Vaddtagref/vfadtr

int32 Vaddtagref(int32 *vgroup\_id*, int32 *tag*, int32 *ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| tag | IN: | Tag of the object |
| ref | IN: | Reference number of the object |
| Purpose | Inserts an object into a vgroup. | | |
| Return value | Returns the number of objects in the vgroup if successful and FAIL (or -1) otherwise. | | |
| Description | Vaddtagref inserts the object identified by the parameters *tag* and *ref* into the vgroup identified by the parameter *vgroup\_id*. | | |
|  | If an object to be inserted is a data set, duplication of the tag/reference number pair will be allowed. Otherwise, the tag/reference number pair must be unique among the elements within the vgroup or the routine will return FAIL (or -1).  Note that Vaddtagref does not verify that the tag and reference number exist. | | |
| FORTRAN | integer function vfadtr(vgroup\_id, tag, ref) | | |
|  | integer vgroup\_id, tag, ref | | |

Vattach/vfatch

int32 Vattach(int32 *file\_id*, int32 *vgroup\_ref*, char \**access*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| vgroup\_ref | IN: | Reference number for the vgroup |
| access | IN: | Type of access |
| Purpose | Initiates access to a new or existing vgroup. | | |
| Return value | Returns the vgroup identifier (*vgroup\_id*) if successful and FAIL (or -1) otherwise. | | |
| Description | Vattach opens a vgroup with access type specified by the parameter *access* in the file identified by the parameter *file\_id*. The vgroup is identified by the reference number, *vgroup\_ref*. | | |
|  | Vattach returns the vgroup identifier, *vgroup\_id*, for the accessed vgroup. The *vgroup\_id* is used for all subsequent operations on this vgroup. Once operations are complete, the vgroup identifier must be disposed of via a call to Vdetach. Multiple attaches may be made to the same vgroup simultaneously, and several vgroup identifiers can be created for the same vgroup. Each vgroup identifier must be disposed of independently. | | |
|  | The parameter *file\_id* is the file identifier of an opened file. The parameter *vgroup\_ref* specifies which vgroup in the file to attach to. If *vgroup\_ref* is set to -1, a new vgroup will be created. If *vgroup\_ref* is set to a positive number, the vgroup with that as a reference number is attached. | | |
|  | Possible values for the parameter *access* are “r” for read access and “w” for write access. | | |
| FORTRAN | integer function vfatch(file\_id, vgroup\_ref, access) | | |
|  | integer file\_id, vgroup\_ref | | |
|  | character\*1 access | | |

Vattrinfo/vfainfo

intn Vattrinfo(int32 *vgroup\_id*, intn *attr\_index,* char \**attr\_name,* int32 \**ntype,* int32 \**count,* int32 \**size*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_index | IN: | Index of the attribute |
| attr\_name | OUT: | Name of the attribute |
| ntype | OUT: | Number type of the attribute |
| count | OUT: | Number of values in the attribute |
| size | OUT: | Size, in bytes, of the attribute values. |
| Purpose | Retrieves the name, number type, number of values, and value size of an attribute assigned to a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vattrinfo retrieves the name, number type, number of values, and value size of an attribute identified by its index, *attr\_index,* in the vgroup, *vgroup\_id*. Name, number type, number of values, and size are retrieved into the parameters *attr\_name, ntype, count*, and *size*, respectively. | | |
|  | If the attribute’s name, number type, number of values, or value size are not needed, the corresponding output parameters can be set to NULL. | | |
|  | The valid value *attr\_index* range from 0 to the total number of attributes attached to a vgroup - 1. The number of vgroup attributes can be obtained using Vnattrs. | | |
| Note | If working with files created by HDF Version 4.0 Release 2 and before (circa July 1996,) users might consider using Vattrinfo2 instead. | | |
| FORTRAN | integer function vfainfo(vgroup\_id, attr\_index, attr\_name, ntype, count, size) | | |
|  | integer vgroup\_id, attr\_index, ntype, count, size | | |
|  | character\*(\*) attr\_name | | |

Vattrinfo2

intn Vattrinfo2(int32 *vgroup\_id*, intn *attr\_index,* char \**attr\_name,* int32 \**ntype,* int32 \**count,* int32 \**size*,int32 *\*nfields*, uint16 *\*refnum*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_index | IN: | Index of the attribute |
| attr\_name | OUT: | Name of the attribute |
| ntype | OUT: | Number type of the attribute |
| count | OUT: | Number of values in the attribute |
| size | OUT: | Size, in bytes, of the attribute values |
| nfields | OUT: | Number of fields in the attribute vdata |
| refnum | OUT: | Reference number of the attribute vdata |
| Purpose | Retrieves information of an attribute assigned to a vgroup (either new or old style attribute.) | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vattrinfo2 is an updated version of Vattrinfo. Beside retrieving the name, number type, number of values, and value size of an attribute identified by its index, *attr\_index,* in the vgroup, *vgroup\_id* as Vattrinfo, Vattrinfo2 also provides the reference number of and the number of fields in the vdata that represents the attribute. | | |
|  | There are two types of attributes for vgroups; those created by Vsetattr (new style) and those created by non-Vsetattr approaches (old style.) Please refer to the Appendix A, Attributes in HDF, for details. | | |
|  | Vattrinfo2 can access both types of attributes, while Vattrinfo can only access the new-style attributes. | | |
|  | Applications that anticipate to access files that were created by HDF Version 4.0 Release 2 and before (circa July 1996,) should use Vattrinfo2 together with Vnattrs2 and Vgetattr2 in order to access the old-style attributes, if they exist and are desired. Note that, when a vgroup has both types of attributes, the old-style attributes will precede the new ones, regardless of which order they were created. | | |
|  | If the attribute’s name, number type, number of values, or value size are not needed, the corresponding output parameters can be set to NULL. | | |
|  | The valid value *attr\_index* range from 0 to the total number of attributes attached to a vgroup - 1. The number of vgroup attributes can be obtained using Vnattrs2. | | |
|  | The two last parameters, nfields and refnum, were added to this function to support the HDF4 File Content Project. The parameter nfields is the number of fields in the vdata. The H4 Mapwriter uses this value to ensure that the vdata represents an attribute, that is, when the vdata has only 1 field. The parameter refnum is to give the Mapwriter the reference number of this attribute vdata. In general, they are irrelevant to other applications, which should simply pass in NULL for these parameters. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |

Vdelete/vdelete

int32 Vdelete(int32 *file\_id*, int32 *vgroup\_ref*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| vgroup\_ref | IN: | Vgroup reference number returned by Vattach |
| Purpose | Remove a vgroup from a file. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) if not successful. | | |
| Description | Vdelete removes the vgroup identified by the parameter *vgroup\_ref* from the file identified by the parameter *file\_id*. | | |
|  | This routine will remove the vgroup from the internal data structures and from the file. | | |
| FORTRAN | integer function vdelete(file\_id, vgroup\_ref) | | |
|  | integer file\_id, vgroup\_ref | | |

Vdeletetagref/vfdtr

int32 Vdeletetagref(int32 *vgroup\_id*, int32 *tag*, int32 *ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| tag | IN: | Tag of the object |
| ref | IN: | Reference number of the object |
| Purpose | Deletes an object from a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) if not successful or the given tag/reference number pair is not found in the vgroup. | | |
| Description | Vdeletetagref deletes the object specified by the parameters *tag* and *ref* from the vgroup identified by the parameter *vgroup\_id*. Vinqtagref should be used to check if the tag/reference number pair exists before calling this routine. | | |
|  | If duplicate tag/reference number pairs are found in the vgroup, Vdeletetagref deletes the first occurrence. Vinqtagref should be used to determine if duplicate tag/reference number pairs exist in the vgroup. | | |
| FORTRAN | integer function vfdtr(vgroup\_id, tag, ref) | | |
|  | integer vgroup\_id, tag, ref | | |

Vdetach/vfdtch

int32 Vdetach(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Terminates access to a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vdetach detaches the currently-attached vgroup identified by *vgroup\_id* and terminates access to that vgroup. | | |
|  | All space associated with the vgroup, *vgroup\_id*, will be freed. Each attached vgroup must be detached by calling this routine before the file is closed. Vdetach also updates the vgroup information in the HDF file if any changes occur. The identifier *vgroup\_id* should not be used after the vgroup is detached. | | |
| FORTRAN | integer function vfdtch(vgroup\_id) | | |
|  | integer vgroup\_id | | |

Vend/vfend

intn Vend(int32 *file\_id*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| Purpose | Terminates access to a vgroup and/or vdata interface. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vend terminates access to the vgroup and/or vdata interfaces initiated by Vstart and all internal data structures allocated by Vstart. | | |
|  | Vend must be called after all vdata and vgroup operations on the file *file\_id* are completed. Further attempts to use vdata or vgroup routines after calling Vend will result in a FAIL (or -1) being returned. | | |
| FORTRAN | integer function vfend(file\_id) | | |
|  | integer file\_id | | |

Vfind/vfind

int32 Vfind(int32 *file\_id*, char \**vgroup\_name*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| vgroup\_name | IN: | Name of the vgroup |
| Purpose | Returns the reference number of a vgroup given its name. | | |
| Return value | Returns the reference number of the vgroup if successful and 0 otherwise. | | |
| Description | Vfind searches the file identified by the parameter *file\_id* for a vgroup with the name specified by the parameter *vgroup\_name*, and returns the corresponding reference number. | | |
|  | If more than one vgroup has the same name, Vfind will return the reference number of the first one. | | |
| FORTRAN | integer function vfind(file\_id, vgroup\_name) | | |
|  | integer file\_id | | |
|  | character\*(\*) vgroup\_name | | |

Vfindattr/vffdatt

intn Vfindattr(int32 *vgroup\_id*, char \**attr\_name*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_name | IN: | Name of the attribute |
| Purpose | Returns the index of a vgroup attribute given its name. | | |
| Return value | Returns the index of an attribute if successful and FAIL (or -1) otherwise. | | |
| Description | Vfindattr searches the vgroup identified by the parameter *vgroup\_id* for the attribute with the name specified by the parameter *attr\_name*, and returns the index of that attribute. | | |
|  | If more than one attribute has the same name, Vfindattr will return the index of the first one. | | |
| FORTRAN | integer function vffdatt(vgroup\_id, attr\_name) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) attr\_name | | |

Vfindclass/vfndcls

int32 Vfindclass(int32 *file\_id*, char \**vgroup\_class*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| vgroup\_class | IN: | Class name of the vgroup |
| Purpose | Returns the reference number of a vgroup specified by its class name. | | |
| Return value | Returns the reference number of the vgroup if successful and 0 otherwise. | | |
| Description | Vfindclass searches the file identified by the parameter *file\_id* for the vgroup with the class name specified by the parameter *vgroup\_class*, and returns the reference number of that vgroup. | | |
|  | If more than one vgroup has the same class name, Vfindclass will return the reference number of the first one. | | |
| FORTRAN | integer function vfndcls(file\_id, vgroup\_class) | | |
|  | integer file\_id | | |
|  | character\*(\*) vgroup\_class | | |

Vflocate/vffloc

int32 Vflocate(int32 *vgroup\_id*, char \**field\_name*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| field\_name\_list | IN: | List of field names |
| Purpose | Locates a vdata in a vgroup given a list of field names. | | |
| Return value | Returns the reference number of the vdata if successful and FAIL (or -1) otherwise. | | |
| Description | Vflocate searches the vgroup identified by the parameter *vgroup\_id* for a vdata that contains all of the fields listed in the parameter *field\_name\_list*. If that vdata is found, Vflocate will return its reference number. | | |
| FORTRAN | integer function vffloc(vgroup\_id, field\_name) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) field\_name | | |

Vgetattdatainfo

intn Vgetattdatainfo(int32 *vg\_id*, intn *attr\_index,* int32 *\*offset,* int32 *\*length*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_index | IN: | Index of the inquired attribute |
| offset | OUT: | Buffer to hold offset of the attribute’s data |
| length | OUT: | Buffer to hold length of the attribute’s data |
| Purpose | Retrieves location and size of attribute's data. | | |
| Return value | Returns the number of data blocks retrieved, which should be 1, if successful, and FAIL (or -1) otherwise. | | |
| Description | Vgetattdatainfo retrieves the offset and length of the data that belongs to the attribute attr\_index, which is attached to the vgroup vg\_id. The buffers offset and length must not be NULL. | | |
|  | There are two types of attributes for vgroups; those created by Vsetattr (new style) and those created by non-Vsetattr approaches (old style.) Please refer to the section about Vnattrs and Vnattrs2 in the *HDF User’s Guide* for details. Vgetattdatainfo can access either type of attributes. Note that, when a vgroup has both types of attributes, the old-style attributes will preceed the new ones, regardless of when they were created. Applications should use Vnattrs2 instead of Vnattrs in order to include both types. | | |
|  | attr\_index must be non-negative and smaller than the value returned by Vnattrs or Vnattrs2, depending on which was called. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |
|  |  | | |

Vgetattr/vfgnatt/vfgcatt

intn Vgetattr(int32 *vgroup\_id*, intn *attr\_index,* VOIDP *attr\_values*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_index | IN: | Index of the attribute |
| attr\_values | OUT: | Buffer for the attribute values |
| Purpose | Retrieves the values of a vgroup attribute. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetattr retrieves the values of the attribute identified by its index, *attr\_index*, into the buffer *attr\_values* for the vgroup identified by the parameter *vgroup\_id*. | | |
|  | The valid values of the parameter *attr\_index* range from 0 to the total number of vgroup attributes - 1. The total number of attributes can be obtained using Vnattrs. To determine the amount of memory sufficient to hold the attribute values, the user can obtain the number of attribute values and the attribute value size using Vattrinfo. | | |
| Note | If working with files created by HDF Version 4.0 Release 2 and before (circa July 1996,) users might consider using Vgetattr2 instead. | | |
| FORTRAN | integer function vfgnatt(vgroup\_id, attr\_index, attr\_values) | | |
|  | integer vgroup\_id, attr\_index | | |
|  | <valid numeric data type> attr\_values | | |
|  |  | | |
|  | integer function vfgcatt(vgroup\_id, attr\_index, attr\_values) | | |
|  | integer vgroup\_id, attr\_index | | |
|  | character\*(\*) attr\_values | | |

Vgetattr2

intn Vgetattr2(int32 *vgroup\_id*, intn *attr\_index,* VOIDP *attr\_values*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_index | IN: | Index of the attribute |
| attr\_values | OUT: | Buffer for the attribute values |
| Purpose | Retrieves the values of a vgroup attribute (either new or old style.) | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetattr2 is an updated version of Vgetattr. As Vgetattr, Vgetattr2 retrieves the values of the attribute identified by its index, *attr\_index*, into the buffer *attr\_values* for the vgroup identified by the parameter *vgroup\_id*. | | |
|  | There are two types of attributes for vgroups; those created by Vsetattr (new style) and those created by non-Vsetattr approaches (old style.) Please refer to the section about Vnattrs and Vnattrs2 in the *HDF User’s Guide* for details. | | |
|  | Vgetattr2 can access both types of attributes, while Vgetattr can only access the new-style attributes. | | |
|  | Applications that anticipate to access files that were created by HDF Version 4.0 Release 2 and before (circa July 1996,) should use Vgetattr2 together with Vnattrs2 and Vattrinfo2 in order to access the old-style attributes if they exist and are desired. Note that, when a vgroup has both types of attributes, the old-style attributes will precede the new ones, regardless of which order they were created. | | |
|  | The valid values of the parameter *attr\_index* range from 0 to the total number of vgroup attributes - 1. The total number of attributes can be obtained using Vnattrs2. To determine the amount of memory sufficient to hold the attribute values, the user can obtain the number of attribute values and the attribute value size using Vattrinfo2. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |

Vgetclass/vfgcls

int32 Vgetclass(int32 *vgroup\_id*, char \**vgroup\_class*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| vgroup\_class | OUT: | Class name of the vgroup |
| Purpose | Retrieves the class name of a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetclass retrieves the class name of the vgroup identified by the parameter *vgroup\_id* in the buffer *vgroup\_class*. | | |
|  | Starting from release 4.2r5, the maximum length of vgroup’s class name is no longer limited to VGNAMELENMAX (or 64). When an application attempts to read a vgroup’s class name that is longer than 64 characters with an insufficient buffer, the result will be unpredictable. Applications can use Vgetclassnamelen to get the length of the vgroup’s class name prior to calling Vgetclass. | | |
| FORTRAN | integer function vfgcls(vgroup\_id, vgroup\_class) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) vgroup\_class | | |

Vgetclassnamelen

int32 Vgetclassnamelen(int32 *vgroup\_id*, uint16 \**classname\_len*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| classname\_len | OUT: | Length of the vgroup’s class name |

|  |  |
| --- | --- |
| Purpose | Retrieves the length of a vgroup’s class name. |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. |
| Description | Vgetclassnamelen retrieves the length of a vgroup’s class name into *classname\_len*. The vgroup is identified by the parameter *vgroup\_id*. |

|  |  |
| --- | --- |
| FORTRAN | Currently unavailable |
|  |  |
|  |  |

Vgetid/vfgid

int32 Vgetid(int32 *file\_id*, int32 *vgroup\_ref*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| vgroup\_ref | IN: | Reference number of the current vgroup |
| Purpose | Returns the reference number of the next vgroup. | | |
| Return value | Returns the reference number of the next vgroup if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetid sequentially searches the file identified by the parameter *file\_id* and returns the reference number of the vgroup following the vgroup that has the reference number specified by the parameter *vgroup\_ref*. | | |
|  | The search is initiated by calling this routine with a *vgroup\_ref* value of -1. This will return the reference number of the first vgroup in the file. Searching past the last vgroup in the file will cause Vgetid to return FAIL (or -1). | | |
| FORTRAN | integer function vfgid(file\_id, vgroup\_ref) | | |
|  | integer file\_id, vgroup\_ref | | |

Vgetname/vfgnam

int32 Vgetname(int32 *vgroup\_id*, char \**vgroup\_name*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| vgroup\_name | OUT: | Name of the vgroup |
| Purpose | Retrieves the name of a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetname retrieves the name of the vgroup identified by the parameter *vgroup\_id* into the buffer *vgroup\_name*. | | |
|  | Starting from release 4.2r5, the maximum length of vgroup’s name is no longer limited to VGNAMELENMAX (or 64). When an application attempts to read a vgroup’s name that is longer than 64 characters with an insufficient buffer, the result will be unpredictable. Applications can use Vgetnamelen to get the length of the vgroup’s name prior to calling Vgetname. | | |
| FORTRAN | integer function vfgnam(vgroup\_id, vgroup\_name) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) vgroup\_name | | |

Vgetnamelen

int32 Vgetnamelen(int32 *vgroup\_id*, uint16 \**name\_len*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| name\_len | OUT: | Length of the vgroup’s name |
| Purpose | Retrieves the length of a vgroup’s name. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetnamelen retrieves the length of a vgroup’s name into *name\_len*. The vgroup is identified by the parameter *vgroup\_id* into the buffer. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |
|  |  | | |

Vgetnext/vfgnxt

int32 Vgetnext(int32 *vgroup\_id*, int32 *v\_ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| v\_ref | IN: | Reference number of the vgroup or vdata |
| Purpose | Gets the reference number of the next member (vgroup or vdata only) of a vgroup. | | |
| Return value | Returns the reference number of the vgroup or vdata if successful and FAIL (or -1) otherwise. | | |
| Description | Vgetnext searches in the vgroup identified by the parameter *vgroup\_id* for the object following the object specified by its reference number *v\_ref*. Either of the two objects can be a vgroup or a vdata. If *v\_ref* is set to -1, the routine will return the reference number of the first vgroup or vdata in the vgroup. | | |
|  | Note that this routine only gets a vgroup or a vdata in a vgroup. Vgettagrefs gets any object in a vgroup. | | |
| FORTRAN | integer function vfgnxt(vgroup\_id, v\_ref) | | |
|  | integer vgroup\_id, v\_ref | | |

Vgettagref/vfgttr

intn Vgettagref(int32 *vgroup\_id*, int32 *index*, int32 \**tag*, int32 \**ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| index | IN: | Index of the object in the vgroup |
| tag | OUT: | Tag of the object |
| ref | OUT: | Reference number of the object |
| Purpose | Retrieves the tag/reference number pair of an object given its index within a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vgettagref retrieves the tag/reference number pair of the object specified by its index, *index,* within the vgroup identified by the parameter *vgroup\_id*. Note that this routine is different from Vgettagrefs, which retrieves the tag/reference number pairs of a number of objects. | | |
|  | The valid values of *index* range from 0 to the total number of objects in the vgroup - 1. The total number of objects in the vgroup can be obtained using Vinquire. | | |
|  | The tag is stored in the buffer *tag* and the reference number is stored in the buffer *ref*. | | |
| FORTRAN | integer function vfgttr(vgroup\_id, index, tag, ref) | | |
|  | integer vgroup\_id, index | | |
|  | integer tag, ref | | |

Vgettagrefs/vfgttrs

int32 Vgettagrefs(int32 *vgroup\_id*, int32 *tag\_array*[], int32 *ref\_array*[], int32 *num\_of\_pairs*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| tag\_array | OUT: | Array of tags |
| ref\_array | OUT: | Array of reference numbers |
| num\_of\_pairs | IN: | Number of tag/reference number pairs |
| Purpose | Retrieves the tag/reference number pairs of the HDF objects belonging to a vgroup. | | |
| Return value | Returns the number of tag/reference number pairs obtained from a vgroup if successful and FAIL (or -1) otherwise. | | |
| Description | Vgettagrefs retrieves at most *num\_of\_pairs* number of tag/reference number pairs belonging to the vgroup, *vgroup\_id*, and stores them in the buffers *tag\_array* and *ref\_array*. | | |
|  | The input parameter *num\_of\_pairs* specifies the maximum number of tag/reference number pairs to be returned. The size of the arrays, *tag\_array* and *ref\_array*, must be at least *num\_of\_pairs*. | | |
| FORTRAN | integer function vfgttrs(vgroup\_id, tag\_array, ref\_array, num\_of\_pairs) | | |
|  | integer vgroup\_id, num\_of\_pairs | | |
|  | integer tag\_array(\*), ref\_array(\*) | | |

Vgetversion/vfgver

int32 Vgetversion(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Gets the version of a vgroup. | | |
| Return value | Returns the vgroup version number if successful, and FAIL (or -1) otherwise. | | |
| Description | Vgetversion returns the version number of the vgroup identified by the parameter *vgroup\_id*. There are three valid version numbers: VSET\_OLD\_VERSION (or 2), VSET\_VERSION (or 3), and VSET\_NEW\_VERSION (or 4). | | |
|  | VSET\_OLD\_VERSION is returned when the vgroup is of a version that corresponds to an HDF library version before version 3.2. | | |
|  | VSET\_VERSION is returned when the vgroup is of a version that corresponds to an HDF library version between versions 3.2 and 4.0 release 2. | | |
|  | VSET\_NEW\_VERSION is returned when the vgroup is of the version that corresponds to an HDF library version of version 4.1 release 1 or higher. | | |
| FORTRAN | integer function vfgver(vgroup\_id) | | |
|  | integer vgroup\_id | | |

Vgetvgroups/vfgvgroups

intn Vgetvgroups(int32 *id*, uintn *start\_vg*, uintn *vg\_count*, uint16 \**refarray*)

|  |  |  |
| --- | --- | --- |
| id | IN: | File identifier returned by Hopen or vgroup identifier returned by Vattach |
| start\_vg | IN: | Vgroup index to start retrieving at |
| vg\_count | IN: | Number of vgroups to be retrieved |
| refarray | OUT: | Array to hold reference numbers of retrieved vgroups |
| Purpose | Retrieves reference numbers of vgroups in a file or in a vgroup. | | |
| Return value | Returns the actual number of vgroups retrieved if successful, and FAIL (-1) otherwise. | | |
| Description | Vgetvgroups retrieves a list containing the reference numbers of vgroups found in a file or immediately under a vgroup. The file or the vgroup is specified by id. | | |
|  | The retrieved vgroups will be the ones that were previously created by user applications, not including those that were created by the library internally. They are referred to as user-created vgroups, for brevity. | | |
|  | The retrieval starts at the vgroup number start\_vg going forward in the order which the vgroups were created. For example, if there are 100 vgroups that can be retrieved, specifying start\_vg as 90 and vg\_count as 10 will retrieve the last ten vgroups. The value for start\_vg must be non-negative and smaller than or equal to the number of user-created vgroups, which can be obtained by invoking Vgetvgroups passing in NULL for the array refarray. This number of user-created vgroups will also allow applications to sufficiently allocate space for refarray. | | |
|  | When start\_vg is 0, the retrieval will start at the beginning of the file or the first sub-vgroup of the specified vgroup.  When start\_vg is smaller than the number of user-created vgroups in the file or the specified vgroup, Vgetvgroups will start retrieving vgroups from the vgroup number start\_vg.  When start\_vg is greater than the number of user-created vgroups in the file or the vgroup, Vgetvgroups will return FAIL. | | |
|  | The parameter vg\_count specifies the number of items that the list refarray can hold. When id is a vgroup identifier, only the immediate sub-vgroups will be retrieved; that is, the sub-vgroups will not be traversed. | | |
| FORTRAN | integer function vfgvgroups(id, start\_vg, vg\_count, refarray) | | |
|  | integer id, start\_vg, vg\_count | | |
|  | integer refarray(\*) | | |

Vgisinternal

intn Vgisinternal(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Determine if a vgroup was created by the library internally. | | |
| Return value | Returns TRUE (1) if the inquired vgroup is one that was internally created by the library, FALSE (0) otherwise, and FAIL (-1) if failure occurs. | | |
| Description | Vgisinternal checks the class name of the given vgroup against the list HDF\_INTERNAL\_VGS to determine whether the vgroup was previously created by the library instead of by a user application. | | |
|  | The names in HDF\_INTERNAL\_VGS are:  \_HDF\_VARIABLE ("Var0.0")  \_HDF\_DIMENSION ("Dim0.0")  \_HDF\_UDIMENSION ("UDim0.0")  \_HDF\_CDF ("CDF0.0")  GR\_NAME ("RIG0.0")  RI\_NAME ("RI0.0") | | |
| Note | There is one special case where an internal vgroup having a null class name and a name as GR\_NAME. This should be extremely rare, yet it is a possibility. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |

Vinqtagref/vfinqtr

intn Vinqtagref(int32 *vgroup\_id*, int32 *tag*, int32 *ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| tag | IN: | Tag of the object |
| ref | IN: | Reference number of the object |
| Purpose | Checks whether an object belongs to a vgroup. | | |
| Return value | Returns TRUE (or 1) if the object belongs to the vgroup, and FALSE (or 0) otherwise. | | |
| Description | Vinqtagref checks if the object identified by its tag, *tag,* and its reference number, *ref,* belongs to the vgroup identified by the parameter *vgroup\_id*. | | |
| FORTRAN | integer function vfinqtr(vgroup\_id, tag, ref) | | |
|  | integer vgroup\_id, tag, ref | | |

Vinquire/vfinq

intn Vinquire(int32 *vgroup\_id*, int32 \**n\_entries*, char \**vgroup\_name*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| n\_entries | OUT: | Number of entries in a vgroup |
| vgroup\_name | OUT: | Name of a vgroup |
| Purpose | Retrieves the number of entries in a vgroup and its name. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vinquire retrieves the name of and the number of entries in the vgroup identified by the parameter *vgroup\_id* into the buffer *vgroup\_name* and the parameter *n\_entries*, respectively. | | |
|  | The maximum length of the vgroup name is defined by VGNAMELENMAX (or 64). | | |
| FORTRAN | integer function vfinq(vgroup\_id, n\_entries, vgroup\_name) | | |
|  | integer vgroup\_id, n\_entries | | |
|  | character\*(\*) vgroup\_name | | |

Vinsert/vfinsrt

int32 Vinsert(int32 *vgroup\_id*, int32 *v\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| v\_id | IN: | Identifier of the vdata or vgroup |
| Purpose | Inserts a vdata or vgroup into a vgroup. | | |
| Return value | Returns the position (*index*) of the inserted element within the vgroup if successful and FAIL (or -1) otherwise. | | |
| Description | Vinsert inserts the vdata or vgroup identified by the parameter *v\_id* into the vgroup identified by the parameter *vgroup\_id*. | | |
|  | Essentially, Vinsert only inserts a vgroup or vdata. To insert any objects into a vgroup, use Vaddtagref. | | |
|  | The returned value, *index*, is either 0 or a positive value, which indicates the position of the inserted element in the vgroup. | | |
| FORTRAN | integer function vfinsrt(vgroup\_id, v\_id) | | |
|  | integer vgroup\_id, v\_id | | |

Visvg/vfisvg

intn Visvg(int32 *vgroup\_id*, int32 *obj\_ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| obj\_ref | IN: | Reference number of the object |
| Purpose | Determines whether an element of a vgroup is a vgroup and a member of another vgroup. | | |
| Return value | Returns TRUE (or 1) if the object is a vgroup and FALSE (or 0) otherwise. | | |
| Description | Visvg determines if the object specified by the reference number, *obj\_ref,* is a vgroup within the vgroup identified by the parameter *vgroup\_id*. | | |
| FORTRAN | integer function vfisvg(vgroup\_id, obj\_ref) | | |
|  | integer vgroup\_id, obj\_ref | | |

Visvs/vfisvs

intn Visvs(int32 *vgroup\_id*, int32 *obj\_ref*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| obj\_ref | IN: | Reference number of the object |
| Purpose | Determines whether a data object is a vdata within a vgroup. | | |
| Return value | Returns TRUE (or 1) if the object is a vdata and FALSE (or 0) otherwise. | | |
| Description | Visvs determines if the object specified by the reference number, *obj\_ref,* is a vdata within the vgroup identified by the parameter *vgroup\_id*. | | |
| FORTRAN | integer function vfisvs(vgroup\_id, obj\_ref) | | |
|  | integer vgroup\_id, obj\_ref | | |

Vlone/vflone

int32 Vlone(int32 *file\_id*, int32 *ref\_array*[], int32 *max\_refs*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| ref\_array | OUT: | Array of reference numbers |
| max\_refs | IN: | Maximum number of lone vgroups to be retrieved |
| Purpose | Retrieves the reference numbers of lone vgroups, i.e., vgroups that are at the top of the grouping hierarchy, in a file. | | |
| Return value | Returns the total number of lone vgroups if successful and FAIL (or -1) otherwise. | | |
| Description | Vlone retrieves the reference numbers of lone vgroups in the file identified by the parameter *file\_id.* Although Vlone returns the total number of lone vgroups in the file, only at most *max\_refs* reference numbers are retrieved and stored in the buffer *ref\_array*. The array must have at least *max\_refs* elements. | | |
|  | An array size of 65,000 integers for *ref\_array* is more than adequate if the user chooses to declare the array statically. However, the preferred method is to dynamically allocate memory instead; first call Vlone with a value of 0 for *max\_refs*, and then use the returned value to allocate memory for *ref\_array* before calling Vlone again. | | |
| FORTRAN | integer function vflone(file\_id, ref\_array, max\_refs) | | |
|  | integer file\_id, ref\_array(\*), max\_refs | | |

Vnattrs/vfnatts

intn Vnattrs(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Returns the number of attributes assigned to a vgroup. | | |
| Return value | Returns the total number of attributes assigned to the specified vgroups if successful and FAIL (or -1) otherwise. | | |
| Description | Vnattrs gets the number of attributes assigned to the vgroup identified by the parameter *vgroup\_id*. | | |
| Note | If working with files created by HDF Version 4.0 Release 2 and before (circa July 1996,) users may consider using Vnattrs2 instead.  This is because there are two types of attributes for vgroups; those created by Vsetattr (new style) and those created by non-Vsetattr approaches (old style.) The number of attributes returned by Vnattrs will not include the old style attributes. Please refer to the section about Vnattrs and Vnattrs2 in the *HDF User’s Guide* for details about the old style attributes. | | |
| FORTRAN | integer function vfnatts(vgroup\_id) | | |
|  | integer vgroup\_id | | |

Vnattrs2

intn Vnattrs2(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Returns the number of new- and old-style attributes assigned to a vgroup. | | |
| Return value | Returns the total number of attributes assigned to the specified vgroups if successful and FAIL (or -1) otherwise. | | |
| Description | Vnattrs2 is an updated version of Vnattrs. | | |
|  | There are two types of attributes for vgroups; those created by Vsetattr (new style) and those created by non-Vsetattr approaches (old style.) Please refer to the section about Vnattrs and Vnattrs2 in the *HDF User’s Guide* for details. | | |
|  | Vnattrs2 gets the number of both types of attributes assigned to the vgroup identified by the parameter *vgroup\_id*. | | |
|  | Applications that anticipate to access files that were created by HDF Version 4.0 Release 2 and before (circa July 1996,) should use Vnattrs2 instead of Vnattrs in order to include the old-style attributes if they exist and are desired. | | |
| FORTRAN | Currently unavailable | | |
|  |  | | |

Vnrefs/vnrefs

int32 Vnrefs(int32 *vgroup\_id*, int32 *tag\_type*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| tag\_type | IN: | Type of the tag |
| Purpose | Returns the number of tags of a given tag type in a vgroup. | | |
| Return value | Returns 0 or the total number of tags if successful and FAIL (or -1) otherwise. | | |
| Description | Vnrefs returns 0 or the number of tags having the type specified by the parameter *tag\_type* in the vgroup identified by the parameter *vgroup\_id*. | | |
|  | See Appendix A, *Reserved HDF Tags*, in the *HDF User’s Guide*, for a discussion of tag types. | | |
| FORTRAN | integer function vnrefs(vgroup\_id, tag\_type) | | |
|  | integer vgroup\_id, tag\_type | | |

Vntagrefs/vfntr

int32 Vntagrefs(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Returns the number of objects in a vgroup. | | |
| Return value | Returns 0 or a positive number representing the number of HDF objects linked to the vgroup if successful or FAIL (or -1) otherwise. | | |
| Description | Vntagrefs returns the number of objects in a vgroup identified by the parameter *vgroup\_id*. | | |
|  | Vntagrefs is used together with Vgettagrefs, or with Vgettagref to look at the data objects linked to a given vgroup. | | |
| FORTRAN | integer function vfntr(vgroup\_id) | | |
|  | integer vgroup\_id | | |

Vsetattr/vfsnatt/vfscatt

intn Vsetattr(int32 *vgroup\_id*, char \**attr\_name,* int32 *ntype,* int32 *count,* VOIDP *values*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| attr\_name | IN: | Name of the attribute |
| ntype | IN: | Number type of the attribute |
| count | IN: | Number of values the attribute contains |
| values | IN: | Buffer containing the attribute values |
| Purpose | Attaches an attribute to a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vsetattr attaches an attribute to the vgroup identified by the parameter *vgroup\_id*. The attribute name is specified by the parameter *attr\_name* and the attribute number type is specified by the parameter *ntype*. The values of the attribute are specified by the parameter *values*, and the number of values in the attribute is specified by the parameter *count*. Refer to Table 1A in Section I of this manual for a listing of all valid number types. | | |
|  | If the attribute already exists, the new values will replace the current ones, provided the number type and the number of attribute values have not been changed. If either the number type or the order have been changed, Vsetattr will return FAIL (or -1). | | |
| FORTRAN | integer vfsnatt(vgroup\_id, attr\_name, ntype, count, values) | | |
|  | integer vgroup\_id, ntype, count | | |
|  | <valid numeric data type> values(\*) | | |
|  | character\*(\*) attr\_name | | |
|  |  | | |
|  | integer vfscatt(vgroup\_id, attr\_name, ntype, count, values) | | |
|  | integer vgroup\_id, ntype, count | | |
|  | character\*(\*) attr\_name, values(\*) | | |

Vsetclass/vfscls

int32 Vsetclass(int32 *vgroup\_id*, char \**vgroup\_class*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| vgroup\_class | IN: | Class name of a vgroup |
| Purpose | Sets the class name of a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vsetclass sets the class name specified by the parameter *vgroup\_class* to the vgroup identified by the parameter *vgroup\_id*. | | |
|  | A vgroup initially has a class name of NULL. The class name may be set more than once. Class names, like vgroup names, can be of any character strings. They exist solely as meaningful labels for user applications and the library does not check for uniqueness. | | |
|  | Starting from release 4.2r5, the maximum length of vgroup’s class name is no longer limited to VGNAMELENMAX (or 64). | | |
| FORTRAN | integer function vfscls(vgroup\_id, vgroup\_class) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) vgroup\_class | | |

Vsetname/vfsnam

int32 Vsetname(int32 *vgroup\_id*, char \**vgroup\_name*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| vgroup\_name | IN: | Name of a vgroup |
| Purpose | Sets the name of a vgroup. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vsetname sets the name specified by the parameter *vgroup\_name* for the vgroup identified by the parameter *vgroup\_id*. | | |
|  | A vgroup initially has a name of NULL, and may be renamed more than once during the scope of the vgroup identifier (*vgroup\_id*). Note that the routine does not check for uniqueness of vgroup names. | | |
|  | Vgroup names are optional, but recommended. They serve as meaningful labels for user applications. If used, they should be unique. | | |
|  | Starting from release 4.2r4, the maximum length of vgroup’s name is no longer limited to VGNAMELENMAX (or 64.) | | |
| FORTRAN | integer function vfsnam(vgroup\_id, vgroup\_name) | | |
|  | integer vgroup\_id | | |
|  | character\*(\*) vgroup\_name | | |

Vstart/vfstart

intn Vstart(int32 *file\_id*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| Purpose | Initializes the vdata and/or vgroup interface. | | |
| Return value | Returns SUCCEED (or 0) if successful and FAIL (or -1) otherwise. | | |
| Description | Vstart initializes the vdata and/or vgroup interfaces for the file identified by the parameter *file\_id*. | | |
|  | Vstart must be called before any vdata or vgroup operation is attempted on an HDF file. Vstart must be called once for each file involved in the operation. | | |
| FORTRAN | integer function vfstart(file\_id) | | |
|  | integer file\_id | | |

VHmakegroup/vhfmkgp

int32 VHmakegroup(int32 *file\_id*, int32 *tag\_array*[], int32 *ref\_array*[], int32 *n\_objects*, char \**vgroup\_name*, char \**vgroup\_class*)

|  |  |  |
| --- | --- | --- |
| file\_id | IN: | File identifier returned by Hopen |
| tag\_array | IN: | Array of tags |
| ref\_array | IN: | Array of reference numbers |
| n\_objects | IN: | Number of data objects to be stored |
| vgroup\_name | IN: | Name of the vgroup |
| vgroup\_class | IN: | Class of the vgroup |
| Purpose | Creates a vgroup. | | |
| Return value | Returns the reference number of the newly-created vgroup if successful, FAIL (or -1) otherwise. | | |
| Description | VHmakegroup creates a vgroup with the name specified by the parameter *vgroup\_name* and the class name specified by the parameter *vgroup\_class* in the file identified by the parameter *file\_id*. The routine inserts *n\_objects* objects into the vgroup. The tag and reference numbers of the objects to be inserted are specified in the arrays *tag\_array* and *ref\_array*. | | |
|  | Creating empty vgroups with VHmakegroup is allowed. VHmakegroup does not check if the tag/reference number pair is valid, or if the corresponding data object exists. However, all of the tag/reference number pairs must be unique. | | |
|  | Vstart must precede any calls to VHmakegroup. It is not necessary, however, to call Vattach or Vdetach in conjunction with VHmakegroup. | | |
|  | The elements in the arrays *tag\_array* and *ref\_array* are the matching tag/reference number pairs of the objects to be inserted, that means *tag\_array*[0] and *ref\_array*[0] refer to one data object, and *tag\_array*[1] and *ref\_array*[1] to another, etc. | | |
| FORTRAN | integer function vhfmkgp(file\_id, tag\_array, ref\_array, n\_objects, vgroup\_name, vgroup\_class) | | |
|  | integer file\_id, n\_objects | | |
|  | character\*(\*) vgroup\_name, vgroup\_class | | |
|  | integer tag\_array(\*), ref\_array(\*) | | |

VQueryref/vqref

int32 VQueryref(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |

|  |  |
| --- | --- |
| Purpose | Returns the reference number of a vgroup. |
| Return value | Returns the reference number if successful, and FAIL (or -1) otherwise. |
| Description | VQueryref returns the reference number of the vgroup identified by the parameter *vgroup\_id*. |

|  |  |
| --- | --- |
| FORTRAN | integer function vqref(vgroup\_id) |
|  | integer vgroup\_id |

VQuerytag/vqtag

int32 VQuerytag(int32 *vgroup\_id*)

|  |  |  |
| --- | --- | --- |
| vgroup\_id | IN: | Vgroup identifier returned by Vattach |
| Purpose | Returns the tag of a vgroup. | | |
| Return value | Returns the tag if successful, and FAIL (or -1) otherwise. | | |
| Description | VQuerytag returns the tag of the vgroup identified by the parameter *vgroup\_id*. | | |
| FORTRAN | integer function vqtag(vgroup\_id) | | |
|  | integer vgroup\_id | | |