

# 18 Background Information on GFE

## 18.1 GFE Installation Background

The WES installation script initially installs GFE in `/awips/GFESuite/install`. Because GFE comes directly from the AWIPS OB8.3 release DVD, it should work with RHEL4. If you have a non-baseline OS with an associated GFE version, then you may investigate replacing the appropriate files in `/awips/GFESuite/install`. The files in the install directory come from the `OB8.3_GFESuite_CORE.tgz` file with the addition of `stdMAPS.tgz`, `stdTOPO.tgz`, and `stdCLIMO.tgz` files. The `/awips/GFESuite/install` directory uses the “Create GFE Dataset” tool to install GFE into each case.

## 18.2 GFE Data Creation Background

The “Create GFE Dataset” tool within WES uses the AWIPS IFPServer to create a set of GFE default grids from standard AWIPS model grids to use in a simulation. So to create GFE grids for your local case, you just need a WES case with AWIPS Grid data. Future development will investigate ways to archive GFE grids directly from AWIPS for replay in a simulation. The GFE datasets created by this tool are later selected from the WES main simulation entry window (like the FFMP data). When the GFE grids are created, the AWIPS processes store the hostname in the gridded dataset. To share grids with other machines not on your network, set the hostname to “localhost” in the shell window prior to launching `start_simulator`:

1. e.g. `setenv HOSTNAME localhost`,
2. e.g. `start_simulator`
3. Create GFE dataset.

After the case is converted to DRT format, the “**Create GFE Dataset**” tool creates the default grids based on the case, CWA, and time entered. First, WES installs GFE into the case for the given machine and CWA, using the standard `/awips/GFESuite/install/installGFE` program. WES installs GFE into the `<data_case>/GFESuite-case` directory.

Second, WES links `/data/fixa` to the data case so IFPServer can find the data grids.

Third, WES makes the appropriate AWIPS data links visible, sets the system clock to the simulation start time, and starts the IFPServer.

Fourth, WES waits for the IFPServer to completely initialize (the `ifplnit` process appears and disappears) before completing the grid creation. The default “Fcst” grids are saved

into the `<data_case>/GFESuite-case/<your_case_GFE_DIR>/Fcst.tar.gz` file for later access in multiple simulations. Finally after the tool saves the “Fcst” grids, WES resets the clock and kills the IFPServer.

A case with full AWIPS grids can take hours to run due to the inherent slowness of the ifplnit process. Once they are created, they are brought into the simulation without having to be processed again.

### **18.3 GFE Customization Background**

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Once a GFE dataset is created for a simulation (see Section 5.6 or 18.2), you can customize GFE with files from a local AWIPS. The GFE installation for each case resides in:

`<data_case>/GFESuite-case/<your_case_GFE_DIR>`

Keep in mind that the grids likely come from previous AWIPS builds, so the models may have changed, and inconsistencies may result.

### **18.4 Simulation Background**

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Once the GFE data is created, the data can be selected from the WES Simulation Entry window which turns on GFE processing within the WES. In this process, WES restores the “Fcst” grids to the original state by deleting the Fcst directory and untarring the `Fcst.tar.gz` file. WES also purges the `<data_case>/GFESuite-case/<your_case_GFE_DIR>/data/databases/BASE/GRID` directory. WES also deletes the `PRACTICE.tbl` and `localConfig.py*` files. Finally the WES simulation starts the IFPServer to allow the GFE to function. The IFPServer usually takes a couple of minutes and a significant amount of CPU resources to start. If a GFE dataset is not selected, WES does not start the IFPServer thus saving resources.

After the simulation has started, launch the GFE GUI using the `start_GFE` script. GFE launches with a simulation running because requires an operational IFPServer along with the system clock synchronized to the appropriate grids. The `start_GFE` program uses information from a live simulation (`/awips/fxa/DRT/simustatus_history` temporary file) to find and launch the appropriate “runGFE” program installed in the case.

The default configuration of `start_GFE` uses “runGFE” with the practice mode flag, so VTEC lines to appear correctly coded in statements created with the Product Formatter. The background color is the official Practice Mode orange background.

When the simulation ends, WES shuts down the IFPServer along with other AWIPS processes. WES also copies any warnings/advisories to the `<data_case>/saved_GFE_PRACTICE` directory with a current date/time stamp to allow later access to products.