

Dear Christian and all "along-readers",

in my last post I wrote "(see remarks later)" but it seems that I forgot to write the remarks later... Sorry. Here are the remarks concerning midnight-overrun:

When modelling validity times of infrastructure elements, I recommend thinking about the midnight-overrun phenomenon. In <timetable>, this phenomenon led to the attributes

```
<timetable>...<trainParts>...<ocpTT>...<times arrivalDay=...  
departureDay=.../>
```

Firstly, these attributes only dis-burden us from the necessity to name a second <operatingPeriod> after a train has passed midnight. Since infrastructure normally does not move (in contrast to trains), it seems that there is no need to do so for the validity of infrastructure. For instance:

```
[1] <is:maintenanceWorks validFrom="2017-03-21 21:00:00"  
validTo="2017-03-23 05:00:00" />
```

seems to be identical (and easier) than

```
[2] <is:maintenanceWorks validFrom="2017-03-21 21:00:00"  
validToDay="+2" validToTime="05:00:00" />
```

But, if you have repeating times as

```
[3] <is:maintenanceWorks  
validFromOperatingPeriodRef="op_FridaysInMarch2017"  
validToDay="op_SundaysInMarch2017" />
```

would lead to create two nearly identical <operatingPeriod>s which only differ by two days. And you open up discrepancies if the two <operatingPeriod>s do not have the same number of days. Therefore, it may be easier to say

```
[4] <is:maintenanceWorks  
validFromOperatingPeriodRef="op_FridaysInMarch2017" validToDayOffset="+2" />
```

And lastly, if you have "virtual days" which do not have a date (yet) sometimes you cannot say what are the following days:

```
[5] <is:maintenanceWorks
```

```
validFromOperatingPeriodRef="op_WorkingDaysBeforeHolidaysInMarch "  
validToDayOffset="+2" />
```

In this example, you cannot say (more exactly) which days are "two days after working days before holidays in march" of each year without knowing a certain year, calendar and holiday rule. This may be a bad example for maintenance works (since probably nobody plans maintenance works such regularly in advance) but imagine signal box opening times or swing-bridge opening times or such...

Conclusion: I would recommend the following rule:

When modelling (possible repeating) time periods, `_never_` enforce naming a start and an end date (=operating period). Only use `_one_ date` (=one operating period) and a relative day offset!

(Please understand as a recommendation only.)

With best regards,  
Dirk.

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