NAME

rad2tiff – convert Radiance file to a TIFF file

SYNOPSIS

rad2tiff [*options*] {*input.hdr* | −} *output.tif*

DESCRIPTION

Convert Radiance file to a TIFF file. The input can optionally be "−", indicating that the input image should be read from standard input. Output TIFF file can be either 32 bit float RGB (default) or 8 bit RGB.

By convention, when a Radiance file is created the magnitude of the numeric pixel values in the Radiance file are scaled to be in a range suitable for direct display, assuming a value of 1.0 equals the maximum value in each component. The EXPOSURE record in the Radiance header is then used to specify the scaling conversion to radiometric units. By default, **rad2tiff** preserves this functionality, using the TIFF STONIT tag to represent the scaling factor.

If a VIEW record is available in the header of the input Radiance file, the program sets the FocalLengthIn35mmFormat EXIF tag in the output TIFF file. This allows keeping track of the field of view, which is important in the devas-filter workflow.

OPTIONS

−−ldr Output is 8 bit RGB (low dynamic range, aka LDR) TIFF file, using the sRGB color profile. **−−sRGBencoding** is implied. Note that this is different from the behavior of the Radiance **ra_tiff** program, which uses straight gamma-based luminance encoding. The non-linear sRGB luminance encoding will generally result in more accurate color rendition on modern displays than does the gamma-based Radiance encoding. Radiance R, G, and B color primaries are also converted to sRGB color primaries, though this usually has little or no visual effect.

−−exposure=*stop*

Adjust the exposure of the output file relative to the input file, specified in f-stops (powers of two). E.g., **−−exposure=+2** increases the luminance in the output by a factor or four, while **−−exposure=-1** decreases the luminance by half. Fractional values are allowed.

−−autoadjust

Auto adjust brightness values to be in an approximately displayable range. Can be combined with **−−exposure=***stop*. Mostly for use with **−−ldr**.

−−original-units

Apply the scaling specified by the Radiance EXPOSURE record before conversion. This will result in correctly scaled radiometric units in the output TIFF file. Can be combined with **−−exposure=***stop*.

−−photometric-units

Apply the scaling specified by the Radiance EXPOSURE record and then convert to photometric (liminance) units, as used in the Radiance XYZE format. This will result in correctly scaled photometric units in the output TIFF file. Can be combined with **−−exposure=***stop*.

−−fullrange

With **−−ldr**, remaps the brightness brightness range to cover nearly all of the 8-bit range (the top 5% of the range is excluded, to avoid problems with LCD clipping). Without **−−ldr**, the range of brightness is remapped to [0.0--0.95].

−−sRGBencoding

Use sRGB primaries in output file. This usually has little or no visual effect. Implied by the **−−ldr** flag.

−−compresszip

Use zip compression for output.

−−compresszipp

Use zip compression with prediction for output.

−−compresslzw
Use LZW compression for output.

−−compresslzwp
Use LZW compression with predittion for output.

EXAMPLES

To convert a Radiance image to 8-bit/color TIFF:

rad2tiff --ldr input.hdr output.tif

To convert a Radiance image to 8-bit/color TIFF with mild lightening:

rad2tiff --ldr --exposure=1.0 input.hdr output.tif

To convert a Radiance image to 8-bit/color TIFF with moderate darkening:

rad2tiff --ldr --exposure=-2.0 input.hdr output.tif

To convert a Radiance image to 32-bit/color floating point TIFF:

rad2tiff input.hdr output.tif

This will copy the numeric values in the Radiance file to the TIFF file as-is, with the scaling factor specified in the Radiance EXPOSURE record encorporated into the STONITS tag of the TIFF image.

To convert a Radiance image to 32-bit/color floating point TIFF, converting the numeric values in the Radiance file radiometric units in the TIFF file:

rad2tiff --original-units input.hdr output.tif

Use this if the TIFF file will be processed by software that expects radiometric values but does not process the STONITS TIFF tag.

To convert a Radiance image to 32-bit/color floating point TIFF, converting the numeric values in the Radiance file photometric units in the TIFF file:

rad2tiff --photometric-units input.hdr output.tif

Use this if the TIFF file will be processed by software that expects photometric values but does not process the STONITS TIFF tag.

LIMITATIONS

When converted to 8-bit/color TIFF images using the **−−ldr** option, many high dynamic range Radiance images will required tone mapping more sophisticated than provided by this program. (See the Radiance routines **pcond** and **normtiff**).

The **−−autoadjust** option is not particularly sophisticated, and often produces less that desirable results. This is particularly true if there are regions in the image that much brighter than the rest of the image.

The FocalLengthIn35mmFormat is stored as an integer, and as a result field-of-view information is subject to quantization error.

Does not currently support writing of Logluv encoded TIFF files.

AUTHOR

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