26 TimeSteps

Function:	*Configure predefined timesteps for a fews environment*
Where to Use?	*To define verbose* timesteps or to define yearly or monthly time steps
Why to Use?	Yearly and monthly time steps can only be configured in the timesteps.xml. For verbose timesteps it might be useful to define them once in the timestep.xml and refer to them from other configuration files.
Description:	Definition of timesteps which can be referenced from other configuration files
Available since:	

Contents

Overview

The timesteps.xml can be used to configure timesteps. This file is useful to define verbose timesteps and refer to the definition of these timesteps to

from other configuration files.

Configuration

When available on the file system, the name of the XML file is for example:

TimeSteps 1.00 default.xml

TimeSteps   Fixed file name for the TimeSteps configuration

1.00   Version number

default   Flag to indicate the version is the default configuration (otherwise omitted).

Schema

Below the schema of the TimeStep.xml configuration files.

fews:TimeStepComplexType

fews:timeStep

+ attributes

fews:description

Optional description of this timeStep. This is not used and is only present for convenience.

fews:MonthlyTimeStepComplexType

fews:monthlyTimeStep

A timeStep that defines a pattern of days in a month. This pattern will be repeated every month. Each day in the month can have a different aggregation period. The start of the aggregation period is exclusive and the end of the aggregation period is inclusive.

+ attributes

fews:timeZone

Optional time zone for dates and times defined in this timeStep. If no time zone is defined, then dates and times are in GMT.

fews:day +

1..6

Define a day for this timestep. For each month this day will be included in the timestep. This monthlyTimeStep is limited to six days. If more than six days in a month are required, then please use the daysOfMonth option in the timeStep element instead of this monthlyTimeStep.

TimeStepsComplexType

Predefined time step that can be referenced from other config files.

Especially useful for verbose time step definitions. E.g. time steps with a time zone.

It is comparable with a global property, it makes no difference to use the global time step or the verbose time step

1..∞

fews:YearlyTimeStepComplexType

fews:yearlyTimeStep

A timeStep that defines a pattern of dates in a year. This pattern will be repeated every year. Each date in the year can have a different aggregation period (season). The start of the aggregation period is exclusive and the end of the aggregation period is inclusive. This yearlyTimeStep is meant for seasons, therefore limited to four dates. If more than four dates in a year are required, then please use the monthDays option in the timeStep element instead of this yearlyTimeStep.

+ attributes

fews:timeZone

Optional time zone for dates and times defined in this timeStep. If no time zone is defined, then dates and times are in GMT.

fews:monthDay +

1..4

One or more dates in a year for which data values can be stored when this timeStep is used. These dates will be repeated every year. Each date in the year can have a different aggregation period (season). The start of the aggregation period is exclusive and the end of the aggregation period is inclusive. This yearlyTimeStep is meant for seasons, therefore limited to four dates. If more than four dates in a year are required, then please use the

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timeStep

Attributes;

-       id: Unique Id of level threshold. This id should be used when referencing to this definition from other configuration files.

The following link describes in detail of to configure a timestep.

https://publicwiki.deltares.nl/display/FEWSDOC/02+Data+Handling+in+DELFT-FEWS#id-02DataHandlinginDELFT-FEWS-timeStep

yearlyTimeStep

A timeStep that defines a pattern of dates in a year. This pattern will be repeated every year.

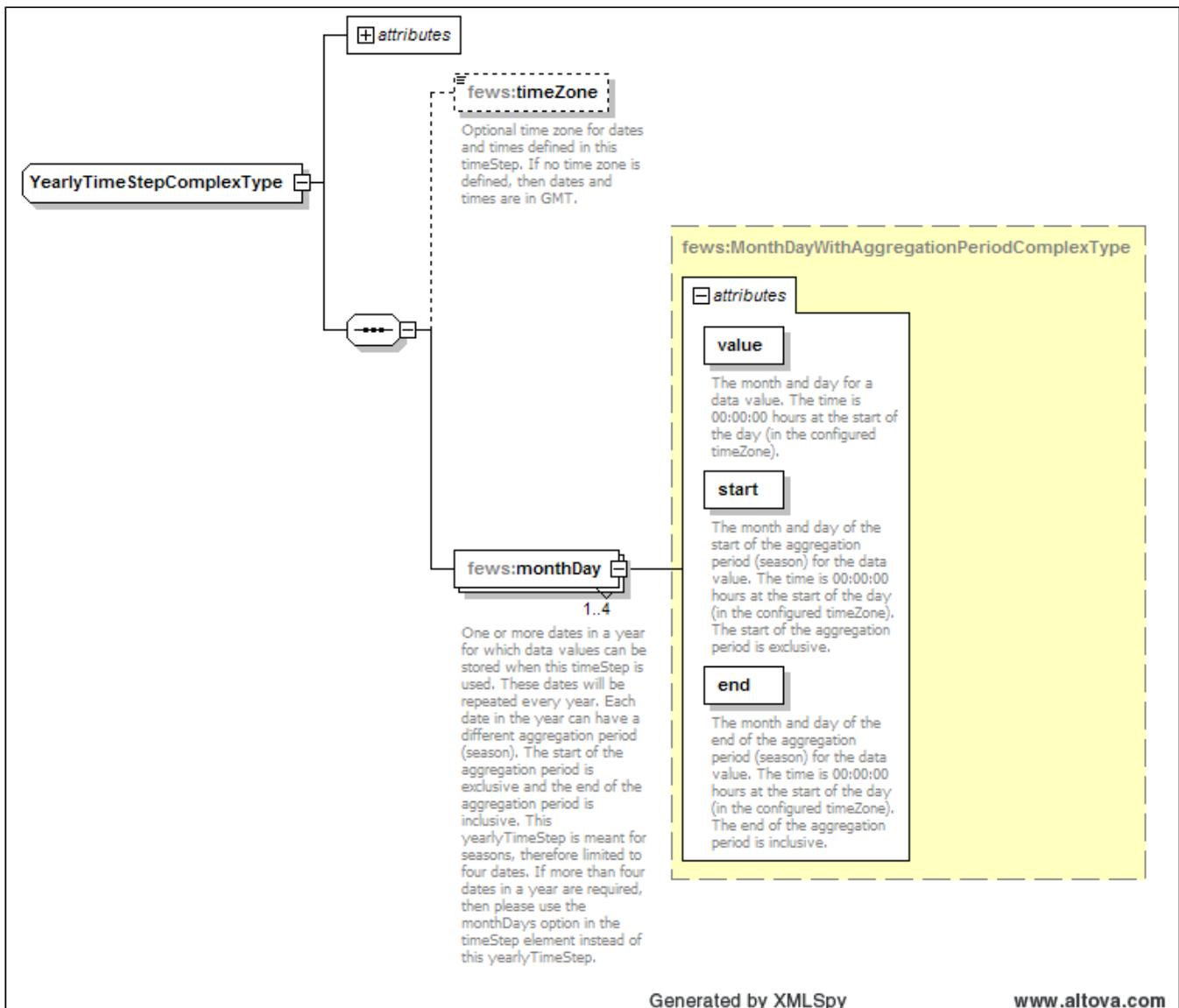Each date in the year can have a different aggregation period (season).

The start of the aggregation period is exclusive and the end of the aggregation period is inclusive.

This yearlyTimeStep is meant for seasons, therefore limited to four dates.

If more than four dates in a year are required, then please use the monthDays option in the timeStep element instead of this yearlyTimeStep

Schema yearly time step

Below the schema of the yearly time step

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Below a configuration example

```
<yearlyTimeStep id="daily">
        <monthDay start="--01-01" end="--01-02" value="--01-02"/>
        <monthDay start="--04-02" end="--04-03" value="--04-03"/>
        <monthDay start="--07-03" end="--07-04" value="--07-04"/>
        <monthDay start="--10-04" end="--10-05" value="--10-05"/>
</yearlyTimeStep>
```

To define a yearly time step an id should be configured. Secondly the monthDays of the time steps should be configured.
In this example the yearly time step has 4 monthDays. The start attribute defines the start of the aggregation period and the
end tag defines the end of the aggregation period. The value defines the timestamp used to store the aggregated value.
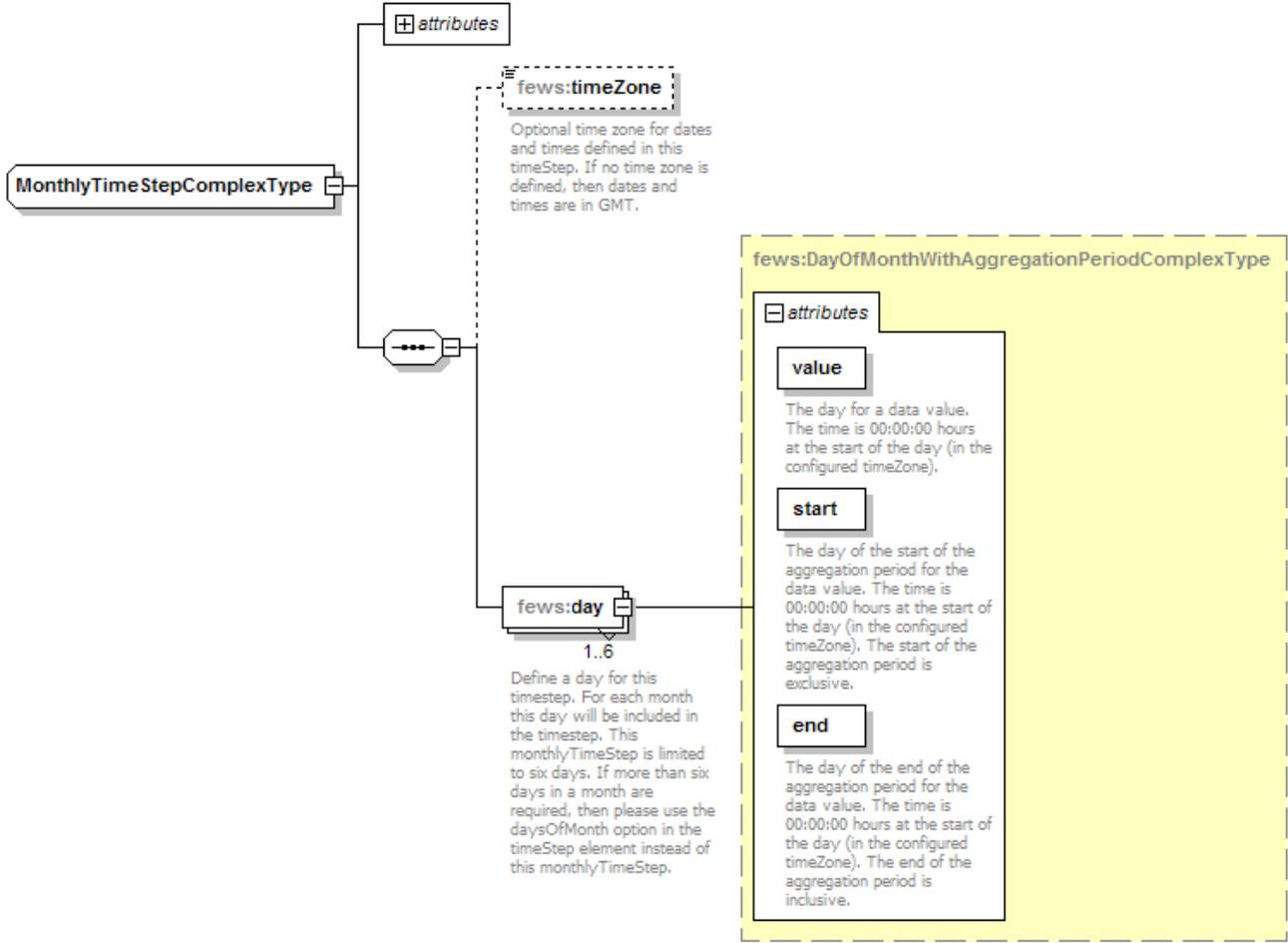
When using the yearly timestep in combination with the accumulation transformations, the value determines a restart moment for the accumulation. For
those situations it is advised to set the value at the start of the season.

Monthly time step

A timeStep that defines a pattern of days in a month. This pattern will be repeated every month. Each day in the month can have a different aggregation
period. The start of the aggregation period is exclusive and the end of the aggregation period is inclusive.

Schema monthly time step

Below the schema of the monthly time step.

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Below a configuration example

```
<monthlyTimeStep id="example">
        <day start="01" end="02" value="02"></day>
        <day start="10" end="11" value="11"></day>
</monthlyTimeStep>
```

Weekly timestep

A timestep that defines a pattern of times in week. This pattern will be repeated every week (since 2014.01). In this example values stored for this timestep are stored on Sunday, 00:00. This could be useful if the default weekly time (Thursday) is not suitable.

```
<weeklyTimeStep id="Week" label="week">
    <sunday times="00:00"/>
</weeklyTimeStep>
```

Other examples

every day at 13:00
<timeStep times="13:00"/>

every day at 13:00 and 20:00
<timeStep times="13:00 20:00"/>

every hour at each half hour (0:30, 1:30, etc.)

```
<timeStep minutes="30"/>
```

every hour at 5 and 45 minutes

```
<timeStep minutes="05 45">
```

every 12th of the month
```
<timeStep daysOfMonth="12"/>
```

decade
```
<timeStep daysOfMonth="1 11 21"/>
```