

NAME

imfill - fills pixels in part or all of an image

SYNOPSIS

imfill [options] [infilename] outfilename

DESCRIPTION

imfill fills an area of each image in the input file with a color or alpha value and stores the results to the output file. The input and output image file formats may be different.

If no input file is given, imfill creates a new image, filled as directed, and stores the result in the output file.

OPTIONS

imfill has a variety of options in the following five categories:

File Selection	What input and output files to use
Format Selection	What image file format to use
Format Control	What variant of a file format to generate
Standard	Standard generic options on all SDSC tools
Filling	How the image will be filled

File Selection, Format Selection, Format Control, and Standard options are common to all SDSC image tools and are discussed in depth in the man page for imconv(1IM).

All options can be abbreviated to the first few unique characters.

Filling Options

The region of the input image to be filled is defined by six arguments:

-xposition x	Left edge of region
-yposition y	Top edge of position
-xsize w	Width of region
-ysize h	Height of region
-inside	Fill the inside of the region (default)
-outside	Fill the outside of the region

-xposition and -yposition specify the fill region position and are constrained to be within the bounds of the input image. Both -xposition and -yposition default to a value of 0, where (0,0) is the upper-left corner of the image.

-xsize and -ysize give the size of the fill region and are constrained to fit within the bounds of the input image. If these options are not given, the fill region defaults to a rectangle whose upper left corner is at the given fill region position, and which extends to the right and bottom edges of the input image.

-inside and -outside select whether pixels inside or outside the fill region are to be filled. -inside is the default and causes the specified rectangular area of the image to be filled. Pixels outside of this area are copied from the input image to the output image. -outside instead fills the area outside of the fill rectangle. Pixels inside the fill area are copied from the input image to the output image.

Fill values are selected using one or more of the following fill options:

Option	Fill each pixel's
-red range	red component
-green range	green component
-blue range	blue component
-mono range	monochrome component
-index range	color index component
-hue range	hue component
-saturation range	saturation component
-intensity range	intensity component
-alpha range	alpha compoent

Multiple fill options may be given, as long as color spaces are not mixed. For instance, -index for filling color indexes is incompatible with -red for filling the red component of RGB triplets. Likewise, -hue for filling pixels based upon an HSI color space hue value is incompatible with -blue for filling with blue in the RGB color space. See the imintro(3IM) man page for a description of the RGB and HSI color spaces.

If imfill is directed to fill the alpha component of an image that does not have an alpha channel, an alpha channel is created and initialized to 0s (transparent).

If imfill is directed to fill a pixel component that does not exist in the input image (except for alpha), an error is reported.

Input image components not selected for filling by a fill option are copied to the output image untouched. For instance, an image's alpha plane may be initialized to 255 (opaque) without affecting RGB or color index components of pixels. Likewise, an image's RGB red channel may be filled without its green and blue components being affected.

Each of the fill options can accept an argument giving a single value, or range of values with which to fill. Value range syntax takes any one of the following forms:

range	Fill with values of
n	n only.
n-	n through the maximum legal value for the component.
n-m	n through m.

There is no space between n, the dash, and m. n need not be a value less than m.

When filling with a single value, the entire fill region is set to the same value.

When a range of fill values are given, such as -red 0-255 or -intensity 0.6-0.2, the fill region will be filled with a gradation, or ramp, as selected by the -graduate option's argument:

option	Meaning
-graduate none	Fill with a constant value
-graduate horizontal	Fill with a horizontal ramp (default)
-graduate vertical	Fill with a vertical ramp

none, horizontal, and vertical may each be abbreviated to the fewest unique letters.

The horizontal ramp for a graduated fill starts from the first fill value at the left edge of the fill area and goes to the second fill value at the right edge. The vertical ramp for a graduated fill goes from the first fill value at the top edge of the fill area to the second fill value at the bottom edge.

NOTES

Error messages are reported to stderr.

For notes regarding file format conversion and standard image tool options, see the man page for `imconv(1IM)`.

If the output file format cannot support the storage of an alpha channel (many cannot), any alpha channel created or filled by `imfill` will be silently discarded when the output file is written. `imformats(1IM)` may be used to review a list of file format attributes in order to choose an image file format that supports alpha channel storage.

With no fill options, the actions of `imfill` default to the same as the SDSC image format conversion tool `imconv(1IM)`, but they take a little longer.

`imfill` is useful for filling rectangular areas of images to a constant or ramped color. To change only selected pixels of an image, such as all black pixels, or all pixels with saturation values over 0.8, use the pixel value adjustment tool `imadjust(1IM)`.

Different pixel components have different types and different minimum and maximum values.

Value	Type	Minimum	Maximum
-red	Integer	0	255
-green	Integer	0	255
-blue	Integer	0	255
-mono	Integer	0	1
-index	Integer	0	255 or 65535
-hue	Float	0.0	360.0
-saturation	Float	0.0	1.0
-intensity	Float	0.0	1.0
-alpha	Integer	0	255

EXAMPLES

Create a 640 x 480 RGB Sun raster file filled with black:

```
imfill -xsize 640 -ysize 480 -red 0 -green 0 -blue 0 rgbblack.ras
```

Add an alpha channel to an Alias PIX image, initialize it to 255s, and save it to an HDF file:

```
imfill image.pix -alpha 255 image_alpha.hdf
```

Fill a rectangle in a Sun raster file with white, and store the result as a Silicon Graphics RGB file:

```
imfill map.ras mapwhite.rgb -xposition 50 -yposition 50 -xsize 50 -ysize 50 -red 255 -blue 255 -green 255
```

Fill outside the rectangle instead of inside it:

```
imfill map.ras mapwhite.rgb -xposition 50 -yposition 50 -xsize 50 -ysize 50 -red 255 -blue 255 -green 255 -outside
```

Create a new image with a horizontal ramp shading from blue to red:

```
imfill -xsize 200 -ysize 200 -red 20-120 -blue 150-50 purple.rgb
```

Create a new image with a vertical ramp shading from dark grey to light grey:

```
imfill -xsize 200 -ysize 200 -intensity .2-.6 -graduate vertical grey.rgb
```

Fill an image with a ramp in hue, while leaving pixel saturation and intensity the same (this creates a neat effect!):

```
imfill face.rgb -hue 0.0-360.0 colorface.rgb
```

Fill a portion of a color indexed Sun raster file image with index values of 0 (often set to black), and save the result as an RGB Sun raster file:

```
imfill -xpos 10 -ypos 20 -xsize 100 -ysize 12 -index 0 -outrgb in.ras out.ras
```

Fill a Silicon Graphics RGB image file with a ramp in green, then save the image as a color index Sun raster file:

```
imfill rgbimage.rgb -green 0-255 -outindex indeximage.ras
```

SEE ALSO

imadjust (1IM), imcomp (1IM), imdissolve (1IM), ImVfbFill (3IM)

For information on SDSC's image library, see imintro(3IM).

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See the individual file format man pages for the authors of the underlying format read and write code. The names of these man pages begin with the letters "im," followed by the format name. For example, the name of the TIFF man page is imtiff. To display it, enter man imtiff.

CONTACT

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