Documentation
for
arcnav, OB6 release
May 25, 2005

1.0   General Information

The arcnav program allows XMRG files in the flatfiles directory on the RAX to be displayed. Currently only 1 hour radar files can be displayed. The application is written in C.

1.1   Design Considerations

Arcnav was developed from the xnav program. Some desirable features have been temporarily disabled in the interest of getting a (mostly) functional version ready for the OB6 delivery. (These features include: animation controls, ability to change colors, and ability to display 6-hour or 24-hour radar files.) In addition, the ability to display data (precipitation and hydrograph) from the RAX Informix database is not currently available.

Arcnav will read gzip'd XMRG data files (the application gunzip's, reads, and then gzip's the files).

The xmrg files must be in the flatfiles directory, in the appropriate "year"/grids/mpe/"Mon" subdirectory
(e.g. /rfc_arc_data/flatfiles/2005/grids/mpe/Mar/xmrgMMYYYYHHz) in order for arcnav to find and display the files.

1.2   Enhancements/Bug Fixes/Changes

Build OB6

Documentation
Initial documentation.

Enhancements
 ➢ None at this time (initial release!).

Bug Fixes
 ➢ None at this time (initial release!).

1.3   Known Shortcomings/Bugs

The program occasionally crashes with a segmentation or memory fault. This has occurred when choosing *Control -> Restore Image*, and also upon returning to the *Data* sub menus after closing the file selection window.

The animation buttons are not available at the current time (the *Next Hour* and *Previous Hour* buttons can be used as a "manual" animation substitute).

The program writes the following error message:
        "ERROR: Cannot allocate all 31 r/w color cells needed."
This does not appear to affect the display of the XMRG files, and it appears that for now this message can be ignored.

On the *Control* menu, the *Restore Image*, *Center Image*, and *Zoom* options have not been fully tested. One of the test sites has reported that the *Restore Image* option causes the program to crash, and that the various *Zoom* sub-options take an excessive amount of time to implement. Please report any other unexpected behavior (different from xnav behavior) with these options to the maintenance programmer.

On the file selection window, the scroll bars on the *Year*, *Month*, *Day*, and "*Date Availability*" selection boxes are… "problematic." The safest option is to use the down arrows at the bottom of the scrollbars to move down the lists, and the scroll bar to move up the lists. The scroll bar on the "*Date   Availability*" box is even stranger: it initially shows up as a movable scroll bar, but after almost any action the slider expands to fill the entire scroll space and the down button usually fails to work. In this case, if the desired file time is not shown in the window, select the nearest file time and use the *Previous Hour* or *Next Hour* button to move to the desired file (if it is available, the file will display in the display screen, although the file name will not scroll up in the selection window).

2.0   Configuration Information

2.1   Apps_defaults Tokens

An excerpt from the .Apps_defaults file follows. This list shows the tokens that are used by arcnav.

```
#================ ARCNAV Apps_defaults Tokens =====================
# defaults for program ARCNAV

anav_user                : oper

#.................................
#   Date/time related tokens
#.................................
anav_daily_days       : 30
anav_sixhr_periods    : 40
anav_precip_hours     : 24


#.................................
#   Directories and files to use
#.................................
```

```
anav_dir                  : /rfc_arc/arc_nav
anav_data                 : /rfc_arc_data
anav_flatfiles            : $(anav_data)/flatfiles
anav_params               : $(anav_dir)/parameters
anav_data_dir             : $(anav_data)
anav_geo_data             : $(geo_data)/$(ifp_rfc)/binary
anav_gif_dir              : /rfc_arc/data/arcnav/gifs
anav_localdata_dir        : $(anav_data)/localdata
anav_xmrg_dir             : $(anav_flatfiles)
nmap_xmrg_dir             : $(anav_rfcfmap_dir)/nmap


#................................
#   Fonts and colors
#................................
anav_label_font           : courb14gr
anav_legend_font          : courb14gr
anav_list_font            : courb14gr
anav_menu_font            : 9x15
anav_pb_font              : courb14gr
anav_text_font            : helvb18gr
anav_toggle_font          : courb14gr
anav_town_font            : courb14gr


#................................
#   Window size controls
#................................
anav_hrap_x               : 380
anav_hrap_xor             : -230
anav_hrap_y               : 470
anav_hrap_yor             : 900
anav_hydro_height         : 400
anav_hydro_width          : 750
anav_scale                : 1.6
anav_scale_colors         : 3.0
anav_x_offset             : 100
anav_y_offset             : 100


#................................
#   Display options
#................................
anav_basins               : yes
anav_counties             : no
anav_cwas                 : no
anav_fgroups              : no
anav_flights              : no
anav_grid                 : no
anav_hydro_segments       : no
anav_radars               : no
anav_rfc                  : no
anav_rivers               : yes
anav_states               : yes
anav_towns                : yes


#................................
#   Other control options
#................................
anav_editor               : nedit
anav_suppress_msg         : yes


# ================= end of arcnav tokens ========================
```

Notes about the tokens:

Not all of the tokens will currently affect the program operation, so don't be alarmed if a change appears to have no affect in this build (i.e., changes to anav_hydro_height should have no affect).

anav_geo_data (under "Directories and files to use") needs to be set to the directory where the geographic (overlay) data is located.

anav_gif_dir (under "Directories and files to use") is the directory that gif images will be saved in.

Under "Fonts and colors", the font names may need to be changed at different offices. If the provided font names do not exist on your system, try the fonts used by xnav.

The values of the tokens under "Window size controls" will be different for each office. It is recommended that each office start with the same values used by xnav.

The "Display options" tokens control the overlays that are visible at start up, these may be changed to suit office preferences.

2.2   radar.list file

The archive database (RAX db) does not have a radarloc table, so arcnav reads the radar information it needs from a flat file called radar.list. The OB6 build has a new directory, /rfc_arc/cfg/arcnav, which contains this file. The radar.list file has to be defined at each RFC to contain information about the radars used by that RFC.   A script has been provided that will access the radarloc table of the IHFS db and create this file. The script is called run_radarlist.ifx, and is located in the /rfc_arc/scripts/arcnav directory. This script accesses the IHFS db that resides in Informix on the ds. If your RFC no longer has access to the ds and Informix IHFS db, contact the RFC Support Group for assistance.

2.3   geo data information

The NFS mount point on the rax under /awips/hydroapps was changed in build OB6 so that the arcnav program has access to the geo_data directory for overlay information.

3.0   User How-To

There are two ways the user can run this application; both ways are described below. It doesn't matter which method the user chooses.

Method 1 is to launch the application using the arcmenu program; steps follow:
1) log into the RAX
2) at the prompt, type arcmenu This will bring up the main menu as shown in Figure 1.
3) select option 4 from the main menu display.

Method 2 is to run the application from the command line; steps follow:
1) log into the RAX
2) at the prompt, type cd /rfc_arc/bin
3) at the prompt, type arcnav This will run the application.

```
                /                                    /|
              /_____/ |
            |                                      |  |
            |           Archive Database           |  |
            |              Programs                | /
            |_____|/


       1.   DatView        -- view and edit archive data

       2.   ff_oper_view -- flat file viewer

       3.   Display_rc    -- rating curve viewer

       4.   ArcNav         -- view xmrg files


       V.   Other Viewing/Extraction menu     S.   SHEF Encoding menu
       P.   Data Processing menu              A.   Admin menu
       Q    quit                              D.   Shefdecoders menu

   ENTER Selection:
```
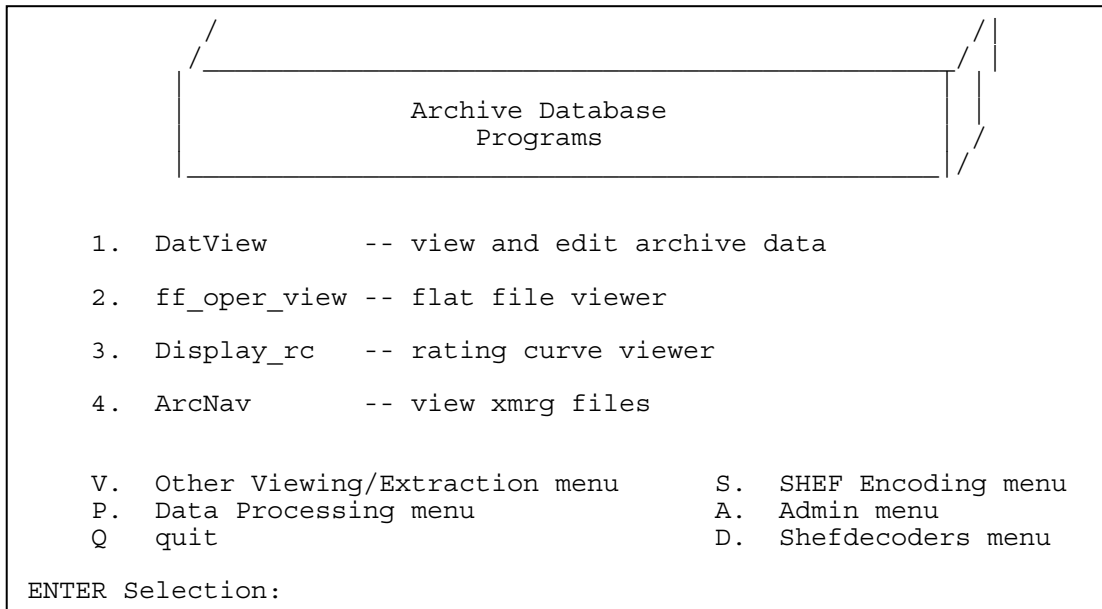
Figure 1.   arcmenu's Main Menu

The application will open a new window with 5 pull down menus at the top, the selected overlays displayed in the main panel, and an information window at the bottom. The pull down menus will be discussed below. XMRG data will be displayed in the main panel when a file is selected. The information window will display information or color scales. An example of the arcnav main window is shown in Figure 2.
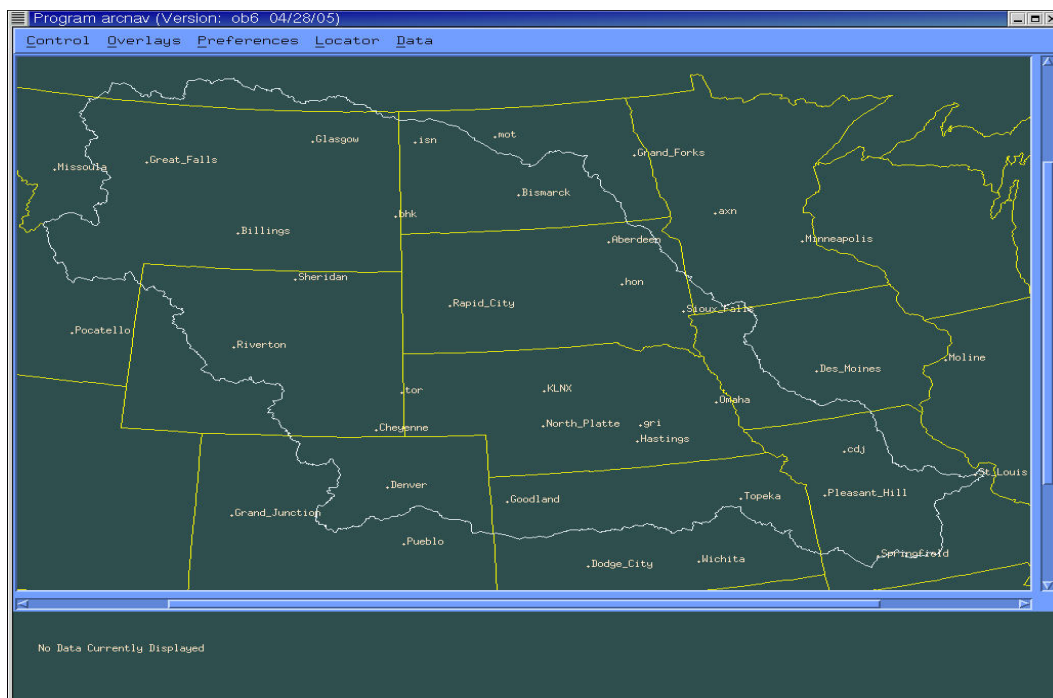
Figure 2. arcnav's main window

The *Control* menu has five options:
  Restore Image (which has caused the application to crash)
  Center Image (untested)
  Zoom (not fully tested, reported to be sluggish)
  Save As GIF (saves the displayed file as a gif image in the anav_gif_dir
  directory)
  Quit (exits the program)

The *Overlays* menu allows the available overlays to be toggled on and off.

The *Preferences* menu currently has only one option, *Town Display Mode*, which allows toggling between normal and zoomed town names.

The *Locator* menu currently has only one option, *Latitude/Longitude*, which opens a window listing the lat/lon, HRAP coordinates, and local HRAP coordinates for the cursor.

The *Data* menu currently has only one option, *Radar Precipitation from xmrg files*, which itself has only one option: *1 Hour Radar*. Selecting the *1 Hour Radar* option opens a selection form as shown in Figure 3. The user selects the *Year*, *Month*, and *Day* of interest, and the "*Date   Availability*" window displays the file availability for each hour of the selected date. (See the last paragraph of **section 1.3** for the known difficulties with the scroll bars.) As the *Year*, *Month*, and *Day* selections are changed, the file list in the "*Date   Availability*" window will update. Files listed as "n/a" are not available in the directory, files marked "avail" are available XMRG files, and files marked "gavial" are available gzip'd XMRG files. (The *Year* selection box displays the available years, with the oldest year at the top. If the majority of the offices prefer the most recent year at the top, this can be changed in a later update or release.) The program has crashed if XMRG files are displayed, the selection box exited, and then the *1 Hour Radar* option is reselected.
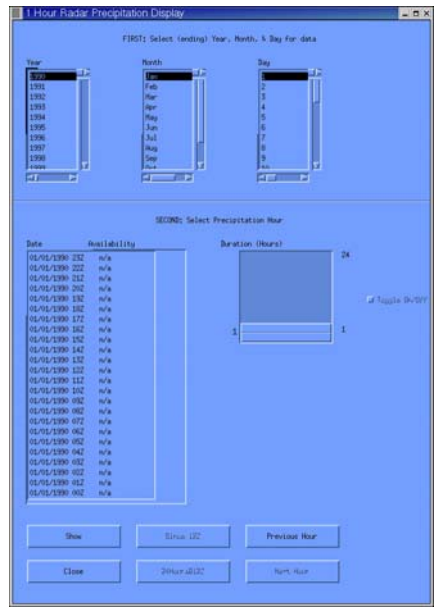
Figure 3. Selection Form

4.0   Troubleshooting Information

If the application fails for some reason, contact the RFC Support Group for assistance.

5.0   Maintenance Information

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