

# Accessing the AWIPS II Database from GEMPAK Applications

## Background

As part of the migration from NAWIPS to AWIPS II, the users will no longer have GEMPAK Data Management (DM) files created for use in operations. All data will be retrieved from the AWIPS II Database (A2DB). This access is already built into the CAVE graphical user interface client. A task was added to the NAWIPS v7.0.0 release to allow the GEMPAK text interface applications to retrieve data from the A2DB. The following outlines the tables that need to be modified or created in order to add access to more data sets.

The changes in v7.0.0 only apply to applications that read data. Any of the programs that write data to GEMPAK files will **not** write to the A2DB. The following is a list of the applications that may access the A2DB:

- Surface (SF)
  - SFGRAM - plot meteorograms
  - SFL604/SFLIST - list surface observations in different tabular formats
  - SFMAP - plot surface observations on a map
- Sounding (SN) [Upper Air]
  - SNCROSS - plot a spatial or temporal cross-section
  - SNHODO - plot a hodograph
  - SNLIST - list the upper air observations
  - SNMAP - plot upper air observations on a map
  - SNPROF - plot a sounding profile/SKEW-T
  - SNTSER - plot a time series of an upper air data parameter
- Grid (GD)
  - GDCNTR - plot contours on a map
  - GDCROSS - plot a spatial cross-section
  - GDLIST - list grid point data
  - GDMAP - plot grid point values on a map
  - GDPlot/GDPlot2/GDPlot3 - plot contours, vectors, point data, streamlines as appropriate for the type of data
  - GDPROF - plot a sounding profile/SKEW-T at a grid point
  - GDSTREAM - plot streamlines on a map
  - GDTHGT - plot a temporal cross-section
  - GDTSER - plot a time series at a grid point
  - GDWIND - plot vectors on a map

## Adding or Modifying a Data Set

In order to access data from the A2DB, use the standard SFFILE, SNFILE and GDFILE application parameters. These parameters allow the use of *aliases* to represent files or collections of files. This functionality has been extended to reference the control files, which define the attributes for connecting to, and reading from, the A2DB. The aliases are defined in **\$GEMTBL/config/datatype.tbl**. For a new entry in the DataType table, most of the values can be copied from a corresponding entry that references an actual directory and file. The differences are in the PATH and FILE TEMPLATE. The path will always be **AWIPSDB** and the file will be the name of the control file. All of the control files reside in **\$GEMTBL/data-access**. For example, the entry for METAR data from the A2DB begins with:

```
A2METAR           AWIPSDB           metar.xml           .....
```

The remainder of the line is identical to the regular METAR alias.

After adding a new entry in the DataType table, the XML control file must be created. The control file equates the A2DB meta information to the required GEMPAK information for defining the contents of a “data file”. GEMPAK Surface, Sounding and Grid files have header values that identify the type of file and how to read the subsequent data. The control file is configured to specify the Python scripts that will request the appropriate header information and how that information is returned to the GEMPAK applications.

At present, adding new point data types requires some knowledge of the contents of the A2DB in order to configure the list of data fields.

Adding new grid data sets is much easier, but does require the name of the grid data in the A2DB. For example, the GFS model is stored as “GFS230” and the NAM model is stored as “nam”. Note that one is uppercase and one is lowercase.

Until a utility can be written to provide the required information, please see your local AWIPS Administrator to help gather this information.

## Suggested Installation for the AWIPS Environment

The following configuration is used on NTBN, OPCN and HPCN. It allows for easy updating, but does require a separate user account to store the NAWIPS/GEMPAK tables, libraries and binaries.

1. If it does not exist, create a user account named “gempak”. Log into the “gempak” account.
2. Get the source tar file from the download web site above and transfer it to the AWIPS system.
3. Sample .cshrc and .profile files may also be found on the download site.
4. Make a directory for the current release (i.e., mkdir v7.0.0) in \$HOME.
5. Go to the release directory and unpack the source tar file.
6. Follow the build instructions above.

The current data flow paradigm for the AWIPS does not provide for creating or transferring GEMPAK files to the AWIPS system. Therefore, all of the data-related environment variables will not be used. Any data access, while on an AWIPS system, will be through the database. Sample entries for the data types are in \$GEMTBL/config/datatype.tbl and the XML control files are in \$GEMTBL/data-access/\*.xml.