* Annotations

# Chapter Overview

This chapter introduces annotations, HDF data objects used to annotate HDF files and objects.

The tags introduced in this chapter are fully described in Chapter 9, "Tag Specifications," and are listed in the table in Appendix A, "Tags and Extended Tag Labels."

## General Description

It is often useful to attach a text annotation to an HDF file or its contents and to store that annotation in the same HDF file. HDF provides this capability in two ways: through the *annotation* data object and by the assignment of attributes. This chapter discusses annotations.

The data element of an annotation is a sequence of ASCII characters that can be associated with any of three types of objects:

* The file itself
* An individual HDF data object in the file
* A tag that identifies a data element

The current annotation interface supports only the first two.

Annotations come in two forms:

Label A short, NULL-terminated string. Labels may include no embedded NULLs.

Description A longer and more complex body of text of a pre-defined length. Descriptions may contain embedded NULLs.

Annotations are never required; they are used strictly at the discretion of the creator or user of an HDF file.

Table 6K shows the currently defined annotation types and their assigned tags.

* Annotation Tags

|  |  |  |
| --- | --- | --- |
|  | Label Types | Description Types |
| File annotations | DFTAG\_FID | DFTAG\_FD |
| Object annotations | DFTAG\_DIL | DFTAG\_DIA |
| Tag annotations | DFTAG\_TID | DFTAG\_TD |

The annotation interface is fully described in the document NCSA HDF Calling Interfaces and Utilities for Versions 3.2 and earlier and in the HDF User’s Guide and HDF Reference Manual for Versions 3.3 and 4.x.

## File Annotations

Any HDF file can include label annotations (DFTAG\_FID) and/or description annotations (DFTAG\_FD). The file annotation interface routines provided in the HDF software read and write file labels and file descriptions.

## Object Annotations

HDF data object annotation is complicated by the fact that you must uniquely identify the object being annotated. Since a tag/ref uniquely identifies a data object, the data object that a particular annotation refers to can be identified by storing the object's tag and reference number with the annotation.

Note that an HDF annotation is itself a data object, so it has its own DD. This DD has a tag/ref that points to the data element containing the annotation. The annotation data element contains the following information:

* The tag of the annotated object
* The reference number of the annotated object
* The annotation itself

For example, suppose you have an HDF file that contains three scientific data sets (SDSs). Each SDS has its own DD consisting of the SDS tag DFTAG\_NDG and a unique reference number, as illustrated in Figure 6a.

* Three SDS Tag/refs



Suppose you wish to attach the following annotation to the second SDS:

Data from black hole experiment 8/18/87.

This text will be stored in a description annotation data object. The data element will include the tag/ref, DFTAG\_NDG/4, and the annotation itself. Figure 6b illustrates the annotation data object.

* Sample Annotation Data Object



Getting Reference Numbers for Object Annotations

To use annotation routines, you need to know the tags and reference numbers of the objects you wish to annotate.

The following routines return the most recent reference number used in either reading or writing the specified type of data object:

DFSDlastref SDS data objects

DFR8lastref RIS data objects

DFPlastref Palettes

DFANlastref Annotations

Reference numbers for other objects can be obtained with the routine Hfindnextref, a low level HDF routine that searches an HDF file sequentially for reference numbers associated with a given tag.

These routines are described in the document NCSA HDF Calling Interfaces and Utilities for Versions 3.2 and earlier and in the HDF User’s Guide and HDF Reference Manual for Versions 3.3 and 4.x.