

Newsletter #153

May 1, 2017

CONTENTS

- Changes in Download Process
- Release of HDF5-1.10.1

Changes in Download Process

Please be aware that the HDF5-1.10.1 release is the first release in which the software is located on The HDF Group home page:

<https://www.hdfgroup.org/>

The source code does not require a login, but the built binaries can ONLY be downloaded by first logging in.

Release of HDF5-1.10.1

The HDF5-1.10.1 release is now available for download from:

<https://www.hdfgroup.org/downloads/hdf5/>

For complete details regarding this release, see:

<https://support.hdfgroup.org/HDF5/docNewFeatures/index.html>

User documentation for HDF5-1.10.1 can be accessed from:

<https://support.hdfgroup.org/HDF5/doc/>

This release contains major new features and changes. Please be aware that the new features use extensions to the HDF5 File Format. The new features are listed below:

- Metadata Cache Image

HDF5 metadata is typically small, and scattered throughout the HDF5 file. This can affect performance, particularly on large HPC systems. The Metadata Cache Image feature can improve performance by writing the metadata cache in a single block on file close, and then populating the cache with the contents of this block on file open, thus

avoiding the many small I/O operations that would otherwise be required on file open and close.

- Metadata Cache Evict on Close

The HDF5 library's metadata cache is fairly conservative about holding on to HDF5 object metadata (object headers, chunk index structures, etc.), which can cause the cache size to grow, resulting in memory pressure on an application or system. The "evict on close" property will cause all metadata for an object to be evicted from the cache as long as metadata is not referenced from any other open object.

- Paged Aggregation

The current HDF5 file space allocation accumulates small pieces of metadata and raw data in aggregator blocks which are not page aligned and vary widely in sizes. The paged aggregation feature was implemented to provide efficient paged access of these small pieces of metadata and raw data.

- Page Buffering

Small and random I/O accesses on parallel file systems result in poor performance for applications. Page buffering in conjunction with paged aggregation can improve performance by giving an application control of minimizing HDF5 I/O requests to a specific granularity and alignment.

Other important changes include the following:

- A mechanism for disabling the SWMR file locking scheme was added.
- The HDF5 Fortran library can now be compiled with the NAG compiler.
- A new option was added to the h5clear tool to remove a metadata cache image.

For a detailed list of changes in this release, please see the Release Notes:

<https://support.hdfgroup.org/ftp/HDF5/releases/hdf5-1.10/hdf5-1.10.1/src/hdf5-1.10.1-RELEASE.txt>

Also see the "HDF5 Software Changes from Release to Release" document for information on what has changed:

<https://support.hdfgroup.org/HDF5/doc/ADGuide/Changes.html>

Known Issues

- HDF5 releases are always backward compatible. In general, they are also forward compatible in maintenance releases of a major release. However, the HDF5-1.10.0 maintenance release will NOT be able to read HDF5-1.10.1 files that contain a metadata cache image. The metadata cache image must be removed with the h5clear tool in order for HDF5-1.10.0 to read the file.
- The CMake instructions for building the HDF5 examples omit two files that need to be copied to the directory where the examples are to be run. The instructions specify to copy the HDF5_Example.cmake file. However, the HDF5_Examples_options.cmake and CTestScript.cmake files must also be copied over.

These instructions are found in the README.txt file that comes with each pre-built windows binary, and they are also found in Section II of the USING_CMake_Examples.txt file in the release_docs directory of the source code.

- The following test lib files are installed when building HDF5 using autotools:

```
libdynlib1.la libdynlib3.la libdynlibadd.la libdynlibdump.la libdynlibvers.la  
libdynlib1.so libdynlib3.so libdynlibadd.so libdynlibdump.so libdynlibvers.so  
libdynlib2.la libdynlib4.la libdynlibdiff.la libdynlibls.la  
libdynlib2.so libdynlib4.so libdynlibdiff.so libdynlibls.so
```

These should not be installed and can be removed from the lib directory (rm lib/libdynlib*). They will not be included in future releases.