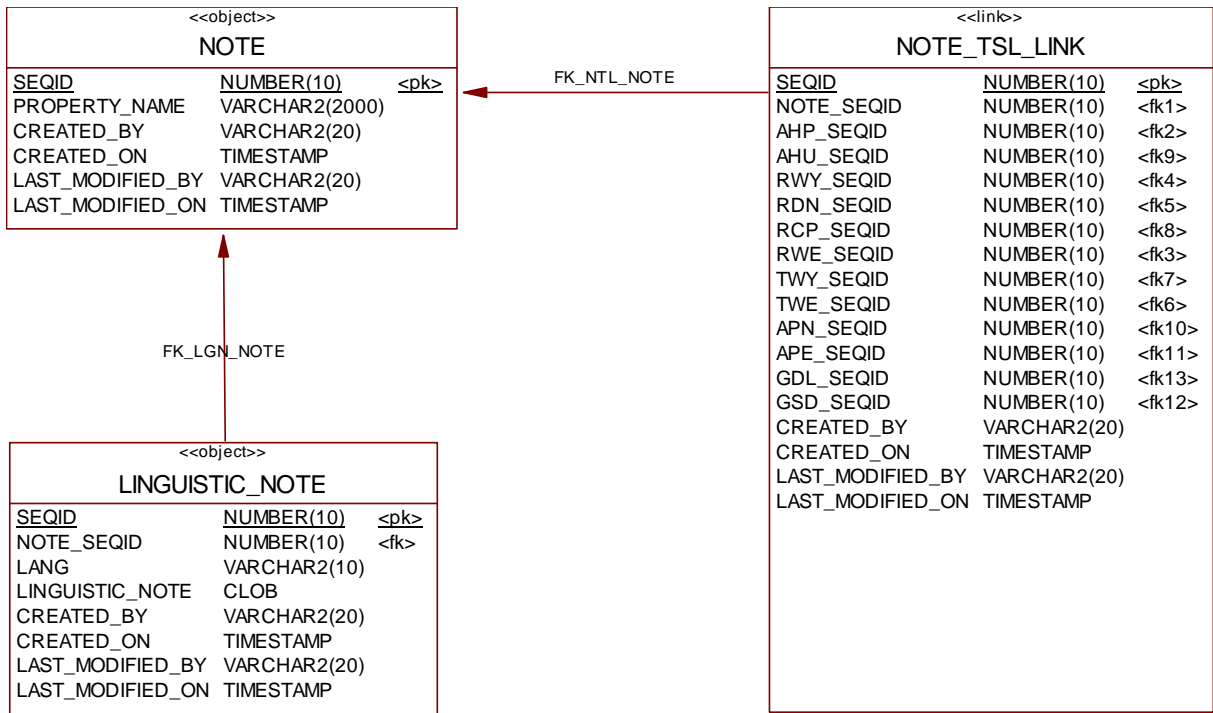
Timeslice	
Column	Default value
<i>INTERPRETATION</i>	BASELINE
<i>CORRECTION_NUMBER</i>	Previous correction number + 1
<i>END_DATE</i>	EffectiveDate of the AIXM 4.5 Update message
<i>END_OF_LIFE</i>	EffectiveDate of the AIXM 4.5 Update message

- o Create a PERMDELTA with following values:

Timeslice	
Column	Default value
<i>INTERPRETATION</i>	PERMDELTA
<i>SEQUENCE_NUMBER</i>	Previous sequence number
<i>CORRECTION_NUMBER</i>	Previous correction number + 1
<i>START_DATE</i>	EffectiveDate of the AIXM 4.5 Update message
<i>END_DATE</i>	EffectiveDate of the AIXM 4.5 Update message
<i>END_OF_LIFE</i>	EffectiveDate of the AIXM 4.5 Update message

### 3.2.1 TXT\_RMK

All AIXM 5.0 Time Slices may have one or more notes attached. The following database structure has been chosen:



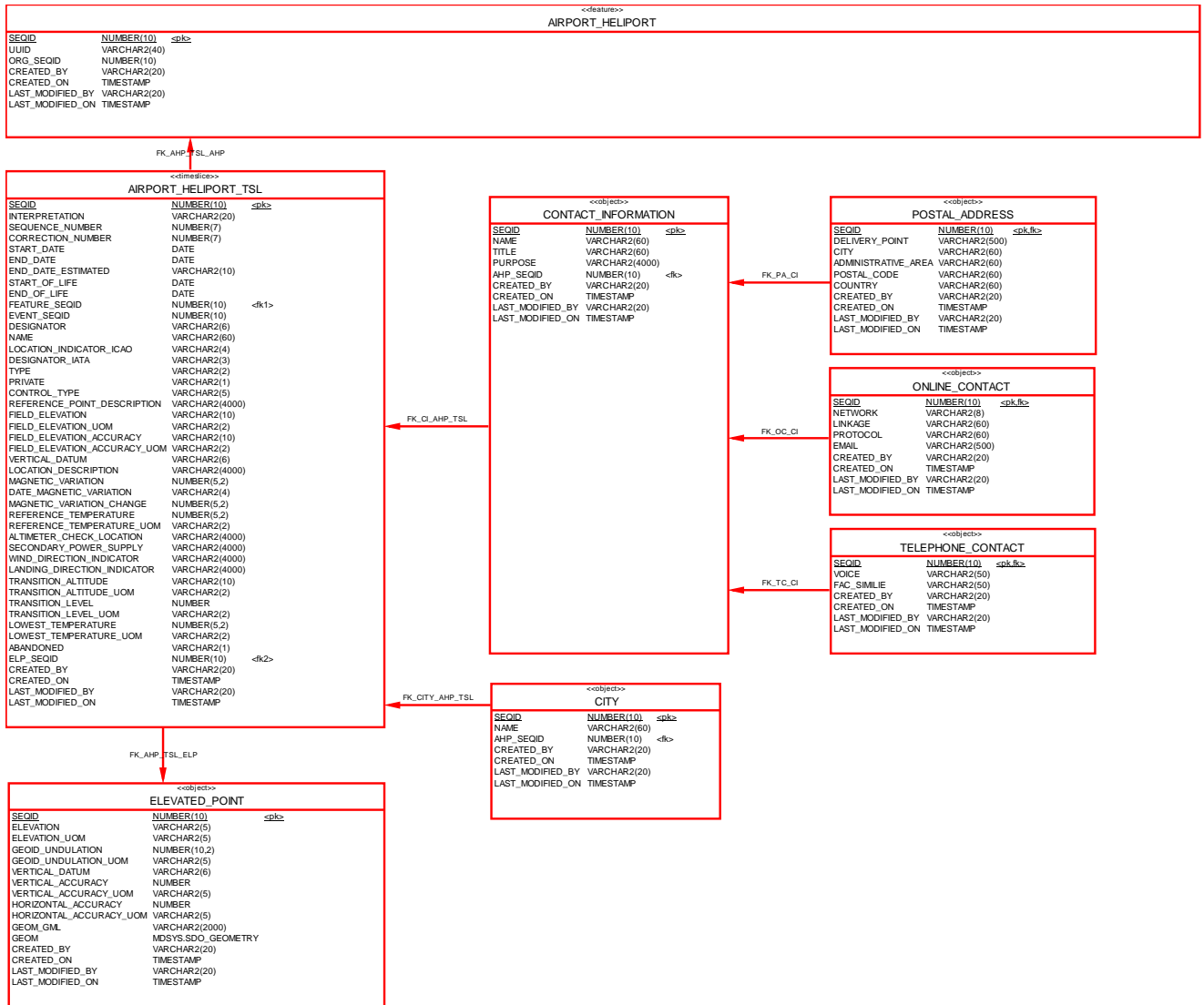
The NOTE\_TSL\_LINK database table contains the links towards the corresponding timeslice. It is a JOIN table (implementing a MANY-TO-MANY relationship) between the NOTES database table and the timeslices. This means that a timeslice can have several records in the NOTE database table.

The common fields are:

Linguistic Note	
Column	Default value
LANG	'ENG'
LINGUISTIC_NOTE	txtRmk in AIXM 4.5

### 3.3 Airport Heliport (AHP)

#### 3.3.1 AIXM 5 database schema



### 3.3.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of AHP feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
AhpUid/codeId	AIRPORT_HELIPORT_TSL	DESIGNATOR
	<i>Take value: codeId</i>	
txtName	AIRPORT_HELIPORT_TSL	NAME
	<i>Take value: txtName</i>	
codeIcao	AIRPORT_HELIPORT_TSL	LOCATION_INDICATOR_ICAO
	<i>Take value:codeIcao</i>	
/ codeIata	AIRPORT_HELIPORT_TSL	DESIGNATOR_IATA

	<i>Take value:</i> codeIata	
/ codeType	AIRPORT_HELIPORT_TSL	TYPE
	<i>Take value:</i> AhpCodeTypeConverter.convert(String codeType) See <a href="#">AhpCodeTypeConverter</a>	
/ codeTypeMilOps	AIRPORT_HELIPORT_TSL	CONTROL_TYPE
	<i>Take value:</i> AhpCodeTypeMilOpsConverter.convert(String codeTypeMilOps) See <a href="#">AhpCodeTypeMilOpsConverter</a>	
/ valElev	AIRPORT_HELIPORT_TSL	FIELD_ELEVATION
	<i>Take value:</i> valElev	
/ uomDistVer	AIRPORT_HELIPORT_TSL	FIELD_ELEVATION_UOM
	<i>Take value:</i> uomDistVer	
/ valElevAccuracy	AIRPORT_HELIPORT_TSL	FIELD_ELEVATION_ACCURACY
	<i>Take value:</i> valElevAccuracy	
/ txtVerDatum	AIRPORT_HELIPORT_TSL	VERTICAL_DATUM
	<i>Take value:</i> txtVerDatum	
/ txtDescrSite	AIRPORT_HELIPORT_TSL	LOCATION_DESCRIPTION
	<i>Take value:</i> txtDescrSite	
/ valMagVar	AIRPORT_HELIPORT_TSL	MAGNETIC_VARIATION
	<i>Take value:</i> valMagVar	
/ dateMagVar	AIRPORT_HELIPORT_TSL	DATE_MAGNETIC_VARIATION
	<i>Take value:</i> dateMagVar	
/ valMagVarChg	AIRPORT_HELIPORT_TSL	MAGNETIC_VARIATION_CHANGE
	<i>Take value:</i> valMagVarChg	
/ valRefT	AIRPORT_HELIPORT_TSL	REFERENCE_TEMPERATURE
	<i>Take value:</i> valRefT	
/ uomRefT	AIRPORT_HELIPORT_TSL	REFERENCE_TEMPERATURE_UOM
	<i>Take value:</i> uomRefT	
/ txtDescrAcl	AIRPORT_HELIPORT_TSL	ALTIMETER_CHECK_LOCATION
	<i>Take value:</i> txtDescrAcl	
/ txtDescrSryPwr	AIRPORT_HELIPORT_TSL	SECONDARY_POWER_SUPPLY
	<i>Take value:</i> txtDescrSryPwr	
/ txtDescrWdi	AIRPORT_HELIPORT_TSL	WIND_DIRECTION_INDICATOR
	<i>Take value:</i> txtDescrWdi	
/ txtDescrLdi	AIRPORT_HELIPORT_TSL	LANDING_DIRECTION_INDICATOR

	<i>Take value:</i> txtDescrLdi	
/ valTransitionAlt	AIRPORT_HELIPORT_TSL	TRANSITION_ALTITUDE
	<i>Take value:</i> valTransitionAlt	
/ uomTransitionAlt	AIRPORT_HELIPORT_TSL	TRANSITION_ALTITUDE_UOM
	<i>Take value:</i> uomTransitionAlt	
/ geoLat	ELEVATED_POINT	GEOM
/ geoLong	<i>Take value:</i> SDO_GEOMETRY (Point)	
/ codeDatum	ELEVATED_POINT	GEOM_GML
	<i>Take value:</i> SDO_UTIL.TO_GMLGEOMETRY(GEOM)	
/	ELEVATED_POINT	GEOID_UNDULATION
valGeoidUndulation	<i>Take value:</i> valGeoidUndulation	
/ txtNameCitySer	CITY	NAME
	<i>Take value:</i> txtNameCitySer	

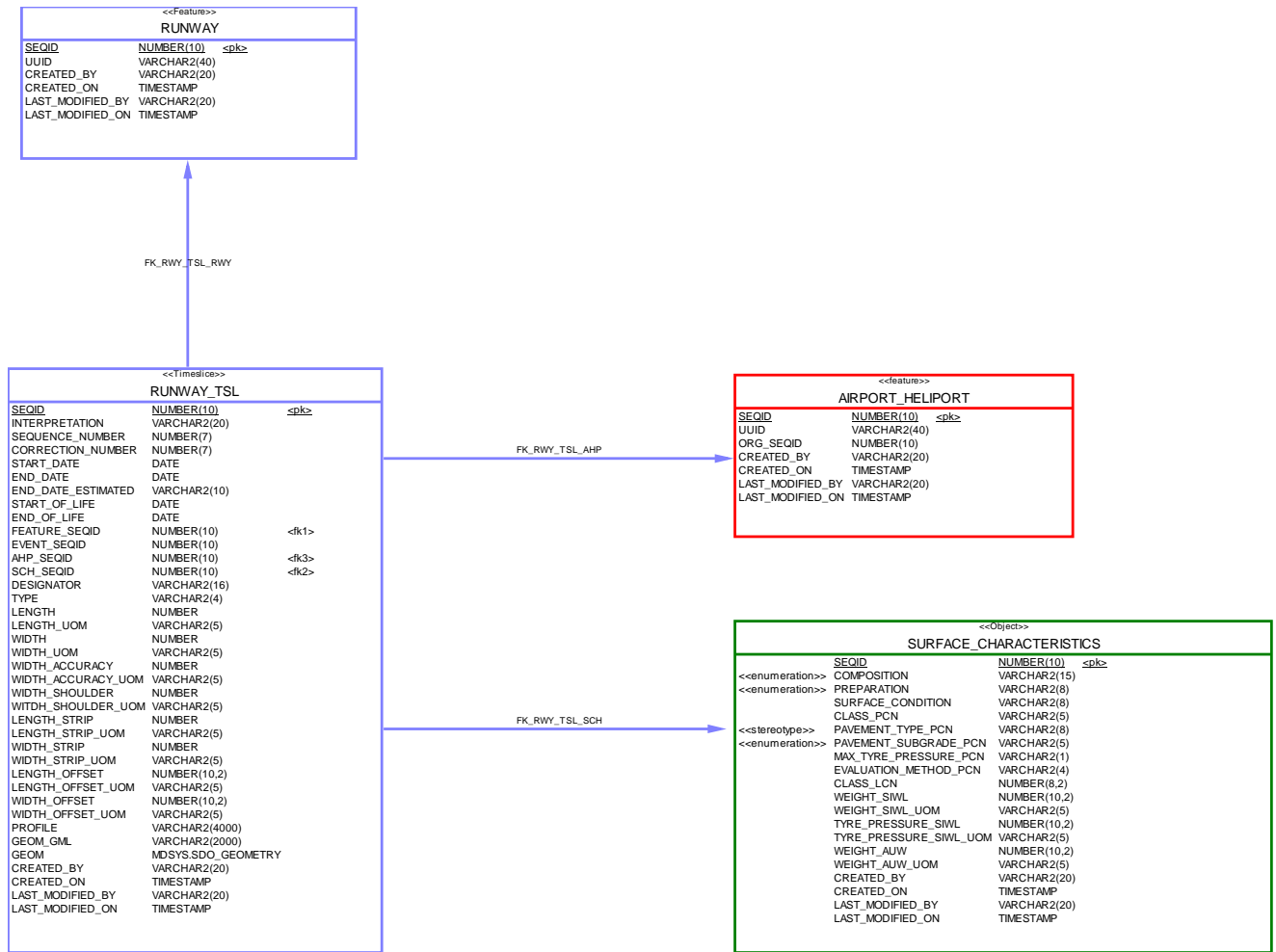
### 3.3.3 Airport Heliport Address (AHA)

In AIXM 4.5, the airport heliport address has its own element (<aha>). It contains the reference of the associated AirportHeliport.

Source	Destination	
AIXM 4.5	Database 5.0	
<i>TAG</i>	<i>Database table</i>	<i>Column</i>
/ AhaUid/ AhpUid/ codeId	CONTACT_INFORMATION.AHP_SEQID	AHP_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding AHP	
/ AhaUid/ codeType	It will determine in which database table the data will be saved.	
	POST	⇒ POSTAL_ADDRESS
	PHONE	⇒ TELEPHONE_CONTACT
	FAX	⇒ TELEPHONE_CONTACT
	TLX	⇒ ONLINE_CONTACT (network = TELEX)
	SITA	⇒ ONLINE_CONTACT (network = SITA)
	AFS	⇒ ONLINE_CONTACT (network = AFTN)
	EMAIL	⇒ ONLINE_CONTACT (network = EMAIL)
	URL	⇒ ONLINE_CONTACT (network = URL)
	RADIO	⇒ ONLINE_CONTACT (network = RADIO)
	OTHER	⇒ ONLINE_CONTACT (network = OTHER)
/ txtAddress	Depending on the codeType, txtAddress will be saved in:	
	POST	⇒ POSTAL_ADDRESS.DELIVERY_POINT
	PHONE	⇒ TELEPHONE_CONTACT.VOICE
	FAX	⇒ TELEPHONE_CONTACT.FAC_SIMILIE
	TLX	⇒ ONLINE_CONTACT.LINKAGE
	SITA	⇒ ONLINE_CONTACT.LINKAGE
	AFS	⇒ ONLINE_CONTACT.LINKAGE
	EMAIL	⇒ ONLINE_CONTACT.EMAIL
	URL	⇒ ONLINE_CONTACT.LINKAGE
	RADIO	⇒ ONLINE_CONTACT.LINKAGE
	OTHER	⇒ ONLINE_CONTACT.LINKAGE

### 3.4 Runway (RWY)

#### 3.4.1 AIXM 5 database schema



### 3.4.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of RWY feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

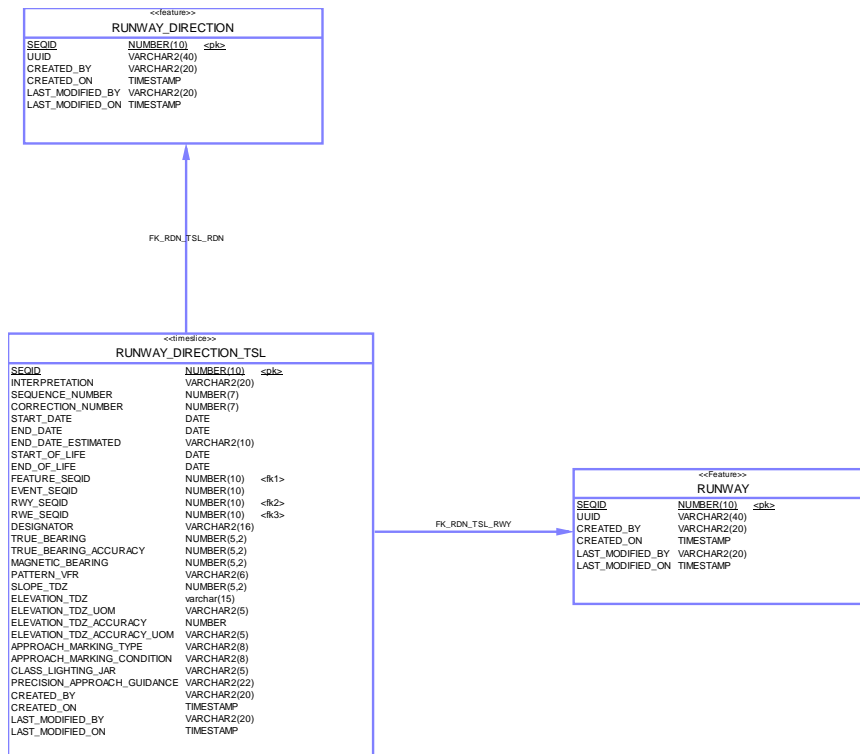
Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
/ RwyUid/ AhpUid/ codeId	RUNWAY_TSL	AHP_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding AHP	
/ RwyUid/ txtDesig	RUNWAY_TSL	DESIGNATOR
	<i>Take value:</i> txtDesig	
/ valLen	RUNWAY_TSL	LENGTH
	<i>Take value:</i> valLen	
/ uomDimRwy	RUNWAY_TSL	LENGTH_UOM
	<i>Take value:</i> uomDimRwy	
	RUNWAY_TSL	WIDTH_UOM
	<i>Take value:</i> uomDimRwy	

/ valWid	RUNWAY_TSL	WIDTH
	<i>Take value:</i> valWid	
/ valLenStrip	RUNWAY_TSL	LENGTH_STRIP
	<i>Take value:</i> valLenStrip	
/ valWidStrip	RUNWAY_TSL	WIDTH_STRIP
	<i>Take value:</i> valWidStrip	
/ valLenOffset	RUNWAY_TSL	LENGTH_OFFSET
	<i>Take value:</i> valLenOffset	
/ txtProfile	RUNWAY_TSL	PROFILE
	<i>Take value:</i> txtProfile	
/ valWidOffset	RUNWAY_TSL	WIDTH_OFFSET
	<i>Take value:</i> valWidOffset	
/ uomDimStrip	RUNWAY_TSL	LENGTH_STRIP_UOM
	<i>Take value:</i> IF LENGTH_STRIP IS NOT NULL => uomDimStrip	
	RUNWAY_TSL	WIDTH_STRIP_UOM
	<i>Take value:</i> IF WIDTH_STRIP IS NOT NULL => uomDimStrip	
	RUNWAY_TSL	LENGTH_OFFSET_UOM
	<i>Take value:</i> IF LENGTH_OFFSET IS NOT NULL => uomDimStrip	
/ codeComposition	SURFACE_CHARACTERISTICS	COMPOSITION
	<i>Take value:</i> SchCodeCompositionConverter.convert(String codeComposition) See <a href="#">SchCodeCompositionConverter</a>	
	SURFACE_CHARACTERISTICS	PREPARATION
	<i>Take value:</i> codePreparation	
	SURFACE_CHARACTERISTICS	SURFACE_CONDITION
	<i>Take value:</i> codeCondSfc	
/ valPcnClass	SURFACE_CHARACTERISTICS	CLASS_PCN
	<i>Take value:</i> valPcnClass	
/ codePcnPavementType	SURFACE_CHARACTERISTICS	PAVEMENT_TYPE_PCN
	<i>Take value:</i> SchCodePcnPavementTypeConverter.convert(String codePcnPavementType) See <a href="#">SchCodePcnPavementTypeConverter</a>	
/	SURFACE_CHARACTERISTICS	PAVEMENT_SUBGRADE_PC N

codePcnPavementSubgrade	<i>Take value:</i> codePcnPavementSubgrade	
/codePcnMaxTirePressure	SURFACE_CHARACTERISTICS	MAX_TYRE_PRESSURE_PCN
	<i>Take value:</i> codePcnMaxTirePressure	
/codePcnEvalMethod	SURFACE_CHARACTERISTICS	EVALUATION_METHOD_PC N
	<i>Take value:</i> SchCodePcnEvalMethodConverter.convert(String codePcnEvalMethod) See <a href="#">SchCodePcnEvalMethodConverter</a>	
/valLcnClass	SURFACE_CHARACTERISTICS	CLASS_LCN
	<i>Take value:</i> valLcnClass	
/valSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL
	<i>Take value:</i> valSiwlWeight	
/uomSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL_UOM
	<i>Take value:</i> uomSiwlWeight	
/valSiwlTirePressure	SURFACE_CHARACTERISTICS	TYRE_PRESSURE_SIWL
	<i>Take value:</i> valSiwlTirePressure	
/uomSiwlTirePressure	SURFACE_CHARACTERISTICS	TYRE_PRESSURE_SIWL_UOM
	<i>Take value:</i> uomSiwlTirePressure	
/valAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW
	<i>Take value:</i> valAuwWeight	
/uomAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW_UOM
	<i>Take value:</i> uomAuwWeight	

### 3.5 Runway Direction (RDN)

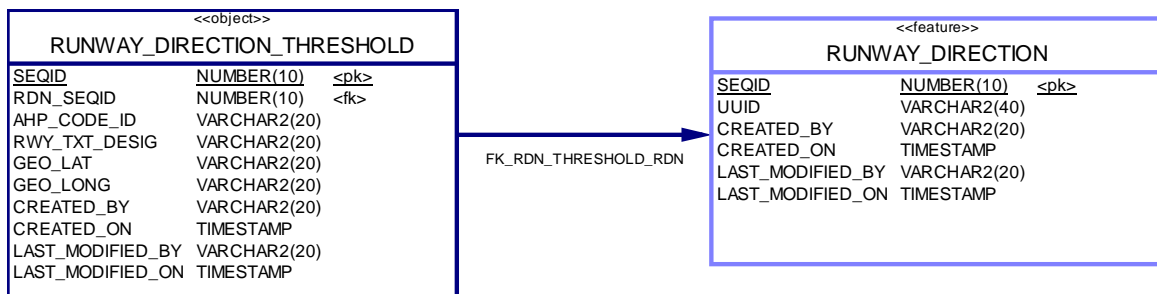
#### 3.5.1 AIXM 5 database schema



#### 3.5.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of RDN feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

Note: in AIXM 4.5 the Runway Direction knows which Runway Centreline Point is its threshold. But the Runway Centreline Point only knows on which Runway it is located. In AIXM 5.0, it is the other way around: the Runway Centreline Point knows to which Runway Direction it belongs. Therefore, the solution is to store in an intermediate database table the lat/long (geoLat/geoLong) position imported from the AIXM 4.5. This database table is called RUNWAY\_DIRECTION\_THRESHOLD:

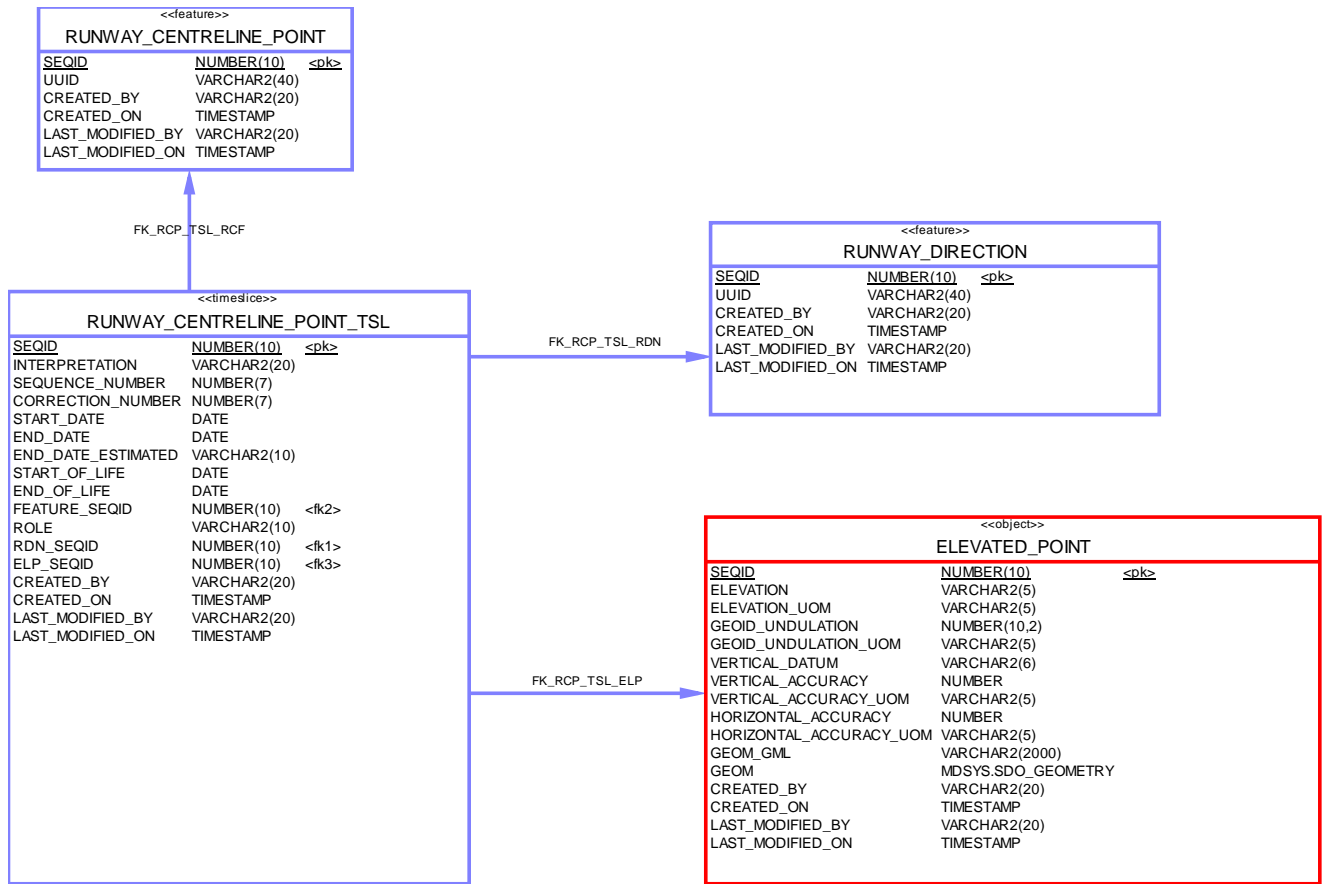


Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column

/ RdnUid/ RwyUid/ AhpUid/ codeId	RUNWAY_DIRECTION_TSL	RWY_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding RWY	
/ RdnUid/ RwyUid/ txtDesig	RUNWAY_DIRECTION_TSL	DESIGNATOR
	<i>Take value:</i> txtDesig	
/ valTrueBrg	RUNWAY_DIRECTION_TSL	TRUE_BEARING
	<i>Take value:</i> valTrueBrg	
/ valMagBrg	RUNWAY_DIRECTION_TSL	MAGNETIC_BEARING
	<i>Take value:</i> valMagBrg	
/ valElevTdz	RUNWAY_DIRECTION_TSL	ELEVATION_TDZ
	<i>Take value:</i> valElevTdz	
/ valElevTdzAccuracy	RUNWAY_DIRECTION_TSL	ELEVATION_TDZ_ACCURACY
	<i>Take value:</i> valElevTdzAccuracy	
/ uomElevTdz	RUNWAY_DIRECTION_TSL	ELEVATION_TDZ_UOM
	<i>Take value:</i> IF ELEVATION_TDZ IS NOT NULL => uomElevTdz	
	RUNWAY_DIRECTION_TSL	ELEVATION_TDZ_ACCURACY_UOM
	<i>Take value:</i> IF ELEVATION_TDZ_ACCURACY IS NOT NULL => uomElevTdz	
/ valSlopeAngleGpVasis	RUNWAY_DIRECTION_TSL	SLOPE_TDZ
	<i>Take value:</i> valSlopeAngleGpVasis	

### 3.6 Runway Centreline Point (RCP)

#### 3.6.1 AIXM 5 database schema



### 3.6.2 Mapping from AIXM 4.5 to AIXM 5

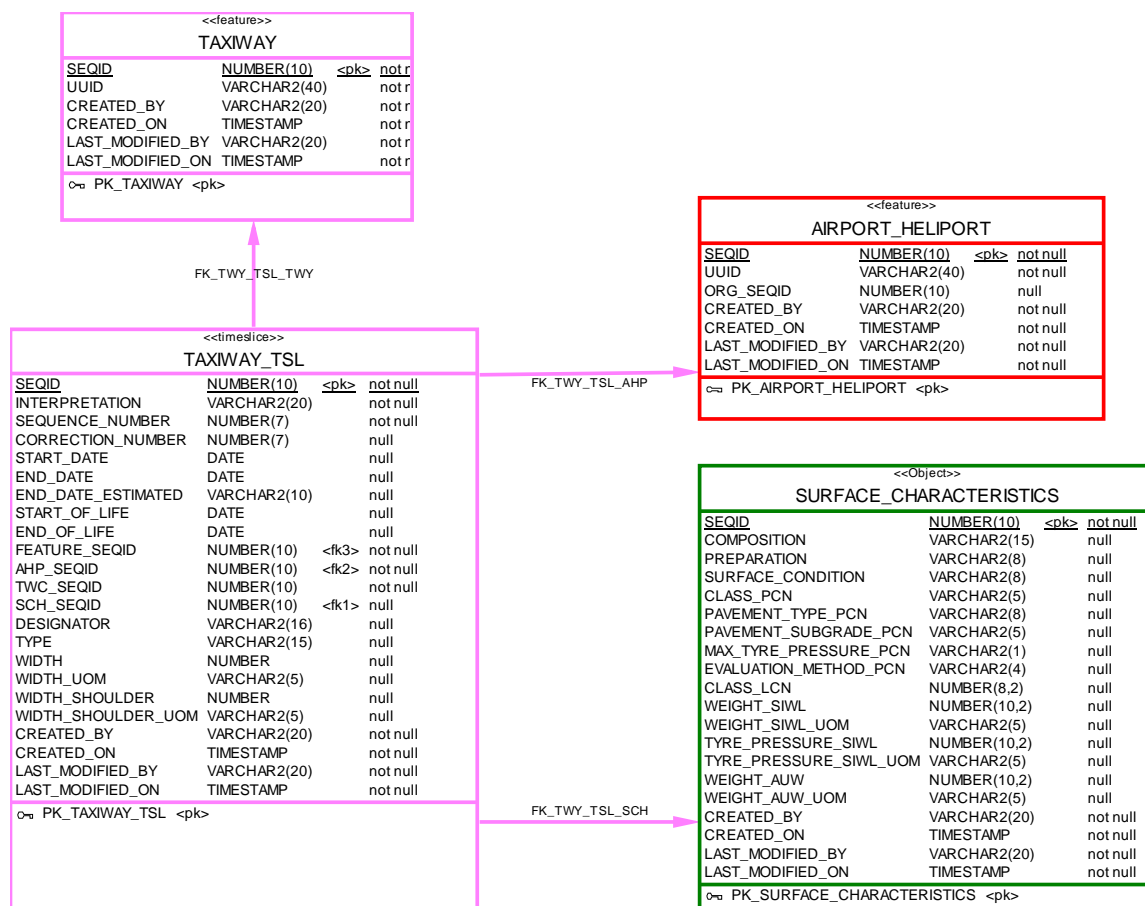
The table below describes the mapping between the values of XML tags of RCP feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
/ RcpUid/ RwyUid/ AhpUid/ codeId	RUNWAY_CENTRELINE_POINT_TSL	RDN_SEQID
/ RcpUid/ RwyUid/ txtDesig	<i>Take value:</i> A search in the RUNWAY_DIRECTION_THRESHOLD database table will be made to retrieve the Runway Direction Seqid, based on the “/RcpUid/ RwyUid/ AhpUid/ codeId”, “/ RcpUid/ RwyUid/ txtDesig”, “RcpUid/ geoLat” and the “/RcpUid/ geoLong”.	
/ RcpUid / geoLat	ELEVATED_POINT	GEOM
/ RcpUid / geoLong	<i>Take value:</i> SDO_GEOMETRY (Point)	
/ codeDatum	ELEVATED_POINT	GEOM_GML
	<i>Take value:</i> SDO_UTIL.TO_GMLGEOMETRY(GEOM)	
/ valGeoidUndulation	ELEVATED_POINT	GEOID_UNDULATION
	<i>Take value:</i> valGeoidUndulation	

/ valElev	ELEVATED_POINT	ELEVATION
	<i>Take value:</i> valElev	
/ uomDistVer	ELEVATED_POINT	GEOID_UNDULATION_UOM
	<i>Take value:</i> IF GEOID_UNDULATION IS NOT NULL -> uomDistVer	
	ELEVATED_POINT	ELEVATION_UOM
	<i>Take value:</i> IF ELEVATION IS NOT NULL -> uomDistVer	
/ txtVerDatum	ELEVATED_POINT	VERTICAL_DATUM
	<i>Take value:</i> txtVerDatum	

### 3.7 Taxiway (TWY)

#### 3.7.1 AIXM 5 database schema



#### 3.7.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of TWY feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

**Note:** in AIXM 5.0 there is a distinction between TAXIWAY (the physical element) and GuidanceLine (the guidance line which is usually on TAXIWAY but can also be on aprons or even on portions of a RUNWAY). Therefore, the following TWY types from AIXM 4.5 map to both a TAXIWAY and a GUIDANCE\_LINE in AIXM 5.0: AIRTWY, GNDTWY, EXIT, FASTEXIT, STUB, T-AROUND, PAR, BYPASS.

The following TWY types from AIXM 4.5 map to only GUIDANCE\_LINE in AIXM 5.0: APRON, S-TLAN, LI-TLAN, LO-TLANE

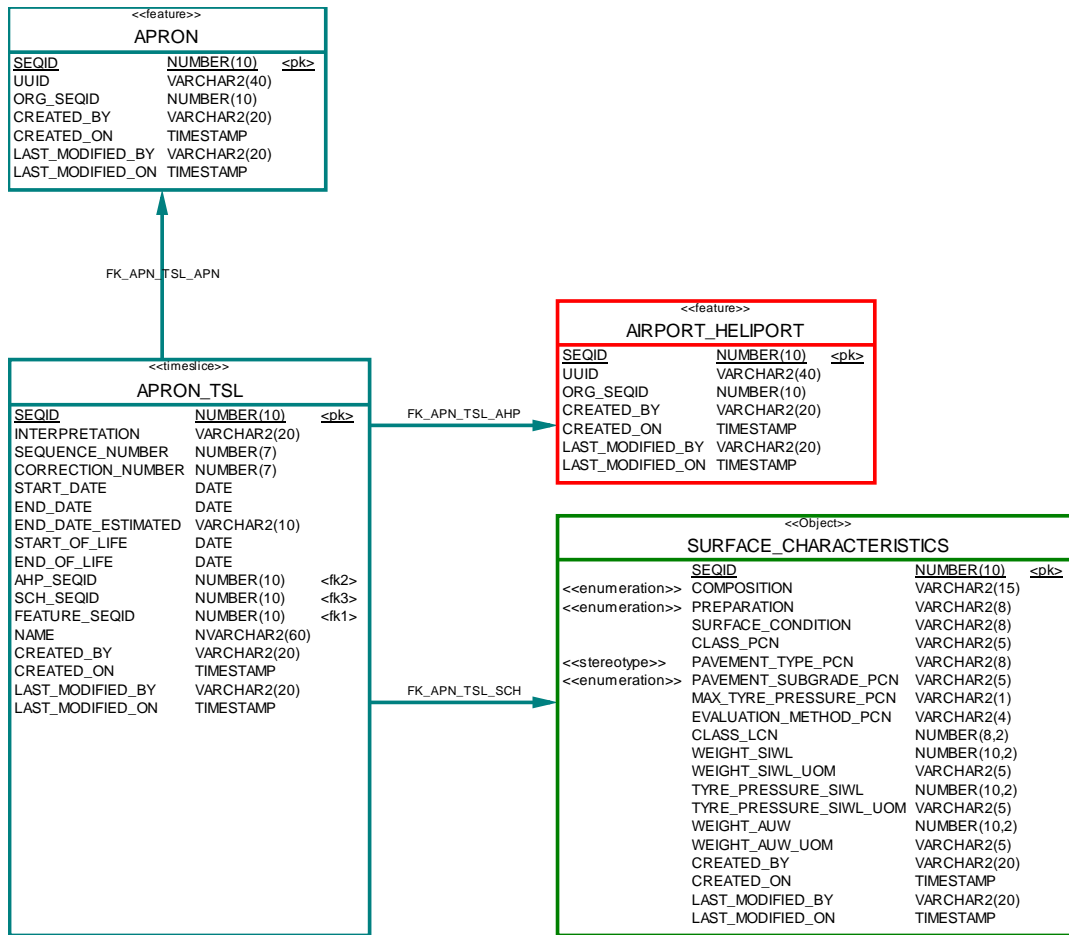
As GuidanceLine is outside the scope of the xSNOWTAM Trial, the mapping only covers the conversions to AIXM 5.0 Taxiway.

Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
/ TwyUid/ AhpUid/ codeId	TAXIWAY	AHP_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding AHP	
/ TwyUid/ txtDesig	TAXIWAY	DESIGNATOR
	<i>Take value:</i> txtDesig	
/ codeType	TAXIWAY	TYPE
	<i>Take value:</i> TwyCodeTypeConverter.convert (String codeType) See <a href="#">TwyCodeTypeConverter</a>	
/ valWid	TAXIWAY	WIDTH
	<i>Take value:</i> valWid	
/ uomWid	TAXIWAY	WIDTH_UOM
	<i>Take value:</i> uomWid	
/ codeComposition	SURFACE_CHARACTERISTICS	COMPOSITION
	<i>Take value:</i> SchCodeCompositionConverter.convert(String codeComposition) See <a href="#">SchCodeCompositionConverter</a>	
/ codePreparation	SURFACE_CHARACTERISTICS	PREPARATION
	<i>Take value:</i> codePreparation	
/ codeCondSfc	SURFACE_CHARACTERISTICS	SURFACE_CONDITION
	<i>Take value:</i> codeCondSfc	
/ valPcnClass	SURFACE_CHARACTERISTICS	CLASS_PCN
	<i>Take value:</i> valPcnClass	
/ codePcnPavementType	SURFACE_CHARACTERISTICS	PAVEMENT_TYPE_PCN
	<i>Take value:</i> SchCodePcnPavementTypeConverter.convert(String codePcnPavementType) See <a href="#">SchCodePcnPavementTypeConverter</a>	
/	SURFACE_CHARACTERISTICS	PAVEMENT_SUBGRADE_PCN

codePcnPavementSubgrade	<i>Take value:</i> codePcnPavementSubgrade	
/ codePcnMaxTirePressure	SURFACE_CHARACTERISTICS	MAX_TYRE_PRESSURE_PCN
	<i>Take value:</i> codePcnMaxTirePressure	
/ codePcnEvalMethod	SURFACE_CHARACTERISTICS	EVALUATION_METHOD_PCN
	<i>Take value:</i> SchCodePcnEvalMethodConverter.convert(String codePcnEvalMethod) See <a href="#">SchCodePcnEvalMethodConverter</a>	
/ valLcnClass	SURFACE_CHARACTERISTICS	CLASS_LCN
	<i>Take value:</i> valLcnClass	
/ valSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL
	<i>Take value:</i> valSiwlWeight	
/ uomSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL_UOM
	<i>Take value:</i> uomSiwlWeight	
/ valSiwlTirePressure	SURFACE_CHARACTERISTICS	TYPE_PRESSURE_SIWL
	<i>Take value:</i> valSiwlTirePressure	
/ uomSiwlTirePressure	SURFACE_CHARACTERISTICS	TYPE_PRESSURE_SIWL_UOM
	<i>Take value:</i> uomSiwlTirePressure	
/ valAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW
	<i>Take value:</i> valSiwlTirePressure	
/ uomAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW_UOM
	<i>Take value:</i> uomAuwWeight	

## 3.8 Apron (APN)

### 3.8.1 AIXM 5 database schema



### 3.8.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of APN feature of AIXM 4.5 file and the database table's fields of the AIXM 5.0 Model.

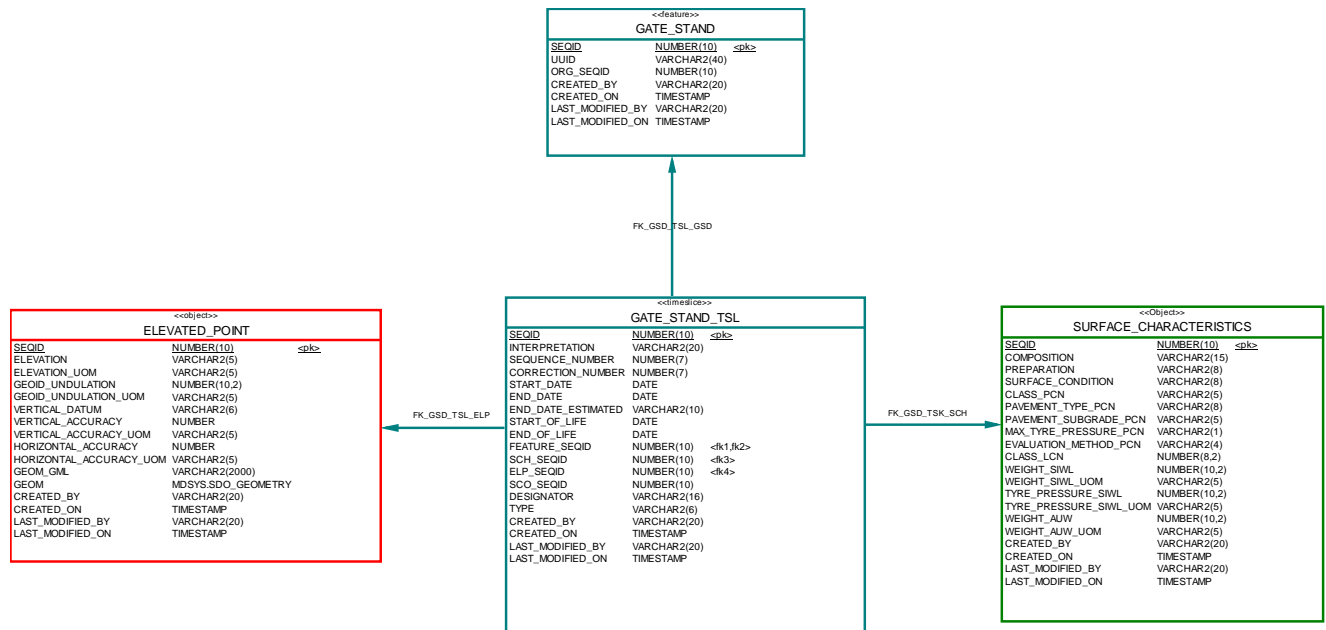
**Note:** To be able to associate a Gate Stand later, we need to create also an empty Apron Element. Indeed, in AIXM 4.5, a Gate Stand is linked to an Apron but in AIXM 5.0, a Gate Stand is linked directly to an Apron.

Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
/ ApnUid/ AhpUid/ codeId	APRON	AHP_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding AHP	
/ ApnUid/ txtName	APRON	NAME
	<i>Take value:</i> txtDesig	
/ codeComposition	SURFACE_CHARACTERISTICS	COMPOSITION
	<i>Take value:</i> SchCodeCompositionConverter.convert(String codeComposition) See <a href="#">SchCodeCompositionConverter</a>	
/ codePreparation	SURFACE_CHARACTERISTICS	PREPARATION

	<i>Take value:</i> codePreparation	
/ codeCondSfc	SURFACE_CHARACTERISTICS	SURFACE_CONDITION
	<i>Take value:</i> codeCondSfc	
/ valPcnClass	SURFACE_CHARACTERISTICS	CLASS_PCN
	<i>Take value:</i> valPcnClass	
/ codePcnPavementType	SURFACE_CHARACTERISTICS	PAVEMENT_TYPE_PCN
	<i>Take value:</i> SchCodePcnPavementTypeConverter.convert(String codePcnPavementType) See <a href="#">SchCodePcnPavementTypeConverter</a>	
/ codePcnPavementSubgrade	SURFACE_CHARACTERISTICS	PAVEMENT_SUBGRADE_PCN
	<i>Take value:</i> codePcnPavementSubgrade	
/ codePcnMaxTirePressure	SURFACE_CHARACTERISTICS	MAX_TYRE_PRESSURE_PCN
	<i>Take value:</i> codePcnMaxTirePressure	
/ codePcnEvalMethod	SURFACE_CHARACTERISTICS	EVALUATION_METHOD_PCN
	<i>Take value:</i> SchCodePcnEvalMethodConverter.convert(String codePcnEvalMethod) See <a href="#">SchCodePcnEvalMethodConverter</a>	
/ valLcnClass	SURFACE_CHARACTERISTICS	CLASS_LCN
	<i>Take value:</i> valLcnClass	
/ valSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL
	<i>Take value:</i> valSiwlWeight	
/ uomSiwlWeight	SURFACE_CHARACTERISTICS	WEIGHT_SIWL_UOM
	<i>Take value:</i> uomSiwlWeight	
/ valSiwlTirePressure	SURFACE_CHARACTERISTICS	TYPE_PRESSURE_SIWL
	<i>Take value:</i> valSiwlTirePressure	
/ uomSiwlTirePressure	SURFACE_CHARACTERISTICS	TYPE_PRESSURE_SIWL_UOM
	<i>Take value:</i> uomSiwlTirePressure	
/ valAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW
	<i>Take value:</i> valSiwlTirePressure	
/ uomAuwWeight	SURFACE_CHARACTERISTICS	WEIGHT_AUW_UOM
	<i>Take value:</i> uomAuwWeight	

### 3.9 Gate Stand (GSD)

#### 3.9.1 AIXM 5 database schema



#### 3.9.2 Mapping from AIXM 4.5 to AIXM 5

The table below describes the mapping between the values of XML tags of Gate Stand feature of AIXM 4.5 file and the database table's fields of the xNotam 5.0 database.

Source	Destination	
AIXM 4.5	Database 5.0	
TAG	Database table	Column
/ GsdUid/ ApnUid/ AhpUid/codeId /GsdUid/ApnUid/tx tName	GATE_STAND	APE_SEQID
	<i>Take value:</i> Ask the SNOWTAM Kernel to retrieve the corresponding APE.	
/ GsdUid / txtDesig	GATE_STAND	DESIGNATOR
	<i>Take value:</i> txtDesig	
/ codeType	GATE_STAND	TYPE
	<i>Take value:</i> GsdCodeTypeConverter.convert(String codeType) See <a href="#">GsdCodeTypeConverter</a>	
/ geoLat / geoLong / codeDatum	ELEVATED_POINT	GEOM
	<i>Take value:</i> SDO_GEOMETRY (Point)	
	ELEVATED_POINT	GEOM_GML
	<i>Take value:</i> SDO_UTIL.TO_GMLGEOMETRY(GEOM)	

/ valGeoidUndulation	ELEVATED_POINT	GEOID_UNDULATION
	<i>Take value:</i> valGeoidUndulation	
/ valElev	ELEVATED_POINT	ELEVATION
	<i>Take value:</i> valElev	
/ uomDistVer	ELEVATED_POINT	ELEVATION_UOM
	<i>Take value:</i> uomDistVer	
/ txtVerDatum	ELEVATED_POINT	VERTICAL_DATUM
	<i>Take value:</i> txtVerDatum	

## 4 Codes Mapping

These tables give the operations carried out by the mapping between the two versions of the AIXM codes (Version AIXM 4.5 versus version AIXM 5.0). These operations can be:

- Equal (if the source code is taken as it is);
- Transformed into <XXX> (if the source code is transformed towards a destination code XXX);
- Not used (if the destination code does not have a source code which can be mapped).

### 4.1 AhpCodeTypeConverter

This table shows the mapping carried out between the codes of the codeTypeAdHp type (AIXM 4.5) and the codes of the CodeAirportHeliportType type (AIXM 5.0).

*Java method: AhpCodeTypeConverter.convert(String codeType)*

Value of the source code	Value of the code destination	Operation
AD	AD	Equal
AH	AH	Equal
HP	HP	Equal
LS	LS	Equal

### 4.2 AhpCodeTypeMilOpsConverter

This table shows the mapping carried out between the codes of the codTypeMilOps type (AIXM 4.5) and the codes of the CodeMilitaryOperationsType type (AIXM 5.0).

*Java method: AhpCodeTypeMilOpsConverter.convert(String codeTypeMilOps)*

Value of the source code	Value of the code destination	Operation
CIVIL	CIVIL	Equal
MIL	MIL	Equal
JOINT	JOINT	Equal
MILEXT		Transformed into JOINT
	OTHER	Not used

### 4.3 TwyCodeTypeConverter

This table shows the mapping carried out between the codes of the codeTypeTwy type (AIXM 4.5) and the codes of the CodeTaxiwayType type (AIXM 5.0).

*Java method: TwyCodeTypeConverter.convert(String codeType)*

Value of the source code	Value of the code destination	Operation
AIRTWY	AIR	Transformed

GNDTWY	GND	Transformed
EXIT	EXIT	Equal
FASTEXIT	FASTEXIT	Equal
STUB	STUB	Equal
T-AROUND	TURN_AROUND	Equal
PAR	PARALLEL	Transformed
BYPASS	BYPASS	Equal
APRON	No mapping as TWY	Equal
S-TLAN	No mapping as TWY	Transformed
LI-TLAN	No mapping ad TWY	Equal
LO-TLANE	No mapping as TWY	Equal
OTHER	OTHER	Equal

#### 4.4 SchCodeCompositionConverter

This table shows the mapping carried out between the codes of the codeCompositionSfc type (AIXM 4.5) and the codes of the CodeSurfaceCompositionType type (AIXM 5.0).

*Java method: SchCodeCompositionConverter.convert(String codeComposition)*

Value of the source code	Value of the code destination	Operation
ASP+GRS	ASPH_GRASS	Transformed
CONC+ASPH	CONC_ASPH	Transformed
CONC+GRS	CONC_GRS	Transformed
GRAVE	GRAVEL	Transformed
PSP	PEIRCED_STEEL	Transformed

#### 4.5 SchCodePcnPavementTypeConverter

This table shows the mapping carried out between the codes of the codePcnPavementType type (AIXM 4.5) and the codes of the CodePCNPavementType Type type (AIXM 5.0).

*Java method: SchCodePcnPavementTypeConverter.convert(String codePcnPavementType)*

Value of the source code	Value of the code destination	Operation
R	RIGID	Transformed
F	FLEXIBLE	Transformed

#### 4.6 SchCodePcnEvalMethodConverter

This table shows the mapping carried out between the codes of the codePcnEvalMethod type (AIXM 4.5) and the codes of the CodePCNMethodType type (AIXM 5.0).

*Java method: SchCodePcnEvalMethodConverter.convert(String codePcnEvalMethod)*

Value of the source	Value of the code	Operation
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code	destination	
T	TECH	Transformed
U	ACFT	Transformed

## 4.7 GsdCodeTypeConverter

This table shows the mapping carried out between the codes of the codeTypeStandBase type (AIXM 4.5) and the codes of the CodeGateStandType type (AIXM 5.0).

*Java method: AhpCodeTypeConverter.convert(String codeType)*

Value of the source code	Value of the code destination	Operation
NI	NI	Equal
ANG-NI	ANG_NI	Transformed
ANG-NO	ANG_NO	Transformed
PAR	PARL	Transformed
RMT	RMT	Equal
ISOL	ISOL	Equal
UKN	OTHER	Transformed
OTHER	OTHER	Equal