

NAME

ximage - RADIANCE picture display for X window system

SYNOPSIS

ximage [**=geometry**] [**-di display**] [**-c ncolors**] [**-d**] [**-b**] [**-m**] [**-g gamma**] [**-f**] [**-e spec**] [**-ospec**] [**-t intvl**] [**-s**] **picture ..**

DESCRIPTION

Ximage takes one or more RADIANCE picture files and displays them on an X server. The **-c** option specifies the number of colors to use (default fills color table). The **-d** option turns off color dithering. The **-b** option displays the image in black and white (greyscale). The **-m** option forces monochrome output. The **-g** option specifies the exponent used in gamma correction; the default value is 2.2. The **-f** option stores a Pixmap on the server side for faster refresh. This may not work with large images on some servers. The **-o** option specifies a sequence of information to print to the standard output for the 't' command (see below). The **-t** option specifies a minimum interval (in milliseconds) between successive ray outputs in mouse tracking mode (right button pressed).

The **-e** option specifies an exposure compensation in f-stops (powers of two). Only integer stops are allowed, for efficiency. If the special word, *auto* is given instead of a number of stops, then *ximage* performs an automatic exposure adjustment similar to *pcond(1)*, compressing the dynamic range of the image to fit within the dynamic range of the display. If the special word, *human* is given instead, then *ximage* performs an exposure adjustment similar to *pcond* with the **-s** and **-c** options, which compensate for human contrast and color sensitivity at the corresponding scene luminance levels. This option yields and appearance of the scene on the display that closely matches what would be experienced in the real world.

The **-s** option tells *ximage* to display multiple pictures sequentially, rather than all at once. If no *picture* is given, input is read from stdin provided either the **-b** or **-m** option is in effect, or the X server is capable of 24-bit color. However, many of the commands given below will not work.

COMMANDS

Once a picture is displayed, the user may perform a number of operations. Some of the operations make use of an area of interest, defined by pressing the left mouse button and dragging the cursor over a section of the image. Pressing the button and immediately releasing it defines a single point as the area of interest. A command is a single character.

- q** Quit picture. (Also Q or ^D.)
- <space>** Redraw the area of interest.
- ^R** Redraw the entire image.
- <return>** Display the radiance averaged over the area of interest. The maximum of the three (RGB) channels is reported.
- l** Display the photometrically-weighted luminance value in the area of interest. This assumes that the image was correctly computed in terms of luminance.
- c** Display the color in the area of interest, as adjusted by the current exposure setting.
- p** Display the x and y location of the cursor.
- i** Identify identical pixels by assigning a random color at the cursor position. This is useful for displaying contours, especially when combined with the **-b** option.
- t** Print information about the pixel under the cursor according to the string following the **-o** command line option. The valid characters for this option correspond roughly to the other *ximage* commands:
 - o** ray origin
 - d** ray direction
 - v** radiance value

l luminance value

p pixel position

The default output is "-ood", which prints the ray origin and direction. This can be used as input to `rtrace(1)` to get additional information about the image (ie. pipe the output of `ximage` into `rtrace`). Pressing the middle mouse button is equivalent to typing the 't' key. Pressing and holding the right mouse button is equivalent to continuously pressing the 't' key.

= Adjust the exposure to the area of interest. A crude adjustment is made immediately, and the number of stops is printed while the colors are resampled. After a few seconds to a minute, the final image is redisplayed. If the area of interest is already within 1/2 stop of the ideal, no adjustment is made.

@ Same as '=' command, only the exposure is adjusted to provide roughly the same visibility for the selected region on screen as a viewer would experience in the actual space. Like the 'l' command, this adjustment assumes that the image has been correctly computed in terms of luminance. (See also the 'h' command, below.)

a Perform automatic exposure compensation, as if *ximage* were started with the `-e auto` option. If a rectangular area has been selected, the pixels in this region will be emphasized in the histogram, offering this area exposure preference. (Each pixel within the rectangle will be weighted as 21 outside pixels.)

h Perform human exposure compensation, as if *ximage* were started with the `-e human` option. See the 'a' command above regarding pixel weighting.

0 Reset the origin to the upper left corner of the image. This command is used to restore the original image position after using the shift or control key with the mouse to relocate the image within the frame (see below).

f Switch on the fast redraw option (`-f`), loading the image pixmap over to the server side. This command is useful when network delays are causing slow image refresh, and the user didn't notice it until after *ximage* was started.

F Switch off the fast redraw option. This frees up some memory on the server, as well as the color table for other windows.

In addition to the commands listed above, the control or shift key may be held while the cursor is dragged to reposition the image within the window.

NOTES

Hyperspectral Radiance pictures (.hsr files) are understood and crudely converted to RGB for display. However, the colors may not be very accurate.

X RESOURCES

`radiance.gamma` the default gamma correction value

ENVIRONMENT

`DISPLAY_GAMMA` the default gamma correction value

AUTHORS

Greg Ward
Anat Grynberg (Paris)
Philip Thompson (MIT)

SEE ALSO

`aedimage(1)`, `normtiff(1)`, `pcond(1)`, `pfilt(1)`, `rcode_depth(1)`, `rcode_ident(1)`, `rcode_norm(1)`, `rpict(1)`, `rtrace(1)`, `rvu(1)`, `xglaresrc(1)`, `xshowtrace(1)`