

# Statistics Serial Transformations

## Description

A statisticsSerial transformation will compute the configured statistic function from the list below. For each timestep in the output series the input values within the aggregation period are used to get a result value for that output time.

By default, the aggregation period is defined by the output timestep. A moving window can be defined by specifying an aggregationPeriod in the timeSeriesSet. In that case (see example below) for every timestep an aggregated value over the aggregationPeriod will be calculated.

Note: For the AggregationPeriod the start is exclusive and the end is inclusive.

## Functions

The available statistic functions are:

- count
- countFlags
- kurtosis
- max
- mean (acts as movingaverage transformation)
- geometric mean (2019.01)
- median
- min
- percentileExceedence
- percentileNonExceedence
- quartile
- rootMeanSquareError
- rsquared
- skewness
- standardDeviation
- sum
- variance

## Configuration Example

Input variable definition:

```
<variable>
  <variableId>BalanceError</variableId>
  <timeSeriesSet>
    <moduleInstanceld>RTCTools_TK_Update</moduleInstanceld>
    <valueType>scalar</valueType>
    <parameterId>E rtc</parameterId>
    <locationId>Hengelo</locationId>
    <locationId>Delden</locationId>
    <locationId>Eefde</locationId>
    <timeSeriesType>external historical</timeSeriesType>
    <timeStep unit="hour"/>
    <relativeViewPeriod unit="day" start="-7" end="0" startOverrulable="true"/>
    <readWriteMode>add originals</readWriteMode>
  </timeSeriesSet>
</variable>
<variable>
  <variableId>BalanceError_average</variableId>
  <timeSeriesSet>
    <moduleInstanceld>RTCTools_TK_MPC_Pre</moduleInstanceld>
    <valueType>scalar</valueType>
    <parameterId>E rtc</parameterId>
    <locationId>Hengelo</locationId>
    <locationId>Delden</locationId>
    <locationId>Eefde</locationId>
    <timeSeriesType>external historical</timeSeriesType>
    <timeStep unit="hour"/>
    <aggregationPeriod start="-1" end="0" unit="day"/>
    <relativeViewPeriod unit="day" start="-7" end="0" startOverrulable="true"/>
    <readWriteMode>add originals</readWriteMode>
  </timeSeriesSet>
</variable>
```

Transformation definition:

```
<!--Moving average balance error-->
<transformation id="Calculate_mean_balance_error">
  <statisticsSerial>
    <mean>
      <inputVariable>
        <variableId>BalanceError</variableId>
      </inputVariable>
      <outputVariable>
        <variableId>BalanceError_average</variableId>
      </outputVariable>
    </mean>
  </statisticsSerial>
</transformation>
```

Output example

## Sluiscomplex Hengelo

