User manual for old pnm functions

pnm Functions

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NAME

libpnm - libnetpbm functions to read and write PNM image files

SYNOPSIS

#include <pnm.h>

void pnm_init(int **argcP*, char **argv*[]);

xel ** pnm_allocarray(int *cols*, **int** *rows*);

xel * pnm_allocrow(int *cols*);

void pnm_freearray(xel ***xels*, **int *rows*);

void pnm_freerow(xel **xelrow*);

void pnm_readpnminit(FILE **fp*, int **colsP*, int **rowsP*, xelval **maxvalP*, int **formatP*);

void pnm_readpnmrow(FILE **fp*, xel **xelrow*, int *cols*,
xelval *maxval*, **int** *format*);

**xel ** pnm_readpnm(FILE **fp*, int **colsP*, int **rowsP*,
xelval **maxvalP*, int* formatP *);*

void pnm_writepnminit(FILE * fp , int *cols*, **int** *rows*, **xelval** *maxval*, **int** *format*, **int** *forceplain*);

void pnm_writepnmrow(FILE **fp*, xel **xelrow*, int cols, **xelval** *maxval*, **int** *format*, **int** *forceplain*);

void pnm_writepnm(FILE **fp*, xel ** *xels*, **int *cols*, **int** *rows*, **xelval** *maxval*, **int** *format*, **int** *forceplain*);

void pnm_check(FILE * *file*, const enum pm_check_type *check_type*, **const int** *format*, **const int** *cols*, **const int** *rows*, **const xelval** *maxval*, **enum pm_check_code **retvalP*);**

void pnm_promoteformatrow(xel **xelrow*, int *cols*, **xelval** *maxval*, **int** *format*, **xelval** *newmaxval*, **int** *newformat*);

void pnm_promoteformat(xel ***xels*, int *cols*, **xelval** *maxval*, **int** *format*, **xelval** *newmaxval*, **int** *newformat*);

xel pnm_whitexel(xelval *maxval*, **int** *format*);

xel pnm_blackxel(xelval *maxval*, **int** *format*);

void pnm_invertxel(xel **x*, xelval *maxval*, **int** *format*);

xel pnm_backgroundxelrow(xel **xelrow*, int *cols*, **xelval** *maxval*, **int** *format*);

xel pnm_backgroundxel(xel ***xels*, int *cols*, **int** *rows*, **xelval** *maxval*, **int** *format*);

typedef ... xelval;

typedef ... xel;

extern xelval pnm_pbmmaxval;

#define PNM_ASSIGN1(*x*,*v***)**

#define PNM_GET1(*x***)**

#define PNM_EQUAL(*x***,***y***)**

#define PNM_FORMAT_TYPE(*format***)**

DESCRIPTION

These library functions are part of Netpbm.

PNM TYPES AND CONSTANTS

Each **xel** contains three **xelval**s, each of which should contain only the values between **0** and **PNM_MAXMAXVAL**, inclusive. **pnm_pbmmaxval** is the maxval used when a PNM program reads a PBM file. Normally it is 1; however, for some programs, a larger value gives better results.

PNM XEL MANIPULATIONS

The **PNM_GET1** macro extracts a single value from an xel, when you know it's from a PBM or PGM file. When it's from a PPM file, use **PPM_GETR()**, **PPM_GETG()**, and **PPM_GETB()**.

The **PNM_ASSIGN1** macro assigns a single value to an xel, when you know it's from a PBM or PGM file. When it's from a PPM file, use **PPM_ASSIGN**. The **PNM_EQUAL** macro checks two xels for equality. The **PNM_FORMAT_TYPE** macro computes a format type code from a format code. The format types are PBM, PGM, PPM, and PAM. But note that PBM, PGM, and PPM each are two different formats: a plain one and a raw one. So there are four format types, but seven formats. **PNM_FORMAT_TYPE** does not work on the PAM format code.

INITIALIZATION

pnm_init is identical to **pm_init()**.

MEMORY MANAGEMENT

pnm_allocarray() allocates space for an array of xels. **pnm_freearray()** frees an array space allocated by **pnm_allocarray()** or **pnm_readpnm()**.

pnm_allocrow() allocates space for a row of a PNM image. **pnm_freerow()** frees it.

READING PNM FILES

pnm_readpnminit() is similar to **pnm_readpaminit()**, but reads only PNM images and has a different parameter list.

pnm_readpnmrow() is similar to **pnm_readpamrow()** but only works on PNM images and has a different parameter list and returns the row as an array of xels instead of tuples.

pnm_readpnm() is similar to **pnm_readpam()** except that it reads only PNM images and uses a different parameter list and returns an array of rows such that **pnm_readpnmrow()** would return rather than such that **pnm_readpamrow()** would return.

WRITING FILES

pnm_writepnminit() is similar to **pnm_writepaminit()** except that it can write only a PNM header and has a different parameter list.

forceplain is a binary value. True (nonzero) means to write the image in the plain (ASCII) version of the selected format. False (zero) means to write it in the raw (binary) version of the selected format. See PNM format specification.

pnm_writepnmrow() is similar to **pnm_writepamrow()** except that it works only on PNM images and has a different parameter list and takes an array of xels instead of an array of tuples. See the description of *forceplain* above.

pnm_writepnm() is similar to **pnm_writepam()** except that it works only on PNM image, has a different parameter list, and takes an array of rows of xels instead of an array of rows of tuples. See the description of *forceplain* above.

MISCELLANEOUS

pnm_check() is similar to **pnm_checkpam()** except it works only on PNM images.

pnm_check() is identical to **ppm_check()**.

PNM FORMAT PROMOTION

pnm_promoteformatrow() promotes a row of xels from one maxval and format to a new set. Use this when you are combining multiple anymaps of different types - just take the maximum of the maxvals and the maximum of the formats, and promote them all to that.

pnm_promoteformat() promotes an entire anymap.

PNM XEL MANIPULATION

pnm_whitexel() and **pnm_blackxel()** return a white or black xel, respectively, for the given *maxval* and *format*.

pnm_invertxel() inverts an xel.

pnm_backgroundxelrow() figures out an appropriate background xel based on the row of xels *xelrow*, which is *cols* xels wide, has maxval *maxval*, and represents an image with format *format*.

This estimate works best when the row is the top or bottom row of the image.

pnm_backgroundxel() does the same thing as **pnm_backgroundxelrow()**, except based on an entire image instead of just one row. This tends to do a slightly better job than **pnmbackgroundxelrow()**.

SEE ALSO

Libnetpbm, **Libnetpbm User's Guide**, **Libnetpbm Directory**, **pbm**, **pgm**, **ppm**, **pam**, **libpbm**, **libpgm**, **libppm**

AUTHOR

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