UnixWare 7.1.4

Getting Started Guide

Document Version: UnixWare 7.1.4

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Table of Contents

About this book

This book provides the installation and configuration instructions you need to get your UnixWare® system up and running. You will find the information you need more quickly if you are familiar with:

- "How this book is organized" on page v

- "Related documentation" on page vii

How this book is organized

- Chapter 1: "CD Contents, Licensing, Installation Profiles, and Support" on page 1

  Provides important information about the contents of each CD-ROM, licensing and registering system components, including a list of license editions and the components and system limits enabled by each license), installation profiles, obtaining system updates, and support.

- Chapter 2: "Before You Begin" on page 19

  Helps you gather the information you need for a successful installation, including determining whether your system hardware is supported and meets minimum requirements, and provides checklists to ensure that the installation runs smoothly.

- Chapter 3: "Installing UnixWare" on page 51

  This chapter tells you how to perform fresh installations and upgrades, including installing the Linux Kernel Personality (LKP). The installation of all the CD-ROMs available in the standard Media Kit is described, as well as how to set up a network Install Server (an Install Server allows you to install or upgrade other systems on your network from CD-ROM images on the server).

- Chapter 4: "After you install" on page 71

  Tells you where to find more information on performing the tasks that are typically done after a fresh install. This includes setting up users and groups, configuring networking, and enabling various features (such as large memory support and auditing).

- Chapter 5: "Using the License Manager" on page 83

  This chapter tells you how to apply user and network licenses, licenses for optionally purchased products, applications, and the SCO Update Service. While many products prompt for license information during installation, you may need to upgrade an existing product license (for example, from an evaluation license). Some features are limited by license (such as number of concurrent users), and the limits are increased through the application of an additional license.

- Appendix A: "Installing Hardware" on page 95

  The Appendix describes using the Device Configuration Utility (DCU) to install and configure devices during installation. This is usually necessary only if a device is not auto-detected during installation.

Related documentation

Comprehensive online documentation is available via the DocView documentation server. Point any browser at **http://localhost:8458**. Use the **/usr/bin/docview** command to determine if the server is running and start it if necessary.

The online documentation includes a *New Features and Notes* section that details the new and updated features provided with each release. Also of interest are links to the *Linux Kernel Personality* (LKP) documentation, the *Handbook* (an online guide to many commonly used system administration tasks, such as managing users, starting and stopping the system, working with filesystems, and configuring printers), *Internet and Intranet*, *Hardware*, and the *Manual Pages*. Additional documentation is installed with the various optional components and the development kits.

Complete product documentation is available on the Documentation Web Page at **http://www.sco.com/support/docs/unixware**. Additional help, including a searchable knowledge database, can be found on the Support Web Page at **http://www.sco.com/support**. Many useful publications by independent authors are available from technical bookstores.

Chapter 1:

CD Contents, Licensing,
Installation Profiles, and Support

The UnixWare product line is a family of runtime software, development kits, and optional licenses, products, and services that enable you to tailor a system to meet your computing needs. This chapter provides the background information you need to know about this release of UnixWare in order to successfully complete installation, and get help when you need it. For more information on the UnixWare product family, please go to **http://www.sco.com/products**.

- "CD-ROM Contents" on page 2

- "Licensing Software" on page 10

- "Registration" on page 15

- "Installation Profiles" on page 16

- "Obtaining additional media" on page 17

- "SCO Global Services" on page 17

CD-ROM Contents

Release 7.1.4 includes the following software on CD-ROM. For detailed descriptions of new and updated software see the *Release Notes*. All software is described in the online documentation and manual pages.

The *Release Notes* are at the top of CD #1, #2, and #3 in the file *relnotes.html* (text and PDF versions are also available). Once the system is installed, the *Release Notes* and the entire documentation set (including manual pages) can be viewed by pointing any browser at the DocView server (**http://***hostname***:8458**, where hostname is the network node name of the installed UnixWare system, or **localhost**). The *Release Notes* are under *New Features and Notes* in the online documentation.

Package/Set	Description	Version
Base Operating System CD #1: Bootable CD. If CD boot is not supported, use installation, HBA, and network boot diskettes under */info/images*.		(7.1.4/8.0.2 unless noted)
UnixWare	Base Operating System ISL image	
UpdateSet	UnixWare 7.1.4 Base Update Set	
acl	Access Control List Utilities	
acp	Enhanced Application Compatibility	
adpu320	Adaptec Ultra320 Family PCI SCSI IHV HBA	7.1.3b
adsa	Adaptec AIC-7770 EISA SCSI IHV HBA	8.0.0
adsb	Adaptec 7800 Family PCI Ultra2 SCSI HBA Driver	8.0.0
adsc	Adaptec SCSI IHV HBA	8.0.0
adse	Adaptec EISA SCSI IHV HBA	8.0.0
adsl	Adaptec 7800 Family PCI SCSI IHV HBA	8.0.1
adss	Adaptec AIC-6x60 SCSI IHV HBA	8.0.0
adst70	Adaptec Ultra160 Family PCI SCSI IHV HBA	7.1.3b
amd	AMD PCI SCSI HBA	8.0.0
apache	Apache Web Server	1.3.29
audio	Audio Subsystem	
audit	Auditing Subsystem	
base	Base System	
basedoc	Base System Guides	
baseman	Base System Manual Pages	
basex	X11R6 Base X Runtime System	

Package/Set	Description	Version
blc	BusLogic SCSI HBA Driver Package	8.0.0
bsdcompat	BSD Compatibility	
c8xx	Symbios, Inc. 53c8xx PCI SCSI HBA Driver	8.0.1
ciss	Compaq CISS HBA	8.0.1
cmds	Advanced Commands	
cpqsc	Compaq Wide-Ultra SCSI Device Driver	7.38a
dak	MDAC SCSI HBA Driver Package	8.0.0
debasedoc	Base System Guides (German)	
dele	German Language Extension for UnixWare	
dfs	Distributed File System Utilities	
doc	Set: installs docview, basedoc, baseman	
docview	DocView Online Documentation Server	
dpt	DPT SCSI HBA Driver	8.0.0
dshm	Large Memory Support Package	
encrypt	Strong Encryption Supplement	
esbasedoc	Base System Guides (Spanish)	
esle	Spanish Language Extension for UnixWare	
expect	expect	5.22
flashpt	BusLogic/Mylex flashpt SCSI HBA Driver Package	8.0.0
frbasedoc	Base System Guides (French)	
frle	French Language Extension for UnixWare	
glib	Utility library for gtk 1.2	1.2.10
gtk	Gimp ToolKit 1.2	1.2.10
i2oOSM	i2o Block Storage OSM	8.0.1
ida	Compaq SMART Array Controller HBA	7.38a
ide	Generic IDE/ATAPI Driver	7.1.3a
iir	Intel Integrated Raid (IIR) Driver Package - v2.33	7.1.3a
inet	Internet Utilities	
j2jre131	J2SE Runtime Environment 1.3.1	1.3.1.10
j2plg131	J2SE 1.3.1 - Java Plug-in	1.3.1.10
jabasedoc	Base System Guides (Japanese)	
jabaseman	Base System Manual Pages (Japanese)	
jale	Japanese Language Extension for UnixWare	
kdb	Kernel Debugger	
ldap	Lightweight Directory Access Protocol services	
libC	UnixWare Runtime C++ Library	
libIDL	CORBA Interface Definition File (IDL) Library	0.6.8
libc	UnixWare Runtime C Library	
libm	UnixWare Runtime Math Library	

Package/Set	Description	Version
libosr	Runtime OpenServer Libraries	
libthread	Runtime Thread Library	
lp	Printer Support	
ls	Language Supplement	
mozilla	Mozilla 1.2.1	1.2.1a
mpio	Multipath I/O Driver	
mtfrun	OSF Motif 1.2.5 Runtime Environment	
nd	Network Drivers	
netbios	TPI NetBIOS	
netmgt	Network Management Utilities	
nfs	Network File System Utilities	
nics	Netdriver Infrastructure and Configuration Subsystem	
nis	Network Information Service	
nsu	Network Support Utilities	
openssh	Open Secure Shell	3.7.1p2
openssl	OpenSSL - Secure Sockets Layer / TLS Cryptography Toolkit	0.9.7c
osmp	OS Multiprocessor Support (OSMP)	
perl5	Perl 5.004	5.004_04
ppp	The Point-to-Point Protocol (PPP)	
qlc1020	QLogic QLC1020 PCI SCSI IHV HBA Driver	8.0.0
qlc12160	QLogic QLC12160 PCI SCSI IHV HBA Driver	8.0.0
qlc1280	QLogic QLC1280 PCI SCSI IHV HBA Driver	8.0.0
qlc2100	QLogic QLC2100 Fibre Channel IHV HBA Driver	8.0.0
qlc2200	QLogic QLC2200 Fibre Channel IHV HBA Driver	8.0.1
qlc2300	QLogic QLC2300 Fibre Channel IHV HBA Driver	8.0.2
rpc	Remote Procedure Calls Utilities	
scoadmin	SCO System Administration (SCOadmin)	
server	Server Utilities	
syshead	System Header File Update Package	
tclrun	Tcl Runtime package	7.6
TED* packages	TriTeal Enterprise Desktop (CDE Desktop)	
terminf	Terminfo Utilities	
uccs	UDK Optimizing C Compilation System	
udidk	UDI 1.01 Development Kit	
udienv	UDI 1.01 Runtime Environment	
uedebug	UDK Enhanced Debugger	
urwfonts	(URW)++ Free X11 Fonts	2.0
usb	USB 2.0 Drivers	
vtclrun	Vtcl Runtime package	1.2.0a

Package/Set	Description	Version
vxva	VERITAS ODM Visual Administrator	3.2
vxvm	VERITAS Volume Manager	3.2
xclients	X11R6 X Clients	
xcontrib	X11R6 Contributed X Clients	
xdrivers	X11R6 Graphics Drivers	
xfonts	X11R6 Fonts	
xserver	X11R6 X Server	
zlib	General Purpose Data Compression Linrary	1.2.1

Base Operating System/Upgrades CD #2: Packages shown below with an asterisk (*) are new for UnixWare 7.1.4 and do *not* appear on CD #1. All other packages are the same versions that appear on CD #1; these duplicate packages are on CD #2 to Upgrade systems running previous releases.

Package/Set	Description	Version
UpdateSet	UnixWare 7.1.4 Base Update Set	
adpu320	Adaptec Ultra320 Family PCI SCSI IHV HBA	7.1.3b
adsa	Adaptec AIC-7770 EISA SCSI IHV HBA	8.0.0
adsb	Adaptec 7800 Family PCI Ultra2 SCSI HBA Driver	8.0.0
adsc	Adaptec SCSI IHV HBA	8.0.0
adse	Adaptec EISA SCSI IHV HBA	8.0.0
adsl	Adaptec 7800 Family PCI SCSI IHV HBA	8.0.1
adss	Adaptec AIC-6x60 SCSI IHV HBA	8.0.0
adst70	Adaptec Ultra160 Family PCI SCSI IHV HBA	7.1.3b
amd	AMD PCI SCSI HBA	8.0.0
apache	Apache Web Server	1.3.29
basedoc	Updated Base System Guides	
baseman	Updated Base System Manual Pages	
basex	X11R6 Base X Runtime System	
blc	BusLogic SCSI HBA Driver Package	8.0.0
c8xx	Symbios, Inc. 53c8xx PCI SCSI HBA Driver	8.0.1
cdrtools	Audio and data CD recorder	1.11a21
ciss	Compaq CISS HBA	8.0.1
cpqhpcd	Compaq PCI Hot-plug driver	7.48
cpqsc	Compaq Wide-Ultra SCSI Device Driver	7.38a
cups*	Common Unix Printing System	1.1.19-01
cupsdev*	Common Unix Printing System Development Environment	1.1.19
cupsdoc*	Common Unix Printing System Documentation	1.1.19
dak	MDAC SCSI HBA Driver Package	8.0.0
db*	db - Berkeley DB library for OpenLDAP	4.1
debasedoc	Base System Guides (German)	
dmi	Desktop Management Interface	2.01

Package/Set	Description	Version
doc	Set: installs docview, basedoc, baseman	
docview	DocView Online Documentation Server	
dpt	DPT SCSI HBA Driver	8.0.0
eels	Enhanced Event Logging System	
encrypt	Strong Encryption Supplement 1.0	1.0
esbasedoc	Base System Guides (Spanish)	
flashpt	BusLogic/Mylex flashpt SCSI HBA Driver Package	8.0.1
foomatic*	Foomatic Filters and PPDs	7.38a
frbasedoc	Base System Guides (French)	7.1.3a
gimpprint*	Gimp-print Printer Drivers	7.1.3a
glib*	Utility library for gtk 1.2	1.2.10
gs*	ESP Ghostscript - PostScript/PDF Interpreter and Renderer	7.05.6
gtk*	Gimp ToolKit 1.2	1.2.10
hpijs*	HP Inkjet Printer Driver	1.5
i2oOSM	i2o Block Storage OSM	8.0.1
ida	Compaq SMART Array Controller HBA	7.38a
ide	Generic IDE/ATAPI Driver	7.1.3a
iir	Intel Integrated Raid (IIR) Driver Package - v2.33	7.1.3a
intelhpcd	Intel PCI Hot-plug driver	7.20
j2jre131	J2SE Runtime Environment 1.3.1	1.3.1.10
j2jre142*	J2SE Runtime Environment 1.4.2	1.4.2.03
j2plg131	J2SE 1.3.1 - Java Plug-in	1.3.1.10
j2pls131	Java 2 Standard Edition, version 1.3.1, Demos & Debug	1.3.1.10
j2sdk131	Java 2 Standard Edition, version 1.3.1	1.3.1.10
j2sdk142*	Java 2 Standard Edition, version 1.4.2	1.4.2.03
jabasedoc	Base System Guides (Japanese)	
jabaseman	Base System Manual Pages (Japanese)	
javaxcomm*	Java Communications API, vers. 2.0, for use with Java SDK	2.0
jpeg*	JPEG Library and Utilities	6b
libC	UnixWare Runtime C++ Library	
libIDL*	CORBA Interface Definition File (IDL) Library	0.6.8
libc	UnixWare Runtime C Library	
libm	UnixWare Runtime Math Library	
libosr	Runtime OpenServer Libraries	
libpng*	PNG (Portable Network Graphics) Library	1.2.5
libthread	Runtime Thread Library	
lkpdoc	Linux Kernel Personality (LKP) Doc	
LocalDoc	Set: installs non-English Documentation	
lxrpms	RPM Packages	

Package/Set	Description	Version
lxsetup	Linux Initial Setup	
lxsupport	Linux Support Utilities	
modem	Modem Utilities Package	
mozilla*	Mozilla 1.2.1	1.2.1a
mtfrun	OSF Motif 1.2.5 Runtime Environment	
nd	Network Drivers	
netmgt	Network Management Utilities	
nics	Netdriver Infrastructure and Configuration Subsystem	
openldap*	openldap - Open Source OpenLDAP software suite	2.1.22
openslp	Open Service Location Protocol	1.0.6a
openslpd	Open Service Location Protocol Documentation	1.0.6a
openssh	Open Secure Shell	3.7.1p2
openssl	OpenSSL - Secure Sockets Layer / TLS Cryptography Toolkit	0.9.7c
openssld	OpenSSL Documentation	0.9.7c
perl*	The Perl Programming Language v5.8	5.8.3
perl5	Perl 5.004	5.004_04
pgsql*	PostgreSQL Database Management System	7.4.x
ppp	The Point-to-Point Protocol (PPP)	
qlc1020	QLogic QLC1020 PCI SCSI IHV HBA Driver	8.0.0
qlc12160	QLogic QLC12160 PCI SCSI IHV HBA Driver	8.0.0
qlc1280	QLogic QLC1280 PCI SCSI IHV HBA Driver	8.0.0
qlc2100	QLogic QLC2100 Fibre Channel IHV HBA Driver	8.0.0
qlc2200	QLogic QLC2200 Fibre Channel IHV HBA Driver	8.0.1
qlc2300	QLogic QLC2300 Fibre Channel IHV HBA Driver	8.0.2
rstmp	EMC Symmetrix Disk Restamp Driver	
syshead	System Header File Update Package	
samba*	SMB based file/printer sharing	3.0.0
squid*	Squid Caching Proxy Server	2.4.STABLE7
tiff*	TIFF Library and Utilities	3.5.7
uccs	UDK Optimizing C Compilation System	
udidk	UDI 1.01 Development Kit	
udienv	UDI 1.01 Runtime Environment	
uedebug	UDK Enhanced Debugger	
/SCOx/apache*	Apache Web Server	1.3.26
/SCOx/apache2*	Apache Web Server	2.0.48
/SCOx/curl*	Provides library to support SSL in PHP	7.10.3-1
/SCOx/expat*	SAX type XML parser in C/C++	1.95.1
/SCOx/gsoap*	SOAP Toolkit for C/C++.	2.2.3-3
/SCOx/gzip*	GNU file compression utilities	1.2.4

Package/Set	Description	Version
/SCOx/j2jre131	J2SE Runtime Environment 1.3.1	1.3.1.08a
/SCOx/javasoap*	SOAP Toolkit for Java	1.0
/SCOx/libxml2*	DOM type XML parser in C/C++	2.4.26
/SCOx/modjk2*	mod_jk2 for Apache 2	2.0.2
/SCOx/modperl*	mod_perl for Apache	1.99_09
/SCOx/mysql*	MySQL - SQL database server	3.23.49
/SCOx/openssl	OpenSSL - Secure Sockets Toolkit	0.9.6g
/SCOx/pearsoap*	SOAP Toolkit for PHP	0.7.3-1
/SCOx/perl*	Perl 5.8.3+XML::Parser+Crypt::SSLeay+IO-Socket-SSL+Zlib	5.8.3
/SCOx/perlmods*	Additional Modules for Perl	5.8.3
/SCOx/php*	PHP 4.3.1+HTTP-Request+Mail_Mime+Net-DIME+Net-URL	4.3.1-3
/SCOx/php4*	PHP: Hypertext Preprocessor for Apache 2	4.3.4
/SCOx/scoxldemo*	SCOx web services demos in 5 languages	1.0
/SCOx/soaplite*	SOAP and XML for Perl	0.55-2
/SCOx/scox-enb*	Set: installs apache, curl, expat, gzip, j2jre131, javajsse, libxml2, mysql, openssl, php, tomcat, unzip, urwfonts, wget, zlib	
/SCOx/scox-uw*	Set: installs gsoap, javasoap, pearsoap	
/SCOx/tomcat*	Apache Tomcat App Server for Java servlets, JSP, web services	4.1.17-1
/SCOx/unzip*	Uncompression tool for ZIP format files	5.50
/SCOx/urwfonts*	(URW)++ Free X11 Fonts	2.0
/SCOx/wget*	Command-line url retriever utility	1.5.3
/SCOx/zlib	General Purpose Data Compression library	1.1.4
Optional Services CD #3: See the *info* directory on the CD for release notes and other documentation for these products.		
reliant	Reliant High Availability for UnixWare	1.1.4
afps	Advanced File and Print Server 4.0.2	4.0.2
merge	NeTraverse Merge	5.3.26c
Linux RPM CD #4:		
OpenLinux Server 3.1.1 Distribution containing all RPMs for use with the Linux Kernel Personality (LKP). The Release Notes for OpenLinux 3.1.1, which includes a list of packages provided on the CD, and the rest of the OpenLinux documentation can be found at **http://www.sco.com/support/docs/openlinux**.		
UnixWare Development Kit CD (UDK): See the *info* directory on the CD for release notes and other documentation for these products.		
GNUautocf	GNU autoconf	2.59pl1
GNUautomk	GNU automake	1.8.2
GNUbinutl	GNU binutils	2.10.1 b

Package/Set	Description	Version
GNUbison	GNU bison - parser generator (yacc replacement)	1.875pl1
GNUgawk	GNU gawk	3.1.3
GNUgcc	GNU gcc	2.95.3-pl1 e
GNUgdb	GNU Debugger (GDB) 5.0	5.0-pl1 d
GNUm4	GNU m4 - macro preprocessor	1.4 b
GNUmake	GNU make	3.80
GNUtexinf	GNU texinfo	4.6
OSRcmppkg	UDK Compatibility Module for SCO OpenServer	
OSflex	Open Source flex	2.5.4b
TED* packages	CDE Desktop Development	
basemano	Base System Manual Pages	
baseupd	Base Operating System Compatibility Update	
j2jre142	J2SE Runtime Environment 1.4.2	1.4.2.03
j2sdk142	Java 2 Standard Edition, version 1.4.2	1.4.2.03
javaxcomm	Java Communications API, vers. 2.0, for use with Java SDK	2.0
libC	UnixWare Runtime C++ Library	
libc	UnixWare Runtime C Library	
libm	UnixWare Runtime Math Library	
libthread	Runtime Thread Library	
memtool	Dynamic Memory Analyzer	
mtfdev	OSF Motif 1.2.5 Development Kit	
syshead	System Header File Update Package	
tcldev	Tcl/Vtcl development	7.1.1a1
uccs	UDK Optimizing C Compilation System	
ucplus	UDK C++ Compilation System	
udkdoc	UnixWare 7 Development Kit Doc	
udkman	UDK Manual Page Reader	
uedebug	UDK Enhanced Debugger	
unmsdk	Network Management SDK	
urwfonts	(URW)++ Free X11 Fonts	2.0
usoftint	Software Packaging Tools	
ustdcomps	UDK C++ Standard Components	
xdevsys	X11R6 Development System	
OpenServer Kernel Personality (OKP) CD: See *relnotes.html* on the CD for installation instructions and release notes.		
osrcompat	Set: installs okp, xemul, okpdoc	
okp	OpenServer Kernel Personality	
xemul	XENIX Emulation	
okpdoc	OKP Documentation and manual pages	

Licensing Software

When you install the operating system software, you enter a license corresponding to an "Edition", a collection of software and system limits (such as number of users and processors, and amount of memory) targeted to a specific purpose. A complete list of Editions and their associated software is included below.

The installation conveniently selects the appropriate software sets, services, and packages to install based on your license, allowing you to bypass the software selection phase of the installation. If you want to customize software selection, you can use the licensed defaults as a base from which to install additional services and packages or remove those you do not need.

You can also purchase licenses that increase system limits, such as number of users, number of CPUs, and amount of memory. For information on installing these licenses, see "Using the License Manager" on page 83.

Evaluation licenses

The license you enter during the installation transparently selects the correct services and packages to install on your system. If you choose to defer licensing during the installation, you will be issued a 60-day Evaluation License (see "License Editions" on page 10). If you want to continue to use the software after that time, contact your vendor to purchase a license, then use the SCOadmin **License Manager** to re-license the operating system. Evaluation licenses are also available for most other products on the UnixWare 7 CDs that are not covered by the operating system license. Installing a software package that requires a license without entering one generally enables a 60-day evaluation version of the package.

License Editions

To install a commercial version of any product contained in the Media Kit, you must first obtain the appropriate UnixWare 7 Edition License or License Pack (Base, Business, Data Center, Departmental, or Enterprise Edition). Your Edition License may also include an SCO Update Service Enabling License (see "SCO Update Service Enabling Licenses" on page 15).

Each license consists of a license number, a license code, and possibly a license data string. The license information should be included with the media kit you obtained from your vendor, or from your vendor's web site.

The Media Kit can be used to install as many systems as you want. Each system installed must be licensed, using either a commercial license or an evaluation license. The following tables indicate which products are included with each Edition License.

The first column lists the software on each CD in the media kit that requires a license. The remaining columns indicate which Edition licenses permit use of the software in the first column. The columns correspond to an operating system Edition license according to the following legend:

60d	60-Day Evaluation Edition
Sb	Small Business Edition (**NEW**)
Ba	Base Edition
Bu	Business Edition
Dp	Department Edition
Ent	Enterprise Edition
Dc	Datacenter Edition

Products and services are listed in the column on the left as they appear on the Installation CDs (CD #1, #2, and #3) and the Development Kit CD. Products on other CDs (such as the OpenServer Kernel Personality CD) may require separate licensing; see the documentation included with those products.

In the table below, the values in the columns on the right indicate whether or not the product or service is enabled with the indicated Edition License. The following legend is used in each row to indicate the availability of the product or service for each Edition:

Y or number	Enabled with indicated edition
N	Not available with indicated edition
O	Available with purchase of an add-on license

For example, the row labelled *Memory Support* shows that a system installed with a Business Edition license is limited to 4GB of RAM. The next row, labelled *Additional Memory Support*, indicates that you can purchase an add-on license if you want to add more than 4GB of memory to a Business Edition system. By contrast, a system installed with a 60-day Evaluation license will support 1GB of memory only, and no add-on licenses to enable additional memory can be purchased.

Note that when you relicense a system (for example: when you apply an Enterprise Edition license to a system with a 60-day Evaluation license installed), the additional software included in the new license is not automatically installed with the new license. You will need to manually install any additional software you have licensed that is not already on the system. For example; Online Data Manager (ODM) is not licensed or installed if you specify an Evaluation license when you perform a fresh install. If you later purchase and install an Enterprise license (which includes a license for ODM), you will need to install ODM manually from CD after you install the Enterprise license.

See "Using the License Manager" on page 83 for how to use the **License Manager** to display and enter license information on an installed system.

Products and Services	Edition License						
	60d	Sb*	Ba	Bu	Dp	Ent	Dc
Base Operating System CD 1 (CD #1)							
UnixWare 7 Operating System	Y	Y	Y	Y	Y	Y	Y
Number of Concurrent Logins	5	1	1	10*	25	50	150
Additional Users Supported	N	O	O	O	O	O	O
Number of Processors Supported	1	1	1	4*	4*	6*	8
Additional Processors Supported	N	O	O	O	O	O	O
Memory Support (in GB)	1	1	2*	4	8*	16	32
Additional Memory Support	N	O	O	O	O	O	O
Online Documentation and DocView	Y	Y	Y	Y	Y	Y	Y

Online Data Manager	N	O	O	O	O	Y	Y
Disk Mirroring	Y	O	O	O	O	Y	Y
Apache Web Server	Y	Y	Y	Y	Y	Y	Y
Mozilla Web Browser	Y	Y	Y	Y	Y	Y	Y
All other software on CD #1	Y	Y	Y	Y	Y	Y	Y
[*]Indicates a change or addition to previous UnixWare licensing.							

	Edition License						
Products and Services	**60d**	**Sb[*]**	**Ba**	**Bu**	**Dp**	**Ent**	**Dc**
Base Operating System CD 2/Updates CD (CD #2)							
All software on CD #2 is enabled for all License Editions.							

	Edition License						
Products and Services	60d	Sb[*]	Ba	Bu	Dp	Ent	Dc
Optional Services CD (CD #3)							
Advanced File and Print Server (AFPS)	Y	O	O	O	O	O	O
Merge™	Y	O	O	O	O	O	O
Reliant®HA	N	O	O	O	O	O	O
Other software on CD #3	Y	Y	Y	Y	Y	Y	Y

Products and Services	Edition License						
	60d	Sb*	Ba	Bu	Dp	Ent	Dc
Development Kit CD-ROM							
UnixWare Development Kit	Y	O	O	O	O	O	O
Java^{TM} Development Kit	Y	Y	Y	Y	Y	Y	Y
GNU Developer's Tool Chain	Y	Y	Y	Y	Y	Y	Y

Upgrade Licensing

Upgrades to Unixware 7.1.4 from the following previous releases are supported:

- UnixWare 7.1.1
- UnixWare 7.1.2 (OpenUNIX 8.0.0)
- UnixWare 7.1.3

All upgrades using the Release 7.1.4 media require an Upgrade License. Please contact your software supplier for the appropriate license.

Note: If you are upgrading a UnixWare 7.1.3 system with an SCO Update Service enabling license installed, you should use the SCO Update Service to obtain and install UnixWare 7.1.3 Update Pack 4; this is the supported update path for SCO Update Service customers and will upgrade your system to UnixWare 7.1.4. Use the **scoadmin license** command to view your current licenses.

SCO Update Service Enabling Licenses

Your software supplier may have provided you with a UnixWare 7.1.4 SCO Update Service License, either separately or bundled with your UnixWare 7.1.4 Edition License.

 The SCO Update Service provides a convenient way for you to keep your system current via access to maintenance and security updates, and optionally to early access to new product features which will be included in the next release. When you register your SCO Update Enabling License, obtain a Registration Key, and enter the information into the **License Manager**, you will then receive updates over the internet (or, optionally, on CD). Please go to **http://www.sco.com/products** for more information about the SCO Update Service, including SCO Update licensing terms and obtaining a SCO Update license.

If your Enabling License is bundled with the Edition License, the Enabling License is part of the license information supplied during installation of the system, and will appear in the License Manager after installation. If purchased separately, use the **License Manager** to enter SCO Update license information after you install (see "Licensing products" on page 84).

The SCO Update Service Enabling License must be registered (see "Registration" on page 15) in order to begin receiving product updates via the SCO Update Service.

Registration

Registering your system software provides these benefits:

*   registering the SCO Update Service Enabling License activates the SCO Update Service on your system

*   registering any license means that you'll get security bulletins and information about product updates as soon as they are available

- registering all your licenses removes non-registered software warnings displayed on the console when you start up the system or log in

Registering a product is basically a three-part process: first, you use the **License Manager** to get the information you need to register; second, you visit the Registration Web Site to obtain a Registration Key; then, you use the **License Manager** again to enter the Registration Key onto your system. See "Registering products" on page 85 for the complete registration process.

Installation Profiles

During the installation procedure, you can choose to install:

License-Based Defaults This choice installs services and packages based on the license you purchased and entered. Selecting this option ensures that only appropriate, fully-licensed software is installed on your system.

Small Footprint Server This choice installs a subset of services optimized to work well on systems with limited memory and disk capacity. It contains the base operating system and networking utilities; it does not contain graphics support.

Full (All Packages) This choice enables all services and packages available on the media that are needed by the majority of systems. Some packages (such as supplemental language extensions, multi-processor support, and some other packages) are not selected by this profile; to add these packages, you must select the **Customize Installation of Packages** profile.

Customize Installation You decide which services and packages to load (or not load) onto the system. The defaults enabled are based on the license you enter during the installation.

If you choose **Customize Installation** or **Full (All Packages)**, see "Using the License Manager" on page 83 if you need to license any software after installation.

Obtaining additional media

UnixWare media, including low-cost versions intended for educational and personal use, can be obtained from your local software supplier or directly from **http://www.sco.com/products**.

SCO Global Services

SCO's award-winning Global Services offer a complete portfolio of world-wide services on SCO's full range of software products, allowing customers powerful choices based on business requirements.

Technical Support

SCO offers a wide array of technical support services ranging from business critical, 24x7 after-hours offerings to traditional support services covering all products and customer types from partners to end users. In addition, SCO support services are available to partners for their own use and resale.

SCO TEAM Support is designed for corporate customers requiring immediate, high-level, technical support. Included with TEAM is an assigned senior technical account manager to your company, responsible for assuring successful solution implementation and ongoing support for your SCO systems.

SCO SoftTech Plus includes support for unlimited licenses and installations covering all SCO products, with a guaranteed one-hour response time. This service is targeted to SCO partners and customers that need coverage for all SCO products. With SoftTech Plus, you also have an assigned administrative account manager as your primary contact for administrative issues.

SCO SoftTech includes support for unlimited licenses and installations with a guaranteed up to one-hour response time. SoftTech is available per operating system/product, allowing you the flexibility to add on additional products and services when you need them. Your administrative account manager provides a single point of contact for your administrative issues.

Product Bundled with Support

In addition, bundled support may be included with your product. Support bundled with product includes a Certificate of License and Authenticity (COLA) indicating product contains support. Refer to the COLA for information on registering your product and support. For more details, refer to **www.sco.com/support/programs/**.

Professional Services

SCO's Professional Services offer a full suite of consulting services ranging from server deployment and management, migration and web services to customized solutions. For more information on Professional Services, visit **http:/www.sco.com/consulting**, or contact your local SCO sales representative.

For more information on SCO Global Services, call:

- In the Americas, phone 1-800-726-6561 or 1-831-427-6722

- Outside of the Americas, phone +353 1260 6333

Online Support Services

Self-Help Support

SCO also provides extensive 24x7 Self-Help technical support services on SCO products, including installation and configuration support through an easy-to-use, single Web view. The Self-Help Web site is located at: **www.SCO.com/support/ self_help.html**.

Chapter 2:

Before You Begin

Before you begin installation, you must perform the tasks below.

- If you are upgrading from a previous release, back up your entire system, including partitions containing other operating systems.

- Obtain or locate the licenses you'll need to install and configure your system. This might be a printed license included in the media kit, or a license you obtained from a web site when purchasing and downloading software. You must enter a license to successfully install the system. See "CD Contents, Licensing, Installation Profiles, and Support" on page 1.

- Verify that all your hardware and peripheral devices are supported and that your system meets minimum memory and disk space requirements. See "Verifying supported hardware" on page 20 and "System Requirements" on page 22.

- Install and configure your hardware devices, if necessary. See "Installing and configuring hardware devices" on page 25.

- Create any necessary installation media from disk images on the installation CD-ROM. See "Creating installation diskettes" on page 29.

- Set up a network Installation Server, if desired, to install systems over the network. See "Setting up a Network Install Server" on page 30.

- Complete the appropriate installation checklists. See "Installation checklists" on page 30.

Verifying supported hardware

Your UnixWare software includes HBA (Host Bus Adapter) drivers for supported hardware. Please visit the Compatible Hardware Web Pages (**http://www.sco.com/chwp**) for help on determining whether your hardware is supported and the correct driver to use for supported hardware. If you use drivers and peripherals which are not listed as supported, your peripherals might not work.

The following table shows the HBA drivers available on the installation media:

CD Boot Image If you begin installation by booting from CD #1, the indicated HBAs are available from the bootable CD image. If other HBAs are needed during installation, they can be loaded from CD #1 or from the HBA diskettes.

Packages on CD #1 All HBAs are available in file system format packages on CD #1. You can add them during installation when prompted for HBA media, or after installation is complete using the **pkgadd**(1M) command.

Boot Diskette #1 If you begin installation by booting from this diskette, only the two indicated HBAs are available from the diskette image. Other HBAs must be loaded from the HBA diskettes or CD #1.

HBA Diskettes These diskettes are used to support installations on systems with a non-bootable CD-ROM.

Your hardware or software vendor may also provide you with one or more HBA diskettes (or an HBA CD-ROM) to support specific hardware or software. It is important that if you do have vendor supplied HBA drivers, you always load them *before* you load any UnixWare HBA drivers. Make sure that any vendor-supplied HBA drivers were created specifically for UnixWare, or the drivers will not successfully load.

CD Boot Image on CD #1	Packages on Base OS CD #1	Boot Diskette #1	HBA Diskette #1	HBA Diskette #2	HBA Diskette #3
-	adsa	-	-	adsa	
adsb	adsb	-	adsb	-	
-	adsc	-	-	adsc	
-	adse	-	-	adse	
adsl	adsl	-	adsl	-	
-	adss	-	-	adss	-
adpu320	adpu320	-	-	-	adpu320
adst70	adst70	-	adst70	-	-
-	amd	-	-	amd	-
-	blc	-	-	blc	-
c8xx	c8xx	-	c8xx	-	-
ciss	ciss	-	ciss	-	-
cpqsc	cpqsc	-	cpqsc	-	-
-	dak	-	dak	-	-
-	dpt	-	-	dpt	-
-	flashpt	-	-	flashpt	-
i2oOSM	i2oOSM	i2oOSM	-	-	-
ida	ida	-	ida	-	-
ide	ide	ide	ide	-	-
iir	iir	-	-	-	iir

CD Boot Image on CD #1	Packages on Base OS CD #1	Boot Diskette #1	HBA Diskette #1	HBA Diskette #2	HBA Diskette #3
mpt	mpt	-	mpt	-	-
-	qlc1020	-	qlc1020	-	-
-	qlc1280	-	-	qlc1280	-
-	qlc12160	-	-	qlc12160	-
-	qlc2100	-	-	qlc2100	-
qlc2200	qlc2200	-	qlc2200	-	-
qlc2300	qlc2300	-	qlc2300	-	-

System Requirements

The hardware that you will need to support an installation of UnixWare will vary depending on the installation options you choose. All installations have the following minimum requirements:

Processor   At least one Intel Pentium II, III, or IV microprocessor, or a microprocessor that is 100% compatible (e.g., AMD Athlon and Duron processors); up to 32 processors are supported in multi-processor configurations.

Many installations will require a 100MHz (or faster) Pentium processor for better performance. Systems running Merge from the Optional Services CD should have a 200MHz or faster Pentium processor.

Architecture	Conformance to the Industry Standard Architecture (ISA) (also called an AT bus), Extended Industry Standard Architecture (EISA), Micro Channel Architecture (MCA), Peripheral Component Interface (PCI), or Intelligent Input/Output (I2O) standards.
Memory	32MB or more of RAM (Random Access Memory) is required. For optimal performance of the system, especially those running graphically intensive applications like CDE or Java, or other RAM intensive facilities like LKP, should have a minimum of 128MB of RAM. Performance is enhanced as more RAM is added.
	Up to 16GB RAM for General Purpose Memory and up to 64GB as Dedicated Memory is supported. Dedicated memory is limited for use as either Shared Memory (SHM) or Dynamic Shared Memory (DSHM).
Disk size/partitions	A hard disk of 1GB or larger is recommended, although small footprint installations can run on partitions as small as 500MB. IDE disk drives up to 128GB are supported; there is no limit on SCSI disk drive capacity.
	To install all runtime CD packages included in the media kit, at least 3GB of disk space is recommended, as follows:
	1.3GB for the Base Operating System CDs (CD #1 and #2) 52MB for the Optional Services CD (CD #3) 1.5GB for the Linux RPM CD (CD #4)
	Additional space will be needed for data and user files.
	With this release of UnixWare, the UNIX boot partition for a large capacity hard drive can begin above the 8GB boundary. The system uses extended BIOS calls to overcome the previous releases' constraint (where the UNIX boot partition was required to begin below cylinder 1024 of the boot disk and within the first 8GB).

Mouse	A serial, USB (Universal Serial Bus), or PS/2-compatible mouse is recommended to access all graphical desktop functionality.
Host Bus Adapter	At least 1 Host Bus Adapter (HBA) is required, and up to 32 HBAs are supported by default. Additional HBAs (up to a maximum of 1024) can be added; however, the driver for any HBA added above 32 must support such a configuration.
Network Card	A Network Interface Card (NIC) is only required for installation if you are performing a Network Install. At least 1 NIC is required for networking; up to 4 NICs of the same manufacturer and model can be connected at one time.
Video	A Super VGA monitor and video adapter capable of at least 1024x768 resolution is required to run the graphical desktop. Systems running Merge from the Optional Services CD will require a 1280x1024 16-bit (or better) graphics adapter. The graphics adapter used during a fresh installation must have an IBM VGA compatible mode.
Media devices	A 3.5-inch diskette drive, for booting the UnixWare system and installing additional software is required if:

- you want to perform an installation from the media kit CD-ROMs and your system does not support bootable CD-ROMs (see "Bootable CD-ROM support", below)

- you need to install vendor-supplied software (such as device drivers) from diskettes

- you want to perform a network install, and your networking card does not support the PXE boot standard. Installing on such a system requires using the Network Installation Diskettes

One of the following installation media devices is required:

- a CD-ROM drive for installation from media kit CD-ROMs

- a supported network adapter, and a preconfigured network installation server, for network installation

We recommend that your planning provide adequate hardware resources for both the operating system and the applications and data that you intend to use on the system. The more RAM and CPU resources you provide, the better the system will perform under heavy load. The Minimum resources listed above only consider what is required to run the OS alone, without any applications. Therefore it is critical that you gather the hardware requirements for both the OS and any applications that you will run on the system, as well as considering the needs of any users who will reside on the system to get the complete set of hardware requirements prior to the purchase of any hardware. For example, if the system will be running the Optional Service called Merge, you will need to provide a minimum of 128MB of RAM, at least a 200MHz CPU, and at least 100MB of disk space for each Merge user to get good performance from the application.

Installing and configuring hardware devices

Installing and configuring hardware consists of physically installing hardware controllers, running hardware setup programs, and configuring software controllers to support the new devices.

After the hardware is physically installed and configured, you are ready to install UnixWare. Software controllers for most hardware devices are configured automatically by the installation. If you need to manually configure software drivers, you can do so by entering the Device Configuration Utility (DCU) during the installation.

For information on the DCU, see "Configuring installation hardware" on page 96.

Hard disk detection

UnixWare cannot install on a device that is not detected. If you do not pay attention to the device information presented on the installation screens, you may install UnixWare

on a secondary disk (if one is present) because the primary disk was not found. If a secondary disk is not present, an error message is given that indicates the installation cannot proceed.

UnixWare is installed on the primary hard disk found for the primary Host Bus Adapter (HBA). Typically, rules for determining which HBA, or which disk, is primary are as follows:

• IDE HBAs always take precedence over SCSI HBAs.

• IDE HBAs are designated primary and secondary usually in their physical setup (jumpers, for example).

• With IDE devices, disks are designated as master and slave usually by jumper settings on the disk drive.

• When multiple SCSI HBAs are present, usually the HBA with the lowest BIOS address is primary.

• With SCSI disks, target ID 0 on the BIOS enabled HBA is used as the primary disk. However, most SCSI BIOS allow the selection of the bootable target ID, and some default to target ID 6 as the bootable device since it is second in priority next to the HBA itself, resulting in better disk performance. UnixWare will install on the target ID specified for boot in the SCSI BIOS regardless of the ID number.

• The secondary SCSI disk is the next lowest assigned target id starting with the primary HBA, until all HBAs are scanned and no further disks are found.

You must be familiar with your system's physical configuration before you begin the installation. When the hardware diagnostics are run as the system first powers up, check the console messages for recognition of your devices. If you do not see what you expect, check the system BIOS setting to make sure there are no conflicts. Check power and bus cables to make sure they are well attached.

Once the UnixWare HBA autodetection is complete during the installation interview process, you can use **AltSysReq h** to switch from the current virtual terminal to the system console to see diagnostic messages for devices that successfully load. HBA and disk information may be present on the screen. Use **AltSysReq F1** to switch back to the virtual terminal running the installation.

When configuring disk setup, verify the disk sizes being reported on the screen as well as the device names being presented. Device names contain the information about the controller and target id for the disk it refers to.

On Compaq servers, the system BIOS will boot from the HBA as signed the "Controller order" of "first", using the System Configuration Utility. Any controller may be selected as the first controller regardless of slot.

Bootable CD-ROM Support

If your system BIOS supports booting from CD-ROM and you are using one of the Host Bus Adapter (HBA) drivers listed below, then you don't need to use the Installation diskettes to begin a fresh installation. Starting the installation from the CD-ROM will increase the overall speed of the installation. (Note that you may still require a diskette drive if you have one or more vendor HBA diskettes that you need to install. All the UnixWare HBA drivers can be loaded from CD #1.)

Driver	Supported Models
adsb	Adaptec AIC-789x/AHA-294xU2x/295xU2x/AHA-395xU2x 7800 Family PCI Ultra 2 SCSI HBAs
adsl	Adaptec AIC-7560/AIC-78xx/AHA-29xx/AHA-39xx/AHA-49xx 7800 Family PCI S CSI HBAs
adpu320	Adaptec Ultra320 Family PCI SCSI HBAs
adst70	Adaptec AIC-789xA/AHA-29160/39160 Ultra160 Family PCI SCSI IHV HBAs
c8xx	LSI Logic/Symbios 53c8xx/53c1010/53c1510 PCI SCSI HBAs
ciss	Compaq Smart Array 5300/5i/532 HBAs
cpqsc	Compaq Wide-Ultra SCSI HBAs
ida	Compaq SMART Array Controller HBAs

Driver	Supported Models
ide	Generic IDE/ATAPI HBAs
i2oOSM	Intel I2O Block Storage & SCSI OSM HBAs
iir	Intel Integrated Raid (IIR) HBAs
mpt	LSI Logic PCI to SCSI and Fibre Channel HBAs
qlc2200	QLogic QLC2200 Fibre Channel IHV HBAs
qlc2300	QLogic QLC2300 Fibre Channel IHV HBAs

Bootable CD-ROM support uses the ``El Torito'' extension of the ISO 9660 standard, in no-emulation boot mode.

To boot directly from the installation CD-ROM, the system must allow you to specify CD-ROM as a boot device in the system BIOS, and must not use a proprietary CD-ROM boot scheme.

To boot from a SCSI CD-ROM drive, set the SCSI controller so that BIOS support for bootable CD-ROM is enabled. Also ensure that the start up or boot device sequence set in the BIOS includes the CD-ROM device before the network device. Once the SCSI BIOS and the system BIOS are set, put the Base OS Installation CD-ROM (CD #1) in the CD-ROM drive and boot the system.

To boot from an ATAPI or USB CD-ROM drive, you must ensure that your system BIOS is new enough to support booting from a CD-ROM. Set the boot sequence of your system BIOS to start with the CD-ROM drive. Once the system BIOS is set, put the bootable CD-ROM in the CD-ROM drive and boot the system.

Some systems do not support bootable CD-ROMs, so the system BIOS does not allow you to select CD-ROM as a boot device. In this case you will need to create the floppy diskettes for booting the system. See "Creating installation diskettes" on page 29 for instructions on creating boot diskettes.

Creating installation diskettes

The UnixWare Installation CD #1 contains images of all diskettes used to install and troubleshoot UnixWare. These are found in the */info/images* directory. See */info/images/ readme.htm* for how to create diskettes on a DOS or Windows system; the UNIX system instructions are reproduced below.

To create any needed diskettes, such as the installation boot and HBA diskettes, or to replace lost or damaged diskettes:

Step 1.   Log onto any UnixWare 7 system as **root**.

Step 2.   Mount the CD-ROM. Enter:

> **mount -F cdfs -r /dev/cdrom/cdrom*n* /mnt**

> where *n* is the drive number, as in cdrom1, cdrom2, etc.

Step 3.   Enter:

> **cd /mnt/info/images**

> List the directory contents using **ls** to determine the file names you need to copy to diskettes,

Step 4.   Format a blank diskette by inserting it into the primary diskette drive and entering:

> **format -V /dev/rdsk/f03ht**

> You can skip this step if the diskette is already formatted.

Step 5.   With a formatted diskette in the primary drive, enter:

> **./ezcp** *image*

> where *image* is the name of the source file for the diskette you are creating:

boot1.img = Installation Boot diskette #1
boot2.img = Installation Boot diskette #2
hba1.img = HBA diskette #1
hba2.img = HBA diskette #2
hba3.img = HBA diskette #3
netinst1.img = Network Install diskette #1
netinst2.img = Network Install diskette #2

Step 6. Verify the checksum, by comparing the value listed in *mnt/info/images/sums*
with the result of this command:

sum -r /dev/rdsk/f03ht

The checksums should match.

From an SCO OpenServer™ machine, the syntax in steps 2, 4, and 6 is:

mount -f HS -r /dev/cd0 /mnt
format /dev/rfd0135ds18
sum -r /dev/rfd0

Setting up a Network Install Server

You can set up a UnixWare system as a network Install Server, then install the contents
of the UnixWare CD-ROMs from that server.

Please see the UnixWare Documentation Web Site at **http://www.sco.com/support/
docs/unixware** for complete instructions on staging Unixware 7.1.4 Installation from a
network Install Server.

Installation checklists

Installation checklists show you what information you will need to install UnixWare

correctly. If you complete the checklists, the installation will go more quickly and you will have a written log of your responses, in case you ever need to troubleshoot or reinstall your system.

Information relevant to all types of installations is contained in the "General installation checklist" on page 31. The following checklists might also apply to your environment:

Hardware   Complete this checklist to specify hardware parameters for non-detected hardware. The UnixWare installation detects most computer peripherals. However, if it does not detect a device needed for installation, you must enter the Device Configuration Utility (DCU) during the installation process to manually configure the device.

Network   Complete these checklists if you are configuring TCP/IP as part of the installation process. You must configure the network to install UnixWare from an installation server.

For more information related to configuring TCP/IP for network installations, see"Setting up a Network Install Server" on page 30.

Partitions   Complete this checklist if you want to customize partitions. If you do not, the installation uses the partition table already on your system, or creates a single partition using the entire disk for UnixWare.

Filesystems   Complete this checklist if you want to alter the default filesystem layout on your active UNIX partition, including changing filesystem types and sizes and enabling user filesystems.

General installation checklist

Complete this checklist for all installations.

1.	*Installation language*	❑ English ❑ French ❑ German ❑ Spanish ❑ Japanese ❑ Korean
2.	*Zone/Locale/Keyboard* These three interrelated options deter-mine your keyboard choices and how the system displays currency, punctu-ation, and other special characters. If you do not know the correct zone, choose**All Locales**. Choose a locale that maps to your country or geographic region when the list is presented. If you choose the **C** or **POSIX** locales, special charac-ters will not be displayable and sort-ing will be performed in ASCII order.	❑ Americas (Latin-1) ❑ Eastern Europe (Latin-5) ❑ Central Europe (Latin-2) ❑ Western Europe (Latin-1) ❑ Asia ❑ Other Locale: _____ Keyboard: _____
3.	*License Number/Code/Data* Obtain your license information from a printed license in the License Pack shipped with your software, or from your vendor's licensing web page. If you choose to defer licensing, you are issued a 60-day evaluation license. License Data is only prompted for when required.	License Number: _____ License Code: _____ License Data: _____

4.	*Additional Host Bus Adapter diskettes required?* If your vendor supplied you with one or more additional HBA diskettes, check **Yes** here.	❑ Yes ❑ No
5.	*Manual hardware configuration required?* The UnixWare installation auto-detects most common hardware devices. In some cases, such as when a device is not auto-detected or two devices share the same interrupt vec-tor, you must manually configure the driver with the Device Configuration Utility. If so, check **Yes** here and see the "Installation hardware checklist" on page 36.	❑ Yes ❑ No
6.	*System node name* The name must be unique, begin with a letter, and contain only lowercase letters, numbers, and the dash charac-ter. The maximum length is 63 char-acters.	_____
7.	*Installation type* Choose to install from a CD-ROM or a network installation server. If you choose a network installation, see the "Network checklists" on page 39.	❑ CD-ROM ❑ TCP network server

8.	*Use whole disk for installation?* For both your primary and secondary hard disks, you can use the whole disk to install UnixWare or partition the disk. If you choose to customize partitions, see the "Partitions and filesystems checklists" on page 42.	Disk One: ❑ Use whole disk for UNIX ❑ Customize disk partitions Disk Two: ❑ Use whole disk for UNIX ❑ Customize disk partitions ❑ Do not modify
9.	*Configure filesystems on active partition?* You can configure multiple filesystems on the active partition. If you choose to customize filesystems,see the "Partitions and filesystems checklists" on page 42.	❑ Use default filesystems ❑ Customize filesystems on the active partition
10.	*Configure special disk operations?* You can analyze the disk surface, overwrite boot code, or reset disk geometry. *These options might erase some or all of the data on your hard disk.* If you installed a previous version of UnixWare, you must choose to overwrite the boot code.	❑ Do not configure special disk operations ❑ Configure special disk operations
11.	*System profiles* System profiles simplify the installation process by ensuring that the appropriate services and packages are installed on your system. You can choose default software based on the license you entered, a small footprint server, a full installation, or you can create your own custom configuration. For a description of system profiles, see "Installation Profiles" on page 16.	❑ License-Based Defaults ❑ Small Footprint Server ❑ Full (All Packages) ❑ Custom Configuration

12.	*System services* If you choose to customize your configuration, list one or more system services to install or remove from the services list.	_____ _____ _____ _____ _____
13.	*System packages* If you configure services, you can select additional packages to install or remove from the packages list.	_____ _____ _____ _____ _____
14.	*Date and time* Select your location and time zone from the choices provided.	Continent: _____ Geographic area: _____ Time zone name: _____
15.	*Security level* Choose *Low* for systems not widely or publicly accessed; *Traditional* to maintain compatibility with existing UNIX systems; or *Improved* if you require C2 security. Use *High* only on highly confidential systems which do not allow remote access (including **telnet**, **rlogin**, and **ftp**).	❑ Low ❑ Traditional ❑ Improved (C2) ❑ High (above C2)
16.	*System owner* The system owner is an account with special privileges on the system. The `owner` password should be shared only with trusted administrators, and you may not want to record it here.	Owner name: _____ Owner account name: _____ Owner user ID (UID): _____ Owner password: _____

17.	*root password* The **root** account, or superuser, has unlimited privileges to view files and run programs on the installed system. The **root** password should b shared only with trusted administrators, and you may not want to record it here.	root password: _____
18.	*Save installation responses?* After you answer installation prompts and before loading software, you can save your installation prompt responses to diskette for future use in reinstalling this system or another UnixWare system.	❑ Yes ❑ No
19.	*Mouse*	❑ Bus mouse ❑ PS/2 compatible mouse ❑ Serial mouse ❑ No mouse Number of buttons ❑ 2 ❑ 3

Installation hardware checklist

To configure an installation device (CD-ROM or tape drive) that is not automatically detected by the installation, you must:

1. Load the appropriate hardware driver onto the system. You may have been supplied a driver by the hardware vendor. If so, you need to load it manually at the beginning of the installation procedure.

2. When prompted during installation, use the Device Configuration Utility (DCU) to check the status of the driver; activate the driver, if necessary. Also use the DCU to configure the driver to support the hardware you are using.

When you use the DCU to configure a driver, you must enter some or all of the following configuration information:

1.	*Device name* The manufacturer's name of the device.	_____
2.	*Driver name* The driver name corresponding to the manufacturer's name.	_____
3.	*Unit number* An optional parameter that identifies a subdevice attached to a particular controller. In most cases, this value should be set to 0.	_____
4.	*IPL* The interrupt priority level. Set to 0 if interrupt priority handling is disabled for this device, or a value from 1 (lowest priority) to 7 (highest priority).	_____
5.	*ITYPE* The interrupt vector sharing type. Set to 0 if interrupt sharing is not supported or the device does not use interrupts; 1 if the device uses an IRQ that cannot be shared; 2 if the device uses an IRQ that can only be shared with another instance of the same module; 3 if the IRQ can be shared with any module; or 4 if the device uses an EISA level-sensitive IRQ that can be shared with any module.	_____

6.	*IRQ* The interrupt vector used by this device. Be sure the IRQ you select matches the setup (software or jumpers) of your hardware.	———
7.	*I/O start address* The lowest I/O address through which the device communicates. This is a hexadecimal value from 0 through FFFF.	————————————
8.	*I/O end address* The highest I/O address through which the device communicates. This is a hexadecimal value from 0 through FFFF.	————————————
9.	*Memory start address* The lowest memory address through which the device communicates. This is a hexadecimal value from 10000 through FFFFFFFF.	————————————
10.	*Memory end address* The highest memory address through which the device communicates. This is a hexadecimal value from 10000 through FFFFFFFF.	————————————
11.	*DMA channel* The direct memory access channel for this device. If this device has no DMA channel, set it to -1.	———
12.	*Bind CPU* The CPU to which this device is bound. If the device is not CPU-specific, leave this value blank.	———

These values should not conflict with the values for any other device on your system.

Network checklists

If you are configuring TCP/IP networking or the Network Information Service (NIS), complete these checklists. The values you record here are used when you configure the system to pull UnixWare from an installation server, or when you configure your network after selecting software packages.

Network adapter checklist

If your network adapter is a "smart" bus adapter (for example, an EISA or PCI adapter), UnixWare will detect and autoconfigure the appropriate network driver. If it is an ISA or PCMCIA/PC Card adapter, you must manually enter the configuration parameters prompted for during the installation. Parameters common to many adapters are listed in items 1-7. Use items 8-12 to list any additional parameters your adapter uses. See your network adapter's manual for the correct values.

1.	*Network adapter* Vendor and model number.	_____
2.	*Interrupt vector (IRQ)*	_____
3.	*I/O Address Range*	_____
4.	*ROM Address*	_____
5.	*DMA Channel*	_____
6.	*Memory (RAM) Address Range*	_____
7.	*RAM size*	_____

8.		_____
9.		_____
10.		_____
11.		_____
12.		_____

TCP/IP checklist

1.	*System IP Address.* Four integers separated by periods (for example, 172.16.20.9).	____.____.____.____
2.	*System Netmask* If you are not configuring a subnetwork, accept the default value.	____.____.____.____
3.	*Broadcast Address* This value is automatically computed by the installation based on the System Netmask.	____.____.____.____
4.	*Default Router* This parameter is optional. Enter it if you know the IP address of another system that your system will use to route packets.	____.____.____.____

5.	*Server IP Address* If you are configuring a network installation, specify the IP address of the TCP/IP Install Server to which you will connect.	———.———.———.———
6.	*Domain Name* The name of your network's domain, such as `sco.com`.	———————————
7.	*Primary DNS Address* This parameter is optional. Enter it if you know the IP address of the Domain Name Service server for your network.	———.———.———.———
8.	*Other DNS addresses* These parameters are optional. Enter them if you know the IP address of alternate DNS servers on your network.	———.———.———.——— ———.———.———.———
9.	*Frame Format* Choose from the list displayed by the installation. The default is ETHERNET_II.	———————————

Network Information Server checklist

If you install the Network Information Service (NIS), you can configure the following parameters during the installation process:

1.	*NIS system type*	❑ Master ❑ Slave ❑ Client
2.	*NIS domain*	———————————

3.	*NIS master server* The master server for this slave or client.	————————————
4.	*NIS slave server(s)* One or more slave servers for this master.	———————————— ———————————— ————————————

Partitions and filesystems checklists

When installing the UnixWare operating system, you can define the partition(s) for the primary hard disk and an optional secondary hard disk. You can also modify filesystem types and sizes for the active UNIX system partition.

Read this section and complete the checklist below if you want to:

- preserve the existing partitions and filesystems on your UnixWare system, including data in non-root filesystems

- configure multiple partitions on your primary hard disk, so that you can boot multiple operating systems

- modify the filesystem types or layout on your active UNIX partition

If you do not want to configure partitions and filesystems manually, the UnixWare installation will set them up automatically. When prompted by the installation, choose to:

- **Use the whole disk for UNIX** at the Disk Configuration window.

- **Accept default filesystems** at the Default/Customized Slices window.

Partitions checklist and notes

You can define up to four partitions for each hard disk during the installation.

Table 1: Primary hard disk partitions

Partition	Type	% of disk	Starting cylinder
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____

Table 2: Secondary hard disk partitions

Partition	Type	% of disk	Starting cylinder
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____

Partition types are:

UNIX System   Use for UnixWare, OpenServer™, or other UNIX systems.

Pre-5.0 DOS   Use for DOS systems release 5.0 and earlier. This system must be loaded in partition 1 and start at block 0. You must install this system *before* installing UNIX. To boot a pre-5.0 DOS partition, it must be smaller than 32MB and must start at cylinder 0.

DOS   Use for DOS systems after release 5.0. This system can be loaded onto any partition.

Other   Use for other operating systems, such as Linux.

System This partition contains autodetected hardware information. If this partition is listed, *do not* remove or reconfigure it. This partition contains information specific to your hardware setup.

Remember these restrictions when filling out the partitions tables:

You must define an active UNIX partition, of sufficient size to hold the installed system (see "System Requirements" on page 22). If you do not, the installation will not proceed until you create one.

- Only one partition can be active at one time.

- If partitions already exist on your disk, but the active partition is not large enough to install UnixWare, the installation software informs you of this and requires that you either modify your partitions or cancel the installation.

- Any change in the size, type, or cylinder position (location on the disk for the partition) of an existing partition results in the partition being removed and recreated. In this case, all data in the partition is lost.

- If you expand the size of one partition and, as a result, then need to change the cylinder location of a second, existing partition, the data in both partitions is lost.

- For any partition you are changing in this way, it is crucial that you back up your existing applications, files, and directories.

Filesystems checklist

You can modify several default filesystems and "slices" (portions of the active partition with no kernel-managed filesystem defined) during the installation. The following table lists the installation defaults for 1 and 2 disk systems. These are presented when you choose **Customize filesystems and slices** during installation (see Step 11 on page 57):

Filesystem	Description	Default	Type	Size	Disk 1 or 2
/	Root file-system	vxfs	vxfs	_____(MB)	1
/stand	Boot file-system	bfs	bfs	_____(MB)	1
/dev/swap	Swap slice	slice	slice	_____(MB)	1
/dev/dump	Dump slice	off	_____	_____(MB)	1
/home	User file-system	off	_____	_____(MB)	(1/2)
/home2	2nd user filesystem	off	_____	_____(MB)	(1/2)
/home3	3rd user filesystem	off	_____	_____(MB)	(1/2)
/usr/local	Add-on filesystem	off	_____	_____(MB)	(1/2)
		off	_____	_____(MB)	(1/2)
		off	_____	_____(MB)	(1/2)
/var	Add-on filesystem	off	_____	_____(MB)	(1/2)
/tmp	Temporary filesystem	memfs	_____	_____(MB)	(1/2)
/var/tmp	Temporary filesystem	memfs	_____	_____(MB)	(1/2)
/dev/volprivate	Private volume	slice	_____	_____(MB)	1

Filesystems notes

This section describes each of the filesystems you can configure.

For **vxfs** file system types, you have the option of choosing the "Sync on Close" option. This option ensures that files are written to the disk when an application closes a file (as for example, occurs when you save a file from an editor). For the root file system ("/") the default is "No Sync on Close". For the */var* file system (when explicitly chosen as a separate file system), the default is "Sync on Close". For all other file systems configured by the screen above, the default is "No Close on Sync".

You can change the default by tabbing to the size column, and then choosing option **F6** (Configure advanced parameters). Advanced options also include specifying **vxfs** filesystem log and block sizes.

If you choose "Sync on Close", the resulting file system will be slower (e.g., for intensive production work), but will be more likely to retain recent edits.

/	The root filesystem; contains the bulk of the system, including files, commands, log files, and other data. This filesystem is required and must be of type **vxfs**.
/stand	The boot filesystem; contains all stand-alone programs and text files necessary to boot UnixWare. The filesystem type must be **bfs**, and the default size provided should be adequate for your system.
/dev/swap	The swap slice; used to swap processes into and out of memory. The default size for the swap slice is adequate for most installations. The amount of swap space allocated during the installation is based on disk size, the total amount of memory in the system, and on the total amout of memory used by **memfs** filesystems. See the section "Configuring swap space for systems with large physical memory" on page 48 for more information.
/dev/dump	The dump slice; stores a memory image of the running system should the system crash. This slice is not enabled by default, and in most cases is not necessary. If you create a dump slice, it should be as large as your system's RAM. The maximum supported dump slice is 16GB.If you configure Large Physical

Memory, read the section "Configuring dump space for systems with large physical memory" on page 49 to determine the correct dump size.

/home, /home2 User filesystems; if enabled, contain user accounts and data.These filesystems must be configured as the same type (**vxfs**) as the root filesystem. If you do not enable these filesystems, they are created as subdirectories of the root filesystem.

User-defined User-defined filesystems and slices; if enabled, contain user accounts and data. These four entries (the shaded area in the table above) are user-configurable, and are not created if not enabled. Slices can also be allocated for databases, or for future file system creation. If you create a slice using these entries, a symbolic link is created using the name you specify that points to the character special device node for the slice. For example, if you create a slice named */database*, a symbolic link named */database* is created on the root file system that points to the character special device for the slice. This makes it easy to identify the correct device node for the slice after installation is complete.

/var Installation filesystem; if enabled, contains installation data and administration files.This filesystem should be configured as the same type (**vxfs**) as the root filesystem. If you do not enable this filesystem, */var* is created as a subdirectory of the root filesystem.

/tmp Temporary filesystem; contains files which might be removed at any time.This filesystem is configured by default as **memfs**, in which case all files and directories are automatically flushed during each reboot, or as the same type you chose for the root filesystem. If you want to make use of UnixWare emergency recovery utilities, you *must* define */tmp* as a **memfs** filesystem.

/var/tmp Installation temporary filesystem; */var/tmp* is used when adding packages to your system.This filesystem must be configured as **memfs**. All files and directories are automatically flushed during each reboot. If you do not enable this filesystem, */var/tmp* is created as a subdirectory of the root filesystem. If both the */tmp* and

/var/tmp filesystems are configured as **memfs**, they share the total amount of memory assigned to them. The size of /var/tmp will be indicated as **Auto**.

/dev/volprivate   Private volume; used by the Online Data Manager to ensure data recoverability.If you plan on installing the Online Data Manager, you should enable this volume as type **slice** with a size of 1MB.

Configuring swap space for systems with large physical memory

The default size for the swap slice, as calculated during the installation, is based on the total amount of memory in the system, plus the size of **memfs** file systems. Default **memfs** size is based on available disk space. As system memory gets larger, the value of paging to swap diminishes, and, while it is possible to simply not configure a swap slice on a very large memory system, the swap slice actually provides utility even if the system never actually pages to it, due to the internal requirement to reserve "virtual swap" space. The following table shows the system defaults used during installation, which will be adequate for many installations.

Disk Size (GB)	Total memfs Size	RAM Size and Total /dev/swap Size								
		32	64	128	256	384	512	1024	2048	4096
1	50.0	107.0	143.0	199.0	279.0	327.0	375.0	567.0	951.0	1719.0
2	71.7	128.7	164.7	220.7	300.7	348.7	396.7	588.7	972.7	1740.7
2.5	89.6	146.6	182.6	238.6	318.6	366.6	414.6	606.6	990.6	1758.6
4	143.4	200.4	236.4	292.4	372.4	420.4	468.4	660.4	1044.4	1812.4
4.5	161.3	218.3	254.3	310.3	390.3	438.3	486.3	678.3	1062.3	1830.3
6	215.0	272.0	308.0	364.0	444.0	492.0	540.0	732.0	1116.0	1884.0
8	286.7	343.7	379.7	435.7	515.7	563.7	611.7	803.7	1187.7	1955.7
10	358.4	415.4	451.4	507.4	587.4	635.4	683.4	875.4	1259.4	2027.4
12	430.1	4871	523.1	579.1	659.1	707.1	755.1	947.1	1331.1	2099.1
16	573.4	630.4	666.4	722.4	802.4	850.4	898.4	1090.4	1474.4	2242.4
18	645.1	702.1	738.1	794.1	874.1	922.1	970.1	1162.1	1546.1	2314.1
20	716.8	773.8	809.8	865.8	945.8	993.8	1041.8	1233.8	1617.8	2385.8
25	896.0	953.0	989.0	1045.0	1125.0	11730	1221.0	1413.0	1797.0	2565.0
30	1024.0	1081.0	1117.0	1173.0	1253.0	1301.0	1349.0	1541.0	1925.0	2693.0

On a small system, as a rough estimate, swap space should be twice the size of non-dedicated memory. Larger amounts of swap space (up to a maximum of 16GB) must be allocated for systems with larger RAM. The following table shows reasonable allocations of swap space for systems of different sizes (assuming no **memfs**):

Size of system	Size of swap space
16MB	32MB
64MB	75MB
256MB	200MB
1024MB	430MB
4096MB	1330MB

On a system with a large amount of system memory, more swap may be allocated during installation than is necessary. However, you can resize the swap space to a smaller value and allocate the freed space to other slices or filesystems, by using the **Customize Filesystems and Slices** screen during installation.

Configuring dump space for systems with large physical memory

You can perform normal dumps, or selective dumps, on systems with any amount of memory, including those with more than 4GB of memory. In a normal dump, all of physical memory is dumped to disk and the system dump memory image can be examined using **crash**(1M).

If you have experienced a system panic, the relevant information for diagnosis is usually in the kernel pages. On a system with large memory, it can be more practical to perform a selective dump (only the kernel mapped pages are dumped to disk). This means that the dump is quicker and smaller at the expense of certain information (user space pages). A selective dump is made at the time of the panic, but you must specify that you want a selective dump when the system is booted. Set the kernel tunable parameter **SYSDUMP_SELECTIVE** to 1 to obtain a selective dump. For information on performing this task, see *Changing tunable parameters with the System Tuner* in the online documentation in the online documentation (**http://localhost:8458**).

You might want to specify a selective dump if your system has a large amount of physical memory or if maximum use of disk space is required (keeping the dump slice as small as possible to free up disk for filesystems).

Use the following information to configure the dump space for best results for the amount of memory on your system:

full dump   dump space should be equal to physical memory size (the dump will normally be less than this)

selective dump   dump space should be sized according to the following recommendations:

- physical memory is less than or equal to 32MB:

  dump_space >= 16MB

- physical memory is greater than 32MB, but less than 256MB:

  dump_space >= physical_memory_size/2

- physical memory is greater than 256MB:

  dump_space >= 128MB + (physical_memory_size - 256MB)/4

For example: a system with 16MB of physical memory should have 16MB dump space; a system with 64MB of physical memory should have 32MB dump space; a system with 512MB of physical memory should have 192MB dump space; and, a system with 1GB of physical memory should have 320MB dump space.

Chapter 3:
Installing UnixWare

This chapter explains how to install the UnixWare operating system on your computer. Specifically, it covers:

- **"Responding to prompts" on page 51**

- **"The installation procedure" on page 52**

- **"Performing an upgrade installation" on page 66**

Responding to prompts

Use these keys when responding to prompts for information during the first section of the installation (before software loading begins):

To:	Press:
Get help	**F1**
Toggle or display choices	**F2**
Read/write to media	**F3**

To:	Press:
Configure advanced parameters	**F6**
Defer configuration	**F8**
Move back one window	**F9**
Move forward one window	**F10**
Move down	down arrow
Move up	up arrow
Move through selections	**Tab**
Select items in a list	**Space**
Accept an item	**Enter**
Enter an item	**Enter**
Erase the last character typed in response to prompts	Backspace or **Ctrl-h**

The installation procedure

Read "Before You Begin" on page 19 and complete the installation checklists before installing UnixWare. Also see "Licensing Software" on page 10 for information on license-based default package selections for each type of license.

Follow the procedure shown here to install UnixWare Release 7.1.4 on your system:

Step 1.   Before beginning, make sure you have up-to-date backups of all the data currently on your system. Some of the options available during installation overwrite all the data on the hard disk, including user data and other partitions.

Step 2.   The way you begin a fresh installation depends on whether you are installing from CD-ROMs or the network, and whether your system supports a bootable CD-ROM:

a. **To begin installation using a bootable CD-ROM and no diskettes**: turn your computer on and insert the Base Operating System CD 1 (CD #1) into your system's bootable CD-ROM drive. If your system is already on, insert the CD into drive and reboot the system. See "Bootable CD-ROM Support" on page 27 for a list of supported bootable CD-ROM drives.

b. **To begin installation using the installation diskettes and CD-ROMs**: with the power off, insert the diskette labelled "Installation Diskette 1 of 2" into the diskette drive, and turn your system on. After the first Installation diskette is loaded, you will be prompted for the second diskette; remove the first diskette, insert the second diskette, and press **Enter**. See "Creating installation diskettes" on page 29 for how to create Installation (and Network Installation) diskettes.

c. **To begin installation from a previously configured network server**: with the power off, begin the installation using either of the above two methods. If you use Installation Diskettes, also have both of the ``Network Installation Diskettes'' ready; you will be prompted for them at the point in the installation where you choose Network Install (Step 8). See "Creating installation diskettes" on page 29 for how to create Network Installation diskettes. You must also have another UnixWare system running a properly configured Network Install Server. Please see the UnixWare Documentation Web Site at **http://www.sco.com/support/docs/unixware** for complete instructions on staging Unixware 7.1.4 Installation from a network Install Server.

d. **To begin installation from a previously configured network server to a diskless workstation**: Please see the UnixWare Documentation Web Site at **http://www.sco.com/support/docs/unixware** for complete instructions on staging a diskless Unixware 7.1.4 Installation from a network Install Server, as well as how to configure your networking card to begin installation from the server.

Regardless of the method you choose, once your system displays hardware information and the system logo, you'll be asked to set the installation language. The language you choose also becomes the default language setting for the system after installation is complete. Choose the desired language and press **Enter**. After a moment, the **Welcome** window appears.

Step 3. From the **Welcome** window:

    a. If you have an installation response diskette you saved from a prior Unix-Ware installation, insert it and press **F3**. Press **F10** to continue after the disk loads. Skip to configuring a network adapter in Step 10.

    b. If you do not have a response diskette, press F10 to continue.

Step 4. The next several windows request time zone, locale, and keyboard information for your system. On each screen, use the arrow keys to make the appropriate selection and press **F10** to continue. See the "Installation checklists" on page 30 for a description of the required information.

Step 5. When the **System License** screen is displayed, enter the License Edition information for your system and press **F10**, or press **F8** to defer licensing and install the system with a 60-day evaluation license. See "Licensing Software" on page 10 for more information. If you use an Edition License from a previous release, you will also be prompted for an Upgrade License.

If you choose to defer licensing, you are asked to confirm that you want to install with a 60-day evaluation license. If this is the case select Yes and press **F10**.

Step 6. The system prompts you to load Host Bus Adapter (HBA) drivers for your system. Do the following:

    a. If you have a vendor-supplied HBA diskette or CD-ROM, insert it into the drive, select **Install HBA driver**, and press **F10**. (The first version of an HBA to be loaded takes precedence over any versions encountered on subsequent HBA media.)

    b. Repeat Step 6a until you load all vendor-supplied HBA media.

    c. After loading vendor HBA media (or if you have no vendor media), load the UnixWare HBA drivers from one of the following:

        CD #1   If your primary CD-ROM drive is an IDE/ATAPI drive, you can insert CD #1 into the drive, select **Install HBA drivers** and press **F10**. All UnixWare

HBA drivers will be loaded from the CD. Even if you began the installation from diskettes, you can use this CD to load HBA drivers if your CD drive is an ATAPI/IDE drive.

HBA Diskettes   If you do not have an IDE/ATAPI CD drive or you do not have CD #1, you can load the UnixWare HBA drivers from the three HBA Diskettes. Insert the first diskette into the diskette drive, select **Install HBA drivers** and press **F10**.

After you have installed all the HBA diskettes, select **Proceed with installation** and press **F10**.

Note that if you are installing from a Network Install Server, or if you do not insert any media and select Continue with installation at this screen, only the HBA drivers found in the CD Boot Image will be loaded. See "Verifying supported hardware" on page 20 for a list of the drivers in the CD Boot Image, the HBA diskettes, and CD #1.

Step 7. Once all HBAs are loaded, you may choose to enter the DCU to configure hardware drivers. Choose one of the following:

- Most devices are correctly auto-detected by UnixWare. For these installations, select **Do not enter the DCU (auto-configure drivers)** and press F10.

- In some cases, you must run the DCU to configure a device needed for installation (for example, older devices that may not support auto-configuration). Select **Enter the DCU (manually configure drivers)** and press F10. See "Configuring installation hardware" on page 96 for information on using the Device Configuration Utility.

After you choose one of the above, the system displays the detected or selected drivers as it installs them.

It is recommended that you only configure those devices needed to install UnixWare during the installation process. You can run the DCU after the system is installed to configure additional devices (such as serial ports).

Enter the node name of the system and press **F10**. *Do not* enter a fully-qualified node name (including the domain); the domain name is entered later during network configuration. For example, enter "hostname", rather than "hostname.domain.com".

Step 8. At the Installation Method window, select one of the following:

- **Install from CD-ROM**. Insert the CD-ROM into the drive and press F10.

  If **Install from CD-ROM** does not appear in the list, but a CD-ROM drive is present in your system, the device is probably not configured correctly. Select **Cancel installation and shut down**, re-start the installation, and run the DCU interactively as shown in Step 6 to configure the drive.

  If the drive is found, the install media is first verified before continuing to the next step.

- **Install from TCP network server**. Press F10 to continue.

  Follow the prompts described in "Configuring a TCP network installation" on page 63, and then go to the next step.

- **Cancel installation and shutdown**. This option cancels the installation and shuts down the system. Press F10 to continue.

Step 9. At the **Disk Configuration** screen, configure up to two detected hard disks. Use the **Tab** key to select the disk to configure, then press **F2**. Select one of:

- **Use the whole disk for UNIX** to use the entire disk for UnixWare and remove any pre-existing data on other partitions.

- **Customize disk partitions** to edit the partitions table or preserve pre-existing partitions. Enter the information from the "Partitions checklist and notes" on page 43 and press **F10** when done.

- **Re-load partition information from disk** to restore the configuration on your hard disk to what it was when you started the installation.

- **Do not modify** to skip modification of the second disk. This option does not appear for the first disk.

After you make your selections for both hard disks, press **F10**.

Step 10. Choose whether or not to customize filesystems and slices on your primary hard disk.

Select one of the following and press **F10**:

- **Use default filesystem sizes and types**: The defaults are adequate for most installations. For a description of filesystem defaults, see the "Filesystems notes" on page 46.

- **Customize filesystems and slices**: See the "Filesystems checklist" on page 44 for a complete explanation of how to customize the filesystems table. Press **F10** when done.

Step 11. Choose whether or not to customize special disk operations: surface analysis, boot block, and disk geometry options:

Select one of the following and press **F10**:

- **Use default disk options**. The defaults are to install a new boot sector on disk one and disable disk scanning and disk geometry resetting for disks one and two.

- **Customize disk options**. Select the disk options to enable or disable, then press **F10**. **Note:** resetting the disk geometry will remove all data on a disk, including data in non-UNIX partitions. This option is not enabled by default and should be used with caution.

Step 12. Choose a system profile:

- To install **License-Based Defaults**, a **Small Footprint Server** (minimal system), or a **Full (All Packages)** system from the media, highlight the appropriate choice and press**F10**.

- To customize the services and packages installed, highlight **Customize Installation of Packages** and complete the procedure "Manually selecting sets, services, and packages" on page 65 before continuing with the next step.

Step 13. The installer attempts to detect a network adapter, or it displays the network adapter you used to begin a network install. If other adapters are detected, they are displayed as well. Choose one of the following options to configure a single network adapter (additional adapters can be configured after installation using **scoadmin network**):

- **Use the detected adapter shown above**
  Choose this option and press **F10** if the adapter shown in the display is the one you want to configure. The system will use detected defaults to install the adapter.

- **Select from the detected adapters shown above**
  Choose this option and press **F10** if more than one adapter was detected. Then, select the desired adapter and press **F10**. The system will use detected defaults to install the adapter.

- **Select from the full list of supported adapters**
  Choose this option and press **F10** to manually configure an adapter from the list of supported adapters. Select the desired adapter from the list, then press **F10**. The system will then prompt for device-specific information from the "Network adapter checklist" on page 39. Press **F10** after you enter the required information.

- **Defer network configuration**
  If you choose this option, network adapter, TCP/IP and NIS configuration are deferred until they system is booted. Use the SCOadmin **Network Configuration Manager** to configure the network after installation is complete. Skip the next step and continue with Step 17.

Step 14. If you chose a network adapter in the last Step, **Configure TCP/IP Networking** by doing one of the following:

- If you plan to use a Dynamic Host Configuration Protocal (DHCP) server to set the TCP/IP configuration on the system after the first reboot, press **F2** to choose **yes** in the **Use DHCP?** box at the top of the screen. Select the appropriate **Frame format** in the box at the bottom of the screen, and press **F10**. Go to the next Step.

- If you want to define the TCP/IP configuration for your system now, enter the network configuration information from the "TCP/IP checklist" on page 40 and press **F10** when done.

- Press F8 to defer TCP/IP configuration.

Step 15. The system attempts to autodetect a mouse and displays the Mouse Configuration screen. If it finds one, it displays a message such as:

```
A PS2 Mouse has been detected on device node /dev/m320.
```

a. You can choose to **Configure/Reconfigure this Mouse**, **Manually Configure a Mouse**, or **Defer mouse configuration**. If these options are displayed, select one and press **F10**.

b. If no mouse is autodetected (or if you choose to **Manually Configure a Mouse**), select the mouse type from among **Serial Mouse**, **USB Mouse**, and **PS/2-compatible Mouse** (or choose **No Mouse** to defer configuration). Press **F10** to continue.

c. If you chose to defer mouse configuration above, go to the next step.

d. If you chose to configure a mouse, select the appropriate number of buttons (and serial port for a Serial Mouse) in the next screen displayed, and press **F10**. Follow the instructions to test the mouse. Verify the mouse is functional by moving the mouse and pressing a mouse button.

e. A message is displayed that tells you whether the mouse was configured successfully or not. Press **F10**; if the mouse was configured successfully, the installation continues with the next Step. If it was not, you go back to the Mouse Configuration screen.

Step 16. In the windows that follow, enter date and time, security level, system owner, and **root** (superuser) data, taking the information from the "General installation checklist" on page 31. On each screen, enter the required information and press **F10** to continue.

Do not forget the **root** password that you enter.

Step 17. View the license terms, select **Accept**, and press **F10** to continue.

Step 18. The system displays a message that it is ready to begin writing data to your hard disk. You are prompted to continue the installation, which will delete any data in the active partition and (depending on which special disk options you chose) possibly other partitions as well. At this point, you can:

- Continue the installation, by pressing **F10**.

- Save your installation answers to a pre-formatted diskette, by pressing **F3**. You can then use this diskette to quickly install this or another UnixWare Release 7.1.4 system using the same responses.

- Go back through the installation screens to change any of your answers, by pressing **F9**.

Step 19. After you confirm that you want to install the software on your system, the software load begins after any disk setup or badtracking. Software load is the longest stage of the installation. You can track the progress of the installation by viewing the progress indicator.

After the software is loaded, the kernel (*/stand/unix*) is rebuilt. This takes several minutes.

Step 20. After you see a message indicating that the kernel was rebuilt successfully, remove all diskettes and CD-ROMs from the drives on your system and press any key to reboot.

> **Note**: If you chose **yes** for the **Use DHCP?** option when you configured a network card, you can check the DHCP and Address Allocation Servers on your network now to see if an IP address was allocated to your machine as expected. After your system is completely installed, check the system startup messages in */var/adm/log/osmlog* for messages indicating that the system successfully obtained an IP address from the DHCP server.

Step 21. After the system reboots, you are prompted to insert the Updates CD #2 to continue the installation. Default selections are automatically highlighted for installation. You can override these defaults by selecting or de-selecting products. You can also defer installing this CD until a later time.

Step 22. After installing (or deferring) CD #2, you are prompted to insert the Optional Services CD #3. Select the products you want to install from the menu. You can also defer installing this CD until a later time.

Step 23. If you selected the Linux Kernel Personality for installation from CD #2, you are now prompted to insert the OpenLinux 3.1.1 Distribution CD #4, Once you insert it and press **Enter**, you are asked to choose an installation profile for OpenLinux 3.1.1. See "Installing the Linux Kernel Personality" on page 61 for a desription of the OpenLinux installation profiles. Once you choose a profile and press **Enter**, the OpenLinux software is copied from the CD. Once the sofware is installed, configuration scripts for various utilities and packages are run. When a message is displayed indicating that Linux Kernel Personality installation is complete, press **F10**.

Step 24. The system automatically boots into multi-user mode (if you installed software from CD #2 or CD #3, the kernel is first rebuilt). The graphical login screen should appear on the system console.

Step 25. You can now log in to the system and add additional packages from the other CDs in the media kit. See "CD-ROM Contents" on page 2 for a list of the packages included on each of the UnixWare CDs. For information on first-time setup tasks, including installing software from CD #2 and CD #3, see "After you install" on page 71.

Installing the Linux Kernel Personality

The Base OS CD #1 contains the kernel and includes files that are necessary to support the Linux Kernel Personlaity (LKP). These files are installed automatically as part of the installation process.

The Updates CD #2 contains the **lxcompat** package set that contains the LKP software as well as **lkpdoc**, the online LKP documentation. The **lxcompat** set is selected for installation by default, but can be de-selected and installed later. Similarly, you can install the lxcompat set from CD #2, and then defer the installation of the Linux RPMs from CD #4.

If you do not install LKP as part of installation or upgrade, do the following to add it to your running system:

Step 1. Do one of the following:

    a. To install the **lxcompat** set and the Linux RPMs, insert the Updates CD #2 into the CD-ROM drive and enter:

        /usr/bin/lkpinstall

    A package selection screen is presented; select LKP and the LKP documentation and continue the installation.

    b. To install only the Linux RPMs from CD #4, you do not need CD #2. Enter:

        /usr/bin/lkpinstall -r

Step 2. When prompted, insert the Linux RPM CD #4 in the CD-ROM drive. The CD is mounted automatically. Select an installation profile:

All Packages	(Recommended) Installs all of the non-commercial software available on the OpenLinux CD.
Web Server	Installs packages best suited for creating a web server.
File/Print Server	Installs a set of packages best suited for creating a dedicated file and print server.
Network Server	Installs a generic set of services, such as DHCP, NNTP, Sendmail, and FTP, for creating a basic network server.
Minimum Server	Installs a basic OpenLinux system. It is intended to be used as the base for a highly customized server.

Step 3. When all RPMs from the CD have been installed and configured, you can review the results in:

/linux/var/tmp/lxrpms.log
/linux/var/tmp/lxrpms.err

You will need at least 128 MB RAM to use LKP effectively. Installing all packages

(recommended) from the OpenLinux distribution (available on a separate CD-ROM) requires approximately 1.5 GB of disk space in the root filesystem.

Configuring a TCP network installation

Follow this procedure when you choose **Install from TCP server** in Step 8 on page 56 to install Release 7.1.4 from a previously configured Network Install Server. See "Setting up a Network Install Server" on page 30 for more information.

Step 1.   From the **Install Server** window, choose **Configure Networking Hardware**.

The system attempts to detect a network adapter on your system.

- If zero or one adapters are detected, you move directly to the **Adapter Selection** window; go to the next step.

- If more than one adapter is detected, or if the system cannot associate an adapter type with the detected chipset, you are prompted to select the correct adapter type or choose to ignore the detected adapter. Press **F10** to continue.

Step 2.   The installer attempts to detect a network adapter, or it displays the network adapter you used to begin a network install. If other adapters are detected, they are displayed as well. Choose one of the following options in the **Adapter Selection** window to configure a single network adapter (additional adapters can be configured after installation using **scoadmin network**):

- **Use the detected adapter shown above**
  Choose this option and press **F10** if the adapter shown in the display is the one you want to configure. The system will use detected defaults to install the adapter.

- **Select from the detected adapters shown above**
  Choose this option and press **F10** if more than one adapter was detected. Then, select the desired adapter and press **F10**. The system will use detected defaults to install the adapter.

- **Select from the full list of supported adapters**

  Choose this option and press **F10** to manually configure an adapter from the list of supported adapters. Select the desired adapter from the list, then press **F10**. The system will then prompt for device-specific information from the "Network adapter checklist" on page 39. Press **F10** after you enter the required information.

- **Defer network configuration**

  If you choose this option, network adapter, TCP/IP and NIS configuration are deferred until they system is booted. Use the SCOadmin **Network Configuration Manager** to configure the network after installation is complete. Skip the next step and continue with Step 17.

When prompted, insert the requested **Network Installation** diskette and press **F10**.

Enter the required configuration parameters for the selected adapter from the "Network adapter checklist" on page 39. Pressing **F2** presents a list of valid choices for each parameter. When you finish entering all parameters, press **F10**.

Step 3.   If you chose a network adapter in the last Step, **Configure TCP/IP Networking** by doing one of the following:

- If you plan to use a Dynamic Host Configuration Protocal (DHCP) server to set the TCP/IP configuration on the system after the first reboot, press **F2** to choose **yes** in the **Use DHCP?** box at the top of the screen. Select the appropriate **Frame format** in the box at the bottom of the screen, and press **F10**. Go to the next Step.

- If you want to define the TCP/IP configuration for your system now, enter the network configuration information from the "TCP/IP checklist" on page 40 and press **F10** when done.

- Press **F8** to defer TCP/IP configuration.

Step 4.   Select **Continue with installation** and press **F10**. If the network adapter you chose is configured correctly and the Install Server responds to your request, return to the main installation procedure at Step 9 on page 56.

If the Install Server is unreachable, you may need to reconfigure the protocol parameters to, for example, specify a different server address.

Manually selecting sets, services, and packages

Follow this procedure if you chose **Customize Installation of Packages** in Step 12 on page 57.

Step 1.   Select a set to configure from the list and press **F10**.

Each set is made of several services, which in turn consist of individual packages. Each service is set to be partially installed (PART), fully installed (FULL), or not installed (OFF) according to the terms of the operating system edition license you entered previously.

Step 2.   Highlight the service you want to customize and press **F2**. Choose to:

Select individual packages
                    Skip to step 3.

Select all packages (FULL)
                    Skip to step 4.

Select no packages (OFF)
                    Skip to step 4.

For each package, press the space bar to toggle the selection on or off. Press **PgUp** and **PgDn** to move through the complete list of packages.

When done making selections, press **Enter**.

Step 3.   Repeat the previous step for each service you want to configure. When done configuring all services, press **F10**.

Step 4.   Highlight another set to configure, and repeat steps 1 to 4.

When you finish configuring sets, select **Accept current selections and continue** and press F10.

Step 5.   If a package you select has dependencies on a package you de-selected, you are prompted to choose one of the following:

- **Resolve Dependencies Automatically**
  Automatically selects necessary packages. Go to step 6.

- **View List of Needed Packages**
  Displays necessary packages so you can decide whether to automatically resolve dependencies or go back and manually alter your selections. Follow the instructions on the screen to view the dependencies list for each package, then press **F9** and choose to resolve dependencies automatically or return to package selection.

- **Return to Service/Package Selection**
  Allows you to manually alter your selections. If you select this option, go back to step 1.

Step 6.   After you resolve any dependency issues, rejoin the main installation procedure at Step 15 on page 59.

Performing an upgrade installation

Use the **Upgrade Wizard** to upgrade your UnixWare 7.1.1, 7.1.2 (aka Open UNIX 8), or 7.1.3 system to UnixWare 7.1.4.

How the Upgrade Wizard works

When you upgrade your system, the **Upgrade Wizard** intelligently maps default software selections to the software currently installed. If you accept the default selections throughout the upgrade procedure, your system will contain all of the available software upgrades that apply to your current installation. Additional packages can be installed manually using **pkgadd**(1M) command.

The **UpdateSet** is automatically installed when you run the **Upgrade Wizard**, including on subsequent invocations if the Wizard detects that the package needs to be re-applied. Default package selections for other software on the Updates CD #2 and the

Optional Services CD #3 are displayed after the UpdateSet is installed.

You modify these default selections, by de-selecting unwanted software or adding software you had not previously installed, during the software selection phase of the **Upgrade Wizard**.

To ensure the correct functioning and supportability of your upgraded system, the **Upgrade Wizard** always upgrades components from the Updates CD-ROM if they already exist on your system. For example, the X11 packages will be upgraded automatically (without the option to de-select the upgrade) when you run the **Upgrade Wizard** to install Release 7.1.4.

If the **Upgrade Wizard** has already been used to update the system, you may add additional software from the CD #2 and CD #3 to your Release 7.1.4 system using the **pkgadd**(1M) command. Place the appropriate CD in the primary CD drive and enter the following command to see all the defined sets on the CD:

    pkgadd -qd cdrom1 *name*

where name is the name of the package or set. See "CD-ROM Contents" on page 2 for a list of the sets and packages on each CD.

You can also use the **scoadmin application installer** to install sets and packages using a graphical interface.

The upgrade procedure

The Updates CD #2 is used to begin an upgrade from a previous release to UnixWare 7.1.4; CD #1 is not required for upgrades.

Step 1.   Install the Release 7.1.4 **uli** package from the Updates CD #2. Insert the CD into the drive and enter:

        pkgadd -qd cdrom1 uli

Step 2.   Start the **Upgrade Wizard**:

        •   from the command line, by entering **scoadmin upgrade**, or **uli**.

- from the SCOadmin launcher, by selecting **Software_Management** and then **Upgrade Wizard**

Step 3. The Welcome window appears. Use the following buttons to navigate the **Upgrade Wizard** and get help:

Previous   move back to the previous screen

Next   move forward to the next screen when done entering data

Cancel   exit the **Upgrade Wizard** without making changes

Help   view additional information to help you complete a task

Select **Next** to proceed.

Step 4. Read the software license agreement and select **Accept** if you agree with its terms.

Step 5. If there is more than one CD-ROM drive on your system, choose the drive from which to install; select **Next**.

Step 6. When prompted, insert the Updates CD #2 in the CD-ROM drive you specified and select **Next**.

Step 7. The **Upgrade Wizard** attempts to detect the type of Edition License that is currently installed on your system. If it cannot find your current license information, you will need to enter the **License Number**, **License Code**, and **License Data** from your *original* Edition License (the license with which you originally installed Release 7.1.1, 7.1.2, or 7.1.3). Select **Next** after you enter the required data. Run the License Manager if you are prompted for this information (see "Starting The License Manager" on page 84) and use the **License-View** command to see the current Edition License information.

Step 8. Enter your upgrade **License Number**, **License Code**, and **License Data**; then, select **Next**.

The CD-ROM is verified and read, and the UpdateSet is installed.

Step 9. The software selection window for the Updates CD #2 appears. Default selections are already selected for upgrade based on the currently installed software on your system.

You can:

- Add a component to the installation list, by highlighting the desired component in the "Available Packages" list and selecting **Add**.

- Remove a component from the installation list, by highlighting the desired component in the "Chosen Packages" list and selecting **Remove**.

- View details about any package, by highlighting the package and selecting **Details**. The information shown includes package space and inode requirements and dependency lists.

Note: If you are using the non-graphical **uli** interface from the console or a terminal window, use the Tab and arrow keys to navigate between the lists, use Spacebar to select packages in a list, and use Enter to move selected packages to the other list (or, select packages using Spacebar, Tab to the Add or Remove button, and press Spacebar to move the selected packages).

Packages that are being automatically upgraded by the Upgrade Wizard are *not* displayed in the Package Selection List. To see a complete list of all packages selected for installation, select **Details**.

Select **Next** when the additional packages that you want to install appear in the **Chosen Packages** list.

Step 10. The selected software is displayed. Select **Next** to install this software, or **Previous** to go back and alter your selections.

After you select **Next**, you cannot return to the software selection window for this CD-ROM. Please be certain that the software you selected is the software you want to install.

Step 11. Each package is installed onto your system. If the package requires user input, follow the prompts and enter the required data. When the **Upgrade Wizard** finishes loading all packages, proceed to the next step.

Step 12. When prompted, insert the Optional Services CD #3 in your CD-ROM drive; then select **Next**. The CD-ROM is verified and read.

Step 13. Select software as you did in Step 9 on page 69, then select **Next** when finished.

Step 14. Select **Previous** to alter your software selections. Select **Next** to install the selected software from the Optional Services CD; you will be prompted for information appropriate to each application (such as licenses and configuration information) as they are installed.

If you chose to add non-default packages that are not enabled by your License Edition, the software is installed with a 60-day evaluation license. Contact your vendor to purchase a full license if you decide to continue to use this software; then use the **License Manager** to apply the new license. See "License Editions" on page 10 and "Using the License Manager" on page 83.

Step 15. Select **Finish** to exit the **Upgrade Wizard**.

The Wizard informs you if it is necessary to re-boot your system so that the changes you made can take effect.

After you upgrade your system, you should *immediately* re-create your emergency recovery media. See *Installation and Licensing* in the online help on **http://localhost:8458** for instructions.

Chapter 4:
After you install

This chapter refers frequently to the online documentation. If you want to read this chapter online and follow the links in the text, then open **http://*nodename*:8458** with any installed browser and look under **Installation and Licensing > Getting Started Guide**. *nodename* is your system's network name, IP address, or **localhost** (if you are using a browser on the UnixWare system).

After you install UnixWare 7, it is recommended you read and follow these instructions:

- "Installing Additional Software" on page 72

- Creating emergency recovery media is described under **Backup and Restore** in the online documentation.

- If you installed the Linux Kernel Personality (LKP), configure your system to use LKP using the information found under **Linux Kernel Personality** in the online documentation. This documentation is installed with the lxcompat set on the Updates CD (CD #2), which contains the lkpdoc package.

- "Configuring additional hardware" on page 73.

- "Configuring and administering the system" on page 75.

- "Specifying a desktop to use" on page 77

- "Configuring and using DocView" on page 79

- "Getting updated information about your system" on page 80

- "Verifying the installation of packages" on page 80

- "Large physical memory support" on page 80

- "Switching auditing on" on page 81

- If you have additional product or feature licenses that you did not enter during installation or upgrade, see "Using the License Manager" on page 83 for information on using the License Manager to enter them, as well as how to register your products.

Complete documentation on all of these tasks is found in DocView, on **http://localhost:8458**. This chapter presents a brief introduction to these initial setup tasks, with pointers to the online documentation for more information.

Installing Additional Software

After you have installed UnixWare, you can use either the Upgrade Wizard or the **pkgadd**(1M) command to install any packages that you did not select when you installed CD #2 and CD #3. Any software not selected from CD #1 (or any other CD in the media kit) must be installed using **pkgadd**. (Note that most software on CD #1 is also on CD #2 for upgrade installations.)

For a complete list of the packages and sets on each CD in the media kit, please see "CD-ROM Contents" on page 2.

To use the Upgrade Wizard, follow "The upgrade procedure" on page 67.

To use the pkgadd command:

Step 1. Log into the system as **root**.

Step 2. Insert a CD from the Media Kit into the primary CD drive on your system and enter:

   mount /dev/cdrom/cdrom1 /install

Step 3. List the Sets on the CD. Sets are collections of packages that can be installed as a unit using the set name as the argument to **pkgadd**. They can be listed using this command:

 pkginfo -c set -d /install

Step 4. List the individual packages on the CD:

 pkginfo -d /install

Step 5. Install the desired packages and sets; use one or more package and set names from the previous two steps in the command below:

 pkgadd -d /install *name...*

 Note that you may find that a package will fail to install because one or more prerequisite packages were not found. If this happens, install the indicated prerequisite packages and attempt to install the desired package again.

Step 6. If you are directed to re-install a package as a result of installing one or more packages in the previous step, do so now.

Step 7. If the installation of one or more packages requires you to reboot the system, you can do so using the following command after you have installed all desired packages:

 shutdown -i6 -g0 -y

Configuring additional hardware

The UnixWare 7 system provides SCOadmin managers and other utilities with which you can install and configure additional hardware.

Audio

Use the **Audio Configuration Manager** to add and configure sound cards. You can play and record audio files with the **scosound**(X1) utility. For more information, see **Hardware > Configuring audio adapters** in the online documentation.

Printers

Use the **Printer Setup Manager** to:

- add, modify, copy, or remove local and remote printers
- specify the default printer
- enable or disable a printer
- set the printer up to accept or reject print jobs

For more information, see *Managing the print service* under *Hardware* in the online documentation.

Network

Use the **Network Configuration Manager** to configure LAN network adapter drivers, WAN hardware, and LAN and WAN protocols. For more information, see *Configuring network adapters* under *Networking* in the online documentation.

Video

Use the **Video Configuration Manager** to:

- add or remove graphics adapters from your system
- add or remove monitors from your system
- change the resolution and mode of your graphics devices

For more information, see *Configuring video adapters and monitors* under *Hardware* in the online documentation.

Modems

Use the **Modem Manager** to add serial modems to your system.PCMCIA modems are configured using the Device Configuration Utility (DCU). ISDN bus adapters are configured with the **Network Configuration Manager**. For more information, see *Adding and configuring modems* under *Hardware* in the online documentation.

Serial lines

Use the **Serial Manager** to configure individual serial ports on COM1 through COM4. For more information, see *Configuring serial ports* under *Hardware* in the online documentation.

Mass storage

Use the Device Configuration Utility (DCU) to add support for tape, CD-ROM, and hard disk drives which were not auto-detected during the installation process. See the dcu(1M) manual page, *Using the Device Configuration Utility* under *Hardware* in the online help, and "Installing Hardware" on page 95.

Configuring and administering the system

For information on how to configure and manage the Linux Kernel Personality, see *System Management* under *Linux Kernel Personality* in the online documentation.

SCOadmin is the primary system administration tool in UnixWare 7. With SCOadmin managers, you can configure and then administer the following key services on your system. Use the Search mechanism in the online documentation on http://localhost:8458 to find the sections referenced below.

Users and Groups

Use the **Account Manager** to:

- add, modify and remove users and groups
- change a user's locale
- set remote access permissions
- modify system user and group defaults

See *Administering user accounts* under *Users and Groups* in the online documentation.

Filesystems

Use the **Filesystem Manager** to add, modify, and remove filesystems.See *Administering filesystems* under *Filesystems* in the online documentation.

FTP

Use the **FTP Server Manager** to:

- enable anonymous **ftp**
- control access to your **ftp** server and its files and directories
- view **ftp** log files

See *Administering File Transfer Protocol (FTP) servers* under *Networking* in the online documentation.

Name Service

Use the **DNS Manager** to:

- configure a host as a name server
- modify zone configuration files

- define resource records and other configuration information

See *Administering Domain Name System (DNS) servers* under *Networking* in the online documentation.

Mail

Use the **Mail Manager** to configure the mail system on your computer.See *Configuring mail and messaging* under *Mail and Messaging* in the online documentation.

Network protocols

Use the **Network Configuration Manager** to:

- add, modify, and remove network protocols (TCP/IP and PPP)
- add, modify, and remove network hardware from your system

See *Configuring LAN connections* and *Configuring WAN connections* under *Networking* in the online documentation.

Additional SCOadmin managers enable you to configure advanced networking, security, process management, and other capabilities. For general information on using SCOadmin, see *Administering your system with SCOadmin* under *Desktops* in the online documentation.

Specifying a desktop to use

By default, UnixWare 7 displays the graphical login program,**dtgreet**, when you boot the system into multiuser mode. To choose a desktop, select one of the following from the graphical login's **Sessions** menu:

CDE Desktop

This desktop is the preferred desktop for UnixWare 7. It conforms to the Common Desktop Environment standard, and provides the following features:

- a convenient, easy to use task bar
- calendar and help applications
- access to all SCOadmin managers and configuration tools from the desktop
- a graphical login

This desktop is enabled by default.

For more information on the CDE desktop, click above the **Help** icon on the CDE desktop, then click on **CDE Help**.

Panorama Desktop

This desktop, based on **pmwm** release 2.0, contains the following features:

- standard task bar
- panner window
- desktop preferences editor
- cascading root menu
- calendar, mail, and login clients

For more information, see the manual page for **pmwm**(X1).

Failsafe Session

This desktop is available if you corrupt your CDE desktop configuration files. It provides a basic, uncustomized CDE desktop.

Configuring and using DocView

DocView is enabled by default in all system profiles except Small Footprint. It serves all the online documentation mentioned in this book on **http://localhost:8458**. Doc-View replaces the SCOhelp browser used in previous releases. For more information on DocView, see the *Release 7.1.4* section under *New Features and Notes* in the online documentation.

DocView uses a search engine based on **htdig**, After you install all software and documentation, you must create the search index using the **/usr/lib/docview/conf/rundig** command. This process can take an hour or longer depending on how much documentation is installed, so it is recommended that you run the command when the system load is minimal.

To start the docview server (or find out whether it is running), use the **/etc/docview** command. In most installations, DocView will start by default when the system is booted.

To view the documentation served by DocView:

- Enter **docview** at the command line in an **xterm** window on your desktop.
- From the CDE desktop, double-click on the **Help** icon.
- From the Panorama desktop, double-click on the **Help** icon.
- Point any browser (including a browser running under LKP) at **http://local-host:8458**. Browsers on other systems on your network can also connect to the DocView server at **http://*sysname*:8458**, where *sysname* is your system's fully qualified node name, such as **mysystem.mynet.com**.
- From within an SCOadmin manager, point to (or highlight) the item you want help on and press F1. Or, click on the**Help** button if one is available.

For more information on configuring and using advanced features of DocView, see *Desktops* in the online documentation.

Getting updated information about your system

Two important web sites serve information about UnixWare systems:

- The Support Library (**http://www.sco.com/support**) contains UnixWare technical articles and provides solutions to common problems you might encounter. You can search by product, keywords, and article numbers.

- The *Late News* documentation site contains information about known software and hardware limitations that became known after this release of UnixWare 7 became available. *Late News* can be found off the Documentation Web Site at **http://www.sco.com/support/docs/unixware**.

Verifying the installation of packages

When you install your system or layer on new packages, you might run the **pkgchk**(1M) command to verify that package installation proceeded correctly.

It is typical to see a number of errors when running this command, due to the interaction between the various packages on your system. You should make a note of any errors you find, but *do not* attempt to fix these errors with **pkgchk -f**. This command is currently not supported and may cause your system to fail or not reboot. There is no current workaround.

Large physical memory support

Any machine which contains memory at or above address 4G (2^32) requires large physical memory (LPM) support. Setting ENABLE_4GB_MEM=YES in */stand/boot*

allows detection of memory above 4GB. Using system tuning, physical memory can be divided into "dedicated" and "general purpose" segments.

See *Managing Large Physical Memory* in the online documentation at http://local-host:8458/en/SM_perform/CTOC-MngSysPerf.html for details of how to configure LPM support.

Switching auditing on

Even if you select the auditing package and therefore install it during the installation procedure, auditing is not turned on by default when the system boots.

To turn auditing on manually, run **auditon** as root. You should run **auditoff** to turn auditing off before you shut down the system. Rebooting the system with auditing switched on is very slow and should be avoided.

To switch auditing on and off automatically, edit *ceto/rc2.d/S02audit* to remove the comments from the lines that execute the commands **auditon** and **auditoff**.

Auditing cannot provide audit records for Linux Kernel Personality (LKP) mode activities on your system. See the **auditon**(1M) manual page for more details.

Chapter 5:

Using the License Manager

Use the **License Manager** to both license and register additional products that you install after the system is up and running. Many add-on products prompt you for a license during installation, but some products (like the ability to support more memory and the SCO Update Service Enabling License) are not installed; instead, they are enabled by entering a new license.

This chapter shows you enough to get you going using the License Manager right after installation. More information is available in the online help on **http://localhost:8458**, by clicking on *Installation and Licensing*.

- "Starting The License Manager" on page 84

- "Licensing products" on page 84

- "Registering products" on page 85

- "Troubleshooting license and registration problems" on page 87

Starting The License Manager

Log in as root (or the system owner) and start the **License Manager** in one of these ways:

*   Enter **scoadmin** on the command line (or start SCOadmin from the CDE or Panorama desktops). Select **License Manager** from the SCOadmin menu.

*   Enter **scoadmin license** on the command line.

The **scoadmin** command only recognizes the spelling "license", not "licence".

Once you start the License Manager, it displays the product licenses currently installed on the system.

Licensing products

To enter a new product license, from the **License Manager** main screen:

1. Select **License–Add** from the command menu.

2. Enter your license information:

    *   **License Number**
    *   **License Code**
    *   **License Data** (not provided with every license)

3. Click on **License**.

The **License Manager** main screen displays your new license, and the appropriate software should now be enabled. (Note that a SCO Update Service License is not enabled until you register the license, and enter the Registration Key into the License Manager. Some Update Service Licenses are pre-registered; a pre-registered license is enabled as soon as you add it.)

Your system software displays reminders about unregistered software. To determine which products have been licensed or registered, use the **View** menu command in the License Manager. See "Registering products" on page 85.

Removing product licenses

To remove a license, highlight the licensed product from the License Manager's main screen, and then select **License–Remove** from the command menu. Once you remove a product license, that product's functionality will be unavailable on the system.

Registering products

The benefits of registering your installed software products are discussed in the section "Registration" on page 15. Follow this procedure to register any installed product.

Note that you must register your UnixWare Edition License before you can register the other products on your system. If you have an Update Service Enabling License, you can register that license instead, and your Edition license will be automatically registered along with the SCO Update Service. See "Licensing Software" on page 10 for more information on product licenses.

1. Start the **License Manager**; see "Starting The License Manager" on page 84. The **License Manager** displays a list of installed licenses.

2. Do one of the following to bring up the Registration window:

    • Double-click on the license you want to register.
    • Highlight the license to register in the list and select **License–Register** from the menu.
    • Highlight the license to register and click on the Registration icon.

3. The **License Manager** displays the Registration Lock for the license you selected in the last step. Mail is also sent to the logins specified in the file */var/sadm/install/ default* containing the Registration Lock.

The mail's Subject: line contains the selected license's Serial Number (the License Number on the License Manager's Registration window). The mail's content contains the Registrations Web Site's URL attached with a query containing the license's Registration Lock. You need to go the the Registration Web Site, detailed in the next step, in order to obtain the Registration Key that needs to be entered in the License Manager's Registration window. It is suggested that you leave the Registration window open while you are obtaining the Registration Key from the Registration Web Site.

4. Go to the Registration Web Site using one of these methods:

    • If your email reader is web-enabled, read your mail and look for the message containing the Serial Number of your License. Click on the URL in the mail to go directly to the Registration Web Site. This method also populates the registration form with your Registration Lock. We recommend using the email method when you need to register multiple products.

    • Open a browser window and go to **http://www.sco.com/support/registration**. Follow the prompts to create a user account (or access your current account), and select the product you want to register. Complete the product registration form. Use your mouse (or keyboard commands) to copy the Registration Lock for the product you are licensing from the License Manager (or email) to the product registration form; or, use the Web Site's **Browse** button to select the */var/netls/reginfo.db* file on your local system and download it to the web site (this file contains the Registration Lock of the product you last accessed using **License-Register** in the License Manager).

    Upon completion of the online Product Registration Form, your Registration Key will be automatically generated on the screen.

5. If you still have the Registration Lock window for the appropriate product open, enter the Registration Key into the apppropriate box on the Registration Lock window. Otherwise, select the product for which you just obtained a Registration Key and click on **License–Register**. Enter the Registration Key into the appropriate box and click OK.

    Registration of the product is now complete.

When you register an SCO Update Enabling License, the Update License is activated

and you can begin using the SCO Update Service to obtain system software updates via the web.

Once all the products on a system have been registered, registration reminder messages should no longer appear when you login.

Note: Your software generates a new System ID each time you install the operating system. If you reinstall your system, you must repeat the registration process and obtain a new Registration Key.

Troubleshooting license and registration problems

The following represent the most common difficulties with licensing and registration:

- ”License Manager will not accept registration key” on page 87

- ”License Manager will not accept license information” on page 88

- ”License has expired” on page 89

- ”No user licenses were found on this machine” on page 90

- ”Policy manager has died” on page 90

Note also that TCP/IP must be configured and running in order for the License Manager to run. If you deferred network setup during installation, enter **scoadmin network** at a shell prompt (as root) to launch the Network Configuration Manager, configure a networking card, and configure and start TCP/IP.

License Manager will not accept registration key

If the Registration Key is invalid or was entered incorrectly, an error message appears.

Verify that you entered the Registration Key correctly and that you did not type the System ID by mistake. If you still receive the error message, contact the organization that issued your license to verify that your Registration Key is accurate.

License Manager will not accept license information

Make sure that you entered the license information correctly. Occasionally, characters on the license are difficult to read.

If you are entering a new Edition License or SCO Update License, it is also important that the callback and registration specifiers in the license match exactly. These are found in the License Data part of the license information, after the letters "k" and "q". If the digits after these letters do not match, the new license is rejected. Contact the organization that provided you with the new license, and have your existing license information ready so that the proper license can be issued to you.

Licensing Policy Manager Daemon (sco_pmd) has terminated

If the policy manager daemon terminates, you might see this message:

```
The Licensing Policy Manager Daemon (sco_pmd) has ter-
minated and been restarted. This is a normal occurrence
only when a license is removed with the License Manager
utility.  If this is not the case, your system may have
a problem which could lead to undesirable behavior.
Contact your service provider if you suspect that there
is a problem.
```

Or you might see this message:

```
No user licenses were found on this machine. Please
boot single-user and correct this situation. Licensed
software will not operate until user licenses are
```

```
installed. The License Policy Manager Daemon (sco_pmd)
was unable to start. This is usually due to a read-only
root filesystem, lack of user licenses or a damaged
program image file (/etc/sco_pmd). If this is not the
case, please contact your service provider.
```

The policy manager daemon is a background process that monitors licensing on the system. If you are using an Evaluation License on your system that has has expired, then your system will display this message. Contact the supplier of the software to obtain a valid license for your software. If you do not have an Evaluation License, see ”Policy manager has died” on page 90.

License has expired

If the **License Manager** indicates your operating system license is expired, check the system clock by entering the date(1) command. If the date is incorrect, you should log in as root (or the system owner) and enter this command:

```
setclk
```

This updates the system time with that of the battery-powered hardware clock (CMOS). If date is still incorrect, use this form of the **date** command to update the system clock.

```
date MMDDhhmmYY
```

where *MMDDhhmmYY* is the correct time in month-day-hour-minute-year format. For example, here is the correct entry for 9:31 AM on August 31, 1997:

```
0831093197
```

Once you have changed the clock time to reflect the current time, reboot your system, start the **License Manager** and check to see if the license has changed from `Expired` to `Yes.` Your operating system license should be fully operational within the options specified by the license.

Checking for product license expiration

The expiration information for licenses is shown in the main display for the **License Manager** under **Status**. If you have an expiring license, the display will read `Valid Until` *date*.

No user licenses were found on this machine

If you see this message at boot time:

```
No user licenses were found on this machine. Please
boot single user and correct this situation. Licensed
software will not operate until user licenses are
installed. The License Policy Manager Daemon (sco_pmd)
was unable to start. This is usually due to a read-only
root filesystem, lack of user licenses or a damaged
program image file (/etc/sco_pmd). If this is not the
case, please contact your service provider.
```

This error message is usually caused by a system clock that is grossly out of date. It may also may result from a lack of user licenses or a corrupted policy manager daemon (**/etc/ sco_pmd**). See "Policy manager has died" on page 90 for more information.

Policy manager has died

If any application reports a license failure and you believe that this is incorrect, it is possible that either the policy manager daemon, **/etc/sco_pmd**, has stopped and not restarted, or some crucial file required by the policy manager to satisfy the login request is missing or corrupted.

You may be logged out and be unable to log in to troubleshoot the problem. Additional error messages may also appear. If so, simply turn the system off and reboot. If the error messages persist when the system is brought up, follow the procedures described here.

Here are possible specific sources of corruption or malfunction:

- "The /etc/sco_pmd binary is corrupted or missing" on page 91

- "Key files or directories are missing" on page 91

- "The root filesystem is mounted read-only" on page 92

- "No user licenses exist, or there are no more licenses" on page 92

The /etc/sco_pmd binary is corrupted or missing

The policy manager (**/etc/sco_pmd**) must be present and running for your system to function. If the */etc/sco_pmd* file is missing, restore it from backups.

Key files or directories are missing

The directory */pmd* or its contents, the named streams pipes *IPCCT_pipe*, *PMDCT_pipe*, *LST_pipe*, and the file *sco_pmd.pid*, are corrupted or missing.

If */pmd* exists, but any of its file contents do not, restore them by stopping and restarting **/etc/sco_pmd**. In order to do this, perform these steps:

1. Enter the command:

    ```
    ps -ef | grep sco_pmd
    ```

    which should return a line similar to this:

    ```
    root   11    1 TS  70  0   Nov 26 ?    0:00 /etc/sco_pmd
    root   12   11 TS  80  0   Nov 26 ?    0:03 /etc/sco_pmd
    ```

    Any of the numbers shown may vary on your system, with the exception that one of the entries should have "1" in the third field (parent process ID). This is the "parent" copy of *sco_pmd*, and the other entry is the"child", whose parent process ID should match the second field (process ID) of the parent entry.

2. Kill the child process for **sco_pmd**. In the example, the command would be:

    ```
    kill 12
    ```

3. In a few moments, run the **ps** command again. You should observe that a new child **sco_pmd** is running.

4. Check the contents of */pmd*. You should see four files:

    ```
    IPCCT_pipePM
    DCT_pipe
    LST_pipe
    sco_pmd.pid
    ```

If licensing problems persist, kill all of the child daemons shown in the output from step 1 and remove the contents of */pmd*, then enter:

```
/etc/sco_pmd
```

The root filesystem is mounted read-only

This has been identified as a common reason for policy manager-related failures. Of course, in this case, the policy manager errors would accompany many write failures to root filesystem, with corresponding error messages.

You can see if the root filesystem is mounted read-only by running the **Filesystem Manager**. The **Access Mode** is listed in the main display. If this is the case, modify the mount configuration to be read-write.

No user licenses exist, or there are no more licenses

First, determine how many users are already logged in to the system. A user is defined as a distinct physical keyboard or a login over the network. If indeed the system has run out of licenses to check out, the only way to avoid the error message is to add user licenses by purchasing an additional-user license product.

If the login user count has not been exceeded, it is possible that the license database itself has been corrupted. Follow the steps below to re-apply the user licenses on the system. This procedure assumes that user licenses are supplied only through the Unix-Ware 7 Certificate of License and Authenticity. If you have already licensed additional users with a separate user-license product, apply the procedure to that product *first*.

1. Use the **wall**(1M) command to tell all users to log off the system.

2. When all users are logged off, invoke the **License Manager**. Use the **View** menu command to view and record all license information for your UnixWare Edition license and any user license packs.

3. If any additional user license packs are installed, remove them by highlighting each one and selecting **License–Remove** from the command menu.

4. After removing all user license packs, highlight the *UnixWare 7* Edition license, and select **License–Remove** from the command menu.

5. Re-license UnixWare 7 by selecting the **License–Add** from the command menu. Re-enter your UnixWare Edition license data.

6. Re-apply any user license packs by selecting the **License–Add** from the command menu. Re-enter your user license data.

7. Run the **grep** command discussed in "Key files or directories are missing" on page 91 to check whether the policy manager daemon is running. If two instances of the */etc/sco_pmd* process are not running, issue this command to restart the policy manager:

   ```
   /etc/sco_pmd
   ```

   Repeat the **grep** command to verify that two instances of *sco_pmd* are running.

8. Tell users to log back in to the system.

Appendix A:
Installing Hardware

This appendix covers:

*   "Supported hardware" on page 95
*   "Hardware compatibility issues" on page 95
*   "Configuring installation hardware" on page 96

Supported hardware

SCO is constantly adding support for additional hardware devices. Check the Compatible Hardware Web Pages at **http://www.sco.com/chwp** to see if the hardware you are using is currently supported on Release 7.1.4. If you need to download an updated or new driver, this site will tell you where to get it.

For hardware limitations and workarounds, see the Support Library at **http://www.sco.com/support** and the *Late News* documentation site for Release 7.1.4 at **http://www.sco.com/support/docs**.

The Release 7.1.4 online documentation served locally at **http://localhost:8458** also lists new hardware support at the time of product release in the *New Features and Notes* section.

Hardware compatibility issues

Except where noted, the hardware described in UnixWare documentation has been tested. However, because the manufacturers of compatible machines or add-on peripherals may change configuration, functionality, or firmware at any time, no guarantee is implied.

To determine whether hardware components are compatible with your machine, you must know the processor (for example, Pentium II, Pentium III, AMD) and the bus architecture (ISA, EISA, MCA and PCI) that it uses. You should also be aware of the type of disk controller in your system.

If you have added any adapters, make sure that all switches or software-controlled settings are set as recommended in the manufacturer's hardware manual for that board. Some hardware requires specific switches or software-controlled settings to work with UnixWare 7. If your hardware does not work with UnixWare 7 with the settings as shipped, contact the hardware manufacturer for the proper settings. Hardware compatibility issues known to The SCO Group can be found in the resources listed in the section "Supported hardware" on page 95.

Configuring installation hardware

UnixWare 7 automatically determines the correct hardware settings for EISA, MCA, and PCI hardware devices needed to install the system. If you have an ISA device, or the devices in your system have hardware conflicts such as duplicate interrupt vectors, you need to enter the Device Configuration Utility (DCU) by selecting **Run the DCU interactively** during the installation.

You can also enter the DCU after installing your system, to add additional hardware devices not needed by the installation. Enter **dcu** at a shell prompt, as **root**. Also see the **dcu**(1M) manual page.

UnixWare 7 provides several other hardware configuration managers to configure network, modem, print, audio, and video devices after you install the system. See "After you install" on page 71.

Navigating the DCU is comparable to navigating the installation windows, with similar cursor movement, text entry, and help keys active.

The rest of this chapter describes:

- "Viewing hardware device configuration" on page 97 (to view all detected and configured hardware on your system)

- "Modifying hardware device configuration" on page 98(to resolve interrupt, I/O, and memory conflicts between devices)

- "Viewing and activating software device drivers" on page 99

- "Adding a new controller for a device driver" on page 101

During a fresh installation, you can only make changes with the DCU once. If you apply changes and exit the DCU, and then realize you need to make more changes: you must re-start the installation.

Viewing hardware device configuration

To view the currently detected hardware on your system, select **Hardware Device Configuration** from the DCU main menu. The Hardware Device Configuration window appears. This window displays hardware parameters for each device configured on your system. If a value is not needed, a dash appears in its place.

The fields shown are:

Configuration Status Indicates whether or not the hardware controller will (**Y**) or will not (**N**) be configured into the kernel.

Device Name Displays the name of the device. If a driver is assigned to an entry, the entry will be either the device name such as **COM Port**, or a *driver name* such as **asyc**, the driver for the COM port.

If the device name is **UNKNOWN** on an EISA, MCA or PCI system, this is an entry from NVRAM (Non-Volatile Random Access Memory) indicating that the DCU cannot assign a driver name. For example, if you have installed a network adapter, but have not installed the corresponding software for the adapter, it will be listed as **UNKNOWN**.

If the device name is **unused**, this indicates that an ISA driver is disabled, but the device parameters are retained.

IRQ	Specifies the interrupt request vector (IRQ) value for the hardware controller.
IOStart, IOend	Lists the start and end addresses, in hexadecimal notation, for the controller's I/O address range.
Memstart, MemEnd	Lists the start and end addresses, in hexadecimal notation, for the hardware controller's memory address range.
	For an HBA controller, these are the start and end addresses of the BIOS for the controller.
DMA	Lists the DMA channel for the controller.

To view additional information about any of the entries, use the arrow keys to highlight the desired controller and press **F6**. When you do, you see configuration information for the following advanced parameters:

Unit	The unit number for a controller which supports multiple devices.
IPL	The interrupt priority level, for those devices which have priority handling capability.
ITYPE	The IRQ sharing type.
BindCPU	The CPU to which the device binds.

Additional information about these parameters is described in the "Installation hardware checklist" on page 36.

Modifying hardware device configuration

To change a device driver parameter for a device:

1. Select **Hardware Device Configuration** from the DCU main menu. The Hardware Device Configuration window appears.

2. Move the cursor to the field for the parameter you want to change.

To change an advanced parameter, first bring up the advanced window by high-lighting the desired driver and pressing **F6**.

3. Change the parameter in one of these ways:

    •   Directly entering text.
    •   Pressing **F2** to toggle between available choices. When the desired choice is visible, press **Enter**.
    •   Pressing **F2** to bring up a selection list and highlighting the desired choice. When the desired choice is visible, press **Enter**.

    Continue changing values until you have removed any duplicate or overlapping IRQ, I/O, or memory addresses.

    Exceptions to this rule are those devices that can share interrupt vectors. These devices *must* be configured to have the appropriate ITYPE and IPL values, or the system may not boot correctly.

    Do not change entries for the keyboard. Doing so may impair the operation of your system.

4. To return to the DCU main menu, press **F10**.

5. If necessary, view and activate software device drivers (see "Viewing and activating software device drivers" on page 99) and add a new controller (see "Adding a new controller for a device driver" on page 101).

6. When you have finished making all changes with the DCU, select **Apply Changes & Exit DCU** to save your changes.

Viewing and activating software device drivers

The following procedures allow you to view or activate the device drivers currently installed on your system.

1. From the DCU main menu, select **Software Device Drivers**.

2.   Select a device driver category. If you are unsure which category the desired device driver is in, select **All Software Device Drivers**.

The Software Device Drivers window for the selected class of device drivers is displayed. The window contains three fields:

Active/Inactive	If an asterisk (*) appears in this field, the driver is available for use assuming the hardware it supports is installed and enabled. If the field is empty, the device driver is inactive and supports no devices.
Driver	Lists the device driver name.
Names of Supported Devices	Lists the hardware controllers the device driver supports (if available).

Many device drivers support multiple controllers. The Software Device Drivers window lists the controllers supported by each device driver. If a device driver is inactive, the UnixWare 7 system cannot access any of the controllers that the device driver supports.

3.   To view a specific device driver, move the cursor to it and press **F6**. Information about the driver appears. For a description of the fields, see "Modifying hardware device configuration" on page 98.

Press **Enter** to return to the Software Device Drivers window.

4.   To activate a device driver, move the cursor to the device driver's status field and press **Space**.

If you want to add a new controller, the device driver that supports this controller must be active.

5.   If you are an experienced administrator who is installing the UnixWare 7 system, and if there are device drivers on your HBA diskettes that you are sure will not be needed on your system, you can instruct the installation software not to install these device drivers. To do so, remove the asterisk next to each of these device drivers.

6. To apply the changes and return to the Software Device Drivers window, press **F10**, then press **Enter**.

Adding a new controller for a device driver

1. From the DCU main menu, select **Software Device Drivers**.

2. Select a device driver category. If you are unsure which category the desired device driver is in, select **All Software Device Drivers**.

    The Software Device Drivers window for the selected class of device drivers is displayed.

3. Move the cursor to the desired device driver.

    If the device driver is not active, activate it by pressing **Space**.

4. Press **F5** to add a new driver.

    The New Hardware Configuration window is displayed. Default values may also be displayed. This window contains the fields for the values found in the "Installation hardware checklist" on page 36.

5. Enter the correct configuration parameters for the new controller.

    After you enter these values, you can:

    • Press **F8** to cancel the new controller configuration.

    • Press **F4** to verify that correct values are entered in each field before applying the changes.

      If an error is reported, re-enter the parameter until it succeeds. If the verification succeeds or the message

      ```
      Driver does not support the verify function
      ```

appears, press **Enter** to continue.

- To apply the changes and return to the Software Device Drivers window, press **F10**, then press **Enter**.

After you add the new controller, view the Hardware Device Configuration window (see "Viewing hardware device configuration" on page 97) to verify that the new hardware parameters do not conflict with the existing hardware controllers.

Index

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