

AWIPS II Task Order 11 DR3 Release

Missing Functionality Assessment

V3.1 - 2/17/10

1. Introduction

On January 8, 2010 Raytheon delivered the latest version of AWIPS II, known as AWIPS II Task Order 11 DR3 (TO11DR3). This release was to contain all functionality planned to be migrated to AWIPS II. **NOTE:** The Government and Raytheon mutually agreed to replace the Graphical Forecast Editor (GFE) Daily Forecast Critique function with BOIVerify. As expected, BOIVerify has not yet been migrated to AWIPS II.

Starting on January 11, 2010, the government began performing their System Integration Test (SIT). As part of that SIT, the testers and Subject Matter Experts (SMEs) evaluated the TO11DR3 software to identify areas of missing functionality. This report summarizes the identified areas of missing functionality. It is important to note that this should NOT be viewed as a “complete” list of missing functionality. This is the SIT team’s best effort in identifying such areas.

2. Executive Level Summary

2.1 The Good News

It was noted by several testers that the software has improved noticeably in terms of functionality and usability.

2.2 The Not-So-Good News

It was also noted that AWIPS II appeared to be MUCH more stable than previous releases. However after a day or two of use, the system quickly became as unstable (if not worse) than previous releases.

A previously identified issue with the postgres host caused problems that prevented testing for 3-4 hours. A less-than-ideal workaround was found, which allowed testing to continue.

During SIT, the testers found areas of “major” functionality that appeared to be missing. Those areas are listed in section 3 of this document. The most critical of those pieces of missing functionality (in no particular order) are:

- The Data Archiver (one of the Raytheon Checklist items, line 107) is missing.
- The BASE/SITE/USER concept in GFE has not been implemented

- GFE -> Define Config and ifpImage is missing
- GFE/GHG MakeHazard is not customizable
- The GFE product editor has major deficiencies
- GFE ifpAG is missing
- Approximately 40 products found in D2D's NCEP and Obs menus are missing.
- Popup Skew-T window is empty
- AlertViz Monitor Section and Functions functionality is missing
- AvnFPS is unable to send products (to TNCF)
- AvnFPS backup TAF monitoring is not working
- SCAN and SCAN DMD alarms are missing
- SCAN and FFMP HTML Data Monitor is missing
- SCAN and FFMP DRT capabilities are missing
- FFMP Basin Table is empty
- FFMP Forced Flash Flood Guidance (FFFG) program is missing
- Several pieces of functionality within Hydro applications is missing
- Crons for reshosted applications are not implemented, rendering testing difficult to impossible for those applications
- WannGen is missing templates for Special Weather Statement and Short Term Forecast
- WarnGen QC is not working
- SAFESEAS/SNOW/Fog Monitor Observation History Table is empty
- SAFESEAS/SNOW/Fog Monitor Trend Graphs are not displayed
- SAFESEAS/SNOW/Fog Monitor "Configure Monitor Area" menu items do nothing
- Radar Dual Pol products are not displayable

In addition to the missing functionality described above and in section 3 of this document, it was noted by many testers that testing of certain applications was difficult to impossible due to the lack of understanding of how to configure the applications. Documentation or at a minimum, oral instructions, continue to be a frequent high-priority request from developers and testers.

Lastly, there is a particularly troublesome defect when displaying and looping products in CAVE. In certain situations when two products are overlaid and looping, CAVE will use all available CPU. Occasionally CAVE returns to normal, but frequently CAVE must be killed. If left running, it eventually brings the entire workstation down with a kernel panic.

2.3 Acknowledgements

Many thanks go to Jim Williams, who installed and prepared the software on the NHDA system...and also kept things running throughout the SIT.

Thanks also to the members of the IV&V team that participated in the SIT by writing the test cases, assessing the state of the software, and executed the test cases and performed ad-hoc testing. Many of those people are listed in the SIT Report v0.2, but many other non-IV&V personnel also participated.

Thanks also go to Raytheon's Brad Scalio and Sean Webb, who provided on-site support and acted as a liason between the testers and the Raytheon (Omaha) developers. Their presence truly made the SIT more valuable.

3. Missing Functionality Assessment

This assessment is the SIT team's best understanding of the current state of the software. Since Raytheon had a solid presence during this assessment, most of the items listed as missing in here were confirmed with Raytheon.

However, due to the lack of configuration-related documentation, it's quite possible that some of these issues and/or areas of missing functionality are actually present.

Additionally, a couple of items initially noted as missing and/or broken were found to be working at the NWS Training Center (NWSTC) and on the Raytheon/Silver Spring testbeds. This implies that the software either isn't configured correctly on NHDA or that there were minor problems with the TO11DR3 installation.

With that in mind, what follows are some specific observations from the SIT team.

3.1 Rehosted Application Crons

- Rehosted applications that depend on crons were generally without data. The crons for those applications have not been implemented yet.

3.2 GFE

- The BASE/SITE/USER concept has not been implemented. This is critical functionality for testing, migration, local development, and operations.
- No ISC Send Enable via the consistency menu
- Clicking "GFE --> Define Config and ifpImage" file now does nothing rather than provide a "Not Yet Implemented" dialog
- No MakeHazard available from GFE --> Define procedures. This procedure needs to be customizable by the WFOs.
- For some users, Status and ISC/Init message bars are missing in this build. They were there in the last few TO11 releases.
- PWS_Procedure, DiffFromClimo and PopulateFromClimo should be under the populate menu, but are not.
- Smart Procedure CheckTandTd fails to run with gfeclient.
- Break Locks doesn't work if model grids are locked by other users
[Workaround exists]

- Missing functionality in callToActions Button in GHG Formatter
- ifpAG is missing

3.3 CAVE/D2D

- Data Scale option in D2D perspective is unavailable
- Image Combination option in D2D perspective is unavailable
- 38 TTRs written on missing products in the D2D perspective menus “NCEP” and “Obs” are still valid (i.e. the products are still missing). Instead of being presented with a dialog that states “Not Implemented Yet”, selecting the products in question now result in no action at all.
- The Popup Skew-T window launches with a legend, but no other functionality
- The Actual Velocity Tool was not implemented
- The Feature Following Zoom was not implemented
- The radar cross section was not implemented

3.4 MDL Applications

3.4.1 SCAN

- Alarms (Absolute, Rate of Change, New) are missing.
- HTML Data Monitor is missing
- DRT capabilities are missing

3.4.2 SCAN DMD

- Time-Height Trend functionality is missing.
- Alarms (Absolute, New) are missing.

3.4.3 FFMP

- A critical template is not copied into the user’s area, rendering FFMP unusable. [Workaround exists]
- FFMP configurable and variable data sources missing (i.e. FFG, HPE)
- Basin Table contains no data (not even “missings”)
- Basin Trace functionality is not present.
- ‘Independent’ displays such as “basin FFG” and “basin QPF” are missing.
- FFMP FFTI GUI option does not exist in AlertViz’s Monitor Section
- FFMP FFFG GUI does not exist
- HTML Data Monitor is missing
- DRT capabilities are missing

3.4.4 FSI

- FSI launches, but does not contain the expected 4-panel display – only a single pane of the 3D flier.

3.4.5 AlertViz

- Monitor section and function are missing
- Usage tips (in GUI) are missing
- AlertViz system tray icon is missing (OB9.2 issue, not AWIPS II issue)

3.4.6 SAFESEAS/SNOW/FOG Monitor

- Plan-view window/graphics are missing
- Observation History Table is empty
- Link to Frame button does not work
- Trend Graphs are not displayed
- Zone/County table does not respond to threshold changes and colors do not match the expected colors based on the configured thresholds
- Some panels with these applications are blank (i.e. nothing is present)
- Configure Monitor Area menu items have not functionality attached to them

3.4.7 AvnFPS

- The monitoring capability in AvnFPS during backup operations is not working.
- AvnFPS is sending all TAFs to the “bad” bucket, rather than “pending” or “sent”. It is believed that this was intentionally configured by Raytheon to prevent products from being inadvertently sent out. It is unknown if or how this can be set up to send products to TNCF.

3.5 Hydro Applications

3.5.1 HydroView

- PDC lacks a Time-Step mode. It exists in the GUI, but has not been truly implemented.
- PDC’s ad-hoc mode doesn’t seem to have been fully implemented.
- TextReports E-19 and B-44A exist but only have header data.
- MPE Color Manager option in Hydro Perspective is missing.
- Location Shift option within Hydro Perspective is missing.

3.5.2 DHR Ingest

- Can not be run automatically, only by hand

3.5.3 DSP Ingest

- Can not be run automatically, only by hand

3.5.4 Shefdecoder

- The Shefdecoder lacks the essential multiple log files (a daily decoder log and a log for each product). This is an issue that was raised probably two to two and a half years ago.
- Very little of the available data are getting into the database

3.5.5 RiverPro

- RiverPro can not be launched from CAVE, only from a terminal window.

3.5.6 RFC Applications

- RFC applications tend not to have appropriate startup scripts

3.6 Communications and Infrastructure

3.6.1 Data Archiver

The Data Archiver function (MDM item 2.9) has not been implemented.

There are two possible sources of confusion on this issue: (1) The term “archive” has more than one meaning in AWIPS; and (2) The AWIPS2 architecture may automatically provide some parts of the archiver infrastructure, so Raytheon may see it as being “automatically” implemented with the LDM ingest system.

This addresses the archive system sometimes called the “Kirkwood Archiver” because it was originally designed and coded by Paul Kirkwood of the Southern Region. In AWIPS1 the Kirkwood archiver interface is accessible from the top-level startup menu (appLauncher). The archver provides a GUI (including several dialog windows) that supports:

- Setting up a rolling archive of specified sets of decoded data. The oldest data is automatically purged from the archive each day. (See awipsArchiverSetup.jpeg.)
- Selecting data sets from the rolling archive to be compressed and saved in a location that does not get purged. Typically users might do this after a weather event to save off data that might be useful for training. (See awipsArchiverCompressor.jpeg.)
- Burning data saved in step (2) to removable media (CD or DVD). This GUI dialog provides information on media capacity and file size to

facilitate efficient storage of the weather “case” on the media. (See cdBurner.jpeg.)

As of DR3 no replacements for those GUI dialogs have been implemented.

3.6.2 Rehosted Application Crons

Several rehosted applications depend on crons to do critical tasks (i.e., feed data to the applications). These crons have not been integrated into AWIPS II since they are assumed to be part of the DTP. As a result, testing was difficult to impossible for some of these applications

3.6.3 LDAD

LDAD mesonet data are coming in, but are not displayable in CAVE

3.7 WarnGen

- There are two missing baseline WarnGen templates – Special Weather Statement and Short Term Forecast.
- There is no ability to add more than one site-specific custom WarnGen template.
- There is no automated site localization functionality.
- WarnGen performs no product QC checking - e.g. I was able to issue a Tornado Warning with the text "TORNADO WARNING" missing from the MND heading, I was able to issue a Severe Weather Statement with the VTEC line missing.
- WarnGen's ability to communicate with the text workstation is lacking - e.g. after using WarnGen "create text" to create a draft warning, there are problems with the configuration/usage of the text workstation.

3.8 Radar

- Radar cron jobs are missing (TTR1868 – non-FBSO)
- Can not display page 2-6 for radar Storm products (STI, HI, TVS, DMD)
- Text window - WSR is not available for all regions for Radar products.
- Mosaics are not generated
- Dual Pol products are not displayed

4. Ad Hoc Test Observations & Additional Blocking Issues

In general, the lack of configuration documentation is a severe hindrance to testing. It's very difficult to test software when there is little to no knowledge of how to

configure the applications. Even SMEs of the AWIPS I software are having difficulty testing without this documentation. Because of this issue, there are some portions of AWIPS II that are untestable at this time.

Obviously, issues listed in Section 3 of this document should also be considered “blocking” issues.

CAVE

- In certain situations when two products are overlaid and looping, CAVE will use all available CPU. This seems to happen when one of the looped products updates with a newer image. CAVE appears to wait for the second looped product to receive a similar update. Occasionally CAVE returns to normal (when the second image arrives?), but frequently CAVE must be killed. If left running, it eventually brings the entire workstation down with a kernel panic.

FFMP

- Data quality issues were evident (QPE of 200+ inches per hour)

GFE

- Still very serious issues with file permissions. A2 allows user overrides of critical BASE files. These should be read-only. Also, essential files to VTEC integrity are available to root (HazardsTable) and some to the user (VTECTable, ActiveTable, etc.).
- Need to be marine site to test HLS and other products/tools
- Testers are unable to perform corrections on GFE products (most notably hazard products as VTEC is affected, but all products are somewhat affected).
- The check box (used to check for framing code) and the spin box (used to change the product expiration time) on the product editor do not function.
- GFE allows for the issuance of products with “framing code” in them (this should not be allowed).
- Cannot test Service Backup. There is not Service Backup GUI, as there is in AWIPS I. I see no way for a regular person without a great deal of knowledge to initiate Service Backup. Need to be able to manually create a new instance of EDEX, from what I can gather.
- Populating, publishing, and saving grids took several minutes, longer than in AWIPS I.
- Deleted GFE grids remain as gray squares in the grid manager (and presumably in the database). This causes problems with grid publishing and product generation.

Radar

- Radar menu should load the best resolution products (TTR1463 – non-FBSO)
- Color tables for all radar products should be updated to OB9.2 version (TTR684)

- TDWR radar menu should be customized for dedicated and Dial TDWR radars (TTR804)

SNOW

- Takes approximately 20 minutes to launch initially. It was determined that this was because data are not purged for the Decision Assistance applications and it takes a while for the applications to process all of the data. Subsequent launches are much faster. A DR exists on this issue.

AvnFPS

- The monitoring of TAFs is very slow.
- After entering backup, the only way to exit backup is to completely exit AvnFPS and restart it.
- There continue to be issues with respect to user configuration (items configured on one workstation for a specific user are not migrated to other workstations for that user).

Test Mode Control Program (TMCP)

- TMCP has a problem that prevents its use. There does appear to be a workaround that allows testers to use it, so it's not blocking testing at the moment.