19 Background Information on AvnFPS

19.1 AvnFPS Installation

The WES installation software installs AvnFPS into **`/awips/adapt/avnfps`** and **`/data/adapt/avnfps`**. Because AvnFPS comes directly from the AWIPS release DVD, it should work with RHEL4.

19.2 Simulation Background

For AvnFPS functionality to be useful, data must be fed into AvnFPS system on a minute by minute cycle. Yet, point data typically are archived in hourly chunks. Thus, WES utilizes new methods to access point data when the runPointFlag is set to "YES" (see section 16.3). This allows WES to feed input METAR text data into AvnFPS on a minute-by-minute basis. WES also feeds METAR and maritime data into other AWIPS processes on a five minute basis for display in D2D. In the current version, the D2D display of the point data is inconsistent and will be addressed in future WES builds. Higher temporal resolution for METAR /maritime observations in D2D isn't warranted, since AWIPS only allows notification updates in D2D every 15 minutes for hourly displays and 5 minutes for the 15 minute METAR displays.

19.3 Conversion to DRT Format

During the conversion process, the original hourly netCDF files for METAR and maritime observations (located in the directory hierarchy at **`<data_case>/point/…`**) are split into five-minute netCDF files. Additionally, individual one minute METAR observations are extracted in text format from the original netCDF files for each TAF forecast point listed in the configuration files in **`/awips/adapt/avnfps/etc/tafs.`** These files are stored in these locations:

- **`<data_case>/avnfps/point/metar/netcdf`** – 5 minute netCDF files
- **`<data_case>/avnfps/point/metar/text`** – individual 1 minute METAR obs (text)
- **`<data_case>/avnfps/point/maritime/netcdf`** – 5 minute netCDF files

Additionally, the data inventory system for WES creates "b-links" for each of these files so the simulator knows when to reveal data.

19.4 Simulation Initialization

When a simulation is prepared based on a given start time, the hourly point files are made visible, and the first hour's point data are built up to the start time of the simulation. The current hour's METAR and maritime point files are linked to a "**current_file**" located at:

- **<data_case>/point/metar/netcdf/current_file**
- **<data_case>/point/maritime/current_file**

AvnFPS requires an initial set of default TAFs (see Section 14.1). The input directory containing the default TAFs for a simulation is specified in the Simulation Entry Window in the "TAFs directory" entry. The input TAF directories are stored for later access in **<data_case>/avnfps/archived_TAFs**.

After starting the simulation ingest WES feeds all the TAFs in the specified "TAFs directory" into AvnFPS ingest.

The METAR text data are also fed to AvnFPS. The value listed in the **avnfpsMetarHours.txt** specifies the number of hours of METAR observations prior to the simulation start time used to initialize AvnFPS (default is 12).

19.5 Ongoing Simulation

During a simulation, the five-minute METAR/maritime netCDF data are appended to each **current_file** on a five minute basis to support D2D display. The current file is removed at the end of each hourly file's time span, and the link target is pointed to the original a-file (hourly netCDF file). To process the next hourly file's data, WES creates a new **current_file**, and repeats the process. The display of point data is inconsistent in the current WES and will be improved in future builds.

At the appropriate times, the individual METAR text bulletins are fed into AvnFPS; the AvnFPS monitor display should update immediately when they are fed in.

After the forecaster issues a new TAF, WES feeds the TAF to AvnFPS and copies the TAF into the **<data_case>/avnfps/previous_simulation** directory for archiving. The "**previous_simulation**" directory can be used to start a new simulation based on the previous simulation's TAFs.

19.6 Stopping a Simulation

Once a simulation is stopped, WES copies the TAFs for the current simulation to the **<data_case>/saved_tafs directory** with the current date as the directory name. The archived directory contains the TAFs written during a simulation as well as the TAFs

used to initialize the simulation (*.init). The TAFs written by AvnFPS have a long filename, including the user id, nine character TAF PIL, WMO id, and more.