

HDF5 Virtual Object Layer (VOL) User Guide

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1 Introduction

2 Quickstart

Use A VOL-Enabled HDF5 Library

Make Sure The VOL Connector Is In The Search Path

Update Your Code To Load The Connector

3 Loading and Registering Connectors

3.1 VOL Connector Search Path

3.2 Connector-Specific Registration Calls

3.3 H5Pset_vol()

3.4 Environment Variable

4 Adapting HDF5 Software to Use the VOL

4.1 Specific API Call Substitutions

`H5Fis_hdf5` → `H5Fis_accessible`

`H5Oget_info(1|2)` → `H5Ofuture_function_goes_here`

5 Using VOL Connectors With The HDF5 Command-Line Tools

5.1 Connection Strings

5.2 Connector Compatibility

6 Compatibility

6.1 Feature Flags

PRELIMINARY

This feature is under active development and is either incomplete or may change in behavior before the final release.

6.2 List of HDF5 Native VOL API Calls

These API calls will probably fail when used with terminal VOL connectors other than the native HDF5 file format connector. Their use should be protected in code that uses arbitrary VOL connectors.

H5Aget_num_attrs (deprecated) H5Aiterate1 (deprecated)
H5Ddebug H5Dformat_convert H5Dget_chunk_index_type H5Dget_chunk_info H5Dget_chunk_info_by_coord H5Dget_chunk_storage_size H5Dget_num_chunks H5Dread_chunk H5Dwrite_chunk
H5FD*
H5Fclear_elink_file_cache H5Fformat_convert H5Fget_dset_no_attrs_hint H5Fget_eoa H5Fget_file_image H5Fget_filesize H5Fget_free_sections H5Fget_freespace H5Fget_info1 (deprecated) H5Fget_info2 H5Fget_mdc_config H5Fget_mdc_hit_rate H5Fget_mdc_image_info H5Fget_mdc_logging_status

H5Fget_mdc_size H5Fget_metadata_read_retry_info H5Fget_mpi_atomicity H5Fget_page_buffering_stats H5Fget_vfd_handle H5Fincrement_filesize H5Fis_hdf5 (deprecated) H5Freset_mdc_hit_rate_stats H5Freset_page_buffering_stats H5Fset_dset_no_attrs_hint H5Fset_latest_format (deprecated) H5Fset_libver_bounds H5Fset_mdc_config H5Fset_mpi_atomicity H5Fstart_mdc_logging H5Fstart_swmr_write H5Fstop_mdc_logging
H5Gget_comment (deprecated) H5Giterate (deprecated) H5Gget_info H5Gget_info_by_name H5Gget_info_by_idx H5Gget_objinfo (deprecated) H5Gget_objname_by_idx (deprecated) H5Gget_objtype_by_idx (deprecated) H5Gset_comment (deprecated)
H5Oare_mdc_flushes_disabled H5Odisable_mdc_flushes H5Oenable_mdc_flushes H5Oget_comment H5Oget_comment_by_name H5Oget_info_by_idx1 (deprecated) H5Oget_info_by_idx2 H5Oget_info_by_name1 (deprecated) H5Oget_info_by_name2 H5Oget_info1 (deprecated) H5Oget_info2 H5Oset_comment H5Oset_comment_by_name

Table 1: Alphabetical list of HDF5 API calls specific to the native VOL connector

6.3 List of HDF5 VOL-Independent API Calls

These HDF5 API calls do not depend on a particular VOL connector being loaded.

H5*

H5Dfill H5Dgather H5Diterate H5Dscatter H5Dvlen_reclaim (deprecated) H5Dvlen_get_buf_size
H5E* H5I*
H5Lis_registered H5Lregister H5Lunpack_elink_val H5Lunregister
H5PL* H5P* H5S* H5T* (non-committed) H5VL* H5Z*

Table 2: Alphabetical list of VOL-independent HDF5 API calls

6.4 List of HDF5 API Calls By Callback

VOL Callback	HDF5 API Call
FILE	
create	H5Fcreate
open	H5Fopen
get	H5Fget_access_plist H5Fget_create_plist H5Fget_fileno H5Fget_intent H5Fget_name H5Fget_obj_count H5Fget_obj_ids
specific	H5Fdelete H5Fflush H5Fis_accessible H5Fis_hdf5 (deprecated, hard-coded to use native connector) H5Fmount H5Freopen H5Funmount
close	H5Fclose
GROUP	
create	H5Gcreate1 (deprecated) H5Gcreate2 H5Gcreate_anon
open	H5Gopen1 (deprecated)

	H5Gopen2
get	H5Gget_create_plist H5Gget_info H5Gget_info_by_idx H5Gget_info_by_name H5Gget_num_objs (deprecated)
specific	H5Gflush H5Grefresh
close	H5Gclose
DATASET	
create	H5Dcreate1 (deprecated) H5Dcreate2
open	H5Dopen1 (deprecated) H5Dopen2
read	H5Dread
write	H5Dwrite
get	H5Dget_access_plist H5Dget_create_plist H5Dextend H5Dget_offset H5Dget_space H5Dget_space_status H5Dget_storage_size H5Dget_type
specific	H5Dextend (deprecated) H5Dflush H5Drefresh H5Dset_extent
close	H5Dclose
OBJECT	
open	H5Oopen H5Oopen_by_addr H5Oopen_by_idx H5Oopen_by_name
copy	H5Ocopy
get	N/A
specific	H5Odecr_refcount H5Oexists_by_name H5Oflush H5Oincr_refcount H5Orefresh H5Ovisit_by_name1 (deprecated) H5Ovisit_by_name2 H5Ovisit1 (deprecated) H5Ovisit2
close	H5Oclose
LINK	
create	H5Glink (deprecated) H5Glink2 (deprecated)

	H5Lcreate_hard H5Lcreate_soft H5Lcreate_ud H5Olink
copy	H5Lcopy
move	H5Gmove (deprecated) H5Gmove2 (deprecated) H5Lmove
get	H5Gget_linkval (deprecated) H5Lget_info H5Lget_info_by_idx H5Lget_name_by_idx H5Lget_val H5Lget_val_by_idx
specific	H5Gunlink (deprecated) H5Ldelete H5Ldelete_by_idx H5Lexists H5Literate H5Literate_by_name H5Lvisit H5Lvisit_by_name
DATATYPE	
commit	H5Tcommit1 (deprecated) H5Tcommit2 H5Tcommit_anon
open	H5Topen1 (deprecated) H5Topen2
get	H5Tget_create_plist
specific	H5Tflush H5Trefresh
close	H5Tclose
ATTRIBUTE	
create	H5Acreate1 (deprecated) H5Acreate2 H5Acreate_by_name
open	H5Aopen H5Aopen_by_idx H5Aopen_by_name H5Aopen_idx (deprecated) H5Aopen_name (deprecated)
read	H5Aread
write	H5Awrite
get	H5Aget_get_create_plist H5Aget_info H5Aget_info_by_idx H5Aget_info_by_name H5Aget_name H5Aget_name_by_idx

	H5Aget_space H5Aget_storage_size H5Aget_type
specific	H5Adelete H5Adelete_by_idx H5Adelete_by_name H5Aexists H5Aexists_by_name H5Aiterate1 (deprecated) H5Aiterate2 H5Aiterate_by_name H5Arename H5Arename_by_name
close	H5Aclose

Table 3: Breakdown of HDF5 API calls by VOL callback

References