# HDF5 Property Lists, Properties and Property Values

| **Property List Class** | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## File Creation Property Lists (FCPL)

| B-tree control parameter | Set/get size parameter controlling B-trees for indexing chunked datasets. | H5Pset_istore_k | |
| --- | --- | --- | --- |
| | | H5Pget_istore_k | |
| FCPL identifier | | fcpl_id | Valid FCPL identifier |
| | | | **Default: No default value** |
| B-tree control parameter | One-half the rank of chunked storage B-tree. | ik | Unsigned integer specifying one-half the rank of a tree that stores chunked raw data. |
| | | | **Default:  32** |
| Sizes of object offsets and lengths | Set/get byte size of  offsets and lengths used to address objects in HDF5 file. | H5Pset_sizes | |
| | | H5Pget_sizes | |
| FCPL identifier | | fcpl_id | Valid FCPL identifier |
| | | | **Default: No default value** |
| Object offset | | sizeof_addr | Unsigned integer specifying size, in bytes, of offsets used to address an object. |
| | | | 0 (zero) retains current setting. |
| | | | **Default:  sizeof(hsize_t)**   Normally 8 bytes |
| Object length | | sizeof_size | Unsigned integer specifying size, in bytes, of lengths used to address an object. |
| | | | 0 (zero) retains current setting. |
| | | | **Default:  sizeof(hsize_t)**   Normally 8 bytes |
| Size of parameters to control symbol table nodes | Set/get size of parameters used to control symbol table nodes. | H5Pset_sym_k | |
| | | H5Pget_sym_k | |
| FCPL identifier | | fcpl_id | Valid FCPL identifier |
| | | | **Default: No default value** |
| Symbol table tree rank | Controls rank of symbol table tree for group; rank is twice the value of this setting. | ik | Unsigned integer specifying one-half of rank of symbol table tree. |
| | | | 0 (zero) retains current value. |
| | | | **Default:  16** |
| Symbol table node size | Controls number of symbols that can be stored in symbol table node; rank is twice the value of this setting. | lk | Unsigned integer specifying one-half of number of symbols that can be stored in symbol table node. |
| | | | 0 (zero) retains current value. |
| | | | **Default:  4** |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property<br>    Parameter(s) or Flag(s)<br>        HDF5 knobs that can be adjusted | Additional Description<br>    Additional Description (where necessary) | Set/Get Call<br>    Parameter | Valid Values |
|---|---|---|---|
| Userblock size | Set/get size of userblock associated with an HDF5 file. | `H5Pset_userblock`<br><br>`H5Pget_userblock` | |
|     FCPL identifier | | `fcpl_id` | Valid FCPL identifier<br>**Default: No default value** |
|     Size of userblock | | `size` | Unsigned integer specifying size of userblock in bytes. Must be power of 2 and equal to 512 or greater.<br>**Default:  0** |

**Shared object header message (SOHM) properties**

| | | | |
|---|---|---|---|
| SOHM index configuration | Set/get shared object header message (SOHM) index configuration. | `H5Pset_shared_mesg_index`<br><br>`H5Pget_shared_mesg_index` | |
|     FCPL identifier | | `fcpl_id` | Valid FCPL identifier<br>**Default: No default value** |
|     Index to configure | | `index_num` | Unsigned integer identifying index to be configured.<br>**Default: No default value** |
|     Message types in index | Types of messages to be stored in index. | `mesg_type_flags` | `H5O_SHMESG_SDSPACE_FLAG`<br>`H5O_SHMESG_DTYPE_FLAG`<br>`H5O_SHMESG_FILL_FLAG`<br>`H5O_SHMESG_PLINE_FLAG`<br>`H5O_SHMESG_ATTR_FLAG`<br>`H5O_SHMESG_ALL_FLAG`<br>`H5O_SHMESG_NONE_FLAG`<br>**Default:  `H5O_SHMESG_NONE_FLAG`** |
|     Minimum message size | | `min_mesg_size` | Unsigned integer specifying minimum message size for this index.<br>**Default: No default value** |
| Number of SOHM indexes | Set/get number of shared object header message (SOHM) indexes to be available in files. | `H5Pset_shared_mesg_nindexes`<br><br>`H5Pget_shared_mesg_nindexes` | |
|     FCPL identifier | | `fcpl_id` | Valid FCPL identifier<br>**Default: No default value** |
|     Number of indexes | | `nindexes` | Unsigned integer specifying number of shared object header message indexes to be available in files.<br>0 (zero) disables shared object header messages.<br>**Default: No default value** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| SOHM index storage phase change thresholds | Set/get phase change thresholds for SOHM index storage. | H5Pset_shared_mesg_phase_change | |
| | | H5Pget_shared_mesg_phase_change | |
| FCPL identifier | | fcpl_id | Valid FCPL identifier |
| | | | **Default: No default value** |
| Maximum list size threshold | Threshold above which storage of a SOHM index shifts from list to B-tree. | max_list | Unsigned integer specifying maximum number of SOHM indexes to be stored in a list. |
| | | | 0 (zero) sets SOHM index storage to B-tree, never reverting to list. |
| | | | **Default: No default value** |
| Minimum B-tree size threshold | Threshold below which storage of a SOHM index reverts to list format. | min_btree | Unsigned integer specifying minimum number of SOHM indexes to be stored in a B-tree. |
| | | | **Default: No default value** |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## File Access Property Lists (FAPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Align objects | Set/get alignment of objects larger than threshold size on specified boundaries in file. | H5Pset_alignment | |
| | | H5Pget_alignment | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| Alignment threshold | | threshold | Minimum size object to align.<br>0 (zero) forces all objects to be aligned.<br>1 implies no alignment.<br>**Default: 1** |
| Alignment boundary | | alignment | Non-negative integer, preferably multiple of system block size.<br>1 turns alignment off.<br>**Default: 1** |
| Raw data chunk cache (RDCC) properties | Set/get chunk cache properties on per-file basis. | H5Pset_cache | |
| | | H5Pget_cache | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| *Deprecated parameter* | *No longer used.* | mdc_nelmts | *Any value passed is ignored.*<br>**Default: No default value** |
| Number of elements in RDCC | Number of chunk slots in RDCC for this file. | rdcc_nslots | Non-negative integer.<br>**Default: 521** |
| Total size of RDCC | Total size of RDCC for this file. | rdcc_nbytes | Non-negative integer stating size in bytes.<br>**Default: 1MB per dataset** |
| Preemption policy | Chunk preemption policy for this file. | rdcc_w0 | Real number between 0 (zero) and 1 (one), inclusive.<br>**Default: 0.75** |
| Maximum number of files held open | Set/get maximum number of files that can be held open in external link open file cache | H5Pset_elink_file_cache_size | |
| | | H5Pget_elink_file_cache_size | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| External link file cache size | | efc_size | Unsigned integer specifying maximum number of files that can be held open.<br>**Default: 0** (zero) |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property<br>Parameter(s) or Flag(s) | Additional Description<br>Additional Description (where necessary) | Set/Get Call<br>Parameter | Valid Values |
|---|---|---|---|
| HDF5 knobs that can be adjusted | | | |
| Garbage collection references flag | Set/get region reference garbage collection flag. | H5Pset_gc_references<br>H5Pget_gc_references | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| Region reference garbage collection flag | | gc_ref | 0 (OFF)<br>1 (ON)<br>**Default: 0** |
| Version bounds for HDF5 object formats | Set/get limits on versions of HDF5 format to be used when writing objects.<br>*Allows only the 'latest', H5F_LIBVER_LATEST, and 'earliest'', H5F_LIBVER_EARLIEST, boundaries; per-release limits not available.* | H5Pset_libver_bounds<br><br><br><br><br>H5Pget_libver_bounds | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| Earliest version to be used | | libver_low | H5F_LIBVER_EARLIEST<br>H5F_LIBVER_18<br>H5F_LIBVER_LATEST<br>**Default: H5F_LIBVER_EARLIEST** |
| Latest version to be used | | libver_high | H5F_LIBVER_18<br>H5F_LIBVER_LATEST<br>**Default: H5F_LIBVER_LATEST** |
| Metadata cache configuration | Set/get initial metadata cache configuration. | H5Pset_mdc_config<br>H5Pget_mdc_config | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| Pointer to struct of configuration settings | | config_ptr | Valid pointer to H5AC_cache_config_t struct.<br>**Default: No default value** |
| Minimum metadata block size | Set/get minimum metadata block size.<br>*Valid only when H5FD_FEAT_AGGREGATE_METADATA has been set by a VFL driver.* | H5Pset_meta_block_size<br><br><br>H5Pget_meta_block_size | |
| FAPL identifier | | fapl_id | Valid FAPL identifier<br>**Default: No default value** |
| Minimum metadata block size | | size | Unsigned integer specifying minimum metadata block allocations in bytes.<br>0 (zero) turns off metadata aggregation.<br>**Default: 2048** |

**HDF5 Property Lists, Properties and Property Values**

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| Maximum size of data sieve buffer | Set/get maximum size of data sieve buffer. | `H5Pset_sieve_buf_size`<br>`H5Pget_sieve_buf_size` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Maximum data sieve buffer size | | `size` | Unsigned integer specifying maximum data sieve buffer size in bytes.<br>0 (zero) turns off data sieving.<br>**Default:  64KB** |
| Size of contiguous block reserved for small data | Set/get size of contiguous block reserved for contiguous storage of small data. | `H5Pset_small_data_block_size`<br><br>`H5Pget_small_data_block_size` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Size of shared contiguous block | | `size` | Unsigned integer specifying size, in bytes, of shared contiguous block.<br>0 (zero) disables small data block mechanism.<br>**Default:  2048** |
| File close degree | Set/get how aggressively to close file when H5Fclose is called while object(s) in file remain open. | `H5Pset_fclose_degree`<br>`H5Pget_fclose_degree` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| File close degree | Level of aggression. | `fc_degree` | `H5F_CLOSE_WEAK`<br>`H5F_CLOSE_SEMI`<br>`H5F_CLOSE_STRONG`<br>`H5F_CLOSE_DEFAULT`<br>**Defaults:**<br>    **For H5FD_MPIO driver:  H5F_CLOSE_SEMI**<br>    **All other drivers:  H5F_CLOSE_DEFAULT** |

# HDF5 Property Lists, Properties and Property Values

| Property List Class | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

| **Drivers** | | | |
|---|---|---|---|
| Core driver | Set/get use of core driver (`H5FD_CORE`). | `H5Pset_fapl_core` `H5Pget_fapl_core` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| Increment | Size of increment when memory is increased. | `increment` | Unsigned integer indicating size, in bytes, of increment when memory must be increased. **Default: No default value** |
| Backing store | Flag specifying whether file contents are ever written to disk. | `backing_store` | Boolean value indicating that file is never written to disk (0) or is written to disk (1) when file is closed or access to file terminates in memory. **Default:  0** |
| Direct I/O driver | Set/get use of direct I/O driver  (`H5FD_DIRECT`). | `H5Pset_fapl_direct` `H5Pget_fapl_direct` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| Memory alignment | Required alignment boundary in memory. | `alignment` | Unsigned integer specifying required boundary alignment in  memory in bytes. Default: `4096`   (4KB) |
| File system block size | File system block size. | `block_size` | Unsigned integer indicating file system block size in bytes. 0 (zero) specifies HDF5 Library default value of 4KB. Default: `4096`   (4KB) |
| Copy buffer size | Copy buffer size. | `cbuf_size` | Unsigned integer specifying required copy buffer size in bytes. Default: `16777216`   (16MB) |
| Family driver | Set/get use of "family of files" driver (`H5FD_FAMILY`). | `H5Pset_fapl_family` `H5Pget_fapl_family` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| Member size | Size of each member file. | `memb_size` | Unsigned integer specifying size, in bytes, of each member file. Default: `H5F_FAMILY_DEFAULT` [4] |
| Member file access property list identifier | One file access property list identifier to be used with all family members. | `memb_fapl_id` | Valid file access property list identifier. Default: `H5P DEFAULT` [1] |

## HDF5 Property Lists, Properties and Property Values

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| | HDF5 knobs that can be adjusted | | | |
| Log driver | | Set up use of logging driver (`H5FD_LOG`). *This is a standard POSIX driver (`H5FD_SEC2`) with logging capabilities.* | H5Pset_fapl_log | |
| | FAPL identifier | | fapl_id | Valid FAPL identifier **Default: No default value** |
| | Log file | Name of file in which logging entries are to be recorded. | logfile | Valid filename with relative or absolute path. **Default: No default value** |
| | Logging flags | Flags specifying actions to be logged. | flags | Valid flag(s) for action(s) to be logged, as listed in `H5Pset_fapl_log` reference manual entry. Multiple flags expressed with logical OR and in parentheses. **Default: No default value** |
| | Buffer size | Size of logging buffers. | buf_size | Unsigned integer specifying size, in bytes, of logging buffers. Must be at least the maximum size, in bytes, of the file to be logged while the log driver is in use. **Default: No default value** |
| MPI I/O driver | | Set/get use of MPI I/O driver (`H5FD_MPIO`). *Available only in parallel HDF5.* | H5Pset_fapl_mpio H5Pget_fapl_mpio | |
| | FAPL identifier | | fapl_id | Valid FAPL identifier **Default: No default value** |
| | MPI-2 communicator | MPI communicator to be used for file open. | comm | Valid MPI-2 communicator **Default: No default value** |
| | MPI-2 Info object | MPI Info object to be used for file open. | info | Valid MPI Info object **Default: No default value** |
| *MPI POSIX driver (removed from HDF5)* | | Set/get use of MPI POSIX driver (`H5FD_MPIPOSIX`). *Removed from HDF5 ar Release 1.8.13.* | H5Pset_fapl_mpiposix H5Pget_fapl_mpiposix | |
| | FAPL identifier | | fapl_id | Valid FAPL identifier **Default: No default value** |
| | MPI-2 communicator | MPI communicator to be used for file open. | comm | Valid MPI-2 communicator **Default: No default value** |
| | Use of GPFS hints | Calls for use of GPFS hints. | use_gpfs_hints | Boolean value specifying whether to use GPFS hints: 0 (zero) for FALSE 1 (one) for TRUE **Default: 0** |

# HDF5 Property Lists, Properties and Property Values

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|---|---|---|---|---|
| **Property** | | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | | |
| Multi driver | | Set/get use of multi-file driver (`H5FD_MULTI`). | `H5Pset_fapl_multi` `H5Pget_fapl_multi` | |
| | FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| | Memory usage map | Map memory usage types to other memory usage types. | `mem_map` | Array of `H5FD_MEM_NTYPES` entries, each either the value `H5FD_MEM_DEFAULT` or a memory usage type. **Default: Array of `H5FD_MEM_DEFAULT`** |
| | Memory usage types property list | Property list for each memory usage type. | `mem_fapl` | Array of property list for each memory usage type that will be associated with a file. **Default: Array of `H5P_DEFAULT`** [1] |
| | Name generator | Name generator for names of member files. | `memb_name` | Array of printf-style strings, defined in the reference manual entry. **Default: %s-*X*.h5** |
| | Virtual address space offsets | Offsets within the virtual address space at which each type of data storage begins. | `memb_addr` | Array of unsigned integers from `0` (zero) to `HADDR_MAX`. **Default: 0** (zero) |
| | Relaxed access | Allow read-only access to incomplete file sets. | `relax` | Boolean value specifying whether to allow read access to incomplete file sets: 0 (zero) for FALSE 1 (one) for TRUE **Default: 0** |
| Sec2 driver | | Set up use of sec2 driver (`H5FD_SEC2`), HDF5's default default driver and its standard POSIX-compliant driver. | `H5Pset_fapl_sec2` | |
| | FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| Split driver | | Set up use of split driver (`H5FD_SPLIT`), a special case of the `H5FD_MULTI` driver. | `H5Pset_fapl_split` | |
| | FAPL identifier | | `fapl_id` | Valid FAPL identifier **Default: No default value** |
| | Metadata file extension | | `meta_ext` | Valid string for use as filename extension. **Default: No default value** |
| | FAPL identifier for metadata file | | `meta_plist_id` | Valid file access property list identifier. **Default: `H5P DEFAULT`** [1] |
| | Raw data file extension | | `raw_ext` | Valid string for use as filename extension. **Default: No default value** |
| | FAPL identifier for raw data file | | `raw_plist_id` | Valid file access property list identifier. **Default: `H5P DEFAULT`** [1] |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property<br>    Parameter(s) or Flag(s)<br>        HDF5 knobs that can be adjusted | Additional Description<br>    Additional Description (where necessary) | Set/Get Call<br>    Parameter | Valid Values |
|---|---|---|---|
| Standard I/O driver | Set up use of standard I/O driver (`H5FD_STDIO`). | `H5Pset_fapl_stdio` | |
|     FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| *STREAM driver (removed from HDF5 and not to be included in table)* | | `H5Pset_fapl_stream`<br>`H5Pget_fapl_stream` | |
| Windows I/O driver | Set up use of default HDF5 I/O driver for Windows systems (`H5FD_WINDOWS`).<br>*Supported only on Windows systems and the only HDF5 driver tested on Windows systems.* | `H5Pset_fapl_windows` | |
|     FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Offset for low-level access to file in family of files | Set offset of specific data in logical HDF5 file, enabling retrieval of file handle for relevant member of HDF5 family of files.<br>*Meaningful only if file is created as an HDF5 family of files (`H5FD_FAMILY`, `H5Pset_fapl_family`).* | `H5Pset_family_offset`<br><br>`H5Pget_family_offset` | |
|     FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
|     Offset within HDF5 file | | `offset` | Unsigned integer specifying offset, in bytes, of data that user seeks within logical HDF5 file.<br>**Default: No default value** |
| Type of data to be accessed by multi driver | Set/get type of data to be accessed by H5FD_MULTI driver.<br>*Appropriate only with HDF5 files written as set of files with multi file driver, `H5FD_MULTI`.* | `H5Pset_multi_type`<br><br>`H5Pget_multi_type` | |
|     FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
|     Type of data | Type of data to be accessed.<br>Specify exactly one:<br>super block data, B-tree data, dataset raw data, global heap data, local heap data, or object header data. | `type` | `H5D_MEM_SUPER`<br>`H5D_MEM_BTREE`<br>`H5D_MEM_DRAW`<br>`H5D_MEM_GHEAP`<br>`H5D_MEM_LHEAP`<br>`H5D_MEM_OHDR` |

**HDF5 Property Lists, Properties and Property Values**

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| Core driver write tracking properties | Set/get core driver write tracking properties. | `H5Pset_core_write_tracking`<br>`H5Pget_core_write_tracking` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Enable write tracking | Enable or disable write tracking. | `is_enabled` | 1 (one) for ENABLED.<br>0 (zero) for DISABLED.<br>**Default:  0** |
| Write tracking page size | Page size. | `page_size` | Unsigned integer specifying page size in bytes.<br>Preferably a power of 2.<br>1 (one) forces tracking with no paging.<br>**Default: No default value** |
| File image (core driver) | Set/get file image for working with a file in memory. | `H5Pset_file_image`<br><br>`H5Pget_file_image` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Buffer pointer | Pointer to initial file image. | `buf_ptr` | Valid pointer to file image.<br>`NULL` if no initial file image.<br>**Default:  NULL** |
| Buffer size | Size of supplied buffer. | `buf_len` | Valid buffer size in bytes.<br>`0` (zero) if no initial file image.<br>**Default:  0** |
| File image callbacks (core driver) | Set/get callback functions for working with a file image in memory. | `H5Pset_file_image_callbacks`<br><br>`H5Pget_file_image_callbacks` | |
| FAPL identifier | | `fapl_id` | Valid FAPL identifier<br>**Default: No default value** |
| Callbacks pointer | Pointer to instance of `H5_file_image_callbacks_t` structure. | `callbacks_ptr` | Valid pointer to valid structure defining callback functions.<br>**Default: No default value** |

# HDF5 Property Lists, Properties and Property Values

| Property List Class | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Object Creation Property Lists (OCPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Track and index attribute creation order | Set/get tracking and indexing on attribute creation order. | H5Pset_attr_creation_order<br><br>H5Pget_attr_creation_order | |
| OCPL identifier | | `ocpl_id` | Valid OCPL identifier<br>**Default: No default value** |
| Creation order flags | Tracked or tracked-and-indexed | `crt_order_flags` | `H5P_CRT_ORDER_TRACKED`<br>`H5P_CRT_ORDER_INDEXED`   *(Requires 'tracked'.)*<br>**Default: Attribute creation order is neither tracked nor indexed.** |
| Attribute storage phase change properties | Set/get attribute storage phase change thresholds. | H5Pset_attr_phase_change<br><br>H5Pget_attr_phase_change | |
| OCPL identifier | | `ocpl_id` | Valid OCPL identifier<br>**Default: No default value** |
| Maximum number for compact storage | Maximum number of links to store in compact storage before converting group to dense format. | `max_compact` | Any unsigned integer.<br>0 (zero) forces compact storage to always be used.<br>**Default:  8** |
| Minimum number for dense storage | Minimum number of links to store in dense format before converting group to compact format. | `min_dense` | Any unsigned integer.<br>**Default:  6** |
| Recording of times associated with object | Recording of times associated with object. | H5Pset_obj_track_times<br><br>H5Pget_obj_track_times | |
| OCPL identifier | | `ocpl_id` | Valid OCPL identifier<br>**Default: No default value** |
| Track times | Track times associated with object. | `track_times` | `TRUE` -- Times are recorded.<br>`FALSE`  -- Times are not recorded.<br>**Default:  FALSE** |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Object Copy Property Lists (OCPYPL)

| | | | |
|---|---|---|---|
| Object copy properties | Set/get properties governing object copying. | `H5Pset_copy_object` `H5Pget_copy_object` | |
| OCPYPL identifier | | `ocpypl_id` | Valid OCPYPL identifier **Default: No default value** |
| Copy options | Copy property settings. | `copy_options` | Valid flag(s) for copy property settings (below). Multiple flags are expressed with logical OR and in parentheses. **Default: See below** |
| | Recursive copy. | | `H5O_COPY_SHALLOW_HIERARCHY_FLAG` Copy only immediate members of a group. **Default: Recursively copy all objects in and below group.** |
| | Soft link expansion. | | `H5O_COPY_EXPAND_SOFT_LINK_FLAG` Expand soft links into new objects. **Default: Copy soft links as unchanged soft links.** |
| | External link expansion. | | `H5O_COPY_EXPAND_EXT_LINK_FLAG` Expand external link into new objects. **Default: Copy external links as unchanged external links.** |
| | Copying references. | | `H5O_COPY_EXPAND_REFERENCE_FLAG` Copy objects that are pointed to by references and update reference values in destination file. **Default: Set reference values in destination file to zero (0).** |
| | Copying attributes. | | `H5O_COPY_WITHOUT_ATTR_FLAG` Copy object without copying attributes. **Default: Copy object with all attributes.** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| | Matching shared committed datatypes. | | `H5O_COPY_MERGE_COMMITTED_DTYPE_FLAG` Use matching committed datatype in destination file when copying committed datatype, dataset with committed datatype, or object with attribute of committed datatype. **Default: If copied in single H5Ocopy operation, objects sharing committed datatype in source will share anonymous committed datatype in destination copy. Subsequent H5Ocopy operations will be unaware of prior anonymous committed datatypes.** |
| List of merged committed datatype paths | Add new path to list of paths in property list. | `H5Padd_merge_committed_dtype_path.htm` | |
| OCPYPL identifier | | `ocpypl_id` | Valid OCPYPL identifier **Default: No default value** |
| Path to be added. | | `path` | Valid path where matching committed datatypes can be found in destination copy. **Default: No default value** |
| | Remove list of paths from property list. | `H5Pfree_merge_committed_dtype_paths.htm` | |
| OCPYPL identifier | | `ocpypl_id` | Valid OCPYPL identifier **Default: No default value** |
| `H5Ocopy` callback function | Set/get callback function for H5Ocopy to invoke before searching entire destination file for matching committed datatype. | `H5Pset_mcdt_search_cb` | |
| | | `H5Pget_mcdt_search_cb` | |
| OCPYPL identifier | | `ocpypl_id` | Valid OCPYPL identifier **Default: No default value** |
| User-defined `H5Ocopy` callback function | | `func` | Valid user-defined callback function. **Default: No callback function** |
| User-defined callback function input data | | `op_data` | User-defined callback function data. **Default: No input data** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Link Creation Property Lists (LCPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Character encoding | Set/get character encoding used for link and attribute names. | `H5Pset_char_encoding` | |
| | | `H5Pget_char_encoding` | |
| LCPL identifier | | `lcpl_id` | Valid LCPL or ACPL identifier<br>**Default: No default value** |
| Character encoding | | `encoding` | `H5T_CSET_ASCII`  (US ASCII)<br>`H5T_CSET_UTF8`  (UTF-8 Unicode)<br>**Default: `H5T_CSET_ASCII`** |
| Create missing intermediate groups | Set/get create missing intermediate groups property when object is created at location that does not yet exist. | `H5Pset_create_intermediate_group` | |
| | | `H5Pget_create_intermediate_group` | |
| LCPL identifier | | `lcpl_id` | Valid LCPL identifier<br>**Default: No default value** |
| Missing intermediate group creation flag | Flag specifying whether to create missing intermediate groups | `crt_intermed_group` | Positive value [ ON ]<br>Non-positive value  [ OFF ]<br>**Default: OFF** |

# HDF5 Property Lists, Properties and Property Values

| Property List Class | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Link Access Property Lists (LAPL)

| | | | |
|---|---|---|---|
| External link traversal file access | Set/get file access settings in LAPL used to open files reached through external links. [3] | `H5Pset_elink_acc_flags`  `H5Pget_elink_acc_flags` | |
| LAPL identifier | | `lapl_id` | Valid LAPL identifier  **Default: No default value** |
| External link traversal file access flags | Flags for setting file access when traversing external links. | `flags` | `H5F_ACC_RDWR`  Open with read/write access.  `H5F_ACC_RDONLY`  Open with read-only access.  `H5F_ACC_DEFAULT`  File access flag settings taken from parent file.  **Default: `H5F_ACC_DEFAULT`** |
| External link callback function | Set/get external link traversal callback function [3] | `H5Pset_elink_cb`  `H5Pget_elink_cb` | |
| LAPL identifier | | `lapl_id` | Valid LAPL identifier  **Default: No default value** |
| Callback function | | `func` | User-defined external link traversal callback function.  **Default: No callback function** |
| Callback data | | `op_data` | User-supplied data for callback function.  **Default: No user-supplied data** |
| FAPL for file accessed via external link | Set/get file access property list (FAPL) for use in accessing file pointed to by external link. | `H5Pset_elink_fapl` | |
| LAPL identifier | | `lapl_id` | Valid LAPL identifier  **Default: No default value** |
| File access property list (FAPL) to use for files accessed through external links | | `fapl_id` | Valid FAPL identifier  *Any file close degree property setting (`H5Pset_fclose_degree`) in this FAPL will be ignored.*  **Default: File access identifier from existing LAPL** |
| | | `H5Pget_elink_fapl` | |
| LAPL identifier | | `lapl_id` | Valid LAPL identifier  **Default: No default value** |

**HDF5 Property Lists, Properties and Property Values**

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| Prefix to be applied to external link paths | Set/get prefix to be applied to external link paths. | H5Pset_elink_prefix | |
| LAPL identifier | | lapl_id | Valid LAPL identifier **Default: No default value** |
| Prefix for external link paths | | prefix | Valid file system path to be prepended to filename stored in external link. **Default: No prefix** |
| | | H5Pget_elink_prefix | |
| LAPL identifier | | lapl_id | Valid LAPL identifier **Default: No default value** |
| Prefix for external link paths | | prefix | Valid file system path to be prepended to filename stored in external link. **Default: No prefix** |
| Size of prefix | | size | Size of string specifying prefix, with NULL terminator. **Default: No default value** |
| Maximum number of soft or UD link traversals | Set/get maximum number of allowed soft or user-defined link traversals. | H5Pset_nlinks | |
| | | H5Pget_nlinks | |
| LAPL identifier | | lapl_id | Valid LAPL identifier **Default: No default value** |
| Number of links | Maximum number of links that may be traversed. | nlinks | Unsigned integer specifying maximum number of allowed link traversals. Default:  16 |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Group Creation Property Lists (GCPL)

| | | | |
|---|---|---|---|
| Number of links and size of link names | Set/get estimated number lf links and length of link names.<br>*Accurate estimates will help reduce wasted file space.* | `H5Pset_est_link_info`<br><br>`H5Pget_est_link_info` | |
| GCPL identifier | | `gcpl_id` | Valid GCPL identifier<br>**Default: No default value** |
| Number of links | Estimated number of links to be inserted into group. | `est_num_entries` | Unsigned integer specifying expected number of links.<br>**Default: No default value** |
| Length of link names | Estimated average length of link names. | `est_num_len` | Unsigned integer indicating expected average length of link names, in characters.<br>**Default: No default value** |
| Local heap size hint | Set/get anticipated maximum local heap size. | `H5Pset_local_heap_size_hint`<br>`H5Pget_local_heap_size_hint` | |
| GCPL identifier | | `gcpl_id` | Valid GCPL identifier<br>**Default: No default value** |
| Size hint | Anticipated maximum local heap size. | `size_hint` | Unsigned integer specifying anticipated maximum local heap size in bytes.<br>0 (zero) directs HDF5 Library to make reasonable estimate.<br>**Default: 88 bytes** Estimate calculated by HDF5 Library |
| Link creation order | Set/get tracking and indexing on link creation order. | `H5Pset_link_creation_order`<br><br>`H5Pget_link_creation_order` | |
| GCPL identifier | | `gcpl_id` | Valid GCPL identifier<br>**Default: No default value** |
| Link creation order flags | Tracked or tracked-and-indexed. | `crt_order_flags` | `H5P_CRT_ORDER_TRACKED`<br>`H5P_CRT_ORDER_INDEXED`   *(Requires 'tracked'.)*<br>**Default: Link creation order is neither indexed nor tracked.** |

## HDF5 Property Lists, Properties and Property Values

| Property List Class | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| Link storage phase change | Set/get thresholds for conversion between compact and dense groups. | H5Pset_link_phase_change | |
| | | H5Pget_link_phase_change | |
| GCPL identifier | | gcpl_id | Valid GCPL identifier |
| | | | **Default: No default value** |
| Maximum number for compact storage | Maximum number of links to store as header messages in group header before converting group to dense format. | max_compact | Unsigned integer specifying maximum number of links for compact storage. |
| | | | **Default: 8** |
| Minimum number for dense storage | Minimum number of links to store in dense format before converting group to compact format. | min_dense | Unsigned integer specifying minimum number of links for dense storage. |
| | | | **Default: 6** |
| Gzip compression | Set/get gzip compression and compression level. | H5Pset_deflate | |
| GCPL identifier | | gcpl_id | Valid GCPL identifier |
| | | | **Default: No default value** |
| Compression level | Desired compression level . | level | Unsigned integer 0 (zero) through 9: |
| | *Setting compression level to 0 (zero) does not turn off use of gzip filter, but sets filter to perform no compression as it processes the data.* | | 0 -- No compression. |
| | | | 1 -- Best compression speed; least compression. |
| | | | 2 through 8 -- Compression improves; speed slows. |
| | | | 9 -- Best compression ratio; slowest speed. |
| | | | **Default: No default value** |
| Fletcher32 error detection (checksum) | Set/get checksum error detection (Fletcher32) | H5Pset_fletcher32 | |
| GCPL identifier | | gcpl_id | Valid GCPL identifier |
| | | | **Default: No default value** |

**HDF5 Property Lists, Properties and Property Values**

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
|     Parameter(s) or Flag(s) |     **Additional Description** (where necessary) |     Parameter | |
|         HDF5 knobs that can be adjusted | | | |

**Dataset Creation Property Lists (DCPL)**

| Allocation time | Set/get time at which to allocate dataset storage. | `H5Pset_alloc_time` | |
|---|---|---|---|
| | | `H5Pget_alloc_time` | |
|   DCPL identifier | | `dcpl_id` | Valid DCPL identifier |
| | | | **Default: No default value** |
|   Allocation time | | `alloc_time` | `H5D_ALLOC_TIME_EARLY` |
| | | | `H5D_ALLOC_TIME_INCR` |
| | | | `H5D_ALLOC_TIME_LATE` |
| | | | `H5D_ALLOC_TIME_DEFAULT` |
| | | | **Default: `H5D_ALLOC_TIME_DEFAULT`** |
| Chunk size | Set/get chunk size. | `H5Pset_chunk` | |
| | | `H5Pget_chunk` | |
|   DCPL identifier | | `dcpl_id` | Valid DCPL identifier |
| | | | **Default: No default value** |
|   Number of dimensions for each chunk | | `ndims` | Number of dimensions in array `dim`. Must match rank of dataset. |
| | | | **Default: No default value** |
|   Array specifying chunk size | | `dim` | Unsigned integer array defining chunk size in each dimension, in dataset elements. |
| | | | **Default: No default value** |
| External storage and external file names | Set/get external storage property and add file to list of external files. *First call sets external storage property and adds first file to list of external files. Subsequent calls add file as next file in list.* | `H5Pset_external` | |
|   DCPL identifier | | `dcpl_id` | Valid DCPL identifier |
| | | | **Default: No default value** |
|   External file name | Name of external file. | `name` | Name of external file. |
| | | | **Default: No default value** |
|   Data offset | Offset in file to beginning of data. | `offset` | Unsigned integer specifying offset, in bytes, from beginning of file to data location. If passed as `NULL` in `'get'` call, value is not returned. |
| | | | **Default: No default value** |
|   Bytes reserved | Number of bytes reserved for data. | `size` | Unsigned integer specifying number of bytes reserved in external file for data. If passed as `NULL` in `'get'` call, value is not returned. |
| | | | **Default: No default value** |

**HDF5 Property Lists, Properties and Property Values**

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| | | `H5Pget_external` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| External file index | | `idx` | Value from `0` (zero) to `N-1`, where `N` is the value returned by `H5Pget_external_count`.<br>**Default: No default value** |
| External file name length | | `name_size` | Length of name of external file.<br>If passed as `0` (zero), value is not returned.<br>**Default: No default value** |
| External file name | Name of external file. | `name` | Name of external file. |
| Data offset | Offset in file to beginning of data. | `offset` | Unsigned integer specifying offset, in bytes, from beginning of file to data location.<br>If passed as `NULL` in `'get'` call, value is not returned.<br>**Default: No default value** |
| Bytes reserved | Number of bytes reserved for data. | `size` | Unsigned integer specifying number of bytes reserved in external file for data.<br>If passed as `NULL` in `'get'` call, value is not returned.<br>**Default: No default value** |
| Retrieve number of external files | Retrieve number of external files associated with a dataset. | `H5Pget_external_count` | Number of external files returned in function return value. |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| Dataset layout | Set/get dataset layout. | `H5Pset_layout` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| Layout | Flag specifying compact, contiguous, or chunked storage layout. | `layout` | `H5D_COMPACT`<br>`H5D_CONTIGUOUS`<br>`H5D_CHUNKED`<br>**Default: `H5D_CONTIGUOUS`** |
| | | `H5Pget_layout` | Layout returned as `H5Pget_layout` return value. |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property<br>Parameter(s) or Flag(s) | Additional Description<br>Additional Description (where necessary) | Set/Get Call<br>Parameter | Valid Values |
|---|---|---|---|
| HDF5 knobs that can be adjusted | | | |
| Fill time | Set/get timing for writing fill values to data. | `H5Pset_fill_time`<br>`H5Pget_fill_time` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| Fill time | Time at which to write fill values. | `fill_time` | `H5D_FILL_TIME_IFSET`<br>`H5D_FILL_TIME_ALLOC`<br>`H5D_FILL_TIME_NEVER`<br>**Default: `H5D_FILL_TIME_IFSET`** |
| Fill value | Set/get value to be used for fill value in data. | `H5Pset_fill_value`<br>`H5Pget_fill_value` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| Fill value datatype | | `type_id` | Valid datatype identifier for suitable datatype.<br>*Datatype may differ from dataset datatype, but HDF5 must be able to convert value to dataset datatype at dataset creation.*<br>**Default: Dataset datatype specified at creation** |
| Fill value | | `value` | Valid pointer to buffer containing desired value.<br>**Default: 0 (zero)** |
| Gzip compression | Set gzip compression (`H5Z_FILTER_DEFLATE`) and compression level. | `H5Pset_deflate` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| Compression level | Desired compression level .<br>*Setting compression level to 0 (zero) does not turn off use of gzip filter, but sets filter to perform no compression as it processes the data.* | `level` | Unsigned integer 0 (zero) through 9:<br>0 -- No compression.<br>1 -- Best compression speed; least compression.<br>2 through 8 -- Compression improves; speed slows.<br>9 -- Best compression ratio; slowest speed.<br>**Default: No default value** |
| Fletcher32 error detection (checksum) | Set checksum error detection (`H5Z_FILTER_FLETCHER32`). | `H5Pset_fletcher32` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |
| N-bit filter | Set up use of n-bit filter (`H5Z_FILTER_NBIT`). | `H5Pset_nbit` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier<br>**Default: No default value** |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property Parameter(s) or Flag(s) | Additional Description Additional Description (where necessary) | Set/Get Call Parameter | Valid Values |
|---|---|---|---|
| HDF5 knobs that can be adjusted | | | |
| Scale-offset filter | Set up use of scale-offset filter (`H5Z_FILTER_SCALEOFFSET`). *Risk of unintentional lossy compression; see reference manual entry.* | `H5Pset_scaleoffset` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier **Default: No default value** |
| Compression method | | `scale_type` | `H5Z_SO_FLOAT_DSCALE` `H5Z_SO_INT` **Default: No default value** |
| Scale factor | | `scale_factor` | `H5Z_SO_FLOAT_DSCALE` `H5Z_SO_INT` `H5Z_SO_INT_MINBITS_DEFAULT` **Default: No default value** |
| Shuffle filter | Set up use of shuffle filter (`H5Z_FILTER_SHUFFLE`). | `H5Pset_shuffle` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier **Default: No default value** |
| SZIP filter | Set up use of SZIP filter (`H5Z_FILTER_SZIP`). *Review "Limitations" section in RM entry before using.* | `H5Pset_szip` | |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier **Default: No default value** |
| Entropy coding or nearest neighbor coding as an unsigned integer bit mask | | `options_mask` | Unsigned integer bit mask specifying one of: `H5_SZIP_EC_OPTION_MASK` `H5_SZIP_NN_OPTION_MASK` **Default: No default value** |
| Number of data elements (pixels $^2$) per compression block | | `pixels_per_block` | Unsigned integer specifying number of data elements (pixels $^2$) per block. Even integer greater than 0 and not exceeding 32. **Default: No default value** |
| Number of filters associated with DCPL | Query number of filters set on a dataset creation property list (DCPL). Number of filters returned in function return value. | `H5Pget_nfilters` | Number of filters returned as function return value. |
| DCPL identifier | | `dcpl_id` | Valid DCPL identifier **Default: No default value** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

## Dataset Access Property Lists (DCPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Raw data chunk cache (RDCC) properties | Set/get chunk cache properties on per-dataset basis. | H5Pset_chunk_cache<br><br>H5Pget_chunk_cache | |
| DAPL identifier | | dapl_id | Valid DAPL identifier<br>**Default: No default value** |
| Number of elements in RDCC | Number of chunk slots in RDCC for this dataset. | rdcc_nslots | Non-negative integer.<br>If passed as NULL in 'get' call, value is not returned.<br>**Default: 521** |
| Total size of RDCC | Total size of RDCC for this dataset. | rdcc_nbytes | Non-negative integer stating size in bytes.<br>If passed as NULL in 'get' call, value is not returned.<br>**Default: 1024** |
| Preemption policy | Chunk preemption policy for this dataset. | rdcc_w0 | Real number between 0 (zero) and 1 (one), inclusive.<br>If passed as NULL in 'get' call, value is not returned.<br>**Default: 0.75** |

## HDF5 Property Lists, Properties and Property Values

| Property List Class | | | |
|---|---|---|---|
| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

### Dataset Transfer Property Lists (DXPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Btree ratios | Set/get B-tree split ratios. | H5Pset_btree_ratios | |
| | | H5Pget_btree_ratios | |
| DXPL identifier | | dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
| Left-most nodes | Split ratio for left-most node at a level. | left | Real number between 0 (zero) and 1 (one), inclusive. |
| | | | **Default: 0.1** |
| Right-most nodes | Split ratio for right-most node at a level. | middle | Real number between 0 (zero) and 1 (one), inclusive. |
| | | | **Default: 0.5** |
| All other nodes | Split ratio for all other nodes at a level. | right | Real number between 0 (zero) and 1 (one), inclusive. |
| | | | **Default: 0.9** |
| Buffer properties | Set/get type conversion and background buffers. | H5Pset_buffer | |
| DXPL identifier | | dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
| Size of buffer | | size | Must be large enough to accommodate complete slice that encompasses all but first dimension. |
| | | | **Default: 1MB** |
| Conversion buffer | | tconv | Valid void pointer to conversion buffer. |
| | | | **Default: No conversion buffer** |
| Background buffer | | bkg | Valid void pointer to background buffer. |
| | | | **Default: No background buffer** |
| | | H5Pget_buffer | |
| DXPL identifier | | dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
| Conversion buffer | | tconv | Valid void pointer to conversion buffer. |
| | | | **Default: No conversion buffer** |
| Background buffer | | bkg | Valid void pointer to background buffer. |
| | | | **Default: No background buffer** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property<br>    Parameter(s) or Flag(s)<br>        HDF5 knobs that can be adjusted | Additional Description<br>    Additional Description (where necessary) | Set/Get Call<br>    Parameter | Valid Values |
|---|---|---|---|
| Data transform expression | Set/get transform expression to be used upon reading a dataset.<br>Null-terminated string containing an algebraic expression, such as `'(5/9.0)*(x-32)'` or `'x*(x-5)'`. | `H5Pset_data_transform` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier<br>**Default: No default value** |
|     Transform expression | Pointer to null-terminated data transform expression. | `expression` | Valid pointer to buffer containing transform expression.<br>**Default: No transform expression** |
|     DXPL identifier | | `H5Pget_data_transform`<br>`dxpl_id` | Valid DXPL identifier<br>**Default: No default value** |
|     Transform expression | | `expression` | Valid pointer to buffer containing transform expression.<br>**Default: No transform expression** |
|     Size of transform expression | | `size` | Size in bytes of transform expressioin to copy to.<br>**Default: No default value** |
| Data transfer mode (application level) | Set/get collective or independent I/O mode with MPI at application level. | `H5Pset_dxpl_mpio`<br><br>`H5Pget_dxpl_mpio` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier<br>**Default: No default value** |
|     Transfer mode flag | | `xfer mode` | `H5FD_MPIO_INDEPENDENT` (Independent I/O)<br>`H5FD_MPIO_COLLECTIVE` (Collective I/O)<br>**Default: `H5FD_MPIO_INDEPENDENT`** |
| Data transfer mode (internally in HDF5) | Set flag for HDF5-internal use of collective or independent I/O.<br>For use only when `H5FD_MPIO_COLLECTIVE` has been set (`H5Pset_dxpl_mpio`). | `H5Pset_dxpl_mpio_collective_opt` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier<br>**Default: No default value** |
|     Optimization flag | | `opt_mode` | `H5FD_MPIO_INDEPENDENT_IO` (Independent I/O)<br>`H5FD_MPIO_COLLECTIVE_IO` (Collective I/O)<br>**Default: `H5FD_MPIO_COLLECTIVE_IO`** |

# HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property Parameter(s) or Flag(s) HDF5 knobs that can be adjusted | Additional Description Additional Description (where necessary) | Set/Get Call Parameter | Valid Values |
|---|---|---|---|
| Linked-chunk and multi-chunk I/O | Set linked-chunk I/O or multi-chunk I/O. | `H5Pset_dxpl_mpio_chunk_opt` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
|     Optimization flag | | `opt_mode` | `H5FD_MPIO_CHUNK_ONE_IO`     Single linked-chunk operation. `H5FD_MPIO_CHUNK_MULTI_IO`     Multi-chunk operation. **Default: Selected by HDF5 Library** |
| Linked-chunk I/O threshold count | Set threshold count over which linked-chunk I/O is to be performed. | `H5Pset_dxpl_mpio_chunk_opt_num` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
|     Numeric threshold | Numeric threshold for performing linked-chunk I/O. | `num_chunk_per_proc` | Unsigned integer specifying count threshold. **Default: No default value** |
| Linked-chunk I/O threshold ratio | Set threshold ratio over which linked-chunk I/O is to be performed. | `H5Pset_dxpl_mpio_chunk_opt_ratio` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
|     Percent threshold | Percent threshold for performing linked-chunk I/O. | `percent_chunk_per_proc` | Unsigned integer, between 0 (zero) and 100 inclusive, specifying percent threshold . **Default: No default value** |
| Multi driver for I/O access | Set/get use of multi-file driver (`H5FD_MULTI`) for each memory usage type. *Requires that H5FD_MULTI driver be set* (`H5Pset_fapl_multi`) | `H5Pset_dxpl_multi` `H5Pget_dxpl_multi` | |
|     DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
|     Member file DXPLs | Array of data access property lists. | `memb_dxpl` | Array of dataset access property lists per memory type. **Default: `H5P_DEFAULT` for each element** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |
| Checksum error checking | Enable or disable error detection (Fletcher32 checksum) when reading data. *Requires that error checking is set (`H5Pset_fletcher32`).* | `H5Pset_edc_check` | |
| DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
| Enable/Disable flag | Flag specifying whether to enable or disable error detection. | `check` | `H5Z_ENABLE_EDC` `H5Z_DISABLE_EDC` **Default: `H5Z_ENABLE_EDC`** |
| | | `H5Pget_edc_check` | Setting returned in function return value. |
| DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
| Filter callback function | Set user-defined filter callback function. | `H5Pset_filter_callback` | |
| DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
| User-defined filter callback function | | `func` | Valid user-defined callback function. **Default: No user-defined callback function** |
| User-defined callback function input data | | `op_data` | User-defined callback function data. **Default: No user-defined input data** |
| Number of I/O vectors for hyperslab I/O | Set/get number of I/O vectors to accumulate before being issued for lower-level I/O | `H5Pset_hyper_vector_size` `H5Pget_hyper_vector_size` | |
| DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
| Number of vectors to accumulate | Number of I/O vectors to accumulate in memory before issuing for lower-level reading or writing of actual data. | `vector_size` | Number of I/O vectors to accumulate in memory for I/O operations. Must be greater than 1 (one). **Default: `1024`** |
| Preserve status of partial compound type writes | Preserve read or write status when destination compound datatypes are partially initialized. *Functions deprecated because this status is now always preserved.* | `H5Pset_preserve` | |
| DXPL identifier | | `dxpl_id` | Valid DXPL identifier **Default: No default value** |
| Status | | `status` | `TRUE` -- Status preserved. `FALSE` -- Status not preserved. **Default: `FALSE`** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
|---|---|---|---|
|     **Parameter(s) or Flag(s)** |     **Additional Description** (where necessary) |     **Parameter** | |
|     HDF5 knobs that can be adjusted | | | |
| | | H5Pget_preserve | |
|     DXPL identifier | |     dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
| Datatype conversion callback function | Set/get datatype conversion callback function. | H5Pset_type_conv_cb | |
| | | H5Pget_type_conv_cb | |
|     DXPL identifier | |     dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
|     User-defined datatype conversion callback function | |     func | Valid user-defined callback function. |
| | | | **Default: No user-defined callback function** |
|     User-provided data for callback function | |     op_data | User-defined callback function data. |
| | | | **Default: No user-defined input data** |
| Memory manager for VL datatype allocation | Set/get memory manager for variable-length (VL) datatype allocation. | H5Pset_vlen_mem_manager | |
| | | H5Pget_vlen_mem_manager | |
|     DXPL identifier | |     dxpl_id | Valid DXPL identifier |
| | | | **Default: No default value** |
|     User-defined allocation routine | |     alloc | User-defined allocation routine. NULL for system malloc. |
| | | | **Default: No user-defined allocation routine** |
|     Extra parameter that wil be passed to user-defined allocation routine | |     alloc_info | Extra parameter to be passed to allocation routine. Ignored if routine is NULL. |
| | | | **Default: No suppementary data** |
|     User-defined free routine | |     free | User-defined free routine. NULL for system free. |
| | | | **Default: No user-defined free routine** |
|     Extra parameter that will be passed to user-defined free routine | |     free_info | Extra parameter to be passed to free routine. Ignored if routine is NULL. |
| | | | **Default: No supplementary data** |

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

### Attribution Creation Property Lists (ACPL)

| Property | Additional Description | Set/Get Call | Valid Values |
|---|---|---|---|
| Character encoding | Set/get character encoding used for link and attribute names. | H5Pset_char_encoding | |
| | | H5Pget_char_encoding | |
| ACPL identifier | | acpl_id | Valid ACPL or LCPL identifier |
| | | | **Default: No default value** |
| Character encoding | | encoding | H5T_CSET_ASCII (US ASCII) |
| | | | H5T_CSET_UTF8 (UTF-8 Unicode) |
| | | | **Default: H5T_CSET_ASCII** |

**Footnotes**

1 H5P_DEFAULT is HDF5's default property list for the appropriate class.  For example, in a file access property list (FAPL) context, H5P_DEFAULT would represent the default FAPL.

2 *Pixel* is SZIP terminology referring, in this context, to an HDF5 data element.

3 An external link traversal callback function set by H5Pset_elink_cb can override access settings from

4 H5F_FAMILY_DEFAULT is the default size of member files for the family driver.

## HDF5 Property Lists, Properties and Property Values

**Property List Class**

| **Property** | **Additional Description** | **Set/Get Call** | **Valid Values** |
|---|---|---|---|
| **Parameter(s) or Flag(s)** | **Additional Description** (where necessary) | **Parameter** | |
| HDF5 knobs that can be adjusted | | | |

**Development notes** (Delete before publication)

H5Pset_scale_offset: The parameter value `H5Z_SO_FLOAT_ESCALE` is not implemented.

H5Pget_sizes: Will "Normally 8 bytes" change when address space changes (anticipated for 1.10)?

H5Pset_fapl_log: In "Maximum size, in bytes, of the file to be logged", is that the size of the 'logfile' or of the file being accessed?

H5Pset_fapl_multi: Deprecation status?

H5Pset_fapl_split:              "

H5Pset_dxpl_multi:          "

H5Pset_multi_type:          "

H5Pset_fapl_multi: Need help with what to say for this function (or its parameters).

For the above MULTI driver functions, should we say they're deprecated (the very miniumum) or just not include them at all?

And should the STREAM driver properties  be listed?

In both cases, the issue is that while these functions are no longer in the library, users may continue to run across files containing obects written with the properties.