DFputelement adds or replaces elements in a file.

DFgetelement obtains the data referred to by the tag/ref combination that is passed to it.

Reading and Writing Part of a Data Element

The second set of routines for reading and writing data elements makes it possible to read or write all or part of a data element, in contrast to the routines described above, which can only read or write an entire element.

DFaccess **initiat**es a read or write on the data element with the specified tag/ref combination.

DFread reads a portion of a data element. It starts at the last position left by a DFaccess, DFread, or DFseek command and reads any data that remains in the element up to a specified number of bytes.

DFwrite appends data to a data element. It starts at the last position left by a DFaccess or DFwrite command, writes up to a specified number of bytes, then leaves the write pointer at the end of the element.

DFseek sets the read pointer to an offset within a data element. The next time DFread is called, the read occurs from the new position.

Manipulating Data Descriptors (DDs)

These routines perform operations on DDs without altering the data to which the DDs refer.

DFupdate **w r**ites out the DD blocks necessary to update the file. All data elements that have been written or partially written to the file are given valid DDs.

DFdup generates new references to data that is already referenced from somewhere else.

DFdel deletes a tag/ref from the list of DDs.

Chapter Overview

This chapter contains a list of the routines that make up the low level interface. The interface is described in detail in the HDF manual.

Introduction

NCSA supports interfaces for HDF users—both high level interfaces to support certain application areas, such as image processing, and a low level general purpose interface for performing basic operations on HDF files.

Since the NCSA user community programs primarily in C and Fortran, all of the HDF interfaces developed at NCSA are callable from both C and Fortran programs. Accordingly, all of the functions have both a C and a Fortran definition. For details, see Chapters 4 and 5 in the NCSA HDF manual.

The routines in the general purpose interface enable you to build and manipulate HDF files of any type, including those of your own invention. All HDF applications developed at NCSA use these routines as their basic building blocks.

Opening and Closing Files

The following calls are used to open and close HDF files.

DFopen **provides an access path to an HDF file. It also reads** into primary memory all of the DD blocks in the file. In the current implementation, only one file can be open at a time.

DFclose updates the DD blocks, then closes the access path to the file.

Finding Tags, Refs, and Element Lengths

These routines make it possible to locate elements without knowing their tags and reference numbers.

DFsetfind **in**itializes searches for elements using tags and reference numbers. DFsetfind is closely tied to the operation of DFfind.

DFfind **gets the results f**rom searches of tags and reference numbers.

Reading and Writing Entire Data Elements

There are two sets of routines for reading and writing data elements. The first set of routines described here is used to store and retrieve entire data elements. A second set of routines, described in the next section, may be used if you wish to access only *part* of *a* data element at a time.

Chapter 2 The NCSA HDF General Purpose Interface

Chapter Overview

Introduction

Opening and Closing Files

Finding Tags, Refs, and Element Lengths

Reading and Writing Entire Data Elements

Reading and Writing Part of a Data Element

Manipulating Data Descriptors (DDs)