

# **Test Case ColorMap\_Editor\_1.0**

**for the**

**AWIPS**

**Contract**

**DG133W-05-CQ-1067**

DCN: AWP.RPT.TE.SWCTR/TO8-0012

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## Revision History

Revision	Date	Affected Pages	Explanation of Change
1.0	5 December 07	ALL	Initial Release
2.0	17 January 08	iii, 4-10	PDT Redlines/NWS Comments
3.0	29 January 08	ALL	DT Redlines

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## **1.0 SCOPE**

See Software Test Plan.

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## **2.0 APPLICABLE DOCUMENTS**

### **2.1 Source Documents**

- None

### **2.2 Reference Documents**

- Software Test Plan for the Advanced Weather Information Processing System Project, Contract #DG133W-05-CQ-1067, 4 December 2007
- Sections 2.1.6.3, 2.1.7, 2.2.1, 2.3, 2.3.1, 2.3.2 of the AWIPS D-2D User's Manual Build 8.1
- Existing AWIPS 1 test procedures:
  - Check\_Out\_4.1.6\_ColorImage\_Wu
  - CAVE\_Images
  - CAVE\_Prod\_Dispatch\_1.4.1.21
- The VPN connection to the Silver Spring NWS AWIPS 1 test bed
- Release OB8.1 of the Weather Event Simulator (WES)

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### **3.0 TEST CASE DESCRIPTION**

This test case demonstrates the capability of CAVE to allow the user to edit, save and manipulate colors and display characteristics for satellite, grid, radar and map products. This test case also demonstrates the capability of CAVE to replace the colormap in the large pane, automatically update when new colormaps are selected, and change the color and display characteristics of map backgrounds. This test case illustrates the use of the Utility Service through the Color Map Editor widget. The Utility Service allows the user to edit, save and recall a color map on the workstation.

#### **3.1 Assumptions, Constraints and Preconditions**

- TO8 software has been installed successfully
- CAVE, EDEX and pgAdmin III are running
- Data has been ingested

#### **3.2 Recommended Hardware**

See Software Test Plan.

#### **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 TO8 test cases.

#### **3.4 Test Outputs**

The images and data will be displayed in CAVE.

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**4.0 TEST SCENARIO**

<b>Step</b>	<b>Action</b>	<b>Result</b>	<b>Pass/Fail</b>
1.	Start CAVE.	CAVE starts.	
2.	From the Satellite menu, select 'IR Window'.	The IR satellite product displays in the large pan.	
3.	Using mouse button (MB) 3 click on the IR Satellite image product ID in the lower right corner of the CAVE display and select 'Edit Colors...'	The Color Edit Dialog window displays.	
4.	In the middle of the Image Color Editor window, move the arrows using MB1 to define a range of temperature values that you wish to color. Then change the position of the centroid in the color wheel in the bottom right area of the window (Lower Color section) to a desired color.	The color in the color swatch to the right of the color wheel changes, corresponding to the position of the centroid in the color wheel.	
5.	Select the Fill button in the Lower Color section to apply the color currently indicated in the color swatch to the current IR Satellite image.	The appropriate sections of the satellite image changes to the selected color. The color represents the range of temperatures selected in the previous step. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
6.	Select the 'Office Save As' button.	The 'Save color table for office' window displays.	
7.	In the 'Save color table for office' window, type: 'IR test step 7 (date)'. Then select OK.	The new selected color table for the office is saved. The 'Save color table for office' window closes.	
8.	Repeat Step 4, choosing another portion of the color band and selecting colors from both color wheels (Upper and Lower color sections).	The selected color wheel changes.	
9.	Select Interpolate.	The color values chosen in the color wheels are interpolated, blending the colors across the selected portion of the color band, and the colors change to the appropriate values in the satellite image. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
10.	Select the 'Save As...' button.	The 'Save color table for <local user>' window displays.	
11.	In the 'Save color table for <local user>', type: 'IR test step 11 (date)'. Then select OK.	The new selected color table for the local user is saved. The 'Save color table for <local user>' window closes.	
12.	Using MB1, click on the 'X' in the upper right corner of the ColorMap Editor dialog box.	The ColorMap Editor dialog box closes.	
13.	Select 'Clear' button from the CAVE.	The large pane clears.	
14.	Select the 'IR Window' product from the 'Satellite' menu.	The IR Satellite image displays in CAVE.	
15.	Right click on the IR Satellite image product ID in the lower right corner of the CAVE display and select 'Change Colormap...'	The 'Colormap' window displays.	
16.	From the Colormap dropdown menu, verify a list of imported colormaps. Then select the saved color curve ('IR test step 7 (date)') and click OK.	The 'Colormap' window closes. Imported colormaps are present.	

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Step	Action	Result	Pass/Fail
		The saved (office) color curve is applied to the image. The colorbar in the upper portion of the main pane reflects the selected colormap.	
17.	Repeat step 16 for 'IR test step 11 (date)'.	The 'Colormap' window closes. The saved (user) color curve is applied to the image. The colorbar in the upper portion of the main pane reflects the selected colormap.	
18.	Using MB3 click on the IR Satellite image product ID in the lower right corner of the CAVE display and select 'Edit Colors...'	The Color Edit Dialog window displays.	
19.	With the RGB radio selected, click and hold MB1 on the Red slider bar and move the slider bar across the scale.	The centroid in the color wheel moves accordingly. The color in the color swatch to the right of the color wheel changes accordingly.	
20.	With the HSB radio selected and Saturation set to a non-zero value, click and hold MB1 on the Hue slider bar and move the slider bar across the scale.	The centroid in the color wheel moves accordingly. The color in the color swatch to the right of the color wheel changes accordingly.	
21.	Repeat step 20 for the Saturation slider bar.	The centroid in the color wheel moves accordingly. The color in the color swatch to the right of the color wheel changes accordingly.	
22.	Repeat step 20 for the Brightness slider bar.	The brightness of the color wheel and the color swatch to the right of the color wheel changes accordingly.	
23.	In the 'Upper Color' color wheel, set the centroid to orange. In the 'Lower Color' color wheel, set the centroid to light blue-green. Then click MB1 on the 'Interpolate' button.	The color values chosen in the color wheels are interpolated, displaying the 'true' colors in the color band (moving the shortest distance around the wheel from the color in the Upper Color to the Lower Color). The colors change to the appropriate values in the satellite image. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	DR #812
24.	Click on the RGB color model.	The RGB color model displays.	
25.	In the middle of the Color Edit Dialog window, move the arrows using MB1 to define a range of values that you wish to color. Then change the position of the centroid in the color wheel in the bottom right area of the window (Lower Color section) to a desired color.	The color in the color swatch to the right of the color wheel changes, corresponding to the position of the centroid in the color wheel.	
26.	Select the Fill button in the Lower Color section to apply the color currently indicated in the color swatch to the current IR Satellite image.	The appropriate sections of the satellite image changes to the selected color. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
27.	In the Color Edit Dialog window, click the 'Undo' button.	The colormap reverts back to the previous colorbar displayed. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
28.	In the Color Edit Dialog window, click the 'Redo'	The colormap redisplay the edited colorbar. The	

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Step	Action	Result	Pass/Fail
	button.	colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
29.	Make two more edits to the colorbar.	The edits to the colorbar are displayed on the colorbar. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
30.	In the Color Edit Dialog window, click the 'Revert' button.	The colormap reverts to the original or last saved colorbar. The Undo and Redo buttons are reset. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
31.	With the color bar arrows in their current position, select a color in the color wheel for the Upper and Lower Colors.	The color selected is displayed in the color swatch to the right of the color wheel.	
32.	Click on the 'Set' button for both the Upper and Lower Colors.	The color changes to show the upper and lower temperature set by the position of the arrows.	
33.	In the Color Edit Dialog window, click the 'Interpolate' button.	The colormap interpolates the colorbar, blending the colors between the arrows using the colors in the color swatch window. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
34.	In the upper half of the colorbar, click on a color different than the one currently displayed in the 'Upper Color' color swatch.	The color swatch in the 'Upper Color' section displays the selected color.	
35.	In the lower half of the colorbar, click on a color different than the one currently displayed in the 'Lower Color' color swatch. Then click the 'Interpolate' button.	The color swatch in the 'Lower Color' section displays the selected color. The colormap interpolates the colorbar, blending the colors between the arrows using the colors in the color swatch window. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	
36.	Close the Color Edit Dialog window.	The Color Edit Dialog window closes.	
37.	Clear the CAVE display.	The CAVE display clears.	
38.	Load a gridded image in CAVE.	The gridded image displays in CAVE.	
39.	Repeat steps 3-5.	The edited colorbar is applied to the grid image. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	DR #812
40.	Close the Color Edit dialog. Then, clear the CAVE display.	The Color Edit dialog closes and the CAVE display clears.	
41.	Load a radar image in CAVE.	The radar image displays in CAVE.	
42.	Repeat steps 3-5.	The edited colorbar is applied to the radar image. The colorbar in the upper portion of the main pane reflects the changes made to the color swatch.	DR #812
43.	Select the 'Save As...' button.	The Save color table for <local user> window displays.	

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Step	Action	Result	Pass/Fail
44.	In the Save color table for <local user>, type: 'IR Delete test (date)' Then select OK.	The new selected color table for the local user is saved.	
45.	Close the Color Edit dialog. Then select 'Clear' button from the CAVE.	The Color Edit dialog closes and the large pane clears.	
46.	Load a radar image.	The radar image displays in CAVE.	
47.	Using MB3 click on the radar image product ID in the lower right corner of the CAVE display and select 'Change Colormap...'	The 'Colormap' window displays.	
48.	From the Colormap dropdown menu, select the saved color curve ('IR Delete test (date)'). Then click OK.	The 'Colormap' window closes. The saved color curve is applied to the image. The colorbar in the upper portion of the main pane reflects the selected colormap.	
49.	Clear the CAVE display.	The CAVE display clears.	
50.	Load a Visible Satellite image.	A Visible Satellite image displays in CAVE.	
51.	Using MB3 click on the Visible Satellite image product ID in the lower right corner of the CAVE display and select 'Change Colormap...'	The 'Colormap' window opens.	
52.	Select the saved color curve 'IR Delete test (date)' and click 'OK'.	The Visible Satellite image uses the saved colormap. The 'Colormap' window closes. The colorbar in the upper portion of the main pane reflects the selected colormap.	
53.	Using MB3 click on the Visible Satellite image product ID in the lower right corner of the CAVE display and select 'Edit Colors...'	The Color Edit Dialog window displays with the colorbar for the displayed image.	
54.	Click on the 'Delete' button in the Color Edit Dialog window.	A 'Confirm Delete Color Table' window opens confirming the deletion of the 'IR Delete test (date)' colormap.	
55.	Click 'OK', close the Color Edit dialog, and clear the CAVE display.	The 'IR Delete test (date)' colormap is deleted. The 'Confirm Delete Color Table' window closes, the Color Edit dialog closes, and the main pane clears.	
56.	Load an IR satellite image. Using MB3 click on the IR Satellite image product ID in the lower right corner of the CAVE display and select 'Change Colormap...'	The 'Colormap' window displays.	
57.	Verify the 'IR Delete test (date)' colormap is not available.	The 'IR Delete test (date)' colormap is not available and has been deleted.	
58.	Close the 'Colormap' window. Then clear the CAVE display.	The 'Colormap' window closes and the CAVE display clears.	
59.	Close and restart CAVE.	CAVE closes and is restarted.	
60.	Load an available Satellite image.	The available Satellite image displays.	
61.	Using MB3 click on the Satellite image product ID in the lower right corner of the CAVE display and select 'Change Colormap...'	The 'Colormap' window displays.	

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Step	Action	Result	Pass/Fail
62.	Select the saved colormap 'IR test step 11 (date)'. Then click OK.	The 'Colormap' window closes. The Satellite image reverts to the saved colormap. The colorbar in the upper portion of the main pane reflects the selected colormap.	
63.	Clear the CAVE display.	The CAVE display clears.	
64.	Under the koax menu, click MB1 on 'koax 4 Bit Products'. Then select the '0.5 Z/SRM' product under the '4 bit Z/SRM combo' section.	A combined reflectivity and storm relative motion image appears in the main pane of CAVE.	
65.	With the Number Lock activated, press the decimal key once on the number pad. Note the colormap used.	The storm relative motion product displays.	
66.	Press the decimal key once on the number pad. Note the colormap used.	The reflectivity product displays.	
67.	Click and hold MB3 on the product ID in the product legend and select 'Change Colormap...'	A 'Colormap' window appears.	
68.	Change the colormap of the reflectivity product. Then click the OK button.	The colormap of the reflectivity product changes to the selected colormap.  The 'Colormap' window closes.  Note: The colorbar in the upper portion of the main pane does not reflect the selected colormap.	DR #772
69.	Press the decimal key once on the number pad. Note the colormap of the storm relative motion product was unchanged.	The storm relative motion product displays.	
70.	Click and hold MB3 on the product ID in the product legend and select 'Change Colormap...'	A 'Colormap' window appears.	
71.	Change the colormap of the storm relative motion product. Then click the OK button.	The colormap of the storm relative motion product changes to the selected colormap.  The 'Colormap' window closes.  The colorbar in the upper portion of the main pane reflects the selected colormap.	
72.	Press the decimal key once on the number pad. Note the colormap of the reflectivity product was unchanged.	The reflectivity product displays.	
73.	Clear all panes within CAVE.	All panes display a blank map.	
	End of test.		

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**5.0 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)**

Number	Description	Test Step(s)
CAVE_TO8_001	CAVE shall contain a ColorMap Editor	3
CAVE_TO8_001.1	The ColorMap Editor shall allow the user to change the RGB values	19
CAVE_TO8_001.1.1	The ColorMap Editor shall allow the user to increase the RGB values using the slider bar	19
CAVE_TO8_001.1.2	The ColorMap Editor shall allow the user to decrease the RGB values using the slider bar	19
CAVE_TO8_001.3	The ColorMap Editor shall allow the user to change the Hue values	20
CAVE_TO8_001.3.1	The ColorMap Editor shall allow the user to increase the Hue value using the slider bar	20
CAVE_TO8_001.3.2	The ColorMap Editor shall allow the user to decrease the Hue value using the slider bar	20
CAVE_TO8_001.4	The ColorMap Editor shall allow the user to change the Saturation values	21
CAVE_TO8_001.4.1	The ColorMap Editor shall allow the user to increase the Saturation value using the slider bar	21
CAVE_TO8_001.4.2	The ColorMap Editor shall allow the user to decrease the Saturation value using the slider bar	21
CAVE_TO8_001.5	The ColorMap Editor shall allow the user to change the Brightness values	22
CAVE_TO8_001.5.1	The ColorMap Editor shall allow the user to increase the Brightness value using the slider bar	22
CAVE_TO8_001.5.2	The ColorMap Editor shall allow the user to decrease the Brightness value using the slider bar	22
CAVE_TO8_001.6	The ColorMap Editor shall allow the user to move the target point within the color wheel	4
CAVE_TO8_001.6.1	The RGB thumb scales shall modify nearly instantaneously upon movement of the target point	4
CAVE_TO8_001.6.2	The Set/Fill box shall display the color specified by the target point almost instantaneously upon movement of the target point	4
CAVE_TO8_001.6.3	The position of the target point within the color wheel shall modify with changes in the RGB, Hue and Saturation values	19,20,21
CAVE_TO8_001.7	The ColorMap Editor shall save modifications to the colorbar for the user	11,17
CAVE_TO8_001.8	The ColorMap Editor shall save modifications to the colorbar for the office	7,16
CAVE_TO8_001.9	The ColorMap Editor shall allow the user to delete a	54-57

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	saved colorbar	
CAVE_TO8_001.10	The ColorMap Editor shall allow the user to undo modifications made to the colorbar	27
CAVE_TO8_001.11	The ColorMap Editor shall allow the user to redo modifications made to the colorbar	28
CAVE_TO8_001.12	The ColorMap Editor shall allow the user to revert to either the original colorbar or the last saved colorbar, if a colorbar was saved from when the ColorMap Editor was initially opened	30
CAVE_TO8_001.13	The ColorMap Editor shall allow the user to set colors within the colorbar	32
CAVE_TO8_001.14	The ColorMap Editor shall allow the user to interpolate between the colors displayed in the Set/Fill box	9,23,33
CAVE_TO8_001.15	The ColorMap Editor shall allow the user to fill colors between the colors in the Set/Fill box	5
CAVE_TO8_001.16	The ColorMap Editor shall allow the user to adjust the position of the color arrows within the colorbar using the buttons on the mouse	4
CAVE_TO8_001.16.1	The Set/Fill box shall display the selected color when the user single left clicks within the colorbar	34,35
CAVE_TO8_001.17	The ColorMap Editor shall distinguish between the Upper Color and Lower Color	34,35
ADE_TO5_003_015	CAVE shall provide a capability to change the colormap of a currently displayed raster product to another colormap	5,9,26-28,30,32,33,39,42
CAVE_TO8_001.18	CAVE shall utilize the colorbar within the ColorMap Editor on a displayed satellite image	5,9, 26-28,30,32,33
CAVE_TO8_001.19	CAVE shall utilize the colorbar within the ColorMap Editor on a decoded grib image	39
CAVE_TO8_001.20	CAVE shall utilize the colorbar within the ColorMap Editor on a displayed radar image	42
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