Image Plot ColorScale Examples

```
Make/O/N=(20,20) img=p*q; NewImage img          // Make and display an image
ColorScale                                      // Create default color scale
// First annotation is text0
ColorScale/C/N=text0 nticks=3,minor=1,"Altitude"
ModifyImage img ctab= {*,*,Relief19,0}          // 19-color color table
ColorScale/C/N=text0 axisRange={100,300}        // Detail for 100-300 range
ColorScale/C/N=text0 colorBoxesFrame=1          // Frame the color boxes
ColorScale/C/N=text0 frameRGB=(65535,0,0)       // Red frame
```

Gizmo Plot ColorScale Example

See the online reference help for ColorScale.

See Also

For all other flags see the **TextBox** and **AppendText** operations.

Color Scales on page III-47, **AnnotationInfo**, **AnnotationList**

Demo

Choose File→Example Experiments→Feature Demos 2→ ColorScale Demo

ColorTab2Wave

`ColorTab2Wave` ***`colorTableName`***

The ColorTab2Wave operation extracts colors from the built-in color table and places them in an Nx3 matrix of red, green, and blue columns named M_colors. Values are unsigned 16-bit integers and range from 0 to 65535.

N will typically be 100 but may be as little as 9 and as large as 476. Use

```
Variable N= DimSize(M_colors,0)
```

to determine the actual number of colors.

The wave M_colors is created in the current data folder. Red is in column 0, green is in column 1, and blue in column 2.

Parameters

colorTableName can be any of those returned by **CTabList**, such as Grays or Rainbow.

colorTableName can also be `Igor` or `IgorRecent`, to return either the 128 standard or 0-32 user-selected colors from Igor's color menu.

Details

See **Image Color Tables** on page II-392.

Complex

`Complex` ***`localName`***

Declares a local complex 64-bit double-precision variable in a user-defined function or structure.

Complex is another name for Variable/C. It is available in Igor Pro 7.00 and later.

Concatenate

`Concatenate` `[`***`type flags`***`][`***`flags`***`]` ***`waveListStr, destWave`***

`Concatenate` `[`***`type flags`***`][`***`flags`***`]` ***`{wave1, wave2, wave3,…}, destWave`***

`Concatenate` `[`***`type flags`***`][`***`flags`***`]` ***`{waveWave}, destWave`***

The Concatenate operation combines data from the source waves into *destWave*, which is created if it does not already exist. If *destWave* does exists and overwrite is not specified, the source waves' data is concatenated with the existing data in the destination wave.

By default the concatenation increases the dimensionality of the destination wave if possible. For example, if you concatenate two 1D waves of the same length you get a 2D wave with two columns. The destination wave is said to be "promoted" to a higher dimensionality.

If you use the /NP (no promotion) flag, the dimensionality of the destination wave is not changed. For example, if you concatenate two 1D waves of the same length using /NP you get a 1D wave whose length is the sum of the lengths of the source waves.

If the source waves are of different lengths, no promotion is done whether /NP is used or not.

Parameters

waveListStr is a string expression containing a list of input wave names separated by semicolons with a semicolon at the end. There is no limit to the number of wave names in *waveListStr*.

The {*wave1*, *wave2*, ...} syntax is limited to 100 waves.

In the {*waveWave*} syntax, waveWave is a single WAVE reference wave containing references to the input waves. This syntax was added in Igor Pro 8.00.

Flags

/DL Sets dimension labels. For promotion, it uses source wave names as new dimension labels otherwise it uses existing labels.

/FREE Creates destWave as a free wave (see **Free Waves** on page IV-91). The /FREE flag was added in Igor Pro 8.00.

/KILL Kills source waves.

/NP Prevents promotion to higher dimension.

/NP=*dim* Prevents promotion and appends data along the specified dimension (0= rows, 1= columns, 2=layers, 3=chunks). All dimensions other than the one specified by *dim* must be the same in all waves.

/O Overwrites *destWave*.

Type Flags *(used only in functions)*

Concatenate also can use various type flags in user functions to specify the type of destination wave reference variables. These type flags do not need to be used except when needed to match another wave reference variable of the same name or to identify what kind of expression to compile for a wave assignment. See **WAVE Reference Types** on page IV-73 and **WAVE Reference Type Flags** on page IV-74 for a complete list of type flags and further details.

Details

If *destWave* does not already exist or, if the /O flag is used, *destWave* is created by duplication of the first source wave. Waves are concatenated in order through the list of source waves. If *destWave* exists and the /O flag is not used, then the concatenation starts with *destWave*.

destWave cannot be used in the source wave list.

Source waves must be either all numeric or all text.

If promotion is allowed, the number of low-order dimensions that all waves share in common determines the dimensionality of *destWave* so that the dimensionality of *destWave* will then be one greater. The default behaviors will vary according to the source wave sizes. Concatenating 1D waves that are all the same length will produce a 2D wave, whereas concatenating 1D waves of differing lengths will produce a 1D wave. Similarly, concatenating 2D waves of the same size will produce a 3D wave; but if the 2D source waves have differing numbers of columns then *destWave* will be a 2D wave, or if the 2D waves have differing numbers of rows then *destWave* will be a 1D wave. Concatenating 1D and 2D waves that have the same number of rows will produce a 2D wave, but when the number of rows differs, *destWave* will be a 1D wave. See the examples.

Use the /NP flag to suppress dimension promotion and keep the dimensionality of *destWave* the same as the input waves.

Warning

Under some circumstances, such as in loops in user-defined functions, Concatenate may exhibit unexpected behavior.

When you have a statement like this in a user-defined function:

```
Concatenate/O ..., DestWaveName
```