

New file format for discharge measurement QWestMess protocol documentation

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1 Preliminary Considerations

QWestMess is a format that allows discharge measurements, as used by QWest, to be imported and exported.

It should be easy to create, easy to read, and reliably processed automatically. Therefore, it makes sense to define the format as XML.

During import, multi-time series with 13 components are generated, each with predefined parameters and units. However, the import data should allow the freedom to omit any values or change their order as needed.

All values are numbers. The file creator must consult `code_measurementtype`, `code_measurementteam`, and `code_messcriteria` as needed for the codes for method, team, and criterion.

If a QWest customer exchanges QWest-format files with another QWest customer, the `code_measure*`-relationships must first be standardized. The importer and exporter are not responsible for this. The location is specified in the file. To locate the series, the channel

Discharge Measurement, the Interpretation Mes, and the DomainType M are used. The remaining attributes are set to their default values (empty or 0). This corresponds to the attributes as used by QWest.

A single file may contain multiple locations.

2 Definition of the format

The system processes files with or without the leading `<?xml?>`.

The file has a root node named **QWest-Discharge Measurements**. This contains a list of child nodes named **Measurement**. There is no further structuring.

The Measurement nodes contain the values of a discharge measurement as attributes. In addition, they contain the attributes **Location** and **TIME** (time of measurement). The time may be specified with or without hours/minutes value. If missing, 0:00 is assumed.

Numbers can be specified with a decimal comma or a decimal point.

The following roles exist: Q, W, Vm, Vo, A,

Width, P, bU, dW, Depth, Team,

Method, Criterion, Location, ZP, and Comment.

Uppercase and lowercase letters are not distinguished (exception: the value of the comment).

The order in which attributes are specified is not fixed. Unspecified values are treated as gaps. Gaps are not output during export. An empty comment is not output.

The units are: Q m^3/s , W *cm*, Vm/Vo *m/s*, A m^2 , width *cm*,

P $m^{(5/2)}$, bU *cm*, dW *cm*, depth *cm*.

Q = discharge, W = water level, Vm = mean flow velocity,

Vo = surface velocity, A = flow cross-sectional area, P = profile coefficient,

bU = wetted perimeter, dW = delta W, depth = water depth

3 Integration with QWest

QWest includes import and export functions for QWestMess. The measurements are imported **individually**, meaning they may be merged with existing measurements.

4 Example

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<QWest-Discharge Measurements>
  <Measurement Location="28086" time="13.07.2015 13:46:55" W="42" Q="14.48" Vm="0.43" A="33.75" bU="24
  <Measurement Location="28086" time="28.07.2015 15:05:25" W="39" Q="12.27" Vm="0.41" A="29.92" bU="22
  <Measurement Location="28086" time="14.08.2015 11:29:50" W="46" Q="15.13" Vm="0.43" A="34.84" bU="24
  <Measurement Location="28086" time="26.10.2015 14:11:15" W="42" Q="14.97" Vm="0.45" Comment="Weed" />
  <Messung Location="28086" ZP="05.11.2015 11:17:50" W="33" Q="14.52" Vm="0.47" A="30.66" bU="2271" />
</QWest-Discharge Measurements>
```