CHANGE LOG for Independent JPEG Group's JPEG software

Version 6b 27-Mar-1998

-----------------------

jpegtran has new features for lossless image transformations (rotation

and flipping) as well as "lossless" reduction to grayscale.

jpegtran now copies comments by default; it has a -copy switch to enable

copying all APPn blocks as well, or to suppress comments. (Formerly it

always suppressed comments and APPn blocks.) jpegtran now also preserves

JFIF version and resolution information.

New decompressor library feature: COM and APPn markers found in the input

file can be saved in memory for later use by the application. (Before,

you had to code this up yourself with a custom marker processor.)

There is an unused field "void \* client\_data" now in compress and decompress

parameter structs; this may be useful in some applications.

JFIF version number information is now saved by the decoder and accepted by

the encoder. jpegtran uses this to copy the source file's version number,

to ensure "jpegtran -copy all" won't create bogus files that contain JFXX

extensions but claim to be version 1.01. Applications that generate their

own JFXX extension markers also (finally) have a supported way to cause the

encoder to emit JFIF version number 1.02.

djpeg's trace mode reports JFIF 1.02 thumbnail images as such, rather

than as unknown APP0 markers.

In -verbose mode, djpeg and rdjpgcom will try to print the contents of

APP12 markers as text. Some digital cameras store useful text information

in APP12 markers.

Handling of truncated data streams is more robust: blocks beyond the one in

which the error occurs will be output as uniform gray, or left unchanged

if decoding a progressive JPEG. The appearance no longer depends on the

Huffman tables being used.

Huffman tables are checked for validity much more carefully than before.

To avoid the Unisys LZW patent, djpeg's GIF output capability has been

changed to produce "uncompressed GIFs", and cjpeg's GIF input capability

has been removed altogether. We're not happy about it either, but there

seems to be no good alternative.

The configure script now supports building libjpeg as a shared library

on many flavors of Unix (all the ones that GNU libtool knows how to

build shared libraries for). Use "./configure --enable-shared" to

try this out.

New jconfig file and makefiles for Microsoft Visual C++ and Developer Studio.

Also, a jconfig file and a build script for Metrowerks CodeWarrior

on Apple Macintosh. makefile.dj has been updated for DJGPP v2, and there

are miscellaneous other minor improvements in the makefiles.

jmemmac.c now knows how to create temporary files following Mac System 7

conventions.

djpeg's -map switch is now able to read raw-format PPM files reliably.

cjpeg -progressive -restart no longer generates any unnecessary DRI markers.

Multiple calls to jpeg\_simple\_progression for a single JPEG object

no longer leak memory.

Version 6a 7-Feb-96

--------------------

Library initialization sequence modified to detect version mismatches

and struct field packing mismatches between library and calling application.

This change requires applications to be recompiled, but does not require

any application source code change.

All routine declarations changed to the style "GLOBAL(type) name ...",

that is, GLOBAL, LOCAL, METHODDEF, EXTERN are now macros taking the

routine's return type as an argument. This makes it possible to add

Microsoft-style linkage keywords to all the routines by changing just

these macros. Note that any application code that was using these macros

will have to be changed.

DCT coefficient quantization tables are now stored in normal array order

rather than zigzag order. Application code that calls jpeg\_add\_quant\_table,

or otherwise manipulates quantization tables directly, will need to be

changed. If you need to make such code work with either older or newer

versions of the library, a test like "#if JPEG\_LIB\_VERSION >= 61" is

recommended.

djpeg's trace capability now dumps DQT tables in natural order, not zigzag

order. This allows the trace output to be made into a "-qtables" file

more easily.

New system-dependent memory manager module for use on Apple Macintosh.

Fix bug in cjpeg's -smooth option: last one or two scanlines would be

duplicates of the prior line unless the image height mod 16 was 1 or 2.

Repair minor problems in VMS, BCC, MC6 makefiles.

New configure script based on latest GNU Autoconf.

Correct the list of include files needed by MetroWerks C for ccommand().

Numerous small documentation updates.

Version 6 2-Aug-95

-------------------

Progressive JPEG support: library can read and write full progressive JPEG

files. A "buffered image" mode supports incremental decoding for on-the-fly

display of progressive images. Simply recompiling an existing IJG-v5-based

decoder with v6 should allow it to read progressive files, though of course

without any special progressive display.

New "jpegtran" application performs lossless transcoding between different

JPEG formats; primarily, it can be used to convert baseline to progressive

JPEG and vice versa. In support of jpegtran, the library now allows lossless

reading and writing of JPEG files as DCT coefficient arrays. This ability

may be of use in other applications.

Notes for programmers:

\* We changed jpeg\_start\_decompress() to be able to suspend; this makes all

decoding modes available to suspending-input applications. However,

existing applications that use suspending input will need to be changed

to check the return value from jpeg\_start\_decompress(). You don't need to

do anything if you don't use a suspending data source.

\* We changed the interface to the virtual array routines: access\_virt\_array

routines now take a count of the number of rows to access this time. The

last parameter to request\_virt\_array routines is now interpreted as the

maximum number of rows that may be accessed at once, but not necessarily

the height of every access.

Version 5b 15-Mar-95

---------------------

Correct bugs with grayscale images having v\_samp\_factor > 1.

jpeg\_write\_raw\_data() now supports output suspension.

Correct bugs in "configure" script for case of compiling in

a directory other than the one containing the source files.

Repair bug in jquant1.c: sometimes didn't use as many colors as it could.

Borland C makefile and jconfig file work under either MS-DOS or OS/2.

Miscellaneous improvements to documentation.

Version 5a 7-Dec-94

--------------------

Changed color conversion roundoff behavior so that grayscale values are

represented exactly. (This causes test image files to change.)

Make ordered dither use 16x16 instead of 4x4 pattern for a small quality

improvement.

New configure script based on latest GNU Autoconf.

Fix configure script to handle CFLAGS correctly.

Rename \*.auto files to \*.cfg, so that configure script still works if

file names have been truncated for DOS.

Fix bug in rdbmp.c: didn't allow for extra data between header and image.

Modify rdppm.c/wrppm.c to handle 2-byte raw PPM/PGM formats for 12-bit data.

Fix several bugs in rdrle.c.

NEED\_SHORT\_EXTERNAL\_NAMES option was broken.

Revise jerror.h/jerror.c for more flexibility in message table.

Repair oversight in jmemname.c NO\_MKTEMP case: file could be there

but unreadable.

Version 5 24-Sep-94

--------------------

Version 5 represents a nearly complete redesign and rewrite of the IJG

software. Major user-visible changes include:

\* Automatic configuration simplifies installation for most Unix systems.

\* A range of speed vs. image quality tradeoffs are supported.

This includes resizing of an image during decompression: scaling down

by a factor of 1/2, 1/4, or 1/8 is handled very efficiently.

\* New programs rdjpgcom and wrjpgcom allow insertion and extraction

of text comments in a JPEG file.

The application programmer's interface to the library has changed completely.

Notable improvements include:

\* We have eliminated the use of callback routines for handling the

uncompressed image data. The application now sees the library as a

set of routines that it calls to read or write image data on a

scanline-by-scanline basis.

\* The application image data is represented in a conventional interleaved-

pixel format, rather than as a separate array for each color channel.

This can save a copying step in many programs.

\* The handling of compressed data has been cleaned up: the application can

supply routines to source or sink the compressed data. It is possible to

suspend processing on source/sink buffer overrun, although this is not

supported in all operating modes.

\* All static state has been eliminated from the library, so that multiple

instances of compression or decompression can be active concurrently.

\* JPEG abbreviated datastream formats are supported, ie, quantization and

Huffman tables can be stored separately from the image data.

\* And not only that, but the documentation of the library has improved

considerably!

The last widely used release before the version 5 rewrite was version 4A of

18-Feb-93. Change logs before that point have been discarded, since they

are not of much interest after the rewrite.