

# HDF5 1.6.8

<b>Version</b>	HDF5 1.6.8
<b>Release Date</b>	2008-11-10
<b>Download</b>	<a href="ftp://HDF5/releases/hdf5-1.6/hdf5-1.6.8/">/ftp/HDF5/releases/hdf5-1.6/hdf5-1.6.8/</a>
<b>Release Notes</b>	<a href="#">Release Notes</a>

## Release Notes:

HDF5 version 1.6.8 released on Mon Nov 10 15:36:46 CST 2008

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### INTRODUCTION

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This document describes the differences between HDF5-1.6.7 and HDF5-1.6.8. It contains information on the platforms tested and known problems in HDF5-1.6.8. 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

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Configuration:

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- Added no-repeat test feature from v1.8 to this branch. What it does is that if a test has passed in previous "make check", it will not run again unless its executable has changed. This can be overridden by "make check-clean" which removes all check-success markers and let all tests run again. AKC - 2008/2/22.

Library:

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- Added support for \$(DESTDIR) to the install feature. AKC - 2008/10/13.
- Added version compatibility macros for functions changed in 1.8. For example, H5Gcreatel will work the same in both 1.6 and 1.8. NAF - 2008/10/11

Parallel Library:

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None

Tools:

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- h5repack and h5diff changed command line parameter syntax to be similar to h5dump, adding also long switch names. PVN - 2008/2/13
- h5repack now supports adding multiple filters to all objects. PVN - 2008/2/13
- h5import imports string (text) data. PVN - 2008/2/19
- h5dump: add a printing of the compression ratio of uncompressed and compressed sizes for cases where compression filters are present. PVN - 2008/05/01
- h5dump: added an option to allow a user defined formatting string for printf regarding floating point numbers. PVN - 2008/05/06
- h5repack: add a userblock to an HDF5 file during the repack. PVN - 2008/08/26
- h5repack: copy userblock from HDF5 file during the repack. PVN - 2008/08/26
- h5diff: return 1 for file differences when both file graphs differ by any object. Error return code was changed to 2 from -1. PVN - 2008/10/30
- h5import: TEXTFPE (scientific format) was deprecated. Use TEXTFP instead. PVN - 2008/10/30

F90 API:

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None

C++ API:

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- These member functions were added as wrapper for H5Rdereference to replace the incorrect IdComponent::dereference().  
void H5Object::dereference(H5Object& obj, void\* ref,  
H5R\_type\_t ref\_type=H5R\_OBJECT)  
void H5Object::dereference(H5File& h5file, void\* ref,  
H5R\_type\_t ref\_type=H5R\_OBJECT)  
void H5Object::dereference(Attribute& obj, void\* ref,  
H5R\_type\_t ref\_type=H5R\_OBJECT)

In addition, these constructors were added to create the associated objects by way of dereference:

```
DataSet(H5Object& obj, void* ref, H5R_type_t ref_type=H5R_OBJECT)
DataSet(H5File& file, void* ref, H5R_type_t ref_type=H5R_OBJECT)
DataSet(Attribute& attr, void* ref, H5R_type_t ref_type=H5R_OBJECT)
Group(H5Object& obj, void* ref, H5R_type_t ref_type=H5R_OBJECT)
Group(H5File& file, void* ref, H5R_type_t ref_type=H5R_OBJECT)
Group(Attribute& attr, void* ref, H5R_type_t ref_type=H5R_OBJECT)
DataType(H5Object& obj, void* ref, H5R_type_t ref_type=H5R_OBJECT)
DataType(H5File& file, void* ref, H5R_type_t ref_type=H5R_OBJECT)
DataType(Attribute& attr, void* ref, H5R_type_t ref_type=H5R_OBJECT)
BMR - 2008/10/29
```

#### Support for New Platforms, Languages and Compilers

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None

#### Bug Fixes since HDF5-1.6.7 Release

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##### Library

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- Changed the return value of H5Fget\_obj\_count from INT to SSIZE\_T. Also changed the return value of H5Fget\_obj\_ids from HERR\_T to SSIZE\_T and the type of the parameter MAX\_OBJS from INT to SIZE\_T.

SLU - 2008/09/26

##### Configuration

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- Fixed error with 'make check install' failing due to h5dump needing other tools built first. MAM - 2008/10/22.
- Fixed error with examples/ph5example getting built even in serial mode. Will now only get built and tested if parallel is enabled. MAM - 2008/09/18
- The file libhdf5\_fortran.settings is not installed since its content is included in libhdf5.settings now. AKC - 2008/10/21
- The GASS and SRB virtual file drivers have been retired and removed from the HDF5 library. AKC - 2008/9/26

##### Performance

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None

##### Tools

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- h5import bug on Windows w/binary datasets. fread in windows needs a binary file to be open with 'rb' instead of 'r' otherwise it terminates execution if an end of file character is found on the input file. Besides that the binary file generated needs to be open with 'wb', otherwise an end of line character is read twice. PVN - 2008/2/19
- Fixed h5diff regarding the display of NaN (Not a Number) values. PVN - 2008/03/04
- Fixed h5dump regarding the display of array indices and block selections in subsetting. PVN - 2008/03/10
- Fixed bug in h5dump that caused binary output to be made only for the first dataset, when several datasets were requested. PVN - 2008/04/07
- h5dump: when doing binary output (-b), the stdout printing of attributes

was done incorrectly. Removed printing of attributes when doing binary output. PVN - 2008/06/05

#### Documentation

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None

#### F90 API

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None

#### C++ API

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- Fixed a design bug which allowed an Attribute object to create/modify attributes (bugzilla #1068). The API class hierarchy was revised to address the problem. Classes AbstractDS and Attribute are moved out of H5Object. Class Attribute now multiply inherits from IdComponent and AbstractDs and class DataSet from H5Object and AbstractDs. In addition, the data member IdComponent::id was moved into subclasses: Attribute, DataSet, DataSpace, DataType, H5File, Group, and PropList. BMR - 2008/08/10
- IdComponent::dereference was incorrect and replaced as described in "New Features" section.  
BMR - 2008/08/10

#### Documentation

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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

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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 (duty)	gcc 3.4.6 [FreeBSD] 20060305 g++ 3.4.6 [FreeBSD] 20060305 gcc 4.2.5 20080702 g++ 4.2.5 20080702 gfortran 4.2.5 20080702
FreeBSD 6.3-STABLE amd64 (liberty)	gcc 3.4.6 [FreeBSD] 20060305 g++ 3.4.6 [FreeBSD] 20060305 gcc 4.2.5 20080702 g++ 4.2.5 20080702 gfortran 4.2.5 20080702
IRIX64 6.5 (ucar mopl 64 & n32)	MIPSpro cc 7.4.4m F90 MIPSpro 7.4.4m (64 only) C++ MIPSpro cc 7.4.4m
Linux 2.6.9-42.0.10.ELsmp #1 SMP i686 i386 (kagiso)	gcc (GCC) 3.4.6 G95 (GCC 4.0.3 (g95 0.92!) April 18 2007) PGI C, Fortran, C++ 7.2-1 32-bit Intel(R) C Compiler for 32-bit applications, Version 10.1 Intel(R) C++ Compiler for 32-bit applications, Version 10.1 Intel(R) Fortran Compiler for 32-bit applications, Version 10.1 Absoft 32-bit Fortran 95 10.0.4 MPICH mpich-1.2.7 compiled with gcc 3.4.6 and G95 (GCC 4.0.3 (g95 0.92!)) MPICH mpich2-1.0.6pl compiled with gcc 3.4.6 and G95 (GCC 4.0.3 (g95 0.92!))
Linux 2.6.16.46-0.12-debug #1 SMP ia64 GNU/Linux (ucar hirl)	Intel(R) C++ Version 10.0.025 Intel(R) Fortran Itanium(R) Version 10.0.025
Linux 2.6.16.46-0.14-smp #1 SMP x86_64 GNU/Linux (smirom)	Intel(R) C++ for Intel(R) EM64T Ver. 10.1.013 Intel(R) Fortran Intel(R) EM64T Ver. 10.1.013 PGI C, Fortran, C++ Version 7.2-1 for 64-bit target on x86-64 MPICH mpich-1.2.7 compiled with gcc 4.1.2 and G95 (GCC 4.0.3 (g95 0.92!)) MPICH mpich2-1.0.7 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 Altix SMP ia64 (cobalt)	Intel(R) C++ Version 10.1.017 Intel(R) Fortran Itanium(R) Version 10.1.017 SGI MPI 1.16
SunOS 5.10 32- and 64-bit (linew)	Sun WorkShop 6 update 2 C 5.8 Sun WorkShop 6 update 2 Fortran 95 8.2 Sun WorkShop 6 update 2 C++ 5.8 Patch 121019-06
Xeon Linux 2.6.9-42.0.10.EL_lustre-1.4.10.1smp (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 gcc (GCC) 3.2.2  
 (NCSA tg-login) 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

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 10.5.4 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	F90	F90	C++	zlib	SZIP
	parallel		parallel			
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 2.6.9-42 i686 Intel	W n	y	n	y	y	n
RedHat EL4 2.6.9-42 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 2.6.9 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	static-	Thread-
	libraries(4)	exec	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 10.4.10			y	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 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 2.6.9 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

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\* 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  $10^{308}$ ) 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.

