HDF5 1.6.9

Version	HDF5 1.6.9
Release Date	2009-05-01
Download	/ftp/HDF5/releases/hdf5-1.6/hdf5-1.6.9/
Release Notes	Release Notes

Release Notes:

```
HDF5 version 1.6.9 released on Fri May  1 15:26:44 CDT 2009
================================================================================


INTRODUCTION
============
This document describes the differences between HDF5-1.6.8 and
HDF5-1.6.9.
It contains information on the platforms tested and known problems in
HDF5-1.6.9. For more details, check the HISTORY.txt file in
the HDF5 source.

HDF5 documentation can be found in the distributed release source code
in the subdirectory doc/html/ or on the THG (The HDF Group) FTP server:

     ftp://ftp.hdfgroup.org/HDF5/docs/

Documentation for the current release in the HDF5 Release 1.6.x series is
also on the HDF web site:

     http://hdfgroup.org/HDF5/doc1.6/

For more information, see the HDF5 home page:

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

If you have any questions or comments, please see the HDF Support page
for a list of available resources:

     http://hdfgroup.org/services/support.html


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New Features
============
```

Configuration:

        - Added a Make target of check-all-install to test the correctness of
          installing via the prefix= or $DESTDIR options. AKC - 2009/04/14

        Library:

        - None

        Parallel Library:

        - Modified parallel tests to run with arbitrary number of processes. The
          modified tests are testphdf5 (parallel dataset access, collective chunk
          IO, irregular hyperslab selection with collective IO) and
          t_chunk_alloc (chunk allocation). The rest of the parallel tests already
          use in the code the number of processes available in the communicator.
          CMC - 2009/04/28

        Tools:

        - h5diff new flag, -c, --compare, list objects that are not comparable.
          PVN - 2009/4/10 - 1368
        - h5diff new flag, -N, --nan, avoids NaNs detection. PVN - 2009/4/10
        - h5dump correctly specifies XML dtd / schema urls ADB - 2009/4/3 - 1519
        - h5dump: binary output defaults to NATIVE with -b optionally accepting
          the form of binary output (NATIVE, FILE, BE, LE). PVN - 2008/11/14
        - h5repack: When user doesn't specify a chunk size, h5repack now defines
          a default chunk size as the same size of the size of the hyperslab
          used to read the chunks. The size of the hyperslabs are defined as
          the size of each dimension or a predefined constant, whatever is smaller.
          This assures that the chunk read fits in the chunk cache. PVN - 2008/11/21

        F90 API:

        - None

        C++ API:

        - None

Support for New Platforms, Languages and Compilers
==

Bug Fixes since HDF5-1.6.8 Release
==================================
        Library

        - Added H5Z_class1_t macro, as H5Z_class_t is now versioned in 1.8.
          NAF - 2009/04/20 - 1533
        - Fixed a bug that prevented more than one dataset chunk from being cached
          at a time. NAF - 2009/02/12
        - H5Dset_extent: when shrinking dimensions, some chunks were not deleted.
          Shrinking to a zero size dimension caused an assertion in the library.
          PVN - 2009/01/8

        Configuration

```
    - h5perf will now get installed during 'make install'.  MAM - 2008/11/17


    Performance
    -----------


    Tools
    -----
    - h5dump, h5diff, h5repack were not reading (by hyperslabs) datasets
      that have a datatype datum size greater than H5TOOLS_BUFSIZE, a constant
      defined as 1024Kb, such as array types with large dimensions.
      PVN - 2009/4/1 - 1501
    - h5import: By selecting a compression type, a big endian byte order was
      being selected. PVN - 2009/3/11 - 1462
    - zip_perf.c had missing argument on one of the open() calls. Fixed.
      AKC - 2008/12/9


    F90 API
    -------
    - None


    C++ API
    -------
    - Revised Attribute::write and Attribute::read wrappers to handle
      memory allocation/deallocation properly. (Bugzilla 1045)
      BMR - 2009/4/19



Documentation
=============
    HDF5 documentation can be found in the distributed release source
    code in the subdirectory doc/html/ (start with index.html) or on the
    THG (The HDF Group) FTP server:

        ftp://ftp.hdfgroup.org/HDF5/docs/

    Online documentation for the current release in the HDF5 Release 1.6.x
    series can be found on the THG web site:

        http://hdfgroup.org/HDF5/doc1.6/

    A listing of interface changes from release to release can be found
    in the document "HDF5 Software Changes from Release to Release":

        http://hdfgroup.org/HDF5/doc1.6/ADGuide/Changes.html

    Since the stream I/O driver is not included in this release, the
    functions H5Pset_fapl_stream and H5Pget_fapl_stream and the stream
    ENUM value H5FD_STREAM have been removed from the documentation.



Platforms Tested
================
    AIX 5.3                     xlc 7.0.0.8
                                xlf 09.01.0000.0008
                                xlC 7.0.0.8
                                mpcc_r 7.0.0.8
                                mpxlf_r 09.01.0000.0008


    FreeBSD 6.3-STABLE i386     gcc 3.4.6 [FreeBSD] 20060305
```

```
(duty)                          g++ 3.4.6 [FreeBSD] 20060305
                                gcc 4.3.4 20090419
                                g++ 4.3.4 20090419
                                gfortran 4.3.4 20090419


FreeBSD 6.3-STABLE amd64        gcc 3.4.6 [FreeBSD] 20060305
(liberty)                       g++ 3.4.6 [FreeBSD] 20060305
                                gcc 4.4.1 20090421
                                g++ 4.4.1 20090421
                                gfortran 4.4.1 20090421


IRIX64 6.5                      MIPSpro cc 7.4.4m
(ucar mop1 64 & n32)            F90 MIPSpro 7.4.4m (64 only)
                                C++ MIPSpro cc 7.4.4m


Linux 2.6.18-128.1.6.el5xen     gcc (GCC) 4.1.2
#1 SMP i686 i686 i386           G95 (GCC 4.0.3 (g95 0.92!) Feb 4 2009)
(jam)                           PGI C, Fortran, C++ 7.2-1 32-bit
                                PGI C, Fortran, C++ 8.0-1 32-bit
                                Intel(R) C Compiler for 32-bit
                                    applications, Versions 10.1, 11.0
                                Intel(R) C++ Compiler for 32-bit
                                    applications, Version 10.1, 11.0
                                Intel(R) Fortran Compiler for 32-bit
                                    applications, Version 10.1, 11.0
                                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 2.6.9-42.0.10.ELsmp #1    gcc (GCC) 3.4.6
SMP i686 i686 i386              G95 (GCC 4.0.3 (g95 0.92!) Feb 4 2009)
(kagiso)                        MPICH mpich2-1.0.8 compiled with
                                gcc 3.4.6 and G95  (GCC 4.0.3 (g95 0.92!)


Linux 2.6.16.46-0.12-debug #1   Intel(R) C++ Version 10.0.025
    SMP ia64 GNU/Linux          Intel(R) Fortran Itanium(R) Version 10.0.025
(ucar hir1)


Linux 2.6.16.60-0.37-smp #1     gcc 4.1.2
SMP x86_64 GNU/Linux            G95 (GCC 4.0.3 (g95 0.92!) Feb 4 2009)
(smirom)                        Intel(R) C, C++, Fortran Compilers for
                                applications running on Intel(R) 64,
                                Versions 10.1, 11.0.
                                PGI C, Fortran, C++ Version 7.2-1, 8.0-1
                                     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


Linux 2.6.16.54-0.2.5 #1        Intel(R) C++ Version 10.1.017
SGI Altix SMP ia64              Intel(R) Fortran Itanium(R) Version 10.1.017
(cobalt)                        SGI MPI 1.38


SunOS 5.10 32- and 64-bit       Sun WorkShop 6 update 2 C 5.9 Patch 124867-09
(linew)                         Sun WorkShop 6 update 2 Fortran 95 8.3
                                Patch 127000-07
                                Sun WorkShop 6 update 2 C++ 5.8
                                Patch 124863-11
```

```
    Intel Xeon Linux 2.6.18-        gcc 3.4.6 20060404
    92.1.10.el5_lustre.1.6.6smp-   Intel(R) C++ Version 10.0.026
    perfctr #2 SMP                 Intel(R) Fortran Compiler Version 10.0.026
    (abe)                          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     gcc (GCC) 3.2.2
    #1 SMP ia64                    Intel(R) C++ Version 8.1.037
    (NCSA tg-login)                Intel(R) Fortran Compiler Version 8.1.033
                                   mpich-gm-1.2.7p1..16-intel-8.1.037-r1


    Windows XP                     Visual Studio 6.0
                                   Visual Studio .NET (with Intel Fortran 9.1)
                                   Visual Studio 2005 (with Intel Fortran 9.1)
                                   cygwin (gcc 3.4.4)


    Windows Vista                  Visual studio 2005
    Mac OS X Intel 10.5.6          i686-apple-darwin9-gcc-4.0.1 (GCC) 4.0.1
                                   g95 0.91
```

Supported Configuration Features Summary
==
Key: y   = Tested and supported
       n   = Not supported or not tested in this release
       C   = Cluster
       W   = Workstation
       ( ) = Footnote appears below second table

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	n	y	y
IRIX64_6.5 32-bit		n	n	n	n	y	y
IRIX64_6.5 64-bit		n	y	n	n	y	y
WinXP Visual Studio 6.0		n	n	n	y	y	y
WinXP CYGWIN		n	n	n	y	y	y
WinXP 2005		n	y	n	y	y	y
WinXP .Net		n	y	n	y	y	y
WinVista 2005		n	n	n	y	y	y
Mac OS X 10.4.10		n	y	n	y	y	y
AIX 5.3 32-bit		n	y	n	y	y	n
FreeBSD 6.3 32- and 64-bit		n	n	n	y	y	y
RedHat EL4 2.6.9-42 i686 GNU (1)	W	y	y	y	y	y	y
RedHat EL4 2.6.18-128 i686 GNU (1)	W	y	y	y	y	y	y
RedHat EL4 2.6.18-128 i686 Intel	W	n	y	n	y	y	n
RedHat EL4 2.6.18-128 i686 PGI	W	n	y	n	y	y	n
SuSE Linux 2.6.16 x86_64 GNU (1)	W	y	y	n	y	y	y
SuSE Linux 2.6.16 x86_64 Intel	W	n	y	n	y	y	n
SuSE Linux 2.6.16 x86_64 PGI	W	n	y	n	y	y	n
RedHat EL 4 2.6.18 Xeon Lustre	C	n	y	n	y	y	y
SuSE Linux 2.4.21 ia64	C	y	y	y	y	y	y
SuSe Linux 2.6.16 SGI Altix ia64	C	n	y	n	y	y	y

Platform		Shared libraries(4)	static-exec	Thread-safe

```
Solaris2.10 32- and 64-bit             y           n        y
IRIX64_6.5 32-bit                      y           n        y
IRIX64_6.5 64-bit                      y           n        y
WinXP Visual Studio 6.0                y           n        n
WinXP CYGWIN                           y           n        n
WinXP 2005                             y           n        n
WinXP .Net                             y           n        n
WinVista 2005                          y           n        n
Mac OS X 10.5.6                        n           n        n
AIX 5.3 32-bit                         n           n        n
FreeBSD 6.3 32- and 64-bit             y           n        n
RedHat EL4 2.6.9-42 i686 GNU (1)   W   y           n        y
RedHat EL4 2.6.9-42 i686 GNU (1)   W   y           n        y
RedHat EL4 2.6.9-42 i686 Intel     W   y           n        n
RedHat EL4 2.6.9-42 i686 PGI       W   n           n        n
SuSE Linux 2.6.16 x86_64 GNU (1)   W   y           n        y
SuSE Linux 2.6.16 x86_64 Intel     W   y           n        n
SuSE Linux 2.6.16 x86_64 PGI       W   n           n        n
RedHat EL4 2.6.18 Xeon Lustre      C   y           n        n
SuSE Linux 2.4.21 ia64             C   y           n        n
SuSe Linux 2.6.16 SGI Altix ia64   C   n           n        n
```

Compiler versions for each platform are listed in the "Platforms Tested"
table found elsewhere in this file (RELEASE.txt). Unless otherwise noted,
compilers used are the system compilers.

Footnotes:
(1) Fortran compiled with g95.

Known Problems
==============
* Parallel tests failed with 15, 16, and 32 processes with data inconsistency
  at testphdf5 / dataset_readAll. Parallel tests also failed with 64 processes
  with collective abort of all ranks at testphdf5 / collective irregular simple
  chunk write. CMC - 2009/04/28

* h5repack may not handle committed datatypes correctly. NAF - 2009/4/20 - 1516/
  1466

* When in production mode, any presence of the '-g' flag within CFLAGS is
  stripped out during configuration. This currently cannot be overridden.
  In order to build with '-g' specified within CFLAGS, use the
  --disable-production configure flag in order to configure in development
  mode. MAM - 2009/03/09.

* We discovered two problems when running collective IO parallel HDF5 tests
  with chunking storage with the ChaMPIon MPI compiler on tungsten, a Linux
  cluster at NCSA.
  Under some complex selection cases,
  1) MPI_Get_element returns the wrong value.
  2) MPI_Type_struct also generates the wrong derived datatype and corrupt
     data may be generated.
  This only happens when turning on collective IO with chunking storage
  with some complex selections. We haven't found these problems on other
  MPI-IO compilers. If you encounter these problems, you may use Independent
  IO instead.

  To avoid this problem, change the following line in your code:

```
      H5Pset_dxpl_mpio(xfer_plist, H5FD_MPIO_COLLECTIVE);
  to
      H5Pset_dxpl_mpio(xfer_plist, H5FD_MPIO_INDEPENDENT);
  KY - 2007/08/24
```

* QSC (an HP alpha-based OSF1 cluster) does not create h5pfc correctly. It
  does not include the -lmpi properly. This will be fixed in the next
  release. AKC - 2007/08/07.

* On IRIX64 6.5 (UCAR SGI mop1), when testing HDF5 tools with an HDF5 shared
  library, especially for h5repacktst and h52gifgentst, the following (or a
  similar) error message may appear:
  "523648:lt-h5repacktst: rld: Fatal Error: Cannot Successfully map soname
  'libh5test.so.1' under any of the filenames ....(bunch of directories)
  "
  And the testing will fail.

  We believe this is a libtool problem. One way to get rid of this is to
  add the paths of libh5test.so.1 and libh5.so.1 to the shared library path.

  You may do this, under csh:
  setenv LD_LIBRARYN32_PATH [full path of HDF5 directory/test/.libs]:[full
  path of HDF5 directory/src/.libs]:(existing paths)...

  NOTE: This problem ONLY affects the testing of the HDF5 library when you
  build from source. It won't affect any applications that would like to link
  with the HDF5 shared library since the shared library path needs to be set
  anyway. KY - 2007/8/2

* QSC (an HP alpha-based OSF1 cluster) failed the testpar/testphdf5 sub-test
  "calloc". All other tests passed. This indicates that a dataset using
  chunked storage created by serial HDF5 may not work properly with parallel
  HDF5. The calloc test can be skipped by running "prun ... testphdf5 -x
  calloc". AKC - 2007/7/12.

* When testing parallel HDF5 with the C compiler version MIPSpro 7.4.3 on IRIX
  6.5, set the environment variable MPI_TYPE_MAX to be a bigger number, for
  example 120000, in order to pass the complicated collective IO tests inside
  the parallel HDF5 library. This is not a problem inside the parallel HDF5
  library. You can always set a bigger number on your system. KY - 2005/10/6

* A contiguous or chunked dataset created by a sequential version of HDF5
  might not be able to be modified with a parallel version of the library.
  Use the H5Pset_alloc_time function with H5D_ALLOC_TIME_EARLY to set up the
  dataset creation property list to avoid the problem. EIP - 2005/09/09

* A dataset created or rewritten with the v1.6.3 library or after can't
  be read with the v1.6.2 library or before when Fletcher32 EDC (a filter) is
  enabled. There was a bug in the calculating code of the Fletcher32
  checksum in the library before v1.6.3. The checksum value wasn't 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 is no
  longer the same as before on little-endian system. HDF5 library releases
  after 1.6.4 can still read datasets created or rewritten with an HDF5
  library of v1.6.2 or before. SLU - 2005/7/8

* test/big fails sometimes with the message "Possible overlap with another
  region." The test selects regions randomly, and this error occurs when
  two regions overlap each other; it is a bug in the test and not in

HDF5. Since the error is triggered by a random situation, it will
usually disappear if the test is re-run.

* Newer SGI MIPSpro compilers (version 7.4.x) support C99 features but
  have a "guard" statement in stdint.h that will #error and skip the rest
  of the header file if the C99 option is not used explicitly. Hardsetting
  $CC to c99 will resolve the problem. AKC - 2004/12/13

* 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 also fail with messages like "The socket name is already
  in use". HDF5 does not use sockets. This is due to problems of the
  poe command trying to set up the debug socket. Check 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. Ask your system
  administrator to clean them out. Lastly, request IBM to provide a means
  to run poe without the debug socket.

* The h5dump tests may fail to match the expected output on some platforms
  (e.g. parallel jobs, Windows) where the error messages directed to
  "stderr" do not appear in the "right order" with output from stdout.
  This is not an error.

* The --enable-static-exec configure flag fails to compile for Solaris
  platforms. This is due to the fact that not all of the system
  libraries on Solaris are available in a static format.

  The --enable-static-exec configure flag also fails to correctly compile
  on the IBM SP2 platform for the serial mode. The parallel mode works fine
  with this option.

  The --enable-static-exec configure flag also fails to correctly compile
  on the HPUX 11.00.

  It is suggested that you don't use this option on these platforms
  during configuration.

* Use the --disable-shared configure flag if building with an Absoft Fortran
  compiler.

* Information about building with PGI and Intel compilers is available in
  INSTALL file sections 5.7 and 5.8.

* In LANL QSC, the new cc compiler has problems converting small values of
  long long (absolute values less than 1**-308) to double. This triggers
  the test/dtypes to report failure in the following test:
      Testing random sw long double -> double conversions
  If -ieee is used, the converted doubles spread over the range 0.0 to
  10**-308. If -ieee is not used, the converted double values are mostly
  0.0, but occasionally appear as 10**-308. This has been reported to the
  system staff.

  All other tests have passed.