NAME

animate - display a sequence of images on any workstation running X

SYNOPSIS

animate [*options* **...]** *file* [[*options* ...] *file* ...]

DESCRIPTION

animate displays a sequence of images on any workstation display running an X server. **animate** first determines the hardware capabilities of the workstation. If the number of unique colors in an image is less than or equal to the number the workstation can support, the image is displayed in an X window. Otherwise the number of colors in the image is first reduced to match the color resolution of the workstation before it is displayed.

This means that a continuous-tone 24 bits-per-pixel image can display on a 8 bit pseudo-color device or monochrome device. In most instances the reduced color image closely resembles the original. Alternatively, a monochrome or pseudo-color image sequence can display on a continuous-tone 24 bits-per-pixel device.

To help prevent color flashing on X server visuals that have colormaps, **animate** creates a single colormap from the image sequence. This can be rather time consuming. You can speed this operation up by reducing the colors in the image before you ‘animate’ them. Use **mogrify** to color reduce the images to a single colormap. See **mogrify(1)** for details. Alternatively, you can use a *Standard Colormap*; or a static, direct, or true color visual. You can define a *Standard Colormap* with *xstdcmap*. See **XSTDCMAP(1)** for details. This method is recommended for colormapped X server because it eliminates the need to compute a global colormap.

EXAMPLES

To animate a set of images of a cockatoo, use:

```
animate cockatoo.*
```

To animate a cockatoo image sequence while using the *Standard Colormap* "best", use:

```
xstdcmap -best
animate -map best cockatoo.*
```

To animate an image of a cockatoo without a border centered on a backdrop, use:

```
animate +borderwidth -backdrop cockatoo.*
```

OPTIONS

-backdrop

display the image centered on a backdrop.

This backdrop covers the entire workstation screen and is useful for hiding other X window activity while viewing the image sequence. The color of the backdrop is specified as the background color. Refer to **X RESOURCES** for details.

-colormap *type*

the type of colormap: **Shared** or **Private**.

This option only applies when the default X server visual is *PseudoColor* or *GrayScale*. Refer to **-visual** for more details. By default, a shared colormap is allocated. The image shares colors with other X clients. Some image colors could be approximated, therefore your image may look very different than intended. Choose **Private** and the image colors appear exactly as they are defined. However, other clients may go "technicolor" when the image colormap is installed.

-colors *value*

preferred number of colors in the image.

The actual number of colors in the image may be less than your request, but never more. Note, this is a color reduction option. Images with less unique colors than specified with this option will have any duplicate or unused colors removed. Refer to **quantize(9)** for more details.

Note, options **-dither**, **-colorspace**, and **-treedepth** affect the color reduction algorithm.

-colorspace *value*

the type of colorspace: **GRAY**, **OHTA**, **RGB**, **Transparent**, **XYZ**, **YCbCr**, **YIQ**, **YPbPr**, **YUV**, or **CMYK**.

Color reduction, by default, takes place in the RGB color space. Empirical evidence suggests that distances in color spaces such as YUV or YIQ correspond to perceptual color differences more closely than do distances in RGB space. These color spaces may give better results when color reducing an image. Refer to **quantize(9)** for more details.

The **Transparent** color space behaves uniquely in that it preserves the matte channel of the image if it exists.

The **-colors** or **-monochrome** option is required for this option to take effect.

-crop *<width>{%}x<height>{%}{+-}<x offset>{+-}<y offset>*

preferred size and location of the cropped image. See **X(1)** for details about the geometry specification.

To specify a percentage width or height instead, append **%**. For example to crop the image by ten percent on all sides of the image, use **-crop 10%**.

Use cropping to apply image processing options, or display, only a particular area of an image. Use **-crop 0x0** to remove edges that are the background color.

The equivalent X resource for this option is **cropGeometry** (class **CropGeometry**). See **X RESOURCES** for details.

-delay *<1/100ths of a second>x<seconds>*

display the next image after pausing.

This option is useful for regulating the display of the sequence of images. *1/100ths of a second* must expire before the display of the next image. The default is 6/100 of a second between each frame of the image sequence. The second value is optional. It specifies the number of *seconds* to pause before repeating your animation sequence.

-density *<width>x<height>*

vertical and horizontal resolution in pixels of the image.

This option specifies an image density when decoding a Postscript or Portable Document page. The default is 72 pixels per inch in the horizontal and vertical direction.

-display *host:display[.screen]*

specifies the X server to contact; see **X(1)**.

-dither apply Floyd/Steinberg error diffusion to the image.

The basic strategy of dithering is to trade intensity resolution for spatial resolution by averaging the intensities of several neighboring pixels. Images which suffer from severe contouring when reducing colors can be improved with this option.

The **-colors** or **-monochrome** option is required for this option to take effect.

-gamma *value*
level of gamma correction.

The same color image displayed on two different workstations may look different due to differences in the display monitor. Use gamma correction to adjust for this color difference. Reasonable values extend from 0.8 to 2.3.

You can apply separate gamma values to the red, green, and blue channels of the image with a gamma value list delineated with slashes (i.e. 1.7/2.3/1.2).

Use **+gamma** to set the image gamma level without actually adjusting the image pixels. This option is useful if the image is of a known gamma but not set as an image attribute (e.g. PNG images).

-geometry *<width>{%}x<height>{%}{+-}<x offset>{+-}<y offset>{!}{<}{>}*
preferred size and location of the Image window. See **X(1)** for details about the geometry specification. By default, the window size is the image size and the location is chosen by you when it is mapped.

By default, the width and height are maximum values. That is, the image is expanded or contracted to fit the width and height value while maintaining the aspect ratio of the image. Append an exclamation point to the geometry to force the image size to exactly the size you specify. For example, if you specify **640x480!** the image width is set to 640 pixels and height to 480. If only one factor is specified, both the width and height assume the value.

To specify a percentage width or height instead, append **%**. The image size is multiplied by the width and height percentages to obtain the final image dimensions. To increase the size of an image, use a value greater than 100 (e.g. 125%). To decrease an image's size, use a percentage less than 100.

Use **>** to change the dimensions of the image *only* if its size exceeds the geometry specification. **<>** resizes the image *only* if its dimensions is less than the geometry specification. For example, if you specify **640x480>** and the image size is 512x512, the image size does not change. However, if the image is 1024x1024, it is resized to 640x480.

When displaying an image on an X server, *<x offset>* and *<y offset>* is relative to the root window.

The equivalent X resource for this option is **geometry** (class **Geometry**). See **X RESOURCES** for details.

-interlace *type*
the type of interlacing scheme: **None**, **Line**, **Plane**, or **Partition**. The default is **None**.

This option is used to specify the type of interlacing scheme for raw image formats such as **RGB** or **YUV**. **None** means do not interlace (RGBRGBRGBRGBRGBRGB...), **Line** uses scanline interlacing (RRR...GGG...BBB...RRR...GGG...BBB...), and **Plane** uses plane interlacing (RRRRRR...GGGGGG...BBBBBB...). **Partition** is like plane except the different planes are saved to individual files (e.g. image.R, image.G, and image.B).

Use **Line**, or **Plane** to create an interlaced GIF or progressive JPEG image.

-map *type*

display image using this *Standard Colormap* type.

Choose from these *Standard Colormap* types:

best
default
gray
red
green
blue

The *X server* must support the *Standard Colormap* you choose, otherwise an error occurs. Use **list** as the type and **animate(1)** searches the list of colormap types in top-to-bottom order until one is located. See **xstdcmap(1)** for one way of creating *Standard Colormaps*.

-monochrome

transform the image to black and white.

-remote *string*

execute a command in an remote display process.

The only command recognized at this time is the name of an image file to load.

-rotate *degrees{<}{>}*

apply Paeth image rotation to the image.

Use **>** to rotate the image *only* if its width exceeds the height. **<** rotates the image *only* if its width is less than the height. For example, if you specify **-90>** and the image size is 480x640, the image is not rotated by the specified angle. However, if the image is 640x480, it is rotated by -90 degrees.

Empty triangles left over from rotating the image are filled with the color defined as **bordercolor** (class **borderColor**).

-scene *value{-value}*

image scene number.

Use this option to specify an image sequence with a single filename. See the discussion of *file* below for details.

-size *<width>{%}x<height>{%}{+offset}{!}*

width and height of the image.

Use this option to specify the width and height of raw images whose dimensions are unknown such as **GRAY**, **RGB**, or **CMYK**. In addition to width and height, use **-size** to skip any header information in the image or tell the number of colors in a **MAP** image file, (e.g. -size 640x512+256).

-title *string*

assign a title to the displayed image.

Use this option to assign a specific title to the image. This is assigned to the image window and is typically displayed in the window title bar. Optionally you can include the image filename, type, width, height, or scene number in the label by embedding special format characters. Embed **%f** for filename, **%d** for directory, **%e** for filename extention, **%t** for top of filename, **%m** for magick, **%w** for width, **%h** for height, **%s** for scene number, or **%b** for file size in kilobytes. For example,

```
-title "%m:%f %wx%h"
```

produces an image title of **MIFF:bird.miff 512x480** for an image titled **bird.miff** and whose width is 512 and height is 480.

-treedepth *value*

Normally, this integer value is zero or one. A zero or one tells **animate** to choose a optimal tree depth for the color reduction algorithm.

An optimal depth generally allows the best representation of the source image with the fastest computational speed and the least amount of memory. However, the default depth is inappropriate for some images. To assure the best representation, try values between 2 and 8 for this parameter. Refer to **quantize(9)** for more details.

The **-colors** or **-monochrome** option is required for this option to take effect.

-verbose

print detailed information about the image.

This information is printed: image scene number; image name; image size; the image class (*DirectClass* or *PseudoClass*); the total number of unique colors; and the number of seconds to read and transform the image. Refer to **miff(5)** for a description of the image class.

If **-colors** is also specified, the total unique colors in the image and color reduction error values are printed. Refer to **quantize(9)** for a description of these values.

-visual *type*

animate images using this visual type.

Choose from these visual classes:

StaticGray
GrayScale
StaticColor
PseudoColor
TrueColor
DirectColor
default
visual id

The X server must support the visual you choose, otherwise an error occurs. If a visual is not specified, the visual class that can display the most simultaneous colors on the default screen is chosen.

-window *id*

set the background pixmap of this window to the image.

id can be a window id or name. Specify **root** to select X's root window as the target window.

By default the image is tiled onto the background of the target window. If **-backdrop** or **-geometry** are specified, the image is surrounded by the background color. Refer to **X RESOURCES** for details.

The image will not display on the root window if the image has more unique colors than the target window colormap allows. Use **-colors** to reduce the number of colors.

In addition to those listed above, you can specify these standard X resources as command line options: **-background**, **-bordercolor**, **-borderwidth**, **-font**, **-foreground**, **-iconGeometry**, **-iconic**, **-mattecolor**, **-name**, or **-title**. See **X RESOURCES** for details.

Any option you specify on the command line remains in effect until it is explicitly changed by specifying the option again with a different effect. For example, to animate two images, the first with 32 colors and the second with only 16 colors, use:

```
animate -colors 32 cockatoo.1 -colors 16 cockatoo.2
```

Options are processed in command line order. Any option you specify on the command line remains in effect until it is explicitly changed by specifying the option again with a different effect.

By default, the image format is determined by its magic number. To specify a particular image format, precede the filename with an image format name and a colon (i.e. ps:image) or specify the image type as the filename suffix (i.e. image.ps). See **convert(1)** for a list of valid image formats.

When you specify **X** as your image type, the filename has special meaning. It specifies an X window by id, name, or **root**. If no filename is specified, the window is selected by clicking the mouse in the desired window.

Specify *file* as - for standard input, If *file* has the extension **.Z** or **.gz**, the file is uncompressed with **uncompress** or **gunzip** respectively. Precede the image file name with **|** to pipe from a system command.

Use an optional index enclosed in brackets after a file name to specify a desired subimage of a multi-resolution image format like Photo CD (e.g. img0001.pcd[4]) or a range for MPEG images (e.g. video.mpg[50-75]). A subimage specification can be disjoint (e.g. image.tiff[2,7,4]). For raw images, specify a subimage with a geometry (e.g. -size 640x512 image.rgb[320x256+50+50]).

Single images are read with the filename you specify. Alternatively, you can animate an image sequence with a single filename. Define the range of the image sequence with *-scene*. Each image in the range is read with the filename followed by a period (**.**) and the scene number. You can change this behavior by embedding a **printf** format specification in the file name. For example,

```
-scene 0-9 image%02d.miff
```

animates files image00.miff, image01.miff, through image09.miff.

Image filenames may appear in any order on the command line if the image format is *MIFF* (refer to **miff(5)** and the **scene** keyword is specified in the image. Otherwise the images will display in the order they appear on the command line.

BUTTONS

Press any button to map or unmap the Command widget. See the next section for more information about the Command widget.

COMMAND WIDGET

The Command widget lists a number of sub-menus and commands. They are

```
Animate
  Open
  Play
  Step
```

Repeat
Auto Reverse
Speed
Faster
Slower
Direction
Forward
Reverse
Help
Help
Browse Documentation
About Display
Image Info
Quit

Menu items with a indented triangle have a sub-menu. They are represented above as the indented items. To access a sub-menu item, move the pointer to the appropriate menu and press a button and drag. When you find the desired sub-menu item, release the button and the command is executed. Move the pointer away from the sub-menu if you decide not to execute a particular command.

KEYBOARD ACCELERATORS

Accelerators are one or two key presses that effect a particular command. The keyboard accelerators that **animate(1)** understands is:

Ctl+O Press to load an image from a file.

space Press to display the next image in the sequence.

< Press to speed-up the display of the images. Refer to **-delay** for more information.

> Press to slow the display of the images. Refer to **-delay** for more information.

F1 Press to display helpful information about **animate(1)**.

Find Press to browse documentation about **ImageMagick**.

? Press to display information about the image. Press any key or button to erase the information.

This information is printed: image name; image size; and the total number of unique colors in the image.

Ctl-q Press to discard all images and exit program.

X RESOURCES

animate options can appear on the command line or in your X resource file. Options on the command line supersede values specified in your X resource file. See **X(1)** for more information on X resources.

All **animate** options have a corresponding X resource. In addition, the **animate** program uses the following X resources:

background (*class* Background)
Specifies the preferred color to use for the Image window background. The default is #ccc.

borderColor (*class* BorderColor)
Specifies the preferred color to use for the Image window border. The default is #ccc.

borderWidth (*class* BorderWidth)
Specifies the width in pixels of the Image window border. The default is 2.

font (*class* Font or FontList)
Specifies the name of the preferred font to use in normal formatted text. The default is 14 point *Helvetica*.

foreground (*class* **Foreground)**
Specifies the preferred color to use for text within the Image window. The default is black.

geometry (*class* **geometry)**
Specifies the preferred size and position of the image window. It is not necessarily obeyed by all window managers.

iconGeometry (*class* **IconGeometry)**
Specifies the preferred size and position of the application when iconified. It is not necessarily obeyed by all window managers.

iconic (*class* **Iconic)**
This resource indicates that you would prefer that the application's windows initially not be visible as if the windows had be immediately iconified by you. Window managers may choose not to honor the application's request.

matteColor (*class* **MatteColor)**
Specify the color of windows. It is used for the backgrounds of windows, menus, and notices. A 3D effect is achieved by using highlight and shadow colors derived from this color. Default value: #ddd.

name (*class* **Name)**
This resource specifies the name under which resources for the application should be found. This resource is useful in shell aliases to distinguish between invocations of an application, without resorting to creating links to alter the executable file name. The default is the application name.

sharedMemory (*class* **SharedMemory)**
This resource specifies whether animate should attempt use shared memory for pixmaps. ImageMagick must be compiled with shared memory support, and the display must support the MIT-SHM extension. Otherwise, this resource is ignored. The default is True.

text_font (*class* **textFont)**
Specifies the name of the preferred font to use in fixed (typewriter style) formatted text. The default is 14 point *Courier*.

title (*class* **Title)**
This resource specifies the title to be used for the Image window. This information is sometimes used by a window manager to provide some sort of header identifying the window. The default is the image file name.

ENVIRONMENT

display To get the default host, display number, and screen.

SEE ALSO

display(1), import(1), montage(1), mogrify(1), convert(1), combine(1), xtp(1)

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