

Test Case WarnGen 2.0

for the

AWIPS

Contract

DG133W-05-CQ-1067

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Revision History

Revision	Date	Affected Pages	Explanation of Change
1.0	27 June 2008	ALL	Initial Release (Note: Builds on the TO8 WarnGen test case.)
2.0	8 August 2008	7-10	Redlines per PDT
3.0	4 September 2008	ALL	Redlines per DT

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1.0 SCOPE

See TO9 Software Test Plan.

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2.0 APPLICABLE DOCUMENTS

2.1 Source Documents

- TO8 Test Case WarnGen_1.0

2.2 Reference Documents

- TO9 Software Test Plan for the Advanced Weather Information Processing System Project, Contract #DG133W-05-CQ-1067, 14 April 2008.
- Section 5 of the AWIPS D-2D User's Manual Build 8.1.
- Existing AWIPS 1 test procedures:
 - Baseline_WarnGen_OB8.1;
 - Checkout_WarnGen_OB8.1.
- The Silver Spring NWS AWIPS 1 test bed application.
- Release OB8.1 and OB8.2 of the Weather Event Simulator (WES).
- Rational RequisitePro.

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3.0 TEST CASE DESCRIPTION

This test case illustrates the warning software tool used to create and issue NWS short duration warnings. The creation of Tornado and Severe Thunderstorm warnings was supported in TO8. This test case expands on the generation of VTEC coding associated with warning generation through WarnGen. Thunderstorm and tornado warnings will be created and ingested, and then modified and cancelled.

3.1 Assumptions, Constraints and Preconditions

- TO9 software has been installed successfully.
- CAVE, EDEX and pgAdmin III are running.
- Data has been ingested.
- The Text Workstation has been started.
- This test will include a subset of WarnGen templates, specifically Severe Thunderstorm and Tornado.
- The clock is set to local time.
- Localization is set to OAX.
- TO9 testing begins at step 37. Regression testing of steps 1-36 occur prior to DT (during PDT). Therefore, capability tested and delivered during TO8 (steps 1-36) remain intact and will not be demonstrated during DT.
- Actions, Results, and Requirements highlighted in yellow 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 TO9 Software Test Plan, Section 2.2.

3.3 Test Inputs

Section 4.0 below contains the test procedures for this test case. Sections 2.2 – 2.9 of the Software Test Plan contain general test inputs applicable to all TO9 test cases.

3.4 Test Outputs

The data will be displayed using CAVE capabilities.

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4.0 TEST SCENARIO

Step	Action	Result	Pass/Fail
Begin TO8 Test			
1.	Start CAVE.	CAVE starts.	
2.	MB1 click 'CAVE' -> 'New' -> 'Text Workstation'	The Text Workstation loads.	
3.	Zoom into the Omaha CWA until the counties display in CAVE.	The county lines appear in the CAVE display.	
4.	From the 'Maps' dropdown menu, select 'County Names'.	The county names appear in the associated county.	
5.	From the 'Maps' dropdown menu, select 'CWAs'.	The CWAs appear in CAVE.	
6.	From the 'Maps' dropdown menu, select 'Cities'.	The Cities appear in CAVE.	
7.	Click mouse button (MB) 3 on the CWA product ID in the product legend and select 'Change Color'. Select yellow.	The CWA borders change to yellow.	
8.	Load an available reflectivity/velocity radar image from the 'koax' dropdown menu.	The koax reflectivity/velocity radar image displays in CAVE.	
9.	Click MB1 on the 'WarnGen' button in the tool bar.	The WarnGen application loads. A 'Drag me to Storm' labeled point displays in the center of the CAVE display. This point is in edit mode. A 'WarnGen' window appears.	
10.	Click and hold MB1 on the 'Drag me to Storm' point and drag it to another location (ideally on a feature picked up by the radar).	A first guess vector appears with the point near the center of the line, tick marks, and time values at the starting point, current/endpoint, and arrowhead. An initial warning area hatched box appears	DR #813
11.	Press the right arrow key on the keyboard once.	The oldest radar image in the loop displays. The point is relabeled 'Drag me to Storm' and appears at the starting point of the vector.	
12.	Click and hold MB1 on the 'Drag me to Storm' point and drag it to another location (ideally on the same feature picked up by the radar).	The vector is redrawn. The spacing between the tick marks adjusts accordingly. The warning box remains at its current position.	
13.	In the 'WarnGen' window, select the following: -Track type: One Storm -Edit: Box and Track	The selections are made as indicated by the radios.	
14.	Click MB1 on the 'Track' button under the 'Redraw Box on Screen from:' section.	The hatched box is redrawn on the vector.	

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Step	Action	Result	Pass/Fail
15.	Extend the hatched box beyond the CWA boundary by clicking and holding MB1 on a vertex and dragging it to another location outside the koax's CWA boundary.	The hatched area expands within the enclosed box up to the CWA boundary but does not cross over the CWA boundary.	
16.	Click MB1 on the 'Warned/Hatched Area' button under the 'Redraw Box on Screen from:' section.	The polygon's vectors are redrawn on the vector snapping back to the CWA border.	
17.	Click MB1 on 'Tornado' in the 'Product type' section.	The selection is made as indicated by the radio.	
18.	Verify the Optional bullets section updated when the Tornado option was selected.	The Optional bullets section updates.	
19.	Select the 'Duration:' to 60 min.	The duration is set to 60 min. The ending time of the warning updates with the change in duration. The vector expands and the time at the arrowhead modifies.	DR #813
20.	Using Control and MB1 within the Optional bullets section, select or deselect items such that the following Tornado Template Parameters are highlighted: <ul style="list-style-type: none"> • BASIS FOR WARNING: Confirmed large tornado • CALL TO ACTIONS: Severe Tornado • CALL TO ACTIONS: If caught outside • CALL TO ACTIONS: Don't outrun in car Then click MB1 on the 'Create Text' button.	The Tornado Warning text appears in a 'Text Warngen' window. An 'AWIPS Header Block' window appears.	
21.	In the AWIPS Header Block, change Product Category to 'TOR'. Then click MB1 on 'Enter'.	The Tornado Warning text displays in the text window in edit mode.	DR #868 DR #870
22.	Verify the tornado warning text contains the Tornado Template Parameters selected.	The BASIS FOR WARNING and CALL TO ACTIONS exist in the tornado warning statement.	
23.	Verify the tornado warning text contains the current date and time attributes and the correct header information.	The date and time attributes exist. The header information is correct.	DR #782
24.	Verify the tornado warning text contains the counties encompassed by the quadrilateral. Use the hover text capability if necessary after the text window is closed. Verify cities near the warning vector are included in the pathcast.	The counties are listed in the tornado warning statement. The cities near the warning vector are included in the warning.	DR #869

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Step	Action	Result	Pass/Fail
25.	Verify the tornado warning text contains the VTEC code above the BULLETIN section. The VTEC code should resemble: /O.NEW.KOAX.TO.W.0001.070311T2112Z-070311T2212Z/ Where the date and time attributes in the VTEC code match the current date and time (UTC).	The VTEC code exists and is accurate.	
26.	Verify the Lat/Lon coordinates appear in the text warning product (E.g., LAT...LON 4471 9981 4488 9977...).	The Lat/Lon information exists in the text product.	
27.	Verify the location and motion of the weather event exists below the LAT...LON line in the text warning product.	The location and motion of the weather event exists below the LAT...LON line.	DR #782
28.	Verify the text warning contains a presence of closing \$\$.	The Tornado Warning text contains a presence of closing \$\$.	
29.	In the text window, replace the '!*NAME/INITIALS*!' line with 'Test1'. Click MB1 on the 'Save' button. Then click MB1 on the 'Send' button.	The Tornado Warning is saved. The text window displays the saved warning.	
30.	Note the VTEC code.		
31.	Close the text window.	The text window closes.	
32.	Create another tornado warning, modifying the warned area and the selections within the 'WarnGen: Operational' window.	The new Tornado Warning displays in the text window.	
33.	Verify the VTEC code in the warning is different from the first tornado warning (e.g., KOAX.TO.W.0001 becomes KOAX.TO.W.0002)	The VTEC code from the first warning was persisted. The second tornado warning contained different/updated VTEC code.	
34.	Close the text window.	The text window closes.	
35.	Repeat steps 11-30 for a Severe Thunderstorm Warning and a line of storms.	The results for steps 11-30 verify for a Severe Thunderstorm Warning.	DR #782 DR #871
36.	Close the text window.	The text window closes.	
37.	Clear the main display.	The CAVE display clears.	
End of TO8 Test			
Begin TO9 Test			
38.	Ensure CAVE is open with the localization set to 'OAX'.	CAVE starts with Omaha localization.	
39.	Zoom into the Omaha CWA until the counties display in CAVE.	The county lines appear in the CAVE display.	

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Step	Action	Result	Pass/Fail
40.	From the 'Maps' dropdown menu, select 'County Names'.	The county names appear in the associated county.	
41.	From the 'Maps' dropdown menu, select 'CWAs'.	The CWAs appear in CAVE.	
42.	From the 'Maps' dropdown menu, select 'Cities'.	The Cities appear in CAVE.	
43.	Click mouse button (MB) 3 on the CWA product ID in the product legend and select 'Change Color'. Select yellow.	The CWA borders change to yellow.	
44.	Load an available reflectivity/velocity radar image from the 'koax' dropdown menu.	The koax reflectivity/velocity radar image displays in CAVE.	
45.	Click MB1 on the 'WarnGen' button in the tool bar.	The WarnGen application loads. A 'Drag me to Storm' labeled point displays in the center of the CAVE display. This point is in edit mode. A 'WarnGen' window appears.	
Issuing initial Severe Thunderstorm and Tornado warnings.			
46.	Select the appropriate bullets for a severe thunderstorm warning and drag the tracking polygon on the map so that it highlights more than one county.	A severe thunderstorm warning is prepared using WarnGen.	
47.	Select 'Create Text'.	Text Editor window displays. Ensure the Product Category on the 'AWIPS Header Block' contains 'SVR'.	
48.	Click 'Enter' in the AWIPS Header Block.	Header information is entered. Verify the VTEC is formatted correctly. It should appear similar to: /O.NEW.KOAX.SV.W.0109.080521T1902Z-080521T1932Z/. Ensure the selections from WarnGen match what was chosen.	
49.	In the text window, replace the '!**NAME/INITIALS**!' with your initials. Click MB1 on the 'Save' button. Then click MB1 on the 'Send' button.	The Severe Thunderstorm Warning is saved. The text window displays the saved warning.	
50.	The created warning needs to be manually ingested for display in WarnGen (direct save to ingest will be implemented in a later TO). In the Text Workstation Window click on 'Text 1.' Enter 'SVROMA' into the 'AWIPS ID' field and select 'Enter'.	The saved severe thunderstorm warning displays. Verify the correctness of the product.	
51.	Copy the entire product from the Text 1 window and save as 'SevereTest.txt' file. Ingest the file manually by copying the file to the EDEX server being used for testing (/awips/edex/opt/data/sbn/warning).	File is ingested and after approximately 30 seconds will be viewable in WarnGen.	

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Step	Action	Result	Pass/Fail
52.	Repeat steps 43-50 for a tornado warning with the following changes: (1) Different counties; (2) Use Text 2 to display the warning; (3) Use TOROMA vice SVROMA; (4) VTEC header will reference 'NEW.KOAX.TO' instead of 'NEW.KOAX.SV'.	A tornado warning is created and ingested. The warning is viewable through the text workstation.	
53.	Open WarnGen. Examine the drop down menu next to the 'Product Type' on the WarnGen GUI. Select 'Severe Thunderstorm'.	Under 'Severe Thunderstorm' selection three items should appear: 'REISSUE', 'UPDATE LIST', and 'NEW.KOAX....Exp in x min'. Note: Depending on how much time has elapsed, there may be a 'COR' option as well. A severe thunderstorm warning has been successfully created.	
54.	Ensure a minute has passed to ensure the tornado warning has ingested. Repeat the above step for 'Tornado' as the 'Product Type'.	Under 'Tornado' selection three items should appear: 'REISSUE', 'UPDATE LIST', and 'NEW.KOAX....Exp in x min'. Note: Depending on how much time has elapsed, there may be a 'COR' option as well. A tornado warning has been successfully created.	
The following steps test follow-up product creation. Note: if additional severe thunderstorm and/or tornado warnings are needed (e.g., warning has expired), the applicable steps above may be re-executed in order to get a warning into the system.			
Creating a new warning using a warning just issued.			
55.	Open WarnGen. (Ensure Text Workstation is still open).	WarnGen GUI displays.	
56.	With 'Severe Thunderstorm' selected as the 'Product Type', select the 'NEW...' option from the drop-down menu.	The polygon displays in CAVE. Verify that the polygon created on the map and the bullets selected on the WarnGen GUI match those of the previous Warning which correlates to the 'NEW...' line.	
57.	Select 'Create Text'.	Text Editor window displays. Ensure the Product Category on the 'AWIPS Header Block' contains 'SVR'. The bullets selected should match those of the previous severe thunderstorm warning. Verify that the VTEC tracking number has increased by 1.	
58.	Ingest the warning following the above steps.	A new Severe Thunderstorm warning is issued.	
59.	Open WarnGen. Examine the drop down menu next to the 'Product Type' on the WarnGen GUI.	The newly issued warning should appear. Under 'Severe Thunderstorm' selection three items should appear: 'REISSUE', 'UPDATE LIST', and 'NEW.KOAX....Exp in x min'. Note: Depending on how much time has elapsed, there may be a 'COR' option as well.	
60.	Open WarnGen. (Ensure Text Workstation is still open).	WarnGen GUI displays.	
61.	Select 'Severe Weather Statement' as the 'Product Type.'	A list of products displays. A warning has been created using an existing warning just issued.	
Extend a warning about to expire.			

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Step	Action	Result	Pass/Fail
62.	Wait and periodically select 'UPDATE LIST' from the drop-down menu until a warning is within 5 minutes of Expiration.	One of the active warnings issued earlier comes into or is within 5 minutes of expiring. An entry 'EXP.KOAX.....Exp in x min' appears.	
63.	Select 'EXP.KOAX..... Exp in x min'.	The polygon warning displays on the large display in CAVE. Verify that the bullets on WarnGen are disabled and the polygon on the map matches the original warning.	
64.	Select 'Create Text'.	Text Editor window displays. Ensure the Product Category on the 'AWIPS Header Block' contains 'SVR'.	
65.	Click 'Enter' in the AWIPS Header Block.	Header information is entered. Verify the VTEC is formatted correctly. It should appear similar to: /O.NEW.KOAX.SV.W.0109.080521T1902Z-080521T1932Z/. Ensure the selections from WarnGen match what was chosen.	
66.	In the text window, replace the '!**NAME/INITIALS**!' with your name and/or initials. Click MB1 on the 'Save' button. Then click MB1 on the 'Send' button.	The Severe Thunderstorm Warning is saved. The text window displays the saved warning.	
67.	Open a Text Editor from the Text Workstation and load the product 'SVSOMA' via AWIPS ID.	The updated warning just created appears.	
68.	Ingest the product using the steps described previously (Step 50).	Product is successfully ingested.	
69.	Open WarnGen. (Ensure Text Workstation is still open).	WarnGen GUI displays.	
70.	Select 'Severe Weather Statement' as the 'Product Type.'	A list of products displays. The expiring warning has been extended.	
Cancelling a warning.			
71.	Select an item from the drop-down menu which starts with 'CAN'.	The polygon warning displays on the large display in CAVE. Verify that the bullets on WarnGen are disabled and the polygon on the map matches the original warning.	
72.	Select 'Create Text'.	Text Editor window displays. Ensure the Product Category on the 'AWIPS Header Block' contains 'SVS'.	
73.	Click 'Enter' in the AWIPS Header Block.	Header information is entered. Verify the VTEC is formatted correctly. It should appear similar to: /O.NEW.KOAX.SV.W.0109.080521T1902Z-080521T1932Z/. Ensure the selections from WarnGen match what was chosen.	
74.	Enter a brief cancellation explanation and your initials. Then click MB1 on the 'Send' button.	The Severe Thunderstorm Warning is saved. The text window displays the saved warning.	
75.	Open a Text Editor from the Text Workstation and load the product 'SVSOMA' via AWIPS ID.	The updated warning just created appears.	

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Step	Action	Result	Pass/Fail
76.	Ingest the product using the steps described previously.	Product is successfully ingested.	
77.	Open WarnGen. (Ensure Text Workstation is still open).	WarnGen GUI displays.	
78.	Select 'Severe Weather Statement' as the 'Product Type.'	A list of products displays. The warning just cancelled appears with a 'CAN' at the beginning.	
Modifying a warning.			
79.	Select an item from the drop-down menu which starts with 'CON'.	The polygon warning displays on the large display in CAVE. Verify that the bullets on WarnGen are disabled and the polygon on the map matches the original warning.	
80.	Modify one or two of the bullets in WarnGen.	Warning bullets are modified.	
81.	Modify the polygon so that a county which was previously selected is not. Leave the rest of the warning area(s) the same.	Selected warning is modified to exclude a county in the original warning.	
82.	Select 'Create Text'.	Verify that there are 2 parts to the message; a CAN part which cancels the warning for the now unselected county, and a CON part which continues the warning for the other counties.	
83.	Click 'Enter' in the AWIPS Header Block.	Header information is entered. Verify the VTEC is formatted correctly. It should appear similar to: /O.CON.KOAX.SV.W.0109.080521T1902Z-080521T1932Z/. Ensure the selections from WarnGen match what was chosen.	
84.	In the text window, replace the '!**NAME/INITIALS**!' with your initials and/or name. Click MB1 on the 'Save' button. Then click MB1 on the 'Send' button.	The Severe Thunderstorm Warning is saved. The text window displays the saved warning.	
85.	Open a Text Editor from the Text Workstation and load the product 'SVSOMA' via AWIPS ID.	The updated warning just created appears.	
86.	Ingest the product using the steps described previously.	Product is successfully ingested.	
87.	Open WarnGen. (Ensure Text Workstation is still open).	WarnGen GUI displays.	
88.	View the warning just modified.	The county selected for the cancel should not display. The warning was successfully modified.	
89.	Once all of the previous test procedures have been run, select and display the last 12 radar images for KOAX. MB1 click 'Obs' -> 'Other Warning Displays' -> 'Local and Regional Warnings'.	The previous 12 radar images for Omaha display. The issued warnings are displayed.	

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Step	Action	Result	Pass/Fail
90.	Cycle through the warning frames and verify that they display correctly.	(1) Severe thunderstorm warnings will be in yellow and tornado warnings in red. (2) Ensure time-matching works. Warnings valid at the time of the image should display. (3) Cancelled warnings or modified warnings where counties were removed thus changing the shape of the polygons should also display correctly.	
End of TO9 test.			

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5.0 TO8 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
CAVE_TO8_013	CAVE shall contain a WarnGen capability	9
CAVE_TO8_013.1	A 'WarnGen: Operational' GUI shall display when the WarnGen button is selected from the menu bar	9
CAVE_TO8_013.3	WarnGen shall allow the user to designate the type of warning	17
CAVE_TO8_013.4	WarnGen shall allow the user to select to warn on a single storm	13
CAVE_TO8_013.5	WarnGen shall allow the user to select to warn on a line of storms	35
CAVE_TO8_013.5.2	WarnGen shall allow the user to issue a severe thunderstorm warning for a line of storms	35
CAVE_TO8_013.5.3	WarnGen shall allow the user to issue a tornado warning for a single storm	13
CAVE_TO8_013.16	WarnGen shall allow the user to designate the duration of the warning	19
CAVE_TO8_013.18	WarnGen shall allow the user to establish a storm track	10-12
CAVE_TO8_013.19	WarnGen shall allow the user to establish a warning area	15-16
CAVE_TO8_013.19.1	WarnGen shall allow the user to redraw the warning box in CAVE using MB1 in the WarnGen: Operational window	16
CAVE_TO8_013.20	WarnGen shall allow the user to select optional text bullets to be included in the warning text	18,20
CAVE_TO8_013.22	WarnGen shall allow the user to send the warning information to the text window	21
CAVE_TO8_013.28	WarnGen shall allow the user to Create the Text using MB1 on the 'Create Text' button	20
CAVE_TO8_013.28.1	WarnGen shall translate the storm path into text describing the speed and direction of the storm, and the counties and cities affected by the warning	24
CAVE_TO8_013.28.2	WarnGen shall generate the warning text that includes any optional bullets selected	22
CAVE_TO8_013.28.3	WarnGen text warning shall contain correct header information	25
CAVE_TO8_013.28.4	WarnGen text warning shall contain proper UGC and VTEC codes	25
CAVE_TO8_013.28.5	WarnGen text warning shall maintain time and Time Zone consistency	23
CAVE_TO8_013.28.6	WarnGen text warning shall contain correct product type	21-22,25
CAVE_TO8_013.28.8	WarnGen text warning shall contain a presence of closing \$\$	28
CAVE_TO8_013.31	CAVE shall have the ability to overlay WarnGen on displayed weather data	8-12,14-16
CAVE_TO8_013.32	CAVE shall contain the Warning by Polygon functionality	15-16
CAVE_TO8_013.32.1	CAVE shall draw a hatched area encompassed by the drawn polygon	10,14-16

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Number	Description	Test Step(s)
CAVE_TO8_013.32.2	The hatched area shall be described by the LAT...LON coordinates in the text warning product	26
CAVE_TO8_013.32.3	WarnGen shall not allow the warned area to cross over CWAs	16
CAVE_TO8_013.32.8	WarnGen shall encode the location and motion of the weather event below the LAT...LON line in the text warning product	27
CAVE_TO8_013.33	WarnGen shall be activated by using MB1 on the yellow WarnGen button on the CAVE menu bar	9
EDEX_T08_019.16	EDEX shall implement VTEC coding through WarnGen	30-33

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6.0 TO9 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
SYSR2094	The AWIPS system shall implement the Text Product Decoder for warnings.	49
SYSR3054	The AWIPS System shall create the SVR - Severe Thunderstorm Warning product as produced by the Public and Fire Weather Services WarnGen Application.	88
SYSR3055	The AWIPS System shall create the SVS - Severe Weather Statement product as produced by the Public and Fire Weather Services WarnGen Application.	78
SYSR3056	The AWIPS System shall create the TOR - Tornado Warning product as produced by the Public and Fire Weather Services WarnGen Application.	54

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