

# SCD

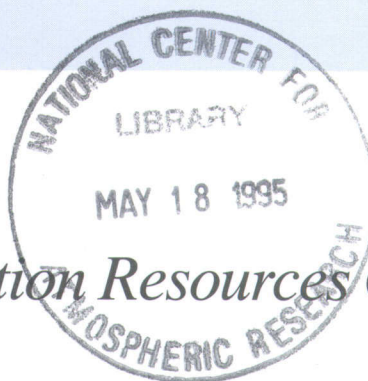
## COMPUTING NEWS

WINTER/SPRING 1995

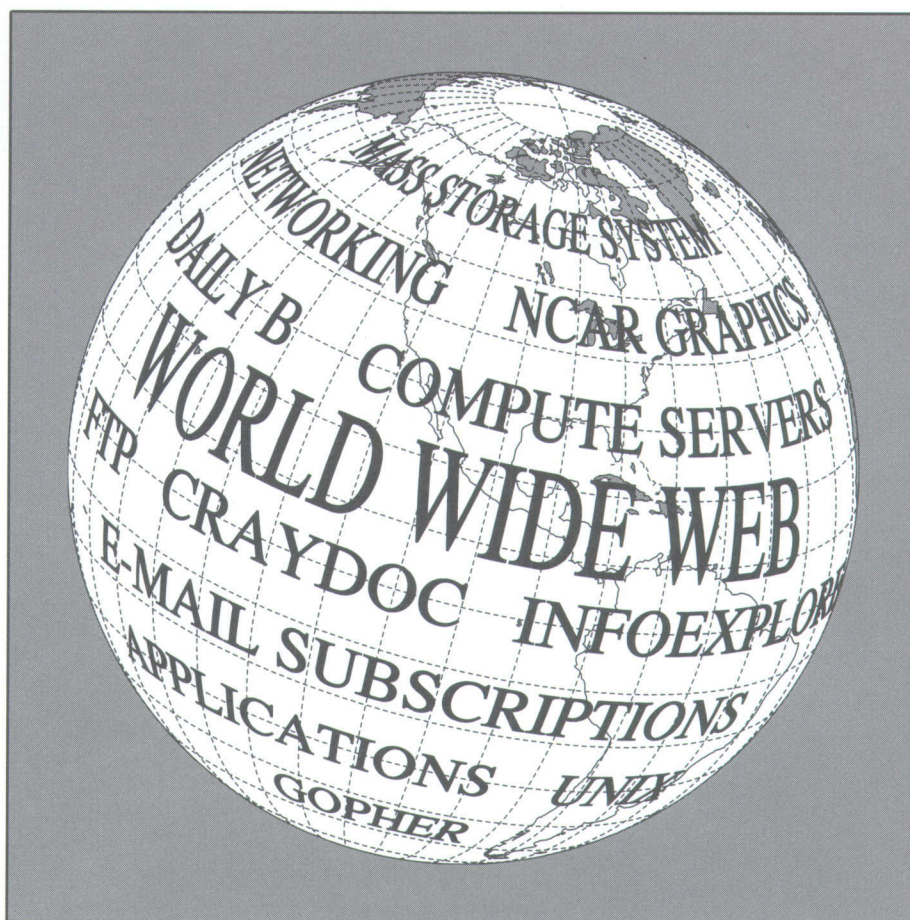
VOLUME 16, NUMBER 1

### INSIDE

*Special issue:*  
*SCD Information Resources Catalog*



- User documentation listings
- How to access and subscribe to SCD news services
- Guide to online access methods (Mosaic, Lynx, Gopher, FTP, CrayDoc, and more)
- How to order hardcopy documentation



SCIENTIFIC COMPUTING DIVISION  
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

## CONVENTIONS

**Bold** represents command names, options, filenames, pathnames, directories, and other items that must be typed as shown.

***Bold italics*** represent variables where you provide the substitution (such as *filename*).

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## SCD DOCUMENTATION GROUP



*The SCD User Services Documentation Group provides a variety of documents and manuals to help users of SCD's supercomputing facilities. Front: Lynda Lester, Juli Rew; middle: Nancy Dawson, Jim Petruzzelli; back: Christine Guzy. (Photo by Carlye Calvin.)*

### About the cover

Mary Haley of SCD's Distributed Services and Scientific Visualization Section created the cover image. She generated the plot by modifying Dave Kennison's "ncargworld" Fortran example, which uses the Conpack, Ezmap, and Plotchar, and Areas utilities of NCAR Graphics. She produced an encapsulated PostScript file directly from the NCAR Graphics program using the new PostScript driver that will be available with NCAR Graphics Version 4.0.

## P R E F A C E

### SCD changes documentation emphasis to online

All NCAR Scientific Computing Division user documentation is now accessible on the Internet via the World Wide Web (WWW), Anonymous File Transfer Protocol (FTP), and Gopher. We are gradually translating our documents into hypertext versions (using Hypertext Markup Language, or HTML) for use on the Web. We also provide PostScript versions of all SCD user documentation. This enables users who want formatted hardcopy to print at their own site by downloading the PostScript version over the Internet via the WWW or FTP.

### Discontinuing most hardcopy

As a cost-saving measure, SCD is eliminating printing and distribution of most hardcopy documents. However, SCD will continue to distribute a few hardcopy introductory guides (which will also be available online) as well as materials for new users. (The New User Packet includes information on accessing user documentation online—both where to find it and how to access it.) *SCD Computing News* will also continue to be distributed in hardcopy as well as via the Internet/WWW.

### Benefits of having documentation online via WWW

These changes mean that SCD information is now accessible to users from anywhere, at any time. SCD is able to quickly update documentation, providing the latest, most accurate information in a timely fashion. Our online catalog features an enhanced search capability to help you track down what you're looking for faster. An increasing number of documents are formatted attractively and include multimedia.

### Users enthusiastic about online

We are grateful for opinions received from a survey conducted last spring among all active users. Your support for online documentation was an important factor in helping us to decide the time was right to make the switch to online. A number of user suggestions have already been implemented, including an "e-mail subscription service" whereby users can control the type of information they receive from SCD and change it as their work needs change. (Please see "SCD e-mail subscription services" in the "SCD news services" section of this catalog.)

As always, we welcome your comments about how we can improve our documentation services.

## Volume 16, Number 1

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## PREFACE

SCD changes documentation emphasis to online .....	1
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## CATALOG OVERVIEW

Catalog overview .....	4
------------------------	---

## USER DOCUMENTATION

Section overview .....	5
• User documentation categories .....	5
• Online and hardcopy availability .....	5
SCD documentation .....	5
Vendor documentation .....	6
Introduction to the SCD computing environment .....	7
Compute servers .....	9
• Cray research platforms (Y-MPs, EL Cluster, T3D) .....	9
SCD documentation .....	9
Vendor documentation .....	11
UNICOS .....	11
Fortran .....	13
Performance .....	15
Libraries .....	16
Debugging .....	17
C Language .....	18
T3D .....	19
Miscellaneous .....	20
• IBM platforms (RS/6000 Cluster, SP1) .....	22
SCD documentation .....	22
Vendor documentation .....	22
Mass Storage System .....	25
Applications software .....	27
• Data formats .....	27
• Math libraries .....	28
• Technical computational packages .....	37
NCAR Graphics .....	39
Networking and data communications .....	42
Output services (Text and Graphics System—TAGS) .....	47
UNIX .....	49
Additional topics .....	50

## NEWS SERVICES

Section overview .....	51
Useful sites on the World Wide Web .....	52
• NCAR welcome page .....	52
• SCD welcome page .....	52
• NCAR's data archive .....	52
SCD Computing News .....	53
SCD Daily Bulletin .....	54
SCD e-mail subscription services .....	56
SCD Users' Group (SCDUG) report .....	58
The UNICOS 'news' command .....	59

## ONLINE ACCESS METHODS

Section overview .....	60
World Wide Web .....	61
• What is the World Wide Web? .....	61
• Mosaic: A multimedia Web browser .....	64
• Lynx: A terminal-based Web browser .....	72
• How to search the World Wide Web .....	79
Other Internet-based information-distribution systems .....	80
• Gopher .....	80
• Veronica: How to search for Gopher files .....	84
• Anonymous FTP .....	84
• Archie: How to search for FTP files .....	87
Vendor online systems .....	89
• CrayDoc .....	89
• Docview .....	91
• InfoExplorer .....	94

## HOW TO OBTAIN HARDCOPY

Section overview .....	96
SCD documentation .....	97
• How to print SCD documentation at your own site .....	97
• How to order hardcopy documentation distributed by SCD .....	97
Vendor documentation .....	100
• Reference copies .....	100
• To order from Cray Research .....	100
• To order from IBM .....	100

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## CATALOG OVERVIEW

Welcome to the *SCD Information Resources Catalog*. This catalog lists documentation currently available and tells how to access that documentation online. It provides the data and instructions to help you find the information you need, keep pace with a changing user environment, and take advantage of the open-ended possibilities offered by the Internet.

This catalog is available online via World Wide Web browsers such as Mosaic and Lynx, via the following Uniform Resource Locator (URL):

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

The online version of the catalog has the advantage of being searchable—that is, you can type in a keyword, such as “UNICOS,” and obtain a listing of documents pertaining to that subject. (See “Online access methods” in this catalog for World Wide Web access instructions.)

This catalog is organized into four main sections:

- **User documentation**—listings of SCD and vendor documentation of interest to users of SCD-supported computers at NCAR
- **News services**—how to access NCAR and SCD information sources that are dynamic and changing (useful sites on the World Wide Web, *SCD Computing News*, SCD Daily Bulletin, SCD e-mail subscription services, SCD Users Group reports, the UNICOS **news** command)
- **Online access methods**—how to use Mosaic, Lynx, Gopher, anonymous File Transfer Protocol (FTP), and vendor online systems
- **How to obtain hardcopy documentation**—directions for printing PostScript files at your own site and information on ordering hardcopy documentation if it is available

If you have questions about documentation or access methods described in this catalog, please contact an SCD consultant by sending e-mail to [consult1@ncar.ucar.edu](mailto:consult1@ncar.ucar.edu) or by calling (303) 497-1278.

# USER DOCUMENTATION

## Section overview

### User documentation categories

User documentation is classified into the following categories:

- Introduction to the SCD computing environment
- Compute servers
- Mass Storage System
- Applications software
- NCAR Graphics
- Networking and data communications
- Output services (Text and Graphics System—TAGS)
- UNIX
- Additional topics

### Online and hardcopy availability

#### SCD documentation

SCD documentation is available online in these formats:

- All SCD documentation is accessible online in ASCII format via World Wide Web browsers such as Mosaic and Lynx, via anonymous File Transfer Protocol (FTP), and via Gopher.
- Some SCD documentation is also coded in Hypertext Markup Language (HTML), which provides hypertext links and a more usable interface to the Web. All SCD documentation is gradually being made available in HTML.
- All SCD documentation is available in PostScript. This allows you to print your own hardcopy after downloading the PostScript file over the Internet via Mosaic or FTP.

SCD distributes the following documentation in hardcopy at user request:

- *SCD Information Resources Catalog* (this catalog)
- SCD New User Packet
- *Basic UNIX Guide*
- *NCAR UNICOS Guide*
- "Charges for SCD Computing Resources"
- "Using E-Mail at NCAR and UCAR"
- Several quick-reference cards
- *Supercomputing: The View from NCAR* (limited quantity)
- *SCD Computing News*

For instructions on how to order these hardcopy documents, see the "How to obtain hardcopy" section of this catalog.

## Vendor documentation

For a guide to online vendor documentation systems and instructions on their use, see "Vendor online systems" in the "Online access methods" section of this catalog.

For directions on how to order hardcopy documentation from Cray Research and IBM, see "Vendor documentation" in the "How to obtain hardcopy" section of this catalog.

Hardcopy reference copies of many of the vendor documents listed in this catalog are available in the SCD Consulting Office, Room 17 of the NCAR Mesa Lab and in the Documentation Library, Room 2122, Building 3, of the NCAR Foothills Lab.

## Introduction to the SCD computing environment

An online introduction to SCD is available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu/scd.html>

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

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### **Basic UNIX Guide, Version 1.0, August 1993, 135 pages**

A guide for new users. Covers the fundamentals of the UNIX operating system and basic UNIX terminology. Documents and provides examples of 17 frequently used commands. Two chapters are devoted to UNIX shells, while other chapters cover the vi editor and e-mail.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): `docs/unix/basic_unix.ps`  
ASCII: `docs/unix/basic_unix`
- Available in hardcopy from SCD

### **Charges for SCD Computing Resources, Version 8.0, October 1994, 28 pages**

Provides the formulas to compute General Accounting Unit (GAU) charges for using the computing resources in SCD. Covers charges for the CRAY Y-MP8/864 computer (shavano), the CRAY EL Cluster, the IBM RS/6000 Cluster, the Mass Storage System (MSS), and the Text and Graphics System (TAGS). Also covers charges for Climate Simulation Laboratory jobs run on the EL Cluster and charges for using the 1-800 Connect Account.

- Available online at URL:  
[http://www.ucar.edu/docs/Charges\\_docs/charges.html](http://www.ucar.edu/docs/Charges_docs/charges.html)
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): `docs/intro/charges.gau.ps`  
ASCII: `docs/intro/charges.gau`
- Available in hardcopy from SCD

**NCAR UNICOS Guide, Version 1.0, June 1994, 207 pages**

For both experienced and novice UNICOS users. Has sections on creating executable programs, optimizing programs, debugging jobs, using the Network Queuing System (NQS), transferring files, and producing and manipulating NCAR Graphics. Includes glossary and index.

- Available online at URL:  
[http://www.ucar.edu/docs/UNICOS/unicos\\_guide.toc.html](http://www.ucar.edu/docs/UNICOS/unicos_guide.toc.html)
- Available via anonymous FTP from ftp.ucar.edu:  
 PostScript (for hardcopy printing): **docs/cray/unicos\_guide.ps**  
 ASCII: **docs/cray/unicos\_guide/README**
- Available in hardcopy from SCD

**Supercomputing: The View from NCAR (FY93 Review and FY94–95 Development Plan for the NCAR Scientific Computing Division), January 1994, 221 pages**

Provides a description of recent activities in SCD and describes its plans for fiscal years FY94 and FY95. Intended for SCD users and staff, University Corporation for Atmospheric Research (UCAR)/NCAR management, and key people in governmental agencies. The plan highlights recent accomplishments and covers SCD research and development in the areas of networking, computational servers, distributed services, mass storage services, scientific visualization, data support, computational support, operations, user services, and the Model Evaluation Consortium for Climate Assessment (MECCA) project.

- Available online at URL:  
[http://www.ucar.edu/94Dev\\_Plan/docs/dp94toc.html](http://www.ucar.edu/94Dev_Plan/docs/dp94toc.html)
- PostScript version can be printed directly from Mosaic and Lynx
- ASCII available via anonymous FTP from ftp.ucar.edu:  
**docs/intro/development\_plan/README**
- Available in hardcopy from SCD (limited quantity)

## Compute servers

Online information organized by compute server is available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu/newuser.html>

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

### Cray Research platforms (Y-MPs, EL Cluster, T3D)

The following is a list of documentation that may be of interest to users of the CRAY Y-MP8/864 (shavano), the CRAY EL Cluster, the Y-MP8I (antero), and the CRAY T3D at NCAR.

### SCD documentation

**Charges for SCD Computing Resources, Version 8.0, October 1994, 28 pages**

Provides the formulas to compute General Accounting Unit (GAU) charges for using the computing resources in SCD. Covers charges for the CRAY Y-MP8/864 computer (shavano), the CRAY EL Cluster, the IBM RS/6000 Cluster, the Mass Storage System (MSS), and the Text and Graphics System (TAGS). Also covers charges for Climate Simulation Laboratory jobs run on the EL Cluster and charges for using the 1-800 Connect Account.

- Available online at URL:  
[http://www.ucar.edu/docs/Charges\\_docs/charges.html](http://www.ucar.edu/docs/Charges_docs/charges.html)
- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): [docs/intro/charges.gau.ps](ftp://ftp.ucar.edu/docs/intro/charges.gau.ps)  
ASCII: [docs/intro/charges.gau](ftp://ftp.ucar.edu/docs/intro/charges.gau)
- Available in hardcopy from SCD

## **The EL Cluster: Usage Differences from the CRAY Y-MPs,**

*Version 2.1, October 1994, 9 pages*

Points out the similarities and differences between using the CRAY EL Cluster and the CRAY Y-MP computers. Contains information on checking job status, killing jobs, requesting the number of CPUs your job requires, and adding more logic to large jobs so that data are not lost when the job is abnormally terminated.

- Available online at URL:  
[http://www.ucar.edu/docs/cray/el\\_guide.html](http://www.ucar.edu/docs/cray/el_guide.html)
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/cray/el\_guide.ps**  
ASCII: **docs/cray/el\_guide**

## **Hints for Using UNICOS Computers Efficiently and Reducing Your Charges,**

*Version 1.1, November 1994, 18 pages*

Contains information on how you can decrease the turnaround time for your UNICOS jobs and reduce General Accounting Unit (GAU) charges. This collection of articles from *SCD Computing News* shows how to build checkpointing capabilities into your jobs, set Network Queuing System (NQS) limits, and optimize your input/output (I/O).

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/cray/reduce\_charges\_hints.ps**  
ASCII: **docs/cray/reduce\_charges\_hints**

## **NCAR UNICOS Guide, Version 1.0, June 1994, 207 pages**

For both experienced and novice UNICOS users. Has sections on creating executable programs, optimizing programs, debugging jobs, using the Network Queuing System (NQS), transferring files, and producing and manipulating NCAR Graphics. Includes glossary and index.

- Available online at URL:  
[http://www.ucar.edu/docs/UNICOS/unicos\\_guide.toc.html](http://www.ucar.edu/docs/UNICOS/unicos_guide.toc.html)
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/cray/unicos\_guide/.ps**  
ASCII: **docs/cray/unicos\_guide/README**
- Available in hardcopy from SCD

## Vendor documentation

Individual document listings below show if a document is available via CrayDoc and/or Docview (Cray Research's online documentation systems). For directions on using CrayDoc and Docview, see "Vendor online systems" in the "Online access methods" section of this catalog.

Most of the documentation listed below is available in hardcopy from Cray Research. Many more manuals and technical notes are available; a complete list is given in Cray's *User Publications Catalog*, CP-0099. To order hardcopy Cray documentation or a copy of their complete *User Publications Catalog*, call (612) 683-5907 or write:

Cray Research, Inc.  
Distribution Center  
2360 Pilot Knob Rd.  
Mendota Heights, MN 55120

If you order documentation by phone, please state that you are affiliated with NCAR and provide a billing and a shipping address.

**Note:** We recommend that before ordering hardcopy documentation, you check to see which version of UNICOS is running on the computer you plan to use; specify that version to Cray Research when you order. Check also for the latest document prices, titles, and revision numbers, which are subject to change.

## UNICOS

### **Software Overview for Users, SG-2052, \$35**

Provides a brief introduction to Cray Research computer system hardware and an overview of the UNICOS operating system, operating system features, networking and connectivity, program generation utilities and products, programming features, and applications. This guide was written for new users of Cray Research software.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

### **UNICOS Environment Variables Ready Reference, SQ-2117, \$5**

Provides a quick reference for UNICOS operating system users who want to customize their environments by using the C shell, Bourne shell, or Korn shell. The contents include C shell, Bourne shell, and Korn shell environment commands, environment variables in Fortran, environment variables in C, UNICOS environment variables, and dot files.

- Available in hardcopy from Cray Research

## **UNICOS File Formats and Special Files Reference Manual, SR-2014, \$73**

Provides information on UNICOS file formats and special files available on Cray Research systems running under the UNICOS operating system. This reference manual is for programmers and system administrators. It describes the header files, data files, TCP/IP network files, protocols, special files associated with UNICOS devices, and miscellaneous reference material.

- Available in hardcopy from Cray Research

## **UNICOS Index for Man Pages, SR-2049, \$57**

Provides global indexes for the UNICOS online manual set (SR-2011, SR-2012, SR-2014, SR-2022, SR-2079, SR-2080, and SR-2081). Includes a merged contents list and a functional (keyword) index. This manual is used in conjunction with the UNICOS online manuals and provides alternative ways to locate information related to the use and maintenance of the UNICOS operating system.

- Available in hardcopy from Cray Research

## **UNICOS Korn Shell Reference Card, SQ-2115, \$3**

Describes the Korn shell built-in commands, shell functions, variable substitutions, and flow of control. This reference card includes a listing of all environment variables used and set by the Korn shell.

- Available in hardcopy from Cray Research

## **UNICOS Message Reference Manual, SR-2200, \$58**

Lists error messages and provides error message documentation for portions of the UNICOS operating system and for several products that run under UNICOS. Most of the message explanations available in this document are also available online through the **explain(1)** command of the UNICOS message system.

- Available in hardcopy from Cray Research

## **UNICOS Shell Ready Reference, SQ-2116, \$5**

Provides a quick reference for UNICOS operating system users who want to customize their environments by using the C shell, Bourne shell, or Korn shell. The contents include identifying and changing shells and shell scripts; C shell, Bourne shell, and Korn shell commands; and a UNICOS signal table.

- Available in hardcopy from Cray Research

**UNICOS Support Tools Guide, SG-2016, \$31**

Describes various software tools available to users of the UNICOS operating system, including the following: **make**, a program for maintaining computer programs; **nmake**, a program for maintaining, updating, and regenerating groups of computer programs; **yacc**, a parser generator; **lex**, a lexical analyzer; **awk**, a programming language; **bc** and **dc**, a desk calculator language and a calculator for arbitrary-precision arithmetic; and **m4**, a C language macro processor.

- Available in hardcopy from Cray Research

**UNICOS System Calls Reference Manual, SR-2012, \$69**

Describes UNICOS system calls available on all Cray Research systems. This is a reference manual for programmers.

- Available in hardcopy from Cray Research

**UNICOS User Commands Ready Reference, SQ-2056, \$31**

Provides the syntax and options to UNICOS user commands in quick-reference format in a spiral-bound booklet.

- Available in hardcopy from Cray Research

**UNICOS User Commands Reference Manual, SR-2011, \$130**

Describes UNICOS commands that are invoked directly by users or by command language procedures (shell script).

- Available in hardcopy from Cray Research

**UNICOS vi Reference Card, SQ-2054, \$1**

Summarizes commonly-used **vi** commands in a pocket-size reference card.

- Available in hardcopy from Cray Research

**FORTRAN**

**Application Programmer's I/O Guide, SG-2168**

Introduces standard Fortran, supports Fortran extensions, and provides a description of flexible file input/output (FFIO) and other I/O methods for Cray Research systems. Written for Fortran programmers who need general I/O information or who need information on how to optimize their I/O.

- Available in hardcopy from Cray Research

## **IPT User's Manual, FORTRAN-lint™ Source Code Analyzer for**

**UNIX-Based Operating System: Reprint, Version 2.90, March 1993, 44 pages**

Describes FORTRAN-lint, a programming tool developed by Information Processing Techniques that analyzes source code and detects a wide range of potential problems. FORTRAN-lint (which is invoked by the **flint** command) is especially useful for finding errors between routines, such as incorrect arguments and common block problems. SCD encourages the use of **flint** on all Fortran 77 programs.

- Available via anonymous FTP from ftp.ucar.edu:  
     PostScript (for hardcopy printing): **docs/cray/fortran\_lint.ps**  
     ASCII: **docs/cray/fortran\_lint**

## **CF77 Commands and Directives, SR-3771, \$38**

Describes the commands and syntax used to invoke and use the compiling system.

- Available online via Docview
- Available in hardcopy from Cray Research

## **CF77 Fortran Language Reference Manual, SR-3772, \$53**

Describes the CF77 language.

- Available online via Docview
- Available in hardcopy from Cray Research

## **CF77 Message Manual, SR-3774, \$38**

Lists all messages issued by the CF77 compiler. Each message is followed by an expanded description of the problem, as well as suggested actions for correcting the problem. Most of the message explanations available in this document are also available online through the **explain(1)** command of the UNICOS message system.

- Available in hardcopy from Cray Research

## **CF77 Optimization Guide, SG-3773, \$42**

Describes optimization performed by the compiler to increase code efficiency on Cray Research systems.

- Available online via Docview
- Available in hardcopy from Cray Research

## **CF77 Ready Reference, SQ-3770, \$15**

Summarizes frequently used CF77 commands and other compiler information such as Cray Fortran intrinsic functions, language syntax conventions, and Fortran 90 array functions.

- Available in hardcopy from Cray Research

## **CF90 Commands and Directives Reference Manual, SR-3901, \$36**

Describes the **f90(1)** command and CF90 compiler directives.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **CF90 Fortran Language Reference Manual, SR-3902, \$143**

Describes the CF90 compiler's implementation of the Fortran 90 language. Also describes Cray Research extensions to the Fortran 90 standards.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **CF90 Ready Reference, SQ-3900, \$26**

Summarizes the **f90(1)** command, CF90 compiler directives, and CF90 language syntax for the CF90 compiler.

- Available in hardcopy from Cray Research

## **PERFORMANCE**

### **CF77 Optimization Guide, SG-3773, \$42**

Describes optimization performed by the compiler to increase code efficiency on Cray Research systems.

- Available online via Docview
- Available in hardcopy from Cray Research

### **Tuning Guide to Parallel Vector Applications, SG-2182, \$62**

Documents the CrayTools used to measure or report information on the run-time performance of an application run on a UNICOS system. This performance data can reflect CPU execution time, multitasking efficiency, I/O use, or other types of data. Tools documented in this manual include **atexpert**, **flowview**, **hpm**, **jumpview**, **perfview**, **procview**, and **profview**.

- Available in hardcopy from Cray Research

## LIBRARIES

**Note:** For information on math libraries supported on SCD-maintained computers at NCAR, see "Applications software" in the "User documentation" section of this catalog.

**Application Programmer Library Reference Manual, SR-2165, \$100**

Documents the Application Libraries, which are released with the Cray Research Programming Environment. The Application Libraries include Fortran routines, Cray MPP synchronization routines, CF90 intrinsic subprograms, and selected C routines used for flexible file I/O (FFIO).

- Available in hardcopy from Cray Research

**Introducing CrayLibs, IN-2167, \$29**

Documents the Cray Research CrayLibs product released with the Programming Environment version 1.1. The CrayLibs product contains several libraries (a collection of subprograms grouped around specific subjects). The library routines can be called from source code written in several programming languages, including Fortran, C, Pascal, and assembly language. This manual describes the documentation history for the CrayLibs products and the new features in the release. It also provides a syntactic summary of all commands and routines in the CrayLibs product set.

- Available in hardcopy from Cray Research

**Math Library Reference Manual, SR-2138, \$29**

Describes the math library routines available on all Cray Research systems released with the Programming Environment. The math library includes the following types of routines: general arithmetic functions, exponential and logarithmic functions, trigonometric functions, type conversion functions, extended precision routines (double- and triple-precision arithmetic), special functions (Bessel, error function, log gamma), and Boolean functions.

- Available in hardcopy from Cray Research

**Scientific Libraries Reference Manual, SR-2081, \$74**

Describes the scientific library routines available on all Cray Research systems released with the Programming Environment. The science library includes the following types of routines: vector-vector linear algebra (level 1 BLAS), matrix-vector linear algebra (level 2 BLAS), matrix-matrix linear algebra (level 3 BLAS), solvers for dense linear systems (LAPACK, LINPACK), out-of-core routines, solvers for special linear systems (linear

recurrence, tridiagonal systems), solvers for sparse linear systems, eigenvalue computation for dense linear systems (EISPACK), signal processing routines (fast Fourier transform, complex convolution, correlation), machine constant functions, and message-passing communication.

- Available in hardcopy from Cray Research

## **UNICOS Fortran Library Ready Reference, SQ-2145, \$22**

Provides the synopsis lines and applicable function names for Fortran library functions, using a quick-reference format in a pocket-sized booklet.

- Available in hardcopy from Cray Research

## **UNICOS Fortran Library Reference Manual, SR-2079, \$107**

Describes Fortran subprograms in the UNICOS libraries (other than math and scientific routines). Also lists associated error messages. Includes the following types of subprograms: conversion subprograms; heap, table, and SDS management; I/O; multitasking; programming aids; system interface; specialized (character, packing, timing, byte and bit manipulation); sort/merge; search routines; and C library interface.

- Available in hardcopy from Cray Research

## **DEBUGGING**

### **CDBX Symbolic Debugger Reference Card, SQ-2110, \$3**

Summarizes the `cdbx` command line, the most frequently used CDBX commands, and other miscellaneous debugging information that is helpful for a user.

- Available in hardcopy from Cray Research

### **UNICOS CDBX Debugger User's Guide, SG-209, \$20**

Describes the characteristics and capabilities of the CDBX debugger. The CDBX debugger is an interactive, symbolic tool that allows you to perform source-level debugging of your programs written in CFT77, CF90, C, C++, CAL, and Pascal.

- Available online via Docview
- Available in hardcopy from Cray Research

## **UNICOS CDBX Symbolic Debugger Reference Manual, SR-2091, \$57**

Describes CDBX, the Cray Research symbolic debugger. CDBX is a symbolic, interactive debugger used to troubleshoot applications written in CFT77, CF90, Cray Standard C, C++, CAL, and Pascal.

- Available online via Docview
- Available in hardcopy from Cray Research

## **C LANGUAGE**

### **Cray C Library Reference Manual, SR-0136, \$27**

Describes the C language functions available on all Cray Research systems.

- Available in hardcopy from Cray Research

### **Cray Standard C Ready Reference, SQ-2076, \$12**

Provides the command-line syntax for the `cc` command, which is the default command to invoke the Cray Standard C compiler. This ready reference also includes summaries of various Standard C constructs, including keywords, the run-time library headers, pragmas, intrinsic functions, and predefined macros.

- Available in hardcopy from Cray Research

### **Cray Standard C Reference Manual, SR-2074, \$61**

Describes the Cray Standard C compiler that runs on any Cray Research system. This manual describes Cray Standard C features and summarizes Cray-specific details of the ANSI Standard C language.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

### **UNICOS C Library Ready Reference, SQ-2147, \$13**

Provides the synopsis lines and applicable function names for C library functions, using a quick-reference format in a pocket-sized booklet.

- Available in hardcopy from Cray Research

### **UNICOS C Library Reference Manual, SR-2080, \$99**

Describes the C library functions used in conjunction with the Cray Standard C compiler.

- Available in hardcopy from Cray Research

**T3D****Cray MPP Fortran Reference Manual, SR-2504, \$34**

Documents the Cray Fortran compiler CFT77 for use on Cray MPP systems, including the CRAFT programming model.

- Available online via CrayDoc
- Available in hardcopy from Cray Research

**Cray MPP Loader User's Guide, SG-2514, \$28**

Describes the operation of the Cray MPP loader. MPPLDR loads code produced by language processors such as CAL, Fortran, Pascal, and C. MPPLDR runs under UNICOS MAX on Cray MPP systems. To invoke MPPLDR, use the **mppldr** command, or with a more traditional UNIX-style interface, use the **mppld** command.

- Available in hardcopy from Cray Research

**Cray Research MPP Software Guide, SG-2508, \$37**

Introduces analysts, application specialists, and administrators to parallel processing concepts in general and to the CRAY T3D series in particular. This manual is intended to help programmers begin to learn about writing and porting codes for the CRAY T3D series.

- Available online via CrayDoc
- Available in hardcopy from Cray Research

**Cray Standard C Reference Manual for MPP, SR-2506, \$29**

Documents the Cray Standard C compiler for use on Cray MPP systems.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

**Introducing the Cray TotalView Debugger, IN-2502, \$9**

Documents the Cray TotalView debugger, an advanced symbolic source-level debugger designed for debugging parallel Fortran, C, or C++ programs that run on Cray Research systems.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **Introducing the MPP Apprentice Tool, IN-2511, \$8**

Documents the MPP Apprentice tool, a performance tool that provides help for tuning the performance of applications through an X Window System user interface.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **Parallel Virtual Machine (PVM) Reference Card, SQ-2512, \$3**

Summarizes the syntax of the Parallel Virtual Machine (PVM) C functions and Fortran subroutines. This reference card includes information on environment variables, starting PVM, host file syntax, console commands, and error messages. Cray Research supports three versions of PVM: the Cray MPP version, the networking version, and the CRAY T3D emulator version. These versions provide users a single, portable, de facto standard interface to do message-passing programming.

- Available in hardcopy from Cray Research

## **PVM and HeNCE Programmer's Manual, SR-2501, \$52**

Describes the use of the Parallel Virtual Machine (PVM) and Heterogeneous Network Computing Environment (HeNCE) in the Cray Research MPP computing environment. PVM supports parallel programming through a technique known as message-passing, and HeNCE provides a graphical parallel programming environment based on the X Window System environment. This manual is designed to function as a single source of information for these products during the programming, development, and use in a massively parallel processing environment and over a multicomputer network.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **MISCELLANEOUS**

### **Network Queuing System (NQS) User's Guide, SG-2105, \$44**

Describes the use of the Network Queuing System (NQS), which is part of the UNICOS operating system. The manual was written for end users who want to create, submit, monitor, or control NQS jobs. It assumes that readers are familiar with basic UNICOS concepts such as filenames, variables, and writing simple shell scripts with a UNICOS text editor.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **SEGLDR Reference Card, SQ-0303, \$16**

Lists all SEGLDR directives, parameters, keywords, and their options for the **segldr** and **ldr** commands. Also lists the differences between the **segldr** and **ldr** commands.

- Available in hardcopy from Cray Research

## **Segment Loader (SEGLDR) and ld Reference Manual, SR-0066, \$50**

Describes the operation of the Cray loader that loads both segmented and nonsegmented programs. Code overlaying and program-calling tree definition are supported to reduce local memory requirements. SEGLDR loads code produced by language processors such as CAL, Fortran, Pascal, and C. SEGLDR runs under UNICOS on all Cray Research systems. SEGLDR 8.0 can be invoked using the **segldr** command or with a more traditional UNIX-style interface, using the **ld** command.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## **Software Documentation Ready Reference, SQ-2122, \$12**

Provides an index to the software documentation of Cray Research. This manual is arranged alphabetically by topic, allowing you to locate information quickly on a given subject. Specific information that will help you locate the subject within a document, such as sections or online **man** pages, is also listed. This ready reference supplements the *Software Overview for Users*, publication SG-2052, and the "Cray Research Documentation Map" diagram located in the front of Cray Research manuals.

- Available online via Docview
- Available in hardcopy from Cray Research

## **User's Guide to Online Information, SG-2143, \$27**

Describes the types of online information available to Cray Research customers and provides usage information. Topics include the UNICOS message system, UNICOS online glossary, **man** pages, Docview text viewer, CrayDoc online book browser, and **xhelp** facility.

- Available online via Docview and CrayDoc
- Available in hardcopy from Cray Research

## IBM platforms (RS/6000 Cluster, SP1)

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The following is a list of documentation that may be of interest to users of the IBM RS/6000 Cluster and the IBM SP1 at NCAR.

### SCD documentation

#### **Getting Started on the IBM RS/6000 Cluster**, *Version 1.1, July 1994, 43 pages*

Covers IBM RS/6000 Cluster configuration, interactive and batch access methods, checking job and queue status, specifying a project number for CPU and Mass Storage System (MSS) charges, tracking General Accounting Unit (GAU) usage, file space, Fortran compilers, compiling NCAR Graphics programs, math and statistical libraries, MSS access, Cray data conversion, porting, documentation, and expectations for usage.

- Available online at URL:  
[http://www.ucar.edu/docs/cluster/ibm\\_cluster.html](http://www.ucar.edu/docs/cluster/ibm_cluster.html)
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/noncray/ibm\_cluster.ps**  
ASCII: **docs/noncray/ibm\_cluster**

### Vendor documentation

Individual document listings below show if a document is available via InfoExplorer, IBM's online documentation system. For directions on using InfoExplorer, see "Vendor online systems" in the "Online access methods" section of this catalog. To order hardcopy IBM documentation, call (800) 879-2755.

#### **FORTRAN-lint™ Source Code Analyzer for UNIX-Based Operating System: Reprint**, *Version 2.90, March 1993, 44 pages*

Describes FORTRAN-lint, a programming tool developed by Information Processing Techniques that analyzes source code and detects a wide range of potential problems. FORTRAN-lint (which is invoked by the **flint** command) is especially useful for finding errors between routines, such as incorrect arguments and common block problems. SCD encourages the use of **flint** on all Fortran 77 programs.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/cray/fortran\_lint.ps**  
ASCII: **docs/cray/fortran\_lint**

**IBM AIX Version 3 for RISC System/6000 Calls and Subroutines Reference:  
Base Operating System—Volume 1, SC23-2198, 900 pages, \$208**

Contains information about the Basic Linear Algebra Subroutines (BLAS).

- Available in hardcopy from IBM

**IBM AIX Version 3.2 for RISC System/6000 Commands Reference,  
GBOF-1802 (several manuals), \$108.75**

Contains extensive examples and detailed descriptions of the AIX operating system commands and their available flags.

- Available in hardcopy from IBM

**IBM Engineering and Scientific Subroutine Library Guide and Reference,  
SC23-0526, 1,368 pages, \$147**

Contains detailed information about the Engineering and Scientific Subroutine Library (ESSL) subroutines.

- Available online via InfoExplorer
- Available in hardcopy from IBM

**Language Reference for IBM AIX XL FORTRAN Compiler/6000,  
SC09-1353, 272 pages, \$11**

Describes the XL Fortran programming language as implemented on the IBM RISC System/6000 computer.

- Available online via InfoExplorer
- Available in hardcopy from IBM

**Optimization and Tuning Guide for the XL FORTRAN and XL C Compilers,  
SC09-1545, 248 pages, \$11.50**

Describes techniques to improve the performance of programs compiled with the IBM XL Fortran Compiler/6000 and the IBM AIX XL C Compiler/6000. Deals primarily with improving the performance of numerically intensive applications.

- Available online via InfoExplorer
- Available in hardcopy from IBM

**User's Guide for IBM AIX XL FORTRAN Compiler/6000, SC09-1354, 296 pages,  
\$12**

Describes how to compile, link, and run XL Fortran source programs on the RISC System/6000 computer.

- Available online via InfoExplorer
- Available in hardcopy from IBM

**XL C Language Reference for IBM AIX Version 3.2 for RISC System/6000,**  
*SC09-1260, 208 pages, \$21.75*

Describes the syntax and semantics of the C programming language as implemented by the IBM AIX XL C Compiler/6000 licensed program. Written for users who have some knowledge of programming concepts in the C language and some experience in writing C programs.

- Available online via InfoExplorer
- Available in hardcopy from IBM

**XL C User's Guide for IBM AIX Version 3.2 for RISC System/6000,**  
*SC09-1259, 188 pages, \$19*

Explains how to develop and compile C language programs on a RISC System/6000 computer that has the IBM AIX XL C Compiler/6000 licensed program installed.

- Available online via InfoExplorer
- Available in hardcopy from IBM



*Pictured here are the four IBM RS/6000 Cluster nodes, left, and the SP1 control workstation, right. (Photo by Carlye Calvin.)*

## Mass Storage System

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx, at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

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### Importing and Exporting Data between the Mass Storage System and Tape via MIGS, Version 1.2, November 1994, 29 pages

Gives detailed information on file transfer between the Mass Storage System (MSS) and tape media, including 1/2-inch magnetic tape, IBM 3480 tape cartridge, and 8-mm cassettes (EXAbyte type). Demonstrates use of the MASnet/Internet Gateway Server (MIGS) **nrnet** command, along with the **msimport** and **msexport** verbs, describes all applicable keywords, and gives examples of their use. Describes parameters for receiving job status information, changing project or user numbers, and using high-density EXAbyte tapes.

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): **docs/mss/import\_export.ps**  
ASCII: **docs/mss/import\_export**

### Introduction to NCAR's Mass Storage System, Version 1.1, December 1992, 40 pages

Provides an introduction to the Mass Storage System (MSS), a combination of hardware and software that stores large numbers of user files. By using the MSS commands covered in this document, you can transfer files to and from the MSS, obtain MSS file listings, change MSS file attributes, and transport data to and from tape media. The MSS file purge policy, the file protection system, and file-naming conventions are described.

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): **docs/mss/mass\_store\_intro.ps**  
ASCII: **docs/mss/mass\_store\_intro**

## **MSS Quick Reference, Version 1.1, February 1994 (card)**

Summarizes the Mass Storage System (MSS) commands and subroutines available on the NCAR Cray computers and on the UNIX front-end computer, meeker.

- Available in hardcopy from SCD

## **Reading, Converting, and Writing MSS Files on UNICOS,**

*Version 1.1, August 1992, 20 pages*

Describes how to use Mass Storage System (MSS) files on SCD-supported Cray computers at NCAR, including the **msread/mswrite** interface. The document explains how to determine the structure, format, and data type of an MSS file and how to read it properly from the MSS. It also describes various methods you can use to convert a file to the appropriate UNICOS format, and explains different **assign** options you can use to read a file into a Fortran program.

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):

PostScript (for hardcopy printing):

**docs/mss/mss\_reading\_converting.ps**

ASCII: **docs/mss/mss\_reading\_converting**



*The Mass Storage System provides a data reservoir for the CRAY Y-MP8/864 (shown above) and other NCAR computers. (Photo by Carlye Calvin.)*

## Applications software

An online introduction to NCAR's mathematical and statistical libraries is available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu/SOFTLIB/mathlib.html>

**Note:** The information in this chapter is subject to change as data formats, math libraries, and technical computational packages are added, discontinued, or upgraded. For the latest information, please see the online version of this catalog, available at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

## Data formats

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### HDF

Hierarchical Data Format (HDF) is a multiobject file format for the transfer of graphical and floating-point data between computers. The design of this format allows self-definition of data content and easy extensibility for future enhancements or compatibility with other standard formats.

- Documentation available online at URL:  
<http://www.ncsa.uiuc.edu/SDG/Software/Brochure/DSTSoftDesc.html#HDF>
- Source code available via anonymous FTP from <ftp.ncsa.uiuc.edu> in directory:

**HDF**

### netCDF

Network Common Data Form (netCDF) provides an interface to allow you to create, access, and share scientific data in a form that is self-describing and network transparent. You can improve the accessibility of your data by using the netCDF interface when you create new scientific datasets. You can also improve the reusability of software for other datasets and by other users if you use the netCDF interface in new software.

- Documentation (including *The netCDF User's Guide*) available online at URL:  
<http://www.unidata.ucar.edu/packages/netcdf/index.html>
- Source code available via anonymous FTP from unidata.ucar.edu:  
[/pub/gopherd/gopher-data/anon.ftp/netcdf](ftp://pub/gopherd/gopher-data/anon.ftp/netcdf)

## Math libraries

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### ALFPACK

ALFPACK is a free, portable library of Fortran subprograms for computing single- and double-precision normalized associated Legendre functions of the first kind—the PBAR(N,M,THETA) functions. This library was developed at NCAR. (See Table 1 for ALFPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/ALFPACK.html>
- Documentation and source code available via anonymous FTP from ftp.ucar.edu in directory:  
[dsl/lib/alfpack](ftp://ftp.ucar.edu/dsl/lib/alfpack)

### CRAYFISH

CRAYFISH is the library name of the CRAYFISHPACK product purchasable from Green Mountain Software. CRAYFISH contains Fortran 77 subroutines for solving finite-difference approximations for two- and three-dimensional Helmholtz equations in Cartesian, cylindrical, and spherical coordinates with any combination of periodicity, normal derivative, or solution of the boundaries of a regular domain. The routines are fast due to their usage of vectorized fast Fourier transform and cyclic reduction algorithms. (See Table 1 for CRAYFISH availability on SCD-supported computers at NCAR.)

- Documentation and test code available online at URL:  
<http://www.ucar.edu/SOFTLIB/CRAYFISH.html>
- Documentation and test code available via anonymous FTP from ftp.ucar.edu in directory:  
[dsl/lib/crayfish](ftp://ftp.ucar.edu/dsl/lib/crayfish)

Table 1. Math library reference chart

**Note:** "CRAY" refers to the SCD-supported CRAY ELs and the CRAY Y-MP8/864 (shavano) at NCAR. For math library documentation questions and the latest information on where a library is installed, send e-mail to [valent@ncar.ucar.edu](mailto:valent@ncar.ucar.edu).

Functionality	Library	Availability on SCD-supported computers
Associated Legendre functions	ALFPACK	CRAY, RS/6000
Curve and surface fitting	FITPACK	CRAY, RS/6000
Eigensystem solvers	EISPACK LAPACK	RS/6000, CRAY (as part of SCI) CRAY, RS/6000
Fast Fourier transforms	ECMFFT FFTPACK GPFA SCI	CRAY, RS/6000 CRAY, RS/6000 CRAY, RS/6000 CRAY
General math	ESSL IMSL NAG NCARM	RS/6000 CRAY, RS/6000 CRAY, RS/6000 CRAY
General statistics	IMSL NAG STARPAC	CRAY, RS/6000 CRAY, RS/6000 CRAY, RS/6000
Linear equation solvers	LAPACK SCI LINPACK	CRAY, RS/6000 CRAY RS/6000, CRAY (as part of SCI)
Nonlinear equation solvers	MINPACK	CRAY
Ordinary differential equation solvers	ODEPACK	CRAY
Partial differential equation solvers	CRAYFISHPAK FISHPAK MUDPACK	CRAY CRAY, RS/6000 CRAY, RS/6000
Special functions	SPECFUN IMSL	CRAY, RS/6000 CRAY, RS/6000
Spherical harmonic analysis	SPHEREPACK	CRAY, RS/6000

## ECMFFT

ECMFFT is a library purchasable from the European Centre for Medium-Range Weather Forecasting (ECMWF) for computing the fast Fourier transform (FFT) of real periodic sequences. Its primary user entries SET99 and FFT991 are Fortran-callable and figure heavily in NCAR's Community Climate Models. These FFTs are referred to as "multiple" transforms because they transform multiple sequences within a single array and the operative vector length is the number of sequences transformed by a given call. Two versions of the library may be purchased from ECMWF: an optimized, mixed Fortran assembly language version for CRAY Y-MP and C90 computers and an all-Fortran version for use on other computers. (See Table 1 for ECMFFT availability on SCD-supported computers at NCAR.)

- Documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/ECMFFT.html>
- Documentation available via anonymous FTP from ftp.ucar.edu:  
[dsl/lib/ecmfft/README](ftp://ftp.ucar.edu/dsl/lib/ecmfft/README)

## EISPACK

EISPACK is a free, portable library for calculating eigenvectors and eigenvalues. (See Table 1 for EISPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/EISPACK.html>
- Documentation and source code available via anonymous FTP from netlib2.cs.utk.edu in directories:  
[eispack](ftp://netlib2.cs.utk.edu/eispack) (double precision)  
[seispack](ftp://netlib2.cs.utk.edu/seispack) (single precision)

## ESSL

ESSL is the Engineering Scientific Subroutine Library licensed from IBM for use on some IBM computers at NCAR. It is optimized and contains general-purpose math routines in the following computational areas: linear algebra, matrix operations, linear algebraic equations, eigensystem analysis, Fourier transforms, convolutions and correlations, sorting and searching, interpolation, numerical quadrature, and random-number generation. (See Table 1 for ESSL availability on SCD-supported computers at NCAR.)

- Brief documentation (pointing to extensive vendor documentation) available online at URL:  
<http://www.ucar.edu/SOFTLIB/ESSL.html>
- Brief documentation (pointing to extensive vendor documentation) available via anonymous FTP from ftp.ucar.edu:  
[dsl/lib/essl/README](ftp://ftp.ucar.edu/dsl/lib/essl/README)

- Documentation also available online via InfoExplorer (for access instructions, see "Vendor online systems" in the "Online access methods" section of this catalog)

## FFTPACK

FFTPACK is a free, portable library of Fortran routines for computing the one-dimensional fast Fourier transform of the following sequences: real, complex, quarter sine, quarter cosine, sine, and cosine. FFTPACK was developed at NCAR. (See Table 1 for FFTPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/FFTPACK.html>
- Documentation and source code available via anonymous FTP from ftp.ucar.edu in directory:  
`dsl/lib/fftpack`

## FISHPAK

FISHPAK is a free, portable library for the direct solution of finite-difference approximations to two-dimensional Helmholtz equations in various coordinate systems (Cartesian, polar, cylindrical, interior spherical, and surface spherical). The equations are permitted to have various combinations of boundary conditions: periodic, normal derivative, or solutions specified on the boundary. Versions of these two-dimensional codes are provided for both standard and staggered grids. Additionally, FISHPAK provides two routines for solving more general two-dimensional separable elliptic equations, and one routine for solving a system of linear equations resulting from the discretization of a three-dimensional separable elliptic equation. (See Table 1 for FISHPAK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/FISHPAK.html>
- Documentation and source code available via anonymous FTP from ftp.ucar.edu in directory:  
`dsl/lib/fishpak`

## FITPACK

FITPACK is a FORTRAN 77 library purchasable from Pleasant Valley Software for curve and surface interpolation and fitting using tension splines. It includes 80 user entries for one, two, and three-dimensional problems. The library can handle special geometries, including spherical, polar, and toroidal coordinates. For two and three dimensions, the data must be uniformly spaced. (See Table 1 for FITPACK availability on SCD-supported computers at NCAR.)

- Documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/FITPACK.html>
- Documentation available via anonymous FTP from ftp.ucar.edu in directory:  
**dsl/lib/fitpack**
- Source code for a small, public-domain version of FITPACK available via anonymous FTP from netlib2.cs.utk.edu:  
**fitpack/all**

## GPFA

GPFA is a library purchasable from the European Centre for Medium-Range Weather Forecasting (ECMWF). It contains user entries SETGPFA and GPFA for computing the fast Fourier transform of complex periodic sequences. These FFTs are referred to as "multiple" transforms because they transform multiple sequences within a single array, and the operative vector length is the number of sequences transformed by a given call. (See Table 1 for GPFA availability on SCD-supported computers at NCAR.)

- Documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/GPFA.html>
- Documentation available via anonymous FTP from ftp.ucar.edu:  
**dsl/lib/gpfa/README**

## IMSL

The International Mathematical and Statistical Library (IMSL) is licensed by NCAR from Visual Numerics. The library contains general-purpose math and statistics routines for the following areas: eigenvalues and eigenvectors, linear systems of equations, interpolation and fitting, integration and differentiation, ordinary and partial differential equations, transforms, nonlinear equations, optimization, a wide variety of special functions, basic statistics, regression, correlation, analysis of variation, categorical and discrete data analysis, nonparametric statistics, tests of goodness-of-fit and randomness, time-series analysis, cluster analysis, sampling, survival analysis, life testing and reliability, multidimensional scaling, density and hazard estimation, line printer graphics, probability distribution functions, and random-number generation. (See Table 1 for IMSL availability on SCD-supported computers at NCAR.)

- Brief documentation (pointing to extensive vendor documentation) available online at URL:  
<http://www.ucar.edu/SOFTLIB/IMSL.html>
- Brief documentation (pointing to extensive vendor documentation) available via anonymous FTP from ftp.ucar.edu:  
**dsl/lib/imslib/README**
- Documentation and test code also available via IMSL Interactive Documentation Facility (for access instructions, type **man imsl.idf**)

**LAPACK**

The Linear Algebra Package (LAPACK) is a free, portable, modern (1990) library of Fortran 77 routines for solving the most common problems in numerical linear algebra: linear systems of equations, eigenvalues and eigenvectors, linear least squares, and singular value decomposition. It is designed to be efficient on a wide range of high-performance computers, under the proviso that the hardware vendor has implemented an efficient set of BLAS (Basic Linear Algebra Subroutines). (See Table 1 for LAPACK availability on SCD-supported computers at NCAR.)

- Documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/LAPACK.html>
- Documentation and source code available via anonymous FTP from netlib2.cs.utk.edu:  
**lapack.tar.z**

**LINPACK**

LINPACK is a free, portable library for solving linear systems of equations. (See Table 1 for LINPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/LINPACK.html>
- Documentation and source code available via anonymous FTP from netlib2.cs.utk.edu in directories:  
**linpack** (double precision)  
**slinpack** (single precision)

**MINPACK**

MINPACK is a free, portable library for solving nonlinear systems of equations and nonlinear least squares problems. (See Table 1 for MINPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
<http://www.ucar.edu/SOFTLIB/MINPACK.html>
- Documentation and source code available via anonymous FTP from netlib2.cs.utk.edu in directories:  
**minpack** (double precision)  
**sminpack** (single precision)

**MUDPACK**

MUDPACK is a collection of free, portable Fortran subroutines, vectorized on Cray computers, that automatically discretize and use multigrid iteration to generate second- and fourth-order approximations to two- and three-dimensional linear elliptic partial differential equations on rectangular regions with any combination of periodic,

mixed derivative, and specified (Dirichlet) boundary conditions. This library was developed at NCAR. (See Table 1 for MUDPACK availability on SCD-supported computers at NCAR.)

- Documentation and test code available online at URL:  
`http://www.ucar.edu/SOFTLIB/MUDPACK.html`
- Documentation and test code available via anonymous FTP from `ftp.ucar.edu` in directory:  
`dsl/lib/mudpack`
- Postscript (for hardcopy printing) available via anonymous FTP from `ftp.ucar.edu`:  
`docs/software/mudpack.ps`
- Hardcopy available from author John Adams:  
E-mail: `johnad@ncar.ucar.edu`; phone: (303) 497-1213

## NAG

NAG is a library licensed from the Numerical Algorithms Group, Limited. It contains general-purpose math and statistical routines for computing in the following areas: complex arithmetic, zeros of polynomials, roots of transcendental functions, summation of series, quadrature, ordinary and partial differential equations, numerical differentiation, integral equations, interpolation, curve and surface fitting, minimizing or maximizing a function, matrix operations, eigenvalues and eigenvectors, linear equations, orthogonalization, basic statistics, correlation and regression analysis, multivariate methods, analysis of variance, random-number generators, univariate estimation, nonparametric statistics, contingency table analysis, time-series analysis, operations research, sorting, and a wide variety of special functions. (See Table 1 for NAG availability on SCD-supported computers at NCAR.)

- Brief documentation (pointing to extensive vendor documentation) available online at URL:  
`http://www.ucar.edu/SOFTLIB/NAG.html`
- Brief documentation (pointing to extensive vendor documentation) available via anonymous FTP from `ftp.ucar.edu`:  
`dsl/lib/nag/README`
- Documentation also available online via the **naghel** facility (type **man naghel** for access instructions)

## NCARM

NCARM is a nonportable math library that was partly developed at NCAR and partly acquired from a variety of sources. It dates back to the mid-1970s and is maintained at NCAR for historical purposes only. (See Table 1 for NCARM availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
**<http://www.ucar.edu/SOFTLIB/NCARM.html>**
- Documentation and source code available via anonymous FTP  
from ftp.ucar.edu in directory:  
**dsl/lib/ncarm**

## ODEPACK

ODEPACK is a package of routines for solving systems of initial value, ordinary differential equations, for stiff and nonstiff problems. This package uses Gear's method and step methods. You have the option of providing Jacobian matrices for the stiff case or letting ODEPACK generate them numerically. (See Table 1 for ODEPACK availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
**<http://www.ucar.edu/SOFTLIB/ODEPACK.html>**
- Documentation and source code available via anonymous FTP  
from ftp.ucar.edu in directory:  
**dsl/lib/odepack**

## SCI

SCI is a general-purpose scientific library licensed for use on the Cray computers at NCAR. It is optimized and contains offerings in the following areas: linear equations, eigenvalues and eigenvectors, fast Fourier transforms, signal processing, and sorting and searching. SCI contains EISPACK, LINPACK, and most of LAPACK. It contains an optimized version of the Basic Linear Algebra Subroutines (BLAS). (See Table 1 for SCI availability on SCD-supported computers at NCAR.)

- Brief documentation (pointing to extensive vendor documentation) available online at URL:  
**<http://www.ucar.edu/SOFTLIB/SCI.html>**
- Brief documentation (pointing to extensive vendor documentation) available via anonymous FTP from ftp.ucar.edu:  
**dsl/lib/sci/README**

## SPECFUN

SPECFUN is a free, modern, transportable library of special-function routines and accompanying test drivers. Library components include Bessel functions, exponential integrals, error and error-related functions, and gamma and gamma-related functions. SPECFUN is the replacement for the older AMOSLIB and FUNPACK libraries. (See Table 1 for SPECFUN availability on SCD-supported computers at NCAR.)

- Documentation available online at URL:  
**<http://www.ucar.edu/SOFTLIB/SPECFUN.html>**
- Documentation and source code available via anonymous FTP from netlib2.cs.utk.edu in directory:  
**specfun**

## SPHERE

SPHERE is the library name of the free SPHEREPACK package of Fortran 77 routines. The package was developed at NCAR for computing spherical harmonic analyses and syntheses, which are useful in problem solving in spherical coordinates in the same way that fast Fourier transforms are in Cartesian coordinates. Examples of applications include: interpolating and smoothing on the sphere, resolving accuracy and stability problems peculiar to solving PDEs on the sphere, and computing differential expressions at or near the poles. (See Table 1 for SPHERE availability on SCD-supported computers at NCAR.)

- Documentation and source code available online at URL:  
**<http://www.ucar.edu/SOFTLIB/SPHERE.html>**
- Documentation and source code available via anonymous FTP from ftp.ucar.edu in directory:  
**dsl/lib/sphere**

## STARPAC

The Standards Time Series and Regression Package (STARPAC) is a free, portable library of Fortran routines for statistical data analysis developed at the National Institute of Standards and Technology. It contains routines for computing in the following areas: normal random-number generation, univariate sampling, one-way analysis of variance, correlation analysis, linear least squares, nonlinear least squares, digital filtering, complex demodulation, correlation and spectrum analysis, and time-series analysis. (See Table 1 for STARPAC availability on SCD-supported computers at NCAR.)

- Brief documentation (pointing to extensive vendor documentation) available online at URL:  
**<http://www.ucar.edu/SOFTLIB/STARPAC.html>**
- Documentation available via anonymous FTP from ftp.ucar.edu:  
**starpac/guide.doc**
- Source code available via anonymous FTP from ftp.ucar.edu in directory:  
**dsl/lib/starpac**

## Technical computational packages

**Table 2. Technical computational package reference chart**

**Note:** For documentation questions and the latest information on where a computational package is installed, send e-mail to [valent@ncar.ucar.edu](mailto:valent@ncar.ucar.edu).

Functionality	Package	Availability on SCD-supported computers
General math	Mathematica	<a href="http://math.ucar.edu">math.ucar.edu</a>
General math	MATLAB	<a href="http://math.ucar.edu">math.ucar.edu</a> , <a href="http://alpine.ucar.edu">alpine.ucar.edu</a> (CRAY EL 98), <a href="http://shavano.ucar.edu">shavano.ucar.edu</a> (Y-MP8/864)
General statistics	SAS	<a href="http://math.ucar.edu">math.ucar.edu</a>
General statistics	SPLUS	<a href="http://math.ucar.edu">math.ucar.edu</a>

### Mathematica

Mathematica is a comprehensive software system for numerical, symbolic, and graphical computations and visualization. It provides an interactive calculation tool and versatile programming language for fast and accurate solutions to technical problems. Its electronic documents (called notebooks) help organize text, computations, graphics, and animations for technical reports, courseware, presentations, or work records. (See Table 2 for Mathematica availability on SCD-supported computers at NCAR.)

- UserDoc available online at URL:  
<gopher://info.ucar.edu/00/ncarucar/docs/software/mathematica>
- Brief documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/MATHEMATICA.html>
- Some vendor documentation available online at URL:  
<http://www.wri.com>
- UserDoc in PostScript (for hardcopy printing) from [ftp.ucar.edu](ftp://ftp.ucar.edu/docs/software/mathematica.ps):  
[docs/software/mathematica.ps](ftp://ftp.ucar.edu/docs/software/mathematica.ps)
- Some vendor documentation and some source code available via anonymous FTP from [ftp.wri.com](ftp://ftp.wri.com) in directory:  
**pub**

**MATLAB**

MATLAB is an interactive technical computing environment for numeric computation and visualization. MATLAB brings together numerical analysis, matrix computation, signal processing, and graphics in an easy-to-use environment where problems and solutions are expressed just as they are written mathematically, without traditional programming. (See Table 2 for MATLAB availability on SCD-supported computers at NCAR.)

- Documentation available online via the MATLAB "help" facility (type **help help** from within MATLAB to get started)
- Brief documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/MATLAB.html>
- Some vendor documentation available online at URL:  
<http://www.mathworks.com>
- Some vendor documentation and some source code available via anonymous FTP from ftp.mathworks.com in directory:  
**pub**

**SAS**

SAS is an interactive and batch programming environment that provides modules for basic data analysis, statistics, report writing, access to ORACLE and INGRES databases, time-series analysis and forecasting, color graphics, matrix programming, interactive statistical graphics, operations research and project management, and advanced statistics. (See Table 2 for SAS availability on SCD-supported computers at NCAR.)

- Brief documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/SAS.html>
- Some vendor documentation also available online at URL:  
<http://www.sas.com>
- Some vendor documentation and some source code may be available via anonymous FTP from ftp.sas.com in directory:  
**pub**

**S-PLUS**

S-PLUS is an interactive programming environment for data analysis. It includes an object-oriented programming language, a unified paradigm for developing statistical models, and hundreds of built-in statistical and graphical functions. (See Table 2 for S-PLUS availability on SCD-supported computers at NCAR.)

- Brief documentation available online at URL:  
<http://www.ucar.edu/SOFTLIB/SPLUS.html>
- Some vendor documentation also available online at URL:  
<http://www.mathsoft.com/products/splus.html>
- Some vendor documentation and some source code may be available via anonymous FTP from ftp.statsci.com in directory:  
**pub**

# NCAR Graphics

## The NCAR Graphics user document collection

The NCAR Graphics user document collection currently includes:

- Manuals for learning and using the Fortran and C routines in the NCAR Graphics utilities
- A manual describing the Graphical Kernel System (GKS) routines that are most commonly used in conjunction with the NCAR Graphics package
- Reference information about NCAR Computer Graphics Metafiles (NCGMs), graphcaps, and fontcaps
- Short documents describing special-purpose applications of NCAR Graphics output
- Current release notes
- The FAQ, frequently asked questions about NCAR Graphics

## How to access NCAR Graphics documentation

### On the World Wide Web

All new user documentation for the NCAR Graphics software package is being published online in hypertext form only. This documentation is accessible on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

<http://ngwww.ucar.edu:7777/>

This is the URL for the NCAR Graphics welcome page.

Most of the existing printed NCAR Graphics documents are also accessible from the welcome page.

To ensure that you receive the most up-to-date information, you should access NCAR Graphics documentation from the above URL; the collection of documents evolves as NCAR Graphics software is refined and improved.

When NCAR Graphics Version 4.0 is released in mid-1995, its new documentation, designed for hypertext, will also be accessible from the above URL.

See the "Online access methods" section in this catalog for World Wide Web access instructions.

## PostScript, ASCII, and hardcopy

You can download and print NCAR Graphics hypertext documentation in ASCII and PostScript format via your World Wide Web browser (for instance, Mosaic or Lynx).

Most of the existing printed NCAR Graphics documents are available in PostScript and ASCII format via anonymous File Transfer Protocol (FTP) from `ftp.ucar.edu` in the following directory:

`ncarg/unix3.2.1/doc`

See the "Online access methods" section in this catalog for directions on downloading and printing ASCII and PostScript files and using anonymous FTP.

SCD will stop distributing printed copies of NCAR Graphics documents when existing supplies are depleted. Until then, use the contact information below to order hardcopy.

## For more information

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### General information

For more information about NCAR Graphics, send e-mail to `scdinfo@ncar.ucar.edu`, call (303) 497-1201, or write:

NCAR Graphics Distribution  
NCAR/SCD  
P.O. Box 3000  
Boulder, CO 80307-3000

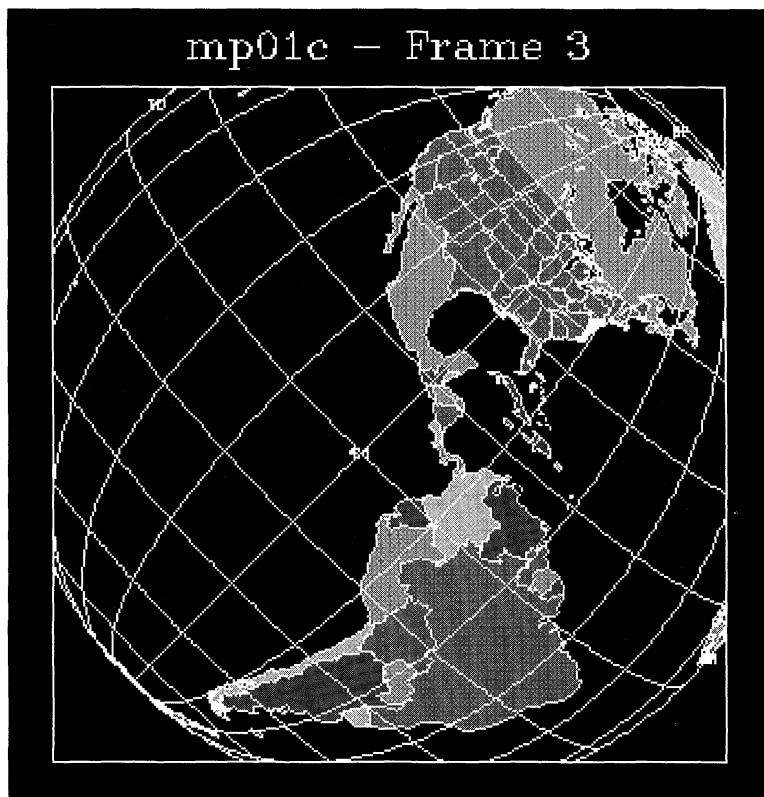
### E-mail group

An e-mail group, **ncarg-talk**, for NCAR Graphics users is available. The purpose of this group is to give NCAR Graphics users a chance to share information and ideas among themselves and bring up NCAR Graphics issues of concern.

To subscribe via e-mail, send an e-mail message to [majordomo@ncar.ucar.edu](mailto:majordomo@ncar.ucar.edu). Leave the subject blank (it will be ignored). Type the following as the message body:

```
subscribe ncarg-talk user
end
```

where *user* is your SCD-assigned login name or your full e-mail address. Terminate your e-mail in the usual way.



*This NCAR Graphics example from the new High Level Utilities interface shows output from the MapPlot utility.*

## Networking and data communications

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

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### **The Elm Alias System Users Guide, for Version 2.4 of the Elm mail system**

Describes how to create e-mail address aliases for use within the Elm mail system.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing):  
**docs/networking/elm\_email/Alias.ps**  
ASCII: **docs/networking/elm\_email/Alias**

### **The Elm Filter System Guide, for Version 2.4 of the Elm mail system**

Describes how to use the filter program to manipulate, file, and report on incoming e-mail within the Elm mail system.

- Available online at URL:  
**<http://uxl.cso.uiuc.edu/~pgallot/elm/Filter.guide.html>**
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing):  
**docs/networking/elm\_email/Filters.ps**  
ASCII: **docs/networking/elm\_email/Filters**

### **The Elm Forms Mode Guide, for Version 2.4 of the Elm mail system**

Describes how to create and use standard forms within the Elm mail system.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing):  
**docs/networking/elm\_email/Forms.ps**  
ASCII: **docs/networking/elm\_email/Forms**

**The Elm Reference Guide**, for Version 2.4 of the Elm mail system

Provides a comprehensive explanation of all commands and options to the Elm mail system. This document describes the `.elm/elmrc` file, command-line options, outgoing mail processing, responses of various commands, mail archive folders, the alias system, and Elm utilities. The document also includes a section for expert mail users.

- Available online at URL:  
`http://uxl.cso.uiuc.edu/~pgallot/elm/Ref.guide.html`
- Available via anonymous FTP from `ftp.ucar.edu`:  
PostScript (for hardcopy printing):  
`docs/networking/elm_email/Reference.ps`  
ASCII: `docs/networking/elm_email/Reference`

**The Elm Users Guide**, for Version 2.4 of the Elm mail system

Provides an introduction to e-mail using the Elm mail system. Includes a tutorial session, a discussion of noninteractive uses of Elm, and a brief description of Elm utilities.

- Available online at URL:  
`http://uxl.cso.uiuc.edu/~pgallot/elm/Users.guide.html`
- Available via anonymous FTP from `ftp.ucar.edu`:  
PostScript (for hardcopy printing):  
`docs/networking/elm_email/Users.ps`  
ASCII: `docs/networking/elm_email/Users`

**IRJE Quick Reference**, Version 3.0, June 1992 (card)

Summarizes Internet Remote Job Entry (IRJE) command files and parameter files in reference-card format.

- Available in hardcopy from SCD

**IRJE: Using the NCAR Internet Remote Job Entry System**,  
Version 5.2, June 1992, 53 pages

Explains how university users can use Internet Remote Job Entry (IRJE) to submit jobs directly from their local host computers to the Cray computers, the Mass Storage System (MSS), and the Text and Graphics System (TAGS). The document includes information on how to specify an MSS read password for requests to TAGS to process a file that is on the MSS.

- Available via anonymous FTP from `ftp.ucar.edu`:  
PostScript (for hardcopy printing): `docs/networking/irje.ps`  
ASCII: `docs/networking/irje`

**MIGS: MASnet/Internet Gateway Server Reference Manual,**

*Version 3.0, April 1992, 80 pages*

Describes the MASnet/Internet Gateway Server (MIGS), a combination of hardware and software that allows access to the NCAR Mainframe and Server Network (MASnet) from computers attached to the Internet. MIGS provides an easy way to access the Cray computers, the Text and Graphics System (TAGS), and the Mass Storage System (MSS), as well as other components of the NCAR computing environment. This reference manual describes how to use MIGS from both your local system and from MASnet systems; it documents all parameters and describes how users can update their entries in the MIGS user database.

- Available via anonymous FTP from ftp.ucar.edu:  
     PostScript (for hardcopy printing):  
     docs/networking/migs\_gateway\_ref.ps  
     ASCII: docs/networking/migs\_gateway\_ref

**MIGS: MASnet/Internet Gateway Server Remote System Administrator's Guide,** *Draft Version 1.1, August 1988, 25 pages*

Describes how to install the MASnet/Internet Gateway Server (MIGS) at your local site. This document contains information on how to establish security and how to modify the MIGS defaults to meet your local site needs. Special sections cover UNIX and VMS implementation. This document is for use by local MIGS systems administrators, not users. It is a supplement to *MIGS: MASnet/Internet Gateway Server Reference Manual*.

- Available via anonymous FTP from ftp.ucar.edu:  
     PostScript (for hardcopy printing):  
     docs/networking/migs\_admin\_guide.ps  
     ASCII: docs/networking/migs\_admin\_guide

**MIGS: MASnet/Internet Gateway Server User Guide,**

*Version 3.1, March 1994, 31 pages*

Contains an introduction to the MASnet/Internet Gateway Server (MIGS), instructions for accessing MIGS from the Internet, a table of MIGS verbs and their parameters, and descriptions and examples for each verb.

- Available via anonymous FTP from ftp.ucar.edu:  
     PostScript (for hardcopy printing): docs/networking/migs\_user.ps  
     ASCII: docs/networking/migs\_user

## **MIGS Quick Reference, Version 4.2, February 1994 (card)**

Summarizes MASnet/Internet Gateway Server (MIGS) verbs and options in reference-card format.

- Available in hardcopy from SCD

## **Using the 1-800 Connect Account to Access NCAR and UCAR Computers, Version 1.1, October 1993, 3 pages**

Provides instructions on how to use the 1-800 Connect Account from remote sites to access computers at NCAR or UCAR over phone lines. Includes modem and terminal setting information.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/networking/1-800\_connect.ps**  
ASCII: **docs/networking/1-800\_connect**

## **Using E-Mail at NCAR and UCAR, Version 1.0, October 1994**

For NCAR and UCAR staff. Covers where to get help for popular e-mail systems, e-mail limitations at NCAR and UCAR, addressing syntax, how to look up the addresses of other NCAR and UCAR users, how to change your own listing in the NCAR/UCAR e-mail and phone directory, and the meaning of common e-mail error messages.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/networking/ncar\_email.ps**  
ASCII: **docs/networking/ncar\_email**
- Available in hardcopy from SCD

## **Using FTP for File Transfer at NCAR, Version 2.0, March 1993, 11 pages**

Explains basic concepts and documents the most commonly used commands for using File Transfer Protocol (FTP), a reliable method of transferring files from one computer to another over the Internet. Discusses using FTP from UNIX computers and from DOS and Macintosh computers at NCAR.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/networking/ftp.info.ps**  
ASCII: **docs/networking/ftp.info**

## Using UNIX E-Mail, Version 1.0, October 1994

Provides usage information on the basic UNIX electronic mail functions of the Berkeley mail program, such as how to send, read, save, reply to, delete, and quit mail. Also covers editing and forwarding e-mail and using aliases for addresses. Includes a quick-reference guide to mail commands.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): **docs/networking/unix\_email.ps**  
ASCII: **docs/networking/unix\_email**



*Remote users can use the Internet Remote Job Entry (IRJE) system to submit jobs over the Internet to the CRAY EL Cluster (shown above). (Photo by Carlye Calvin.)*

## Output services (Text and Graphics System—TAGS)

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

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### **A Guide to the Production of Computer-Generated Video Animations Using TAGS, Version 1.0, December 1992, 46 pages**

Provides instructions and helpful hints for users who want to record an animation onto videotape using Text and Graphics System (TAGS). Included are examples of how to send local and remote files to TAGS via NCAR's Mainframe and Server Network (MASnet) and the MASnet/Internet Gateway Server (MIGS), as well as how to select the video format, frame rate, and number of "loops" for a video animation.

The document also has a section on ways to create optimal images for videotape presentation and a section explaining various video-editing techniques. Appendixes contain information on video-specific TAGS keywords, supported image formats, image resolution on videotape, and using the Ximage tool from the National Center for Supercomputing Applications (NCSA).

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): [docs/graphics/video.ps](#)  
ASCII: [docs/graphics/video](#)

### **NCAR Raster Interchange Format and TAGS Raster Reference Manual, Draft Version 1.1, April 1990, 34 pages**

Describes the native and encapsulated NCAR Raster Interchange Format (NRIF) formats and some of the ways they can be used to produce raster output at NCAR. Also explains the various ways you can define color in NRIF files and tells how NRIF files are mapped on the Dicommed film recorders attached to the Text and Graphics System (TAGS).

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): docs/graphics/raster\_interchange.ps  
ASCII: docs/graphics/raster\_interchange

## **Text and Graphics System Reference Manual, Version 3.1, June 1993, 58 pages**

Describes the Text and Graphics System (TAGS), explains all TAGS parameters (including ways to customize your output format), and describes special considerations for film and video output. Appendixes provide hints on using color and instructions for customizing the placement of images in film frames. Includes information on graphical parameters for production of videotapes, file formats accepted by TAGS (including PostScript, raster, ASCII, Computer Graphics Metafiles [CGMs], and several others), and videotape formats produced by TAGS.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): docs/graphics/TAGS.3.1.ps  
ASCII: docs/graphics/TAGS.3.1

## **Using the Text and Graphics System via the MASnet/Internet Gateway Server, Version 2.0, August 1991, 33 pages**

Describes Text and Graphics System (TAGS) access via the MASnet/Internet Gateway Server (MIGS) and how to process graphics files and ASCII text on black-and-white film, color film, and fiche. Provides examples and explains the most commonly used parameters.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): docs/graphics/output\_via\_migs.ps  
ASCII: docs/graphics/output\_via\_migs

## **Using the Text and Graphics System from UNIX and UNICOS Computers, Version 2.0, August 1991, 35 pages**

Describes Text and Graphics System (TAGS) access from UNIX and UNICOS computers and how to process graphics files and ASCII text on black-and-white film, color film, and fiche. Provides examples and explains the most commonly used parameters.

- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): docs/graphics/tags\_unix\_output.ps  
ASCII: docs/graphics/tags\_unix\_output

# UNIX

**Note:** The information in this chapter is subject to change as documents are added, discontinued, or revised. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

For information on using UNIX and Elm electronic mail systems, see "Networking and data communications" in this section of this catalog.

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## **Basic UNIX Guide, Version 1.0, August 1993, 135 pages**

A guide for new users. Covers the fundamentals of the UNIX operating system and basic UNIX terminology. Documents and provides examples of 17 frequently used commands. Two chapters are devoted to UNIX shells, while other chapters cover the **vi** editor and e-mail.

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): **docs/unix/basic\_unix.ps**  
ASCII: **docs/unix/basic\_unix**
- Available in hardcopy from SCD

## **Notes for SCD Front-end Computer Users, Version 1.2, January 1994, 23 pages**

Lists all local commands available on the SCD UNIX front-end computer (meeker). Has information on how to access the Distributed Software Libraries (both DSL and XmDSL), anonymous File Transfer Protocol (FTP), Gopher, and Archie from meeker. For new users, instructions on how to access meeker itself are also included.

- Available via anonymous FTP from [ftp.ucar.edu](ftp://ftp.ucar.edu):  
PostScript (for hardcopy printing): **docs/unix/scd\_front\_end.ps**  
ASCII: **docs/unix/scd\_front\_end**

## Additional topics

**Note:** The information in this chapter is subject to change as documentation is added, discontinued, or revised. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

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### **Format Conversion Tools for Electronic Publishing, Online Documentation, and Multimedia, Version 1.0, October 1994, 7 pages**

Includes an overview of some filtering tools used to convert text and graphics file formats for compatibility with formats commonly used at NCAR, as well as tips for searching for share-ware programs on the Internet. Includes a section on animation and movie formats and describes how to transfer files across platforms such as Macintoshes and Sun workstations and between networks. The document also includes an overview of filters for converting various file formats into ASCII (plain text) and Hypertext Markup Language (HTML).

- Available online at URL:  
[http://www.ucar.edu/docs/other/format\\_convers\\_tools.html](http://www.ucar.edu/docs/other/format_convers_tools.html)
- Available via anonymous FTP from ftp.ucar.edu:  
PostScript (for hardcopy printing): `docs/other/format_convers_tools.ps`  
ASCII: `docs/other/format_convers_tools`

# NEWS SERVICES

## Section overview

This section tells how to access NCAR and SCD information sources that are dynamic and changing. It covers six topics:

- Useful sites on the World Wide Web
- *SCD Computing News*
- The SCD Daily Bulletin
- SCD e-mail subscription services
- SCD Users' Group (SCDUG) reports
- The **news** command

**Note:** The information in this section is subject to change. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

## Useful sites on the World Wide Web

### NCAR welcome page

NCAR's welcome page on the World Wide Web provides general information about the National Center for Atmospheric Research. Hypertext links lead to information on topics such as: NCAR's mission; the latest annual scientific report; NCAR divisions and programs; NCAR resources, facilities, and services; and weather-related information. NCAR's welcome page is available via Web browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu>

### SCD welcome page

SCD's welcome page on the World Wide Web provides general information about NCAR's Scientific Computing Division. Hypertext links lead to information on topics such as: SCD overview, usage information for new and continuing users, services and software, information resources, e-mail subscription services, and high-performance computing collaborations. SCD's welcome page is available via Web browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu/scd.html>

### NCAR's data archive

SCD's Data Support Section (DSS) maintains its own anonymous File Transfer Protocol (FTP) file site for the NCAR data archive. This site provides access to catalogs, documentation, software, and data files from the extensive DSS collection. The site is available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

<http://www.ucar.edu/dss>

The site is available via anonymous FTP from [ncardata.ucar.edu](http://ncardata.ucar.edu).

Hardcopy documentation is also available from DSS. For information, send e-mail to [datahelp@ncar.ucar.edu](mailto:datahelp@ncar.ucar.edu), or call DSS at (303) 497-1219.

## SCD Computing News

*SCD Computing News* is a newsletter published by SCD. It provides:

- News about hardware and software developments in the NCAR computing environment
- Hints and in-depth articles to help you program your jobs for SCD-supported computers at NCAR
- Coverage of important general trends and policies in high-performance computing and communications

The newsletter is available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Newsletter/directory.html](http://www.ucar.edu/docs/SCD_Newsletter/directory.html)

The newsletter is available in hardcopy by subscription at no charge. To subscribe, contact Sylvia Darmour (e-mail: [sylvia@ncar.ucar.edu](mailto:sylvia@ncar.ucar.edu); phone: 303-497-1233).

You can also subscribe to receive each issue's table of contents by e-mail, containing hypertext links to the online version. For instructions on how to subscribe, see "SCD e-mail subscription services" in this section.

The year-to-date newsletter index is available via anonymous File Transfer Protocol (FTP) from [ftp.ucar.edu](ftp://ftp.ucar.edu) under the pathname:

**docs/newsletter/index95**

Indexes for past years are also available via FTP in the **docs/newsletter** directory.

## SCD Daily Bulletin

The SCD Daily Bulletin, sometimes called "The Daily B," is an online daily status report of all SCD computing systems. It is the most current source of news about computing at NCAR, giving information about hardware, software, documentation, communication links, and scheduled and unscheduled computer downtime. SCD prepares the Daily Bulletin weekdays between 08:45 and 09:15 Mountain Time and again, if necessary, at 16:00.

### Automatic e-mail subscription

---

To receive the Daily Bulletin automatically via e-mail, send e-mail to `majordomo@ncar.ucar.edu`. Leave the subject blank (it will be ignored). Type the following as the message body:

```
subscribe dailyb-doc user
end
```

where *user* is your SCD-assigned login name. Terminate your e-mail in the usual way.

### Interactive access

---

If you log into an SCD-supported computer or one of the NCAR divisional computers, type:

```
dailyb
```

### World Wide Web access

---

You can access the Daily Bulletin on the World Wide Web via browsers such as Mosaic or Lynx at the following URL:

```
ftp://ftp.ucar.edu/dailyb
```

## **IRJE access**

---

If you use the Internet Remote Job Entry System (IRJE), use File Transfer Protocol (FTP) to access windom.ucar.edu. Once you have logged into your account, type:

**get .dailyb *filename***

where *filename* is the name you assign to the file on your computer.

## **MIGS access**

---

If you use the MASnet/Internet Gateway Server (MIGS) from your local computer, type:

**nrnet dailyb *filename***

where *filename* is the name you assign to the file on your computer.

## **FTP access**

---

The Daily Bulletin is available via anonymous FTP from ftp.ucar.edu. It is located in the top-level directory with the filename **dailyb**. (For instructions on how to use FTP, see "Anonymous FTP" in the "Online access methods" section of this catalog.)

## **Questions?**

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If you have questions about accessing the Daily Bulletin, please contact an SCD consultant by sending e-mail to [consult1@ncar.ucar.edu](mailto:consult1@ncar.ucar.edu) or calling (303) 497-1278.

## SCD e-mail subscription services

Various SCD e-mail lists are available by subscription. These lists provide notification on topics such as documentation, user groups, and SCD compute server up/down times. Table 1 shows e-mail lists currently available.

**Table 1. SCD e-mail lists**

Description	E-mail-list name
Announcements of new and updated SCD documentation .....	notify-doc
Daily Bulletin (latest SCD computing information, Monday–Friday) ....	dailyb-doc
SCD <i>Computing News</i> table of contents, with hypertext links to articles .....	sdcn-toc
SCDUG (SCD Users' Group agenda and report) .....	scd-ug
<i>The following e-mail lists will notify you of system status (whether the given system is up or down):</i>	
Alpine (CRAY E1 Cluster) .....	el-cluster-status
Antero (CRAY Y-MP8I) .....	antero-status
Chief (IBM RS/6000 Cluster) .....	ibm-cluster-status
CRAY T3D system .....	t3d-status
Crestone (SCD file server) .....	crestone-status
Internet Remote Job Entry System (IRJE) .....	irje-status
MASnet/Internet Gateway Server (MIGS) .....	migs-status
Mass Storage System (MSS) .....	mss-status
Meeker (SCD Front-end UNIX computer) .....	meeker-status
Shavano (CRAY Y-MP8/864) .....	shavano-status
Text and Graphics System (TAGS) .....	tags-status
Wildhorse (IBM SP1) .....	sp1-status

### To subscribe via World Wide Web

If you have an SCD-assigned login name, you can subscribe to SCD e-mail lists via the World Wide Web (WWW)—providing your WWW browser supports value selection and data entry in a field. (For example, the Macintosh version of Mosaic does not, but Netscape does.) For WWW access instructions, see "World Wide Web" in the "Online access methods" section of this catalog.)

To subscribe via WWW, open the following URL:

<http://www.ucar.edu/UserServices/email-lists.html>

Provide your SCD-assigned login and your eight-digit project number, then select the lists you want from the menu. If you do not know your project number or have other questions, please contact SCD User Information (e-mail: [scdinfo@ncar.ucar.edu](mailto:scdinfo@ncar.ucar.edu); phone: 303-497-1225).

## To subscribe via e-mail

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If you do not have access to a WWW browser that supports value selection or data entry in a field, you can use e-mail to subscribe to SCD e-mail lists.

Send an e-mail message to [majordomo@ncar.ucar.edu](mailto:majordomo@ncar.ucar.edu). Leave the subject blank (it will be ignored). Type the following as the message body:

**subscribe *e-mail-list* *user***  
**end**

where *e-mail-list* is the name of the e-mail list you want to subscribe to, and *user* is your SCD-assigned login name. Terminate your e-mail in the usual way.

Note that you may use only your SCD-assigned login name to subscribe to SCD e-mail lists. This may or may not be the same as the login for your local machine, so please be aware that you could accidentally subscribe or unsubscribe someone else if you use the wrong login name when you send e-mail to majordomo. (The Mosaic interface prevents this because it requires a match to the project number you provide.)

If you have questions, please contact SCD User Information (e-mail: [scdinfo@ncar.ucar.edu](mailto:scdinfo@ncar.ucar.edu); phone: 303-497-1225).

## SCD Users' Group (SCDUG) report

"News from SCDUG" is a report on the bimonthly SCD Users' Group (SCDUG) meeting. The report provides news on timely issues in NCAR computing. Sample topics might include:

- SCD director's summary of recent developments in SCD
- Plans for acquiring new NCAR computers
- Updates on machine usage policy
- Discussions on General Accounting Unit (GAU) allocations, networking, data archives, system security, software upgrades, and other topics
- User suggestions for improvements

### **E-mail access**

---

To receive the SCDUG report via e-mail, send your request to [scdinfo@ncar.ucar.edu](mailto:scdinfo@ncar.ucar.edu). (Alternatively, you can subscribe using the methods described in "SCD e-mail subscription services" in this section of the catalog.)

### **FTP access**

---

The SCDUG report is available via anonymous File Transfer Protocol (FTP) from [ftp.ucar.edu](ftp://ftp.ucar.edu) with the pathname:

`docs/scdug/scdug.mon`

where *mon* indicates the month (for example, `scdug.jan`). For instructions on how to use FTP, see "Anonymous FTP" in the "Online access methods" section of this catalog.

## The UNICOS 'news' command

The **news** command is a regular UNICOS command for finding current computing news. When you log into one of the SCD-supported Cray computers at NCAR, you typically will see a message indicating there is a new **news** item. If the name of an item is given, you may type

**news *item***

to see the item. Or you may simply type

**news**

Note that the system "ages off" news items after you have read them. That is, they will not appear again, unless you repeat the **news** command using the specific item name.

News items are archived in **/usr/news**; you may retrieve old items from that directory if you need them. Since the number of items currently stored isn't large, you may still want to see them all again, which you can do with the **-a** ("all") option.

Because the news tends to flash by in one continuous stream, you will want to pipe the command through a paging option, such as **more**; for example:

**news -a | more**

There's also a **-n** option that lists the names of news items. Type **man news** for more information.

## ONLINE ACCESS METHODS

### Section overview

This section shows how to access documentation via various online methods (Mosaic, Lynx, Gopher, anonymous FTP) and vendor online systems (CrayDoc, Docview, InfoExplorer).

The examples included here describe how to:

- Start up the online system that will allow you access to your desired document
- Navigate your way through that online system
- Use the online system to search for SCD documentation
- Print hardcopies of SCD documentation

# World Wide Web

## What is the World Wide Web?

---

The World Wide Web (WWW or Web) is officially described as a "wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents." The Web provides users on computer networks with a consistent means to access a variety of media. The Web initiative was originated by CERN, a high-energy physics laboratory in Switzerland, and now has many participants.

## Web browsers

A Web browser (also called a client) is a program that allows you to access information from the Web. Provided that you are running a Web browser and have a connection to the Internet, you can access the wealth of information that the Web has to offer.

In addition to text, the Web can deliver graphics, sounds, and video to anyone who can click a mouse button. However, if you want to take advantage of this multimedia, you must have one of the following computer platforms:

- A UNIX workstation running the X Window System
- A Macintosh
- A DOS-based PC running under Microsoft Windows

If your computer is one of these types and can display graphics, see "Mosaic: A multimedia Web browser" in this chapter. If your computer is not one of these types and cannot display graphics, see "Lynx: A terminal-based browser" in this chapter.

Although Mosaic and Lynx are the only Web browsers discussed here, other Web browsers are also available. The following is a list of some Web browsers, including the platforms on which they run:

- NCSA Mosaic (X, Windows, Macintosh)
- Web Explorer (OS/2)
- Netscape (X, Windows, Macintosh)
- Lynx (UNIX and DOS)
- Cello (Windows)
- WinWeb (Windows)
- MacWeb (Macintosh)
- Arena (X)
- Chimera (X)

## You can go home again

When you begin to browse the Web, you will notice the term "home page." This term is used in several ways.

A home page is the first page you see when you start your Web browser. Each browser has its own default home page. Typically, your browser's default home page is one provided by the developer of the browser. For example, the Mosaic home page is at the National Center for Supercomputing Applications (NCSA). You can tailor your browser to change the default home page to any page you want. Since the procedure for changing your home page varies from one browser to the next, it's not documented here. See your browser's documentation on how to change your home page.

A home page is also an entry point for a Web server (and often for multiple places on a single server). This type of home page is usually called a welcome page. It provides information about what is on the server or what interrelated information the page contains links to.

## The anatomy of a URL

A Uniform Resource Locator (URL) is a pointer to some resource accessible on the Web. A URL can point to the location of a Web document as well as point to a resource from other Internet protocols. For instance, a URL can point to a file on an anonymous File Transfer Protocol (FTP) server, a file on a Gopher server, or a Wide Area Information Server (WAIS) index.

The URL provides a universal, consistent method for getting at information. The parts of a URL include the protocol, hostname, directory path, and filename. The format is:

*protocol://hostname[:port]/directory\_path/filename*

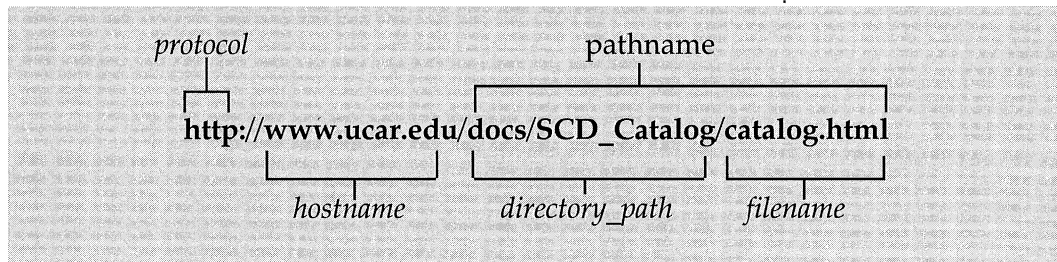
The *protocol* shows how the document is accessed, that is, the type of Internet protocol your Web browser uses to get the *filename*:

<b>ftp</b>	gets <i>filename</i> from an anonymous FTP server
<b>gopher</b>	gets <i>filename</i> from a Gopher server
<b>http</b>	gets <i>filename</i> from a Web HTTP (Hypertext Transfer Protocol) server
<b>WAIS</b>	gets <i>filename</i> from a WAIS server

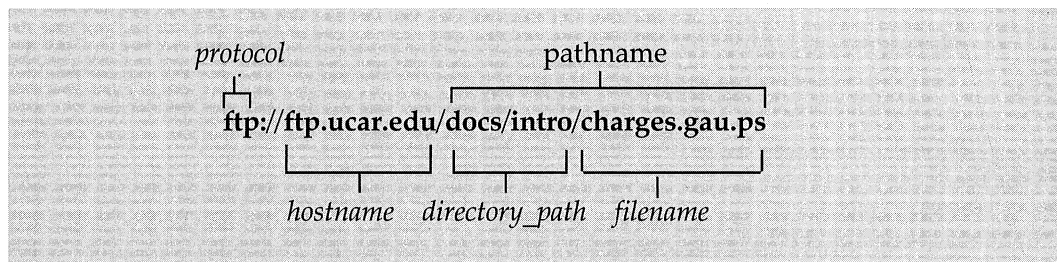
(The *protocol* can also be **news** or **telnet**, but these are used much less often.)

The *hostname* identifies the computer on the Internet where the document *filename* is stored. The *port* number can generally be omitted from the URL. Finally, the *directory\_path/filename* is the actual pathname, or location, of the document. Here are some examples of URLs:

The URL for the *SCD Information Resources Catalog*:



The URL for the PostScript file for "Charges for SCD Computing Resources," a UserDoc available via anonymous FTP from `ftp.ucar.edu`:



**Note:** You can use a Web browser such as Mosaic or Lynx to obtain any SCD document available via anonymous FTP. (This includes both PostScript and ASCII files.) Simply add **`ftp://ftp.ucar.edu/`** to the pathname given under the particular document's listing in this catalog; this forms a URL. (For an example, see the URL for the PostScript file of "Charges for SCD Computing Resources," above.) For directions on how to open a URL, see "How to navigate in Mosaic" or "How to navigate in Lynx" in this chapter.

## Mosaic: A multimedia Web browser

---

### What is Mosaic?

Mosaic is a network information browser (more technically, a Web client) that allows information discovery and retrieval over the Internet. Mosaic provides a single interface to the variety of protocols, data formats, and information servers available throughout the Internet. Mosaic was developed by NCSA.

Mosaic includes the following features:

- Display of plain text, formatted text, and hypermedia
- Inline graphics and images, sound, and movies
- A customizable graphical user interface
- Global history of navigation (tracking where you've been)
- Quick access to frequently used documents via a personal "hotlist"
- Search capabilities within a document and over the Internet
- Ability to view documents from other Internet protocols, such as FTP and Gopher

Mosaic runs under the X Window System, making it an ideal information-distribution resource for workstation-based clients. Other versions of Mosaic are available from NCSA, including one for the Macintosh and another for DOS-based PCs running under Microsoft Windows.

**Note:** Although the versions of NCSA Mosaic for each computer platform have (for the most part) the same functionality, their interfaces are slightly different—that is, the function names on the pull-down menus and dialog boxes may vary from one platform to the next. The examples in this chapter are for Mosaic 2.4 for the X Window System. If you are using another version of Mosaic, you will notice some slight differences, but your version will have the same functionality, allowing you to follow the instructions for all the examples.

### Where to get a copy of Mosaic

If you do not have a Mosaic client running at your site, you can obtain the latest supported software directly from NCSA via anonymous FTP from `ftp.ncsa.uiuc.edu`. (For FTP access instructions, see "Anonymous FTP" in this section of the catalog.)

The executable binaries of the Mosaic client for each of the three platforms are in these directories:

X Window System:

**/Mosaic/Unix/binaries**

Macintosh:

**/Mosaic/Mac**

PCs running Microsoft Windows:

**/Mosaic/Windows**

Complete documentation for each version is available online from NCSA.

## How to start Mosaic

Since Mosaic runs on different computer platforms, how you start Mosaic depends on whether you are using X Window System on a UNIX workstation, a Macintosh, or a PC running Microsoft Windows. If you are using the X Window System version, type the following at the UNIX command line:

**Mosaic <http://www.ucar.edu/>**

This starts Mosaic and directly connects you to NCAR's welcome page. From there you may navigate around the collection of documents associated with NCAR and SCD.

To launch the Macintosh or PC version of Mosaic, click on the Mosaic application icon.

## How to navigate in Mosaic

There are two ways in Mosaic to access documents and navigate from place to place on the Web:

- Via hyperlinks
- Via URLs

### VIA HYPERLINKS

A hyperlink is a highlighted and/or underlined word or graphic found in a document on the Web. When activated (clicked on), the hyperlink takes you to a related document or resource (such as a text file, graphic, or audio clip) somewhere on the Internet.

**Example**

To access the "Research Data Archives" page from the NCAR welcome page:

1. Bring up the NCAR welcome page on your screen. (For instructions on how to do this, see "How to start Mosaic" in this chapter.)
2. Find the Research Data Archives hyperlink. (Note that it is highlighted and/or underlined.)
3. Place your cursor on the hyperlink and click on the link.

Mosaic displays the "Research Data Archives" page.

**VIA URLs**

Sometimes you may want to open a document directly instead of connecting to a document through a series of hyperlinks. To do this, use the URL. (See "The anatomy of a URL" in this chapter for a definition and discussion of URLs.)

Select "Open" from the "File" pull-down menu and type the URL in the "URL To Open" field that appears in the dialog box. (**Note:** Your cursor must be in the field for you to begin typing.)

**Example**

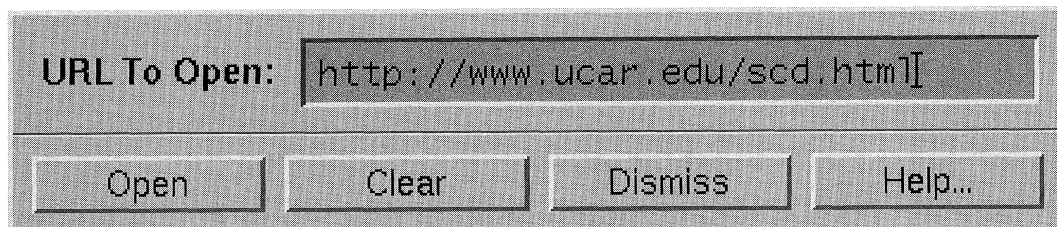
To open the SCD welcome page:

1. From the "File" pull-down menu select "Open URL ..."

Mosaic displays the "Open Document" dialog box.

2. In the dialog box, type the URL for the SCD welcome page:

**`http://www.ucar.edu/scd.html`**



3. Click on the "Open" button in the "Open Document" dialog box.

Mosaic displays the SCD welcome page.

## How to search for SCD documentation in Mosaic

Since all SCD documentation is available on the Web in either HTML (Hypertext Markup Language) or ASCII format, you can search for and view your desired document by using Mosaic.

### Example

To search for and view SCD documentation related to charges for using SCD computing resources:

1. Open the URL for the welcome page of the *SCD Information Resources Catalog*:

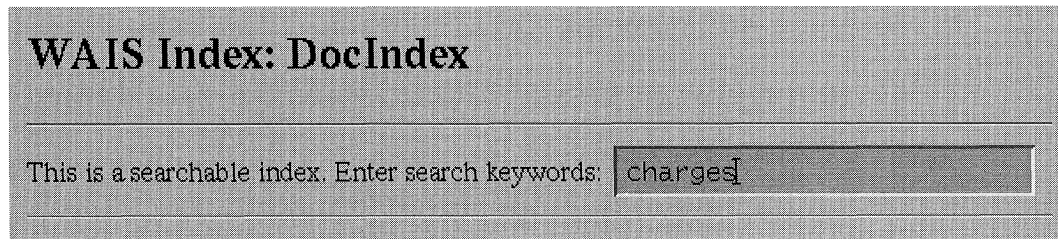
**[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)**

Mosaic displays the *SCD Information Resources Catalog* page.

2. Click on the "Search the SCD Information Catalog" hyperlink.

Mosaic displays the "DocIndex" page. (This is a searchable index of the *SCD Information Resources Catalog*.)

3. Type the word **charges** in the keyword box, as shown below.



**WAIS Index: DocIndex**

This is a searchable index. Enter search keywords:

4. Press the RETURN key.

Mosaic displays a list of SCD documents related to the keyword "charges," as shown below.

## WAIS Search of "charges" in DocIndex

This is a searchable index. Enter search keywords:

Index DocIndex contains the following 3 items relevant to 'charges'. The first figure for each entry is its relative score, the second the number of lines in the item.

- 1000 23 [Hints for Using UNICOS Computers Efficiently-cs.html](#)
- 961 23 [Getting started on the IBM RS6000 Cluster-cs.html](#)
- 951 23 [Charges for SCD Computing Resources-is.html](#)

5. To view a brief description of the UserDoc "Charges for SCD Computing Resources," place your cursor on the document title and click your mouse button. (Note that the title is a hyperlink; that is, it is highlighted and/or underlined.)

Mosaic displays a document description for "Charges for SCD Computing Resources."

6. To view the whole document, click on the URL that follows the document description.
7. To view another document related to "charges," click on the "Back" button.

Mosaic redisplay the list of SCD documents related to the keyword "charges."

8. Click on the title of your desired document.

Mosaic displays the description for that document.

## How to print hardcopies of SCD documentation with Mosaic

There are two ways to print hardcopies of SCD documentation with Mosaic:

- Print directly from within Mosaic
- Use Mosaic to download a PostScript file of your desired document, then print that file to a PostScript printer

## TO PRINT FROM WITHIN MOSAIC

Mosaic lets you print any document currently displayed in its viewing area. To print a document, open its URL and select the Mosaic print facility.

### Example

To print the UserDoc "Charges for SCD Computing Resources":

1. Open the URL:

**`http://www.ucar.edu/docs/Charges_doc/charges.html`**

Mosaic displays the "Charges for SCD Computing Resources" document in its text viewing area.

2. From the "File" pull-down menu, select "Print ..."

Mosaic displays the "Print Document" dialog box.

3. In the "Print Command" field, type:

**`lpr -P PostScript_printer_name`**

where *PostScript\_printer\_name* specifies the PostScript printer to which you want to print your document. (If you do not know the name of your PostScript printer, contact your system administrator.)

4. Select the "PostScript" option from the "Format for printed document" radio button. To do this, use your mouse to click and hold down on the radio button (it's the one that currently says "Plain Text"). As you hold down on your mouse, Mosaic displays four print format options (Plain Text, Formatted Text, PostScript and HTML). Drag your mouse to the "PostScript" option and release the mouse. The radio button should now say "PostScript."
5. Click on the "Print" button in the "Print Document" dialog box.

Mosaic sends the "Charges for SCD Computing Resources" document to your selected printer.

## TO DOWNLOAD AND PRINT A POSTSCRIPT FILE

Most SCD documentation is available in PostScript format on the FTP server `ftp.ucar.edu`. You can access the PostScript file for a document in two ways:

- Via anonymous FTP (for instructions on how to obtain files via FTP, see "Anonymous FTP" in this section of the catalog)
- Via URL (see examples, below)

### Example 1:

#### For Mosaic systems configured to launch a PostScript viewer

If you (or your system administrator) have configured Mosaic to automatically launch a PostScript viewer each time it downloads a PostScript file, Mosaic will spawn another window (such as Ghostview, a UNIX-based PostScript viewer) displaying the document. This example assumes you are using Ghostview. If you are using another PostScript viewer, ignore the Ghostview-specific instructions and substitute them with the equivalent instructions for your viewer.

1. Open the URL of the PostScript file you wish to download. (**Note:** The "User Documentation" section of this catalog lists the pathname for the PostScript file of each SCD user document. To create a URL by which you can access the PostScript file of a document via Mosaic, simply add `ftp://ftp.ucar.edu/` to the PostScript file's pathname.)

To download the PostScript file for the UserDoc "Charges for SCD Computing Resources," open the following URL:

**`ftp://ftp.ucar.edu/docs/intro/charges.gau.ps`**

Mosaic downloads the PostScript file. The PostScript viewer Ghostview opens, displaying the UserDoc "Charges for SCD Computing Resources."

2. From the Ghostview window, select "Print" from its "File" pull-down menu. Type the name of your PostScript printer in the "Printer Name" field, then click on the "Okay" button.

Ghostview prints the UserDoc "Charges for SCD Computing Resources."

## Example 2:

### For Mosaic systems not configured to launch a PostScript viewer

Since some computers (such as the Macintosh) do not have an application for viewing PostScript files, some Web viewers (for instance, MacMosaic) cannot be configured to launch a PostScript viewer. Instead, you can use Mosaic to download and save a PostScript file to your local disk. In that case, you can use the UNIX `lpr` command or a print program (such as Drop•PS for the Macintosh) to print the PostScript file.

1. Open the URL of the PostScript file you wish to download. (**Note:** The "User Documentation" section of this catalog lists the pathname for the PostScript file of each SCD user document. To create a URL by which you can access the PostScript file of a document via Mosaic, simply add `ftp://ftp.ucar.edu/` to the PostScript file's pathname.)

To download the PostScript file for the UserDoc "Charges for SCD Computing Resources," open the URL:

`ftp://ftp.ucar.edu/docs/intro/charges.gau.ps`

Mosaic displays the "Save" dialog box.

2. Type the filename (**charges.gau.ps**) in the "Save" dialog box. This saves the PostScript file to your local disk.
3. Print the file from your local disk.
  - **UNIX users:** At the UNIX command line, type:

`lpr -P PostScript_printer_name charges.gau.ps`

where *PostScript\_printer\_name* specifies the PostScript printer to which you want to print. (If you do not know the name of your PostScript printer, contact your system administrator.)

- **Macintosh users:** Use a PostScript print program, such as Drop•PS, to print the file. (If you do not have a PostScript print program on your Macintosh, contact your system administrator.)

**Note:** Drop•PS is a public-domain program developed by Bare Bones Software. It is available via anonymous FTP from mirrors.aol.com with the pathname `/pub/info-mac/prn/drop-ps-113.hqx`. (For FTP access instructions, see "Anonymous FTP" in this section of the catalog.)

## **Lynx: A terminal-based Web browser**

---

### **What is Lynx?**

Lynx is a terminal-based Web browser that offers the same global hypertext and multiple protocol capabilities as its multimedia counterparts, such as Mosaic. Lynx was developed at the University of Kansas.

Lynx includes the following features:

- Display of plain text and hypertext documents
- Global history of navigation (tracking where you've been)
- Quick access to frequently used documents via personal "bookmarks"
- Search capabilities within a document and over the Internet

Current versions of Lynx run on UNIX and VMS. A DOS version is in development.

### **Where to get a copy of Lynx**

If you do not have a Lynx client running at your site, you can obtain the latest supported software directly from the University of Kansas via anonymous FTP from <ftp2.cc.ukans.edu> in the directory **/pub/lynx**. (For FTP access instructions, see "Anonymous FTP" in this section of the catalog.)

### **How to start Lynx**

If the Lynx client software is installed on your computer, type the following at your workstation:

```
lynx http://www.ucar.edu/
```

This starts Lynx and directly connects you to NCAR's welcome page. From there you may navigate around the collection of documents associated with NCAR and SCD.

## How to navigate in Lynx

There are two ways in Lynx to access documents and navigate from place to place on the Web:

- Via hyperlinks
- Via URLs

**Note:** Lynx lets you move the cursor by pressing the TAB, Up arrow, or Down arrow key. To simplify navigational instructions, the following examples refer only to the TAB key.

### VIA HYPERLINKS

A hyperlink is a highlighted word or phrase found in a document on the Web. When selected, the hyperlink takes you to a related document or resource (such as a text file, WAIS database, or Gopher directory) somewhere on the Internet.

#### Example

To access the "Research Data Archives" page from the NCAR welcome page:

1. Follow the directions under "How to start Lynx" in this chapter to bring up the NCAR welcome page on your screen.
2. Find the Research Data Archives hyperlink. (Note that it is highlighted.)
3. Press the TAB key to move your cursor onto the hyperlink, then press RETURN.

Lynx displays the "Research Data Archives" page.

### VIA URLS

Sometimes you may want to open a document directly instead of connecting to a document through a series of hyperlinks. To do this, use the URL.

Type g (for Go to). At the "URL to open:" prompt, type the URL.

### Example

To open the SCD welcome page:

1. Type **g** (for Go to).

Lynx displays the "URL to open:" prompt.

2. At the prompt, type the URL for the SCD welcome page:

**http://www.ucar.edu/scd.html**

```
URL to open: http://www.ucar.edu/scd.html
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

3. Press the RETURN key.

Lynx displays the SCD welcome page.

## How to search for SCD documentation in Lynx

Since all SCD documentation is available on the Web in either HTML (Hypertext Markup Language) or ASCII format, you can search for and view your desired document by using Lynx.

### Example

To search for and view SCD documentation related to charges for using computing resources in SCD:

1. Open the URL for the welcome page of the *SCD Information Resources Catalog*:

**http://www.ucar.edu/docs/SCD\_Catalog/catalog.html**

Lynx displays the *SCD Information Resources Catalog* welcome page.

2. Press the TAB key to move your cursor onto the "SEARCH THE SCD INFORMATION RESOURCES CATALOG" hyperlink, then press RETURN.

Lynx displays the "DOCINDEX" page. (This is a searchable index of the *SCD Information Resources Catalog*.) At the bottom of the screen note the prompt "This is a searchable index. Use 's' to search."

3. Type **s** (for Search).

Lynx displays the "Enter a database search string:" prompt.

4. Type the word **charges** at the prompt, as shown below.

```
Enter a database search string: charges
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

5. Press the RETURN key.

Lynx displays a list of SCD documents related to the keyword "charges," as shown below.

```
charges in DocIndex

WAIS SEARCH OF "CHARGES" IN DOCINDEX

Index DocIndex contains the following 3 items relevant to 'charges'.
The first figure for each entry is its relative score, the second
the number of lines in the item.
* 1000 23 Hints for Using UNICOS Computers Efficiently-cs.html
* 961 23 Getting started on the IBM RS6000 Cluster-cs.html
* 951 23 Charges_for_SCD_Computing_Resources-is.html

This is a searchable index. Use 's' to search
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

6. To view a brief description of the UserDoc "Charges for SCD Computing Resources," press the TAB key to move your cursor onto the document title, then press RETURN. (Note that the title is a hyperlink; that is, it is highlighted.)

Lynx displays a document description for "Charges for SCD Computing Resources."

7. To view the whole document, select the URL that follows the document description.

8. To view another document related to "charges," type **u** (for Up).

Lynx redisplay the list of SCD documents related to the keyword "charges."

9. Press the TAB key to move your cursor onto the title of your desired document.

Lynx displays the description for that document.

## How to print hardcopies of SCD documentation with Lynx

There are two ways to print hardcopies of SCD documentation with Lynx:

- Print directly from within Lynx
- Use Lynx to download a PostScript file of your desired document, then print that file to a PostScript printer

### TO PRINT FROM WITHIN LYNX

Lynx lets you print any document currently displayed in its viewing area. To print a document, open the URL of the document and select the Lynx print facility.

#### Example

To print the UserDoc "Charges for SCD Computing Resources":

1. Open the URL:

**`http://www.ucar.edu/docs/Charges_doc/charges.html`**

Lynx displays the "Charges for SCD Computing Resources" document.

2. Type **p** (for Print).

Lynx displays the "Printing Options" page.

3. Press the TAB key to move the cursor onto the "Specify your own print command" hyperlink, then press RETURN.

Lynx displays the message:

`File is 21 pages long. Are you sure you want to print? [y]`

4. Press RETURN.

Lynx displays the "Enter a print command:" prompt.

5. At the prompt, type:

```
lpr -P PostScript_printer_name
```

where *PostScript\_printer\_name* specifies the PostScript printer to which you want to print. (If you do not know the name of your PostScript printer, contact your system administrator.)

Lynx sends the "Charges for SCD Computing Resources" document to your selected printer.

## TO DOWNLOAD AND PRINT A POSTSCRIPT FILE

Most SCD documentation is available in PostScript format. You can access the PostScript file for a document in two ways:

- Via anonymous FTP (for instructions on how to obtain files via FTP, see "Anonymous FTP" in this section of the catalog)
- Via URL (see example, below)

### Example

To download and print the PostScript file for the UserDoc "Charges for SCD Computing Resources":

1. Open the URL of the FTP directory that contains PostScript file you wish to download. (**Note:** The "User Documentation" section of this catalog lists the directory path and filename for the PostScript file of each SCD user document. To create a URL by which you can access the FTP directory containing the PostScript file of a specific document, simply add **ftp://ftp.ucar.edu/** to the PostScript file's directory path.)

To download the PostScript file for the UserDoc "Charges for SCD Computing Resources," open the URL for the FTP directory containing the file **charges.gau.ps**:

```
ftp://ftp.ucar.edu/docs/intro/
```

Lynx displays a list of files contained in the **/docs/intro/** FTP directory.

2. Press the TAB key to move your cursor onto the **charges.gau.ps** hyperlink.

3. Type **d** (for Download).

Lynx displays the "Download Options" page.

4. Press the TAB key to move your cursor onto the "Save to disk" hyperlink, then press RETURN.

Lynx displays the "Enter a filename:" prompt and puts in the name of the file you selected.

5. Press RETURN.

Lynx saves the **charges.gau.ps** file to disk.

6. Type **q** (to exit from Lynx).

7. Print the **charges.gau.ps** file from your disk. At the UNIX command line, type:

```
lpr -P PostScript_printer_name charges.gau.ps
```

where *PostScript\_printer\_name* specifies the PostScript printer to which you want to print. (If you do not know the name of your PostScript printer, contact your system administrator.)

## How to search the World Wide Web

---

A number of services are now available for searching information on the WWW. When you type in a set of keywords, these programs return locations of documents containing those keywords.

The *SCD Information Resources Catalog* has its own search engine. If you want to search for specific SCD documentation, you can access this search engine from the catalog's welcome page at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

(For further search instructions, see "How to search for SCD documentation in Mosaic" or "How to search for SCD documentation in Lynx" in this chapter.)

If you want to broaden your search to include information from other WWW sites from around the world, several search engines are available. One popular search service is Lycos, from Carnegie Mellon University. Its URL is:

<http://fuzine.mt.cs.cmu.edu/mlm/lycos-home.html>

Another search engine, CUSI, was developed by a U.K. commercial software company, NEXOR. WHERE.COM operates a CUSI service in the U.S. called LinkSearch at:

<http://where.com/lis/LinkSearch.html>

Other excellent Web search engines include the World Wide Web Worm and Harvest, both developed at the University of Colorado. You can access these search engines from the following URLs:

World Wide Web Worm:

<http://www.cs.colorado.edu/home/mcbryan/WWWW.html>

Harvest:

<http://harvest.cs.colorado.edu/>

## Other Internet-based information-distribution systems

### Gopher

---

#### What is Gopher?

The Internet Gopher is an information-distribution system that gives you access to databases and files stored on computers all over the world. You can browse through a hierarchy of information and easily select items of interest.

Gopher was developed by the Computer and Information Services Department at the University of Minnesota. The software has been installed at many sites worldwide.

The NCAR Gopher server gives you access to local databases (such as the UCAR/NCAR e-mail address and telephone directory and the NCAR library catalog). NCAR Gopher also provides access to databases at other Gopher sites.

#### Where to get a copy of Gopher

The Gopher software is free. Gopher client programs for various operating systems are available via anonymous File Transfer Protocol (FTP). For example, there are Gopher client programs for UNIX **curses** and **emacs**, the X Window System, Macintoshes, NeXTstep, VM/CMS, OS/2 2.0, MVS/XA, and other operating systems. Installation instructions are available with the software.

To see the most recent listing of available Gopher software, get the latest online version of "Frequently Asked Questions about Gopher." It is available via anonymous FTP from [pit-manager.mit.edu](ftp://pit-manager.mit.edu) with the pathname **/pub/usenet/news.answers/gopher-faq**. (For FTP access instructions, see "Anonymous FTP" in this chapter of the catalog.)

#### How to start Gopher

If the Gopher client software is installed on your computer, type the following at your workstation:

```
gopher gopher.ucar.edu
```

The NCAR Gopher main menu appears on your screen, as shown below. (As more databases become available, the choices on this menu may change.)

```

Internet Gopher Information Client v1.03

Root gopher server: gopher.ucar.edu

--> 1. About the NCAR/UCAR Gopher.
    2. NCAR/UCAR News and Information/
    3. NCAR/UCAR E-Mail & Phone Directory <TEL>
    4. NCAR Online Library Access (NOLA) <TEL>
    5. NCAR Graphics Package/
    6. Weather Information/
    7. Colorado Alliance of Research Libraries (CARL) <TEL>
    8. NCAR/UCAR Divisions and Groups/
    9. University of Colorado Gopher/
   10. NSF Metacenter Gophers.
   11. Other Gophers and Information Servers/
   12. Veronica (Search menu titles in GopherSpace)/

Press ? for Help, q to Quit, u to go up a menu
Page: 1/1

```

## How to navigate in Gopher

These instructions apply to the NCAR Gopher and to any other Gopher site.

1. Move the cursor to the line of your selection (the cursor is shown as - -> on the screen). Do this by typing the number of the item and pressing RETURN or by using the arrow keys. (You can also use the cursor movement commands from the **vi** or **emacs** editors.)
2. Press RETURN to make the selection. A status message appears in the lower right corner of your screen until the connection is made.
3. After the connection is made, follow the instructions on the screen.

## MENU CONVENTIONS

The main NCAR Gopher menu follows the conventions used on most Gopher menus.

Gopher menu conventions	
If items ends with ...	Item is ...
Period (.)	A file
No special mark	A file
Slash (/)	A directory or another Gopher server
<TEL>	TELNET connection to another database

## HOW TO USE BOOKMARKS TO MARK GOPHER LOCATIONS

You can maintain a private list of the Gopher locations you use most often, through a system known as "bookmarks." Bookmarks can be very useful, since there are many Gopher sites and many levels of Gopher directories. See the Gopher "Help" screen (available by typing ? from any Gopher menu) for usage details.

## HOW TO EXIT FROM A TELNET CONNECTION

If you choose a Gopher menu item that has <TEL> at the end, you will be leaving Gopher to access that database through TELNET.

1. After you access a database through TELNET, if the screen doesn't specify how to quit, press:

^ ] (These are the control and right bracket keys.)

2. At the telnet> prompt, type:

**quit**

In most cases, this returns you to the previous Gopher menu.

## HOW TO REACH OTHER DATABASES

You can access many other databases by choosing another Gopher site from the main NCAR Gopher menu and then choosing the database from the Gopher menu for that site. For example, the University of Colorado Gopher provides access to three other popular information storage and retrieval systems: the World Wide Web (WWW), the Wide Area Information Server (WAIS), and Archie (an index for anonymous FTP sites).

## HOW TO REACH OTHER GOPHER SITES DIRECTLY

If you know the hostname of the Gopher site to which you wish to connect, you can do so directly. Simply add the hostname to the Gopher command line when you start the Gopher program. For example, typing the command:

```
gopher gopher.colorado.edu
```

connects you directly to the University of Colorado Gopher. Typing:

```
gopher gopher.unidata.ucar.edu
```

connects you directly to the Unidata Gopher.

## How to mail, save, or print a Gopher file

Besides reading the file on your screen, you can e-mail a Gopher file, save it in one of your own directories, or send it to your usual printer for hardcopy output. The bottom of each Gopher file screen gives you these options. If you are not an experienced UNIX user and need help beyond the screen instructions, contact the SCD Consulting Office at (303) 497-1278.

The "Mail," "Save," and "Print" options apply to Gopher files only, not to Gopher menus or other directories. If the bottom of the screen doesn't list these options, then they are not available for the screen that is displayed.

## Veronica: How to search for Gopher files

---

As you explore other Gopher sites, you may start to experience information overload and wonder how you could ever find files on a specific topic, given all the Gopher sites and layers of Gopher menus. Veronica, developed at the University of Nevada, searches Gopher server menus in much the same way that Archie searches FTP archives.

To access Veronica from the NCAR Gopher menu, select "Veronica (Search menu titles in GopherSpace)." Type in your desired search string. Veronica recognizes Boolean operators such as "and" and "or." A search returns a standard Gopher menu composed of many Gopher servers from which you can select the files of interest to you.

## Anonymous FTP

---

### What is File Transfer Protocol?

As its name implies, File Transfer Protocol (FTP) has the job of moving files from one computer to another.

FTP has two components—a server and a client:

- An *FTP server* allows an administrator of a computer connected to the Internet to create an open directory on an otherwise closed computer. Your system administrator can set the server to allow anyone on the Internet (or only those with a password) to log into the FTP host computer; they can then access only the files and subdirectories in the FTP directory.
- The *client* FTP software is a mechanism by which a person can log into, browse, and copy the files on an FTP server.

"Anonymous" FTP servers have sprung up around the globe to allow users to obtain documents and software without needing a password. So simply by knowing the name of an FTP server—or its Internet Protocol (IP) number—you can retrieve the files from a host computer.

### How to download a file

All SCD documentation is available via anonymous FTP from ftp.ucar.edu. The complete list of online documents is in the **README** file in the **docs** subdirectory.

To get an SCD document via anonymous FTP:

1. From your local computer connected to the Internet, type:

```
ftp ftp.ucar.edu
```

2. When prompted for a login name, type:

```
anonymous
```

**Note:** If your local computer is a Digital Equipment VAX running VMS, you may need to type:

```
"anonymous"
```

3. Enter your login ID at the password prompt and wait for the ftp> prompt.

You can obtain a **README** file with a list of the documentation categories (subdirectories) currently available by typing:

```
cd docs
get README
quit
```

You can read the **README** file using your own system tools.

If you already know the subdirectory you want, you can use the **dir** (or **ls**) command within directories to list the contents.

4. To transfer a file to your present working directory on your local computer, change directories to the desired subdirectory of **docs** and use the **get** command. For example:

```
cd cray
get filename
```

where *filename* is the name of the file you want to transfer.

**Caution:** If your local computer already has a file with a name identical to the one you want to transfer, your existing file will be replaced with the new file.

To give a file a new name on your local computer, type:

```
get filename newfilename
```

5. To terminate the anonymous FTP session, type:

```
quit
```

## How to download and print a PostScript file

Most SCD documentation is available in PostScript format. You can access the PostScript file for a document in two ways:

- Via anonymous FTP (see example, below)
- Via Uniform Resource Locator (URL). (For information on printing SCD documentation from Web browsers, see "Mosaic: A multimedia Web browser" and/or "Lynx: A terminal-based Web browser" in this section of the catalog.)

### Example

To download and print the PostScript file for the UserDoc "Charges for SCD Computing Resources":

1. From your local computer connected to the Internet, type:

```
ftp ftp.ucar.edu
```

2. When prompted for a login name, type:

```
anonymous
```

**Note:** If your local computer is a Digital Equipment VAX running VMS, you may need to type:

```
"anonymous"
```

3. Enter your login ID at the password prompt and wait for the ftp> prompt.
4. Get a copy of the PostScript file by using these commands:

```
cd docs/intro/  
get charges.gau.ps  
quit
```

A copy of the PostScript file **charges.gau.ps** should now be on your local disk.

5. Print the **charges.gau.ps** file from your disk. At the UNIX command line, type:

```
lpr -P PostScript_printer_name charges.gau.ps
```

where *PostScript\_printer\_name* specifies the PostScript printer to which you want to print. (If you do not know the name of your PostScript printer, contact your system administrator.)

## Archie: How to search for FTP files

---

### What is Archie?

Once you know how to use FTP, you face another challenging task—how to find the file you are looking for when thousands of computers on the Internet offer anonymous FTP services.

Archie is a computer program that maintains a constantly updated catalog of the contents of a large proportion of the world's anonymous FTP archives.

Each month, Archie does an anonymous FTP search to all sites contained in its master list and obtains a directory listing of the files available via anonymous FTP from each site. With Archie, you can search through the master list of FTP files, just as you might use a library catalog to find a book on a particular topic.

Archie's output includes the Internet domain name of the FTP host, the directory in which a file is located, the size of the file in bytes, and the date on which the file was placed in that FTP host. Once you've gotten this list of possible sources from Archie, simply FTP to a site that has what you need, go to the subdirectory in which Archie says the file is located, and copy the file to your own computer.

Archie was developed at McGill University in Montreal.

### How to access Archie by TELNET

Use TELNET to access a remote Archie server by typing:

**telnet *remote.archie.server***

where *remote.archie.server* is one of the computers listed below:

archie.rutgers.edu	New Jersey
archie.sura.net	Maryland
archie.unl.edu	Nebraska
archie.ans.net	New York, NY
archie.funet.fi	Finland
archie.doc.ic.ac.uk	United Kingdom
archie.cs.huji.ac.il	Israel
archie.au	Australia
archie.ncu.edu.tw	Taiwan
archie.wide.ad.jp	Japan

When prompted for a login, type:

**archie**

No password is required. You should see a short help screen giving some basic information on how to use the system. You can get additional help about Archie at any time during your session. To obtain a list of currently valid commands, type:

**help**

The basic search command of Archie is **prog**. To find all files that contain the word "atmosphere," type:

**prog atmosphere**

To end your Archie session, type:

**quit**

## Vendor online systems

### CrayDoc

---

#### What is CrayDoc?

CrayDoc allows X Window System and Openview users to browse certain Cray Research documentation online. These online documents are hypertext-based and are organized by "Collections."

#### How to access CrayDoc

1. Since CrayDoc is available on the SCD UNIX front-end computer (meeker.ucar.edu), you must provide meeker with access to your X server's display by using the `xhost` command. Type:

```
xhost +meeker.ucar.edu
```

from your X server's controlling host (usually the console window).

2. Log into meeker.
3. Once you have established a session on meeker, you must set your DISPLAY environment variable. Type:

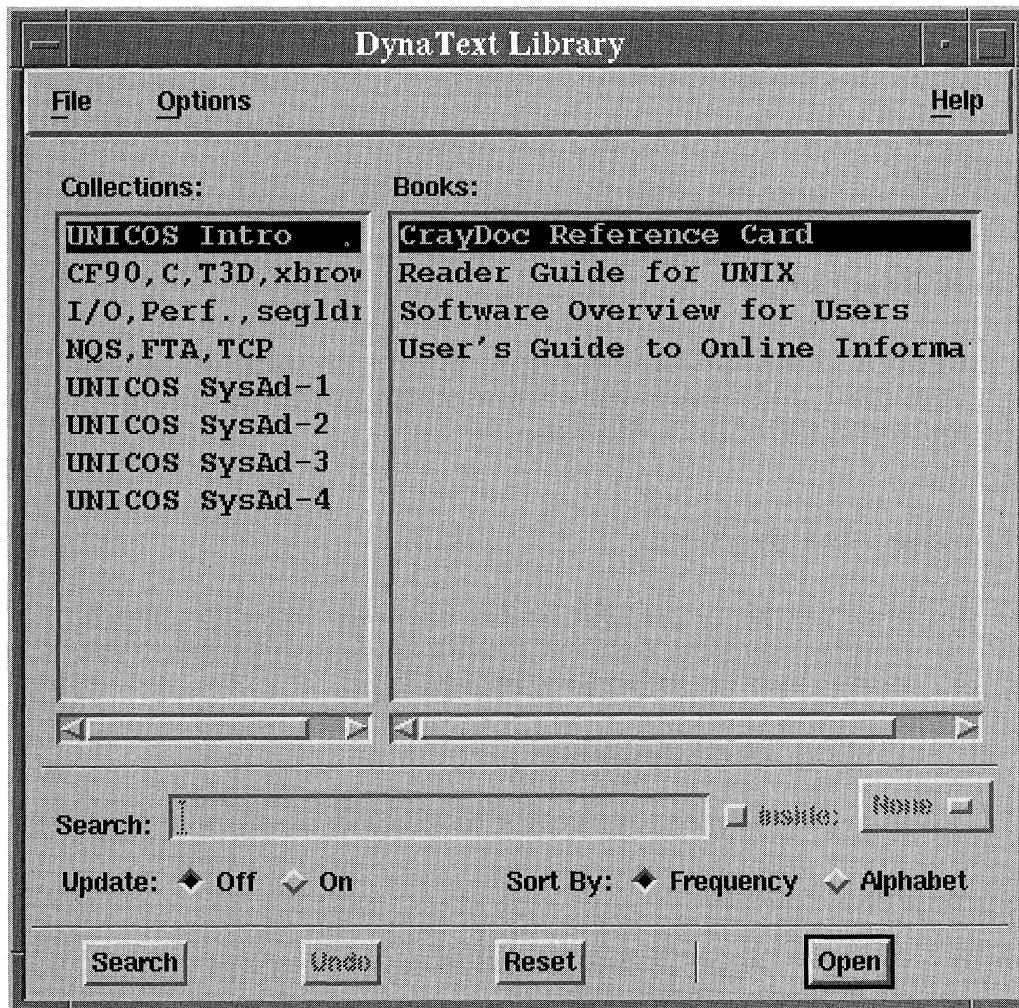
```
setenv DISPLAY host.domain:0
```

where *host.domain* is the name of your X server's display.

4. To start CrayDoc, type:

```
craydoc
```

CrayDoc opens the "DynaText Library" window where you can find your desired document, as shown below.



5. To open a document:

- Click on the "Collection" to which the document belongs.

The "DynaText Library" window lists the documents for your selected "Collection" in the "Books" box.

- In the "Books" box, click on the title of the document you want.
- Click on the "Open" button.

CrayDoc opens another window containing your selected document.

6. For further assistance, select the "Help" pull-down menu.
7. To exit from CrayDoc, select "Quit" from the "File" pull-down menu on the "DynaText Library" window.

## Docview

---

### What is Docview?

Docview provides online access to a library of printed Cray Research documents. The Docview system works under the X Window System (X11 version) or the screen-oriented **curses** version.

```

                                D O C V I E W
                        On-line Documentation System Command Menu

Please enter a command at the menu> prompt.

a[list]                List docnames in alphabetical order
c[list]                List docnames by subject category
d[list]                List docnames by date last submitted
f[ind] string          Find keywords and corresponding docnames
                        associated with "string"
p[revious]             Return to the previous command mode
v[iew] docname keyword View passage "keyword" in document "docname"
w[rite] docname keyword Write passage "keyword" from document
                        "docname"

h[elp] [topic]         Display help for the current screen
                        or a Docview topic or command
m[enu]                 Display this menu
q[uit]                 Quit from Docview

menu>

```

### How to access Docview

(Note: The following instructions explain how to access the screen-oriented version of Docview. See the **docview man** page for instructions for the Docview's X version.)

1. Log into any one of SCD's Cray Research computers (such as shavano or alpine).
2. Once you have established a session on the Cray computer, start Docview by typing:

**docview**

Docview's "On-line Documentation System Command Menu" appears on your screen, as shown on previous page.

## How to navigate in Docview

You may scroll through a Docview document using its basic movement commands, or you may search for a desired keyword. Docview uses the movement commands listed in the table below. These commands are similar to those in many UNIX utilities, such as **vi** and **more**:

Docview movement commands	
Command	Description
<spacebar>	Page forward
<b>b</b>	Page backward
<b>j</b>	Move 1 line forward (5j = 5 lines forward)
<b>k</b>	Move 1 line backward (5k = 5 lines backward)
<b>/string</b>	Search forward for <i>string</i>
<b>?string</b>	Search backward for <i>string</i>

**Note:** You may need to scroll forward a screen or two if the first screen appears to be blank.

## How to find information in Docview

When you type **v *docname***, Docview gives you an index of numbered keywords for the document. You can select the number of the keyword for which you want to see a passage. Or, at the Docview prompt (**>**), you can search for specific keywords using the **f[ind]** command.

As with any index, you may not be able to find the keyword you're looking for. A possible advantage of the **f[ind]** command is that it uses fuzzy matching, which means it can search for partial words or mistyped words. For example, a request to find the word "vector" will match "vectorization" as well. For multiple-word keywords, use hyphens to separate words; for example:

**f performance-utilities**

Most of the Docview commands can also be entered at the command line. For example, you can type:

```
% docview find fortran-compilers
```

or

```
% docview f fortran-compilers
```

This returns a list of document keywords that include the search string, along with the names of the documents that contain them. When using Docview from the command line, be patient. It can take several seconds for Docview to first display its main menu and then complete the search for the string.

## How to escape to the shell

To escape back to the shell to execute a single command line outside of Docview, use the exclamation point (!). For example, you can type `!ls` to check the contents of the current directory. Press RETURN to continue working in Docview.

## How to copy a passage

You can write one or more passages to disk from within the Docview menu system by typing the following command:

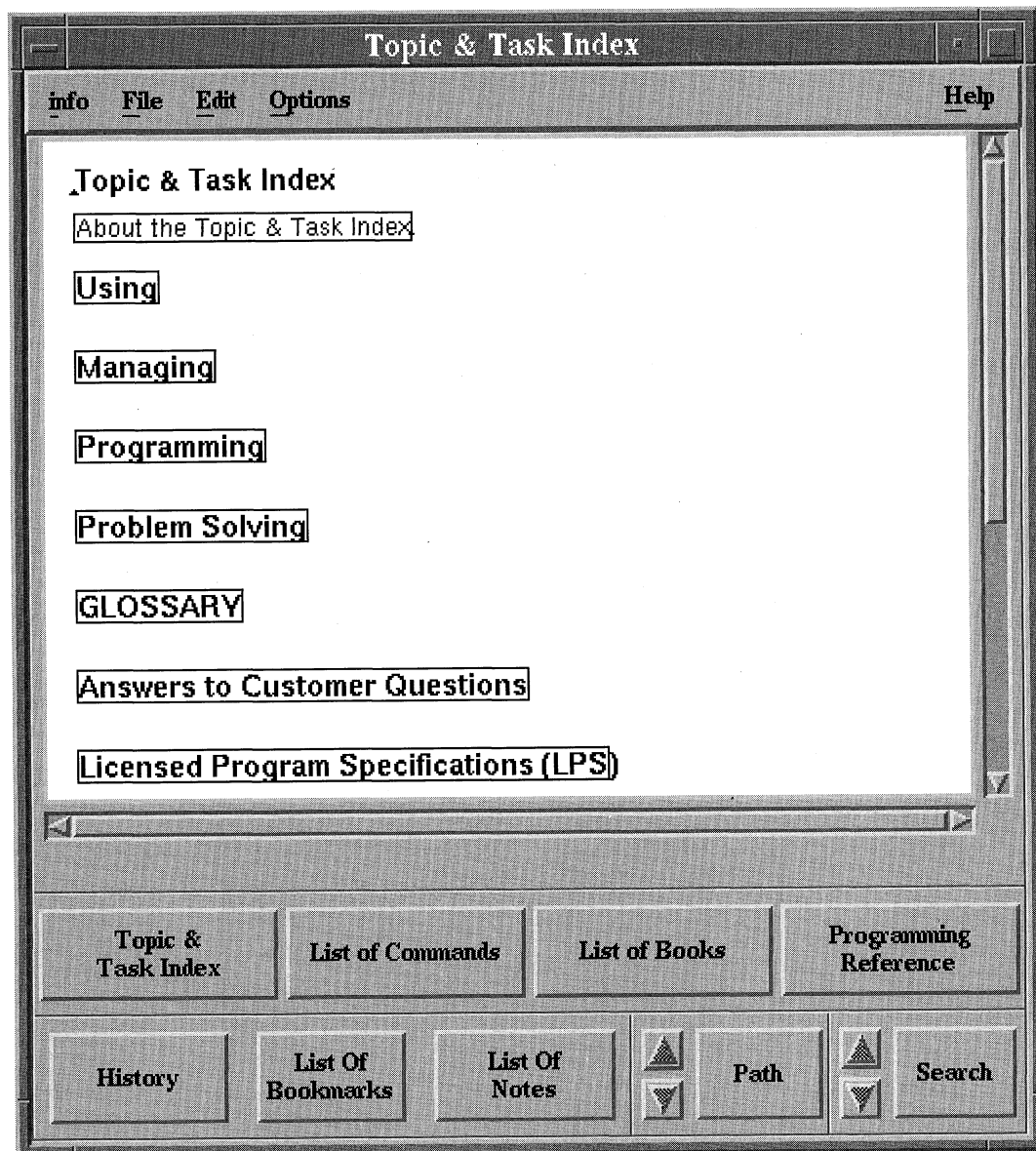
```
write docname keywords > outfile
```

where *outfile* is the name of the document name you wish to assign.

## InfoExplorer

### What is InfoExplorer?

InfoExplorer allows X Window System and Openview users to obtain certain IBM documentation online. These online documents are hypertext-based and provide information on the AIX 3.2 operating system and the IBM RS/6000.



## How to access InfoExplorer

1. Because InfoExplorer is available on SCD's gateway computer for the IBM RS/6000 (`chief.ucar.edu`), you must provide chief with access to your X server's display by using the `xhost` command. Type:

```
xhost +chief.ucar.edu
```

from your X server's controlling host (usually the console window).

2. Log into chief.
3. Once you have established a session on chief, you must set your **DISPLAY** environment variable. Type:

```
setenv DISPLAY host.domain:0
```

where *host.domain* is the name of your X server's display.

4. To start InfoExplorer, type:

```
info
```

InfoExplorer opens two windows: "Welcome to the InfoExplorer Window Interface" and "Topic & Task Index." The latter window is where you can find your desired document, as shown on previous page.

5. To open a document, click on one of the hypertext links or one of the buttons at the bottom of the "Topic & Task Index" window. (For example, clicking on the "List of Books" button will display a list of documents pertaining to the AIX 3.2 operating system and the RS/6000.)
6. If you need further assistance, select the "Help" pull-down menu.
7. To exit from InfoExplorer, select "Quit" from the "info" pull-down menu.

# HOW TO OBTAIN HARDCOPY

## Section overview

This section tells how to obtain SCD and vendor hardcopy documentation. It explains how to:

- Print SCD documentation at your own site
- Order hardcopy documentation distributed by SCD
- Locate reference copies of vendor documentation
- Order hardcopy documentation from Cray Research
- Order hardcopy documentation from IBM

**Note:** The information in this section is subject to change. For the latest information, please see the online version of this catalog, available on the World Wide Web via browsers such as Mosaic and Lynx at the following URL:

[http://www.ucar.edu/docs/SCD\\_Catalog/catalog.html](http://www.ucar.edu/docs/SCD_Catalog/catalog.html)

See the "Online access methods" section in this catalog for Mosaic and Lynx access instructions.

## SCD documentation

### How to print SCD documentation at your own site

For directions on how to print hardcopy versions of online SCD documentation, see the appropriate chapter in the "Online access methods" section of this catalog:

- If you are using Mosaic, see "Mosaic: A multimedia Web browser" in the "Online access methods" section of this catalog.
- If you are using Lynx, see "Lynx: A terminal-based Web browser" in the "Online access methods" section of this catalog.
- If you are an anonymous FTP user, see "Anonymous FTP" in the "Online access methods" section of this catalog.
- If you are using Gopher, see "Gopher" in the "Online access methods" section of this catalog.

### How to order hardcopy documentation distributed by SCD

#### List of documents available in hardcopy

SCD distributes the following documentation in hardcopy (free of charge) at user request:

- ☐ *Basic UNIX Guide*, Version 1.0, August 1993, 135 pages
- ☐ "Charges for SCD Computing Resources," Version 8.0, October 1994, 28 pages
- ☐ *NCAR UNICOS Guide*, Version 1.0, June 1990, 207 pages
- ☐ *SCD Information Resources Catalog*, March 1995, 100 pages
- ☐ *Supercomputing: The View from NCAR* (FY93 Review and FY94-95 Development Plan for the NCAR Scientific Computing Division), January 1994, 221 pages (limited quantities)
- ☐ "IRJE Quick Reference," Version 3.0, June 1992 (card)
- ☐ "MIGS Quick Reference," Version 4.2, February 1994 (card)
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# TABLE OF CONTENTS

<b>Preface .....</b>	<b>1</b>
<b>Catalog overview .....</b>	<b>4</b>
<b>User documentation .....</b>	<b>5</b>
Introduction to the SCD computing environment .....	7
Compute servers .....	9
Mass Storage System .....	25
Applications software .....	27
NCAR Graphics .....	39
Networking and data communications .....	42
Output services (Text and Graphics System—TAGS) .....	47
UNIX .....	49
Additional topics .....	50
<b>News services .....</b>	<b>51</b>
Useful sites on the World Wide Web .....	52
SCD Computing News .....	53
SCD Daily Bulletin .....	54
SCD e-mail subscription services .....	56
SCD Users' Group (SCDUG) report .....	58
The UNICOS 'news' command .....	59
<b>Online access methods .....</b>	<b>60</b>
World Wide Web .....	61
Other Internet-based information-distribution systems .....	80
Vendor online systems .....	89
<b>How to obtain hardcopy .....</b>	<b>96</b>
SCD documentation .....	97
Vendor documentation .....	100

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