EVIDENCE OF IMPLEMENTATION FOR THE NETCDF CLASSIC AND 64-BIT OFFSET FORMATS AND INPUT/OUTPUT (I/O) LIBRARIES

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ABSTRACT

NetCDF (network Common Data Form) is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data.

This document describes three available implementations of software to read data files in the netCDF classic and 64-bit offset formats.

1. IMPLEMENTATIONS OF NETCDF

Three independently implemented libraries read and write files in the netCDF classic and 64-bit offset formats, the netCDF C library, the netCDF Java library, and the pnetCDF library.

1.1 THE NETCDF C LIBRARY

The netCDF C library was first released in 1988 by Unidata/UCAR. Since then it has been continuously developed and supported by Unidata. The C library has undergone two major revisions since it's original release, but only the application programming interface (API) has changed. The original underlying binary format (now known as the "classic format") is the same binary format produced by the 1988 netCDF library. The 64-bit offset format was added in 2004.

The C library contains about 44,000 lines of code to read and write the classic and 64-bit offset formats. It is released as free software, and is portable to a wide variety of platforms, including Linux, MacOS X, other UNIX platforms, and Windows.

The latest version of the netCDF C library may be found on the netCDF home page (http://www.unidata.ucar.edu/netcdf).

The netCDF C library is used by the netCDF Fortran and C++ libraries, as well as many third-party tools that can use netCDF classic or 64-bit offset data files. The C interface is also used to implement many other language interfaces, including those for Perl, Python, Ruby, MATLAB, and Objective C.

The netCDF C library is actively supported and maintained at the Unidata Program Center.

1.2 THE NETCDF JAVA LIBRARY

The NetCDF Java library is a 100% pure Java library, first released in 1998 by Unidata/UCAR. Although the Java netCDF library was developed at Unidata, it is a completely independent implementation, using none of the code in the C library.

The latest version of the netCDF Java library may be found on the netCDF Java home page (http://www.unidata.ucar.edu/netcdf-java).

The netCDF Java library is actively supported and maintained at the Unidata Program Center.

1.3 THE PARALLEL-NETCDF LIBRARY

The Parallel-NetCDF library is an independently implemented C library (with Fortran wrappers) that reads and writes the netCDF classic and 64-bit offset formats using an underlying parallel I/O library to achieve high performance data reading and writing for high performance computing platforms.

The latest version of the Parallel-NetCDF library may be found at the Parallel-NetCDF home page (http://www.mcs.anl.gov/parallel-netcdf.)

The Parallel-NetCDF library was developed at Argonne National Lab and Northwestern University,

and is described in an SC2003 paper. It is actively supported and maintained.