

shef2pi

This is a program to convert SHEF “shefout” formatted file(s) to the FEWS pi-xml format. The shef2pi program was originally developed by John Halquist of NCRFC/NOHRSC. John delivered the source code and test data to OHD prior to his departure from NWS. OHD created the executable and tested the program in CHPS environment.

Usage:

shef2pi indir infile xmldir xmlfile (debug_level)

indir – directory containing the binary “shefout” file(s)

infile – “shefout” filename (i.e. output from SHEF parser)

xmldir – directory where xml output file should be written

xmlfile – filename for xml file, will be appended with current date/time and xml extension

debug_level – sets diagnostic debugging level 0,1,2,3

Verification:

There were 23 different SHEF products generated by John and delivered to OHD. The data sets were used to verify the shef2pi Program created by OHD. This verification is done through OHD regression tests in all releases.

The output from shef2pi is an xml file formatted to conform to the FEWS published interface (pi) schema. The input to shef2pi is expected to be the unformatted binary output of the Standardized SHEF parse software.

Notes:

- SHEF ids are directly converted to <locationId>
- The full SHEF parameter code is mapped to <parameterId>, this will need to use internal CHPS id mapping to convert to the proper parameter storage and internal use. Note that Z(s) will be present in the parameter codes, for unspecified positions to indicate ‘default’ – these are inserted by the SHEF parse routines.
- Creation dates are preserved when provided in the original SHEF.
- Executing shef2pi without arguments will return usage and version information.

Sample example of PI xml output, ab10xml20130312160942.781.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
  <TimeSeries
    xsi:schemaLocation="http://www.wldelft.nl/fews/PI
http://fews.wldelft.nl/schemas/version1.0/pi-schemas/pi_timeseries.xsd"
    version="1.2" xmlns="http://www.wldelft.nl/fews/PI"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <timeZone>0.0</timeZone>
    <series>
      <header>
        <type>instantaneous</type>
        <locationId>BRMC2</locationId>
        <parameterId>PPPRZZ</parameterId>
        <timeStep unit="nonequidistant"/>
        <startDate date="2010-05-07" time="12:00:00"/>
        <endDate date="2010-05-07" time="12:00:00"/>
        <missVal>-9999.0</missVal>
      </header>
      <event date="2010-05-07" time="12:00:00" value="-9999.0000" flag="0"
comment=""/>
    </series>
    <series>
      <header>
        <type>instantaneous</type>
        <locationId>FMTC2</locationId>
        <parameterId>PPPRZZ</parameterId>
        <timeStep unit="nonequidistant"/>
        <startDate date="2010-05-07" time="12:00:00"/>
        <endDate date="2010-05-07" time="12:00:00"/>
        <missVal>-9999.0</missVal>
      </header>
      <event date="2010-05-07" time="12:00:00" value="-9999.0000" flag="0"
comment=""/>
    </series>
    <series>
      <header>
        <type>accumulative</type>
        <locationId>EURK1</locationId>
        <parameterId>PPDRGZ</parameterId>
        <timeStep unit="day" multiplier="1"/>
        <startDate date="2010-05-07" time="12:00:00"/>
        <endDate date="2010-05-07" time="12:00:00"/>
        <missVal>-9999.0</missVal>
```

```

</header>
<event date="2010-05-07" time="12:00:00" value="-9999.0000" flag="0"
comment="" />
</series>
<series>
<header>
<type>instantaneous</type>
<locationId>INLO2</locationId>
<parameterId>HTIRGZ</parameterId>
<timeStep unit="nonequidistant" />
<startDate date="2010-05-03" time="18:30:00" />
<endDate date="2010-05-04" time="12:01:00" />
<missVal>-9999.0</missVal>
</header>
<event date="2010-05-03" time="18:30:00" value="-9999.0000" flag="0"
comment="" />
<event date="2010-05-04" time="12:00:00" value="-9999.0000" flag="0"
comment="" />
<event date="2010-05-04" time="12:01:00" value="-9999.0000" flag="0"
comment="" />
</series>
</TimeSeries>

```

Limitations:

For the initial version (1.2), there are a few SHEF duration codes that are not mapped, most notably variable duration codes. At this time, no operational SHEF products could be found that used these features. If there are durations in use that are not handled by this software, modification will be required both in shef2pi and in the pi schema.

Paired Value ("Vector") Physical Elements are not encoded in a way that can be ingested into CHPS. In SHEF, these special PE's require the posting software to break up the paired values. With shef2pi being PE agnostic, the results inserted into the pixml come direct from the SHEF parser, however, the FEWS ingest cannot perform the conversion to break the paired data into its discrete component values.

There is a limit to the size of the SHEF products; normally this will not be noticed unless the product is the result of large database dumps. The effective size is 2500 distinct time-series per product.