Setting the colors of displayed MPE data.
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The colors of the displayed MPE data can be set to meet a user's taste and preference through the ColorValue table in the IHFS database. This table contains color information for each MPE product on a user by user basis. So, individual users may set up the MPE colors based on how they want to view the data. The procedure to do this involves several steps and should be followed with care.

This document first describes how to find the names of colors that are recognized by the X-Window System. It then presents the format of the ColorValue table. Following this, an outline of valid color use names and associated durations is provided. After this, a brief discussion of the MPE product legends and the thresholds and colors typically used to describe them is given. Finally, an example of modifying the colors of one MPE product is presented.

1. Valid Color Names

Valid color names may be retrieved from the "colorname" table in the IHFS database. A complete list of colors recognized by X Windows is contained in the file /usr/lib/X11/rgb.txt. Color names may be taken from this file and added to the colorname table if so desired.

2. The ColorValue table contains the following fields:

Name	Comments
userid	This may be up to 32 characters in length. It indicates the name of the user this color information pertains to.
application_name	This may be up to 20 characters in length. It names the application that this color information pertains to. For Hydroview/MPE this will always be "rfcwide".
color_use_name	This may be up to 15 characters in length. This names the product to which this color information pertains. The list of valid product names is provided below.
duration	This is an integer value representing the number of seconds spanned by the value represented by this color.
threshold_value	This is a floating point value representing the maximum data value represented by this color.
threshold_unit	This is a single character. It indicates the measurement system to use. "E" stands for the English System. "M" stands for the Metric System.
color_name	The name of the color. The color chosen must be one that is recognizable by X Windows.

The primary key on this table is userid, application_name, color_use_name, duration, threshold_value, threshold_unit.

3. Valid color use names and associated durations

MPE Product	Color Use Name	Duration
Mean Field Bias Mosaic	BMOSAIC	3600
Gage Only Field	GAGEONLY	3600
Radar Height Field	HEIGHT	0
Radar Coverage Field	INDEX	0
Local Bias Mosaic	LMOSAIC	3600
Local Bias Values Field	LOCBIAS	0
Local Span Values Field	LOCSPAN	0
Multisensor Mosaic	MMOSAIC	3600
Prism Climatology Field	PRISM	0
Single Site Radar Cimatology	RADCLIM	0 (Not available at this time)
Radar Mosaic	RMOSAIC	3600
Satellite Precipitation Field	SATPRE	3600
Best Estimate QPE	xmrg	3600

4. Legends and sample color thresholds

4.1 RMOSAIC, BMOSAIC, MMOSAIC, LMOSAIC, GAGEONLY, SATPRE, and xmrg color use types

The first color represents missing, the second color represents a value of exactly zero, the third color represents a value greater than zero but less than or equal to a given threshold, and subsequent colors represent progressively greater threshold amounts.

Example: Radar Mosaic

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
0.00	Exactly 0.00	black
0.01	Greater than 0 but less than or equal to .01	black
0.1	Greater than .01 but less than or equal to .1	DodgerBlue1
0.2	Greater than .1 but less than or equal to .2	cyan
0.3	Greater than .2 but less than or equal to .3	DarkGreen
0.4	Greater than .3 but less than or equal to .4	green
0.5	Greater than .4 but less than or equal to .5	greenyellow
...		
3.00	Greater than 3.0	white

4.2 HEIGHT: The first color is missing, the second and subsequent colors thresholds represent various heights in 100's of feet starting with a value of 0.

Example:

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
0.0	Exactly 0	black
250.	Greater than 0 but less than or equal to 250	orange
500.	Greater than 250 but less than or equal to 500	yellow
750.	Greater than 500 but less than or equal to 750	greenyellow
...		
10000.	Greater than 10000	white

4.3 INDEX: First color is missing, the second color means no radar coverage, and subsequent colors denote individual radars. Threshold values should be 1.0, 2.0, 3.0, etc. for successive colors.

Example:

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
1.0	1.0	black
2.0	2.0	yellow
3.0	3.0	greenyellow
4.0	4.0	yellowgreen
...		
16.0	16.0	orange

4.4 LOCBIAS: The first value represents missing, the second and subsequent colors represent local bias value thresholds starting with 0.0.

Example:

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
0.0	Exactly 0	black
0.4	Greater than 0 but less than or equal to 0.4	red
0.6	Greater than 0.4 but less than or equal to 0.6	dodgerblue1
0.8	Greater than 0.6 but less than or equal to 0.8	cyan
3.0	Greater than 3.0	red4

4.5 LOCSPAN: The first value represents missing, the second color represents the case where precipitation has not occurred recently enough to compute a local memory span, subsequent colors represent the various memory spans.

Example:

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
-----	No recent precipitation	black
0.0	Memory span 0	red
1.0	Memory span 1	dodgerblue1
2.0	Memory span 2	cyan
...		
10.0	Memory span 10	white

4.6 PRISM: The first color represents missing, the second color represents a value of exactly 0, the third color represents a value greater than 0 but less than or equal to 10, and subsequent colors represent progressively larger thresholds.

Example:

Threshold Value	Threshold Meaning	Color
-1	Missing	gray30
0.0	Exactly 0	black
10	Greater than 0 but less than or equal to 10	black
20	Greater than 10 but less than or equal to 20	dodgerblue1
30	Greater than 20 but less than or equal to 30	cyan
...		
140	Greater than 140	white

4.7 RADCLIM: This product is not available at this time.

5. Example of customizing the color thresholds and values for a MPE product

A forecaster wants to customize the Radar Mosaic in such a way that the colors and threshold levels are as follows:

Threshold Value	Color Name	
-1	Maroon	(The Missing Value)
0	black	(Exactly Zero)
.001	LemonChiffon	(> 0 and <= .001)

.50	LawnGreen	(> .001 and <=.50)
1.0	LightPink	(> .50 and <= 1.0)
2.0	LightSlateBlue	(> 1.0 and <= 2.0)
3.0	MistyRose	(> 2.0 and <= 3.0)
4.0	MintCream	(> 3.0 and <= 4.0)
5.0	White	(> 4.0)

The forecaster's user id is "wxman".
The color use name is "RMOSAIC".
The application name is "rfcwide" (always).
The duration is 3600.
The threshold is 'E'. Metric units are currently unavailable in Hydroview/MPE.

Given this, the following SQL commands must be entered from dbaccess:

(This assumes that the user has not already entered information with an identical primary key into this table)

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, -1.0, 'E', "MAROON")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, 0, 'E', "BLACK")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, .01, 'E', "LEMONCHIFFON")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, .50, 'E', "LAWNGREEN")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, 1.0, 'E', "LIGHTPINK")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, 2.0, 'E', "LIGHTSLATEBLUE")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, 3.0, 'E', "MISTYROSE")

insert into colorvalue values
("wxman", "rfcwide", "RMOSAIC", 3600, 4.0, 'E', "MINTCREAM")