Test Case SOA Plug-Ins 3.0

for

Contract DG133W-05-CQ-1067

Advanced Weather Interactive Processing System

Operations & Maintenance

AWP.TE.SWCTR/TO10-0023

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Change History

Revision	Date	Affected Pages	Explanation of Change
Draft	21 Nov. 2008	ALL	Initial Draft
1	16 Jan. 2009	ALL	Result of NWS comments and PDT
2	6 Feb. 2009	15, 18	Result of DT

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1.0 SCOPE

See the TO10 Software Test Plan.

2.0 APPLICABLE DOCUMENTS

2.1 Source Documents

- TO8 Test Case SOA_Plug-Ins 1.0.
- TO9 Test Case SOA_Plug-Ins 2.0.
- FCM-S2-1994 (Redbook Graphics).

2.2 Reference Documents

- TO10 Software Test Plan for the Advanced Weather Interactive Processing System Project, Contract #DG133W-05-CQ-1067, January 2009.
- Existing AWIPS 1 and AWIPS 2 test procedures.
- The AWIPS D-2D User's Manual Build 8.1.
- The Silver Spring NWS AWIPS 1 test bed application.
- Release OB8.2 of the Weather Event Simulator (WES).
- Rational RequisitePro.

3.0 TEST CASE DESCRIPTION

This test case primarily demonstrates the capability of Service Oriented Architecture (SOA) plug-ins delivered during TO10. It builds on the TO8 and TO9 test cases and includes the test procedures from TO8 and TO9. Plug-ins to be delivered and tested during TO10 can be found beginning with Step 120.

The capability to ingest, store and display Red Book Vector Products will also be tested.

3.1 Assumptions, Constraints and Preconditions

- TO10 software has been installed successfully.
- AWIPS test driver installed and functional.
- CAVE, EDEX and pgAdmin III are running.
- An internet connection is available.
- Live data flow containing the data types to be tested. Canned data can be substituted if the live data flow does not contain the data required to test a specific plug-in.
- The system has been running for at least 48 hours.
- The correct display of the data infers that the functionality of decode, ingest and storage is working correctly.
- Data decode, ingest, and storage validation accomplished during the Preliminary Delivery Test (PDT); results available in the PDT report.
- Localization previously set.
- TO10 testing begins at step 120. Regression testing of steps 1-119 occurred prior to DT. Therefore, capability tested and delivered during TO8 (Steps 1-71) and TO9 (Steps 72-119) remain intact and will not be executed during the TO10 DT.
- Actions, Results, and Requirements highlighted in gray indicate requirements and/or capabilities to be included in the scope of future task orders. They are included here for purposes of continuity and traceability with the original AWIPS I test case documents.

3.2 Recommended Hardware

See TO10 Software Test Plan, Section 2.2.

3.3 Test Inputs

Section 4.0 contains the test procedures for this test case. Sections 2.2 – 2.9 of the TO10 Software Test Plan contain general test inputs applicable to all TO10 test cases. Grayed out test step(s) indicate functionality not yet delivered.

3.4 Test Outputs

The images and data will be displayed in CAVE for Redbook products. The AWIPS test driver will be used to display the ingested plug-in data.

4.0 TEST SCENARIO

Step	Action	Result	Pass/Fail
1.	From the test workstation open CAVE.	CAVE successfully launches. The 5-D panel (4 smaller panels on the left and one larger main panel) displays.	
2.	Zoom so that a CONUS-sized area displays centered on approximately Kansas City.	The main panel displays an area centered on the CONUS that includes some of Mexico and Canada.	
DISPLAY LIGHTNING			
3.	From the CAVE menu bar click Mouse Button (MB) 1 'Obs' and then 'Lightning' (located under Hazards).	A menu displays that contains the following 5 options: 1hr Lgtng Plot, 15min Lgtng Plot, 15min Pos/Neg Lgtng Plot, 5min Lgtng Plot, and 1min Lgtng Seq.	
4.	Select 1hr Lgtng Plot.	A lightning plot containing the previous 1 hour lightning strikes displays on the main panel.	
5.	Select 'Clear' from the menu bar.	The loaded lightning display is removed.	
6.	Select '15min Lgtng Plot'.	A lightning plot containing the previous 15 minutes of lightning strikes displays on the main panel.	
7.	Select 'Clear' from the menu bar.	The loaded lightning display is removed.	
8.	Select '15min Pos/Neg Lgtng Plot'.	A display of positive and negative strikes for the past 15 minutes displays.	
9.	Select 'Clear' from the menu bar.	The loaded lightning display is removed.	
10.	Select '5min Lgtng Plot'.	A lightning plot containing the previous 5 minutes of lightning strikes displays on the main panel. The DTG of the display should be within the past 5 minutes (depending on data receipt).	
11.	Select 'Clear' from the menu bar.	The loaded lightning display is removed.	
12.	Select '1min Lgtng Seq'.	Lightning strikes in one minute intervals for the past 5 minutes displays. The DTG for the display should be within the past 5 minutes (depending on data receipt).	
13.	Select 'Clear' from the menu bar.	The loaded lightning display is removed.	
DISPLAY SATELLITE			
14.	From the Satellite menu use MB1 and select 'IR Window'.	An IR image displays. IR satellite imagery can be displayed through the menu bar.	
15.	Select 'Clear' from the menu bar.	Satellite images are removed.	
16.	From the Satellite menu use MB1 and select 'Visible'.	A visible image displays. Visible satellite imagery can be displayed through the menu bar.	
17.	Select 'Clear' from the menu bar.	Satellite images are removed.	

Step	Action	Result	Pass/Fail
18.	From the Satellite menu use MB1 and select 'Water Vapor'.	A water vapor image displays. Water vapor satellite imagery can be displayed through the menu bar.	
19.	Select 'Clear' from the menu bar.	Satellite images are removed.	
DISPLAY GRIB			
20.	Open the Volume Browser by MB1 'Volume', 'Browser'.	The Volume Browser display GUI appears.	
21.	Display parameters from the latest ECMWF model run by selecting 'Grid' -> 'ECMWF-HiRes' for the Sources. For the Fields select 'Basic' -> 'Temperature' and then 'Basic' -> 'Height'. For Planes select 'Pres' -> '500mb'. Load the selections. Note: Other available parameters may be substituted.	Contoured 500mb level temperature and height fields from the latest ECMWF model run displays. ECMWF grib data can be displayed.	
22.	1. Select Clear from the menu bar. 2. In the Volume Browser select 'Edit' -> 'Clear All'.	1. Gridded display is removed from the main pane. 2. Volume Browser entries are removed.	
23.	Display parameters from the latest NAM model run by selecting 'Grid' -> 'NAM80' for the Sources. For the Fields select 'Basic' -> 'Omega'. For Planes select 'Pres' -> '700mb'. Load the selection. Note: Other available parameters may be substituted.	Contoured 700mb level omega fields (vertical velocity) from the latest NAM80 model run displays. NAM grib data can be displayed.	
24.	1. Select Clear from the tool bar. 2. In the Volume Browser select 'Edit' -> 'Clear All'.	1. Gridded display is removed from the main pane. 2. Volume Browser entries are removed.	
25.	Display parameters from the latest GFS model run by selecting 'Grid' -> 'GFS40' for the Sources. For the Fields select 'Basic' -> 'Rel Humidity'. For Planes select 'Misc' -> 'Surface'. Load the selection. Note: Other available parameters may be substituted.	Contoured fields of surface RH from the latest available GFS40 model run displays. GFS grib data can be displayed.	
26.	1. Select 'Clear' from the menu bar. 2. In the Volume Browser select 'Edit' -> 'Clear All'.	1. Gridded display is removed from the main pane. 2. Volume Browser entries are removed.	
27.	Display parameters from the latest RUC model run by selecting 'Grid' -> 'RUC80' for the Sources model for the grid. For the Fields select 'Basic' -> 'Temperature' and then 'Basic' -> 'Height'. For the Planes select 'Pres' -> '300mb'. Load the selection.	300mb temperature and height contours from the latest RUC80 model display. RUC grib data can be displayed.	
28.	1. Select 'Clear' from the menu bar. 2. In the Volume Browser select 'Edit' -> 'Clear All'.	1. Gridded display is removed from the main pane. 2. Volume Browser entries are removed.	

Step	Action	Result	Pass/Fail
29.	Close the Volume Browser. Select 'Volume' from the menu bar.	A drop down menu labeled "Volume" appears. A listing of bundled (families) of grib model data displays.	
30.	From 'Volume' on the menu bar select 'ECMWF' located under Families.	A bundled set of ECMWF parameters displays. ECMWF grib data can be displayed from the Volume drop-down list.	
31.	Select 'Clear' from the menu bar.	Gridded display is removed from the main pane.	
32.	From 'Volume' select 'NAM40' located under Families.	A bundled set of NAM40 parameters displays. NAM40 grib data can be displayed from the Volume drop-down list.	
33.	Select 'Clear' from the menu bar.	Gridded display is removed from the main pane.	
34.	Select 'GFS40' located under Families.	A bundled set of GFS40 parameters displays. GFS grib data can be displayed from the Volume drop-down list.	
35.	Select 'Clear' from the menu bar.	Gridded display is removed from the main pane.	
36.	Select 'RUC' located under Families.	A bundled set of RUC80 parameters displays. RUC grib data can be displayed from the Volume drop-down list.	
37.	Select 'Clear' from the menu bar.	Gridded display is removed from the main pane.	
DISPLAY RAOB			
38.	Select 'Upper Air' from the menu bar. Under the RAOB section select 'koax' (Omaha, NE).	The latest RAOB for Omaha, NE, displays. A tab for the hodograph and 24 hour temperature change graph also appear (the latter not active). Note: Derived parameters will not display.	
39.	Close the skew-T tab. Under 'Upper Air' select 'UA Plots', and '700hPa' located under RAOB.	A plot display over the US for 700hPa from the latest RAOB data appears.	DR #823
40.	Clear the display. Select the 'Points' icon from the menu bar. Approximately center point A over Chicago, IL.	A pre-determined set of points appear, normally lettered beginning with A. Point A is moved and centered over Chicago.	
41.	Open the Volume Browser by MB1 'Volume' -> 'Browser'.	The Volume Browser display GUI appears.	
42.	Select 'Sounding' from the Volume Browser tool bar.	Volume Browser is set to sounding mode.	

Step	Action	Result	Pass/Fail
43.	From the volume browser select the following: 'Grid' -> 'GFS40'; 'Thermo' -> 'Sounding'; 'Points' -> 'Sounding A'. Select 'Load'.	A sounding based on gridded data for Point A displays. It contains a tab for the hodograph and 24-hr temperature change (both not active). Values for various parameters available in the data base also display. Finally, the asterisk in the map is centered over Chicago, where point A was moved.	
DISPLAY AIRCRAFT			
Because the display of aircraft data has not been incorporated into CAVE, a test driver will be used to demonstrate the aircraft plug-in exists.			
44.	Close the Skew-T display. Bring up the test driver in a web browser by going to: http://awips-int1:8080/uEngineWeb/ .	Test driver displays.	
45.	Select 'ASCII Data'. Select the 'Python' radio button. Open Request/Response Message. Edit the Request window entry to display the following script: import BaseRequest dataRequest = BaseRequest.BaseRequest("pirep") dataRequest.setCount(10) return dataRequest.execute() Select 'Request Product'.	The last 10 PIREP reports are returned. Aircraft plug-in exists and is operational.	
46.	In the Request/Response Message, edit the Request window entry to display the following script: import BaseRequest dataRequest = BaseRequest.BaseRequest("airep") dataRequest.setCount(10) return dataRequest.execute() Select 'Request Product'.	The last 10 AIREP reports are returned. Aircraft plug-in exists and is operational.	
MDCRS plots will be delivered in TO 9. Therefore, the next two steps cannot be executed.			
47.	Next, Under 'Aircraft' select 'MDCRS plots'.	A display by flight levels in 5000 feet increments appears for available MDCRS plots.	
48.	Select '250-300 hft'.	A display of available MDCRS plots between FL 250 – 300 appear.	
DISPLAY MARITIME			

Step	Action	Result	Pass/Fail
49.	Ensure a cleared, CONUS map is selected as the display area. From the menu bar select 'Obs'. Under the Maritime category select 'Fixed Buoys'.	The latest observations from fixed buoys displays.	
50.	Clear the display. Under 'Obs' select 'Moving Maritime'.	The latest observations from ships and floating buoys displays.	
51.	Clear the display. Under 'Obs' select 'MAROB'.	The latest MAROB data displays	
DISPLAY RADAR			
52.	Clear the display. From the tool bar select 'Radar', 'kdvn', 'kdvn 4 Bit Products', 'kdvn 4 bit four panel'.	A listing of available four panel radar displays appears.	
53.	Select the 0.5/1.5/2.4/3.4 Z/SRM panels.	A four panel radar display appears in the main panel. The displays are for 0.5, 1.5, 2.4, and 3.4 tilts. Note: not all panels may load if data is not available. Another station may be selected.	
54.	Close the 4-panel display. Select 'kmpx' under Radar. Select 'kmpx 4 Bit Products', 'Comp Ref 4bit (CZ).	A composite reflectivity radar image for Minneapolis displays.	
55.	Clear the display and repeat above step for 'Storm Total Precip'. Note: STP may not be available, depending on the weather occurring at the site.	A display of storm total precip displays.	
56.	Clear the display and select under Radar 'kfsd', 'kfsd Derived', 'Echo Tops (ET)'.	A display of the echo tops for Sioux Falls displays.	
57.	Clear the display and under the koax localization select 'koax 4 Bit Products', 'koax 4bit Reflectivity', '1.5 Refl'.	The latest radar image, 1.5 tilt, for koax localization displays.	
58.	Repeat for '2.4 Refl'.	The latest radar image, 2.4 tilt, for koax localization displays.	
59.	Repeat for '3.4 Refl'.	The latest radar image, 3.4 tilt, for koax localization displays.	
DISPLAY TAF and TEXT			
60.	From the menu bar select 'Tools', 'Text Window'.	A text display window opens.	
61.	In the AFOS Cmd: enter 'OMATAFOMA'. Return.	A terminal area forecast (TAF) for the selected station displays. AWIPS II contains a TAF plug-in that allows for the storage and retrieval of TAF data.	
62.	Clear the display. In the text window, AFOS Cmd: enter 'OMAAFDOMA'. Return.	A text bulletin displays. Text products can be displayed; a text plug-in exists.	
DISPLAY METAR			
63.	Clear the display. In the AFOS Cmd: enter 'OMAMTROMA'.	A series of raw metar observations for Nebraska displays. Raw METAR observations can be retrieved and displayed.	

Step	Action	Result	Pass/Fail
64.	Close the text window. Ensure a "clear" map centered on the CONUS is displayed in the main panel. Select 'Obs' from the CAVE menu bar.	A drop down menu bar displays providing a list of observation types that can be displayed.	
65.	Select 'Surface Plot'.	The latest available decoded and ingested observations are displayed over the CONUS.	
66.	Clear the display. Under 'Obs', select 'Other Plots', 'Surface Synoptic Plots'. Note: Loop and/or zoom as necessary.	The latest available surface plots from synoptic formatted observations displays. CAVE contains a synoptic plug-in.	
67.	Open a pgAdmin III session. Select the int1 DB. Under metadata open 'Schemas', 'awips', 'Tables'.	A listing of the database tables displays.	
68.	Using MB3 click on 'obs'.	The DB Property and associated Value for obs displays.	
69.	Perform a SQL query by selecting the 'View the data in the selected object.' Icon located in the menu bar containing icons.	A display of the metadata stored in the observation database displays.	
70.	Examine the column headers. Look for the following headers: autostationtype, sealevelpress, mintemp24hr, maxtemp24hr, precip1hour, precip6hour, and presschange3hour.	These are all examples of columns that contain values found in the remarks section of METAR observations.	
71.	Scroll down through the columns. When remarks are reported, values will be found in these columns. Open the observation in the "message" column to confirm the value is found in the remarks section, RMK.	METAR remarks are decoded and stored in the AWIPS database.	
End of TO8 Test			
Begin TO9 Test			
DISPLAY PROFILER DATA DECODED FROM BUFR			
72.	To determine if profiler data is being ingested and stored open pgAdmin. Run the following SQL query: select * from prodata;	A listing of ingested profiler data appears. This data has been decoded from BUFR and stored.	
73.	Select and annotate two stations from the stationid character column. Selected Station ids: _____	Profiler station id selected.	
74.	Open the AWIPS test driver. This will be used to query the database and view the selected two profiler data. http://awips-int1:8080/uEngineWeb/	The AWIPS Test Driver Interface Connected to AWIPS-int1 opens.	

Step	Action	Result	Pass/Fail

75.	Open the Request/Response Message and enter the following query (first delete the request in the "Request:" window). Replace the XXXXX with one of the two station numbers selected above.
	
	include("ProfilerRequest.js");
	var dataRequest = new ProfilerRequest();
	dataRequest.addParameter("stationId","XXXXX");
	dataRequest.execute();
		A Request/Response message is entered.	

76.	Select "Request Product".	Profiler data for the selected station are retrieved from the database and displayed. Profiler data are being stored in the DB.	
77.	Repeat steps 75 and 76 for the second point selected.	Profiler data for the selected station are retrieved from the database and displayed. Profiler data are being stored in the DB.	
DISPLAY MODEL SOUNDING DATA DECODED FROM BUFR			
78.	To determine if model sounding data are being ingested and stored open pgAdmin run the following SQL query: select * from modelsounding;	A listing of all model sounding data that has been ingested appears. These data have been decoded from BUFR and stored.	DR #1425
79.	Scroll down. Under "GFS" reporttype select and record two sets of latitudes and longitudes. Selected Lat/Longs: _____	Two data points are chosen from the GFS model that will be used to retrieve data.	
80.	If not already displayed, open the AWIPS test driver. This will be used to query the database and view the selected two profiler data. http://awips-int1:8080/uEngineWeb/	The AWIPS Test Driver Interface Connected to AWIPS-int1 opens.	

81.	Open the Request/Response Message and enter the following query (first delete the request in the "Request:" window). Replace the XX.XX and YYY.YY with one of the two data points selected above.
	
	include("ModelSoundingRequest.js");
	var dataRequest = new ModelSoundingRequest();
	dataRequest.addParameter("reportType","GFS");
	dataRequest.addParameter ("latitude","XX.XX");
	dataRequest.addParameter ("longitude","-YYY.YY");
	dataRequest.execute();
		A Request/Response message is entered.	

Step	Action	Result	Pass/Fail
82.	Select “Request Product”.	GFS data for the entered data point displays. GFS model sounding data are being decoded and ingested into the AWIPS II database.	
83.	Repeat steps 81 and 82 for the second point selected.	GFS data for the entered data point displays. GFS model sounding data are being decoded and ingested into the AWIPS II database.	
84.	The next several steps repeat the above model sounding test steps but use the ETA model. To determine if model sounding data for the ETA model are being ingested and stored open pgAdmin, run the following SQL query: select * from modelsounding;	A listing of all model sounding data that has been ingested appears.	
85.	Scroll down. Under “ETA” reporttype select and record two sets of latitudes and longitudes. Selected Lat/Longs: _____	Two data points are chosen from the ETA model that will be used to retrieve data.	

86.	In the test browser, open the Request/Response Message and enter the following query (first delete the request in the “Request:” window). Replace the XX.XX and YYY.YY with one of the two data points selected above.
	
	include("ModelSoundingRequest.js");
	var dataRequest = new ModelSoundingRequest();
	dataRequest.addParameter("reportType","ETA");
	dataRequest.addParameter ("latitude","XX.XX");
	dataRequest.addParameter ("longitude","-YYY.YY");
	dataRequest.execute();
		A Request/Response message for ETA data is entered.	

87.	Select “Request Product”.	ETA data for the entered data point displays. ETA model sounding data are being decoded and ingested into the AWIPS II database.	
88.	Repeat steps 86 and 87 for the second point selected.	ETA data for the entered datapoint displays. ETA model sounding data are being decoded and ingested into the AWIPS II database.	
DISPLAY SATELLITE SOUNDING DATA (GOES and POES) DECODED FROM BUFR			
89.	To determine if satellite sounding data from GOES satellites are being ingested and stored open pgAdmin, run the following SQL query: select * from goessounding;	A listing of all satellite sounding data from GOES satellites that has been ingested appears.	

Step	Action	Result	Pass/Fail
90.	Scroll down. Select and record two sets of latitudes and longitudes. Selected Lat/Longs: _____	Two data points are chosen from the GOES satellite soundings that will be used to retrieve data. Note the wmoheader column and that GOES file headers fall under the JUTX* WMO header.	
91.	If not already displayed, open the AWIPS test driver. This will be used to query the database and view the satellite sounding data. http://awips-int1:8080/uEngineWeb/	The AWIPS Test Driver Interface Connected to AWIPS-int1 opens.	

92.	Open the Request/Response Message and enter the following query (first delete the request in the "Request:" window). Replace the XX.XX and YYY.YY with one of the two data points selected above.
	
	include("GOESSoundingRequest.js");
	var dataRequest = new GOESSoundingRequest();
	dataRequest.addParameter ("latitude","XX.XX");
	dataRequest.addParameter ("longitude","-YYY.YY");
	dataRequest.execute();
		A Request/Response message for GOES Satellite data is entered.	

93.	Select "Request Product".	GOES Satellite sounding data ingested from BUFR format for the entered data point displays. GOES Satellite sounding data are being decoded and ingested into the AWIPS II database.	
94.	Repeat steps 92 and 93 for the second point selected.	GOES Satellite sounding data ingested from BUFR format for the entered data point displays. GOES Satellite sounding data are being decoded and ingested into the AWIPS II database.	
95.	To determine if satellite sounding data from POES satellites are being ingested and stored open pgAdmin, run the following SQL query: select * from poessounding;	A listing of all satellite sounding data from POES satellites that has been ingested appears. Note: May need to manually ingest POES data. DR deals with storing POES data in a clustered environment.	DR #1425
96.	Scroll down. Select and record two sets of latitudes and longitudes. Selected Lat/Longs: _____	Two data points are chosen from the POES satellite soundings that will be used to retrieve data. Note the wmoheader column and that POES file headers fall under the IUTX* WMO header.	

Step	Action	Result	Pass/Fail
97.	If not already displayed, open the AWIPS test driver. This will be used to query the database and view the satellite sounding data. http://awips-int1:8080/uEngineWeb/	The AWIPS Test Driver Interface Connected to AWIPS-int1 opens.	

98.	Open the Request/Response Message and enter the following query (first delete the request in the "Request:" window). Replace the XX.XX and YYY.YY with one of the two data points selected above.
	
	include("POESSoundingRequest.js");
	var dataRequest = new POESSoundingRequest();
	dataRequest.addParameter ("latitude","XX.XX");
	dataRequest.addParameter ("longitude","-YYY.YY");
	dataRequest.execute();
		A Request/Response message for POES Satellite data is entered.	

99.	Select "Request Product".	POES Satellite sounding data ingested from BUFR format for the entered datapoint displays. POES Satellite sounding data are being decoded and ingested into the AWIPS II database.	
100.	Repeat steps 98 and 99 for the second point selected.	POES Satellite sounding data ingested from BUFR format for the entered datapoint displays. POES Satellite sounding data are being decoded and ingested into the AWIPS II database.	
DISPLAY MODEL OUTPUT STATISTICS (MOS) DECODED FROM BUFR			
101.	To determine if profiler data is being ingested and stored open pgAdmin. Run the following SQL query: select * from bufrmos;	A listing of ingested mos data appears.	
102.	Select and annotate two stations from the stationid character column. Selected Station ids: _____	MOS station id selected.	
103.	Open the AWIPS test driver. This will be used to query the database and view the selected two profiler data. http://awips-int1:8080/uEngineWeb/	The AWIPS Test Driver Interface Connected to AWIPS-int1 opens.	

Step	Action	Result	Pass/Fail

104.	Open the Request/Response Message and enter the following query (first delete the request in the "Request:" window). Replace the XXXXX with one of the two station numbers selected above.
	
	include("BUFRMOSRequest.js");
	var dataRequest = new BUFRMOSRequest();
	dataRequest.addParameter("stationId","XXXXX");
	dataRequest.execute();
		A Request/Response message is entered.	

105.	Select "Request Product".	Data for the MOS station entered for the stationed displays. BUFR formatted MOS data are being decoded and ingested into the AWIPS II database.	
106.	Repeat steps 104 and 105 for the second point selected.	Data for the MOS station entered for the stationed displays. BUFR formatted MOS data are being decoded and ingested into the AWIPS II database.	
RED BOOK PRODUCTS. THE NCEP/HYDRO DROPDOWN MENU IN CAVE CONTAINS SELECTIONS TO DISPLAY RED BOOK PRODUCTS. A RANDOM SAMPLING WILL BE TESTED.			
107.	Open CAVE. Under the NCEP/HYDRO menu drop down select "SPC Convective Outlooks", "Day 1 Convective Outlook".	The Day 1 Convective Outlooks displays. Compare to SPC, http://www.spc.noaa.gov/. Areal coverage should be approximately the same for both areas.	
108.	Clear display. Repeat for the Day 3 Convective Outlook.	The Day 3 Convective Outlook displays. Compare to SPC, http://www.spc.noaa.gov/. Areal coverage should be approximately the same for both areas.	
109.	Clear display. Still in CAVE, under the NCEP/HYDRO menu drop down select "Fire Weather", "Fire Wx Outlook – Day 2".	The Day 2 Fire Weather Outlook displays. Compare to SPC, http://www.spc.noaa.gov/ , Fire Wx Forecasts. Areal coverage should be approximately the same for both.	
110.	Still in CAVE, under the NCEP/HYDRO menu drop down select "Precip & Stability", "Radar Summary".	The latest available radar contours of intensity displays. Compare to same display on AWIPS I.	
111.	Clear display. Still in CAVE, under the NCEP/HYDRO menu drop down select "Temps and Weather" located under NCO and then "Sfc Geo Wind Plot".	The latest available surface geostrophic wind plot displays. Compare to same display on AWIPS I.	
112.	Clear display. Still in CAVE, under the NCEP/HYDRO menu drop down select "Threat Chart", "Soil/Wildfire Fcst".	The Weekly Drought Monitor displays. Compare to same display on AWIPS I.	

Step	Action	Result	Pass/Fail
RISK REDUCTION. As a risk reduction for TO10, preliminary development work for hydrology started in TO9 will be demonstrated in the following steps. A formal risk reduction demonstration will be presented as part of TO10.			
113.	Open a terminal and log into the mule logs directory (/awips/edex/mule/logs). Perform an ls on the directory.	A listing of the mule logs displays. User can access the mule logs.	
114.	Perform the following in-line command: cat <Latest log> | grep IngestSrv-shef | grep -v "0 records" | grep records Substitute the latest log file for <Latest log>	A series of ingest logs for SHEF data appears. It shows that SHEF data is being ingested into the DB.	
115.	To show that SHEF plug-in has been created and data are being stored, Open pgAdmin III.	The pgAdmin III application opens.	
116.	In pgAdmin III under Databases select “awips-db”, “hd_ob81oax”, “Schemas”, “public”, and “Tables”.	A listing of the SHEF tables contained in the database appears.	
117.	Using the right mouse button highlight “height”. Select “View Data” and “View All Roles”.	A listing of the SHEF data for the table selected displays and is current. SHEF data are being stored.	
118.	Repeat the above two steps for the table containing the parameter “rawpp”.	A listing of the SHEF data for the table selected displays and is current. SHEF data are being stored.	
119.	Repeat steps 116 and 117 for the table containing the parameter “curpp”.	A listing of the SHEF data for the table selected displays and is current. SHEF data are being stored.	
End of TO9 Test			
Begin TO10 Test			
30 Hour TAF - Ingest			
120.	To determine if 30 hour TAF data is being ingested and stored, open pgAdmin III. Select the database ‘metadata’ and ‘awips’.	The database is opened.	
121.	Open the “Execute arbitrary SQL queries” window and run the following SQL query: select * from taf where stationid in (‘KMKE’, ‘KBWI’, ‘KBOS’) ;	A listing of selected ingested TAF data appears.	
122.	Run the following SQL query: select id from taf where stationid = ‘KMKE’; cntrl C the datauri to copy into the next SQL query: select * from taf_change_groups where parentid=‘id’ order by sequenceid;	TAF data for the selected station are displayed. TAF data are being stored in the DB.	
123.	View the changegroup field for the date/times of each group.	The TAF is for 30 hours and the date/times are in the 30-hr format.	

Step	Action	Result	Pass/Fail
124.	Repeat steps 122 and 123 for stationid 'KBOS'.	The 30 hour TAF for a second station is displayed.	
METAR to SHEF (IHFS)			
125.	In the pgAdmin III int1 DB session, select 'metadata' and open 'Schemas', 'awips', Tables'.	A listing of the 'metadata' database tables displays.	
126.	Open the "Execute arbitrary SQL queries" window and run the following SQL query: Query 126 select * from obs where stationid='KFET' and timeobs=(select max(timeobs) from obs where stationid='KFET');	The latest observation from the selected METAR reporting station is displayed.	
127.	Note the stationid and timeobs fields from the selected obs.	Stationid:_____ timeobs :_____	
128.	Open a pgAdmin III session. Select the int1 DB. Under 'hd_ob83xxx' open 'Schemas', 'public', 'Tables'.	A listing of the 'hd_ob83xxx' database tables displays.	
129.	Open the "Execute arbitrary SQL queries" window and run the following SQL query using the three character stationid and timeobs noted in step 127: Query 129 select * from latestobsvalue where lid='FET' and obstime='2009-01-14 19:10:00';	One or more entries will be displayed.	
130.	Step 131 (following) compares various elements returned in step 129 to values displayed from step 126.		
131.	pe = TA : value = _____ deg F pe = TD : value = _____ deg F pe = PA : value = _____ inches pe = PL : value = _____ HPa pe = UD : value = _____ degrees pe = US : value = _____ mph pe = UG : value = _____ mph pe = XV : value = _____ miles	temperature : ____ C dewpoint : _____ C altimeter: _____ inches altimeterinpa: _____ Pa winddir : _____ degrees windspeed: _____ knots windgust : _____ knots visibiity : _____ miles	
Synoptic to SHEF (IHFS)			
132.	Open a pgAdmin III session. Select the int1 DB. Under 'hd_ob83xxx' open 'Schemas', 'public', 'Tables'.	A listing of the 'hd_ob83xxx' database tables displays.	

Step	Action	Result	Pass/Fail
133.	Using MB3 click on 'latestobsvalue' table and select 'View Data'.	The entries in the latestobsvalue table displays.	
134.	Scroll down the entries and verify the date/times are current.	Current data is stored.	
135.	Open the "Execute arbitrary SQL queries" window and run the following SQL query: select * from latestobsvalue where product_id like '%Synoptic' order by lid asc;	The latest observations from the Synoptic reporting stations are displayed grouped by location.	
136.	Select a station with several rows. Record the values in the 'lid', 'pe', 'ts', 'obstime', and 'value' columns.	lid: _____ pe : _____ ts: _____ obstime: _____ value: _____	
137.	In the pgAdmin III int1 DB session, select 'metadata' and open 'Schemas', 'awips', Tables'.	A listing of the 'metadata' database tables displays.	
138.	Using MB3 click on 'obs' table and select 'View Data'.	The entries in the 'obs' table displays.	
139.	Scroll down the entries and verify the date/times are current.	Current data is stored.	
140.	Open the "Execute arbitrary SQL queries" window and run the following SQL query: select * from obs where stationid like '<%lid from previous steps>';	The observation data from the Synoptic reporting station are displayed.	
141.	Compare the values to the corresponding values recorded above.	Data from Synoptic observations are stored in the SHEF and metadata databases.	
SHEF to IHFS			
142.	Open a pgAdmin III session. Select the int1 DB. Under 'hd_ob83xxx' open 'Schemas', 'public', 'Tables'.	A listing of the 'hd_ob83xxx' database tables displays.	
143.	Using MB3 click on 'latestobsvalue' table and select 'View Data'. Observe the lid entries.	The entries in the latestobsvalue table displays. A combination of river reports and metar observations are noted. River reports are normally 5 characters and in the form of ABRN1. Observations from Metars are 3 characters and in the form of AIA.	
144.	Run the following SQL: select * from latestobsvalue order by obstime desc	A listing of river reports and metar obs in the IHFS data base displays. .	
145.	Scroll down through the lid and obstime columns.	Current data are being ingested into the IHFS database	

Step	Action	Result	Pass/Fail
146.	Examine other data entries by viewing data in a couple of other tables. Using M3 select 'rawpp' and select 'View Data'.	A listing of precipitation reports display.	
147.	Examine the pp values, lid and obstimes columns.	Precipitation (if present) values are being ingested from Metar and river reports.	
148.	Repeat above steps on the temperature table. Examine the value column.	Temperature values from metar observations are being stored in the SHEF database.	
Precipitation Processing (to IHFS)			
149.	Open a pgAdmin III session. Select the int1 DB. Under 'hd_ob83xxx' open 'Schemas', 'awips', 'Tables'.	A listing of the 'hd_ob83xxx' database tables displays.	
150.	Using MB3 click on 'latestobsvalue' table and select 'View Data'.	The entries in the latestobsvalue table displays.	
151.	Scroll down the entries and verify the date/times are current.	Current data is stored.	
152.	Open the "Execute arbitrary SQL queries" window and run the following SQL queries: Select * from latestobsvalue order by obstime desc; select * from latestobsvalue where product_id like '<select a SHEF product>' order by obstime desc;	The latest data from the SHEF observations are displayed.	
153.	Execute the following SQL query: Select lid, pe, value, obstime from latestobsvalue where pe like 'PP' order by obstime desc.	A listing of the station ID, precipitation indicator (PP), reported precipitation amount, and the time of the report appears.	
154.	Scroll through the listing.	You'll find precipitation reports being stored in the DB for numerous stations.	
155.	From the last query select a lid, obstime and PP value for any station that has a value in the PP column of at least .01. Record the values.	lid: _____ obstime: _____ PP value: _____	
156.	Open the Hydro Perspective in CAVE D2D.	The Hydro screen is displayed.	
157.	On the menu bar, select LiveData, Station Reporting Status/ Latest Observations.	The Station Reporting Status GUI displays.	
158.	Change 'Max # of Obs' to 'All'.	All locations are displayed in the GUI.	
159.	Find the station and obstime from above.	Precipitation values for lid and obstime match from what was retrieved earlier.	
160.	Close all windows.	Windows are closed.	
File Purger			
161.	Open a terminal window.	The terminal window opens.	

Step	Action	Result	Pass/Fail
162.	Navigate to the edex log files on the server running edex (or in a clustered mode, any of the two servers running edex): (/awips/ade/edex/logs). Run the following command: grep -i purge ,<latest log>	HDF5 data purger executes hourly.	
163.	Open the oldest edex log	User is placed at the beginning of the log.	
164.	Find the following: a. Under Spring-enabled Plugins: ihfsDbPurge-spring b. Find PurgeSrv (can either "find" it or scroll down a page or two) c. Find ShefPurger. d. Note other purge initializations such as grib plugin, gfe plugins, etc.	a. Plug-in found. b. Purge started up and is running as a service. c. ShefPurger found. Intializes as a plugin. Note that several additional actions for the ShefPurger are logged. d. Additional plugins are initialized and logged.	
165.	cd /awips/ade/edex/data/hdf5/hydroapps/whfs /local/data/log/db_purge.	User is placed in the IHFS purge directory.	
166.	Open the latest db_purge log.	Log is opened.	
167.	Examine the log.	A listing of columns and values appear. The number of deleted files, table, time columns display. Indicates that the purger is deleting files.	
168.	Close terminal windows; test has ended.	Terminal window is closes.	
End of TO10 Test			

5.0 TO8 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
CAVE_TO8_18.22	CAVE shall display the Fixed Buoys plot product	49
CAVE_TO8_18.23	CAVE shall display the Moving Maritime plot product	50
CAVE_TO8_18.24	CAVE shall display the MAROB station plot product	51
ADE_TO8_024	AWIPS shall contain Plug-Ins that decode and store data and metadata	3-46 49-72
ADE_TO8_024.1	AWIPS shall contain a bin Lightning Plug-in	3-13
ADE_TO8_024.1.1	The bin-Lightning Plug-in shall decode lightning metadata	3-13
ADE_TO8_024.1.2	The bin-Lightning Plug-in shall store lightning metadata in the metadata repository	3-13
ADE_TO8_024.1.3	CAVE shall display lightning data	3-13
CAVE_TO8_016.1	CAVE shall display 1 hour binary lightning plots	4
CAVE_TO8_016.2	CAVE shall display 15 minute binary lightning plots	6
CAVE_TO8_016.3	CAVE shall display 15 minute positive/negative binary lightning plots	8
CAVE_TO8_016.4	CAVE shall display 5 minute binary lightning plots	10
CAVE_TO8_016.5	CAVE shall display 1 minute binary lightning sequence	12
ADE_TO8_024.2	AWIPS shall contain a GINI Satellite Plug-in	14-19
ADE_TO8_024.2.1	The GINI Satellite Plug-in shall decode GINI Satellite metadata	14-19
ADE_TO8_024.2.2	The GINI Satellite Plug-in shall store GINI Satellite metadata in the metadata repository	14-19
ADE_TO8_024.2.3	CAVE shall display GINI Satellite data	14-19
ADE_TO8_024.3	AWIPS shall contain a Grib Plug-in	20-37
ADE_TO8_024.3.1	The Grib Plug-in shall decode Grib metadata	20-37
ADE_TO8_024.3.2	The Grib Plug-in shall store Grib metadata in the metadata repository	20-37
ADE_TO8_024.3.3	CAVE shall display decoded Grib data	20-37
ADE_TO8_024.4	The Grib Plug-in shall decode grib data necessary for the correct operation of the AWIPS II system	20-37
ADE_TO8_024.4.1	The Grib Plug-in shall decode ECMWF data	20-37
ADE_TO8_024.4.2	The Grib Plug-in shall decode NAM data	20-37
ADE_TO8_024.4.3	The Grib Plug-in shall decode GFS data	20-37
ADE_TO8_024.4.4	The Grib Plug-in shall decode RUC data	20-37
ADE_TO8_024.5	AWIPS shall contain a RAOB (BUFR) Plug-in	38-43
ADE_TO8_024.5.1	The RAOB (BUFR) Plug-in shall decode RAOB metadata	38-43
ADE_TO8_024.5.2	The RAOB (BUFR) Plug-in shall store RAOB metadata in the metadata repository	38-43
ADE_TO8_024.5.3	CAVE shall display RAOB data	38-43
ADE_TO8_024.6	AWIPS shall contain a Text Plug-in	62
ADE_TO8_024.6.1	The Text Plug-in shall decode text data	62
ADE_TO8_024.7	AWIPS shall contain an Aircraft Plug-in	44-46
ADE_TO8_024.7.1	The Aircraft Plug-in shall decode Aircraft metadata	44-46

Number	Description	Test Step(s)
ADE_TO8_024.7.1.1	The Aircraft Plug-in shall decode AIREP Aircraft metadata	44-46
ADE_TO8_024.7.1.2	The Aircraft Plug-in shall decode RECCO Aircraft metadata	47-48
ADE_TO8_024.7.1.3	The Aircraft Plug-in shall decode PIREP Aircraft metadata	44-46
ADE_TO8_024.7.2	The Aircraft Plug-in shall store Aircraft metadata in the metadata repository	44-46
ADE_TO8_024.7.2.1	The Aircraft Plug-in shall store AIREP Aircraft metadata in the metadata repository	44-46
ADE_TO8_024.7.2.2	The Aircraft Plug-in shall store RECCO Aircraft metadata in the metadata repository	47-48
ADE_TO8_024.7.2.3	The Aircraft Plug-in shall store PIREP Aircraft metadata in the metadata repository	44-46
ADE_TO8_024.7.3	CAVE shall display Aircraft data	44-46
ADE_TO8_024.7.3.1	CAVE shall display AIREP Aircraft data	44-46
ADE_TO8_024.7.3.2	CAVE shall display RECCO Aircraft data	47-48
ADE_TO8_024.7.3.3	CAVE shall display PIREP Aircraft data	44-46
ADE_TO8_024.8	AWIPS shall contain a Synoptic Plug-in	66
ADE_TO8_024.8.1	The Synoptic Plug-in shall decode Synoptic metadata	66
ADE_TO8_024.9	AWIPS shall contain a Maritime Plug-in	49-51
ADE_TO8_024.9.1	The Maritime Plug-in shall decode Maritime metadata	49-51
ADE_TO8_024.9.1.1	The Maritime Plug-in shall decode ship synoptic Maritime metadata	49-51
ADE_TO8_024.9.1.2	The Maritime Plug-in shall decode buoy synoptic Maritime metadata	49-51
ADE_TO8_024.9.1.3	The Maritime Plug-in shall decode CMAN synoptic Maritime metadata	49-51
ADE_TO8_024.9.1.4	The Maritime Plug-in shall decode MAROB Maritime metadata	49-51
ADE_TO8_024.9.2	The Maritime Plug-in shall store Maritime metadata in the metadata repository	49-51
ADE_TO8_024.9.2.1	The Maritime Plug-in shall store ship synoptic Maritime metadata in the metadata repository	49-51
ADE_TO8_024.9.2.2	The Maritime Plug-in shall store buoy synoptic Maritime metadata in the metadata repository	49-51
ADE_TO8_024.9.2.3	The Maritime Plug-in shall store CMAN synoptic Maritime metadata in the metadata repository	49-51
ADE_TO8_024.9.2.4	The Maritime Plug-in shall store MAROB Maritime metadata in the metadata repository	49-51
ADE_TO8_024.9.3	CAVE shall display Maritime data	49-51
ADE_TO8_024.9.3.1	CAVE shall display ship synoptic Maritime data	49-51
ADE_TO8_024.9.3.2	CAVE shall display buoy synoptic Maritime data	49-51
ADE_TO8_024.9.3.3	CAVE shall display CMAN synoptic Maritime data	49-51
ADE_TO8_024.9.3.4	CAVE shall display MAROB Maritime data	49-51
ADE_TO8_024.10	AWIPS shall contain a Radar Plug-in	52-59
ADE_TO8_024.10.1	The Radar Plug-in shall decode Radar metadata	52-59
ADE_TO8_024.10.2	The Radar Plug-in shall store Radar metadata in the metadata repository	52-59

Number	Description	Test Step(s)
ADE_TO8_024.10.3	CAVE shall display Radar data	52-59
ADE_TO8_024.11	AWIPS shall contain a TAF Plug-in	60-61
ADE_TO8_024.11.1	The TAF Plug-in shall decode TAF metadata	60-61
ADE_TO8_024.11.2	The TAF Plug-in shall store TAF metadata in the metadata repository	60-61
ADE_TO8_024.12	AWIPS shall contain a METAR Plug-in	63-65, 67-71
ADE_TO8_024.12.1	The METAR Plug-in shall decode METAR metadata	63-65, 67-71
ADE_TO8_024.12.2	The METAR Plug-in shall store METAR metadata in the metadata repository	63-65, 67-71
ADE_TO8_024.12.3	CAVE shall display METAR data	63-65, 67-71
AWIPS_T08_030.4	The AWIPS system shall ingest METAR (WMO FM-15) observation data	63-65, 67-71
AWIPS_T08_030.5	The AWIPS system shall ingest SPECI (WMO FM-16) observation data	63-65, 67-71
AWIPS_T08_030.6	Refine the ADE 1.0 Metar plug-in by extending decoding into the remarks	63-65, 67-71
AWIPS_T08_031.1	AWIPS shall ingest binary lightning data	3-13
AWIPS_T08_031.2	AWIPS shall decode binary lightning data	3-13
AWIPS_T08_031.3	AWIPS shall store binary lightning data	3-13

6.0 TO9 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
SYSR2074	The AWIPS system shall implement Redbook Vector Rendering.	107-112
SYSR2087	The AWIPS system shall implement the BUFR Decoder for Profiler Data.	72-77
SYSR2088	The AWIPS system shall implement the BUFR Decoder for Model Soundings.	78-88
SYSR2089	The AWIPS system shall implement the BUFR Decoder for Satellite Soundings.	89-100
SYSR2090	The AWIPS system shall implement (ingest and storage) the Red Book Vector Products for products viewable from D2D menus.	107-112

7.0 TO10 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
SYSR3094	The AWIPS system shall implement the decoding of SHEF (Standard Hydrometeorological Exchange Format) data.	142-160
SYSR3095	The AWIPS system shall implement the storage of SHEF (Standard Hydrometeorological Exchange Format) data in the IHFS (Integrated Hydrologic Forecast System) database.	142-160
SYSR3096	The AWIPS system shall implement the storage of METAR data in the IHFS database.	125-131
SYSR3110	The AWIPS system shall update the IHFS database and hibernate access objects to OB8.3 revision.	142-160
SYSR3171	The AWIPS system shall implement the Metar-to-SHEF decoder capability.	125-131
SYSR3173	The AWIPS system shall decode and store SHEF data.	142-160
SYSR3338	CAVE shall display 30hr TAF data	120-124
SYSR3339	The TAF Plug-in shall decode 30hrTAF metadata	120-124
SYSR3340	The TAF Plug-in shall store 30hrTAF metadata in the metadata repository	120-124
SYSR3341	The AWIPS system shall implement the Synoptic-to-SHEF decoder capability.	132-141
SYSR3342	The AWIPS system shall implement the storage of Precipitation Processing data in the IHFS database.	149-160
SYSR3343	The database files shall be purged automatically at a set interval.	161-168