Appendix: UsgsNwisRdb Input Type

2012-02-27

Overview

The UsgsNwisRdb time series input type corresponds to the United States Geological Survey (USGS) National Water Information System (NWIS) RDB format (see: http://pubs.usgs.gov/of/2003/ofr03123/6.4rdb_format.pdf). A number of RDB variations are available but currently only the surface water daily format is supported. Data files can be created by saving USGS NWIS website data to a text file or use the TSTool `WebGet()` command. 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).
- HTML remnants may be present at the end of the file. These lines are stripped out as the file is processed.

```
#
# 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
```

USGS NWIS RDB Files and Standard Time Series Properties

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

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

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 data 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 `UsgsNwisRdb` (`USGSNWIS` was used in the past) 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

USGS NWIS RDB files have the following limitations:

- Currently only the daily surface water format has been tested. Additional support will be added in the future.
- Although data flags are read, no standard flag values are enforced (the software user will need to know the meaning of the flags to use them properly).