Envision Toolbox Manual

Chapter 6

Putdata

Simple Data Display Program

Chapter 6 - Putdata

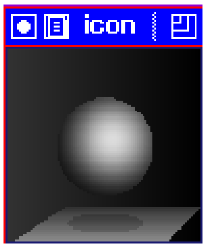

Figure 1: The putdata program can be used to display data in a variety of ways. Here, the "ball" image is displayed ($SAMPLEDATA/data/images/ball.xv, shorthand "image:ball") as an image icon.

A. Introduction

Putdata is an application with which you may display the data contained in a Khoros 2.0 VIFF file, or the data contained in any of the file formats supported by Khoros 2.0. It is a generic visualization program that can display data in a variety of ways. Data may be displayed as an image [-image], as a grid of numbers displaying the value data [-pixel], as a set of 3 grids displaying the map data [-mapval], as an icon [-imageicon], as an animated sequence [-animate], as a palette of colors defined by the colormap [-palette], as a zoom window [-zoom], as a 2D plot [-plot2d], or as a 3D plot [-plot3d].

IMPORTANT NOTE: when the [-plot2d] visualization type is used, specify [-axis] if you wish a 2D axis system to be displayed along with the 2D plot. Axes are not supported for 3D plots as of yet.

The method with which putdata displays the data is user-specified; however, it is expected that the method chosen to display the data will be compatible with the contents of the data itself and the method used to create it. For example, signals do not work well displayed as images, and data displayed as an animated sequence should have multiple frames.

The input file containing the data being visualized is monitored by default; the file is checked every 2 seconds for change, and if it has been modified, the visualization display is updated accordingly. The interval at which the input file is checked for modification may be specified using the [-update] argument.

A clip mask may be used to dictate the portion of the data that is displayed as an image, imageicon, animation, or zoom window. Clip masks do not make sense with visualization types of pixel, palette, plot2d, or plot3d.

On creation, the visual display window may be placed manually (the default method), or placed automatically. For automatic placement of the visual display window, specify the desired location in device (screen) coordinates, using the [-x] and [-y] arguments.

While the visual display window should be created with a default size that is appropriate to the type of visualization being used, a width and height for the visual display window can be specified explicitly using the

[-width] and [-height] arguments. Alternatively, you may allow the visual display window to size itself initially, and then use the window manager to interactively modify its size as desired.

NOTE: Interactive resizing IS supported for visualization types of pixel, mapval, palette, plot2d, and plot3d. Interactive resizing is NOT supported YET for visualization types of image, imageicon, animate, or zoom.

B. Command Line Arguments

The syntax for executing putdata from the command line is as follows:

```
% putdata

  -i       (infile)  input file

  Required Mutually Exclusive Group - Specify exactly one of the 9 options:
    [-image]     (flag) displays the image, given image data
    [-pixel]     (flag) displays the value data of the object
    [-imageicon] (flag) displays an icon image, given image data
    [-mapval]    (flag) displays the map value data of the object
    [-plot3d]    (flag) creates a 3D plot of the data
    [-zoom]      (flag) zooms in on the data
    [-palette]   (flag) displays the colormap of the object
    [-animate]   (flag) animates an image, given sequenced image data

    [Optional Loose Group - Specify at least one of the 2 options:]
      [-plot2d] (flag) creates a 2D plot of the data
      [-axis2d] (flag) display 2D axes with 2D plot

  [-c]         (infile)  input clip mask file
  [-cmap]      (infile)  input alternate cmap file
  [-use_cmap]  (boolean) use colormap?
  [-x]         (integer) x location of GUI
               (-1 <= x <= 1000, default = -1)
  [-y]         (integer) y location of GUI
               (-1 <= y <= 1000, default = -1)
  [-width]     (integer) The window width
               (-1 <= width <= 1000, default = 512)
  [-height]    (integer) The window height
               (-1 <= height <= 1000, default = 512)
  [-update]    (float)   initial update time
               (update >= 0.0, default = 2)
```

Note that the standardized Khoros arguments [-V], [-U], [-usage], [-P], [-gui], [-form], [-x], [-y], [-A], [-a], and [-ap] are also supported by getimage.

[-i {input image filename}]
This is the input image to be displayed; it may be a Khoros 2.0 VIFF file, or a file in any format supported by Khoros 2.0. It is a required argument.

[-*display_type*]
You must specify one of nine flags that will indicate to putdata how it is to display the input data. The input data may be displayed as an image, as value data, as an icon, as a grid of the map values, as a 2D plot, as a 3D plot, as an animated sequence, as a zoom window, or as a colormap palette. It is important to specify a flag that is compatible with the composition of the input data.

Note that when the [-plot2d] argument is used, you may also specify the [-axis2d] argument, to indicate that 2D axes are to appear with the 2D plot. By default, axes are not displayed. As of yet, there is no support for 3D axes, but we hope to have 3D axes available in the future.

[-c {clip mask filename}]

If desired, a bit image may be input and used as a clip mask. It must be a Khoros VIFF file of data type BIT; if the VIFF image passed in is NOT of type BIT, it will be automatically converted without prompting or warning (this is only done internally - the file itself will not be changed). ALSO: if the VIFF data file passed in is a multiband image, the first (0th) band will be taken as the clip mask. stored with the data object being displayed.

When an image is used as a clip mask for the currently displayed image, the only part of the image that will appear normally is that part defined by the pixels in the clip mask image that have a value of (1). All other parts of the current image will appear in the background color of the image window (usually black). Images work best as clip masks when they are the same size as the input data. `$SAMPLEDATA/data/masks/` contains two images that make good clip masks. To get the clip mask to go away, NULL out the "Clip Mask" parameter, and hit <cr>.

[-cmap {VIFF image w/ alternate colormap}]

If desired, another data object may be input, and its colormap will be used with the currently displayed data, instead of using the colormap that is

[-use_cmap {t/f}]

While the default action of putdata is to use the colormap associated with the currently displayed data, no colormap is required to be used. If the colormap associated with the currently displayed data is not wanted, specify "-use_cmap 0", or "-use_cmap false". In this case, the default colormap associated with the screen on which putdata is being run will be used.

[-x {x value}, -y {y value}]

If your window manager does not use manual placement, or you would like to over-ride the manual placement used by your window manager (this may not work with all window managers), specify the (x,y) location in device coordinates at which you would like the graphical user interface to appear.

[-width {width value}, -height {height}]

If desired, you may specify the width and height of the window in which the data will be displayed.

[-update {update time}]

Suppose that while you are displaying an image with putdata, the data is currently displayed is over-written. When the [-update] flag is specified as some number greater than zero, this indicates to putdata that it should automatically register the fact that the input file has been changed, and update the currently displayed data accordingly. The value of the [-update] flag specifies (in seconds) how often the input file is to be checked for any potential modifications. It should be specified as a floating point value which is greater than zero. When the value of the [-update] flag is zero (the default value), putdata will NOT check the input file for modifications.

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Table of Contents

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