

Weather Event Simulator WES 8.3 Overview Training

Warning Decision Training Branch
June 2008

Welcome to the WES 8.3 Overview Training. I am Shannon Key, the new WES project leader at WDTB. I will be joined later in this presentation by Mike Magsig. In this short module we will go over the WES 8.3 installation as well as provide an overview of what is new in this version of the Weather Event Simulator.

Lesson Objectives

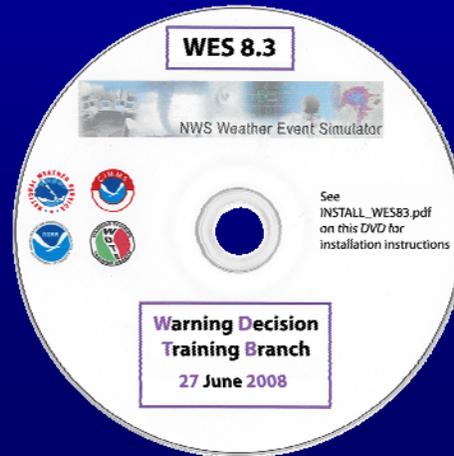
- Identify where to go for WES8.3 documentation/support
- Identify Postgres changes in WES8.3
- Identify keys to customizing FFMPA in WES8.3
- Identify FSI changes in WES8.3
- Identify the future of AWIPS training capability

By the end of this lesson you will be able to:

- identify where to go for WES8.3 documentation and support
- identify important Postgres changes in WES8.3
- identify keys to customizing FFMPA in WES8.3
- identify FSI changes in WES8.3
- identify the future of AWIPS training capability

WES 8.3 Shipping Info

- DVD Shipped
 - June 27, 2008
- Shipping problems?
 - Shannon.key@noaa.gov



WES 8.3 was shipped to all NOAA affiliates on June 27th, 2008. If you have not received your DVD by July 7th please e-mail me at Shannon.key@noaa.gov.

WES 8.3 is a typical WES release containing AWIPS OB8.3 and WES 8.3 software. It is a stand-alone release so a previous WES version is not necessary for installation.

WES 8.3 Installation Keys

- [INSTALL_WES83.pdf](#)
- Install problems?
 - wes@infolist.nws.noaa.gov

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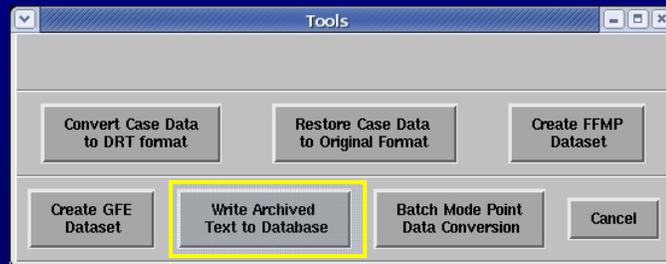
Step by step installation instructions are provided by the [INSTALL_WES83.pdf](#), which is located on the DVD and the WES home page. You can click on the pdf link to view them. Many of the chapters have been revised and updated with critical WES8.3 information, so it will be important for you to follow the guidance in this document for installation and background information on everything WES.

If you should run into any installation problems, please e-mail the WES info list at wes@infolist.nws.noaa.gov.

Now I will go over some important information and new features in AWIPS OB8.3 and WES 8.3.

Postgres Changed in OB8.3 and in WES8.3

- Pre-ob8.3 <your_case>/pgdata
 - automatically moved and replaced
 - /etc/sudoers file modified on install
- still use database writing tool



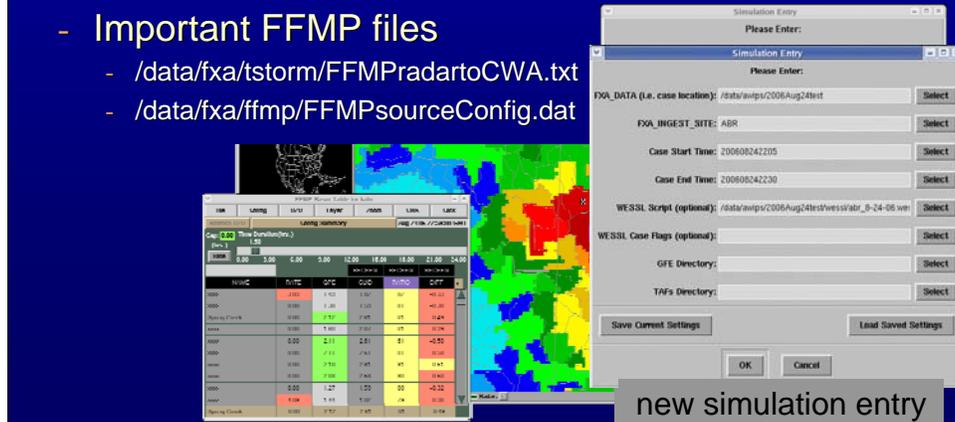
One of the major changes in OB8.3 is that the Postgres version changed in OB8.3 and therefore in WES8.3. Because the fundamental table format changes in this version, the pre-ob8.3 pgdata directory in your case will be automatically moved and replaced with a blank database the first time postgres is accessed with WES. The /etc/sudoers file has been modified again to support giving the fxa account authority to move postgres files.

You can still use the WES “write archived text to database” tool to quickly and easily write any archived text data to the new empty postgres database.

For most users this will be transparent, but for those who have written text data to their cases, another write to the database will be needed. Now I will turn it over to Mike Magsig to talk a bit about the gory details of WES8.3.

Pay attention to these FFMPA features

- Now /data/fxa/ffmp (<your_case>/ffmp on WES)
- Sources: kabr, HPE, BiasHPE ←
- Accumulations are hourly time stamped files
- Important FFMP files
 - /data/fxa/tstorm/FFMPPradartoCWA.txt
 - /data/fxa/ffmp/FFMPsourceConfig.dat



Thanks Shannon. I have to apologize in advance that these next few slides are going to dig into some technical, but important, FFMP details that you need to pay attention to as you go through the customization documentation in the WES install PDF.

While the new OB8.3 FFMP Advanced has similar functionality to the old FFMP, the interface has been reorganized and the data structure is totally different.

The data is now stored ** in /data/fxa/ffmp on a realtime AWIPS, and on WES it is stored in the ffmp directory in your case's root directory.

FFMP precip accumulations are now stored ** as individual hourly files in source subdirectories, like kabr, HPE, or BiasHPE, under the main ffmp directory. Because of this, we no longer have to store FFMP data sets as tar files, so you will no longer need to specify FFMP data sets in the ** simulation entry window **. You will be able to create new FFMP data with your old cases, though.

Some ** important FFMP files for you to know include:

*/data/fxa/tstorm/FFMPPradartoCWA.txt (which tells the localization what default sources to create)

*/data/fxa/ffmp/FFMPsourceConfig.dat (which configures the available sources)

If you pay attention to these files during customization of FFMP on the AWIPS in WES, then you will have a lot less problems getting FFMPA to work in WES8.3.

Archive DHR, HPE, BHPE, and FFG for FFMPA Playback in WES8.3

- Digital Hybrid Reflectivity (DHR)
 - /data/fxa/radar/<radar>/DHR/layer0/res1/level256
- Flash Flood Guidance
 - /data/fxa/img/SBN/netCDF/HRAP/FFG/<RFC>/<hour>
- Hydrologic Precipitation Estimator (HPE)
 - Precip mosaic from DHR inputs
 - /data/fxa/Grid/LOCAL/netCDF/HPE
- Bias HPE (BHPE)
 - Gauge bias correction applied from Multisensor Precipitation Estimator (MPE)
 - /data/fxa/Grid/LOCAL/netCDF/BHPE

There are four main FFMP data inputs you should set up for archiving when you get OB8.3 to support using FFMPA on WES8.3:

- The Digital Hybrid Reflectivity DHR files stored in each radar's directory.
- The RFC Flash Flood Guidance stored in the img directory
- The new Hydrologic Precipitation Estimator DHR mosaic, which is stored in the Grid directory.
- And the new gauge-bias corrected version of HPE, which uses output from the local Multisensor Precipitation Estimator.

Everyone should add these data to your archive rollover cron files on the archive server to support archiving the data. Then you will need to select this data to burn to a DVD with your archiving software. You will need this data to run simulations and to create FFMP data on WES.

FFMPA design doesn't support switching between cases easily on WES

- FFMP customization filenames not CWA-specific:
 - e.g. FFMP_aggr_basins.dbf in /awips/fxa/data/localization/nationalData
- mainScript.csh –ffmp XXX XXX
 - Case-specific files are created in nationalData
 - e.g. ffmp menu files
 - Deletes all existing ffmp accumulations

```
Creating IFMP source-specific data files.
*** FFMP Localization failed for: all
rm: No match.
LX WORKSTATIONS: Undefined variable.
WFS: Copying new FFMP* and ffmp* in /awips/fxa/data/localization/nationalData to
/awips/Lxa/data/localization/nationalData/WES-IFMP/ABR
***WES:The AWIPS localization process deletes FFMP data during localization.***
***WES:Don't forget to recreate your data with the Create IFMP Dataset tool in
WES.***
End of Ifmp localization step.
removing files redundant to the national data set
Files removed because duplicate exists in national data set:
activeGridSources.txt
making all localization data set files group writable
done at Fri Jun 13 21:08:29 GMT 2008
-----
[fxa@falcon LocalizationDataSets]$
```

There are a couple of particular changes in FFMP Advanced that raise new challenges on the WES. The first is that the FFMP customization files are stored under generic names like FFMP_aggr_basins.dbf in the nationalData directory.

The big change is that these names are no longer radar specific. This creates a problem for switching between cases and keeping track of what basins you are using.

Another big change that impacts the WES is that some of the FFMP files created in the localization process, like the ffmp menu file, are now stored in nationalData. This makes nationalData contain case-specific files which further compounds the problem of handling multiple cases.

One last major impact is that the AWIPS ffmp localization process deletes all existing ffmp accumulations every time the ffmp switch is run. This happens on the live AWIPS as well as the AWIPS in WES. Fortunately, recreating the data is easy with the WES tool.

While this may seem complicated, we managed to modify the localization scripts and the D2D startup code in WES to make this easier to manage, which we will discuss on the next slide.

WES organizes case-specific FFMP customization files for localization/D2D startup

- You put FFMP customization files on WES
 - `.../nationalData/WES-FFMP/$CWA` directory
- `mainScript.csh` modified
 - Links WES-FFMP/\$CWA files to nationalData
 - Copies FFMP case-specific files to `<your_case>/saved_FFMP_customization_files/$CWA`
- D2D startup scripts
 - links `<your_case>/saved_FFMP_customization_files/$CWA` to nationalData

The important new convention on WES that is different than the AWIPS baseline is that the FFMP customization files ** normally stored in nationalData are now stored in the WES-FFMP/\$CWA directory in nationalData on WES, where the CWA is the CWA of the basin files. We modified ** mainScript.csh to link to these files automatically when the “-ffmp” switch is run.

When the localization is done, the FFMP customization files are copied ** to the saved_FFMP_customization_files directory in your data case to provide a final resting ground for the case-specific FFMP customization files. When you go to create data with the FFMP tool in WES, these files are linked to nationalData.

The awips5x ** D2D startup files have also been modified to link the saved_FFMP_customization_files in the data case to nationalData to ensure that D2D always sees the correct case-specific FFMP files as you switch cases.

As long as you put the FFMP customization files in the right ** place to start with, then WES will take care of the rest.

Tip: Don't put FFMP* and ffmt* directly in nationalData on WES

- use

/awips/fxa/data/localization/nationalData/WES-FFMP/\$CWA

/awips/fxa/data/localization/nationalData



One big tip is not to put the FFMP* and ffmt* customization files directly in nationalData on WES. If you just get the files into the nationalData/WES-FFMP/\$CWA directory, then you can easily create and view FFMP data on WES. Ok, that was pretty dense discussion, but let's take a big step back and show you how easy it is to work with FFMP in WES.

Steps to create and view FFMP data in WES8.3

- /awips/fxa/data/localization/nationalData/WES-FFMP/\$CWA
 - Put OB8.3 basin files here
- mainScript.csh –ffmp XXX XXX
- Create FFMP data tool button in WES
 - Uses FFMP_DRT from AWIPS
- Case review: enhanced_case_review
- Simulation: start_simulator and start_awips

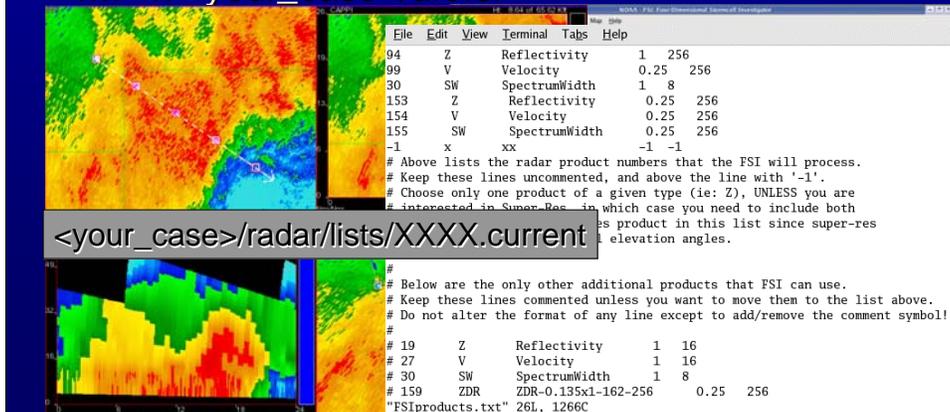


So while OB8.3 FFMPA threw WES some curve balls, we were able to simplify handling FFMP data with the following steps:

1. As you customize the AWIPS in WES following Section 6 of the WES8.3 documentation, you will copy your new OB8.3 basin files from your realtime nationalData to the WES-FFMP/\$CWA directory on WES. You must follow this convention!
2. Then run mainScript.csh with the –ffmp switch. Unfortunately this will delete all your archived ffmp accumulation data.
3. Then create FFMP data by clicking on the FFMP data creation tool button in WES and entering your case and CWA. This tool essentially puts a simple graphical front end on MDL's FFMP_DRT application. You will see FFMP_DRT mentioned in MDL's FFMPA user guide.
4. Once the data is created, then run enhanced_case_review to view the FFMP data statically. One positive new development in FFMP Advanced is that the D2D clock works fully with browsing FFMP data at different times.
5. To run a simulation you simply run your simulation for your data case, and launch D2D with start_awips. WES takes care of preparing the current hour's data up to the start time, and each time an FFMP source input file is processed on WES, it triggers FFMP to create new data and update D2D.

Pre-existing WES8.2 Super Res cases need to be updated

- Don't touch
 - /awips/fixa/data/FSIproducts.txt (new format)
 - <your_case>/radar/lists/<RADAR>.current
- `rm -rf <your_case>/drt/fsi`

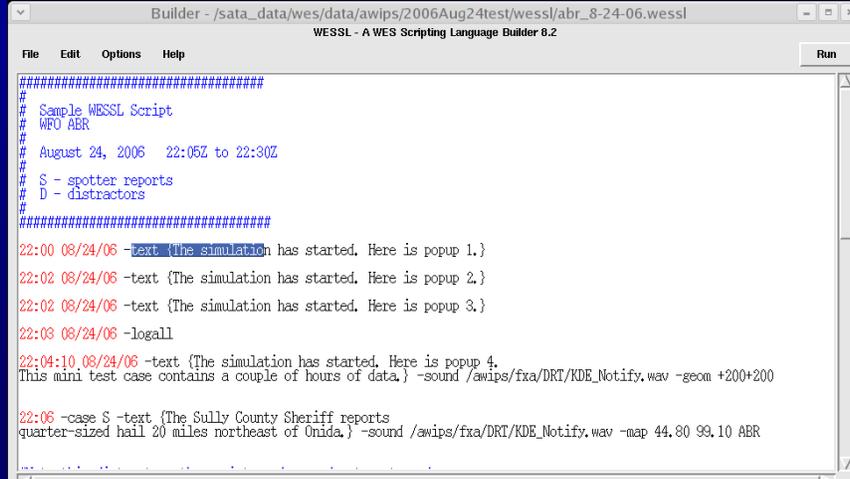


Changes in OB8.3 FSI to support super resolution data and cursor readout also impacted the WES. Now the FSIprocessor uses the ** new format of the FSIproducts.txt file along the RPS list to write Super Res or non Super Res products to the linear buffer. We modified WES to dynamically create the necessary Super Res or no Super Res RPS list, consistent with your data archive. We also changed the default spectrum width product to be the more useful 3bit product 30, as was the default in AWIPS OB8.2. All this should be transparent to the user. Just don't touch ** the FSIproducts.txt file and the RPS lists after WES has created FSI data.

If you have any existing Super Res cases prior to installing WES8.3, you will need to delete ** the drt/fsi directory in that data case due to the change in processing with the new FSIproducts.txt file. To help with this, the install script will clear out all your drt/fsi directories in all of your cases in /data/awips. The new inventories will be created with the WES8.3 the first time the data is accessed. Then you will be able to display your Super Res cases as normal.

WESSL “-logall” option can store all popups in station log at startup

- Good for lots of reports prior to start of simulation



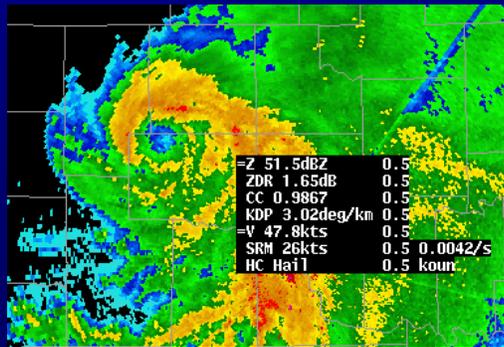
The screenshot shows a window titled "Builder - /sata_data/wes/data/awips/2006Aug24test/wessl/abr_8-24-06.wessl" with the subtitle "WESSL - A WES Scripting Language Builder 0.2". The window contains a menu bar (File, Edit, Options, Help) and a "Run" button. The main area displays a script and its output. The script includes comments for a sample WESSL script for WFO ABR on August 24, 2006, from 22:05Z to 22:30Z, defining spotter reports (S) and distractors (D). The output shows the simulation starting at 22:00 with four popups, followed by a logall command at 22:03, and a case S report at 22:06.

```
#####  
# Sample WESSL Script  
# WFO ABR  
# August 24, 2006 22:05Z to 22:30Z  
# S - spotter reports  
# D - distractors  
#####  
22:00 08/24/06 -text {The simulation has started. Here is popup 1.}  
22:02 08/24/06 -text {The simulation has started. Here is popup 2.}  
22:02 08/24/06 -text {The simulation has started. Here is popup 3.}  
22:03 08/24/06 -logall  
22:04:10 08/24/06 -text {The simulation has started. Here is popup 4.  
This mini test case contains a couple of hours of data.} -sound /awips/fixa/DRT/KDE_Notify.wav -geom +200+200  
22:06 -case S -text {The Sully County Sheriff reports  
quarter-sized hail 20 miles northeast of Onida.} -sound /awips/fixa/DRT/KDE_Notify.wav -map 44.80 99.10 ABR
```

WESSL has a new “-logall” option which will store all reports to the station log when the simulation is first started. This reduces clutter and makes starting a simulation much cleaner.

Last WES Build for “AWIPS1”

- WES 9.0 (Feb. 2009)
 - OB9.0
 - Multisensor Precipitation Nowcaster – extrapolated HPE as QPF for FFMPA
 - FSI with TDWR
 - Dual pol functionality (still prior to dual pol implementation)
 - Up to 8 product toggle
 - All panel sampling
 - Storm-relative looping
 - Volume browser CAPPI
 - AWIPS2 sandbox on WES



The last WES build for AWIPS1 will be WES9.0, currently planned to coincide with AWIPS OB9.0 in Feb. of 2009.

This build will contain the Multi-sensor Precipitation Nowcaster, essentially an extrapolated HPE as QPF for FFMPA...try saying that three times fast!

TDWR display will also be provided with FSI.

Finally dual pol functionality will continue to roll out prior to the release of the dual pol data in the RPG. This will include up to 8 product toggles with the capability to sample multiple combined products at once. Another neat feature will be storm-relative looping in D2D, and CAPPIs in the volume browser.

With AWIPS2 rapidly approaching we are going to release an AWIPS2 sandbox on the WES with WES9.0.

AWIPS2 & WES2 is approaching fast

- AWIPS2 released in Mar. 2010
 - WDTB will release and maintain WES2



OB9.0 is the last AWIPS build before the transition to the next generation AWIPS build, AWIPS2, which is currently scheduled to be released in March of 2010.

The current plan is for WDTB to develop a new Weather Event Simulator (WES2) for AWIPS2 to coincide with the AWIPS2 release. A data converter is also planned to allow viewing AWIPS1 archived cases in AWIPS2. WDTB will maintain the interim WES2 until training capability is developed in the AWIPS baseline, which is currently planned for subsequent AWIPS2 releases.

Although AWIPS2 is intended to have the same look and feel as AWIPS, it will be a major change for archiving and playing back cases.

WES Development Project Changes

- WES Project Lead
 - New: Shannon Key
- WES2 Development Project Lead
 - Dale Morris
- Use WES list for all WES and WES2 questions
 - wes@infolist.nws.noaa.gov

Since the last WES release, there have been some changes in the management of the WES project.

With Timm Decker moving on from WDTB, I am the new project lead for the Weather Event Simulator. Mike Magsig is still actively involved in the WES project as well as being the primary AWIPS warning-related training focal point at WDTB.

Dale Morris is the WES2 development project lead at WDTB.

We are all available for support but please continue to send all WES related questions or comments to the WES info list.

**Articulate Quizmaker Quiz
Placeholder - wes8**

WES 8.3 Overview Training

Warning Decision Training Branch
June 2008



This concludes the presentation of the WES 8.3 Overview Training.

Again, please use the WES info list for any WES related questions.

Please be sure to navigate completely through the course by clicking the green next arrow in the LMS.

Thank you for your time.