Chapter 1 NCSA Reformat/XReformat Basics

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Chapter Overview

This chapter describes the basic capabilities of NCSA Reformat/ XReformat.

NCSA Reformat Notes

Like NCSA Import2HDF for the Macintosh, NCSA Reformat/XReformat for UNIX systems was developed to convert non-HDF (Hierarchical Data Format) files into HDF files. Once converted to such, you'll find you can easily open data in all NCSA software, which is developed to read and write HDF files.

Note that the distribution of this product contains code for two distinct version of Reformat—Reformat, a command-line driven program, and XReformat, a graphical interface driven program. Both are capable of identical file conversion operations and are described separately in the following pages.

Installing NCSA Reformat

To install NCSA Reformat, you must first modify the Makefile by indicating your type of operating system and the locations of NCSA HDF and the X window system. You do not have to include the latter, since Reformat can be built with or without a graphical user interface based on the X Window system.

NOTE: The X version of Reformat has a significantly larger executable than the command-line driven form of the program.

After modifying the Makefile, enter the following command if you want to build a simple, command-line driven Reformat version:

```
make withoutx
```

This command produces an executable file called 'reformat'.

To make sure NCSA Reformat is in your path and to get a listing of the file-type switches available in Reformat, enter **reformat** on the command-line. The following list should appear:

```
Usage:  reformat  -<type> file  -<type> file
   Order of the files specifies the type of conversion
   (from-file, to-file)
   Currently only conversion to HDF is supported.
   -hdf file                          HDF file
   -tiff file                         TIFF file
   -gif file                          GIF file
   -fits file                         FITS file
   -xwd file                          X Window dump file
   -sunrast file                      Sun Raster file
   -raw8file                          8-bit raw format
```

In addition, the following switches exist (Table 1.1):

Table 1.1 Reformat Switches

Switch	Purpose
-inputdir <directory>	controls from which directory input files are read
-outputdir <directory>	controls to which directory output files are written

NOTE: Both the input and output directories default to the current directory.

Both NCSA Reformat and XReformat can recognized and convert the following types of input files: TIFF, GIF, FITS, X Window dumps, Sun Raster and Raw Raster files. Only conversion to HDF files are supported; therefore, the only output file you can designate is an HDF file. Both programs utilize inputdir, outputdir, and compress switches.

NOTE: If at any time you want to add a new file type to Reformat, refer to Appendix B, "Adding File Types," or to the README file included on your distribution tape.

Converting a File

Let's proceed with the command-line driven version of Reformat, from now on referred to NCSA Reformat or Reformat. The switches that control this version and their general format are listed below.

`reformat -input_file_type input filename -output_file_type output filename`

NOTE: The order of files on the command-line is very important. The first file must be the input file and the second must be the output file. If the order is switched, NCSA Reformat sends out an error message and will not complete the command.

Suppose you wanted to convert the GIF file, 'dragon.gif' into an HDF file. Assume the GIF file is stored in the directory, "data". You would enter the following on the command line.

```
reformat -inputdir data -gif dragon.gif -hdf it.hdf
```

where reformat is the name of the program; inputdir is the input directory switch and data is the name of the input file directory (where dragon.gif is stored); gif is the type of input file; dragon.gif is the input filename; hdf is the type of output file; and it.hdf it the output filename.

When you press the RETURN key, Reformat completes the file conversion.

Overwriting a Conversion File

If the program detects that you are writing over an existing file, it will ask you to confirm the overwrite before doing so.

Converting Raw Raster Files

If your input file is a raw raster file, Reformat will prompt you to enter the image dimensions before it completes the file conversion. Simply enter the width and height when prompted.

Converting on Sun Systems

If you plan to convert Sun Raster files on NCSA Reformat/XReformat, you must also install the PBMplus library of conversion routines, which are included with the X source code.

NCSA XReformat Notes

The X version of NCSA Reformat uses the Athena Widget Set (R4). (Refer to the help.txt on the distribution tape for details of the user interface conventions of this Set.) XReformat recognizes all of the standard X command-line switches as well as those understood by the command-line version.

In addition, a switch unique to XReformat is the **-noGUI** switch which, when entered, prevents the X graphical user interface from appearing on the screen. Instead, it allows you the use of the command-line interface.

The general details of X (and resource files—see below) are too numerous to include here. For these details, refer to a good X reference book such as *The Xlib Programming Manual* by O'Reilly and Associates.

Installing NCSA XReformat

To install NCSA XReformat, follow the same instructions for altering the Makefile as outlined in the NCSA Reformat section.

After modifying the Makefile, enter the following command-line to build a Reformat version that utilizes X windows:

```
make withx
```

This command produces an executable file called ‘xreformat’.

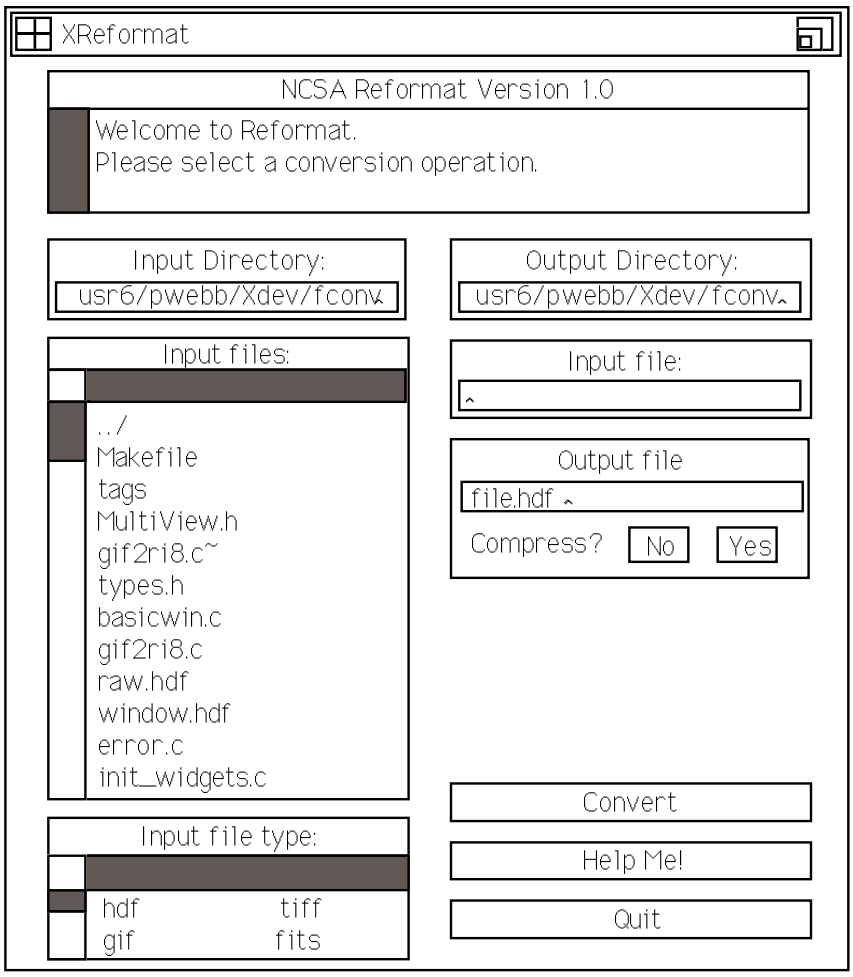
(XReformat is the class name for resource files, although a resource file is not required since the program contains a minimal set of default resources.)

To start the program and/or to make sure it is in your path, enter:

```
xreformat &
```

The system takes a moment to initialize itself, then brings up an application directory dialog window (Figure 1.1).

Figure 1.1 Application Directory Dialog Window



The application window contains several subwindows.

The window at the top of the box is a “read-only” message display window. Below that are dialog boxes specifying the input and output directories. There are also dialog boxes for the input and output filenames, a scrolling list of the files in the current directory, a scrolling list of the input file types and three command buttons: Convert, Help Me!, and Quit.

You can modify the contents of the dialog boxes by placing the cursor within the box and typing. Some emacs-style editing commands are supported, and you can use the arrow keys to move the cursor within the box. Clicking on the name of a file in the input file list selects that file as the current input file and enters its name in the input file dialog box. If a directory (indicated by a trailing ‘/’) is selected, the input directory is changed accordingly.

NOTE: The parent directory, which is signified by ‘../’, is always present in the list of input files.

Converting A File

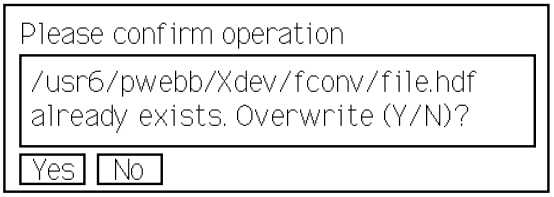
You must select both an input file and an input file type before any conversion can take place. Select input file types by clicking on them.

When you press the button labeled `Convert`, Reformat attempts the conversion. Informational and error messages are displayed in the message display window at the top of the application.

Overwriting a Conversion File

If the program detects that you are writing over an existing file, it opens another dialog box (Figure 1.2) and asks you to confirm the overwrite before doing so.

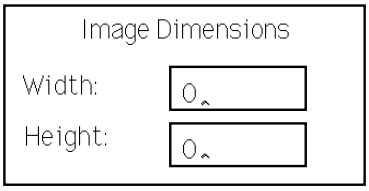
Figure 1.2 Overwrite Dialog Box



Converting a Raw Raster Image

When you select a raw raster file as your input file, an additional dialog box (Figure 1.3) appears within the application window. This image dimension box prompts you to enter the file's height and width. Enter them, and then press the RETURN key. XReformat proceeds to convert the file.

Figure 1.3 Image Dimensions Dialog Box



Converting on Sun Systems

As mentioned previously, if you plan to convert Sun Raster files on NCSA Reformat/XReformat, you must also install the PBMplus library of conversion routines, which are included with the X source code.

NCSA has begun development on a Sun to HDF direct conversion routine, but we've not yet completed it.

Using the Help Facility

The button labeled `Help Me!` activates the online help facility. Pressing it causes another window to appear with the text of the help file displayed. Read the file in a linear fashion by scrolling through it, or use the

search dialog box to call for help on a specific topic.

Pressing the RETURN key while in any of the dialog boxes usually causes any action associated with that dialog box to occur.

For a complete description of the user interface, read the help file.