



Effectively Managing Your Weather Event Simulator (WES)

*Warning Decision Training
Branch*



What do you have now?

Hardware & Software

Hardware

- HP xw6200 Tower
- 1TB Cavalry External Drive
 - eSATA hookup ; case storage

Software

- Redhat 5 – 32-bit OS
- WES 9.2
 - Update #2 – AWIPS OB9.2.10
 - Sept. 2011



What do you have now?

Training & Documentation

Training

- Software Overview
 - What's changed from build to build
 - 5-10 minute articulate presentation
 - LMS

Documentation

- Installation Documentation
 - Engineering Management Reporting System (EMRS)
- Full software documentation
 - INSTALL_WES92.pdf
 - WDTB webpage
 - Install DVD
 - /awips/fxa path

WES 9.2 Overview (00:01 / 09:23) ATTACHMENTS

articulate®

Darrel Kingfield
Research Associate

Email

Outline | Thumbnails | Notes | Search

1. Weather Event Simulator (WES) 9.2 Overview
2. Lesson Objectives
3. The Reason for WES 9.2
4. OBJECTIVE 1: Upgrade the OS
5. OBJECTIVE 2: Install WES9.2 Software
6. OBJECTIVE 3: Updating WDTB Cases
7. WES 9.2 Shipping Info
8. WES to be Managed by The Engineering Man...
9. What's Changed in AWPS 09.2?
10. Midterm Quiz
11. New WES FFMP File Supports Flexible Sour...
12. 09.2 AWPS Only Supports 30-Hour TAF F...
13. FSI Improvements in Case Review Mode
14. Flash 10: No More Copying in Flash Plugin!
15. Enhancements to WES 9.2
16. WES Timeline
17. What Happens To My WES-1 Box?
18. Final Quiz
19. Conclusion

**Weather Event Simulator (WES) 9.2
Overview Training**

Darrel Kingfield¹²

¹Cooperative Institute for Mesoscale Meteorological Studies (CIMMS)
and
²Warning Decision Training Branch (WDTB)

articulate
POWERED PRESENTATION

40 | SLIDE 1 OF 19 | PAUSED | 00:01 / 09:23

WES 9.2

[WES Home](#) - [WES 8.3](#) - [WES 9.0](#) - [WES 9.2](#) - [WESSL](#) - [FAQ](#) - [Admin](#)

[WES 9.2 Release Notes](#) | [WES 9.2 Instructions / Guide](#)

INSTALL_WES92.pdf

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- Your one-stop shop for configuring AWIPS components on your WES box
- Chapters broken out by component (FSI, AvnFPS, GFE, FFMP)

Where Things are Located

/awips

Software Home

- AWIPS & WES code
 - /awips/fxa
 - Documentation
 - /awips/fxa/INSTALL_WES92.pdf
- AvnFPS code
 - /awips/adapt/avnfps
- GFE install bundle
 - /awips/GFEsuite

/data/awips

Case Data Home

- Most of your time will be spent in here
- Case directories located in this path

e.g.

/data/awips/2010Jun17

What does /data/awips look like?

```
Terminal
File Edit View Terminal Tabs Help
[fxa@wombat awips]$ cd /data/awips ; ll
total 16
lrwxrwxrwx 1 fxa fxalpha 29 Jun 28 20:51 2011DPexercises -> /wesdatamount/2011DPexercises/
drwxrwxr-x 32 fxa fxalpha 4096 Sep 26 14:51 2006Aug24test/
lrwxrwxrwx 1 fxa fxalpha 27 Sep 26 18:14 2010Jan29_RAH -> /wesdatamount/2010Jan29_RAH/
lrwxrwxrwx 1 fxa fxalpha 27 Sep 26 18:14 2010Jan30_LWX -> /wesdatamount/2010Jan30_LWX/
drwxr-xr-x 2 fxa fxalpha 4096 Oct 6 19:43 2011Jul25/
drwxr-xr-x 2 fxa fxalpha 4096 Oct 6 19:43 2010May19/
drwxr-xr-x 2 fxa fxalpha 4096 Oct 6 19:43 2008Sep14/
[fxa@wombat awips]$
```

- **Contents**: Physical folders and symbolic links

IMPORTANT

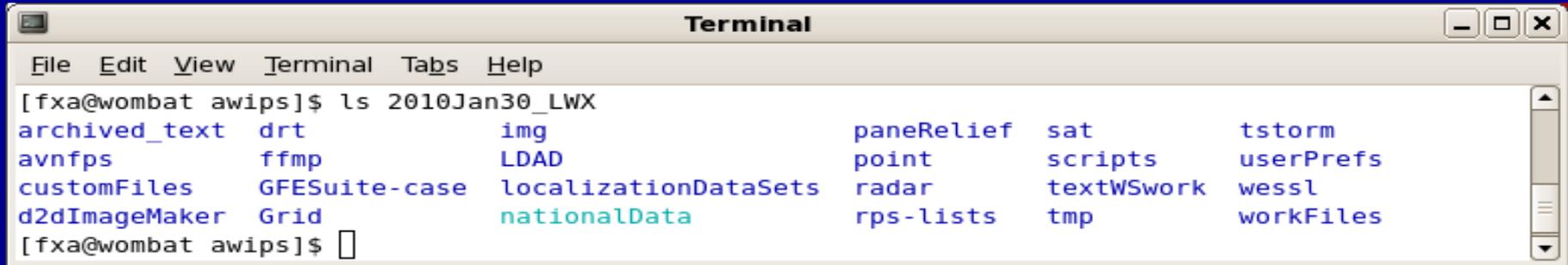
Symbolic links must match source folder name

Failure = Linking problems during WES simulations

```
2010Jan29_RAH -> /wesdatamount/2010Jan29_RAH/
```

Matching

Inside a Case Folder



```
Terminal
File Edit View Terminal Tabs Help
[fxa@wombat awips]$ ls 2010Jan30_LWX
archived_text  drt          img          paneRelief  sat          tstorm
avnfps         ffmp         LDAD         point        scripts      userPrefs
customFiles    GFESuite-case  localizationDataSets  radar        textWSwork  wessl
d2dImageMaker  Grid         nationalData  rps-lists   tmp          workFiles
[fxa@wombat awips]$
```

Configuration Folders

- **customFiles**
 - Local office config files
- **localizationDataSets**
 - Your CWA localization (e.g. OHX)
- **userPrefs**
 - User procedures ; colorTables
- **workFiles**
 - colorTables ; D2D config files

MANDATORY

Data Folders

- **ffmp, Grid, point, radar, etc.**
 - Contain AWIPS data

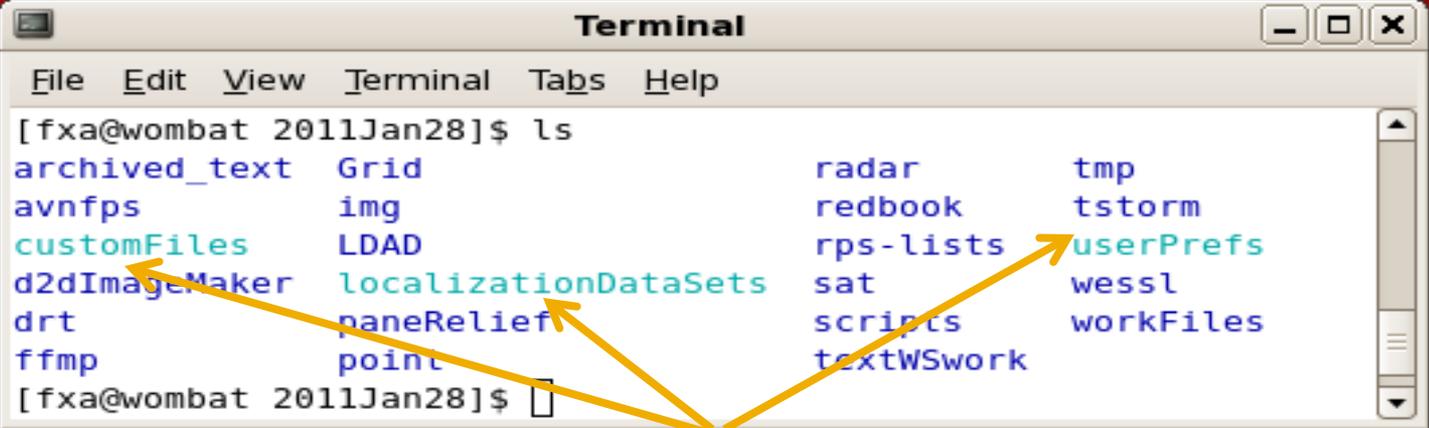
AWIPS/WES Tools

- **d2dImageMaker, paneRelief**
 - Image/D2D pane tools
- **wessl**
 - Simulation scripting folder

Customizing the Mandatory Folders

/awips/ fxa/WEScustomization

- Bring AWIPS configuration files over to WES
 - VB menus, colorTables, etc.
- Store in above path ; link directories into case
- More Information?
 - INSTALL_WES92.pdf
 - Chapter 6



```
Terminal
File Edit View Terminal Tabs Help
[fxa@wombat 2011Jan28]$ ls
archived_text  Grid          radar         tmp
avnfps        img          redbook      tstorm
customFiles   LDAD        rps-lists   userPrefs
d2dImageMaker localizationDataSets sat           wessl
drt           paneRelief  scripts     workFiles
ffmp         point      textWSwork
[fxa@wombat 2011Jan28]$
```

The terminal window shows a directory listing. Three yellow arrows point from the text 'Symbolic links to WEScustomization directory' below to the entries 'customFiles', 'localizationDataSets', and 'userPrefs' in the listing.

Symbolic links to WEScustomization directory

Your Archiver (AX)

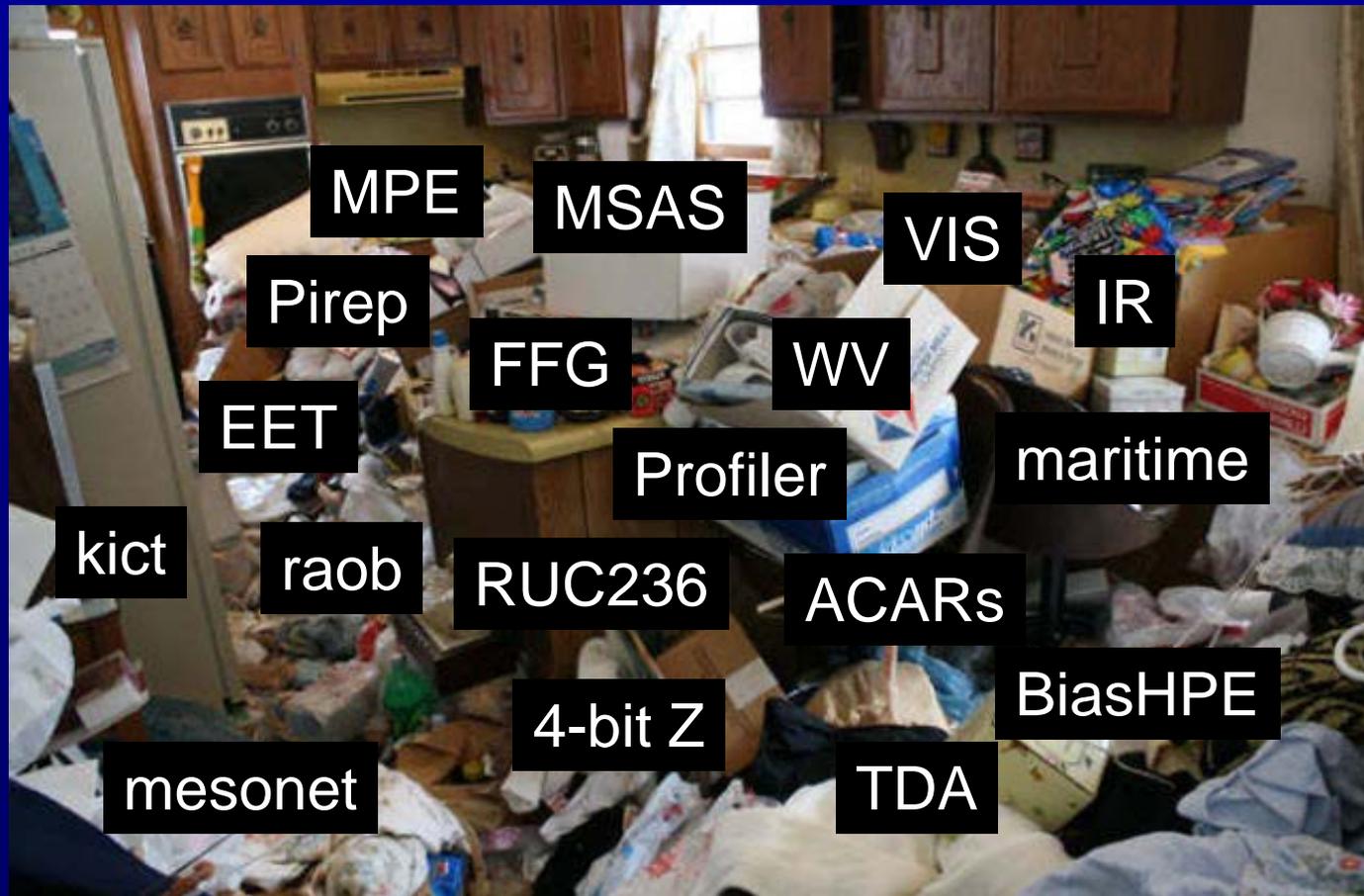
- Configuration does vary from site to site
 - Multiple configurations exist (2 known)
- Transfer to WES box done in several ways
 - DVD Burn, LaCie Drive, Network Transfer
- Local applications exist to compress and uncompress data (e.g. “WES Case Installer”)

Goal: Come up with a site-specific archive strategy

Tip: What paths are being archived?

- Appendix C of the AWIPS System Manager’s Manual provides details on the `/data/fixa` tree.

Bringing Over Data from the AX



Some sites have data brought over in 24-hour blocks
Don't hoard the data if you don't need it!

Suggestions to Trim Case Data

- **Find your “window of interest”**
 - Example:
 - Data: 00z to 23z
 - Interest: 09z to 12z
 - Trash: 00z-07z & 13z-23z
 - 18 hours purged!
- **find command works well here:**

```
find <case>/radar -type f -name "2????????_0[07]???" -prune -exec rm -Rf {} \;
```

e.g. find all filenames from 00z-07z and remove them

Benefits: Case takes up less space ; prepares faster

Other Tips to Trim Case Data

- **Non-dedicated radars**
 - Minimal data; trash it
 - Delete higher tilts ; 4-bit
- **Products not relevant to the case**
 - Maritime in Nebraska?
 - TDA/MDA in winter wx



Three Ways to Display Data

start_awips

enhanced_case_review

start_simulator + start_awips

**Greater Tool
Usage &
Functionality**



start_awips

- Launches up a D2D session only
 - No AWIPS decoders started
 - **Result:**
 - No menu data times
 - Can't issue/view warnings
- Why?
 - Quick review of data
 - Fast startup/shutdown
- More Information?
 - INSTALL_WES92.pdf
 - Chapter 17.3

```
4-Panel Z+SRM/ZDR+V/KDP+HC/CC+SW
0.5 base data          ??.????
0.9 base data          ??.????
1.5 base data          ??.????
All Tilts base data    ??.????
ktilx Hi base data tilts
```

↑
No update times

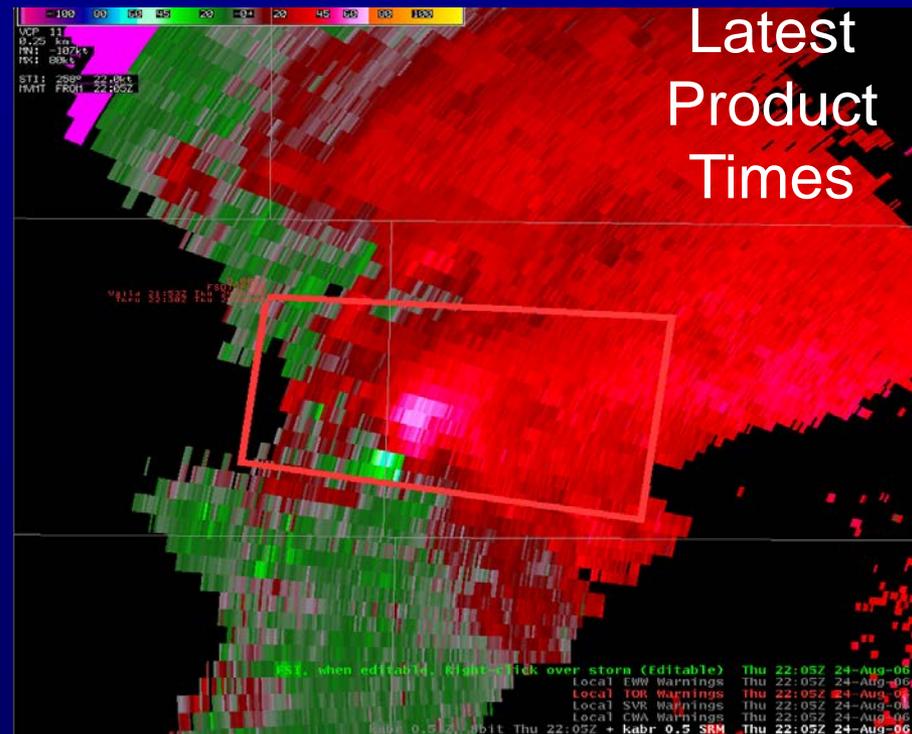


enhanced_case_review

- Launches up a D2D session with some AWIPS decoders
 - Product times available
 - Viewing of warnings only
 - Cannot issue new warnings
 - Filtering of SCAN/FFMP data
- Why?
 - Review of data with time information
 - Warning text/display review
- More Information?
 - INSTALL_WES92.pdf
 - Chapter 17.1

4-Panel Z+SRM/ZDR+V/KDP+HC/CC+SW

0.5 base data	14.1555
0.9 base data	14.1555
1.5 base data	14.1555
All Tilts base data	14.1555
koun Hi base data tilts	14.1555



Review of time manipulation

start_awips, enhanced_case_review

```
Local SVR warnings Thu 22:05Z 24-Aug-06
Local CWA Warnings Thu 22:05Z 24-Aug-06
05Z + kabr 0.5 SRM Thu 22:05Z 24-Aug-06
```

Frames: 12 Time: 16:34 Z 07-Oct-11

current time

Frames: 12 Time: 16:34 Z 07-Oct-11

frozen time

Frames: 12 Time: 18:39 Z 07-Jun-11

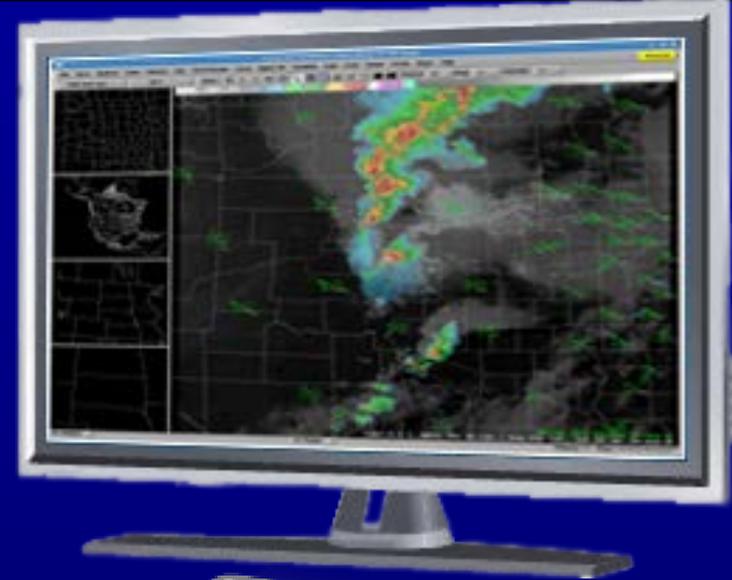


Set Time Window

- Seeing earlier data in case = set the D2D clock
- Left-click on D2D clock to bring up 'Set Time' box
- Pitfalls
 - Clock freeze seen across all D2D sessions
 - Procedures immune to freeze; will load most recent time

start_simulator

- Starts up suite of AWIPS decoders
- Playback of data in Displaced Real Time (DRT)
 - System clock reset to simulation time
- WES code reveals new AWIPS data every 15 seconds
 - start_awips command run separately
- Data **must** be in DRT format
 - Conversion under 'Tools' button of start_simulator GUI
- More Information?
 - INSTALL_WES92.pdf
 - Chapter 17.2



What is DRT Format?

Purpose: Hide AWIPS data until WES says it's okay to be shown

Step 1: Move all data to a-files

20060824_1200 → a20060824_1200
↑ Visible to AWIPS ↑ NOT visible to AWIPS

Step 2: Create b-links with offsets* to a-files

b20060824_1202 → a20060824_1200
*Offsets only added to some files
e.g. Δoffset for each radar elevation

Step 3: When simulation time matches b-link time, create link with current time to a-file

Time: 12:02 Z 24-Aug-06 == b20060824_1202

a20060824_1200 → 20060824_1200

Simulation Timeline



Example Simulation – 0730z – 1500z



Visible from the start of the simulation



Will become visible as the simulation progresses



Will never be visible due to the simulation window

How can I view the data not revealed via simulation?

1. Set simulation start time beyond case data window
 - e.g. Set start time at 2301z
2. Or convert case back to “Original” format

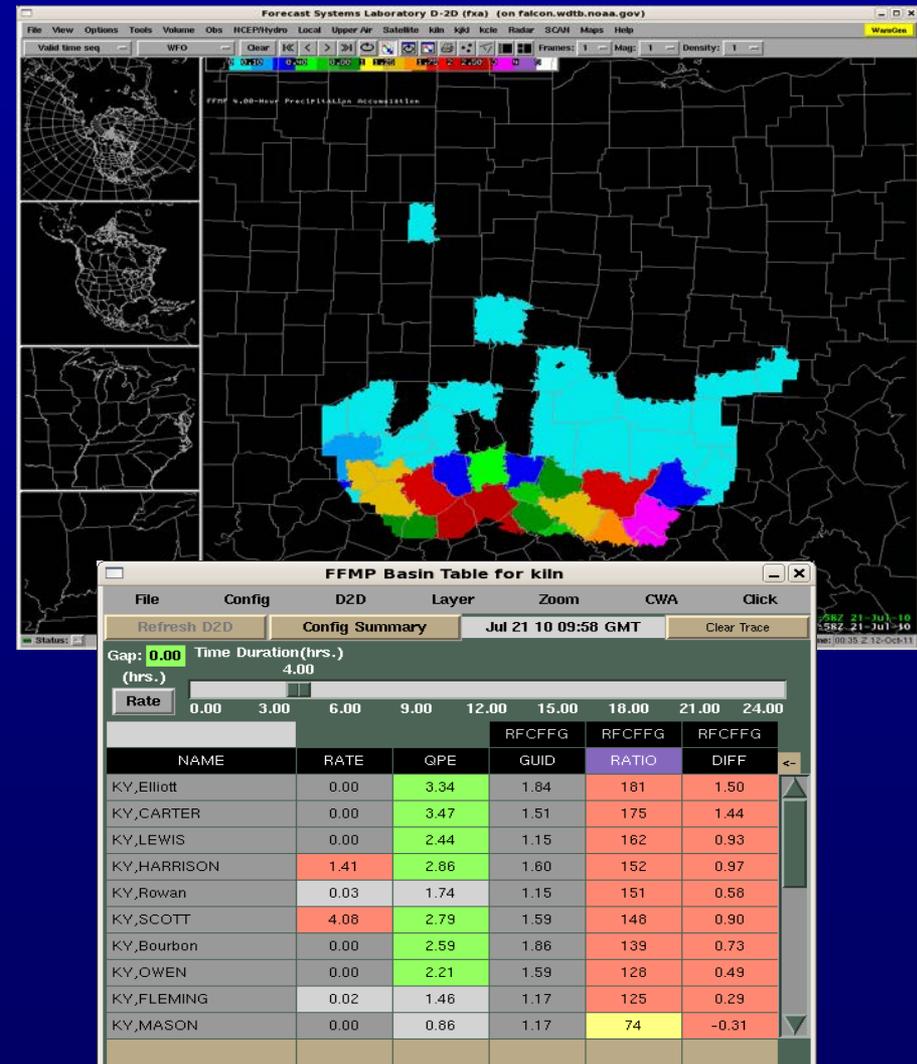
Inside D2D

Flash Flood Monitoring & Prediction (FFMP)

Can be viewed inside or outside simulation

- FFMP data must be created for each case
 - No Linking from other cases
 - Created under 'Tools' button in start_simulator
 - Certain data needed from AX (HPE, BHPE, FFG)

- **More information?**
 - INSTALL_WES92.pdf
 - Chapter 12



Inside D2D

Four Dimensional Storm Cell Investigator (FSI)

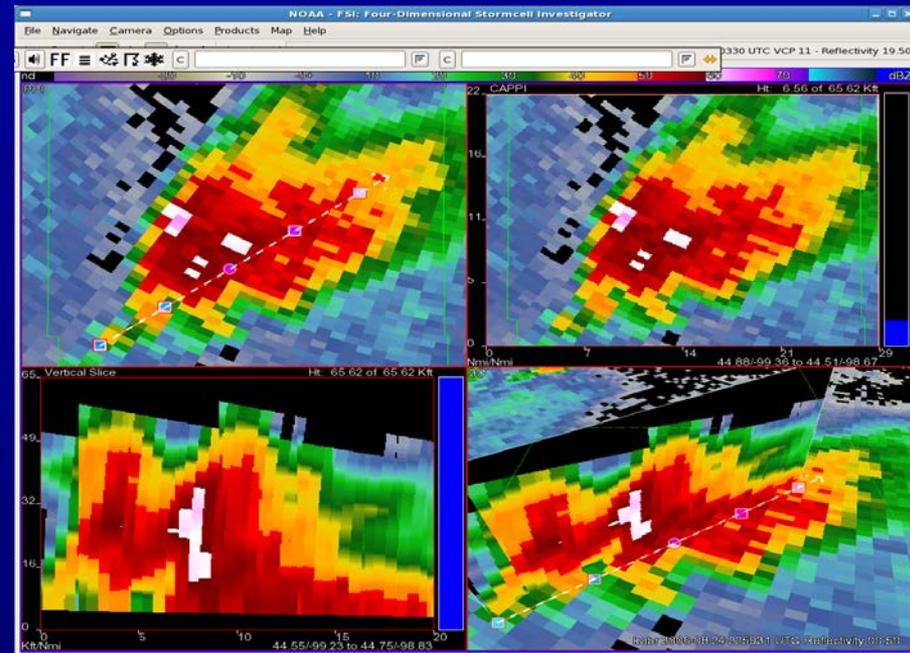
Can be viewed inside or outside simulation

During simulation

- Data up to simulation time displayed

Outside simulation

- Time widget select the end-time for static review



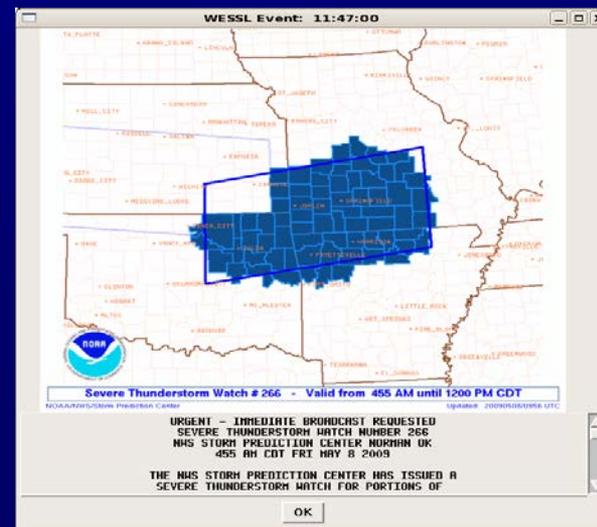
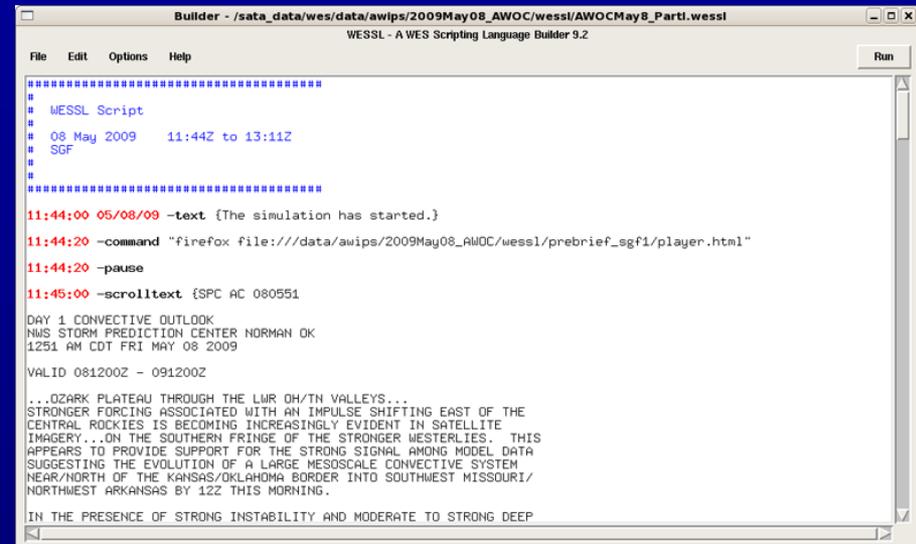
- More Information?
 - [INSTALL_WES92.pdf](#)
 - Chapter 20

- Inventory created on-the-fly
 - First launch FSI or during DRT conversion

Alongside D2D

WES Scripting Language (WESSL)

- Time release of non-AWIPS data during a simulation.
 - Spotter reports, video/audio, mapping, other scripts
- More Information?
 - INSTALL_WES92.pdf
 - Chapter 15
 - WESSL webpage
 - <http://www.wdtb.noaa.gov/tools/wes/wessl.htm>



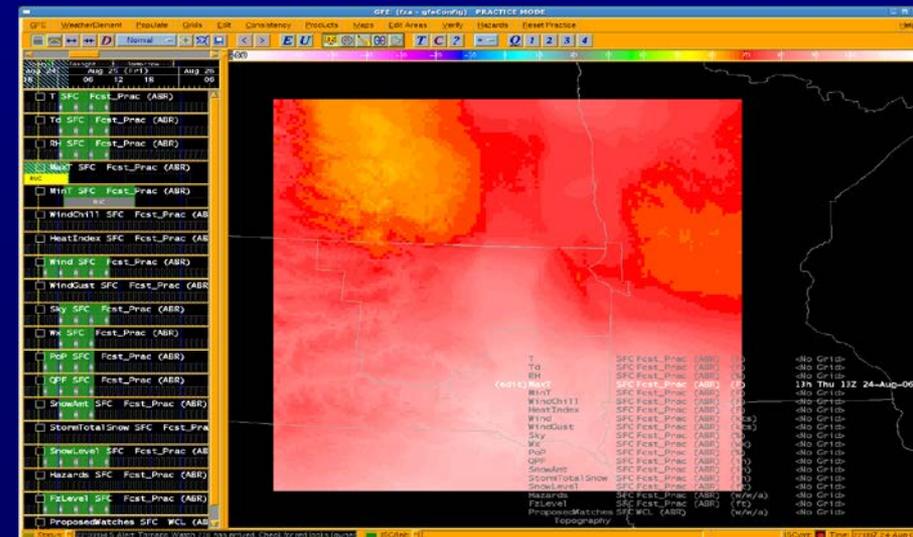
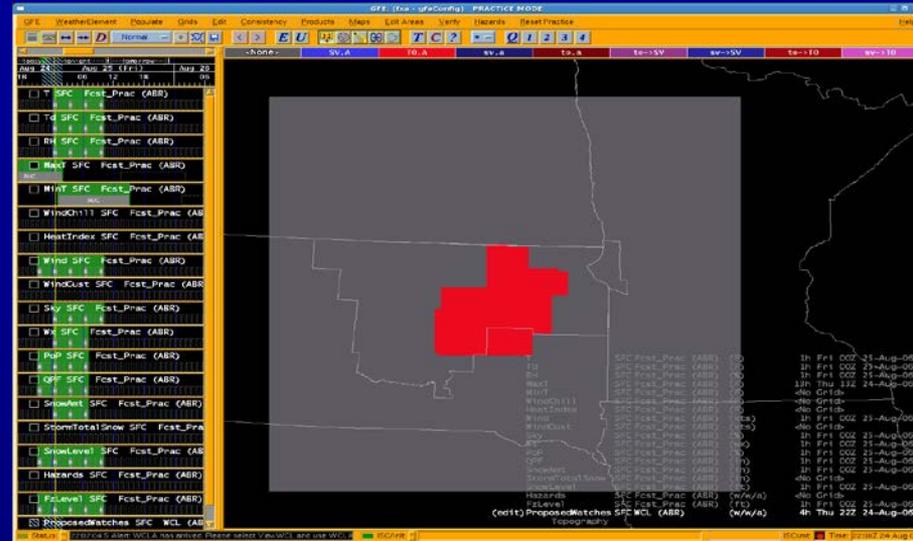
Beyond D2D

Graphical Forecast Editor (GFE)

Command: `start_GFE`

Only used during simulation

- GFE is installed into case when data are created
 - Option under 'Tools' button in `start_simulator`
- More Information?
 - `INSTALL_WES92.pdf`
 - Chapter 18



Beyond D2D: Aviation Forecast Preparation System (AvnFPS)

- Command: `start_avnfps`

Only used during simulation

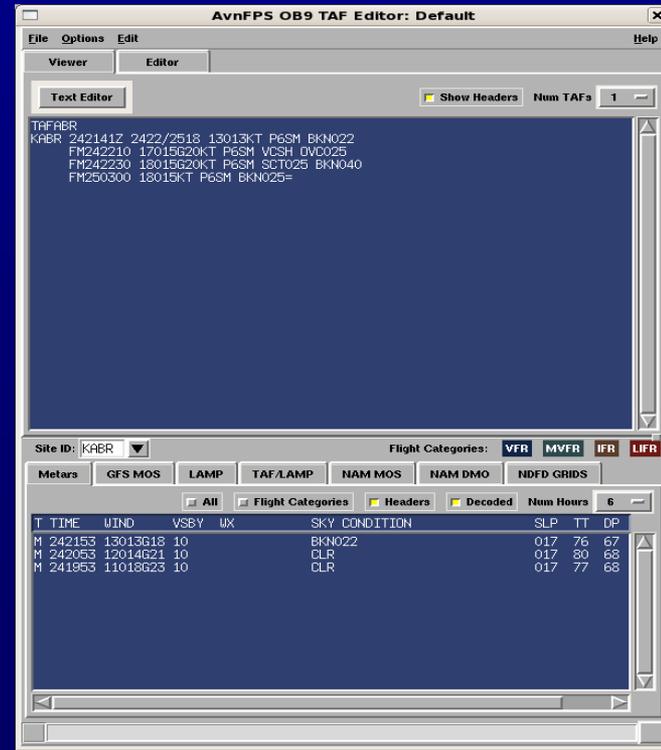
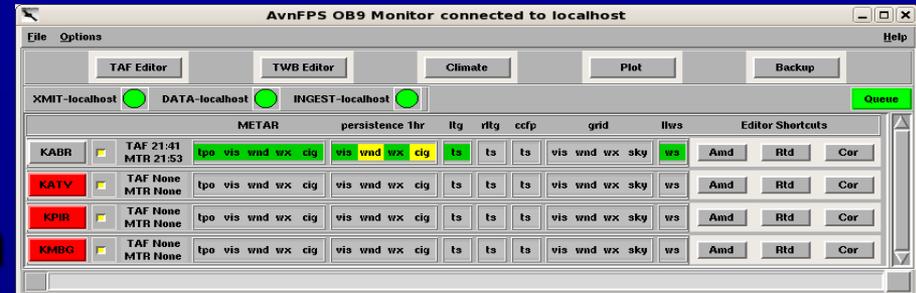
- Ingests TAFs, point data from case into avnfps paths

- More information?

- `INSTALL_WES92.pdf`

- Chapter 14 – adding data

- Chapter 19 – simulation info



WES TOP TROUBLESHOOTING TIPS

The 2006Aug24test case

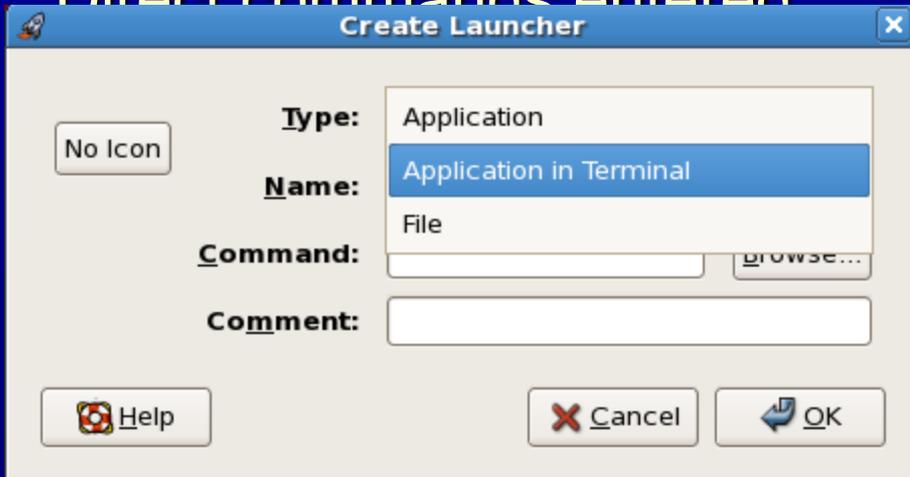
- Packaged with the software DVD
 - ~2.6GB of sample data
- Built/tested by WDTB
 - Guaranteed to work!
- Isolates whether it is a “case” issue of a whole “machine” issue
 - FSI doesn’t work?
 - Can’t issue a warning?
 - D2D won’t launch?
 - Volume Browser error?

If you suspect something is wrong, try it out (if possible) in the 2006Aug24test case.

Launching Display Sessions

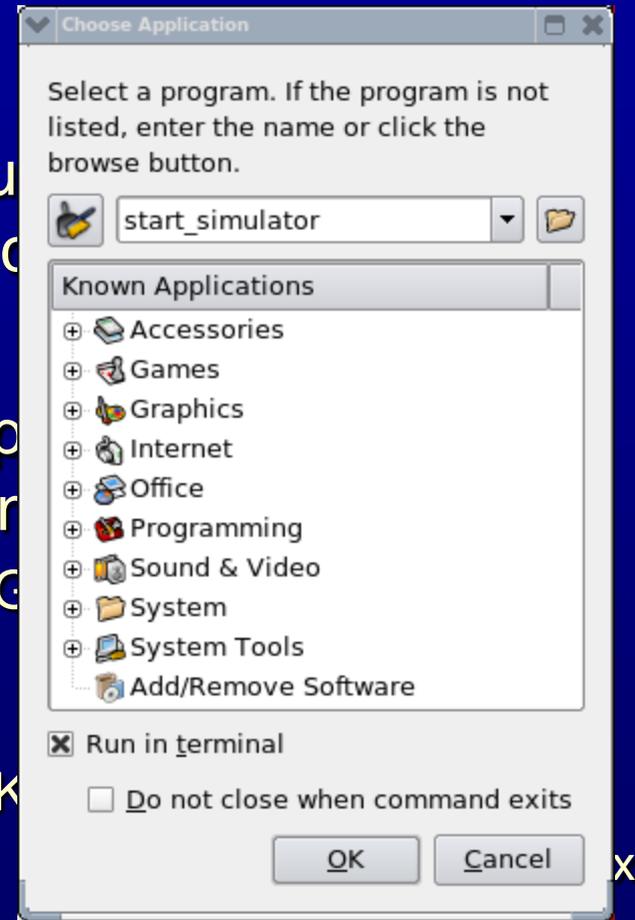
Terminal

Direct commands entered



GNOME

- Launch be c
- App laur
- C
- K



KDE

Conflicts with AWIPS RPMs

- AWIPS has special RPMs
- No AWIPS RPM should be overwritten

Biggest problem

postgresql-8.2.6-1.AWIPS.OB91

postgresql doesn't play nice with other postgresql RPMs

postgresql-lib



How to check:

```
rpm -qa | grep postgres
```

Only 1 postgresql should exist

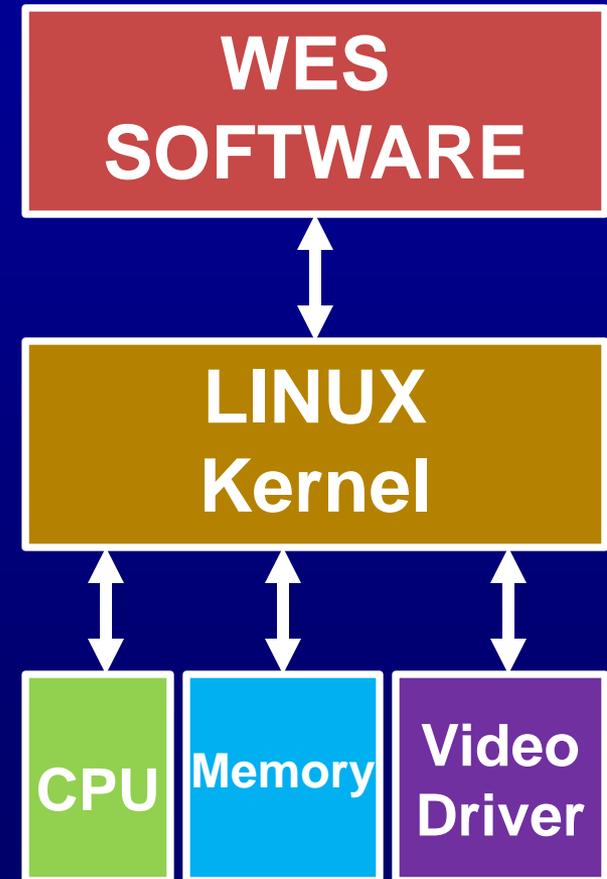
Solution:

Add 'exclude' line to /etc/yum.conf

e.g. `exclude=postgresql* perl-DB* AWIPS*`

Heads up on kernel upgrades

- Kernel = bridge between hardware & software
- Upgrades are necessary ; come with consequences
 - System configurations errors can occur
- Most common failure:
 - Video card driver



Kernel Updates: The Silent Killer?

Obvious Failure Symptoms

- Your machine will not boot up
- Blue screen “Failed to start X server” message

SOLUTION

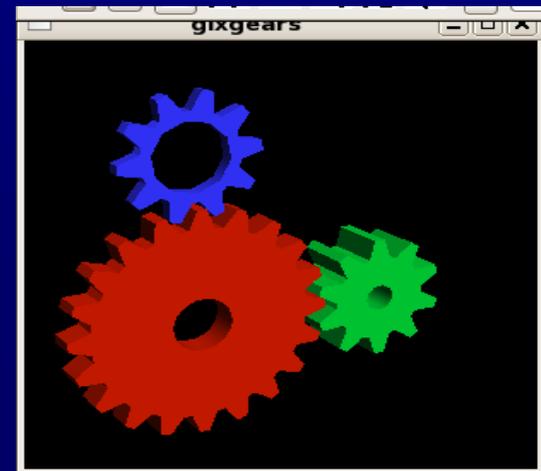
- Recompile your NVIDIA graphics driver
- Section A.3 of the [WES 9.2 EMRS Document](#)

Hidden Failure Symptoms

- FSI slow/sluggish
- Some pixels on screen dark (not a monitor issue)

To test this:

- Type `glxgears` in a terminal



WES Support

wes@infolist.nws.noaa.gov

WES Support List – Subscribe to this

<http://www.wdtb.noaa.gov/tools/wes/FAQ2.htm>

WES Frequently Asked Questions

Where Are We Going?

- We're here as long as AWIPS-1 is here...



- To provide you with an operationally relevant AWIPS – Release Date: December 2011

The End



Effectively Managing Your Weather Event
Simulator (WES)

Any Questions?