

**AWIPS II Thin Client  
Test Procedures**

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**Acronyms and Abbreviations Used in This Document**

|  |  |
| --- | --- |
| AvnFPS | Aviation Forecast Preparation System |
| AWIPS | Advanced Weather Interactive Processing System |
| BGAN | Broadband Global Area Network |
| CAVE | Common AWIPS Visualization Environment |
| CONUS | Continental United States; Contiguous United States |
| COOP | Continuity Of Operations Planning |
| CWSU | Center Weather Service Unit |
| D2D | Display 2-Dimensional |
| EDEX | Enterprise Data EXchange |
| FFMP | Flash Flood Monitoring and Prediction |
| GFE | Graphical Forecast Editor |
| GUI | Graphical User Interface |
| IHFS | Integrated Hydrologic Forecast System |
| IMET | Incident METeorologist |
| IP | Internet Protocol |
| ISS | Incident Support Specialist |
| JMS | Java Messaging System |
| LAN | Local Area Network |
| MPE | Multi-sensor Precipitation Estimates |
| RFC | River Forecast Center |
| Win32 | Common 32–bit Microsoft Windows platform |
| WSO | Weather Service Office |

# Test Case Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case Name** | AWIPS II Thin Client | **Test Case Execution Engineer** |  |
| **Test Case Creation Engineer** | Rickeshia Tillman | **Test Platform Used** |  |
| **Date Test Case Created** | 6/7/2011 (Draft) | **Release Version on Testbed** |  |
| **CI** |  | **Logged in User’s Role** |  |
| **Site Specific** |  | **Start Date / Time** |  |
| **TC Updated for Version** | TO22 | **Completion Date/Time** |  |
| **Last Modified By** | Scott Nicholson | **Total Test Time** |  |
| **Executable Steps** | 540 | **Pass/Fail/Pending** |  |
| **Approximate Execution Time** | 5 Hours |  |  |

|  |  |
| --- | --- |
| **Test Case Description:** | This test case demonstrates D2D functionality in Thin Client mode. |
| ***Objective:*** | The objective of this test case is to test remote access to D2D functionality on both Windows-based and Linux-based platforms under a variety of system connections. |
| ***Assumptions and Constraints:*** | BGAN Satellite Link is established and available.   * This link is necessary to support testing for Section 2.0 of this test case. * If the capability is not available, then a simulated BGAN must be set up. * Instructions for setting up a simulated BGAN are provided in Appendix A. |
| ***Requirements:*** | 1. Windows Operating Environment Minimum Requirements:  * Software   + Graphics driver must support OpenGL2.0. [**Note:** A Dell Driver or a recent nVidia discrete graphics driver can support OpenGL2.0.]   + Recent 32-bit Java 1.6 installed in C:\Program Files\Java\JRE6 * Hardware (same for Linux client)   + At least 2GB of RAM (more is better; may run into problems with data on 2GB)   + At least 1 GB of free HD space on C:\ * Network:   + Must be able to access http://dist2.extremeforecasting.com on port 80 (or a local edex server)  1. Linux Operating Environment Requirements:  * Software   + AWIPS II Baseline Configuration (Red Hat Enterprise) |
| ***Data Input:*** | This test case requests various types of data: model data; satellite data, radar data; and observation products. If the specified products are not available, similar products may be substituted. |
| ***Prerequisite Conditions:*** | * Current applicable build is installed on the AWIPS II testbed. * The build on the Windows IMET laptop must match the build on the AWIPS II testbed. * The Edex Proxy servers are set up and available for connection. * A printer is hooked up to the network for both Linux and Windows to print. |
| ***Pass Criteria:*** | 1. This test case is considered passed upon successful execution of all the test steps contained in Sections 1.0 to 3.0 and:  * Verification that the expected results have been achieved for all the steps in Sections 1.0 – 3.0. * Also, as long as known issues are documented, the test case is considered passed.  1. The following sections and appendixes are not required for determining the successful completion of this test:  * Appendix B is provided to collect Thin Client performance metrics using different system connections that impose associated bandwidth limitations. It is **NOT** part of the Pass/Fail Criteria of this test case. |

# Thin Client for IMET with LAN Connection

This section tests how well the CAVE, in Thin Client mode running on a Windows laptop, will support the Incident Meteorologist (IMET). The laptop must be connected to the LAN. Table 1 identifies the test steps and their expected results.

Table 1. Test Steps and Expected Results (Thin Client for IMET with LAN Connection)

| **Step #** | **Action / Inputs** | **Expected Results** | **P/F** | **Comments** |
| --- | --- | --- | --- | --- |
| **AlertViz and CAVE Start-Up** | | | | |
|  | Login to the Windows laptop using an authorized username and password. | User is logged into the laptop. |  |  |
|  | On the Windows laptop, start AlertViz by double clicking the AlertViz icon on the desktop. | A CMD window pops up with the message, “Starting ALERTVIZ”;  Leave this CMD window open to enable AlertViz “restart.”  The AlertViz message bar launches. |  |  |
|  | Minimize the AlertViz CMD window. | AlertViz CMD window is minimized. |  |  |
|  | Launch CAVE by double clicking the CAVE icon on the desktop. | A CMD window pops up with the message, “This CMD window can be closed at any time!”  CAVE launches without error. |  |  |
|  | Minimize the CAVE CMD window. | CAVE CMD window is minimized. |  |  |
| **CAVE Thin Client Preference Settings** | | | | |
|  | Click the CAVE menu. | The CAVE menu opens. |  |  |
|  | Select Preferences. | The Preferences dialog opens. |  |  |
|  | Double click on thin client. | Thin Client is expanded, listing Caches, Connections, Servers. |  |  |
|  | Click on Caches. | The Cache options display in the Preference dialog. |  |  |
|  | If not already set up, set the Cache Directory to  C:\Users\<username>\caveData\cache | Cache directory is set. |  |  |
|  | If not currently set, change the Cache preference settings so that Cache Weather Data, Cache Localization Files and Cache Map Data are checked (enabled). | Cache Weather Data, Cache Localization Files and Cache Map Data are checked (enabled). |  |  |
|  | If not currently set, uncheck ‘Use Only Cached Localization Files’ so that it is disabled. | Use Only Cached Localization Files is unchecked. |  |  |
|  | Click on Connections. | The Connection options display in the Preference dialog. |  |  |
|  | If not currently set, change the Connection settings so that ‘Disable JMS’ is checked and ‘Disable Menu Times’ is unchecked. | Disable JMS is checked (disabled) and Disable Menu Times is unchecked (enabled). |  |  |
|  | Change the Menu Time Interval to 5 minutes. | Menu Time Interval is set to 5 minutes. |  |  |
|  | Change the Data Update Interval to 5 minutes. | Data Update Interval is set to 5 minutes. |  |  |
|  | Click on Servers. | The Server options display in the Preference dialog. |  |  |
|  | If not set by default, check the ‘Use Proxy Servers’ box. | The Use Proxy Servers box is checked. |  |  |
|  | If not already set, enter the appropriate Services and Pypies Addresses.  **Note:** If unsure, you will need to contact the System Administrator for this information. | The proxy server addresses are set. |  |  |
|  | Click Apply. | The settings are applied. |  |  |
|  | Click OK. | The Preferences dialog closes. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
| **D2D Application Test** | | | | |
|  | In CAVE, select the Radar menu. | Radar menu opens. |  |  |
|  | Select the 0.5 Reflectivity Mosaic. | 0.5 Reflectivity Mosaic loads without error. |  |  |
|  | Make note of the product time in the Radar menu and the time in the product legend. | The menu time and the product legend time match.  Menu Time: \_\_\_\_\_\_\_\_\_\_\_  Prod Legend Time: \_\_\_\_\_ |  |  |
|  | Wait until the radar image updates. Note the product time in the Radar menu and the time in the product legend. | The menu time and the product legend time match.  Menu Time: \_\_\_\_\_\_\_\_\_\_\_  Prod Legend Time: \_\_\_\_\_ |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to State. | The map scale is set to State. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select 0.5Z/SRM8 from the menu. | The< kxxx> 0.5Z/SRM8 image loads without error. |  |  |
|  | Clear the display. | Display is cleared. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select kxxx 4 panel and load any current 4 panel product. | The 4 panel radar displays successfully without error. |  |  |
|  | Select the Loop button in the D2D toolbar. | Looping is enabled. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to CONUS. | The map scale is set to CONUS. |  |  |
|  | Select the Satellite menu. | The Satellite menu opens. |  |  |
|  | Select IR Window. | The IR Satellite image displays without error. |  |  |
|  | Click the Obs menu button. | The Obs menu opens. |  |  |
|  | Select METAR Station plots. | METAR Station plots display on top of the Satellite image. |  |  |
|  | From the File menu select Print. | The Satellite image with METARS is printed out filling the entire page or good portion of the page. |  |  |
|  | Zoom in and out of the display. | METAR plots fill in as user zooms in. METAR plots disappear as user zooms out. |  |  |
|  | Swap the Satellite image into a side pane. | The Satellite image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to CONUS. | The map scale is set to CONUS. |  |  |
|  | Select the Volume menu. | The Volume menu opens. |  |  |
|  | Select Basic Families -> GFS40. | The GFS40 model family loads in the main display without error. |  |  |
|  | Right click and hold on GFS40 Precipitation in the Product Legend. | A pop-up menu appears. |  |  |
|  | Select ‘Load as Image’. | Precipitation is loaded as an image. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | The full model run is available.  No errors were received while stepping through frames. |  |  |
|  | Select the Loop button in the D2D toolbar. | Looping is enabled. No errors are received. |  |  |
|  | Swap the GFS40 model family into a side pane. | The GFS40 model family is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | In the D2D toolbar, select the baselines button. | Baselines display in the main pane. |  |  |
|  | Move LineA to desired location. | LineA is in place. |  |  |
|  | Select the Volume menu. | The Volume menu opens. |  |  |
|  | Select Browser from the Volume menu. | The Volume Browser dialog opens. |  |  |
|  | Click on Plan View and select Cross Section. | The Volume Browser dialog updates to Cross Section. |  |  |
|  | Under Sources, select Volume -> NAM12. | NAM12 is listed in the Source window. |  |  |
|  | Under Fields, select Basic -> Height, Basic -> Temperature, Basic -> Rel Humidity, Basic -> Wind. | Height, Temperature, Rel Humidity and Wind are listed in the Fields window. |  |  |
|  | Under Planes, select Specified -> LineA. | LineA is listed in the Planes window.  All four products are listed in the Product Selection List. |  |  |
|  | Middle click on the NAM12 LineA Rel Humidity in the Product Selection List. | Rel Humidity is now listed as an image identified as 'Img' |  |  |
|  | Select Load. | A cross section tab opens. The cross section loads without error. Relative Humidity is loaded as an image. |  |  |
|  | Close out the Volume Browser dialog. | Volume Browser dialog is closed. |  |  |
|  | Select the Upper Air menu. | The Upper Air menu opens. |  |  |
|  | Select US Central -> Omaha, NE (KOAX) | The NSHARP Skew-T tab opens.  The KOAX sounding displays without error. |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | No errors received while stepping through frames. |  |  |
|  | Clear all panes. | All panes are clear leaving a blank D2D. |  |  |
| **GIS Test** | | | | |
|  | Set the scale to CONUS, if necessary. | The map updates to display the CONUS scale. |  |  |
|  | Click CAVE -> Import -> GIS Data… | The GIS DataStore Parameters dialog opens. |  |  |
|  | Select DataStore Type: GIS File. | GIS File is selected and appears as the dropdown menu title. |  |  |
|  | Click the Browse… button in the Connection Parameters section. | A file browser opens. |  |  |
|  | In the file browser, navigate to the location of GIS files (e.g., /awipscm/GIS\_Files/fire-perimeters). Then click the OK button. | The file browser closes. The Directory textbox populates with the chosen directory. |  |  |
|  | MB1 click the Connect button. | The Table section populates with a list of the shapefiles for the selected GIS File. |  |  |
|  | Select an item from the list of shapefiles in the Table section and click the OK button. | Verify the GIS DataStore Parameters dialog closes and the selected shapefile displays in the main pane. No legend is displayed in the pane. |  |  |
|  | Press the Enter key on the NumPad until the map legend displays in the main pane. | The map legend displays. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Display Attributes. | The Attributes: <shapefile> dialog displays. |  |  |
|  | MB3 click on the title bar of the Attributes: <shapefile> dialog and select the option to keep the dialog above all other dialogs (e.g., Advanced -> Keep Above Others). | The Attributes: <shapefile> dialog is set to remain above all other dialogs. |  |  |
|  | Zoom all the way into the main pane until no shapefiles are in view. | No shapefiles are in view. |  |  |
|  | Double MB1 click on a row in the Attributes table. | The main pane updates with the selected area highlighted and centered in the main pane. |  |  |
|  | Zoom all the way out until most of the shapefile is in view. | Most of the shapefile is in view. |  |  |
|  | Double MB1 click on a shapefile in the main pane. | The row associated with the selected area is highlighted in the Attributes: <shapefile> dialog. |  |  |
|  | Close the Attributes table. | The Attributes table closes. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Crop Shape. | A ‘Drag to select’ label is appended to the cursor. |  |  |
|  | MB1 click and drag on the main pane to draw a green box around a specific area of the shapefile. Then release MB1 | The area encompassed in the green box remains displayed in the main pane and the other areas outside the green box has been removed from the display. (Note: Areas that were partially encompassed by the green box will remain displayed in the main pane.) |  |  |
|  | MB3 click and hold on the shapefile product ID and select Uncrop Shape. | The shapefile displays in its entirety. |  |  |
|  | MB1 click the Clear. | The main pane is cleared leaving a blank D2D. |  |  |
| **Local Caching Test** | | | | |
|  | In D2D, change the frame count to 12 if not already set to 12. | The frame count is set to 12. |  |  |
|  | Disable looping if it is currently enabled. | Looping is disabled. |  |  |
|  | From **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option “Cache Weather Data”. | Cache Weather Data is unchecked. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Navigate to the cache directory.  C:\Users\<username>\caveData\cache | The cache directory is open displaying a long list of cached files. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization.cache * maps.cache. | All files have been removed with the exception of:   * geometry.cache * localization.cache * maps.cache. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. |  |  |
|  | Verify no new cache files have been created in the cache directory. | geometry.cache, localization.cache and maps.cache are the only files listed in the cache directory. |  |  |
|  | From the **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option “Cache Weather Data”. | Cache Weather Data is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. Time has been recorded. |  |  |
|  | Check the cache directory. Verify cache files were created. | Several cache files were created besides the existing  geometry.cache, localization.cache and maps.cache. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches**. | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option **“Cache Map Data”.** | The “Cache Map Data” setting is unchecked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Navigate to the cache directory.  C:\Users\<username>\caveData\cache | The cache directory is open displaying a long list of cached files. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization.cache | All files have been removed with the exception of:   * geometry.cache * localization.cache |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute, then check the cache directory and verify a maps.cache file was never created. | The only files that exist in the cache directory are:   * geometry.cache * localization.cache |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches**. | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option **“Cache Map Data”.** | The **“Cache Map Data”** setting is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then verify a maps.cache file was created in the /caveData/cache directory.  **Note:** The file size will be small. | maps.cache was created in /home/<username>/caveData/cache. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then check the maps.cache file in the cache directory. Record the size of the file. | File size is recorded. |  | File size: \_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute,. Then check the maps.cache file. Verify that the maps.cache file size is the same size recorded in step 122. | File size matches recorded file size in step 122. |  |  |
| **Manual Auto-Update Settings Test** | | | | |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Change the “**Data Update Interval (min)**” setting to 10. | The “Data Update Interval” is set to 10 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of your local time (time the product was loaded). Take note of the menu time. Record times in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_  Menu Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. The Menu Time in Step 127 should match the Product Legend Time in Step 128. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify that the 0.5 Best Res menu time updates with the most current radar product time 5 minutes after the Current Local Time listed in Step 146.  **Note:** The menu time will not update if new radar data has not come in since the loading of the product. | Menu time has updated. |  |  |
|  | Verify that the 0.5 Best Res image auto updates in the main pane once 10 minutes has elapsed.  **Note:** The product will not auto update if new data has not ingested in the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane approximately 10 minutes after initial loading. |  |  |
|  | Select the Clear button. | The radar image has been cleared from the main pane. |  |  |
|  | Select ***CAVE -> Preferences -> Thin Client -> Connections*.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Check the option “Disable Menu Times”. | The “Disable Menu Times” setting is checked and the Menu Time Update Interval is grayed out. |  |  |
|  | Change ‘Update Data Interval’ to 5 minutes. | Update Data Interval is set to 5 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of the current time on the Windows laptop. Record the time in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. Times have been recorded. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify that ???? appear in place of the menu times. | The menu times are question marks. |  |  |
|  | Verify that the 0.5 Best Res image auto updates in the main pane once 5 minutes has elapsed.  **Note**: The product will not auto update if new data has not ingested within the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane 5 minutes after initial loading. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Uncheck the option “Disable Menu Times”. | The “Disable Menu Times” setting is unchecked. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
| **Network Failure Test** | | | | |
|  | Select the **Satellite** menu -> **IR Window**.  **Note:** The product must be available in the data inventory (as indicated by an associated menu time) | IR imagery displays in main pane. |  |  |
|  | Enable Looping | Looping is turned on. |  |  |
|  | Disconnect the network cable. | Network connection is disabled |  |  |
|  | Verify the IR Window product is still viewable in the main pane. | IR Window product is viewable. No errors are received. **CAVE** did not crash. |  |  |
|  | Right click on a side pane to swap the main pane out. | The IR Satellite image is swapped out to the side pane.  **Note:** May receive AlertViz pop-ups due to loss of network connection. |  |  |
|  | Plug the network cable back into the computer. | Network connection is restored. |  |  |
|  | Right click on the IR Satellite image in the side pane. | The IR Satellite image is swapped back into the main pane. No AlertViz errors are received. The Satellite image fully recovers. |  |  |
|  | Turn off Looping. | Looping is disabled. |  |  |
|  | Select the **Clear** button. | The main pane is cleared. |  |  |
|  | Select the **Satellite** menu -> **IR Window**.  **Note:** The product must be available in the data inventory (as indicated by an associated menu time) | IR imagery displays in main pane. No errors are received. **CAVE** did not crash. |  |  |
|  | Select the **Clear** button. | The main pane is cleared. |  |  |
| **Connection and Latency Test** | | | | |
|  | Shut down CAVE and kill AlertViz | Cave shutdown and Alertviz no longer running |  |  |
|  | Remove caveData from the iMet Directory | caveData directory removed |  |  |
|  | Double click on AlertViz button and when prompted enter the following: <https://$(site)/services>  Localization: $(loc)  Proxy server:  https://$(site)  Note: This is ONLY for region connections. If connecting to TBDW or TBW3, continue to use these and whatever the current localization is. | Information entered |  | For $(site) use the following:  $(site) = vuytc : $(loc) = OKX  $(site) = vhwtc : $(loc) = SLC  $(site) = BCQ : $(loc) = EHW |
|  | Click Validate and then OK | Connection established and AlertViz starts running. |  |  |
|  | Double Click on CAVE | Password Prompt appears |  |  |
|  | Enter your NOAA credentials and click OK | CAVE begins to load |  |  |
|  | Once CAVE is loaded and all of the maps appear, click on the looping button and then click Satellite -> IR.  Time the amount of time it takes for the satellite product to load. If the value is much different than what is listed, contact developers | Satellite product loads. Time recorded here:\_\_\_\_\_\_ |  | Times should be as fast or in the range of the following:  VUY = ~30s  VHW = ~50s  BCQ = TBD  Testbed = ~15s |
|  | Close CAVE | CAVE closes |  |  |
|  | Clear caveData (as in step 187). | caveData removed. |  |  |
|  | Repeat steps 186 – 194 for the following sites: VUY, VHW, BCQ, testbed. |  |  |  |
| **End of Test** | | | | |

# Thin Client for IMET with BGAN Satellite Link

This section tests how well the CAVE in Thin Client mode running on a Windows laptop under minimal bandwidth conditions imposed by a BGAN satellite connection will support the IMET. Table 1 identifies the test steps and their expected results.

**NOTE:** If a BGAN satellite connection cannot be established, a BGAN simulator can be setup by the System Administrator. Please refer to Appendix A for instructions on setting up the BGAN simulation.

Table 2. Test Steps and Expected Results (Thin Client for IMET with BGAN Satellite Link)

| **Step #** | **Action / Inputs** | **Expected Results** | **P/F** | **Comments** |
| --- | --- | --- | --- | --- |
| **AlertViz and CAVE Start-Up** | | | | |
|  | Login to the Windows laptop using an authorized username and password. | User is logged into the laptop. |  |  |
|  | On the Windows laptop, start AlertViz by double clicking the AlertViz icon on the desktop. | A CMD window pops up with the message, “Starting ALERTVIZ”;  Leave this CMD window open to enable AlertViz ‘restart’.”  The AlertViz message bar launches. |  |  |
|  | Minimize the AlertViz CMD window. | AlertViz CMD window is minimized. |  |  |
|  | Launch CAVE by double clicking the CAVE icon on the desktop. | A CMD window pops up with the message, “This CMD window can be closed at any time!”  CAVE launches without error. |  |  |
|  | Minimize the CAVE CMD window. | CAVE CMD window is minimized. |  |  |
| **CAVE Thin Client Preference Settings** | | | | |
|  | Click the CAVE menu. | The CAVE menu opens. |  |  |
|  | Select Preferences. | The Preferences dialog opens. |  |  |
|  | Double click on thin client. | Thin client is expanded listing Caches, Connections, Servers. |  |  |
|  | Click on Caches. | The Cache options display in the Preference dialog. |  |  |
|  | If not already set up, set the Cache Directory to  C:\Users\<username>\caveData\cache | Cache directory is set. |  |  |
|  | If not currently set, change the Cache preference settings so that Cache Weather Data, Cache Localization Files and Cache Map Data are checked (enabled). | Cache Weather Data, Cache Localization Files and Cache Map Data are checked (enabled). |  |  |
|  | If not already set, uncheck ‘Use Only Cached Localization Files’ so that it is disabled. | Use Only Cached Localization Files is unchecked. |  |  |
|  | Click on Connections. | The Connection options display in the Preference dialog. |  |  |
|  | If not currently set, change the Connection settings so that ‘Disable JMS’ is checked and ‘Disable Menu Times’ is checked. | Disable JMS and Disable Menu Times are both checked. |  |  |
|  | Change the Data Update Interval to 5 minutes. | Data Update Interval is set to 5 minutes. |  |  |
|  | Click on Servers. | The Server options display in the Preference dialog. |  |  |
|  | If not set by default, check the ‘Use Proxy Servers’ box. | The Use Proxy Servers box is checked. |  |  |
|  | If not already set, enter the appropriate Services and Pypies Addresses.  **NOTE:** If unsure, you will need to contact the System Administrator for this information. | The proxy server addresses are set. |  |  |
|  | Click Apply. | The settings are applied. |  |  |
|  | Click OK. | The Preferences dialog closes. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
| **D2D Application Test** | | | | |
|  | In CAVE, select the Radar menu. | Radar menu opens. |  |  |
|  | Select the 0.5 Reflectivity Mosaic. | 0.5 Reflectivity Mosaic loads without error. |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Select the Loop button in the D2D toolbar. | Looping is enabled. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to State. | The map scale is set to State. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select 0.5Z/SRM8 from the menu. | The< kxxx> 0.5Z/SRM8 image loads without error. |  |  |
|  | Clear the display. | Display is cleared. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select kxxx 4 panel and load any current 4-panel product. | The 4 panel radar displays successfully without error. |  |  |
|  | Select the Loop button in the D2D toolbar. | Looping is enabled. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to CONUS. | The map scale is set to CONUS. |  |  |
|  | Select the Satellite menu. | The Satellite menu opens. |  |  |
|  | Select IR Window. | The IR Satellite image displays without error. |  |  |
|  | Click the Obs menu button. | The Obs menu opens. |  |  |
|  | Select METAR Station plots. | METAR Station plots display on top of the Satellite image. |  |  |
|  | From the File menu select Print. | The Satellite image with METARS is printed out filling the entire page or good portion of the page. |  |  |
|  | Zoom in and out of the display. | METAR plots fill in as user zooms in. METAR plots disappear as user zooms out. |  |  |
|  | Swap the Satellite image into a side pane. | The Satellite image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the Scale button and change scales to CONUS. | The map scale is set to CONUS. |  |  |
|  | Select the Volume menu. | The Volume menu opens. |  |  |
|  | Select Basic Families -> GFS40 family. | The GFS40 model family loads in the main display without error. |  |  |
|  | Right click and hold on GFS40 Precipitation in the Product Legend. | A pop-up menu appears. |  |  |
|  | Select ‘Load as Image’. | Precipitation is loaded as an image. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | The full model run is available.  No errors were received while stepping through frames. |  |  |
|  | Select the Loop button in the D2D toolbar. | Looping is enabled. No errors are received. |  |  |
|  | Swap the GFS40 model family into a side pane. | The GFS40 model family is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | In the D2D toolbar, select the baselines button. | Baselines display in the main pane. |  |  |
|  | Move LineA to desired location. | LineA is in place. |  |  |
|  | Select the Volume menu. | The Volume menu opens. |  |  |
|  | Select Browser from the Volume menu. | The Volume Browser dialog opens. |  |  |
|  | Click on Plan View and select Cross Section. | The Volume Browser dialog updates to Cross Section. |  |  |
|  | Under Sources, select Volume -> NAM12. | NAM12 is listed in the Source window. |  |  |
|  | Under Fields, select Basic -> Height, Basic -> Temperature, Basic -> Rel Humidity, Basic -> Wind. | Height, Temperature, Rel Humidity and Wind are listed in the Fields window. |  |  |
|  | Under Planes, select Specified -> Line A. | LineA is listed in the Planes window.  All four products are listed in the Product Selection List. |  |  |
|  | Middle click on the NAM12 LineA Rel Humidity in the Product Selection List. | Rel Humidity is now listed as an image identified as 'Img' |  |  |
|  | Select Load. | A cross section tab opens. The cross section loads without error. Relative Humidity is loaded as an image. |  |  |
|  | Select the Upper Air menu. | The Upper Air menu opens. |  |  |
|  | Select US Central -> Omaha, NE (KOAX) | The NSHARP Skew-T tab opens.  The KOAX sounding displays without error. |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | No errors received while stepping through frames. |  |  |
|  | Clear all panes. | All panes are clear leaving a blank D2D. |  |  |
| **GIS Test** | | | | |
|  | Set the scale to CONUS, if necessary. | The map updates to display the CONUS scale. |  |  |
|  | Click CAVE -> Import -> GIS Data… | The GIS DataStore Parameters dialog opens. |  |  |
|  | Select DataStore Type: GIS File. | GIS File is selected and appears as the dropdown menu title. |  |  |
|  | Click the Browse… button in the Connection Parameters section. | A file browser opens. |  |  |
|  | In the file browser, navigate to the location of GIS files (e.g., /awipscm/GIS\_Files/fire-perimeters). Then click the OK button. | The file browser closes. The Directory textbox populates with the chosen directory. |  |  |
|  | MB1 click the Connect button. | The Table section populates with a list of the shapefiles for the selected GIS File. |  |  |
|  | Select an item from the list of shapefiles in the Table section and click the OK button. | Verify the GIS DataStore Parameters dialog closes and the selected shapefile displays in the main pane. No legend is displayed in the pane. |  |  |
|  | Press the Enter key on the NumPad until the map legend displays in the main pane. | The map legend displays. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Display Attributes. | The Attributes: <shapefile> dialog displays. |  |  |
|  | MB3 click on the title bar of the Attributes: <shapefile> dialog and select the option to keep the dialog above all other dialogs (e.g., Advanced -> Keep Above Others). | The Attributes: <shapefile> dialog is set to remain above all other dialogs. |  |  |
|  | Zoom all the way into the main pane until no shapefiles are in view. | No shapefiles are in view. |  |  |
|  | Double MB1 click on a row in the Attributes table. | The main pane updates with the selected area highlighted and centered in the main pane. |  |  |
|  | Zoom all the way out until most of the shapefile is in view. | Most of the shapefile is in view. |  |  |
|  | Double MB1 click on a shapefile in the main pane. | The row associated with the selected area is highlighted in the Attributes: <shapefile> dialog. |  |  |
|  | Close the Attributes table. | The Attributes table closes. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Crop Shape. | A ‘Drag to select’ label is appended to the cursor. |  |  |
|  | MB1 click and drag on the main pane to draw a green box around a specific area of the shapefile. Then release MB1 | The area encompassed in the green box remains displayed in the main pane and the other areas outside the green box has been removed from the display. (Note: Areas that were partially encompassed by the green box will remain displayed in the main pane.) |  |  |
|  | MB3 click and hold on the shapefile product ID and select Uncrop Shape. | The shapefile displays in its entirety. |  |  |
|  | MB1 click the Clear. | The main pane is cleared leaving a blank D2D. |  |  |
| **Local Caching Test** | | | | |
|  | In D2D, change the frame count to 12 if not already set to 12. | The frame count is set to 12. |  |  |
|  | Disable looping if it is currently enabled. | Looping is disabled. |  |  |
|  | From **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option “Cache Weather Data”. | Cache Weather Data is unchecked. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Navigate to the cache directory.  C:\Users\<username>\caveData\cache | The cache directory is open displaying a long list of cached files. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization.cache * maps.cache. | All files have been removed with the exception of:   * geometry.cache * localization.cache * maps.cache. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. |  |  |
|  | Verify no new cache files have been created in the cache directory. | geometry.cache, localization.cache and maps.cache are the only files listed in the cache directory. |  |  |
|  | From the **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option “Cache Weather Data”. | Cache Weather Data is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. Time has been recorded. |  |  |
|  | Check the cache directory. Verify cache files were created. | Several cache files were created besides the existing  geometry.cache, localization.cache and maps.cache. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches**. | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option **“Cache Map Data”.** | The “Cache Map Data” setting is unchecked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Navigate to the cache directory.  C:\Users\<username>\caveData\cache | The cache directory is open displaying a long list of cached files. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization.cache | All files have been removed with the exception of:   * geometry.cache * localization.cache |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute, then check the cache directory and verify a maps.cache file was never created. | The only files that exist in the cache directory are:   * geometry.cache * localization.cache |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches**. | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option **“Cache Map Data”.** | The **“Cache Map Data”** setting is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then verify a maps.cache file was created in the /caveData/cache directory.  **Note:** The file size will be small. | maps.cache was created in /home/<username>/caveData/cache. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then check the maps.cache file in the cache directory. Record the size of the file. | File size is recorded. |  | File size: \_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then check the maps.cache file. Verify the maps.cache file size is the same size recorded in step 122. | File size matches recorded file size in step 122. |  |  |
| **Manual Auto-Update Settings Test** | | | | |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Change the “**Data Update Interval (min)**” setting to 10. | The “Data Update Interval” is set to 10 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of your local time (time the product was loaded). Take note of the menu time. Record times in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_  Menu Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. The Menu Time in Step 127 should match the Product Legend Time in Step 128. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify the 0.5 Best Res menu time updates with the most current radar product time 5 minutes after the Current Local Time listed in Step 146.  **Note:** The menu time will not update if new radar data has not come in since the loading of the product. | Menu time has updated. |  |  |
|  | Verify the 0.5 Best Res image auto updates in the main pane once 10 minutes has elapsed.  **Note:** The product will not auto update if new data has not ingested in the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane approximately 10 minutes after initial loading. |  |  |
|  | Select the Clear button. | The radar image has been cleared from the main pane. |  |  |
|  | Select ***CAVE -> Preferences -> Thin Client -> Connections*.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Check the option “Disable Menu Times”. | The “Disable Menu Times” setting is checked and the Menu Time Update Interval is grayed out. |  |  |
|  | Change ‘Update Data Interval’ to 5 minutes. | Update Data Interval is set to 5 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of the current time on the Windows laptop. Record the time in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. Times have been recorded. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify ???? appear in place of the menu times. | The menu times are question marks. |  |  |
|  | Verify the 0.5 Best Res image auto updates in the main pane once 5 minutes has elapsed.  **Note**: The product will not auto update if new data has not ingested within the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane 5 minutes after initial loading. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Uncheck the option “Disable Menu Times”. | The “Disable Menu Times” setting is unchecked. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
| **Network Failure Test**  **Note:** Only run steps 152 – 162 if using a simulated BGAN and a network cable is used to connect the laptop to the LAN. | | | | |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Double click on the CAVE icon on the Windows desktop. | CAVE launches. |  |  |
|  | Right click on a side pane to swap the main pane out. | The IR Satellite image is swapped out to the side pane.  **Note:** May receive AlertViz pop-ups due to loss of network connection. |  |  |
|  | Plug the network cable back into the computer. | Network connection is restored. |  |  |
|  | Right click on the IR Satellite image in the side pane. | The IR Satellite image is swapped back into the main pane. No AlertViz errors are received. The Satellite image fully recovers. |  |  |
|  | Turn off Looping. | Looping is disabled. |  |  |
|  | Select the **Clear** button. | The main pane is cleared. |  |  |
|  | Select the **Satellite** menu -> **IR** **Window**.  **Note:** The product must be available in the data inventory (indicated by an associated menu time) | IR imagery displays in main pane. No errors are received. **CAVE** did not crash. |  |  |
|  | Select the **Clear** button. | The main pane is cleared. |  |  |
| **End of Test** | | | | |

# Thin Client for CWSU Linux Workstation Using T1 Connection

This section tests how well the CAVE in Thin Client mode running on a Linux Workstation using a T1 connection will support the Central Weather Service Unit (CWSU). Table 3 identifies the test steps and their expected results.

Table 3. Test Steps and Expected Results (Thin Client for CWSU Linux Workstation Using T1 Connection)

| **Step #** | **Action / Inputs** | **Expected Results** | **P/F** | **Comments** |
| --- | --- | --- | --- | --- |
| **AlertViz and CAVE Start-Up** | | | | |
|  | Login to a Linux Workstation. | User is logged in. |  |  |
|  | If **AlertViz** does not launch automatically upon login, open a terminal window and enter the following command:  **/awips2/alertviz/alertviz.sh –component thinalertviz** | The **AlertViz** message bar launches. |  |  |
|  | To launch **CAVE**, open a new terminal window and enter the following command:  **/awips2/cave/cave.sh –component thinclient** | **CAVE** launches in thin client mode. |  |  |
| **CAVE Thin Client Preference Settings** | | | | |
|  | Click the **CAVE** menu. | The **CAVE** menu opens. |  |  |
|  | Select **Preferences**. | The **Preferences** dialog opens. |  |  |
|  | Double click on **thin client**. | Thin client is expanded listing Caches, Connections, Servers. |  |  |
|  | Click on **Caches**. | The Cache options display in the Preference dialog. |  |  |
|  | If not already set up, set the Cache Directory to  /home/<username>/caveData/cache | The Cache Directory is set. |  |  |
|  | If not already set, change the Cache preference settings so that Cache Weather Data, Cache Localization Files, Use Only Cached Localization Files and Cache Map Data are checked (enabled). | Cache Weather Data, Cache Localization Files, Use Only Cached Localization Files and Cache Map Data are checked (enabled). |  |  |
|  | If prompted to sync localization files, select YES. Wait until synchronizing local files in the **CAVE** status bar goes away before proceeding | Synchronization is complete. |  |  |
|  | Click on **Connections.** | The Connection options display in the Preference dialog. |  |  |
|  | If not already set, change the Connection settings so that ‘Disable JMS’ and ‘Disable Menu Times’ are unchecked. | Disable JMS and Disable Menu Times are unchecked. |  |  |
|  | Click on **Servers**. | The Server options display in the Preference dialog. |  |  |
|  | If not set by default, check the ‘Use Proxy Servers’ box. | The Use Proxy Servers box is checked. |  |  |
|  | If not already set, enter the appropriate Services and Pypies Addresses.  **Note:** Will need to obtain information from System Administrator. | The proxy server addresses are set. |  |  |
|  | Click **Apply.** | The settings are applied. |  |  |
|  | Click **OK**. | The Preferences dialog closes. |  |  |
|  | Restart **CAVE.** | CAVE is restarted. |  |  |
| **D2D Application Test** | | | | |
|  | In CAVE, select the **Radar** menu. | Radar menu opens. |  |  |
|  | Select the **0.5 Reflectivity Mosaic.** | 0.5 Reflectivity Mosaic loads without error. |  |  |
|  | Make note of the product time in the Radar menu and the time in the product legend. | The menu time and the product legend time match. Menu Time: \_\_\_\_\_\_\_\_\_\_\_  Prod Legend Time: \_\_\_\_\_ |  |  |
|  | Wait until the radar image updates. Note the product time in the Radar menu and the time in the product legend. | The menu time and the product legend time match.  Menu Time: \_\_\_\_\_\_\_\_\_\_\_  Prod Legend Time: \_\_\_\_\_ |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the **Scale** button and change scales to **State.** | The map scale is set to State. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select **0.5Z/SRM8** from the menu. | The< kxxx> 0.5Z/SRM8 image loads without error. |  |  |
|  | **Clear** the display. | Display is cleared. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select kxxx 4 panel and load any current 4 panel product. | The 4 panel radar displays successfully without error. |  |  |
|  | Select the **Loop** button in the D2D toolbar. | Looping is enabled. |  |  |
|  | Swap the Radar image into a side pane. | The Radar image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the **Scale** button and change scales to **CONUS**. | The map scale is set to CONUS. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Click the **Obs** menu button. | The Obs menu opens. |  |  |
|  | Select **METAR Station plot**. | METAR Station plot display on top of the Satellite image. |  |  |
|  | From the **File** menu select **Print**. | The Satellite image with METARS is printed out filling the entire page or good portion of the page. |  |  |
|  | Zoom in and out of the display. | METAR plots fill in as user zooms in. METAR plots disappear as user zooms out. |  |  |
|  | Swap the Satellite image into a side pane. | The Satellite image is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | Click the **Scale** button and change scales to **CONUS**. | The map scale is set to CONUS. |  |  |
|  | Select the **Volume** menu. | The Volume menu opens. |  |  |
|  | Select **Basic Faimilies -> GFS40** family. | The GFS40 model family loads in the main display without error. |  |  |
|  | Right click and hold on **GFS40 Precipitation** in the Product Legend. | A pop-up menu appears. |  |  |
|  | Select **‘Load as Image’**. | Precipitation is loaded as an image. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | The full model run is available.  No errors were received while stepping through frames. |  |  |
|  | Select the **Loop** button in the D2D toolbar. | Looping is enabled. No errors are received. |  |  |
|  | Swap the GFS40 model family into a side pane. | The GFS40 model family is swapped out to a side pane. A blank map editor is in the main pane. |  |  |
|  | In the D2D toolbar, select the **baselines** button. | Baselines display in the main pane. |  |  |
|  | Move **LineA** to desired location. | LineA is in place. |  |  |
|  | Select the **Volume** menu. | The Volume menu opens. |  |  |
|  | Select **Browser** from the Volume menu. | The Volume Browser dialog opens. |  |  |
|  | Click on **Plan View** and select **Cross Section**. | The Volume Browser dialog updates to Cross Section. |  |  |
|  | Under **Sources**, select **Volume -> NAM12**. | NAM12 is listed in the Source window. |  |  |
|  | Under **Fields**, select **Basic -> Height, Basic -> Temperature, Basic -> Rel Humidity, Basic -> Wind.** | Height, Temperature, Rel Humidity and Wind are listed in the Fields window. |  |  |
|  | Under **Planes**, select **Specified -> Line A**. | LineA is listed in the Planes window.  All four products are listed in the Product Selection List. |  |  |
|  | Middle click on the **NAM12 LineA Rel Humidity** in the Product Selection List. | Rel Humidity is now listed as an image identified as 'Img' |  |  |
|  | Select **Load**. | A cross-section tab opens. The cross section loads without error. Relative Humidity is loaded as an image. |  |  |
|  | Select the **Upper Air** menu. | The Upper Air menu opens. |  |  |
|  | Select **US Central -> Omaha, NE (KOAX)** | The NSHARP Skew-T tab opens.  The KOAX sounding displays without error. |  |  |
|  | Zoom in and out of the display. | Zooming capabilities work with little to no flickering. |  |  |
|  | Step through the frames by either clicking the single arrow buttons in the D2D toolbar or by using the right and left arrow keys on the keyboard. | No errors received while stepping through frames. |  |  |
|  | **Clear** all panes. | All panes are clear leaving a blank D2D. |  |  |
| **GIS Test** | | | | |
|  | Set the scale to CONUS, if necessary. | The map updates to display the CONUS scale. |  |  |
|  | Click CAVE -> Import -> GIS Data… | The GIS DataStore Parameters dialog opens. |  |  |
|  | Select DataStore Type: GIS File. | GIS File is selected and appears as the dropdown menu title. |  |  |
|  | Click the Browse… button in the Connection Parameters section. | A file browser opens. |  |  |
|  | In the file browser, navigate to the location of GIS files (e.g., /awipscm/GIS\_Files/fire-perimeters). Then click the OK button. | The file browser closes. The Directory textbox populates with the chosen directory. |  |  |
|  | MB1 click the Connect button. | The Table section populates with a list of the shapefiles for the selected GIS File. |  |  |
|  | Select an item from the list of shapefiles in the Table section and click the OK button. | Verify the GIS DataStore Parameters dialog closes and the selected shapefile displays in the main pane. No legend is displayed in the pane. |  |  |
|  | Press the Enter key on the NumPad until the map legend displays in the main pane. | The map legend displays. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Display Attributes. | The Attributes: <shapefile> dialog displays. |  |  |
|  | MB3 click on the title bar of the Attributes: <shapefile> dialog and select the option to keep the dialog above all other dialogs (e.g., Advanced -> Keep Above Others). | The Attributes: <shapefile> dialog is set to remain above all other dialogs. |  |  |
|  | Zoom all the way into the main pane until no shapefiles are in view. | No shapefiles are in view. |  |  |
|  | Double MB1 click on a row in the Attributes table. | The main pane updates with the selected area highlighted and centered in the main pane. |  |  |
|  | Zoom all the way out until most of the shapefile is in view. | Most of the shapefile is in view. |  |  |
|  | Double MB1 click on a shapefile in the main pane. | The row associated with the selected area is highlighted in the Attributes: <shapefile> dialog. |  |  |
|  | Close the Attributes table. | The Attributes table closes. |  |  |
|  | MB3 click and hold on the shapefile product ID and select Crop Shape. | A ‘Drag to select’ label is appended to the cursor. |  |  |
|  | MB1 click and drag on the main pane to draw a green box around a specific area of the shapefile. Then release MB1 | The area encompassed in the green box remains displayed in the main pane and the other areas outside the green box has been removed from the display. (Note: Areas that were partially encompassed by the green box will remain displayed in the main pane.) |  |  |
|  | MB3 click and hold on the shapefile product ID and select Uncrop Shape. | The shapefile displays in its entirety. |  |  |
|  | MB1 click the Clear. | The main pane is cleared leaving a blank D2D. |  |  |
| **Local Caching Test** | | | | |
|  | In D2D, change the frame count to 12 if not already set to 12. | The frame count is set to 12. |  |  |
|  | Disable looping if it is currently enabled. | Looping is disabled. |  |  |
|  | From **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option **“Cache Weather Data”**. | Cache Weather Data is unchecked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit **CAVE**. | CAVE closes. |  |  |
|  | In a terminal window, navigate to the cache directory.  cd /home/<username>/caveData/cache | Sitting in the cache directory. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization.cache * maps.cache | All files have been removed with the exception of   * geometry.cache * localization.cache * maps.cache. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. |  |  |
|  | Verify no new cache files have been created in the cache directory. | geometry.cache, localization.cache and maps.cache are the only files listed in the cache directory. |  |  |
|  | From the **CAVE** menu, select **Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option **“Cache Weather Data”.** | Cache Weather Data is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit **CAVE.** | CAVE closes. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select the **Satellite** menu. | The Satellite menu opens. |  |  |
|  | Select **IR Window**. | The IR Satellite image displays without error. |  |  |
|  | Right click on one of the side panes. | The IR Satellite image is swapped into the side pane. |  |  |
|  | From the **Volume** menu, select **Basic Families -> GFS40.** | The GFS40 model family is loaded in the main pane. |  |  |
|  | Check the cache directory. Verify cache files were created. | Several cache files were created besides the existing   * geometry.cache * localization.cached * maps.cache. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches.** | The Thin Client Cache Preference dialog is open. |  |  |
|  | Uncheck the option **“Cache Map Data”.** | The “Cache Map Data” setting is unchecked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit **CAVE.** | CAVE closes. |  |  |
|  | Navigate to the cache directory.  C:\Users\<username>\caveData\cache | The cache directory is open displaying a long list of cached files. |  |  |
|  | Clear the cache directory by deleting/removing all files except for the following:   * geometry.cache * localization. cache | All files have been removed with the exception of   * geometry.cache * localization.cache |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit **CAVE**. | CAVE closes. |  |  |
|  | Wait a minute, then check the cache directory and verify a maps.cache file was never created. | The only files that exist in the cache directory are:   * geometry.cache * localization.cache |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Caches**. | The Thin Client Cache Preference dialog is open. |  |  |
|  | Check the option **“Cache Map Data”.** | The **“Cache Map Data”** setting is checked. |  |  |
|  | Select **Apply**. | Settings have been applied. |  |  |
|  | Select **OK**. | The Preference dialog closes out. |  |  |
|  | Exit **CAVE**. | CAVE closes. |  |  |
|  | Wait a minute. Then verify a maps.cache file was created in the /caveData/cache directory.  **Note:** The file size will be small. | maps.cache was created in /home/<username>/caveData/cache. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit **CAVE**. | CAVE closes. |  |  |
|  | Wait a minute, then check the maps.cache file in the cache directory. Record the size of the file. | File size is recorded. |  | File Size: \_\_\_\_\_\_\_\_\_\_ |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select **Maps** from the main menu and load the **Cities, Interstates,** and **Lakes** maps. | The **Cities, Interstates, and Lakes** maps are loaded in the main pane. |  |  |
|  | Select **Clear**. | The display is cleared. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | Wait a minute. Then check the maps.cache file. Verify the maps.cache file size is the same size recorded in step 116. | File size matches recorded file size in step 116. |  |  |
| **Manual Auto-Update Settings Test** | | | | |
|  | In a terminal window, enter the following command to launch CAVE:  **/awips2/cave/cave.sh –component thinclient** | CAVE launches in thin client mode. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Check the option “Disable JMS”. | The “Disable JMS” setting is checked. |  |  |
|  | Change the “**Data Update Interval (min)**” setting to 10. | The “Data Update Interval” is set to 10 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  /awips2/cave/cave.sh –component thinclient | CAVE launches in thin client mode. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of your local time (time the product was loaded). Take note of the menu time. Record times in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_  Menu Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. The Menu Time in Step 122 should match the Product Legend Time in Step 123. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify the 0.5 Best Res image auto updates in the main pane once 10 minutes has elapsed.  **Note:** The product will not auto update if new data has not ingested in the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane 10 minutes after initial loading. |  |  |
|  | Select the Clear button. | The radar image has been cleared from the main pane. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Check the option “Disable Menu Times”. | The “Disable Menu Times” setting is checked and the Menu Time Update Interval is grayed out. |  |  |
|  | Change ‘Update Data Interval’ to 5 minutes. | Update Data Interval is set to 5 minutes. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  /awips2/cave/cave.sh –component thinclient | CAVE launches in thin client mode. |  |  |
|  | Select the local radar menu <kxxx> where xxx stands for the radar ID. | The <kxxx> radar menu opens. |  |  |
|  | Select <kxxx> Best Res Refl -> 0.5 Refl  Take note of the current time. Record the time in the *Comments* box. | The 0.5 <kxxx> Best Res Refl is loaded in the main pane. Times have been recorded. |  | Current Local Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Take note of the Product time in the Product Legend and record the time in the *Comments* box. | The time of the most recent frame in the Product Legend is recorded. |  | Product Legend Time: \_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Verify ???? appear in place of the menu times. | The menu times are question marks. |  |  |
|  | Verify the 0.5 Best Res image auto updates in the main pane once 5 minutes has elapsed. Take note of the Product time in the Product Legend and record the time in the *Comments* box.  **Note:** The product will not auto update if new data has not ingested within the last 10 minutes. | The 0.5 Best Refl image auto updated in the main pane 5 minutes after initial loading. |  |  |
|  | Select **CAVE -> Preferences -> Thin Client -> Connections.** | The Thin Client Connection Preference dialog is open. |  |  |
|  | Uncheck the options “Disable JMS” and “Disable Menu Times”. | The “Disable JMS” and “Disable Menu Times” settings are unchecked. |  |  |
|  | Select Apply. | Settings have been applied. |  |  |
|  | Select OK. | The Preference dialog closes out. |  |  |
|  | Exit CAVE. | CAVE closes. |  |  |
|  | In a terminal window, enter the following command to launch CAVE:  /awips2/cave/cave.sh –component thinclient | CAVE launches in thin client mode. |  |  |
| **Data Compression Test**  **NOTE: Coordinate with System Administrator to access Proxy Servers. Must have root access.** | | | | |
|  | Open a terminal window and login to the proxy server as user root.  **Note**: Obtain proxy server information from System Administrator. |  |  |  |
|  | Enter the following command to watch the httpd compresson logs  tail –f /var/log/httpd/compression\_log | The compression\_log file is being tailed. |  |  |
|  | From the Satellite menu, load IR Window. | IR Window is loaded in main pane. |  |  |
|  | View the compression\_log file. Compressed transactions are logged as:  LogFormat '%t "%r" %{outstream}n/%{instream}n (%{ratio}n%%) %D' deflate | Compressed transactions are viewed in the log. |  |  |
|  | For compression, the important numbers are “outstream/instream (ratio%).” The final number is time in ms.  “-/- (-%)”" means uncompressed. Otherwise smaller is better |  |  |  |
|  | Verify that data compression is being done |  |  |  |
| **Test Complete** | | | | |

# Appendix A. Setup of BGAN Simulator

This appendix provides instructions for reconfiguring the network in order to implement a simulated BGAN environment and to recover to the default configuration.

**How to Simulate a BGAN**

On the box that is hosting apache as the proxy, you need to reconfigure the network interface to traffic control settings to introduce a delay in the traffic. As root you will need to execute the following commands:

tc qdisc add dev eth0 root handle 1: htb default 1

tc class add dev eth0 parent 1: classid 1:1 htb rate 1000Mbit

tc class add dev eth0 parent 1:1 classid 1:11 htb rate 400kbit ceil 600kbit

tc class add dev eth0 parent 1:1 classid 1:12 htb rate 1000Mbit

tc qdisc add dev eth0 parent 1:11 handle 31: netem delay 100ms

tc filter add dev eth0 protocol ip parent 1:0 prio 1 u32 match ip sport 80 0xffff flowid 1:11

This will slow the network traffic to between 400 kb/s and 600 kb/s and introduce a 100ms delay on all traffic that is being sent from this computer on port 80. If there are any other web services using port 80 on the same server, they will also be slowed and they will use some of this bandwidth, slowing the connection even further.

To undo these changes and restore the traffic flow to its default state you can run the following command as root.

tc qdisc del dev eth0 root

These settings are tested to slow the connection down similar to what a BGAN might do. These settings have not been compared to an actual BGAN so it might be necessary to change some of the settings to get the connection to resemble a BGAN more closely. The connection speed is controlled by “rate 400kbit ceil 600kbit,” and the delay is controlled by “delay 100ms.” The lines that set “rate 1000Mbit” are controlling the speed of traffic that is not on port 80 and should not be modified.

With these setting on the server it should be possible to use thin client with a proxy connection as you normally would, and you will see a slower connection.

**Simulating the BGAN on a Different Port**

It is possible to simulate BGAN on a port different than 80 and then configure your proxy to use that port so that other traffic from the server is not affected, and so that it is possible to do BGAN simulated testing and regular testing at the same time. In this example I am using port 9584 but you can use any open port on the server

In the above commands, the port that is being delayed is controlled by “sport 80,” replace 80 with 9584 when you set up the BGAN traffic control.

In the apache configuration for the proxy where you would normally have

<VirtualHost \*:80>

... Here is where your proxy settings normally are ...

</VirtualHost>

You need to add in a listen directive and also add the port to your virtual host like this:

Listen 9584

<VirtualHost \*:80 \*:9584>

... Same proxy setting as before ...

</VirtualHost>

Once this is done, you will need to change the port in your proxy settings on CAVE. If you normally connect to “http://edexproxy/services” then this needs to be changed to “http://edexproxy:9584/services” and a similar change will be made to the pypies proxy. The normal connection url should still work at full speed, and changing the port number on CAVE will result in BGAN simulated speed.

# Appendix B. Performance

This appendix collects Thin Client performance metrics using different system connections that impose associated bandwidth limitations. This appendix is not included in the pass/fail criteria of this test case. The Thin Client performance times can be compared to the AWIPS II Baseline metrics. The metrics collected here can also be used as a guideline for later site-to-site comparisons.

At a minimum, a stopwatch is required to assist with the collection of timing information.

**NOTE:** The tester must ensure that both the Linux and Window clients are running the same version of **CAVE**.

See Table A-1 for the Thin Client performance test procedures. Use Table A-2 to record test measurements.

Table B-1. Thin Client Performance Test Procedures

| **Step #** | **Action / Inputs** | **Expected Results** | **Comments** |
| --- | --- | --- | --- |
| **Windows Thin Client (BGAN Connection) – AlertViz & CAVE Start-Up** | | | |
|  | On the Windows laptop (setup with a **BGAN** connection), start AlertViz by double clicking the AlertViz icon on the desktop.  As soon as the icon is selected, start the stopwatch. Stop the timer once the AlertViz message bar displays and is ready for use. | The AlertViz message bar launches. | Record time in spreadsheet. |
|  | Launch CAVE by double clicking the CAVE icon on the desktop.  As soon as the icon is selected, start the stopwatch. Stop the timer once the main pane displays and is ready for use. | CAVE launches without error. | Record time in spreadsheet. |
| **Windows Thin Client (LAN Connection) – AlertViz & CAVE Start-Up** | | | |
|  | On the Windows laptop (setup with a **LAN** connection), start AlertViz by double clicking the AlertViz icon on the desktop.  As soon as the icon is selected, start the stopwatch. Stop the timer once the AlertViz message bar displays and is ready for use. | The AlertViz message bar launches. | Record time in spreadsheet. |
|  | Launch CAVE by double clicking the CAVE icon on the desktop.  As soon as the icon is selected, start the stopwatch. Stop the timer once the main pane displays and is ready for use. | CAVE launches without error. | Record time in spreadsheet. |
| **Linux Thin Client (T1 Connection) – AlertViz & CAVE Start-Up** | | | |
|  | Login to a Linux Workstation (setup with a **T1** connection). | User is logged in. |  |
|  | If AlertViz launches automatically upon login, open a terminal window and enter the following command:  **pkill alertviz** | The AlertViz message bar closes out. AlertViz is no longer running. |  |
|  | In the same terminal window enter the following command:  /awips2/alertviz/alertviz.sh –component thinalertviz  As soon as the enter key is hit, start the stopwatch. Stop the timer once the AlertViz message bar displays and is ready for use. | The AlertViz message bar launches. | Record time in spreadsheet. |
|  | To launch CAVE, open a new terminal window and enter the following command:  /awips2/cave/cave.sh –component thinclient  As soon as the enter key is hit, start the stopwatch. Stop the timer once CAVE displays and is ready for use. | CAVE launches in thin client mode. | Record time in spreadsheet. |
| **Product Performance**  **Note:** Steps 9 - 80 of this section must be run 1 time. Once on a Windows laptop with a BGAN connection, once on a Windows laptop with a LAN connection, once on a Linux workstation with a T1 connection, and only run on a baseline Linux workstation in non-ThinClient mode if functionality or performance is noticeably poor. It is assumed AlertViz and CAVE are running. | | | |
|  | In CAVE, change scale to CONUS. | A CONUS map is set in the main pane. |  |
|  | Set the frame count to 12, if not already set. | Frame count is set to 12. |  |
|  | Select the Satellite menu -> IR Window.  As soon as IR Window is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the Satellite image is fully loaded in the main pane. | IR Satellite image is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to enable looping. | Looping is **enabled**. |  |
|  | Select the Satellite menu -> IR Window.  As soon as IR Window is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the Satellite loop is fully loaded in the main pane. | IR Satellite loop is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to disable looping. | Looping is **disabled**. |  |
|  | Select the local radar <kxxx> menu -> 0.5Z/SRM where kxxx is the Radar ID.  As soon as 0.5Z/SRM is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the 0.5Z/SRM radar image is fully loaded in the main pane. | The 0.5Z/SRM radar image is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to enable looping. | Looping is **enabled**. |  |
|  | Select the local radar <kxxx> menu -> 0.5Z/SRM where kxxx is the Radar ID.  As soon as 0.5Z/SRM is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the 0.5Z/SRM radar loop is fully loaded in the main pane. | The 0.5Z/SRM radar loop is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to disable looping. | Looping is **disabled**. |  |
|  | From the Volume menu, select Basic Families -> RUC13.  As soon as RUC13 is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the RUC13 model is fully loaded in the main pane. | The RUC13 model is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to enable looping. | Looping is **enabled**. |  |
|  | From the Volume menu, select Basic Families -> RUC13.  As soon as RUC13 is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the RUC13 loop is fully loaded in the main pane. | The RUC13 loop is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to disable looping. | Looping is **disabled**. |  |
|  | From the Volume menu, select Browser. | The Volume Browser dialog opens. |  |
|  | Under Source, select GFS40. | GFS40 is listed in the Source box. |  |
|  | Under Fields, select Temp -> Temperature. | Temperature is listed in the Fields box. |  |
|  | Under Planes, select Pressure -> 700mb. | 700mb is listed in the Planes box. GFS40 700MB Temp is listed in the Product Select List. |  |
|  | Select the Load button.  As soon as the Load button is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the GFS40 Temp is fully loaded in the main pane. | The GFS40 Temperature is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to enable looping. | Looping is **enabled**. |  |
|  | Open the Volume Browser. | The Volume Browser dialog is open. |  |
|  | Select the Load button.  As soon as the Load button is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the GFS40 Temp loop is fully loaded in the main pane. | The GFS40 Temperature loop is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to disable looping. | Looping is **disabled**. |  |
|  | Change scale to North America. | The scale is set to North America. |  |
|  | Verify frame count is set to 12. | The frame count is set to 12. |  |
|  | From the Obs menu, select METAR Station plot.  As soon as Station plot is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the METAR plot is fully loaded in the main pane. | The METAR plot is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to enable looping. | Looping is **enabled**. |  |
|  | From the Obs menu, select METAR Station plot.  As soon as Station plot is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the METAR loop is fully loaded in the main pane. | The METAR loop is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Select the Loop button in the D2D toolbar to disable looping. | Looping is **disabled**. |  |
|  | From the Upper Air menu, select US Central -> Omaha, NE (KOAX)  As soon as Omaha, NE (KOAX) is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the NSHARP Skew-T display is fully loaded in the main pane. | The NSHARP Skew-T display is fully loaded in the main pane. |  |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | Change scales to CONUS. | The scale is set to CONUS. |  |
|  | From the Satellite menu, load IR Window. | The IR Satellite image is loaded in the main pane. |  |
|  | From the Obs menu, load METAR Station plot. | The METAR Station plot is overlays the IR Satellite image. |  |
|  | From the Obs menu, load Fixed Buoys. | The Fixed Buoys are loaded on top of IR Satellite and the METAR Station plot. |  |
|  | From the File menu, select Procedures -> New. | A procedures dialog opens. |  |
|  | In the Procedures dialog, click ‘**Copy In’**. | The products displayed in the main pane are copied in and listed in the dialog box. |  |
|  | Select ‘**Save As’.** | A Save Procedure As dialog opens. |  |
|  | In the Save Procedure As dialog, name the procedure “IR Sat with plots” and click ‘OK’. | The procedure has been saved. |  |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | From the Satellite menu, select Water Vapor. | The Satellite WV image displays in the main pane. |  |
|  | From the Volume menu, select Browser. | The Volume Browser dialog opens. |  |
|  | Under Sources, select GFS40, NAM40, ECMWF Hi-Res and UKMET. | GFS40, NAM40, ECMWF Hi-Res and UKMET are all listed in the Sources box. |  |
|  | Under Fields, select Height. | Height is listed in the Fields box. |  |
|  | Under Planes, select Pressure -> 500MB. | 500MB is listed in the Planes box. All products are listed in the Product Selection List. |  |
|  | Click ‘Load’. | GFS40 500MB Height, NAM40 500MB Height, ECMWF Hi-Res 500MB Height and UKMET 500MB Height are loaded on top of the WV Satellite image. | Record time in spreadsheet. |
|  | From the File menu, select Procedures -> New. | A procedures dialog opens. |  |
|  | In the Procedures dialog, click ‘**Copy In’**. | The products displayed in the main pane are copied in and listed in the dialog box. |  |
|  | Select ‘**Save As’.** | A Save Procedure As dialog opens. |  |
|  | In the Save Procedure As dialog, name the procedure “500mb Comparison” and click ‘OK’. | The procedure has been saved. |  |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | From the File menu, select Procedures -> Open. | The Procedure dialog opens. |  |
|  | Navigate to your user id and select ‘IR Sat with plots.xml’. Click ‘OK’. | A Procedure – IR Sat with plots.xml dialog opens. |  |
|  | Select the only item listed in the dialog. | Procedure has been highlighted. |  |
|  | Click the ‘Load’ button.  As soon as the Load button is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the procedure is fully loaded in the main pane. | The IR Sat with plots procedure is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the Clear button. | The main pane is cleared. |  |
|  | From the File menu, select Procedures -> Open. | The Procedure dialog opens. |  |
|  | Navigate to your user id and select ‘500mb Comparison.xml’. Click ‘OK’. | A Procedure – 500mb Comparison.xml dialog opens. |  |
|  | Select the only item listed in the dialog. | Procedure has been highlighted. |  |
|  | Click the ‘Load’ button.  As soon as the Load button is selected, start the stopwatch. Stop the timer once the progress bar in the lower right hand corner of CAVE disappears and the procedure is fully loaded in the main pane. | The 500mb Comparison procedure is fully loaded in the main pane. | Record time in spreadsheet. |
|  | Select the **Clear** button. | The main pane is cleared. |  |
|  | From the **CAVE** menu, select **Exit** | **CAVE** application closes and the test is complete |  |
| **Test Complete** | | | |

Table B-2. Performance Test Measurements

|  | **Windows Thin Client (BGAN)** | **Windows Thin Client (Broadband)** | **Linux Thin Client (Broadband)** |
| --- | --- | --- | --- |
| **AlertViz Start-up Times** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **CAVE Start-up Times** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **IR Window (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **IR Window Loop (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **<kxxx> 0.5ZZ/SRM (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **<kxxx> 0.5ZZ/SRM Loop (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **RUC13 Family** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **RUC13 Family Loop** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **VB GFS40 700mb Temp (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **VB GFS40 700mb Temp Loop (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **METAR Plot (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **METAR Plot Loop (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **NSHARP Skew-T (12 Frames)** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **IR Sat with plot Procedure** | | | |
| **Run 1** |  |  |  |
|  | | | |
| **500mb Comparison Procedure** | | | |
| **Run 1** |  |  |  |
|  | | | |