J-2. DatView

1.0 General Information

1.1 Application Description

DatView is a data viewer, displaying the data in both text and graphic formats. It provides some capabilities to edit data, print data and save data to flat files in different formats. The application is written in ecpg/C and Motif.

1.2 Assumptions application makes

Linux OS running X Windows with Motif and Postgres properly installed and configured.

Postgres database using schema developed by the NWS National RFC Archive Database Team.

Assumes system is using the apps_defaults token system similar to operational AWIPS systems.

1.3 Enhancements/Bug Fixes/Changes

Build OB8.3

Bug Fixes

The following DRs were fixed:

DR#18795	*OB7.2: Fatal DatView Editor Error*
DR#18870	*OB7.2: DatView Will Not Display More Than Four Years of Stage Data*

For more information about these DRs, go to the AWIPS Discrepancy Report Display web page, https://sec.noaa3a.awips.noaa.gov/dr_display/index.html .

Build OB7.2

This application was updated to take into account the upgrade of the OS in ob7.2 and the change in RDBMS from Informix to Postgres. Documentation was updated to reflect this change.

Note: During testing of this application, a problem with the default font definitions occurred on the development system, ax2-nhdr, which prevented the DatView GUI from displaying. It is unclear whether this problem might occur in the field. The apps_defaults token *datview_plot_font* was the source of the problem. Changing the value assigned to this token from “-adobe-courier-bold-r-normal-*-*-90-*-*-m-*-iso8859-1” to “-adobe-courier-bold-r-normal-*-*-80-*-*-m-*-iso8859-1” resolved the problem. If the DatView GUI does not display, the user may need to use the xfontsel application to verify what fonts are available on the RFC’s rax.

Known Bug: The SHEF PEDTSEP pop-up list options do not work. In order to change the default values, the user can 1) highlight the values the user wishes to change to, or 2) the user can click the up/down arrow keys to go thru the list.

<u>Build OB6</u>

Bugs Fixes

γ R1-25 An apparent memory allocation bug in datview on the archive machine (OB1 release) is causing the display of 15 minute data to crash.

γ R1-33 The observed time does not display correctly when listing processed data. Also, the plot of processed data appears funky.

<u>Build OB4</u>

Bugs Fixes

γ Editing data no longer produces segmentation faults

γ Processed data scaling works correctly (no longer 0 to 10 default)

γ Negative values display correctly

γ Processed data values display in text window

Enhancements

γ Plot window displays crosshairs and location on plot is indicated below plot

γ User can scale Y-axis by using vertical scale slider bar on plot window (maximum of 5x the default height)

γ *Processed* and *raw* data can now be edited, but *NOT forecast* data. Please note that *missing* data does not need to be displayed, but lid, pe, dur, ts, extremum, probability, and obstime need to be displayed (toggled on)

Apps_defaults token changes

γ Delete datview_shef_dir

γ Add datview_raw_shef_dir (raw shef data q directory)

γ Add datview_pro_shef_dir (processed shef data q directory)

2.0 Configuration Information

The .Apps_defaults and .Apps_defaults_site file can be found in the /awips/hydroapps directory.

Apps_defaults tokens for this application are:

datview_db_name:	the database name
datview_startdate:	first date of data in database ‘yyyy-mm-dd hh:mm:ss’
datview_label_font:	font used for label widgets
datview_text_font:	font used for text input widgets
datview_text2_font:	font used for main text data display widget
datview_list_font:	font used for list widgets
datview_bg_color:	background color for graphic data display
datview_fg_color:	foreground color for graphics data display
datview_ob_color1:	data display color 1
datview_ob_color2:	data display color 2 (used for forecast timeseries)
datview_ob_color3:	data display color 3 (used for forecast timeseries)
datview_ob_color4:	data display color 4 (used for forecast timeseries)
datview_ob_color5:	data display color 5 (used for forecast timeseries)
datview_ob_color6:	data display color 6 (used for forecast timeseries)
	(after 5 forecasts are displayed colors return to color 1)
datview_plot_font:	font used in graphic data display window
datview_plot_height:	height of graphic data display window (in pixels)
datview_plot_width:	width of graphic data display window (in pixels)

datview_save_dir:	directory to save flat files
datview_data_dir:	directory to store temporary shef files

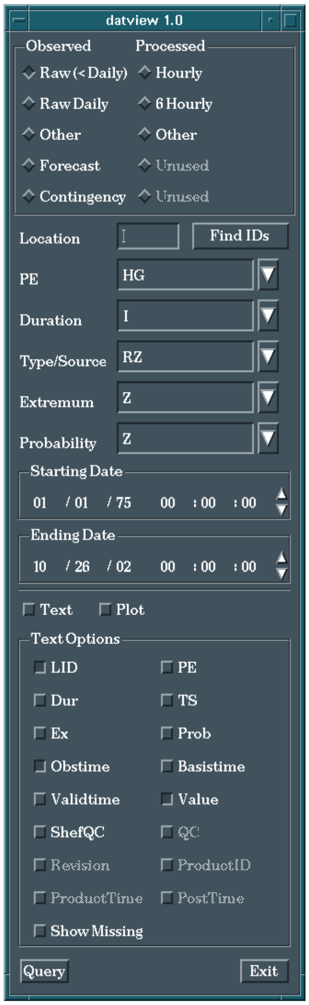
The above two tokens {datview_save_dir, datview_data_dir} are optional. The default directory is the user’s directory as defined by the HOME environment variable.

datview_shef_dir:	directory where shefdecode expects to find data
datview_pil:	AFOS pil used for SHEF-encoding edited data
datview_office_header:	used for SHEF-encoding edited data (i.e. KTUA)

3.0 User How-To

This application can be run through *arcmenu’s main menu*, or on the command line. DatView consists of three main windows: the main user interface, a data plotter and a text-based data viewer. There are also several other smaller windows that display on errors or other conditions. In the following description, please note that ‘click’ and ‘select’ imply a left-button mouse click, unless otherwise noted.

Figure 1 shows the main user interface. The user selects options on this interface to determine what data to display. The user first chooses what data interval to view. This choice determines which table in the database gets queried. If the user wants to edit data, one of the Observed “Raw”, “Processed” or “Other” choices must be selected. The next choice is the location. The user enters in the ID of the data location. If the user is unsure of the ID, but knows part of it or the name of the location, then they can choose the ‘Find Ids’ button to find the location ID. If the ‘Find Ids’ button is chosen, a



Observed | Processed
◇ Raw (< Daily) | ◇ Hourly
◇ Raw Daily | ◇ 6 Hourly
◇ Other | ◇ Other
◇ Forecast | ◇ Unused
◇ Contingency | ◇ Unused

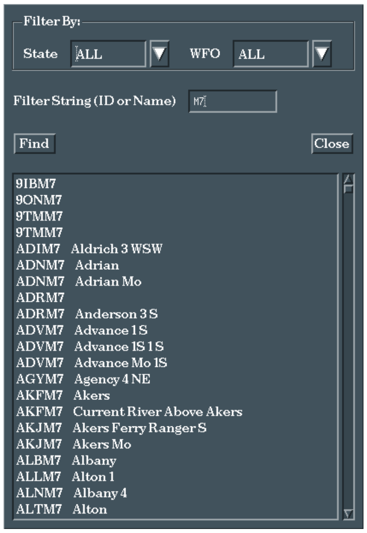
Location:
PE: HG
Duration: I
Type/Source: RZ
Extremum: Z
Probability: Z

Starting Date: 01 / 01 / 75 00 : 00 : 00
Ending Date: 10 / 26 / 02 00 : 00 : 00

□ Text □ Plot

Text Options
□ LID □ PE
□ Dur □ TS
□ Ex □ Prob
□ Obstime □ Basistime
□ Validtime □ Value
□ ShefQC □ QC
□ Revision □ ProductID
□ ProductTime □ PostTime
□ Show Missing

Figure 1. Main GUI


Filter By:
State: ALL
WFO: ALL
Filter String (ID or Name): M7

9IBM7	
9ONM7	
9TMM7	
9TMM7	
ADIM7	Aldrich 3 WSW
ADNM7	Adrian
ADNM7	Adrian Mo
ADRM7	
ADRM7	Anderson 3 S
ADVM7	Advance 1 S
ADVM7	Advance 1S 1 S
ADVM7	Advance Mo 1S
AGYM7	Agency 4 NE
AKFM7	Akers
AKFM7	Current River Above Akers
AKJM7	Akers Ferry Ranger S
AKJM7	Akers Mo
ALBM7	Albany
ALLM7	Alton 1
ALNM7	Albany 4
ALTM7	Alton

Figure 2. Find Ids pop-up

new window pops up (See Figure 2). In this window, the user can use the popdown lists to filter the search by state, wfo or both. The choices can either be chosen from the popdown list or by typing in the appropriate text box. The user then enters the search string and selects the 'Find' button. All locations in the database whose ID or Name match the search criteria are then displayed in the lower portion of the window, in the format 'ID Name'. The user can then select an ID from the list and hit the 'Close' button. This will automatically put the selected 'ID' in the location text box. If no ID is selected, the location text box remains empty (or retains its original contents). Note that while the 'Find Ids' window is open, other windows are unavailable for use.

The user then selects the desired PE, Duration, Type-Source, Extremum and Probability from the respective popdown lists, or enters the values in the text box. The available options in these lists are read from the database *shefpe*, *shefdur*, *shefts*, *shefex* and *shefprob* tables. Note that 'All' is an option under these choices.

The next choice the user makes is the range of dates to look for data. The user can click on the appropriate value (year, month, day, etc) and type in the new value or click on the arrows to move the date and time forward or backward. The default starting date is determined from the apps_defaults token datview_startdate, and the default ending date is the current date + one day. (For forecast data, the retrieval method looks for the basistime within the date range).

The next two choices basically determine whether the data text and plot windows are displayed. The user can toggle these on or off depending on need.

The last set of toggles determines what data is displayed in the data text window. These data types can be toggled on or off and include all the available columns in the database tables. If a toggle is set, but the column does not exist in the current table, 'n/a' is displayed in the text window. If the user is planning on editing some of the data, then the user must select pe, ts, dur, extremum and probability or the edit button in the text window will not be activated.

Once all the necessary information has been chosen, the 'Query' button is clicked to extract the data from the database.

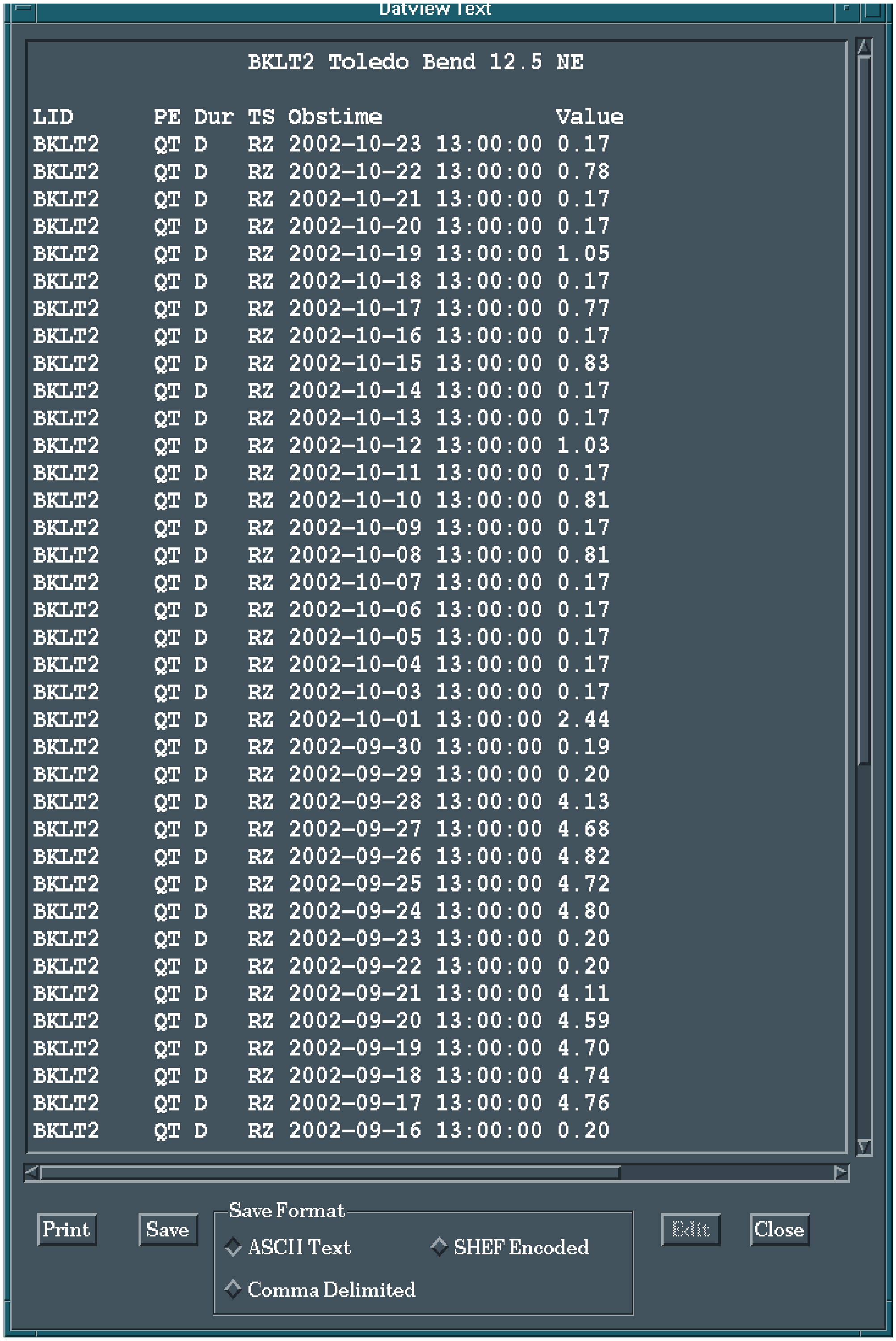
Clicking on the 'Exit' button quits the program.

Figure 3 shows the data text display window. This window consists of a data view window with several options at the bottom.

The first option is 'Print'. If the user selects this button, the text, as displayed in the text window, is sent to the printer using the system 'lp' command.

The second option is 'Save'. If the user selects this button, the data is saved to one of three types of files, depending upon which button is toggled on in the 'Save Format' choice box. If 'ASCII Text' is chosen, the data is saved to a text file exactly as displayed. If 'Comma Delimited' is selected, the data is saved containing ALL the information from each row that the query matched, regardless of the toggles set in the main window. Each data column is separated by a comma. If 'SHEF-encoded' is selected, a SHEF-encoded message is created. With any choice, a window pops up showing the current save directory (apps_defaults token *datview_save_dir* or the user's HOME directory). The user then enters the new filename or selects an existing filename. Note that no warnings are given if the user chooses an existing filename, that file ***will*** be overwritten.

The 'Edit' button is only activated when one of the data types that is allowed to be edited is chosen. Prior to selecting the 'Edit' button, the user must highlight part or all of the line or lines of data that are to be edited. To highlight, click and drag the cursor on the line or lines, or double or triple click on that line. Editing only allows the user to change the value, no other parts of the data can be edited (i.e. obstime, pe, etc.). If multiple lines (values) are to be edited, ***all*** of the edited values will be set to the ***same*** new value.



```
                 BKLT2 Toledo Bend 12.5 NE

LID      PE Dur TS Obstime             Value
BKLT2    QT D   RZ 2002-10-23 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-22 13:00:00 0.78
BKLT2    QT D   RZ 2002-10-21 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-20 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-19 13:00:00 1.05
BKLT2    QT D   RZ 2002-10-18 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-17 13:00:00 0.77
BKLT2    QT D   RZ 2002-10-16 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-15 13:00:00 0.83
BKLT2    QT D   RZ 2002-10-14 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-13 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-12 13:00:00 1.03
BKLT2    QT D   RZ 2002-10-11 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-10 13:00:00 0.81
BKLT2    QT D   RZ 2002-10-09 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-08 13:00:00 0.81
BKLT2    QT D   RZ 2002-10-07 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-06 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-05 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-04 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-03 13:00:00 0.17
BKLT2    QT D   RZ 2002-10-01 13:00:00 2.44
BKLT2    QT D   RZ 2002-09-30 13:00:00 0.19
BKLT2    QT D   RZ 2002-09-29 13:00:00 0.20
BKLT2    QT D   RZ 2002-09-28 13:00:00 4.13
BKLT2    QT D   RZ 2002-09-27 13:00:00 4.68
BKLT2    QT D   RZ 2002-09-26 13:00:00 4.82
BKLT2    QT D   RZ 2002-09-25 13:00:00 4.72
BKLT2    QT D   RZ 2002-09-24 13:00:00 4.80
BKLT2    QT D   RZ 2002-09-23 13:00:00 0.20
BKLT2    QT D   RZ 2002-09-22 13:00:00 0.20
BKLT2    QT D   RZ 2002-09-21 13:00:00 4.11
BKLT2    QT D   RZ 2002-09-20 13:00:00 4.59
BKLT2    QT D   RZ 2002-09-19 13:00:00 4.70
BKLT2    QT D   RZ 2002-09-18 13:00:00 4.74
BKLT2    QT D   RZ 2002-09-17 13:00:00 4.76
BKLT2    QT D   RZ 2002-09-16 13:00:00 0.20
```

Figure 3. Text Window

Once the appropriate line or lines are highlighted, an edit window pops up (see Figure 4). The initial value is displayed (or the first value, if multiple lines are highlighted). The user then has three choices: set the value to missing, set the value to zero, or enter a new value. Once that has been done, the user then clicks the 'Post Data' button.

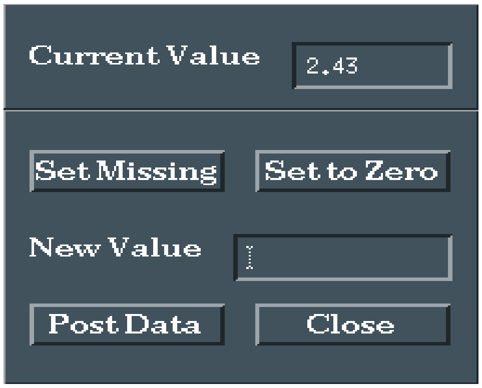


Figure 4. Edit window

This creates a SHEF-encoded message and sends it to the SHEF-decoder to be parsed and entered in the database. The edit window then closes. If the user does not want to edit the data, then they can select the 'Close' button and no editing is done. Note that the data does not change in the text or plot windows until the SHEF message has been posted to the database AND the query repeated.

The 'Close' button closes the text window. This has the same effect as turning the 'Text' toggle on the main interface off.

Figure 5 shows the data plot window. This window plots the data values found from the query using the observation time or forecast valid time. The dates at the left and right of the window are determined by the data that is retrieved, NOT the starting and ending dates of the query. Observed data are plotted as 'o's, while forecast data is plotted as 'o's with lines connecting data from the same forecast time-series. The colors used in the display window are specified by apps_defaults tokens. Forecast data is displayed with different colors to help differentiate the forecast time-series. The data window can show varying time frames with scrolling capability. The user can use the sliding bar at the bottom left to change the number of days displayed in the viewing window. The allowable values are determined by the range of the data's dates. The 'Close' button closes the data plot window. This has the same effect as turning the 'Plot' toggle on the main interface to off.

Finally, several conditions can cause error windows to pop up. In general, these windows occur if a needed item is left blank, as in a blank Location field on the main interface. These give a general error message and what was expected. Note that other windows become inactive until the 'OK' button is clicked.

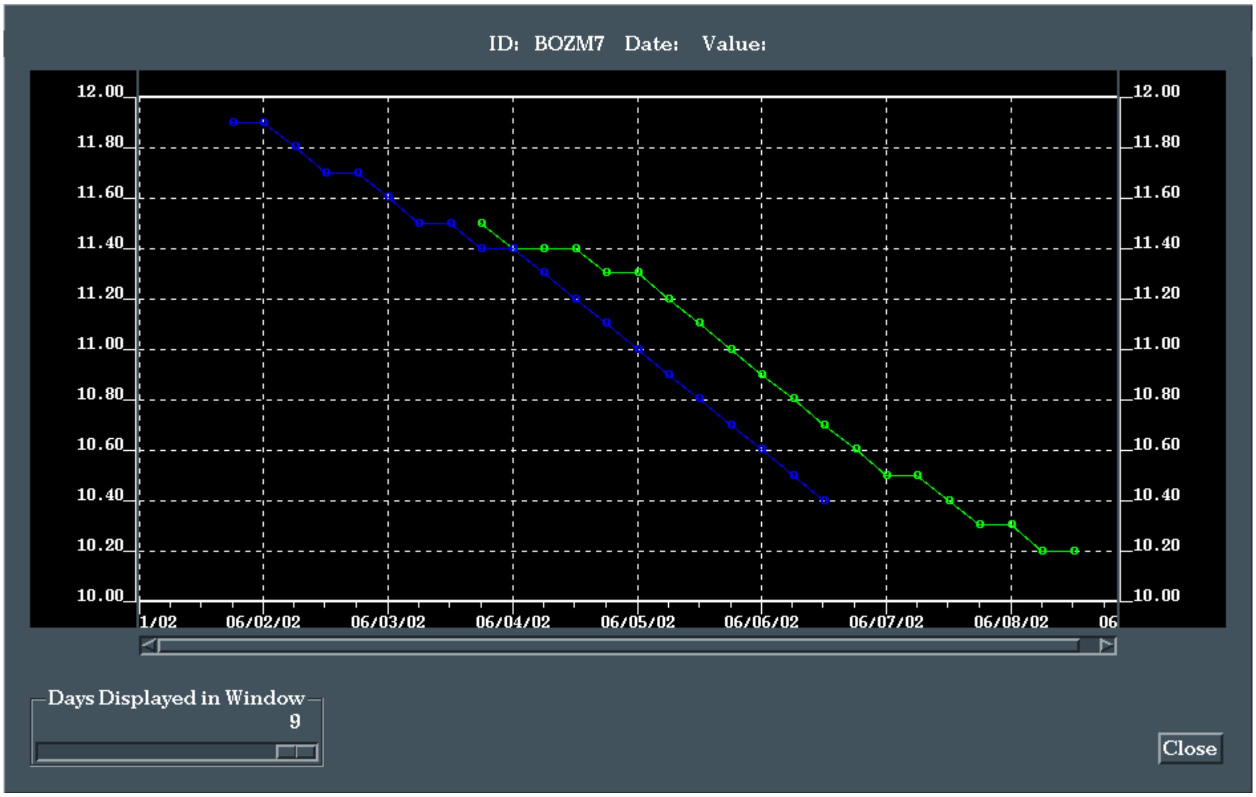


Figure 5. Data plot window

4.0 Troubleshooting Information

If run with a background window, error messages are displayed if Postgres related problems occur. One known bug is that the font used in the edit window's text widgets is not the correct font as defined by the apps_defaults token for text fonts. Contact the RFC Support Group if you continue to have problems.

5.0 References

Allowable colors to be used for Apps_defaults tokens are normally listed in: sr/lib/X11/rgb.txt

xlsfonts may be used to see the list of fonts available on the system for defining Apps_default font tokens. xfd may also be used to display font characters.

Refer to NWS Hydrology Handbook Number 1 for SHEF code.