HDF5 1.8.4-patch1

Version	HDF5 1.8.4-patch1
Release Date	2010-02-23
Download	/ftp/HDF5/releases/hdf5-1.8/hdf5-1.8.4-patch1/
Release Notes	Release Notes

Release Notes:

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HDF5 version 1.8.4-patch1 released on Tue Feb 23 11:31:09 CST 2010
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INTRODUCTION
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This document describes the differences between HDF5-1.8.3 and
HDF5 1.8.4, and contains information on the platforms tested and
known problems in HDF5-1.8.4
For more details, see the files HISTORY-1_0-1_8_0_rc3.txt
and HISTORY-1_8.txt in the release_docs/ directory of the HDF5 source.

Links to the HDF5 1.8.4 source code, documentation, and additional materials
can be found on the HDF5 web page at:

     http://www.hdfgroup.org/products/hdf5/

The HDF5 1.8.4 release can be obtained from:

     http://www.hdfgroup.org/HDF5/release/obtain5.html

User documentation for 1.8.4 can be accessed directly at this location:

     http://www.hdfgroup.org/HDF5/doc/

New features in the HDF5-1.8.x release series, including brief general
descriptions of some new and modified APIs, are described in the "What's New
in 1.8.0?" document:

     http://www.hdfgroup.org/HDF5/doc/ADGuide/WhatsNew180.html

All new and modified APIs are listed in detail in the "HDF5 Software Changes
from Release to Release" document, in the section "Release 1.8.4 (current
release) versus Release 1.8.3":

     http://www.hdfgroup.org/HDF5/doc/ADGuide/Changes.html

If you have any questions or comments, please send them to the HDF Help Desk:

     help@hdfgroup.org


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New Features
============

    Configuration

    - Configuration suite now uses Automake 1.11 and Autoconf 2.64.
      MAM 2009/08/31.
    - Changed default Gnu fortran compiler from g95 to gfortran since
      gfortran is more likely installed with gcc now. -AKC 2009/07/19-

    Library

    - The embedded library information is displayed by H5check_version() if a
      version mismatch is detected. Also changed H5check_version() to
      suppress the warning message totally if $HDF5_DISABLE_VERSION_CHECK is 2
      or higher. (Old behavior treated 3 or higher the same as 1, that is
      print a warning and allows the program to continue. (AKC - 2009/9/28)
    - If a user does not care for the extra library information insert
      in the executables, he may turn it off by --disable-embedded-libinfo
      during configure. (AKC - 2009/9/15)

    Parallel Library

    - None

    Tools

    - h5diff: h5diff treats two INFINITY values different. Fixed by checking
      (value==expect) before call ABS(...) at h5diff_array.c. This will make
      that (INF==INF) is true (INF is treated as an number instead of NaN)
      (PC -- 2009/07/28)
    - h5diff: add option "--use-system-epsilon" to print difference if
      (|a-b| > EPSILON).
      Change default to use strict equality (PC -- 2009/09/12)

    High-Level APIs

    - None

    F90 API

     - Added H5Oopen_by_addr_f MSB - 9/14/09

    C++ API

    - None

Support for New Platforms, Languages, and Compilers

```
==================================================
    - PathScale compilers are recognized and can build the HDF5 library
      properly. AKC - 2009/7/28 -


Bug Fixes since HDF5-1.8.4
==========================

    Library
    -------
    - Fixed a bug where fractal heap IDs for attributes and shared object
      header messages could be incorrectly encoded in the file for files
      created on big-endian platforms.
      Please see http://www.hdfgroup.org/HDF5/release/known_problems if you
      suspect you have a file with this problem.  QAK - 2010/02/23 - 1755


Bug Fixes since HDF5-1.8.3
==========================

    Configuration
    -------------
    - Removed the following config files, as we no longer support them:
        config/dec-osf*, config/hpux11.00, config/irix5.x,
        config/powerpc-ibm-aix4.x config/rs6000-ibm-aix5.x config/unicos*
      MAM - 2009/10/08
    - Modified configure and make process to properly preserve user's CFLAGS
      (and company) environment variables. Build will now properly use
      automake's AM_CFLAGS for any compiler flags set by the configure
      process. Configure will no longer modify CFLAGS directly, nor will
      setting CFLAGS during make completely replace what configure has set up.
      MAM - 2009/10/08
    - Support for TFLOPS, config/intel-osf1, is removed since the TFLOPS
      machine has long retired. AKC - 2009/10/06.
    - Added $(EXEEXT) extension to H5detect when it's executed in the
      src/Makefile to generate H5Tinit.c so it works correctly on platforms
      that require the full extension when running executables.
      MAM - 2009/10/01 - BZ #1613
    - Configure will now set FC and CXX to "no" when fortran and c++
      are not being compiled, respectively, so configure will not run
      some of the compiler tests for these languages when they are not
      being used. MAM - 2009/10/01
    - The --enable-static-exec flag will now properly place the -static flag
      on the link line of all installed executables. This will force the
      executable to link with static libraries over shared libraries, provided
      the static libraries are available. MAM - 2009/08/31 - BZ #1583
    - The PathScale compiler (v3.2) was mistaken as gcc v4.2.0 but it fails to
      recognize some gcc options. Fixed. (see bug 1301). AKC - 2009/7/28 -

    Library
    -------
    - Fixed a bug where writing and deleting many global heap objects (i.e.
      variable length data) would render the file unreadable.  Previously
      created files exhibiting this problem should now be readable.
      NAF - 2009/10/27 - 1483
    - Fixed error in library's internal caching mechanisms which could cause
      an assertion failure (and attendent core dump) when encountering an
      unusually formatted file.  (QAK - 2009/10/13)
    - Fixed incorrect return value for H5Pget_preserve. AKC - 2009/10/08 - 1628
```

- Fixed an assertion failure that occurred when H5Ocopy was called on a
  dataset using a vlen inside a compound. NAF - 2009/10/02 - 1597
- Fixed incorrect return value for H5Pget_filter_by_id1/2 in H5Ppublic.h.
  NAF - 2009/09/25 - 1620
- Fixed a bug where properties weren't being compared with the registered
  compare callback. NAF - 2009/09/25 - 1555
- Corrected problem where library would re-write the superblock in a file
  opened for R/W access, even when no changes were made to the file.
  (QAK - 2009/08/20, Bz#1473)
- Fixed a bug where H5Pget_filter_by_id would succeed when called for a
  filter that wasn't present. NAF - 2009/06/25 - 1250
- Fixed an issue with committed compound datatypes containing a vlen. Also
  fixed memory leaks involving committed datatypes. NAF - 2009/06/10 - 1593

Parallel Library

- None

Tools

- h5dump/h5ls display buffer resize fixed in tools library.
  ADB - 2009/7/21 - 1520
- perf_serial test added to Windows projects and check batch file.
  ADB - 2009/06/11 -1504

F90 API

- Fixed bug in h5lget_info_by_idx_f by adding missing arguments,
  consequently changing the API. New API is:

  SUBROUTINE h5lget_info_by_idx_f(loc_id, group_name, index_field, order, n, &
    link_type, f_corder_valid, corder, cset, address, val_size, hdferr, lapl_id)

    MSB - 2009/9/17 - 1652

- Corrected the values for the H5L_flags FORTRAN constants:
    H5L_LINK_ERROR_F, H5L_LINK_HARD_F, H5L_LINK_SOFT_F, H5L_LINK_EXTERNAL_F
    MSB - 2009-09-17 - 1653

- Added FORTRAN equivalent of C constant H5T_ORDER_NONE: H5T_ORDER_NONE_F
    MSB - 2009-9-24 - 1471

C++ API

- None

High-Level APIs:

- Fixed a bug where the H5TB API would forget the order of fields when added
  out of offset order. NAF - 2009/10/27 - 1582
- H5DSis_attached failed to account for different platform types. Added a
  get native type call. ADB - 2009/9/29 - 1562

Fortran High-Level APIs:

- Lite: the h5ltread_dataset_string_f and h5ltget_attribute_string_f functions
       had memory problems with the g95 fortran compiler. (PVN 5/13/2009) 1522

Platforms Tested
================
The following platforms and compilers have been tested for this release.

AIX 5.3	xlc 7.0.0.8
(LLNL Up)	xlf 09.01.0000.0008
	xlC 7.0.0.8
	mpcc_r 7.0.0.8
	mpxlf_r 09.01.0000.0008
Cray XT3 (2.0.41)	cc (pgcc) 7.1-4
(SNL red storm)	ftn (pgf90) 7.1-4
	CC (pgCC) 7.1-4
FreeBSD 6.3-STABLE i386	gcc 3.4.6 [FreeBSD] 20060305
(duty)	g++ 3.4.6 [FreeBSD] 20060305
	gcc 4.3.5 20091004
	g++ 4.3.5 20091004
	gfortran 4.3.5 20091004
FreeBSD 6.3-STABLE amd64	gcc 3.4.6 [FreeBSD] 20060305
(liberty)	g++ 3.4.6 [FreeBSD] 20060305
	gcc 4.4.2 20091006
	g++ 4.4.2 20091006
	gfortran 4.4.2 20091006
Linux 2.6.18-164.el5	gcc (GCC) 4.1.2 20080704
#1 SMP i686 i686 i386	G95 (GCC 4.0.3 (g95 0.92!) Jun 24 2009)
(jam)	GNU Fortran (GCC) 4.1.2 20080704
	(Red Hat 4.1.2-46)
	PGI C, Fortran, C++ 8.0-5 32-bit
	PGI C, Fortran, C++ 8.0-1 32-bit
	Intel(R) C Compiler for 32-bit
	applications, Versions 11.0, 11.1
	Intel(R) C++ Compiler for 32-bit
	applications, Version 11.0, 11.1
	Intel(R) Fortran Compiler for 32-bit
	applications, Version 11.0, 11.1
	Absoft 32-bit Fortran 95 10.0.7
	MPICH mpich2-1.0.8 compiled with
	gcc 4.1.2 and G95 (GCC 4.0.3 (g95 0.92!)
Linux 2.6.18-164.el5 #1 SMP	gcc 4.1.2 20080704
x86_64 GNU/Linux	G95 (GCC 4.0.3 (g95 0.92!) Jun 24 2009)
(amani)	Intel(R) C, C++, Fortran Compilers for
	applications running on Intel(R) 64,
	Versions 11.1.
	PGI C, Fortran, C++ Version 9.0-4
	for 64-bit target on x86-64
	gcc 4.1.2 and G95 (GCC 4.0.3 (g95 0.92!)
	MPICH mpich2-1.0.8 compiled with
	gcc 4.1.2 and G95 (GCC 4.0.3 (g95 0.92!)
	tested for both 32- and 64-bit binaries
	GNU Fortran (GCC) 4.1.2 20080704
	(Red Hat 4.1.2-46)

Linux 2.6.16.60-0.42.5 #1 SGI Altix SMP ia64 (cobalt)	Intel(R) C++ Version 10.1.017 Intel(R) Fortran Itanium(R) Version 10.1.017 SGI MPI 1.38
SunOS 5.10 32- and 64-bit (linew)	Sun C 5.9 SunOS_sparc Patch 124867-11 2009/04/30 Sun Fortran 95 8.3 SunOS_sparc Patch 127000-11 2009/10/06 Sun C++ 5.9 SunOS_sparc Patch 124863-16 2009/09/15
Intel Xeon Linux 2.6.18- 92.1.10.el5_lustre.1.6.6smp- perfctr #6 SMP (abe)	Intel(R) C++ Version 10.0.026 Intel(R) Fortran Compiler Version 10.0.026 Open MPI 1.2.2 MVAPICH2-0.9.8p28p2patched-intel-ofed-1.2 compiled with icc v10.0.026 and ifort 10.0.026
IA-64 Linux 2.4.21-309.tg1 #1 SMP ia64 (NCSA tg-login)	gcc (GCC) 3.2.2 Intel(R) C++ Version 8.1.037 Intel(R) Fortran Compiler Version 8.1.033 mpich-gm-1.2.7p1..16-intel-8.1.037-r1
Linux 2.6.9-55.0.9.EL_lustre .1.4.11.1smp #1 SMP SMP x86_64 GNU/Linux (SNL Thunderbird)	Intel(R) C, C++, Fortran Compilers for applications running on Intel(R) 64, Versions 10.1.
Linux 2.6.18-76chaos #1 SMP SMP x86_64 GNU/Linux (SNL Glory)	Intel(R) C, C++, Fortran Compilers for applications running on Intel(R) 64, Versions 10.1.
Windows XP	Visual Studio 2005 w/ Intel Fortran 9.1 Cygwin(native gcc compiler and g95)
Windows XP x64	Visual Studio 2005 w/ Intel Fortran 9.1
Windows Vista	Visual Studio 2005 w/ Intel Fortran 9.1
Windows Vista x64	Visual Studio 2005 w/ Intel Fortran 9.1
MAC OS 10.5.6 (Intel)	i686-apple-darwin9-gcc-4.0.1 (GCC) 4.0.1 GNU Fortran (GCC) 4.3.0 20070810 G95 (GCC 4.0.3 (g95 0.91!) Apr 24 2008) Intel C, C++ and Fortran compilers 10.1
OpenVMS V8.3	HP C V7.3-009 on OpenVMS Alpha V8.3 HP Fortran V8.0-1-104669-48GBT HP C++ V7.3-009 for OpenVMS Alpha V8.3

Supported Configuration Features Summary

In the tables below
- y = tested and supported
- n = not supported or not tested in this release
- C = Cluster
- W = Workstation
- x = not working in this release
- dna = does not apply
- ( ) = footnote appears below second table

<blank> = testing incomplete on this feature or platform

Platform	C parallel	F90	F90 parallel	C++	zlib	SZIP
Solaris2.10 32-bit	n	y	n	y	y	y
Solaris2.10 64-bit	n	y	n	y	y	y
Windows XP	n	y(4)	n(4)	y	y	y
Windows XP x64	n	y(4)	n(4)	y	y	y
Windows Vista	n	n	n	y	y	y
Mac OS X 10.5 Intel	n	y	n	y	y	y
AIX 5.3 32- and 64-bit	n	y	n	y	y	n
FreeBSD 6.3-STABLE 32&64 bit	n	y	n	y	y	y
RedHat EL5 2.6.18-164 i686 GNU (1)W	y	y(2)	y	y	y	y
RedHat EL5 2.6.18-164 i686 Intel W	n	y	n	y	y	n
RedHat EL5 2.6.18-164 i686 PGI W	n	y	n	y	y	n
RedHat EL5 2.6.18-164 x86_64 GNU(1)W	y	y(3)	y	y	y	y
RedHat EL5 2.6.18-164 x86_64 IntelW	n	y	n	y	y	n
RedHat EL5 2.6.18-164 x86_64 PGI W	n	y	n	y	y	y
SuSe Linux 2.6.16 SGI Altix ia64 C	y	y	y	y	y	y
RedHat EL4 2.6.18 Xeon Lustre C	y	y	y	y	y	n
SuSe Linux 2.4.21 ia64 Intel C	y	y	y	y	y	n
Cray XT3 2.0.62	y	y	y	y	y	n

Platform	Shared C libs	Shared F90 libs	Shared C++ libs	Thread-safe
Solaris2.10 32-bit	y	y	y	y
Solaris2.10 64-bit	y	y	y	y
Windows XP	y	y(4)	y	y
Windows XP x64	y	y(4)	y	y
Windows Vista	y	n	n	y
Mac OS X 10.5	y	n	y	n
AIX 5.3 32- and 64-bit	n	n	n	n
FreeBSD 6.3-STABLE 32&64 bit	y	y	y	y
RedHat EL5 2.6.18-164 i686 GNU (1)W	y	y(2)	y	y
RedHat EL5 2.6.18-164 i686 Intel W	y	y	y	n
RedHat EL5 2.6.18-164 i686 PGI W	y	y	y	n
RedHat EL5 2.6.18-164 x86_64 GNU(1)W	y	y	y	y
RedHat EL5 2.6.18-164 x86_64 IntelW	y	y	y	n
RedHat EL5 2.6.18-164 x86_64 PGI W	y	y	y	n
SuSe Linux 2.6.16 SGI Altix ia64 C	y			n
RedHat EL4 2.6.18 Xeon Lustre C	y	y	y	n
SuSe Linux 2.4.21 ia64 Intel C	y	y	y	n
Cray XT3 2.0.62	n	n	n	n

(1) Fortran compiled with g95.
(2) With PGI and Absoft compilers.
(3) With PGI compiler for Fortran.
(4) Using Visual Studio 2005 or Cygwin

Compiler versions for each platform are listed in the preceding "Platforms Tested" table.

Known Problems

* Parallel mode in AIX will fail some of the testcheck_version.sh tests where it treats "exit(134) the same as if process 0 had received an abort signal. This is fixed and will be available in the next release. AKC - 2009/11/3

```
* Some tests in tools/h5repack may fail in AIX systems when -q32 mode is used.
  The error is due to insufficient memory requested. Request a large amount
  of runtime memory by setting the following environment variable for more
  memory.
     LDR_CNTRL=MAXDATA=0x20000000@DSA
  AKC - 2009/10/31

* The PathScale MPI implementation, accessing a Panasas file system, would
  cause H5Fcreate() with H5F_ACC_EXCL to fail even when the file is not
  existing. This is due to the MPI_File_open() call failing if the amode has
  the MPI_MODE_EXCL bit set. (See bug 1468 for details.) AKC - 2009/8/11

* Parallel tests failed with 16 processes with data inconsistency at testphdf5
  / dataset_readAll. Parallel tests also failed with 32 and 64 processes with
  collective abort of all ranks at t_posix_compliant / allwrite_allread_blocks
  with MPI IO. CMC - 2009/04/28

* There is a known issue in which HDF5 will change the timestamp on a file
  simply by opening it with read/write permissions, even if the file is not
  modified in any way. This is due to the way in which HDF5 manages the file
  superblock. A fix is currently underway and should be included in the 1.8.4
  release of HDF5. MAM - 2009/04/28

* For gcc v4.3 and v4.4, with production mode, if -O3 is used, H5Tinit.c
  would fail to compile. Actually bad H5Tinit.c is produced.  If -O (same
  as -O1) is used, H5Tinit.c compiled okay but test/dt_arith would fail.
  When -O0 (no optimizatio) is used, H5Tinit.c compilete okay and all
  tests passed. Therefore, -O0 is imposed for v4.3 and v4.4 of gcc.
  AKC - 2009/04/20

* For Red Storm, a Cray XT3 system, the tools/h5ls/testh5ls.sh and
  tools/h5copy/testh5copy.sh will fail some of its sub-tests. These sub-tests
  are expected to fail and should exit with a non-zero code but the yod
  command does not propagate the exit code of the executables. Yod always
  returns 0 if it can launch the executable.  The test suite shell expects
  a non-zero for this particular test, therefore it concludes the test has
  failed when it receives 0 from yod.  Skip all the "failing" test for now
  by changing them as following.

  ======== Original tools/h5ls/testh5ls.sh =========
  TOOLTEST tgroup-1.ls 1 -w80 -r -g tgroup.h5
  ======== Change to ==============================
  echo SKIP TOOLTEST tgroup-1.ls 1 -w80 -r -g tgroup.h5
  ================================================

  ======== Original tools/h5copy/testh5copy.sh =========
  TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -v -s grp_dsets  -d grp_rename
  TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -v -s grp_dsets  -d /grp_rename/grp_dsets
  TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -vp -s /grp_dsets -d /E/F/grp_dsets
  TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -vp -s /grp_nested -d /G/H/grp_nested
  H5LSTEST $FILEOUT
  ======== Change to ==============================
  echo SKIP TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -v -s grp_dsets  -d grp_rename
  echo SKIP TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -v -s grp_dsets  -d
/grp_rename/grp_dsets
  echo SKIP TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -vp -s /grp_dsets -d /E/F/grp_dsets
  echo SKIP TOOLTEST_FAIL -i $TESTFILE -o $FILEOUT -vp -s /grp_nested -d
/G/H/grp_nested
  echo SKIP H5LSTEST $FILEOUT
```

```
  ================================================
  AKC - 2008/11/10

* For Red Storm, a Cray XT3 system, the yod command sometimes gives the
  message,  "yod allocation delayed for node recovery".  This interferes with
  test suites that do not expect seeing this message.  See the section of "Red
  Storm" in file INSTALL_parallel for a way to deal with this problem.
  AKC - 2008/05/28

* On Intel 64 Linux cluster (RH 4, Linux 2.6.9) with Intel 10.0 compilers,
  use -mp -O1 compilation flags to build the libraries. A higher level of
  optimization causes failures in several HDF5 library tests.

* On mpich 1.2.5 and 1.2.6, if more than two processes contribute no IO and
  the application asks to do collective IO, we have found that when using 4
  processors, a simple collective write will sometimes be hung. This can be
  verified with t_mpi test under testpar.

* A dataset created or rewritten with a v1.6.3 library or after cannot be read
  with the v1.6.2 library or before when the Fletcher32 EDC filter is enabled.
  There was a bug in the calculation of the Fletcher32 checksum in the
  library before v1.6.3; the checksum value was not consistent between big-
  endian and little-endian systems.  This bug was fixed in Release 1.6.3.
  However, after fixing the bug, the checksum value was no longer the same as
  before on little-endian system.  Library releases after 1.6.4 can still read
  datasets created or rewritten with an HDF5 library of v1.6.2 or before.
  SLU - 2005/6/30

* On IBM AIX systems, parallel HDF5 mode will fail some tests with error
  messages like "INFO: 0031-XXX ...".  This is from the command `poe'.
  Set the environment variable MP_INFOLEVEL to 0 to minimize the messages
  and run the tests again.

  The tests may fail with messages like "The socket name is already in use",
  but HDF5 does not use sockets.  This failure is due to problems with the
  poe command trying to set up the debug socket.  To resolve this problem,
  check to see whether there are many old /tmp/s.pedb.* files staying around.
  These are sockets used by the poe command and left behind due to failed
  commands.  First, ask your system administrator to clean them out.
  Lastly, request IBM to provide a means to run poe without the debug socket.

* The --enable-static-exec configure flag will only statically link libraries
  if the static version of that library is present. If only the shared version
  of a library exists (i.e., most system libraries on Solaris, AIX, and Mac,
  for example, only have shared versions), the flag should still result in a
  successful compilation, but note that the installed executables will not be
  fully static. Thus, the only guarantee on these systems is that the
  executable is statically linked with just the HDF5 library.
```

```
* There is also a configure error on Altix machines that incorrectly reports
  when a version of Szip without an encoder is being used.
```