



NCDware 5.0.129 Release Notes

Part Number 9300573, Rev. A
December, 1997

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Revision History

Revision history of this document:

Part Number	Revision Date	Description
9300573, Rev A	December, 1997	Release Notes for NCDware 5.0.129.
9300599	August, 1997	Release Notes for NCDware 5.0.122 Pre-Production Release.
9300467	August, 1996	Release Notes for NCDware 4.1.141.
9300363	August, 1995	Release Notes for NCDware 4.0.118.

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Release Notes

This document contains information about using NCDware 5.0.129 with NCD network computers (NCs). Review this document before installing NCDware 5.0.129 or using NCDware manuals.

Highlights of This Release

The following section summarizes the new features and changes in this release. NCDware 5.0.129:

- ❑ Includes support for the new Explora 400/450 series and Explora 700 network computers. See “Explora 400/450 Series” on page 23 and “Explora 700” on page 24.
- ❑ Includes distribution on CD-ROM and 12 MB Quick Start PCMCIA card for Explora, Explora Pro, Explora 400/450 series, Explora 700, and HMX network computers and on 4 MB Quick Start PCMCIA card for Explora, Explora Pro, and Explora 400/450 series. See “Distribution Media” on page 4.
- ❑ Supports Java Virtual Machine (JVM). JVM is a network programming environment for creating and running embedded Java applets and standalone Java applications. See “Java Virtual Machine and Applet Viewer” on page 24.
- ❑ Includes the Java Applet Viewer, a Java application that allows you to run applets in an applet viewer window. See “Java Virtual Machine and Applet Viewer” on page 24.
- ❑ Includes the NCD Mosaic Browser. You can use this Internet browser to view sites on the World Wide Web (Web) and other Internet resources, provided that you have an Internet connection. The browser is based on Spyglass Mosaic 3.2 and supports JavaScript 1.1. You can print from the browser to a local printer attached to your network computer and to remote printers. See “NCD Mosaic Browser” on page 25.

- ❑ Includes the NCD Display Manager (*ncddm*), a host-based daemon that:
 - Enhances network computer security for NFS file access
 - Provides environment variables required by local clients, such as *java* and the NCD Mosaic Browser
 - Makes it possible to prevent anyone but the logged-in user from starting local clients using the remote shell command, provided the user logs in through a login service, such as XDM

See “NCD Display Manager” on page 27.

- ❑ Supports using a light pen with your NCD network computer to perform the typical operations of a mouse—such as pointing, clicking, dragging, and positioning—without having to coordinate the movement of a mouse with the cursor on the screen. The Explora, Explora Pro, and Explora 400/450 series include light pen support for the FTG Data Systems PXL-795 light pen. See “Light Pen” on page 27.
- ❑ Provides XIE’s (X Imaging Extension) DIS (Document Imaging Subset) for the Explora, Explora Pro, and Explora 400/450 series. See “Document Imaging Subset (DIS)” on page 27.
- ❑ Includes wireless network computer support for the Explora 400/450 series. See “Wireless Support” on page 27.
- ❑ Includes new remote configuration parameters and changed parameters to support new features and enhance existing features. See “Remote Configuration File Updates and Parameter Changes” on page 28.
- ❑ Includes enhancements to the NCDware installation program (*ncdinstall*) to support new features. See “Software Installation” on page 6.
- ❑ Includes the new *NCDware Reference Manual*, which is available in hard copy from the NCD publications order form or Sales Support. You can also access the *Reference Manual* on-line at www.ncd.com/doc/ncd50ref/ or from the NCD FTP site. See “NCDware Manuals” on page 5 and “Using FTP” on page 41.
- ❑ Does not provide host binaries or an installation script for VMS. NCDware 4.1.141 is the last version of NCDware to provide host binaries for VMS. See “Host Binaries” on page 4.
- ❑ Is the last release of NCDware to support PHIGS Extension to X (PEX). See “PEX” on page 28.

NCD Network Computers Supported by This Release

This release provides NCD network computer software and host-based support files for the HMX family of network computers (HMX, HMXpro, and HMXpro24), and the Explora, Explora Pro, Explora 400/450 series, and Explora 700 network computers.

Unsupported Network Computers

NCDware 3.5 was the latest release to support the following network computers: NCD14c, NCD15b, NCD19r, NCD17c, NCD17ct, NCD17cr, NCD17fs, NCD19c, NCD19cp, NCD19g, NCD20ct, NCD21c, and the MCX and ECX families of network computers.

NCDware 3.3.2 was the latest release to support the NCD15r network computer.

NCDware 3.2.1 was the latest release to support the NCD19 network computer.

NCDware 3.1 was the latest release to support NCD16, NCD16e, and NCD19b network computers.

Host Binaries

This release provides binaries of host-based software for the following host platforms:

- SPARC—SunOS 4.1.3 to 4.1.4
- SPARC—Solaris 2.5
- x86—Solaris 2.4
- HP Precision Architecture—HP-UX 10.01
- IBM RS/6000—AIX 4.1
- SGI—IRIX 5.3
- WinFrame—1.6 or later

NCD has not tested and does not provide Technical Support for the Motorola binaries included in this release.

Note NCDware 5.0.129 does not provide host binaries or an installation script for VMS. NCDware 4.1.141 is the last version of NCDware to provide host binaries for VMS.

Distribution Media

The release is available on CD-ROM, 4 megabyte (MB) Quick Start PCMCIA cards, and 12 MB Quick Start PCMCIA cards.

The CD-ROM contains the NC software, including all modules and support files (see “X Servers in This Release” on page 7).

The PCMCIA Quick Start cards contain the NC software and a subset of modules and support files (see “Quick Start PCMCIA Cards” on page 20 for a list of modules on the Quick Start PCMCIA cards).

License Requirements

NCDware includes features that require licenses for operation. They are OpenGL, the Video Player and associated software, Starlight Networks’ StarWorks software support, NCDnet, 3270 Terminal Emulator, DPS (Display PostScript), XIE (X Imaging Extension), the local Motif Window Manager, XRemote, PEX, JVM (Java Virtual Machine), the NCD Mosaic Browser, and wireless terminal support.

If you do not have a license for a feature that you need, call a Sales Support person at (650) 694-0650.

NCDware Manuals

The following manuals are new or revised for this release of NCDware:

- ❑ *NCDware Publications Roadmap*, a general index to all NCDware and NCD hardware manuals
- ❑ *NCDware User's Guide*, an introductory manual providing information to assist users in becoming productive with their NCD network computers
- ❑ *NCDware System Administrator's Guide for UNIX Systems*, a manual for UNIX system administrators responsible for setting up NCD network computers for networked use and for setting up users' work environments
- ❑ *Remote Configuration Parameter Quick Reference*, a summary description of remote configuration parameters
- ❑ *FLEXlm End User Manual*, a detailed description of how to use and configure FLEXlm license management software
- ❑ *Using the 3270 Terminal Emulator*, a description of how to use and customize NCD's local 3270 terminal emulation software
- ❑ *Installing Your PCMCIA Card*, a description of how to install and use your PCMCIA card with your network computer
- ❑ NCDware CD insert, a description of how to install NCDware from CD-ROM onto UNIX and WinCenter hosts. Use the installation booklet in conjunction with these *Release Notes* and the *NCDware System Administrator's Guide for UNIX Systems*. This booklet is inside the NCDware CD-ROM cover.
- ❑ *NCDware Reference Manual*, containing details about many aspects of NCDware and alternatives to some of the procedures in the *NCDware System Administrator's Guide for UNIX Systems*. The *NCDware Reference Manual* is available from the NCD Web site (www.ncd.com/doc/ncd50ref/) or from the NCD FTP site (see "Using FTP" on page 41). You may purchase a hard copy volume using the NCD manual order form, or contact Sales Support (650) 694-0650.

Software Installation

This release includes an installation program (*ncdinstall*) for installing NCDware on the UNIX hosts for which it provides binaries. The *ncdinstall* program installs:

- ❑ X servers in */tftpboot*
- ❑ Server modules in */tftpboot/modsmodel*, where *model* is the terminal model, such as *modshmx*
- ❑ Browser help files in */tftpboot/help*
- ❑ Java classes in */tftpboot/java*
- ❑ Host executables in */home/ncd/5.0.129/hostside/host*, where *home* is your working directory and *host* is the host, such as *SunOS*. */usr/bin/X11/ncd* is linked to */home/ncd/5.0.129/hostside/host*.
- ❑ Configuration files (*ncd_std* and an example configuration file), keysym and color databases, and login-related files in */usr/lib/X11/ncd*. (If you are running secure TFTP, *ncdinstall* places the files accessed using TFTP, including X servers, fonts, and configuration files, under the secure TFTP directory.)

The *setup* program installs NCDware on WinCenter hosts running WinFrame 1.6 or later. The *setup* program installs:

- ❑ X servers (*Xncdhmx*, *Xncdxpl*, and *Xncdxpt*) in *c:\tftp_dir*
- ❑ Supplemental X server files in *c:\tftp_dir\modshmx*, *c:\tftp_dir\modsxpl*, and *c:\tftp_dir\modsxpt*
- ❑ Configuration files, font files, and supplemental files in *c:\tftp_dir\usr\bin\X11\ncd* where *c:\tftp_dir* is the TFTP directory selected during the installation procedure.

See the NCDware CD insert for more information about installation procedures.

See *Installing Your PCMCIA Card* for information about installing and using a PCMCIA card with your network computer.

For information about manual installation, contact NCD Technical Support.

“X Servers in This Release” on page 7 contains information on memory requirements.

X Servers in This Release

NCDware includes a core X server and loadable modules. The information in this section includes descriptions of the X server formats, module names, memory used by loading each module, and disk space required for server files.

X Server Formats

NCDware 5.0.129 provides NCD core X servers in the following formats (see Table 1).

Table 1 X Server Formats

Format	Description	Core Server Filename
Downloadable	X server image files for downloading from the network when the network computer boots.	Xncdhmx Xncdxpl Xncdxpt
Compressed	X server image files for copying to a PCMCIA card in the network computer's base and booting locally. These are the X servers used on the PCMCIA cards. (If you plan to purchase PCMCIA cards from a source other than NCD, please contact NCD Technical Support for a list of supported cards.)	Xncdhmx.bl Xncdxpl.bl Xncdxpt.bl

Minimum Memory Requirements

Table 2 lists the minimum memory requirements for NCD network computer models in megabytes.

Table 2 Minimum Memory Requirements

Model	Memory Requirements
Explora	4 MB
Explora Pro	4 MB
Explora 400/450 Series	8 MB
Explora 700	8 MB
HMX	8 MB

Determining Your Memory Needs

Minimum memory configurations might be insufficient for the features that you want to use. Use the information in Table 3, Table 4, and Table 5 to determine whether you need to increase the memory in your NC to run the components you need.

In reading the tables, note that the figure for memory used is for the first instance of a client. If additional instances are running, they require less memory than the first.

To determine the amount of memory needed:

1. Find the features you want to use in the table for your NC model, including the core X server, which is required for NC use.
2. Add up the total memory used by the feature modules and the core X server.
3. Subtract the total memory used by the features from the memory in your NC. If less than 1 MB remains, you need to add memory to your NC to use the desired features.

For example, to run the Motif Window Manager on an Explora network computer, you need:

Xncdexpl	2.7534 MB
mwm.xpl	1.7465
Total memory used by Motif Window Manager	<u>4.4999 MB</u>

An Explora equipped with 4 MB of memory has insufficient memory to run the Motif Window Manager. It requires at least 6 MB of memory.

If you need to add memory to your NC, use the instructions in your model's installation manual or memory booklet to determine the possible memory configurations for your NC model and how to install the new memory SIMMS.

Notes on Memory Needs for Commonly Used Features

The minimum memory configuration on an Explora and Explora Pro network computer (4 MB) is not sufficient for running either the Motif Window Manager or the NCD 3270 Terminal Emulator.

You need a minimum of 16 MB of memory in your NC to run the NCD Mosaic Browser and a minimum of 16 MB of memory to run Java. If you want to run both the browser and Java together, you need a minimum of 24 MB of memory. NCD recommends 32 MB of memory in your NC for running the browser and Java together.

Programs that use XIE require a minimum of 16 MB of memory. Your memory requirements might vary depending on the applications you are using, along with the sizes and number of images being displayed simultaneously.

For many programs that use only the DIS portion of XIE, 8 MB of memory may be adequate.

You need a minimum of 16 MB of memory in your NC to support the OpenGL graphics extension. Because memory requirements might vary depending on the applications you are using, NCD recommends 32 MB of memory in your NC for supporting OpenGL.

You need a minimum of 16 MB of memory in your NC to support Display PostScript (DPS). NCD recommends 24 MB of memory in your NC to support DPS.

Table 3 Memory Used on Explora, Explora Pro, and Explora 400/450 Series NCs

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Core X server on Explora	CS	Xncdxpl	2.7534
Core X server on Explora Pro			2.6835
Core X server on Explora 400			2.7183
Core X server on Explora 450			2.7199
3270 client library	L	libbrx.xpl	0.0179
3270 terminal emulator (ncd3270)	C	tn3270.xpl	0.7150
3287 print emulator (ncd3287)	C	3287.xpl	0.0484
Audio	E	audio.xpl	0.0844
Change Setup Parameters (ncdsetup client)	C	setup.xpl	0.1622
Change User Preferences (ncdpref client)	C	pref.xpl	0.0964
Clock client (ncdclock)	C	clock.xpl (with implicit loading of libXaw and libXmu)	0.3452
CTerm library	L	libcterm.xpl	0.0229
Java Virtual Machine ¹	C	audio.xpl	0.0844
		jagent.xpl	0.1800
		java.xpl	0.1652
		jawt.xpl	1.6082
		jpeg.xpl	0.2309
		jmmedia.xpl	0.1710
		jnet.xpl	0.1731

Table 3 Memory Used on Explora, Explora Pro, and Explora 400/450 Series NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Keymap Editor (<i>keymap_editor</i>)	C	keymap.xpl	0.2533
LAT protocol	P	latproto.xpl	0.0255
Lightpen support	C	lightpen.xpl	0.0062
Local File Manager	D	filed.xpl	0.0198
Login New X Session (<i>ncdlogin</i>)	C	login.xpl	0.1132
Motif Window Manager ² (local <i>mwm</i>)	C	mwm.xpl (with implicit loading of libXm and libXt)	1.7465
NCD Mosaic Browser ³	C	auplayer.xpl browser.xpl desktop.xpl jmosaic.xpl libprapi.xpl nmos128.xpl nmosaic.xpl nmosaice.xpl nmosprt.xpl (with implicit loading of libx2 , libxt , libxm , and libmos)	0.0064 3.1723 0.0046 0.1685 0.0381 4.1104 3.1716 4.1105 1.5923
NCD Terminal Emulator (<i>ncdterm</i>)	C	term.xpl	0.2859
NCD Window Manager (<i>ncdwm</i>)	C	wm.xpl	0.2610
NFS daemon	D	nfsd.xpl	0.0222
PPP/SLIP daemon ⁴	D	pppd.xpl	0.0422
PPP/XRemote library ⁴	L	libppp.xpl	0.0157
Serial daemon	D	seriald.xpl	0.0080
Show Statistics (<i>ncdstats</i>)	C	stats.xpl	0.1336
Show Version, Show Memory, and Show X Connections (<i>ncdshow</i>)	C	show.xpl	0.0216
SIE	E	sie.xpl	0.0249
SNMP	D	snmpd.xpl	0.0391
Test Network (<i>ncdtestnet</i>)	C	test.xpl	0.0081
Touch screen calibration (<i>touchscreen</i>)	C	touchscr.xpl	0.0154
X lib non-core functions	L	libx2.xpl	0.0362
XDM authentication	L	xdmauth.xpl	0.0591
XIE ⁵	E	xie.xpl	0.2374
Xinput	E	xinput.xpl	0.0686
XRemote ⁴	E	xremote.xpl	0.0645
Xremote print daemon	D	rprintd.xpl	0.0107
Xtest	E	xtest.xpl	0.0046

Table 3 Memory Used on Explora, Explora Pro, and Explora 400/450 Series NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Xtrap	E	xtrap.xpl	0.0217

- ¹ Java Virtual Machine requires all of the listed modules to operate.
- ² The Motif Window Manager and video clients share a common library. Consequently, loading more than one of them requires less memory than total requirement of the components.
- ³ NCD Mosaic Browser requires one of the modules **nmosaic.xpl**, **nmosaice.xpl**, or **nmos128.xpl** depending on the desired encryption level, plus all of the remaining listed modules to operate. The browser loads **auplayer.xpl** only if it encounters audio clips. It loads **libprapi.xpl** and **nmosprt.xpl** only if the user selects the Print button. It loads **jmosaic.xpl** only when Java runs.
- ⁴ The XRemote extension and PPP support share a common library. Consequently, loading both requires less memory than total requirement of the components.
- ⁵ Only the DIS portion of XIE is available for the Explora, Explora Pro, and Explora 400/450 series NCs.

Legend: C=Local client, CS=Core server, D=Daemon, E=Extension, L=Library

Table 4 Memory Used on Explora 700 NCs

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Core X server	CS	Xncdxpt	3.6705
3270 client library	L	libbrx.xpt	0.0199
3270 terminal emulator (ncd3270)	C	tn3270.xpt	0.7784
3287 print emulator (ncd3287)	C	3287.xpt	0.0678
Audio	E	audio.xpt	0.0862
Change Setup Parameters (ncdsetup client)	C	setup.xpt	0.1871
Change User Preferences (ncdpref client)	C	pref.xpt	0.1140
Clock client (ncdclock)	C	clock.xpt (with implicit loading of libXaw and libXmu)	0.3696
CTerm library	L	libcterm.xpt	0.0236
Display PostScript (DPS)	E	dps.xpt	2.0370

Table 4 Memory Used on Explora 700 NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Java Virtual Machine ¹	C	audio.xpt	0.0862
		jagent.xpt	0.1818
		java.xpt	0.1672
		jawt.xpt	1.6870
		jpeg.xpt	0.2392
		jmmedia.xpt	0.1729
		jnet.xpt	0.1746
Keymap Editor (<i>keymap_editor</i>)	C	keymap.xpt	0.2685
LAT protocol	P	latproto.xpt	0.0227
Local File Manager	D	filed.xpt	0.0211
Login New X Session (<i>ncdlogin</i>)	C	login.xpt	0.1223
Motif Window Manager ² (local <i>mwm</i>)	C	mwm.xpt (with implicit loading of libXm and libXt)	1.8738
Multi-buffering ³	E	multibuf.xpt	0.0130
NCD Mosaic Browser ⁴	C	audioplayer.xpt	0.0069
		browser.xpt	3.5020
		desktop.xpt	0.0048
		jmosaic.xpt	0.1712
		libprapi.xpt	0.0071
		nmos128.xpt	4.5060
		nmosaic.xpt	3.4783
		nmosaice.xpt	4.5061
		nmosprt.xpt (with implicit loading of libx2, libxt, libxm, and libmos)	1.6671
		NCD Terminal Emulator (<i>ncdterm</i>)	C
NCD Window Manager (<i>ncdwm</i>)	C	wm.xpt	0.2939
NFS daemon	D	nfsd.xpt	0.0223
OpenGL support	E	opengl.xpt	1.4411
PEX ³	E	pex.xpt	0.6108
PPP/SLIP daemon ⁵	D	pppd.xpt	0.0423
PPP/XRemote library ⁵	L	libppp.xpt	0.0158
Serial daemon	D	seriald.xpt	0.0081
Shared memory ⁶	E	mitshm.xpt	0.0038
Show Statistics (<i>ncdstats</i>)	C	stats.xpt	0.1465
Show Version, Show Memory, and Show X Connections (<i>ncdshow</i>)	C	show.xpt	0.0199
SIE	E	sie.xpt	0.0252
SNMP	D	snmpd.xpt	0.0400
StarWorks support ²	L	starwrks.xpt	0.3586
SYNC extension	E	sync.xpt	0.0156

Table 4 Memory Used on Explora 700 NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Test Network (<i>ncdtestnet</i>)	C	test.xpt	0.0083
Touch screen calibration (<i>touchscreen</i>)	C	touchscr.xpt	0.0175
Video decoder ^{2, 6} (<i>video</i>)	C	video.xpt	0.7579
Video Player ^{2, 6} (<i>vp</i> and <i>ncdsendvideo</i>)	C	vp.xpt	0.9651
X lib non-core functions	L	libx2.xpt	0.0382
XDM authentication	L	xdmauth.xpt	0.0580
XIE	E	xie.xpt	0.5469
Xinput	E	xinput.xpt	0.0702
XRemote ⁵	E	xremote.xpt	0.0642
Xremote print daemon	D	rprintd.xpt	0.0110
Xtest	E	xtest.xpt	0.0051
Xtrap	E	xtrap.xpt	0.0221

¹ Java Virtual Machine requires all of the listed modules to operate.

² The Motif Window Manager and video clients share a common library. Consequently, loading more than one of them requires less memory than total requirement of the components.

³ The module **pex.xpt** includes the **multibuf.xpt** module.

⁴ NCD Mosaic Browser requires one of the modules **nmosaic.xpt**, **nmosaice.xpt**, or **nmos128.xpt** depending on the desired encryption level, plus all of the remaining listed modules to operate. The browser loads **auplayer.xpt** only if it encounters audio clips. It loads **libprapi.xpt** and **nmosprpt.xpt** only if the user selects the Print button. It loads **jmosaic.xpt** only when Java runs.

⁵ The XRemote extension and PPP support share a common library. Consequently, loading both requires less memory than total requirement of the components.

⁶ The video modules **video.xpt** and **vp.xpt** include the **mitshm.xpt** module.

Legend: C=Local client, CS=Core server, D=Daemon, E=Extension, L=Library

Table 5 Memory Used on HMX NCs

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Core X server	CS	Xncdhmx	3.3023
3270 client library	L	libbrx.hmx	0.0199
3270 terminal emulator (<i>ncd3270</i>)	C	tn3270.hmx	0.7835
3287 print emulator (<i>ncd3287</i>)	C	3287.hmx	0.0557
Audio	E	audio.hmx	0.0809
Change Setup Parameters (<i>ncdsetup</i> client)	C	setup.hmx	0.1942

Table 5 Memory Used on HMX NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Change User Preferences (<i>ncdpref</i> client)	C	pref.hmx	0.1194
Clock client (<i>ncdclock</i>)	C	clock.hmx (with implicit loading of libXaw and libXmu)	0.3698
CTerm library	L	libcterm.hmx	0.0236
Display PostScript (DPS)	E	dps.hmx	2.0370
Java Virtual Machine ¹	C	audio.xpt jagent.xpt java.xpt jawt.xpt jpeg.xpt jmmedia.xpt jnet.xpt	0.0809 0.1818 0.1672 1.6870 0.2388 0.1729 0.1750
Keymap Editor (<i>keymap_editor</i>)	C	keymap.hmx	0.2729
LAT protocol	P	latproto.hmx	0.0299
Local File Manager	D	filed.hmx	0.0211
Login New X Session (<i>ncdlogin</i>)	C	login.hmx	0.1257
Motif Window Manager ² (local <i>mwm</i>)	C	mwm.hmx (with implicit loading of libXm and libXt)	1.8752
Multi-buffering ³	E	multibuf.hmx	0.0130
NCD Mosaic Browser ⁴	C	audioplayer.xpt browser.xpt desktop.xpt jmosaic.xpt libprapi.xpt nmosaic.xpt nmosaice.xpt nmos128.xpt nmosprt.xpt (with implicit loading of libx2 , libxt , libxm , and libmos)	0.0069 4.1587 0.0047 0.1712 0.0071 4.1577 4.4981 4.4981 1.6671
NCD Terminal Emulator (<i>ncdterm</i>)	C	term.hmx	0.3138
NCD Window Manager (<i>ncdwm</i>)	C	wm.hmx	0.2828
NFS daemon	D	nfsd.hmx	0.0223
OpenGL support	E	opengl.hmx	1.4395
PEX ³	E	pex.hmx	0.6205
PPP/SLIP daemon ⁵	D	pppd.hmx	0.0465
PPP/XRemote library ⁵	L	libppp.hmx	0.0195
Serial daemon	D	seriald.hmx	0.0082
Shared memory ⁶	E	mitshm.hmx	0.0038

Table 5 Memory Used on HMX NCs (Continued)

NCDware Feature Used	Type	Module Filename	Approx. Memory Used by Loading Module (MB)
Show Statistics (<i>ncdstats</i>)	C	stats.hmx	0.1530
Show Version, Show Memory, and Show X Connections (<i>ncdshow</i>)	C	show.hmx	0.0199
SIE	E	sie.hmx	0.0252
SNMP	D	snmpd.hmx	0.0400
StarWorks support ²	L	starwrks.hmx	0.3605
SYNC extension	E	sync.hmx	0.0156
Test Network (<i>ncdtestnet</i>)	C	test.hmx	0.0083
Touch screen calibration (<i>touchscreen</i>)	C	touchscr.hmx	0.0175
Video decoder ^{2, 6} (<i>video</i>)	C	video.hmx	0.7565
Video Player ^{2, 6} (<i>vp</i> and <i>ncdsendvideo</i>)	C	vp.hmx	0.9677
X lib non-core functions	L	libx2.hmx	0.0382
XDM authentication	L	xdmauth.hmx	0.0578
XIE	E	xie.hmx	0.5469
Xinput	E	xinput.hmx	0.0702
XRemote ⁵	E	xremote.hmx	0.0679
Xremote print daemon	D	rprintd.hmx	0.0113
Xtest	E	xtest.hmx	0.0051
Xtrap	E	xtrap.hmx	0.0221

- ¹ Java Virtual Machine requires all of the listed modules to operate.
- ² The Motif Window Manager and video clients share a common library. Consequently, loading more than one of them requires less memory than total requirement of the components.
- ³ The module **pex.hmx** includes the **multibuf.hmx** module.
- ⁴ NCD Mosaic Browser requires one of the modules **nmosaic.hmx**, **nmosaice.hmx**, or **nmos128.hmx** depending on the desired encryption level, plus all of the remaining listed modules to operate. The browser loads **auplayer.hmx** only if it encounters audio clips. It loads **libprapi.hmx** and **nmosprt.hmx** only if the user selects the Print button. It loads **jmosaic.hmx** only when Java runs.
- ⁵ The XRemote extension and PPP support share a common library. Consequently, loading both requires less memory than total requirement of the components.
- ⁶ The video modules **video.hmx** and **vp.hmx** include the **mitshm.hmx** module.

Legend: C=Local client, CS=Core server, D=Daemon, E=Extension, L=Library

CD-ROM Content and Space Requirements

Table 6 lists the contents of the NCDware CD-ROM, including the approximate required disk space in kilobytes (KB).

Table 6 NCDware Content

Description	Disk Space (Approx, KB)
<i>Host-side binaries and bootp files</i>	
AIX	4229
HP-UX	6455
IRIX	5146
Motorola ¹	11783
Solaris	12980
Solaris (x86)	4084
SunOS	10652
Man pages	1102
<i>Fonts</i>	
dps (DPS fonts and startup files)	3533
PEX (3D PEX fonts)	29
Speedo (scalable fonts for use with font server)	532
Type1 (Type 1 fonts for use with font server)	833
100dpi (100 dpi fonts)	3660
75dpi (75 dpi fonts)	3163
Xol (OpenWindows fonts)	312
dw100dpi (100 dpi fonts for DECwindows)	1060
dw75dpi (75 dpi fonts for DECwindows)	704
misc (miscellaneous fonts)	2417
java (fonts for use by Java and the browser)	4542
Font server	2
<i>X Servers and Modules</i>	
Xncdhmx (uncompressed)	2520
Xncdhmx.bl (compressed)	1689
HMX modules	15533
Xncdxpl (uncompressed)	2221
Xncdxpl.bl (compressed)	1522
Explora, Explora Pro, Explora 400/450 modules	9921
Xncdxpt (uncompressed)	2363

Table 6 NCDware Content (Continued)

Description	Disk Space (Approx, KB)
Xncdxpt.bl (compressed)	1603
Explora 700 modules	15524
<i>Miscellaneous</i>	
Keysym database file (XkeysymDB)	4
Color database file (rgb.txt)	18
Parameter documentation file (configd.doc)	339
SNMP database files (mib.my and mib.txt)	589
Configuration files (configs)	345
Java classes directory (java)	4267
Browser help files directory (help)	88
Time zone information (zoneinfo)	405
Users directory for the browser (users)	6

¹ NCD has not tested and does not provide Technical Support for Motorola binaries included in this release.

Binaries for NCD Utilities

Table 7 describes binaries provided for the SunOS, Solaris, AIX, HP-UX, and IRIX platforms.

Table 7 Binary Files for NCD Utilities

Utility	Description
<i>General</i>	
bootpd bootptab.ncd	BOOTP protocol files provided for SunOS, Solaris, HP-UX, IRIX, and AIX: a bootpd(8) binary and an example bootptab file
makepsres	Creates or updates PostScript resource files
ncdcfgcvt	Converts configuration files from NCDware 2.4 format to NCDware 3.2.1 format
ncdcon	Support utility for serial devices
ncddm	NCD Display Manager daemon used for providing NFS and local client security and establishing local client environment variables
ncdfloppy	Manages DOS-compatible file system on floppy drive connected to an NCD network computer
ncdlauncher	Host-based application launcher
ncdloadprefs	Loads a user preferences file into the network computer

Table 7 Binary Files for NCD Utilities (Continued)

Utility	Description
<i>ncdloguser</i>	Support utility used by NCD Display Manager
<i>ncdquery</i>	Lists the values of selected SNMP variables for a network computer
<i>ncdreset</i>	Remotely resets a network computer
<i>ncdrestartwm</i>	Restarts the local window managers
<i>ncdrunterm</i>	Terminal emulator client without security
<i>ncdrunwm</i>	Starts local window managers
<i>ncdsendvideo</i>	Starts the Video Player
<i>ncdwm</i>	Provides a host-based version of the NCD Window Manager
<i>resize</i>	Sets TERMCAP and network computer settings to the current window size
<i>xdm</i>	X Display Manager with support for XDMCP
<i>xinitremote</i>	Startup script for XRemote
<i>Xremote</i>	Helper program for XRemote
<i>Fonts</i>	
<i>mkfdir</i>	Utility for adding Adobe outline fonts to the fonts.scale file
<i>ncdbdf2pcf</i>	Converts fonts from Bitmap Distribution Format (BDF) to Portable Compiled Format (PCF)
<i>ncdfs</i>	The NCD font server
<i>ncdfsinfo</i>	Provides information about the font server
<i>ncdfslistfonts</i>	Displays the X server font list for the font server
<i>ncdfstobdf</i>	Reads fonts from a font server and creates a BDF file
<i>ncdmkfontdir</i>	Creates a fonts.dir file from a directory of font files
<i>ncdshowfont</i>	Displays data about fonts for the font server
<i>FLEXlm License Management</i>	
<i>lmgrd</i>	License manager daemon
<i>lmutil</i>	Utilities
<i>ncdlicense</i>	Client for license negotiation
<i>ncdlmd</i>	Vendor daemon

Table 7 Binary Files for NCD Utilities (Continued)

Utility	Description
<i>Printing</i>	
<i>ascii.print</i> <i>dj.print</i> <i>dj.prologue</i> <i>lj.print</i> <i>lj.prologue</i> <i>lw.print</i> <i>ncdcanon</i> <i>ncdchr</i> <i>ncdecho</i>	Support utilities used by <i>ncdlp</i>
<i>ncdlp</i>	Sends a file to a printer connected to an NCD network computer; for use with ASCII, HP DeskJet, HP LaserJet, or PostScript printers
<i>ncdlprv</i>	Support utility used by <i>ncdlp</i>
<i>ncdnetcon</i>	Support utility used by <i>ncdprint</i>
<i>ncdpaginate</i>	Support utility used by <i>ncdlp</i>
<i>ncdprint</i>	Sends a file to a printer connected to an NCD network computer; for use with printers other than those supported by <i>ncdlp</i>
<i>ncdpsrv</i>	Support utility used by <i>ncdlp</i>
<i>ncdreadn</i> <i>ncdtxt2ps</i>	Support utilities used by <i>ncdlp</i>
<i>ncdxrcon</i>	Support utility used by <i>ncdprint</i>

Quick Start PCMCIA Cards

Quick Start PCMCIA cards contain X server and support files for NCD network computers. Quick Start PCMCIA cards are available in the 4 MB size for Explora, Explora Pro, and Explora 400/450 series network computers. The 12 MB Quick Start cards are available for all NCD network computers.

Quick Start PCMCIA cards are shipped write-protected. You cannot save configuration changes for the next reboot when the card is write protected. To write-enable the card, move the write-protect switch to the off position.

Caution

Do not change a PCMCIA card's write-protection without rebooting your network computer or you will corrupt the card and experience unpredictable results. If you want to change a card's write-protection, NCD recommends that you bring down your network computer, set the switch to the desired write-protection, and reboot your network computer.

The 4 MB card contains a subset of NCDware, including modules needed for XRemote and such basic operations as NCD Window Manager, NCD Terminal Emulator, Change Setup Parameters, and login services. (See Figure 1.)

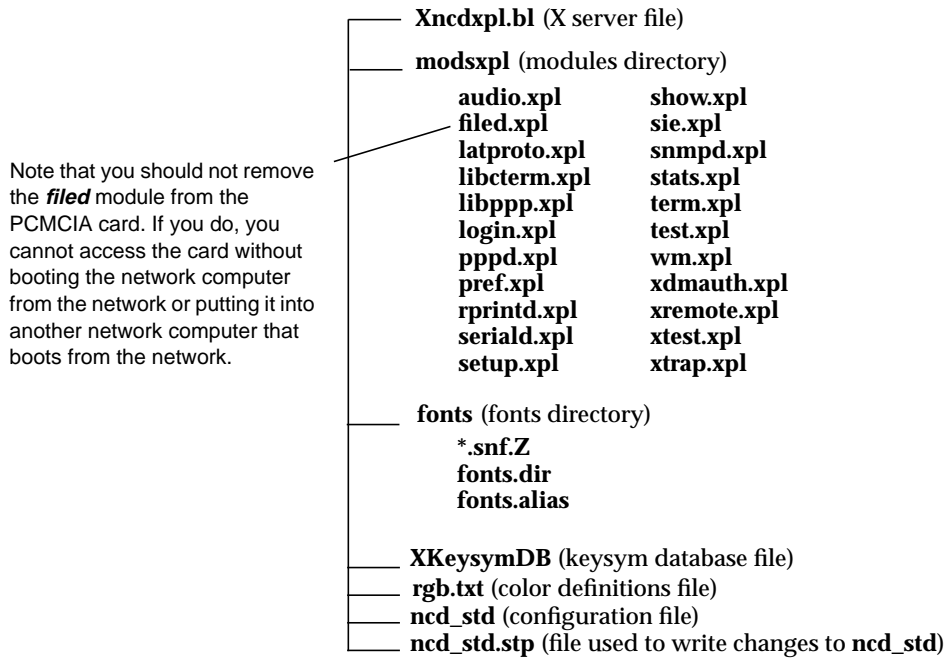


Figure 1 Organization of the 4 MB Quick Start PCMCIA Card

The 12 MB card includes the same modules as the 4 MB card plus modules for support of Java and the NCD Mosaic Browser on all NCs and MPEG video for the Explora 700 and HMX NCs. (See Figure 2.)

Note that you should not remove the **filed** module from the PCMCIA card. If you do, you cannot access the card without booting the network computer from the network or putting it into another network computer that boots from the network.

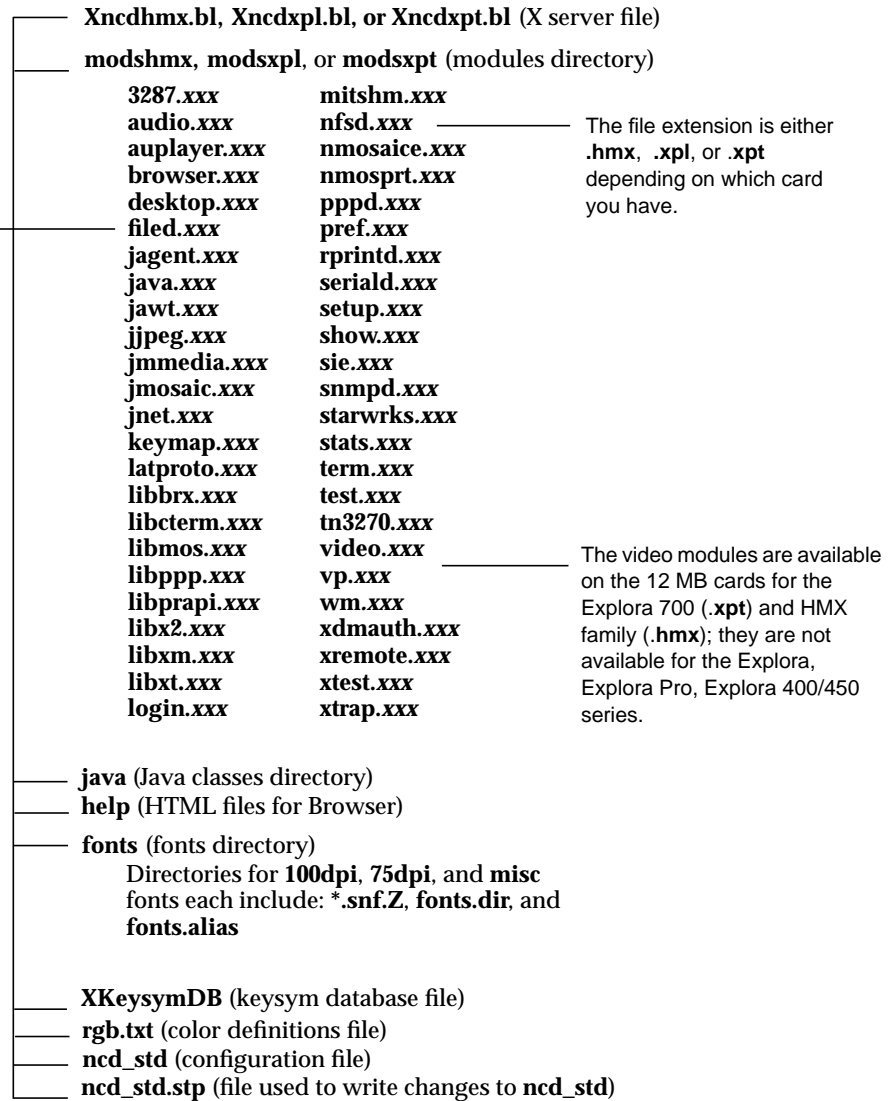


Figure 2 Organization of the 12 MB Quick Start PCMCIA Card

For more information about installing and using a Quick Start card, see *Installing Your PCMCIA Card* and the *NCDware System Administrator's Guide for UNIX Systems*.

For information about using the NCD Mosaic Browser on the Quick Start card, see "Using the Browser on a Quick Start Card" on page 26.

Changes and New Features

The following sections describe new features and changes in NCDware 5.0.129.

Explora 400/450 Series

NCDware 5.0.129 provides software support for the Explora 400/450 series network computers. These NCs consist of a circuit board in one of two bases, a monitor, a mouse, and a keyboard. You can purchase the NC alone or with a monitor. The two bases are:

- The space-saver base, with an ergonomic design with a small footprint
- The monitor support base, which supports the weight of a color monitor

The Explora 400/450 NCs are advanced network computers that include the following features:

- VGA/SVGA/XGA/SXGA monitor support
- PS/2 mouse support
- Multiple keyboard choices
- Serial (RS-232 C) port
- Parallel port
- Externally accessible PCMCIA card slot
- Audio output (except on the Explora 450 with the optional thin coaxial Ethernet connection)
- ENERGY STAR compliance for energy efficiency

See *Installing Your Explora 400/450 Series Network Computer* for more information.

Table 8 compares the features of the Explora 400 and Explora 450.

Table 8 Explora 400/450 Feature Comparison

Feature	Explora 400	Explora 450
CPU	PowerPC 403GA, 33 MHz	PowerPC 403GCX, 66 MHz
Memory	8 MB standard, 128 MB maximum, fast-page mode	8 MB standard, 128 MB maximum, EDO-mode
Graphics	S3 TRIO64V2/DX, 1 MB EDO DRAM, used as a frame buffer, 1152x900 maximum	S3 TRIO64V2/DX, 2 MB EDO DRAM, used as a frame buffer, 1280x1024 maximum
Networking	Twisted-pair 10BaseT Ethernet	Twisted-pair 10/100BaseT Ethernet standard and optional thin coax Ethernet in place of audio output

Explora 700

NCDware 5.0.129 provides software support for the Explora 700 network computer (NC). This NC consists of a circuit board in a base, a monitor, a mouse, and a keyboard. You can purchase the NC alone or with a monitor. The Explora 700 NC is an advanced network computer that includes the following features:

- MIPS R4700, 150 MHz CPU
- Standard memory of 8 MB memory can be increased to a maximum of 256 MB
- Twisted pair 10/100BaseT Ethernet
- Thin coaxial Ethernet
- VGA/SVGA/XGA/SXGA monitor support
- PS/2 mouse support
- Multiple keyboard choices
- Serial (RS-232 C) port
- Parallel port
- Externally accessible PCMCIA card socket
- Audio output
- ENERGY STAR compliance for energy efficiency

See *Installing Your Explora 700 Network Computer* for more information.

Java Virtual Machine and Applet Viewer

Java Virtual Machine (JVM) 1.0.2 is a network programming environment for creating and running embedded Java applets and standalone Java applications.

JVM requires a license for each network computer. Contact your sales representative if you need to purchase licenses.

The user programs included with the JVM are:

- The **java** program, which allows users to run complete Java applications.
- The **appletviewer** program, which is a Java application that allows you to run applets in an applet viewer window. Although **appletviewer** allows you to run applets embedded in an HTML page, it does not display any of the surrounding HTML data.

Note The **appletviewer** program does not provide print capability; this must be provided by the applet or standalone Java application.

You can start *java* and *appletviewer* from the Console's Utilities menu. You can run applets and Java applications that reside on the local network or the World Wide Web.

See the *NCDware User's Guide* and the *NCDware System Administrator's Guide for UNIX Systems* for more information.

NCD Mosaic Browser

NCD Mosaic Browser is an Internet browser that you can use to view sites on the World Wide Web (Web) and other Internet resources, provided that you have an Internet connection. The browser is based on Version 3.2 of Spyglass Mosaic and supports JavaScript Version 1.1. You can print from the browser to a local printer attached to your network computer and to remote printers. You start the browser from the Console's Utilities menu.

The browser requires a license for each network computer. Contact your sales representative if you need to purchase licenses.

NCD Mosaic Browser does not support background audio. Background audio is the music used by some Web sites.

The browser supports Java applets that require basic authentication as supported by JVM 1.1.0.

Note NCD Mosaic Browser might attempt to use fonts, such as Palatino and ITC, that are not supplied by NCD. If you want to use these fonts, you must add them to your font path.

See the *NCDware User's Guide* and the *NCDware System Administrator's Guide for UNIX Systems* for more information.

Decreasing Start Time for the Browser

To decrease the time it takes for the NCD Mosaic Browser to start, use the **modules-load-policy** parameter to add the browser modules to your configuration file so that the browser loads automatically at boot time. (Note that this slightly increases the time it takes for the NC to boot.)

The required browser modules are:

```
modules-load-policy = {  
  {"libx2" at-boot}  
  {"libxt" at-boot}  
  {"libxm" at-boot}  
  {"libmos" at-boot}  
  {"desktop" at-boot}  
  {"browser" at-boot}  
  {"nmosaic" at-boot}}
```

Note You must add all the modules listed above, in the order listed, to your configuration file for the browser to load automatically at boot time.

Use **nmosaic** to run the browser without encryption. Use **nmosaice** to run the browser with 40-bit encryption. Domestic USA users can also use **nmos128** to provide a higher level, 128-bit, encryption.

Using the Browser on a Quick Start Card

If you are using the NCD Mosaic Browser from a Quick Start PCMCIA card, the functionality differs from that of the browser downloaded from a network host. The differences depend on the external network services available to the browser.

In environments in which the NCD Display Manager (**ncddm**) and NFS (Network File System) are operating on a host accessible to the network computer:

- You cannot change the browser preference files easily because the card is write-protected
- You can use only the 40-bit encrypted version of the browser (**nmosaice**). If you set Setup ⇒ Change Setup Parameters ⇒ Browser ⇒ Browser Module to select any other than **nmosaice**, the browser does not load.

In environments in which no host is available to provide services, the differences are greater:

- Without NFS file services, browser function is limited:
 - The user cannot view the source for HTML files
 - The Save As and Open Local commands cannot list either files in a directory or directories in a directory. Therefore, the user cannot navigate through a directory tree by clicking on directory names.
 - Helpers cannot be used
 - Preference files cannot be written
- If you need additional fonts, you must add them to the Quick Start card
- You cannot save a hotlist or history file from session to session
- The **.nmosaic-prefs** and the **.nmosaic-viewers-default** files are not contained on the card, so the parameters normally contained in them cannot be changed
- You cannot play video or audio links because they require temporary storage for downloading data prior to playback

NCD Display Manager

The NCD Display Manager is a host-based daemon that provides local clients with information about the user currently logged in. The NCD Display Manager and a helper utility, *ncdloguser*, are installed and started on the login host when you use *ncdinstall* to install NCDware and select NFS as the file access method. *ncdloguser* records information in a log file for use by NCD Display Manager. You must manually enable the NCD Display Manager in the network computer's Setup menus.

If the NCD Display Manager is enabled on the network computer, the network computer queries the host-based daemon for the user's name (*USER*), home directory (*HOME*), and the UID and GID. The login user's home directory is added to the network computer's file service table, but you must arrange to export it from the host.

See the *NCDware System Administrator's Guide for UNIX Systems* for more information.

Light Pen

The Explora, Explora Pro, and Explora 400/450 series of network computers support the FTG Data Systems PXL-795 light pen.

You can use a light pen in place of a mouse or you can use it in conjunction with a mouse.

A light pen must detect light in order to determine its position on a display. As a result, you cannot use your light pen in areas of the display that are very dim or completely black unless you enable the light pen's blue flood feature.

See the *NCDware User's Guide* for more information.

Document Imaging Subset (DIS)

The DIS portion of XIE is supported on the Explora, Explora Pro, and Explora 400/450 series network computers. DIS provides basic imaging functions such as rotation, scaling, and compression and decompression of images. It replaces SIE (Simple Imaging Extension) provided in earlier NCDware releases for the Explora and Explora Pro.

Full XIE capability is supported on the HMX and Explora 700 network computers.

Wireless Support

A wireless network consists of wireless Explora network computers and Proxim wireless LAN Access Points attached to an Ethernet network. Network computers can use Access Points to boot and to communicate with hosts on the Ethernet network.

Wireless network computers have the same access to network application software, printers, e-mail, and other network services as do network computers connected to the network through Ethernet cabling.

Explora 400/450 series network computers can be used on a wireless network. Each wireless NC must have a Proxim RangeLAN2 7200 or 7400 wireless LAN adapter installed. The LAN adapter is a PCMCIA card (PC card) with an antenna and is an optional item that you can purchase from Proxim, Inc. The LAN adapter functions as an Ethernet network interface without a cable.

For wireless use, the NC must have Boot Monitor 2.9 or later, which includes the wireless commands and other features for wireless use.

There must be at least one Proxim Access Point connected to an Ethernet network. Network computers must have IP addresses on the same subnet as the Access Point. Therefore, each subnet involved in the wireless network must have its own Access Point(s).

NCDware 5.0.129 must be installed on an Ethernet network host that is accessible by the wireless network computers.

See the *NCDware System Administrator's Guide for UNIX Systems* for more information.

PEX

NCDware 5.0.129 is the last release of NCDware to support PEX. PEX is a 3D graphics extension to the X Window System protocol. HMX and Explora 700 models of NCD network computers support PEX options.

NCDware provides OpenGL as a replacement for PEX. The OpenGL graphics extension included in NCDware provides support needed to run OpenGL-based graphics programs with output to the HMX and Explora 700 network computer models.

Remote Configuration File Updates and Parameter Changes

The following sections describe:

- New remote configuration parameters
- Revised remote configuration parameters
- An obsolete remote configuration parameter

The *Remote Configuration Parameter Quick Reference* describes the remote configuration parameters in detail.

New Remote Configuration Parameters

This release of NCDware includes the new remote configuration parameters listed in Table 9.

Table 9 New Remote Configuration Parameters

Parameter Name	Description
boot-prom-update-file	Updates the Boot Monitor when the network computer is rebooted.
browser-auto-load-images	Specifies if the NCD Mosaic Browser will automatically load Web pages.
browser-cache-size	Specifies maximum size of the memory cache in kilobytes.
browser-environment	Specifies the variables for the NCD Mosaic Browser.
browser-ftp-proxy-host	Specifies the host that runs an FTP proxy server.
browser-ftp-proxy-host-port	Specifies the TCP/IP port on which the FTP proxy server listens for connections.
browser-ftp-proxy-overrides	Specifies the FTP proxy domains that avoid or override the proxy host.
browser-gopher-proxy-host	Specifies the host that runs a gopher proxy server.
browser-gopher-proxy-host-port	Specifies the TCP/IP port on which the gopher proxy server listens for connections.
browser-gopher-proxy-overrides	Specifies the gopher proxy domains that avoid or override the proxy host.
browser-home-page	Specifies the home page loaded by the NCD Mosaic Browser when it starts.
browser-http-proxy-host	Specifies the host that runs an HTTP proxy server.
browser-http-proxy-host-port	Specifies the TCP/IP port on which the HTTP proxy server listens for connections.
browser-http-proxy-overrides	Specifies the HTTP proxy domains that avoid or override the proxy host.
browser-java-applets	Specifies that Java applets are executed when included in Web contents.
browser-jscript-active	Specifies that Jscript/JavaScript routines are executed when Web contents are loaded.
browser-max-connections	Specifies the maximum number of TCP/IP connections that the NCD Mosaic Browser can open concurrently.
browser-module	Specifies the NCD Mosaic Browser module that is loaded.
browser-print-table	Specifies the printers available for printing from the NCD Mosaic Browser. By default, this is an empty table.

Table 9 New Remote Configuration Parameters (Continued)

browser-show-tool-bar	Specifies that the NCD Mosaic Browser toolbar is displayed.
browser-smtp-email-server	Specifies the SMTP electronic mail server host.
browser-socks-host	Specifies the host that runs the SOCKS daemon, which approves requests from outside the local network for a network resource.
browser-socks-port	Specifies the TCP/IP port on which the SOCKS daemon listens for connections.
exec-command-menu	Specifies the local commands in the default root window menu.
exec-user-access-control	Specifies that requests to start local commands with a remote shell command are restricted to the user logged into the terminal. Takes effect only if the NCD Display Manager and XDM are running on the login host.
java-appletviewer-command	Specifies the Java command line for starting <i>appletviewer</i> .
java-cache-class-file	Specifies that the Java classes shipped with NCDware are loaded and cached in memory.
java-directory	Specifies the pathname of the directory where Java class and properties files are located.
login-ncddm-enabled	Specifies if the network computer should query the NCD Display Manager (<i>ncddm</i>) on the login host for the username, home directory, and NFS GID and UID of the user logged in on the network computer. The login host must be running a login service shell such as XDM.
login-ncddm-tcp-port	Specifies the TCP port on which the NCD Display Manager (<i>ncddm</i>) listens for requests for user information.
net-domain-channel	Specifies the domain number of a wireless Explora 400/450 network computer.
net-minimum-data-buffers	Specifies the minimum number of pre-allocated network buffers. Normally, network buffers are allocated as needed.
net-roaming-condition	Specifies the speed at which a wireless Explora 400/450 network computer roams from one Access Point to another.
pref-environment	Specifies environment variables for local clients.
pref-opengl-debug	Specifies that memory checks and debug statements are enabled.
tcp-default-mss-for-non-local	Specifies the segment sizes to be used when communicating with non-local hosts.
tcp-name-cache-ignore-case	Specifies that case is ignored when searching for a name in the local name cache.

Table 9 New Remote Configuration Parameters (Continued)

pwireless-interface-table	Lists Token-Ring status and parameter values for an 802.5 interface (read-only). Applies to Explora 400/450 network computers only.
pwireless-statistics-table	Lists wireless statistics (read-only). Applies to Explora 400/450 network computers only.
xserver-enable-local-lightpen-blue-flood	Enhances the lightpen's ability to distinguish light from dark. For Explora, Explora Pro, Explora 400/450 network computers only.
time-zone	Specifies the time zone file (in /usr/lib/X11/ncd/zoneinfo) corresponding to the location of the network computer.

Revised Remote Configuration Parameters

Table 10 summarizes changes to remote configuration parameters from NCDware 4.1 to NCDware 5.0.

Table 10 Revised Remote Configuration Parameters

Parameter Name	Description of Changes
modules-load-policy	The SNMP name has changed to ncdModulesLoadPolicy. The SNMP path for the index field has changed to ncdModulesLoadPolicyTable 1. The SNMP path for the name field has changed to ncdModulesLoadPolicyTable 2. The SNMP path for the policy field has changed to ncdModulesLoadPolicyTable 3.
time-offset-from-gmt	Specifies the offset from Greenwich Mean Time (GMT) in minutes instead of hours.

Obsolete Remote Configuration Parameter

The **ncd3270-enable-3270-emulation** parameter is no longer available.

Changes in the Console

The following changes have been made in the Console:

- ❑ Numerous new parameters are accessible through the Setup menus. See “Remote Configuration File Updates and Parameter Changes” on page 28 for a list of new parameters. For their Console location, see the *Remote Configuration Parameter Quick Reference*.
- ❑ The Utilities menu contains the following new items:
 - Utilities ⇒ Start Local Command displays a window where you can enter a command line for a local client or local command.

- Utilities ⇒ Start NCD Mosaic Browser starts the NCD Mosaic Browser.
- Utilities ⇒ Start Java Applet displays a window where you can type a URL for a Java applet.
- ❑ The Statistics menu contains the new item Statistics ⇒ Show Wireless that displays information about the wireless Access Point. This item appears on Explora, Explora Pro, and Explora 400/450 network computers only.

Recent Boot Monitor Changes

This section describes recent changes in Boot Monitor firmware, including:

- ❑ Current Boot Monitor versions for the HMX family of network computers (HMX, HMXpro, and HMXpro24), and the Explora, Explora Pro, Explora 400/450 series, and Explora 700 network computers
- ❑ Updating the Boot Monitor over the network for Explora 400/450 series and Explora 700 network computers

Boot Monitor 2.8

Boot Monitor 2.8 is the current version for the HMX family of network computers (HMX, HMXpro, and HMXpro24), and the Explora and Explora Pro network computers.

Boot Monitor 2.8.3 corrects a RAMDAC problem related to the video monitor that existed in version 2.8.2. It adjusts the RAMDAC clocks to correct the problem. The RAMDAC problem occurred on HMX network computers only.

Boot Monitor 2.9

Boot Monitor 2.9 is the current version for Explora 400/450 series and Explora 700 network computers. Boot Monitor 2.9 includes the features of previous versions in addition to:

- ❑ Support for the Explora 400/450 series and Explora 700 hardware platforms
- ❑ Support for the wireless network computer
- ❑ Determining the best resolution for the monitor and setting its resolution
- ❑ Support for Boot Monitor updates over the network

Updating the Boot Monitor

On Explora 400/450 series and Explora 700 network computers you can download an updated Boot Monitor from the host using a remote configuration file.

Caution

Do not turn off power to the network computer while the Boot Monitor is being updated. If the update process is interrupted before the new Boot Monitor is written to PROM, the Boot Monitor will not have the settings necessary to operate the NC. In that case, you would have to return the base to the factory for rework.

For this reason, NCD recommends that you promptly reboot NCs as soon as you have configured them for Boot Monitor update and that you not configure NCs for Boot Monitor update when power outages are likely to occur.

To download a new Boot Monitor version, set the **boot-prom-update-file** parameter to the absolute pathname of a file that contains a new Boot Monitor image. Such files are available from NCD whenever the Boot Monitor is updated. When it boots, the NC attempts to update its boot PROM with the new image. The update process begins as soon as the NC receives and verifies the entire update file.

If the X server detects that the Boot Monitor in the NC is an earlier version, it downloads the new version. If the NC's Boot Monitor is the same or a later version, no action is taken. The update process takes about 15 seconds.

Problems Fixed Since NCDware 4.1

Since the release of NCDware 4.1, the known problems described in this section have been fixed. Problem numbers listed are the numbers by which the problems were identified in NCD's problem database.

Table 11 Summary of Problem Solutions Since NCDware 4.1

Problem Number	Description of Solution
4954	There is now a message indicating that parameters were successfully saved to NVRAM when you select <code>Save to NVRAM</code> from the File menu in Setup ⇒ Change Setup Parameters.
7447	A problem that resulted in memory depletion when running the Video Player in loop mode has been fixed.
7601	The Keyboard hide box's <code>Enable Keyboard Autorepeat</code> toggle, which is enabled by default, can now be disabled.
7674	Running <code>ncdsendvideo</code> on an x86 host with Solaris no longer results in a network computer panic.
7678	The item <code>Restore Factory Defaults</code> in the File menu has been changed to <code>Restore Defaults</code> . This item restores the network computer to the boot-time configuration.

Known Problems

This section describes:

- ❑ Features of NCDware 5.0.129 that are not fully functional or may not work exactly as described in NCDware manuals
- ❑ Limitations in NCDware 5.0.129
- ❑ Compatibility issues with certain host systems and applications

Please contact NCD Technical Support if you need assistance with any of these problems. Refer to “In Case of Trouble” on page 42 for information on how to contact NCD Technical Support.

If there is a problem number from NCD’s problem database, that number is included in the problem description.

Table 12 Summary of Problems

Problem Number	Description of Problem
<i>Audio</i>	
9418	You will hear popping sounds when you start or stop an audio file on Explora 700 network computers.
<i>Boot Monitor and NVRAM</i>	
	If you have run a new X server, and later decide to run an X server from a previous release, reset NVRAM to its default settings. At the Boot Monitor prompt (>), load defaults by using the l command, followed by the s command (save), and q command (quit).
9504	The boot monitor un command requires the file extension .dump , which is not consistent with the existing up command. For example: % un /mydir/crash.dump ncdip hostip gateway
<i>Booting the Network Computer</i>	
9341	If you select NFS as the file service during installation, the ncdinstall utility does not configure the TFTP file service.
9363	The Explora 400/450 series network computers require the NCDware 5.0 version of Xncdxpl . If you attempt by mistake to boot your Explora 400/450 series network computer using a previous version of Xncdxpl , the NC displays a misleading message, and does not boot: <code>Starting server, please wait...</code> You must reboot using the NCDware 5.0 server version.

Table 12 Summary of Problems (Continued)

Problem Number	Description of Problem																																																
<i>Configuration</i>																																																	
4865	<p>When configuring a network computer to boot via NFS in the NVRAM Setup menus, you must specify the boot directory with a trailing slash (/). Otherwise, the network computer does not boot properly. For example, if the boot directory is /tftpboot, specify it as /tftpboot/ in the Setup menu.</p> <p>In some cases, the network computer does not boot correctly if you insert a leading space in the X server filename.</p>																																																
9453	<p>NCDware sets the lat-service-directory-max-size parameter to zero in the configuration file, but zero is not a valid value for this parameter. When rebooting, NCDware displays a message stating that this is not a valid value.</p> <p>To correct this situation, either remove the lat-service-directory-max-size parameter from your configuration file, or set the parameter to a value between 25 and 100.</p>																																																
<i>Console</i>																																																	
	<p>The Clear All button in Statistics ⇒ Show Statistics does not clear all statistical parameters. Parameters for which the values are not cleared are:</p> <table border="0"> <tr> <td>font-object-count</td> <td>snmp-packets-transmitted</td> </tr> <tr> <td>font-objects-currently-in-use</td> <td>tcp-ack-only-packets-transmitted</td> </tr> <tr> <td>font-total-fonts-loaded</td> <td>tcp-ack-packets-received</td> </tr> <tr> <td>icmp-destination-unreachables-received</td> <td>tcp-established-connections</td> </tr> <tr> <td>icmp-destination-unreachables-transmitted</td> <td>tcp-maximum-retransmission-time</td> </tr> <tr> <td>icmp-packets-received</td> <td>tcp-minimum-retransmission-time</td> </tr> <tr> <td>icmp-packets-transmitted</td> <td>tcp-packets-received</td> </tr> <tr> <td>ip-packet-reassembly-timeout</td> <td>tcp-packets-transmitted</td> </tr> <tr> <td>ip-packet-transmission-requests</td> <td>tcp-passive-connects-attempts</td> </tr> <tr> <td>ip-packets-received</td> <td>tcPIP-name-cache-hits</td> </tr> <tr> <td>ip-packets-received-and-delivered</td> <td>tcPIP-name-no-server-responses</td> </tr> <tr> <td>ip-packets-received-with-unknown-protocols</td> <td>tcPIP-name-requests</td> </tr> <tr> <td>net-available-buffers</td> <td>tcPIP-name-server-hits</td> </tr> <tr> <td>net-connection-control-structure-buffers</td> <td>tcPIP-name-system-errors</td> </tr> <tr> <td>net-connection-name-buffers</td> <td>tftp-ack-packets-transmitted</td> </tr> <tr> <td>net-interface-address-buffers</td> <td>tftp-data-packets-received</td> </tr> <tr> <td>net-number-of-interfaces</td> <td>tftp-file-read-requests-transmitted</td> </tr> <tr> <td>net-packet-data-buffers</td> <td>tftp-file-write-requests-transmitted</td> </tr> <tr> <td>net-protocol-control-structure-buffers</td> <td>tftp-no-file-error-responses-received</td> </tr> <tr> <td>net-reserved-data-buffers</td> <td>tftp-packets-retransmitted</td> </tr> <tr> <td>net-total-buffers</td> <td>udp-packets-received</td> </tr> <tr> <td>snmp-get-requests-received</td> <td>udp-packets-received-with-unknown-port</td> </tr> <tr> <td>snmp-get-responses-transmitted</td> <td>udp-packets-transmitted</td> </tr> <tr> <td>snmp-packets-received</td> <td></td> </tr> </table>	font-object-count	snmp-packets-transmitted	font-objects-currently-in-use	tcp-ack-only-packets-transmitted	font-total-fonts-loaded	tcp-ack-packets-received	icmp-destination-unreachables-received	tcp-established-connections	icmp-destination-unreachables-transmitted	tcp-maximum-retransmission-time	icmp-packets-received	tcp-minimum-retransmission-time	icmp-packets-transmitted	tcp-packets-received	ip-packet-reassembly-timeout	tcp-packets-transmitted	ip-packet-transmission-requests	tcp-passive-connects-attempts	ip-packets-received	tcPIP-name-cache-hits	ip-packets-received-and-delivered	tcPIP-name-no-server-responses	ip-packets-received-with-unknown-protocols	tcPIP-name-requests	net-available-buffers	tcPIP-name-server-hits	net-connection-control-structure-buffers	tcPIP-name-system-errors	net-connection-name-buffers	tftp-ack-packets-transmitted	net-interface-address-buffers	tftp-data-packets-received	net-number-of-interfaces	tftp-file-read-requests-transmitted	net-packet-data-buffers	tftp-file-write-requests-transmitted	net-protocol-control-structure-buffers	tftp-no-file-error-responses-received	net-reserved-data-buffers	tftp-packets-retransmitted	net-total-buffers	udp-packets-received	snmp-get-requests-received	udp-packets-received-with-unknown-port	snmp-get-responses-transmitted	udp-packets-transmitted	snmp-packets-received	
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Table 12 Summary of Problems (Continued)

Problem Number	Description of Problem
<i>Cut and Paste Between Clients</i>	
	<p>In NCD local clients, the default selection area is PRIMARY, but in OpenWindows, the selection area is CLIPBOARD. You must change PRIMARY to CLIPBOARD before attempting to cut and paste, using a resource similar to the following:</p> <pre>*stringSelections: CLIPBOARD</pre> <p>After this change, all local clients use CLIPBOARD instead of PRIMARY for all text selections.</p>
2076	<p>Key translations that specify multiple cut-and-paste selections or multiple cut buffers (such as translations for transferring data between local clients and OpenWindows clients) are not supported in local clients.</p>
<i>Floppy Drive Support</i>	
9419/9448	<p>The Explora 400/450 series and Explora 700 network computers might experience an occasional floppy drive failure. The NCD Console displays a message like the following when trying to run ncdfloppy:</p> <pre>OPEN failed: Unable to find floppy device. Unable to initialize floppy drive.</pre> <p>If you encounter this message, run ncdfloppy again.</p>
<i>Fonts and Font Server</i>	
	<p>If you use terminal emulation applications that make extensive use of line-drawing characters, make sure that the dw100dpi or dw75dpi font directory appears at the beginning of the network computer's font path. Otherwise, you may have trouble with both line-drawing characters and other special characters.</p>
<i>Installation</i>	
9038	<p>The NCDware CD insert contains installation procedures for installing NCDware on UNIX and WinCenter hosts. For information about manual installation, contact NCD Technical Support.</p>
9209	<p>The ncdinstall utility aborts if it gets a bad link with this error message:</p> <pre>test: argument expected.</pre>
<i>Java Virtual Machine</i>	
8556	<p>You need a minimum of 16 MB of memory in your NC to run the NCD Mosaic Browser and a minimum of 16 MB of memory to run Java. If you want to run both the browser and Java together, you need 24 MB of memory. However, NCD recommends 32 MB of memory in your NC for running the browser and Java together.</p>

Table 12 Summary of Problems (Continued)

Problem Number	Description of Problem
9298	<p>You may need to increase the net-minimum-data-buffers if the NCD Console displays messages like the following when trying to run Java Virtual Machine:</p> <pre>TERM-F-DISPLAY: Can't open the display connection. UI-F-NOCONN: Unable to connect to display ":.0." Possible low memory condition.</pre>
<i>Local Printing</i>	
	<p>Local printing from an NCD network computer only prints ASCII or PostScript files. Contact NCD Technical Support if you need to print PCL format files.</p>
	<p>When the printer finishes with a job, the message <code>Closed Session</code> should appear in the Console Messages hide box. If this message does not appear, you must explicitly close the connection using the <code>Abort Serial Line</code> command(s) in the Console menu.</p>
<i>Memory</i>	
7400	<p>Running local video decoding options on an HMXpro with 8 MB of memory might cause memory problems. NCD recommends that you have 12 MB of memory in your HMXpro if you want to run local decoding options.</p>
<i>NCD Mosaic Browser</i>	
8932	<p>To decrease the start time for the NCD Mosaic Browser, use the modules-load-policy parameter to add browser modules to your configuration file so that the modules load automatically at boot time. See “Decreasing Start Time for the Browser” on page 25 for more information.</p> <p>Use nmosaic to run the browser without encryption. Use nmosaice or nmos128 (domestic USA customers only) to run the browser with encryption.</p>
8989	<p>The left margin on some web pages may increase incorrectly because of problems with <code>BLOCKQUOTE</code> or <code>H4</code> tags.</p>
9127	<p>Use of the Home and End keys to move to the start and end of a document may not work as expected. If the keyboard focus is on a web page, Home and End may work. If they do not work, Shift-Home and Shift-End may work instead. If the keyboard focus is in a text-entry field or on any other portion of the browser, the Home and End keys do not work at all.</p>
9298	<p>You may need to increase the net-minimum-data-buffers if the NCD Console displays messages like the following when trying to run NCD Mosaic Browser:</p> <pre>TERM-F-DISPLAY: Can't open the display connection. UI-F-NOCONN: Unable to connect to display ":.0." Possible low memory condition.</pre>

Table 12 Summary of Problems (Continued)

Problem Number	Description of Problem
9342	<p>The Common Desktop Environment (CDE) sets a resource so that text displays white. With the NCD Mosaic Browser, certain pages such as the start page and help pages have a white background. As a result, the text on these pages does not display.</p> <p>To avoid this problem, set your screen background to any color other than white using Setup ⇒ Change User Preferences.</p>
9444	<p>NCD Mosaic Browser might attempt to use fonts, such as Palatino and ITC, that are not supplied by NCD. If you want to use these fonts, you must add them to your font path.</p>
9445	<p>NCD Mosaic Browser does not display in-line items in the Graphics Interchange Format (GIF) in the proper vertical position.</p>
9446	<p>NCD Mosaic Browser does not support background audio. Background audio is the music used by some Web sites.</p>
<i>NCDware Manuals</i>	
	<p>In <i>Using the 3270 Terminal Emulator</i>, on page 4-24 under “Applying Keymaps to Windows on the Desktop,” the manual says: “For a terminal emulator with a special class name, type the class name.”</p> <p>Entering a special class name (instance name) has no effect. If you enter the ncd3270 class name, the current keymap is applied to all open 3270 emulator windows. If you enter the NCDterm class name, the current keymap is applied to all open VT320 emulator windows. (In other contexts, the instance name overrides the class name.)</p>
6138	<p>In <i>Using the 3270 Terminal Emulator</i>, the -trans command-line option and translations resource, which are documented in the man page and on page 4-24, are for specifying Xt-style translations directly (instead of loading them from a file, as is stated incorrectly in the documentation).</p> <p>For example, to use the -trans option:</p> <pre>rsh ncd3270 tn3270 -trans "<Key>KP_Enter:Enter()"</pre> <p>or</p> <pre>rsh ncd3270 tn3270 -trans "Ctrl<Key>4:onecharacter(0X4A)"</pre> <p>Do not use multiple translations or include spaces in the translations. Use the -transfile filename command-line option to load a translation file.</p>
	<p>In the NCDware CD insert on p. 12, two symbolic links are omitted from the list of items installed by ncdinstall. They are a link (/tftpboot/help) to the help directory containing the browser help files and a link (/tftpboot/java) to the java directory containing the Java classes. For a list of the directories and X servers installed by the installation script, see “Software Installation” on page 6 of this document. For more information about the Java and browser software, see the <i>System Administrator’s Guide</i>.</p>
9341	<p>The NCDware CD insert does not say explicitly that if you select to install NFS for file service, ncdinstall does not configure TFTP for file service.</p>

Table 12 Summary of Problems (Continued)

Problem Number	Description of Problem
<i>PCMCIA Cards</i>	
9438	Quick Start PCMCIA cards execute the reclaim command any time it is issued. This occurs even if the card is write-protected.
9459	<p>Quick Start PCMCIA cards are shipped write-protected. To write-enable the card, move the write-protect switch to the off position. Do not change the card's write-protection without rebooting your network computer or you will corrupt the card and experience unpredictable results.</p> <p>If you want to change a card's write-protection, NCD recommends that you bring down your network computer, set the switch to the desired write-protection, and reboot your network computer.</p>
9462	Quick Start PCMCIA cards execute the mkdir command any time it is issued. This occurs even if the card is write-protected.
<i>Video</i>	
7385/7681	ncdsendvideo may abort when fast-forwarding with the CompCore video fast MPEG decoder turned on.
7449	When using the CompCore video fast MPEG decoder to play very small video clips that do not include an audio portion, replaying the video might skip some frames.
<i>Window Managers and Application Launchers</i>	
	The NCD Window Manager ignores the WM_NORMAL_HINTS maximum size property when it initially sizes the window.
4939	The resources menuFont and Font cannot be used to specify different fonts for the title and menus provided by ncdlauncher . If both are specified, the font specified by menuFont is used for both the menus and the title.
6074	The line continuation character (a backslash at the end of the line) does not work in .launchrc files. You can work around this problem by using a single long line.
7546	<p>The launcher may generate an error message such as the following when it starts:</p> <pre>xlib: failed to load locale file: /usr/lib/X11/nls/ISO8859-1</pre> <p>Although the error message appears, the utility works.</p>
<i>X Display Manager (XDM)</i>	
6019	Setting the login-restrict-host-choices parameter to "true" disables the View menu in the Login Chooser. The View menu can be reenabled, however, by bringing up the Sort menu, holding down mouse button 1, and moving to the View menu.

Accessing NCD Support Files and Utilities

NCD maintains an archive of utilities that are not included on the NCDware CD-ROM and technical tips on numerous subjects related to network computer use. To view and retrieve these utilities and articles you can connect to the archive through FTP or NCD's World Wide Web server.

Using FTP

To connect to the archive using FTP:

1. Type the command:
`% ftp ftp.ncd.com <CR>`
The following prompt is displayed:
Name (ftp.ncd.com: *your login name*) :
2. After the prompt, type the word `anonymous` or `ftp` and press Return to display the password prompt.
Password:
3. Type your login ID after the password prompt and press Return. The FTP prompt displays; you can type FTP commands (including `help` for a list of commands).
ftp>
4. For a list of files available on the server, use the `get` command to download the file `pub/ncd/Archive/ls-IR`. (Depending on the version of UNIX your host is running, you may need to type a backslash (\) before the `-IR` portion of the filename.)

Using the World Wide Web

To connect to the World Wide Web server, use a Web browser. NCD's URL is <http://www.ncd.com>.

To see the utilities and tip archives listing, select the Service and Support page, select your product line (for example, Explora), and then select Technical Notes.

In Case of Trouble

If you encounter difficulties, either contact your local NCD representative or:

- Phone NCD Technical Support at (503) 641-2200 or, in the USA, (800) 800-9599.
- Send a FAX to NCD Technical Support at (650) 903-7426
- Send e-mail to NCD Technical Support at support@ncd.com
- See NCD's home page at <http://www.ncd.com>

For information on services available from NCD Technical Support, contact your NCD representative or send e-mail to info@ncd.com.

Regardless of the method you use to report the problem to NCD, you must have the following information ready:

- Your name and title
- Company or organization
- Phone number
- FAX number
- E-mail address
- Billing address
- Shipping address

- For each hardware item:
 - Serial number
 - Description of the problem
 - Type of warranty (Standard, Express, Extended, Express Exchange, Out-of-Warranty)

- For a software problem:
 - Problem type: question, enhancement, bug, crash, or other
 - Type of host and its operating system release
 - Window manager
 - Boot Method: TFTP, NFS, PROM, PCMCIA, or MOP
 - Model of NCD network computer
 - Amount of installed memory
 - NCDware version
 - NCDware Boot Monitor version
 - Detailed problem description

Comments on This Document

You can send comments, suggestions, or questions about this document to the NCD Technical Publications Department by Internet e-mail. Write to techpubs@ncd.com.

