HDF5 external filters technical issues

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This document tries to address all the technical issues concerning the development and maintenance of external filter modules for HDF5.

1 Supported platforms and architectures

The current release of HDF5[1] supports the following platforms and architectures

	i386	x86_64	SPARC 32-bit	SPARC 64-bit	PPC64
Linux	X	X	–	–	X
Windows 7	X	X	–	–	–
Windows 8.1	X	X	–	–	–
OS X Lion 10.7.3	–	X	–	–	–
OS X Mt. Lion 10.8.5	–	X	–	–	–
OS X Mavericks 10.9.2	–	X	–	–	–
SunOS 5.11	–	–	X	X	–
FreeBSD 8.2	X	X	–	–	–

All external filter modules (EFMs) have to support the same set of platforms and architectures as the actual HDF5 release. This should ensure that no user experiences problems whenever he or she uses HDF5 on an officially supported platform-architecture setup.

2 Source code management

Reasonable maintenance of software is only possible by using a source code management (SCM) tool. The HDF5 library is currently using SVN[1] (as SCM system. However, for EF module development SVN, being a centralized SCM tool, might not be the best choice. Due to its central nature it has some natural drawbacks

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[1]At the time of writting this was 1.8.13

- working offline is rather difficult

- branching is as hard

- it is hard to move repositories between different servers.

In order to make things easy I suggest git [2] as the preferred SCM for EFM development. One of the big advantages of git is that repositories can be moved easily. This makes changing the hosting platform for an EFM project simple. Such a process may becomes necessary if the original platform ceases to exist or if an abandoned module is taken over by a new developer who wants to use a different platform.

3 Compilers and code

The choice of the programming language is rather simple: as the HDF5 core library is written in C, C should also be used for the EFM. The language standard used is C99.

3.1 Supported compilers and language standards

All modules must comply to the C99 standard and build the code with the following compilers

Windows	intel cc	??
	mingw gcc	??
	MS Studio	??
Linux	gcc	??
	intel	??
	clang	??
OSX	clang	??

Check compilers and required versions

is there a good reason why HDF5 does not support the MinGW compiler suite?

3.2 Code organization and coding style

The code should be organized according to the GNU standards [3, 4].

3.3 Build systems

Due to the large number of platforms every EF module has to support at least two build systems

cmake [5] for builds on Windows and OSX

autotools [6] for builds on Linux and Unix systems.

References

[1] Subversion website. [Online]. Available: https://subversion.apache.org

[2] Git website. [Online]. Available: http://git-scm.com

[3] Gnu coding standards. [Online]. Available: http://www.gnu.org/prep/standards/standards.html

[4] Gnu maintainer information. [Online]. Available: http://www.gnu.org/prep/maintain/maintain.html

[5] Cmake website. [Online]. Available: http://www.cmake.org

[6] Autotools wikipedia page. [Online]. Available: http://en.wikipedia.org/wiki/GNU_build_system