How to Use the sensok DB Table

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1.0 Introduction

Occasionally automated data are known to be bad, yet the values are within a reasonable range and pass any automated QC checks. Examples include tipping buckets clogged with leaves or snow, floats frozen in stilling wells or hung on the frost floor, or erroneous bubbler gage readings due to ice. All the above result in sensor reports contrary to actual conditions. In the tipping bucket example, a clog from leaves or snow will result in an under-report or zero report during the precipitation event, and false reports of precipitation during dry days. Float gages frozen in stilling wells or hung on the frost floor will not properly track the rise and fall of the water surface in the river. Ice temporarily freezing over the bubbler orifice will cause increased back-pressure and a false high reading compared to the actual water surface. The user can utilize the sensok table whether or not the user is taking advantage of the reasonable and gross range checking the shefdecoder can perforrm. The sensok DB table allows theuser to log a sensor as bad. Information would include a start date/time,and a comment field stating the reason. The information stored in this table is utilized by the level 1 processor applications.

1.1 Table Definition

The table can be divide into 3 types of information, data point description, set good/bad characteristics and agency notification (optional) columns. The table schema is shown in Attachment A.

1.2 Table Usage

The sensok table allows the user to manually specify periods of bad ‘raw’ data. This table is read by the level 1 processor applications. Every time a data point is processed, the program(s) checks for entries in the sensok table that match the lid and SHEF parameter code. The search is ordered so that the most recent entry is retrieved first. The logic is as follows:

1. No entries found:
   a. No bad data.
2. Entries found after end of processing period:
   a. Not valid – no effect on data within processing period.
   b. Continue search.
3. Entries found within the processing period:
   a. First valid entry:
      i. If ‘ok’ is ‘Y’ – data from this point to end of processing period is good.
      ii. If ‘ok’ is ‘N’ – data from this point to end of processing period is

bad.
iii. Continue search.
b. Subsequent entries:
i. If ‘ok’ is ‘Y’ – data from this point to previous valid entry is good.
ii. If ‘ok’ is ‘N’ – data from this point to previous valid entry is bad.
iii. Continue search.
c. No more entries:
i. Data from beginning of processing period to previous found entry is good.

4. Entries at or before processing period begins:
a. First valid entry:
i. If the ‘ok’ entry is ‘Y’ – no bad data within processing period.
ii. If the ‘ok’ entry is ‘N’ – all data bad within processing period.
iii. Stop search
b. Subsequent entries:
i. If the ‘ok’ entry is ‘Y’ – data from beginning of processing period to previous found entry is good.
ii. If the ‘ok’ entry is ‘N’ – data from beginning of processing period to previous found entry is bad.
iii. Stop search.

2.0 User How-To

At this time, the only way to make an entry in the sensok table is manually through IBM Informix user interface isql and its forms option.

rlogin to the rax and access the sensok form by one of the following methods.

Method 1) at the prompt type:

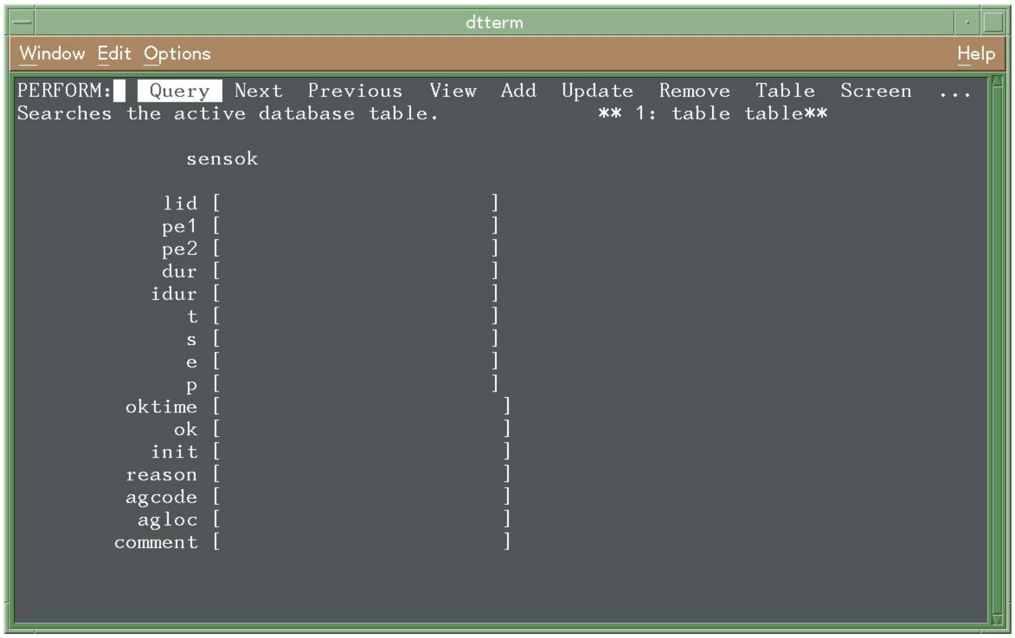
```
arcmenu [Enter]
V [Enter]
1 [Enter]
```

... or....

Method 2) at the prompt type:

```
cd /rfc_arc/cfg/forms [Enter[
isql [Enter]
```

At this point you will be in the isql user interface. If the word Form is highlighted, press the [Enter] key, or select Form by pressing the [F] key. If the word Run is highlighted, press the [Enter] key, or select Run by pressing the [R] key. A list of forms for the various database tables will now be displayed, use the arrow keys to highlight the table name *sensok* and press the [Enter] key. You should now have a display that looks like Figure 1.



```
PERFORM:   Query  Next  Previous  View  Add  Update  Remove  Table  Screen  ...
Searches the active database table.                 ** 1: table table**

              sensok

            lid [                       ]
            pe1 [                       ]
            pe2 [                       ]
            dur [                       ]
           idur [                       ]
              t [                       ]
              s [                       ]
              e [                       ]
              p [                       ]
         oktime [                        ]
             ok [                        ]
           init [                        ]
         reason [                        ]
         agcode [                        ]
          agloc [                        ]
        comment [                        ]
```

Figure 1

```
                  SIDM8    SIDNEY MT

 ID    PE  DUR  TS E      OBSTIME       PRODUCT      VALUE
CHANGE

 SIDM8    HG 0    RG Z 2003-12-20 08:30:00 KWOHRRSKRF      5.92
-0.07
SIDM8    HG 0    RG Z 2003-12-20 08:00:00 KWOHRRSKRF      5.99
-34.68
SIDM8    HG 0    RG Z 2003-12-20 07:00:00 KWOHRRSKRF     40.67
0.04
SIDM8    HG 0    RG Z 2003-12-20 06:00:00 KWOHRRSKRF     40.63
-0.07
SIDM8    HG 0    RG Z 2003-12-20 05:00:00 KWOHRRSKRF     40.70
0.02
SIDM8    HG 0    RG Z 2003-12-20 04:00:00 KWOHRRSKRF     40.68
4.13
SIDM8    HG 0    RG Z 2003-12-20 03:00:00 KWOHRRSKRF     36.55
5.26
SIDM8    HG 0    RG Z 2003-12-20 02:00:00 KWOHRRSKRF     31.29
5.21
SIDM8    HG 0    RG Z 2003-12-20 01:00:00 KWOHRRSKRF     26.08
1.19
SIDM8    HG 0    RG Z 2003-12-20 00:45:00 KWOHRRSKRF     24.89
1.34
SIDM8    HG 0    RG Z 2003-12-20 00:30:00 KWOHRRSKRF     23.55
2.51
SIDM8    HG 0    RG Z 2003-12-20 00:00:00 KWOHRRSKRF     21.04
4.94
SIDM8    HG 0    RG Z 2003-12-19 23:00:00 KWOHRRSKRF     16.10
```

Figure 2.

Example Usage

While viewing data with the XDAT application, which accesses the IHFS database, the following data for station SIDM8 was noticed, see Figure 2. Similar type information could have just as easily been viewed for this station using the RFC Archive DB/Files System datview application.

A conversation with WFO-GGW verifies the gage was ice affected for a time and that the values reported appear to be “bad” although the values passed both gross and reasonable range checks. The user could then use the previously mentioned sensok form and make the following entries.

Example 1: Entry to indicate data probably “bad” due to ice

lid: SIDM8
pe1: H
pe2: G
dur: I
idur: 0
t: R
s: G
e: Z
p: Z
oktime: 2003-12-19 21:00:00
ok: N
init: jam
reason: ice affected
agcode:
agloc:
comment:

Example 2: Entry to indicate data good again

lid: SIDM8
pe1: H
pe2: G
dur: I
idur: 0
t: R
s: G
e: Z
p: Z
oktime: 2003-12-20 08:30:00
ok: Y
Init: jam
reason: looks ok
agcode:
agloc:
Comment:

Note the user in both examples chose to leave the last three fields empty.

3.0 Troubleshooting Information

Be sure to use the same lid and SHEF parameter code that is in the ‘raw’ data table, not the ‘processed’ table. The only valid values for the ‘ok’ column are “Y” and “N”.

4.0 References

The following references along with other information can be on the RFC Achive web site at: http://www.nws.noaa.gov/oh/rfcdev/projects/rfcADEMT_chart.htm

Archive database schema.
Documentation for the level 1 data processors.

Attachment A

column name	**data type**	**description**
Data Point Descriptor Columns		
lid	char(8)	location identifier
pe1	char(1)	1st character of SHEF physical element code
pe2	char(1)	2nd character of SHEF physical element code
dur	char(1)	SHEF duration code
idur	smallint	numeric duration code
t	char(1)	SHEF type code
s	char(1)	SHEF source code
e	char(1)	SHEF extremum code
p	char(1)	SHEF probability code
Set bad/good characteristics columns		
oktime	datetime year to second	date and time of change in status
ok	char(1)	“N”– bad, “Y” - good
init	char(3)	initials of person making the entry
reason	char(80)	reason for change in status (optional)
Agency notification columns		
agcode	char(6)	abbreviation for notified agency (optional)
agloc	char(3)	location of notified agency (optional)
comment	char(30)	notification comment (optional)