NAME
      bmeps − convert PNG/JPEG/NetPBM to EPS

SYNOPSIS
      bmeps [<options>] [<inputfile> [<outputfile>]]

DESCRIPTION
      The bmeps package consists of a command line tool and a library for bitmap-to-EPS conversion.

      Depending on the libraries installed on your system bmeps can convert PNG, JPEG and NetPBM files to EPS.

      The EPS images are intended for use with text processing and DTP systems (i.e. LaTeX), not for direct printing. No attempts are made to fit pages of any paper size, scaling and rotating is left up to the text processing software using the EPS images.

      You can produce EPS level 1, 2 or 3. Different compression and encoding mechanisms are available: run-length-compression (requires EPS level 2), flate compression (requires EPS level 3) and ASCII−85−encoding (requires EPS level 3).

      Alpha channels in PNG files can be used to mix against a user specified background colour and/or to create an image mask for EPS level 3 output files.

OPTIONS
      −V

      Sets verbose mode. By default the bmeps program does not print error messages, only the exit code is set. In verbose mode the program prints messages to stderr.

      −p*pslevel*

      Chooses EPS level *1*, *2* or *3*.

      −c or **−g**

      Selects coloured output (c) or enforces grayscaled (g) output. Coloured output requires EPS level 2 or above.

      −e*encoding*

      Enables compression and encoding mechanisms. *encoding* is a string consisting of key characters representing encodings to enable:

      * 8 ASCII−85−encoding. Requires EPS level 2 or above.

      * r Run−length−compression. Requires EPS level 2 or above. =back

      * f Flate compression. Requires EPS level 3 or above.

      −s

      This option enables output of DSC comments. DSC comment output is disabled by default, except bounding box output.

      −o

      Version 1.0.9 and above do not use the showpage operator by default. Usage of the showpage operator can be turned on using the −o option.

      −u

      The dictionary /pstr and /inputf are undefined at the end of bmeps output. The −u option forces the use of a separated dictionary for these entries. This dictionary is removed from the dictionary stack at the end of bmeps output.

      −r

      A garbage collection in the local memory using ''1 vmreclaim'' can be forced using this option.

      −q

      This option sets up bmeps to write the EPS file using the resolution information found in the PNG file's pHYs chunk (if there is any). This option is not recommended to produce images for inclusion in LaTeX documents or DTP applications, use it only for images to be viewed standalone (i.e. in Ghostscript).

–b
> Only generates only line containing the bounding box information.

–d
> Switches to draft mode. In draft mode no real image conversion is done, a simple gray rectangle is printed instead.

–a*alpha-channel-options*
> Specifies how to handle an alpha channel in a PNG image. Without this option the image is mixed against a white background. If the -a option is present and EPS output level is 3 or above an image mask is created. The *alpha-channel-options* can be used for a detailed setup. This string consists of the following optional components:

> **o** or **t**   specifies whether the alpha channel expresses opacity (o, default) or transparency (t).

> **m**   mix against background in addition to creating an image mask. By default the background colour from the PNG background chunk is used.

> *ddd,ddd,ddd*
> > provides a default background colour which is used if the PNG file does not contain a background chunk. The decimal numbers build up an RGB triple, i.e. 128,255,128 for light green.

> **s**   ignores a PNG background chunk and uses the user specified background regardless whether or not the PNG file contains a background chunk.

> **l**   inverts the image mask triggering level. By default only opacity=0 pixels are masked. When using the l option only pixels with full opacity are drawn, all others are masked.

RETURN VALUE
> On successfull completion the program returns 0, otherwise 1.

OPTIONS EXAMPLE
> To convert the file file.png to file.eps use

```
bmeps -p3 -c -erf8 file.png file.eps
```

> EPS level 3 is used, output is coloured. The combination of run–length–compression, flate compression and ASCII–85–encoding is used to minimize output size.

> If the document contain the EPS file must be printed on an older EPS level 2 grayscale printer use

```
bmeps -p2 -g -er8 file.png
```

ENVIRONMENT
> Default options can be set up in the EPSOUTPUT environment variable. The variable contains a string consisting of the following components:

> * EPS level
> > Use character **1**, **2** or **3** to set the EPS level

> * Coloured or grayscaled output
> > Use the character **c** for coloured output, **g** for grayscaled output.

> * Compression and encoding mechanisms
> > Use the characters **r**, **f**, **8** or combinations to enable run-length compression (r), flate compression (f) and ASCII–85–encoding (8).

> * DSC comments
> > The character **x** turns printing of DSC comments on.

> * Showpage operator
> > The **h** character allows use of the showpage operator.

> * Separated dictionary for /pstr and /inputf
> > The **u** character forces the use of a separated dictionary for /pstr and /inputf to avoid interferences with an enclosing document.

* Garbage collection

  A garbage collection in the local memory by an ''1 vmreclaim'' command can be forced using the **v** character.

* Exact resolution

  The **e** character sets up bmeps to use the same resolution when writing the EPS output as found in the PNG input file's pHYs chunk (if there is any). Using this feature is not recommended for images included by LaTeX documents or DTP applications, it should be used to create EPS images for standalone viewing only.

* Alpha channel handling

  Use the character **a** followed by an optional alpha-options string to set up alpha channel handling. The alpha-options string consists of the following optional components:

  * Character **o** or **t**

    indicates whether the alpha channel expresses opacity (default) or transparency.

  * Character **l**

    turns the trigger level from ''mask only opacity=0'' pixels to ''draw only full opacity pixels''.

  * Character **m**

    enables mixing against a background colour in addition to image mask creation.

  * A *ddd,ddd,ddd* decimal RGB-triple

    specifies a default background colour to use if there is no background chunk in the PNG file.

  * Character **s**

    always uses the specified background colour for mixing, the background chunk is ignored.

ENVIRONMENT EXAMPLES

In a Bourne shell use

```
EPSOUTPUT=3crf8am128,255,255s
export EPSOUTPUT
```

to set default options to EPS level 3, coloured output, run-length compression, flate compression and ASCII−85−encoding, image mask creation and mixing always against a light green background.

In a C shell use

```
setenv EPSOUTPUT 2g8r
```

to set default options to EPS level 2, grayscaled output, run-length compression and ASCII−85−encoding. This is suitable for most office printers.

On the DOS prompt box use

```
set EPSOUTPUT=3cf8
```

to set default options to EPS level 3, coloured output, flate compression and ASCII−85−encoding. This is suitable for output which is viewed and processed by PostScript interpreters, ie.e GhostScript.

RESTRICTIONS

Conversion maps 1 PNG pixels to a pixel of 1 PS point width. No scaling or rotating is done by bmeps to fit output into any paper size. The application including the EPS file into any document is responsible for scaling and rotating.

NOTES

bmeps and LaTeX (unmodified dvips)

The bmeps program was originally created to insert screenshots into LaTeX documents. To include PNG files the `graphicx` package is needed. In the preamble write a graphics rule

```
\DeclareGraphicsRule{.png}{eps}{.bb}{`bmeps #1}
```

telling LaTeX that PNG files (having file name suffix .png) can be converted to EPS. If LaTeX finds an instruction to include a *.png file it reads a *.bb file (same file name but .bb suffix) to read a bounding box

information to calculate the aspect ration (width/height relation). This bounding box file can be created by using the **−b** option. If you have a PNG file image.png run

```
bmeps -b image.png image.bb
```

In the LaTeX document include the image using a

```
\includegraphics[width=\linewidth]{image.png}
```

line. If dvips processes the dvi file and needs to include the PNG file it runs `bmeps image.png`. If only an input file name is specified on the bmeps command line output goes to the standard output which is processed by dvips here and transferred to the final print job.

Although one could specify conversion options in the `\DeclareGraphisRule` line this is not recommended. When including images in LaTeX documents it is recommended to use the EPSOUTPUT environment variable to set up the conversion.

bmeps and LaTeX (modified dvips)

The bmeps package also contains suggestions how to modify dvips. To check whether or not your dvips is modified, run

```
dvips --help
```

If the output contains "I s image options" dvips can handle PNG images itself and does not need to run bmeps as an external process for each image. In this case the graphics rule declaration looks like this:

```
\DeclareGraphicsRule{.png}{eps}{.bb}{}
```

Conversion options can be set up either in the EPSOUTPUT variable or on the command line, i.e.

```
dvips -I 2gr8 ...
```

SEE ALSO

There is more documentation available in HTML and PDF format. Typically this documentation is installed "near" the bmeps binary in a directory `../docu`.

AUTHOR

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