AIXM-425 Add support for start/end twilight

ID:	**AIXM-425**
target version:	**AIXM 5.2**
version:	**1.0**
last updated:	**10 OCT 2019**
status:	**APPROVED**

Description

New codes for start/end twilight are added in the CodeTimeEventBaseType.

Rationale for change
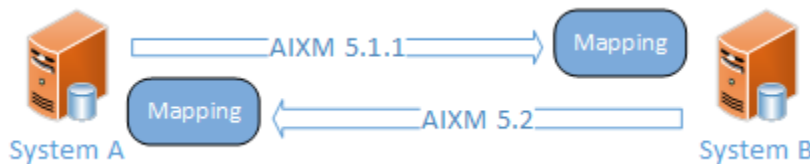
See https://aixmccb.atlassian.net/browse/AIXM-377

The meaning of 'day' and 'night' is not the same in the world. For European States that apply the "SERA Regulation" (European Union Commission Implementing Regulation (EU) No 923/2012), 'night' might actually mean "the hours between the end of evening civil twilight and the beginning of morning civil twilight. Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon."

In this case, different values are used for start/end event when coding HJ/HN codes. In AIXM 5.1(.1) OTHER has to be used:

- Timesheet.startEvent='OTHER:START_MORNING_CIVIL_TWILIGHT'
- Timesheet.endEvent='OTHER:END_EVENING_CIVIL_TWILIGHT'

Impact assessment

[FWD_MAP_1:1] Data mapping is possible and no data loss occurs when data is exchanged from a system (A) that uses AIXM 5.1.1 for output towards a system (B) that uses AIXM 5.2 for input.
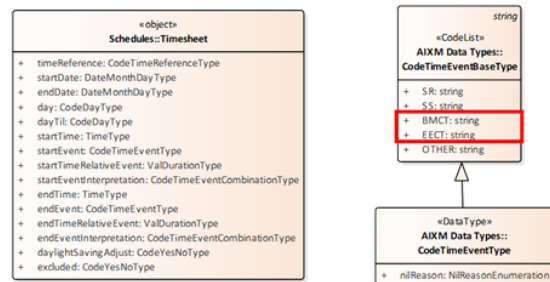
[BWD_MAP_1:1] Data mapping is possible and no data loss occurs when data is exchanged from a system (B) that uses AIXM 5.2 for output towards a system (A) that uses AIXM 5.1.1 for input.

Change Proposal details

In the UML model add the following code values to CodeTimeEventBaseType:

- BMCT = "*Beginning of morning civil twilight, which is the time when the centre of the sun's disc is 6 degrees below the horizon.*"
- EECT = "*End of evening civil twilight, which is the time when the centre of the sun's disc is 6 degrees below the horizon.*"

The additional values are shown in the UML class diagram to the right.

Mapping AIXM 5.1.1 to AIXM 5.2 (forward)

[MAPC-01] The following data conversion algorithm is proposed:

- For each Timesheet.startEvent
  - Replace "OTHER: START_MORNING_CIVIL_TWILIGHT" with "BMCT"
  - Replace "OTHER:END_EVENING_CIVIL_TWILIGHT" with "EECT"
- For each Timesheet.endEvent
  - Replace "OTHER: START_MORNING_CIVIL_TWILIGHT" with "BMCT"

- Replace "OTHER:END_EVENING_CIVIL_TWILIGHT" with "EECT"

Mapping AIXM 5.2 to AIXM 5.1.1 (backward)

[MAPC-01] The following data conversion algorithm is proposed:

- For each Timesheet.startEvent that has the value "BMCT":
    - Replace the value with "OTHER: START_MORNING_CIVIL_TWILIGHT"
- For each Timesheet.startEvent that has the value "EECT":
    - Replace the value with "OTHER: END_EVENING_CIVIL_TWILIGHT"
- For each Timesheet.endEvent that has the value "BMCT":
    - Replace the value with "OTHER: START_MORNING_CIVIL_TWILIGHT"
- For each Timesheet.endEvent that has the value "EECT":
    - Replace the value with "OTHER: END_EVENING_CIVIL_TWILIGHT"

Mapping example

ⓘ Mapping examples to be added...

(Note: for mapping test data see: https://github.com/aixm/mapping_52_511/tree/master/AIXM-xxx)

AIXM 5.2	AIXM 5.1(.1)
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