Appendix: USGSNWIS Input Type

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Overview

The USGSNWIS time series input type corresponds to the United States Geological Survey (USGS) National Water Information System (NWIS) format. A number of formats are available but currently only the surface water daily format is supported. Data files can be created by saving USGS web site data to a text file. The example below shows the format of a daily surface water file. Important comments about the file format are:

- The file is divided into a header section (top) and data section (bottom). Comments can occur only at the top and are lines that begin with #.
- Optional data flags are saved with the data values, if available (e.g., e indicates estimated data). Applications like TSTool may include features to use the data flags.
- HTML remnants may be present at the end of the file. These lines are stripped out during time series processing.

The following example illustrates the format of a USGS NWIS file.

```
#
# U.S. Geological Survey
# National Water Information System
# Retrieved: 2002-01-28 13:35:25 EST
#
# This file contains published daily mean streamflow data.
#
# This information includes the following fields:
#
#  agency_cd   Agency Code
#  site_no     USGS station number
#  dv_dt       date of daily mean streamflow
#  dv_va       daily mean streamflow value, in cubic-feet per-second
#  dv_cd       daily mean streamflow value qualification code
#
# Sites in this file include:
#  USGS 03451500 FRENCH BROAD RIVER AT ASHEVILLE, NC
#
#
agency_cd      site_no dv_dt   dv_va   dv_cd
5s      15s     10d     12n     3s
USGS    03451500        1895-10-01      740
USGS    03451500        1895-10-02      740
...
USGS    03451500        1985-01-20      1100    e
USGS    03451500        1985-01-21      1100    e
USGS    03451500        1985-01-22      1100    e
...
USGS    03451500        2000-09-28      675
USGS    03451500        2000-09-29      597
USGS    03451500        2000-09-30      550
 <font face="Arial" size=2>
<p>Microsoft VBScript runtime </font> <font face="Arial" size=2>error '800a01a8'</font>
<p>
<font face="Arial" size=2>Object required: 'db'</font>
<p>
<font face="Arial" size=2>/ctp_workgroup/cgi-bin/includes/Inc_htm_utils.asp</font>
<font face="Arial" size=2>, line 217</font>  <font face="Arial" size=2>
<p>Microsoft VBScript runtime </font> <font face="Arial" size=2>error '800a01a8'</font>
<p><font face="Arial" size=2>Object
```

USGSNWIS Files and Standard Time Series Properties

The standard time series identifier for USGS NWIS time series is of the form:

```
Location.DataSource.DataType.Interval~USGSNWIS~PathToFile
```

It is difficult to automatically assign standard time series properties from a USGS NWIS file. The limited support of this file format assumes the following:

- The location part of the time series identifier is taken from the second field (`site_no`) in the data records.
- The source part of the time series identifier is taken from the first field (`agency_cd`) in the data records.
- The data type is assigned as `Streamflow` (interpretation of the verbose `dv_va` field in the header is not implemented).
- The data interval is assigned as `1Day` (interpretation of the verbose `dv_va` field in the header is not implemented).
- The input type is set to `USGSNWIS`, indicating the format of input.
- The input name is set to the absolute or relative path to the file.
- The Units are assigned as `CFS`.
- The missing data value is assigned to `-999.0` (gaps in data records will result in this value).
- The description is set to the information after the `Sites in this file include:` line. It is assumed that only one time series per file is used.

Limitations

USGSNWIS files have the following limitations:

- Riverside Technology, inc. is working to support the standard USGS file format(s). Limited information is available for the file specifications. Currently only the daily surface water format has been tested.
- Additional specific limitation will be listed when file format specifications are fully determined.
- The period for the data is not available in the file header. Therefore the period is determined from the first and last dates in the data records. This introduces a slight performance penalty.
- Although data flags are read in for use by applications, no standard flag values are enforced (the end user will need to know the meaning of the flags to use them properly).