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Prepared by OS Integration

Compaq Computer Corporation

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# Migrating from SCO OpenServer 5.0.5 on a Compaq ProLiant 4500 to UnixWare 7.1 on a Compaq ProLiant 6400R

*Abstract:* This Integration Note provides requirements and guidelines for migrating SCO OpenServer 5.0.5 on a Compaq ProLiant 4500 Server to UnixWare 7.1 on a Compaq ProLiant 6400R Server.

More specifically, we discuss six topics:

- Features and enhancements of the Compaq ProLiant 6400R
- Features and enhancements of UnixWare 7.1
- Pre-installation tasks, to include checking for the latest drivers and backing up your current system
- Server Setup and installation of options
- UnixWare 7.1 installation scenario using Compaq SmartStart for Servers
- Post-installation tasks, to include creating emergency recovery backup media

Due to the technical nature of the material presented, we must presume that you already have a thorough knowledge of Compaq server products and SCO UNIX operating systems.

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**Note:** Compaq highly recommends that you read this Integration Note from cover-to-cover BEFORE proceeding with the upgrade process.

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Migrating from SCO OpenServer 5.0.5 on a Compaq ProLiant 4500 to UnixWare 7.1 on a Compaq ProLiant 6400R

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## Overview

Although Compaq will continue to support the retired Compaq ProLiant 4500 Server, there are many reasons to upgrade to the ProLiant 6400R, including an innovative, space-saving, rack-optimized design; four Intel Pentium III Xeon processors; and the industry-standard PCI Hot Plug push button. SCO will also continue to support users running OpenServer 5.0.5, however, there are many compelling reasons for migrating to UnixWare 7.1, including new 64-bit technologies, emerging clustering technologies, superb manageability, and improved scalability.

In this Integrating Note, we list the exciting features of the ProLiant 6400R, as well as the features of UnixWare 7.1 that are optimized on these Compaq servers. Then we focus on preparing for the migration—to include checking hardware requirements, gathering all required software and documentation, locating the latest OS patches and supplements, backing up your OpenServer 5.0.5 data, and installing option products on your ProLiant 6400R. Next, we present a detailed installation scenario of the software migration using the Compaq configuration and integration tool: SmartStart for Servers. Lastly, we show you how to restore your files/filesystems and how to create emergency recovery backup media.

## New Features and Enhancements of the Compaq ProLiant 6400R

The Compaq ProLiant 6400R merges a popular 7-inch design with the latest server technology to create the ideal combination of 4-way computing power and density for your space-constrained data center environments. In fact, it's your best choice when using external storage and backup solutions and when implementing clustering solutions or running active intranet, Internet, and eBusiness sites.

Primary features and enhancements:

- Supports one to four Intel Pentium III Xeon processors
- 2 MB of L2 Cache on the processor
- EDO DIMM Memory expandable to 4 GB
- Six 64-bit slots (five PCI Hot Plug and one shared PCI/ISA)
- Support for 10,000 rpm, 18.2-GB Wide Ultra2 SCSI hard drives
- 64-bit PCI, Dual 10/100 autosensing Ethernet Network Interface Controller (NIC) upgradable to a Gigabit
- High-availability features: PCI Hot Plug, Advanced Error Checking and Correcting (AECC), Automatic Server Recovery-2 (ASR), redundant NICs, as well as optional redundant processor power and optional SMART array controllers
- Server management and configuration tools: Compaq Insight Manager, SmartStart, Remote Insight Board, Integrated Remote Console (IRC), and Array Configuration Utility

Also see Table 1 for a detailed list of Compaq ProLiant 6400R standard configurations and options.

**Table 1. Compaq ProLiant 4500 and 6400R hardware and options**

Compaq ProLiant 4500 Configuration	Compaq ProLiant 6400R Standard Configuration	Compaq ProLiant 6400R Primary Options	ProLiant 6400R Migration Configuration
Up to four 166-MHz Pentium processors	One or two 500-MHz Pentium III Xeon processors	Upgradable to four 500-MHz Pentium III Xeon processors	Four 500-MHz Pentium III Xeon processors
64 MB of AECC SIMM RAM, expandable to 1 GB	256 KB or 1 GB of AECC, EDO-buffered, 50ns, DIMM RAM  2 MB of full-speed L2 Cache integrated into the processor	Expandable to EDO-buffered, 60 ns, DIMM RAM	1 GB of AECC, EDO-buffered, 50ns, DIMM RAM  2 MB of full-speed L2 Cache integrated into the processor
Eight 8/16/32-bit EISA Bus-mastering slots	Dual-peer, 64-bit PCI/ISA Bus-mastering slots	N/A	Dual-peer, 64-bit PCI/ISA Bus-mastering slots
Fast-Wide SCSI-2 Adapter	Wide-Ultra SCSI-3, Integrated Dual-Channel Wide-Ultra SCSI-3, and 64-Bit Dual Channel Wide Ultra2 SCSI Adapters	32-Bit Fast SCSI-2, 32-Bit Fast-Wide SCSI-2/P, 32-Bit Fast-Wide Ultra SCSI Adapters	64-Bit Dual Channel Wide Ultra2 SCSI Adapter
SMART-2 Array Controller; Fibre Channel Host Array Controller (EISA)	Smart 221 and 3200 Array Controllers; Fibre Channel Host Array Controller (PCI)	SMART-2/P, SMART-2/DH, and SMART-2/SL Array Controllers; Smart 4100 and 4200 Array Controllers	Smart 221 and 3200 Array Controllers; Fibre Channel Host Array Controller (PCI)
NetFlex-3 Controller	Netelligent NC3131 64-bit PCI Dual Port 10/100 Fast Ethernet NIC upgradable to a Gigabit	Fast Ethernet NC3120, 3121, 3122, 3123, 3160, and 3161 NICs; NetFlex-3/P NIC; Netelligent 10 T/PCI UTP, 10/100 TX PCI UTP, 10/100, and TX PCI Dual NICs; Netelligent 100 FDDI PCI NIC; and Gigabit Ethernet NC6134 NIC	Gigabit Ethernet NC6134 NIC
Seven storage device bays (four internal hot-pluggable bays)	Five 64-bit PCI Hot Plug bays; one shared PCI/ISA		Five 64-bit PCI Hot Plug bays; one shared PCI/ISA
		18.2-GB Wide Ultra2, 9.1-GB Wide Ultra2, and 9.1-GB Wide Ultra2 SCSI (10,000 rpm) internal drives	18.2-GB Wide Ultra2
IDE CD-ROM drive	24X Max <sup>2</sup> IDE CD-ROM drive	N/A	24X Max <sup>2</sup> IDE CD-ROM drive
Remote Insight Board (requires Remote Insight Board Driver)	Remote Insight Board (requires Remote Insight Board Driver)		Remote Insight Board/P (requires Remote Insight Board Driver)
Offline Backup Processor	Offline Backup Processor	N/A	Offline Backup Processor
Automatic Server Recovery-2 (ASR-2) (requires Wellness Driver)	Automatic Server Recovery-2 (ASR-2) (requires Wellness Driver)	N/A	Automatic Server Recovery-2 (ASR-2) (requires Wellness Driver)
N/A	Redundant NIC Failover	N/A	Redundant NIC Failover
N/A	Integrated Management Log (IML) and IML Display	N/A	Integrated Management Log (IML) and IML Display
N/A	Integrated Remote Console (IRC)	N/A	Integrated Remote Console (IRC)

**Table 1. Compaq ProLiant 4500 and 6400R hardware and options (cont)**

Compaq ProLiant 4500 Configuration	Compaq ProLiant 6400R Standard Configuration	Compaq ProLiant 6400R Primary Options	ProLiant 6400R Migration Configuration
Optional On-line Recovery Server	On-line Recovery Server Option	N/A	On-line Recovery Server Option
Compaq Insight Manager and Management Agents	Compaq Insight Manager and Management Agents	N/A	Compaq Insight Manager and Management Agents
Optional redundant power supply	PCI Hot Plug push button, hot-plug redundant fans, hot-plug SCSI drives, and redundant NIC support; non-redundant power process module	Redundant power process module	PCI Hot Plug push button, hot-plug redundant fans, hot-plug SCSI drives, and redundant NIC support; non-redundant power process module

The Compaq 6400R server includes a limited, 3-year, on-site, pre-failure warranty for labor and support components: processors, hard drives, and DIMMs purchased from Compaq through an authorized reseller. These support components are eligible for replacement under this warranty before they actually fail if the system determines that these components have degraded below pre-determined reliability thresholds within the product warranty period.

Note: Also check the website:

<http://www.compaq.com/products/servers/ProLiant6400R/quickspecs.html> for more information.

## New Features and Enhancements of UnixWare 7.1

UnixWare 7.1 enhances Compaq's availability to provide the significant business advantage of our enterprise-class, Intel processor-based servers to UNIX customers across a broader spectrum of industries and applications. Here are only a few of the impressive UnixWare 7.1 features that *come alive* on your Compaq ProLiant 6400R Server:

- An evolutionary path for our SCO OpenServer 5.0.5 customers to state-of-the-art networking computing technologies, 64-bit technologies, and emerging clustering technologies
- Automatic detection of Industry Standard Architecture (ISA) network cards; graphic cards; and plug-and-play Peripheral Component Interface (PCI) cards
- Increased memory and storage capacity when combined with Compaq world-class servers:
  - Up to 64 GB of memory
  - 1-TB file/filesystems and disk partitions
  - Up to 76,800 TB of storage
  - Up to 32 CPUs supported
  - Support for I<sub>2</sub>O mass storage devices
  - Support for PCI Hot Plug
- Improved scalability so that systems, large and small, will squeeze every last ounce of performance from the powerful Symmetrical Multiprocessing (SMP) kernel with high-availability extensions, such as RAID

- Fully integrated networking capabilities—web browsing, web serving, Java development, and runtime capabilities—as well as support for today’s high-speed networking technologies (ISDN, LDAP, and PPP protocols) that are building the backbone of business-critical networks
- Year 2000 ready, EURO support, and UNIX95 compliant

For more information on UnixWare 7.1 features, visit the SCO website at <http://www.sco.com/unixware>.

## Pre-installation Tasks

To ensure a smooth migration, you need to prepare a comprehensive migration plan. This will avoid confusion and frustration, insufficient hardware capabilities hardware conflicts, data loss, and installation delays. At a minimum, a migration plan should include these pre-installation tasks:

- ✍ Check minimal hardware requirements.
- ✍ Gather appropriate software and support documentation.
- ✍ Obtain your UnixWare 7.1 license.
- ✍ Check for the latest drivers and utilities.
- ✍ Create EFS diskettes.
- ✍ Check for the latest OS patches and supplements.
- ✍ Backup your current data.

### ✍ Check Minimal Hardware Requirements

Table 2 lists the basic hardware/firmware requirements and the SCO-preferred requirements for UnixWare 7.1. The Compaq ProLiant 6400R easily fulfills these requirements.

**Table 2. UnixWare 7.1 minimal and recommended hardware requirements**

Component	Minimal Requirement	SCO-Preferred Requirement
Processor	Intel 80486/33 MHz DX (SX is not supported.)	Pentium/66 MHz
Bus	ISA	EISA/PCI
RAM	32 MB	64 MB
Hard drive	1 GB	4 GB
Disk controllers	IDE	SCSI
Boot filesystem	20 MB	
Root filesystem	364.55 MB	
Media	3.5-inch diskette drive and either a CD-ROM drive or supported network interface card (NIC)	
Mouse	Serial, PS/2, Microsoft, or Logitech bus mouse (if running X-windows)	
Graphics Display	800 x 600 VGA (if running X-windows)	

A basic rule of thumb for RAM is a minimum of 32 MB for a graphical interface with an additional 4 MB for each concurrent user. For our migration scenario, we have five users so our minimum RAM requirement would be 52 MB (5 users x 4 MB) + 32 MB).

Be sure to also plan for enough swap space. Look at Table 3 for the SCO-recommended swap space.

**Table 3. SCO-recommended memory swap space**

System Size	Swap Space
32 MB	52 MB
64 MB	75 MB
256 MB	200 MB
1026 MB	430 MB
4096 MB	1330 MB

SCO offers several avenues for checking updated specific system requirements for processor, memory, and disk space; as well as checking compatibility requirements for your adapters, controllers, drive arrays, and other devices. For a more detailed listing, see the *UnixWare 7.1 Installation Guide* (included with your UnixWare 7.1 software) or visit the SCO-compatible hardware website: [http://wbd1.sco.com/chwp/owa/hch\\_search\\_form](http://wbd1.sco.com/chwp/owa/hch_search_form). Also see Appendix A.

Since Compaq and SCO work closely to develop compatible software and hardware products, you can be sure that each new SCO operating system release has been thoroughly tested on Compaq equipment. This joint testing ultimately results in optimal hardware/software compatibility. Besides the ProLiant 6400R, nearly all Compaq servers still shipping have earned the title of *SCO Certified* for UnixWare 7.1 and 7.0.1. See the SCO website, listed in the last paragraph for a complete listing of SCO-certified Compaq servers that support UnixWare 7.1.

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**IMPORTANT:** Compaq does not support UnixWare 7.0 since it is not Y2K compliant.

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## Gather Appropriate Software and Support Documentation

Gather all required software for the migration. Also gather any documentation aids necessary for setting up your ProLiant 6400R, as well as installing UnixWare 7.1.

### Compaq Server Installation Software and Support Documentation

- A Server Documentation CD accompanies each Compaq ProLiant 6400R delivery and contains the following:
  - *Compaq ProLiant 6400R Setup and Installation Guide*
  - *Compaq Servers Troubleshooting Guide*
  - *Integrated Remote Console (IRC) Guide*
  - *PCI Hot Plug Animation*
  - *PCI Hot Plug Help*
- A *Compaq ProLiant 6400R Quick Start Guide* also ships with each appropriate server and contains installation instructions and menu options.

- The Rack Resource CD Kit (Part Number #298721-001) ships with all Compaq racks and includes the following:
  - *Installing Rack Products CD Set* — visual overview of key configuration steps, site planning, installation of rack-mountable servers and rack options, cabling, and coupling of racks
  - *Rack Builder Configuration Tool* — simulation of potential Compaq rack configurations; such as power requirements, cooling mandates, physical specifications, and properly configured racks scenarios that are based on your input
  - *Rack Information Library* — program that lets you view, search, and print documentation that will help you setup and optimize your rack configurations

The Rack Resource Kit can also be downloaded from [www.compaq.com](http://www.compaq.com).

- Compaq SmartStart and Support Software v4.40 CD ships with each server and includes the Extended Feature Supplement (EFS v7.28) and the Compaq Server Profile diskette. This package is required for our SmartStart installation.

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**Note:** If you do not have the SmartStart v4.40 CD, you can download the EFS, ROMPaqs, or other support utilities from the Compaq website. See Table 4.

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- Six blank diskettes, four (4) of which are DOS formatted. The formatted ones will be used to create one (1) Compaq HBA diskette, two (2) Compaq EFS diskettes, and one (1) Compaq Documentation diskette; the unformatted ones will be used to create one (1) User Account diskette and one (1) Configuration Backup diskette.
- Optional software that is highly recommended and that ships with your server: Compaq Management CD that contains Compaq Insight Manager v4.23 and Insight Management Agents v3.86.

## UnixWare 7.1 Installation and Documentation Software

The SCO Installation Media Kit accompanies your copy of the OS and contains the required software and documentation to help you successfully install and implement UnixWare 7.1. Although SCO also offers many optional software packages, the following packages are mandatory:

- UnixWare 7.1 Installation CD, unless installing over the network
- UnixWare 7.1 Operating System Updates CD
- UnixWare 7.1 Optional Services CD
- UnixWare 7.1 Installation [boot]diskettes (2)
- UnixWare 7.1 Host Bus Adapter (HBA) diskette
- UnixWare 7.1 Patches and Supplements downloaded from the SCO website

Optional software that is highly recommended: UnixWare Development Kit CD.

## Obtain Your UnixWare 7.1 License

Obtain your activation keys and license (a printed Certificate of License and Authenticity from your SCO-authorized reseller). They contain specific numerical codes and data to successfully start the upgrade process.



## Check for the Latest Drivers and Utilities

Sets of compatible drivers and utilities are released in kits. The majority of the most current drivers and utilities for UnixWare 7.1 can be found on the Extended Feature Supplement (EFS), which comes on the Compaq SmartStart and Support Software CD that is delivered with each Compaq server. With a SmartStart installation these drivers and utilities will be automatically loaded.

The EFS v728 on the Smart Start CD v 4.40 (which we are using), adds support for several new hardware features:

- Compaq Integrated Smart Array Controller
- Compaq NC3123 Fast Ethernet NIC
- Compaq NC6134 Gigabit NIC
- Compaq ProLiant 8500
- Compaq Smart Array 4200 Controller
- Compaq StorageWorks Enclosure 4200 Model 4210
- Compaq StorageWorks Enclosure 4200 Model 4214

Here's a complete list of Compaq drivers on EFS v7.28:

Compaq Ethernet, Fast Ethernet, and Gigabit Controllers and Module support

NetFlex Controller support

Compaq Netelligent Controller support

Compaq SCSI support

- Compaq 32-Bit Fast-SCSI-2 Controller card
- Compaq 32-Bit Fast-Wide SCSI-2/E Controller card
- Compaq 32-Bit Fast-Wide SCSI-2/P Controller card
- Compaq 32-Bit Fast-Wide Ultra SCSI Controller card
- Compaq Dual Channel Wide-Ultra SCSI-3 Controller card
- Compaq 64-Bit Dual Channel Wide-Ultra2 SCSI Controller card

SCSI-2 support also includes driver support for the integrated SCSI-2 options port on the Compaq SystemPro/XL Server

Compaq Drive Array support

- Compaq Intelligent Drive Array Controller
- Compaq IDA-Expansion Controller
- Compaq IDA-2 Controller
- Compaq SMART Controller

- Compaq SMART-2/E Controller
- Compaq SMART-2/P Controller
- Compaq SMART-2/SL Controller
- Compaq SMART-2/DH Controller
- Compaq Smart 221 Array Controller
- Compaq Smart 3100ES Array Controller
- Compaq Smart 3200 Array Controller
- Compaq Smart 4200 Array Controller
- Compaq Smart 4250ES Array Controller

Compaq Fibre Channel Drive Array Support

- Compaq Storage Works Enclosure 4200 Model 4210
- Compaq Storage Works Enclosure 4200 Model 4214

Wellness Driver (Server Health Driver)

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**Note:** Although not mandatory, the Wellness driver monitors temperature conditions, fan operations, EISA and PCI bus utilization, redundant power supply status, ECC Memory errors, and critical server errors that are logged into the Integrated Management Log. It also provides Automatic Server Recovery after a server failure.

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Compaq Fibre-Channel Drive Array Support

EFS v7.28 also includes several utilities to monitor and increase the performance of your Compaq server:

Compaq Standby Server Daemon Utilities

SCSI-2 Management Utility.

Intelligent Drive Array (IDA) Diagnostic Utility.

Compaq Ultra Diagnostic Utility

Compaq Fibre Channel Manager Utility

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**Note:** Compaq will also be releasing the Online Array Configuration Utility for SCO in the near future.

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New releases of drivers and utilities flow through the various distribution channels at different rates; the version of a driver downloaded from one source may be older than one from a different source—even from the most recent EFS.

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*The drivers in one version may even be incompatible with the drivers in the next release.*

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So, you should also check the SCO website, [www.sco.com](http://www.sco.com); the SCO ftp site, <ftp://ftp.sco.com>; and the Compaq website, [www.compaq.com](http://www.compaq.com) for the latest drivers and utilities that support UnixWare 7.1.

For a complete list of sources for Compaq drivers and utilities, see Table 4. Both Compaq and SCO websites are shown.

**Table 4. Location of Compaq device drivers and utilities**

Software	Location
Compaq Array Configuration Utility	<a href="http://www.compaq.com/support/files/server/softpaqs/Rompaq/arrayconfig.html">http://www.compaq.com/support/files/server/softpaqs/Rompaq/arrayconfig.html</a>
Compaq ROMPaqs and Utilities index	<a href="http://www.compaq.com/support/files/server/Rompaq/index.html">www.compaq.com/support/files/server/Rompaq/index.html</a>
Compaq SmartStart and Support Software CD	Distributed with new servers
	Subscription Service: <a href="http://www.compaq.com/support/files/portables/us/ssminfo.html">www.compaq.com/support/files/portables/us/ssminfo.html</a>
Compaq System Configuration Utility	<a href="http://www.compaq.com/support/files/server/softpaqs/Rompaq/sysconfig.html">www.compaq.com/support/files/server/softpaqs/Rompaq/sysconfig.html</a>
Compaq Wellness Driver	<a href="http://www.compaq.com/support/files/server/softpaqs/UNIX/scowellness.html">www.compaq.com/support/files/server/softpaqs/UNIX/scowellness.html</a>
Drivers/driver supplements for UnixWare 7.1	<a href="ftp://ftp.sco.com/pub/drivers/UW710">ftp://ftp.sco.com/pub/drivers/UW710</a>
Extended Feature Supplement (EFS 7.28) for UnixWare 7.1(SoftPaq # 6220.EXE)	<a href="http://www.compaq.com/support/files/server/softpaqs/UNIX/EF70.html">http://www.compaq.com/support/files/server/softpaqs/UNIX/EF70.html</a>

Be sure to also read any documentation that accompanies each driver or utility to ensure its compatibility with your new UnixWare 7.1 OS. The day before you install UnixWare 7.1, you should also checkout the *UnixWare 7.1 Runtime Release Notes* at <http://uw7doc.sco.com/LateNews/RNSWbef.html> for late-breaking hardware and installation notes.

## Create EFS Diskettes

If you have verified that the latest drivers and utilities reside on the web, download the files to a Windows-based system and create four diskettes: Compaq HBA, Compaq EFS #1, Compaq EFS #2, and Compaq Documentation. Read the text file instructions that accompany the software and follow the instruction guidelines. If the EFS on the SmartStart and Support Software CD is the most recent, you will create these diskettes during the installation process in Step 13.

## Check for the Latest OS Patches and Supplements

There are a number of OS patches, additional features added, and newer versions of other features that are contained in the *SCO Release Supplement*. In these supplements, there are also a number of corrections to the *UnixWare 7 Release Notes* that Compaq considers necessary for proper operation of UnixWare 7.1 on Compaq servers. Release supplements can be found on the SCO website <http://www.sco.com/support/ftplists/uw7list.html> and are usually divided into major supplements, minor supplements, device drivers, and security supplements.

Table 5 lists the most current patches and supplements for UnixWare 7.1 as of October 22, 1999. The Compaq-recommended items are each preceded by an asterisk. Be sure to read the cover letter that explains why these patches are necessary.

**Table 5. OS Patches and Supplements for UnixWare 7.1**

Type	Location	Item
Major Supplements	<a href="ftp://ftp.sco.com/supplements">ftp://ftp.sco.com/supplements</a>	Client Agents for ARCserveIT v6.6
Minor Supplements	<a href="ftp://ftp.sco.com/sls">ftp://ftp.sco.com/sls</a>	ptf7433a: hardware utility supplement
		ptf7432a: fold supplement
		SLS ptf7430b: emergency recovery supplement
		SLS ptf7428b: hot-plug supplement and PCI Option ROM and <b>resmgr</b> update Note: Requires 7424a.
		SLS ptf7425a: install supplement Note: ptf7406b and ptf7413f must be loaded immediately afterward.
		ptf7424a: libnsl supplement
		SLS ptf7423a: ttymon supplement
		SLS ptf7421a: vtoc supplement
		* ptf7420c :klli and nfs drivers supplement
		ptf7419c: sc01, mc01, sw01, and st01 driver update
		ptf7418a: <b>mpio</b> , <b>sysdump</b> , and sd01 driver supplement
		ptf7417a: dlpi replacement driver
		* ptf7414a: libc supplement
		* ptf7413f: fs driver supplement
		ptf7411a: password display patch
		* ptf7410b: libthread supplement
		ptf7407b: Crash utility supplement
		ptf7406b: Pentium II and Pentium III supplement
		* ptf7402a: <b>acctsh</b> and clock supplement
		* ptf7401h: in-kernel sockets supplement
		ptf7134a: Intel PRO/100 intelligent server adapter
		ptf7133a: Intel PRO/1000 gigabit server adapter
		ptf7132a: webtop 1.3 supplement
		ptf7129a: <b>make</b> (1M) supplement
		ptf7083b: Reliant HA gratuitous arp supplement
		ptf7067e: I <sub>2</sub> O mass storage HBA
		ptf7066a: I <sub>2</sub> O subsystem patch
ptf7058b: mccnl supplement		
ptf7045d: Intel Microcode driver		
* ptf7035a: CDFS concurrency supplement		
Security Supplements:	<a href="http://www.sco.com/security">http://www.sco.com/security</a>	* ptf7408c: security fix

Customer Advisories and other helpful information can also be found at [http://www.compaq1/support/servers/ProLiant\\_6400R\\_customer\\_advisories\\_Unix.html](http://www.compaq1/support/servers/ProLiant_6400R_customer_advisories_Unix.html).

## Backup Your Current System

To migrate from SCO OpenServer 5.0.5 to UnixWare 7.1, backup your data to (1) a removable media—such as cartridge tape—or to (2) a file that can be transferred over the network or to (3) another system on the network.

Then record your current hardware and firmware configuration settings on a blank diskette.



### Backup your data into a filesystem-independent format

The VERITAS File System (VxFS) is the default filesystem in UnixWare 7.1 and supports files/filesystems up to 1 TB. S5, Unified Filesystem (ufs), and Security Filesystem (sfs) are also approved file formats. SCO OpenServer 5.0.5 file formats include the High-Throughput Filesystem (HTFS), Desktop Filesystem (DTFS), Acer Fast Filesystem (AFS), Extended Acxer Fast Filesystem (EAFS), and S5.

---

**Note:** S5 is the only UNIX filesystem from OpenServer 5.0.5 supported in UnixWare 7.1.

---

Table 6 lists the SCO OpenServer 5.0.5 data and configuration files you will need to archive.

For some data, such as password files and Domain Name Services (DNS) files, the files will work as they did with SCO OpenServer 5.0.5. Other data, such as MMDF mail configuration and printer configuration scripts will not work on UnixWare 7.1. These must be re-written. Visit the SCO website <http://www.sco.com/upgrade/uw7doc> for more information.

**Table 6. Data and configuration files to backup**

Type of Data	Directory
FTP server configuration	etc/ftpusres, /etc/shells, /etc/ftpaccess, /etc/ftpconv
Network File System (NFS)	/etc/default/filesys, /etc/exports, /etc/auto.master, /etc/auto.direct, /etc/auto/indirect
Network Information Services (NIS)	/etc/ethers, /etc/networks, /etc/protocols, /etc/services, /etc/bootparams, /etc/netgroup, /etc/auto.master, /etc/rpc, /etc/TIMEZONE, /etc/netgroup, /etc/netmasks, /etc/hosts, /etc/passwd, /etc/shadow and /etc/group
TCP/IP configuration	/etc/hosts, /etc/tcp, /etc/inetd.conf
User data	/usr
users and group configuration	/etc/passwd, /etc/shadow and /etc/group

---

**Note:** For porting software applications to your new system, contact the appropriate vendor for instructions.

---

There are several methods for archiving and restoring data on your UnixWare 7.1 system.

- ARCserve IT v6.6 from Computer Associates — a comprehensive, easy-to-use product for archiving and restoring.

- Emergency Recovery Backup Method — SCO commands (**emergency disk** and **emergency rec**) that create bootable diskettes and tape (s) to archive the primary hard disk.
- Other SCO commands — **ufsdump** and **ufsrestore** for archiving *ufs* systems; **cpio**, **tar**, and **volcopy** for archiving and restoring UnixWare systems; **cpio** is especially suitable for transferring files between different types of UNIX systems.

For this Integration Note, we will use the last two methods.

### **Data Backup Procedure**

1. Change directories to the top level of the data you want to migrate, using the command

```
cd /<directory path>.
```

2. Enter one of the following three **cpio** commands:

- To archive to cartridge tape, use the command  
**find . -depth -print -follow | cpio -ocvdB -O /dev/rct0.**

---

**Note:** If your archive spans multiple tapes, you may also need to specify the block and volume sizes. See the SCO manual page for **cpio** for more information.

---

- To archive to a file which can be transferred over the network, use the command  
**find . -depth -print -follow | cpio -ocvd > /tmp/name.cpio.**  
(name identifies cpio archive)
- To copy your files to another system on your network, use *ftp* or another file transfer program. You can then copy these files to your UnixWare 7.1 system after it is installed.

### **User Profile Backup Procedure**

1. Copy user profile (*profile.acct*) to your hard drive using the command  
**ap -d -v usernames > profile.acct.**
2. Copy file to the blank User Account diskette using the command

```
tar cv profile.acct.
```



### **Backup your configuration settings**

Use the SCOAdmin Utility to gather configuration information. Record the information on a blank diskette. You will need these settings when you configure your new system.



### **Record your video adapter configuration**

Most video adapters are automatically detected and configured when you install your UnixWare 7.1 system. However, you should record your video configuration from your OpenServer 5.0.5. operating system in case the following happens:

- UnixWare 7.1 cannot automatically configure the adapter
- UnixWare 7.1 incorrectly configures the adapter

- You incorrectly configure the adapter manually and need to restore the default configuration

### **Video Adapter Configuration Backup Procedure**

1. Enter **scoadmin**.
2. Select Video Configuration Manager.
3. Record the following on your diskette: monitor and resolution.



### **Record your TCP/IP configuration**

You should record all the existing network interfaces so that you can configure these on your UnixWare 7.1 system.

### **TCP/IP Configuration Backup Procedure**

1. Enter **scoadmin**.
2. Select Network Configuration Manager.
3. Select Protocol.
4. Select View Protocol Configuration.
5. Record the following on your diskette: (1) hostname, (2) domain name, (3) IP address, (4) netmask, (5) broadcast address, (6) frame type.
6. Select Advanced Options.
7. Select Advanced Options.
8. Record (7) gateway and (8) frame format.



### **Record your Network File System (NFS) information**

Be sure that you have backed up all the necessary NFS files listed in Table 6.



### **Record your Network Information Service (NIS) information**

Be sure that you have backed up all the necessary NIS files, listed in Table 6, and that you know the following: (1) domain name, (2) which server is the master, (3) which server is the slave, (4) which computers are clients, and (5) what files reside on each.

## **Server Setup and Installation of Options**

Since you are upgrading from a ProLiant 4500, which is an EISA architecture, to a ProLiant 6400R, which is a PCI/ISA architecture, you will not be able to salvage any hardware except the monitor. In other words, you must install a complete new server. You may have thought that your current 1.5-inch hard drives could migrate to your new system. Unfortunately, your older drives have been replaced with slimline 1-inch drives. Fortunately, your storage space has increased to at least 18.2 GB per hard drive.

---

*Check with third-party vendors to see if your EISA option cards boards can be replaced with PCI option cards.*

---

One last point: Since the ProLiant 6400R is a rack model, you will have to carefully read the instructions on how to mount your new server.

So, carefully unpack that new server, read the instructions, and setup your new system. Since detailed installations are included with each new server (see section “Compaq Server Installation Software and Support Documentation”), we will not cover them here.

---

**IMPORTANT:** To reduce the weight of the server and make it more manageable, do not install PCI Hot Plug SCSI drives in the server until after you load the server into the rack.

---

***Let’s look at the maximum configuration of your new system.***

When sizing your system and installing options, you must be aware of the maximum ProLiant 6400R configurations (see Table 3) supported by both Compaq and UnixWare 7.1.

**Table 3. Maximum configurations supported by Compaq ProLiant 6400R and UnixWare 7.1**

Device	Maximum Configuration
SMART host bus adapters (HBAs)	Up to 8 per system
SCSI buses	Up to 12 per system
Fibre Channel HBAs	Up to 8 per system
Filesystem	Up to 1 TB per filesystem
Disks	Up to 1024 per system
Network interface cards (NICs)	Up to 8 per Netelligent driver family (bridged NICs, or dual port, count as two)
CPUs	Up to 32 (using 4 processors and 8-way processing)
RAM	Up to 4 GB of RAM

If your system exceeds any of these limits, you must break the installation into two systems. For example, if you require 8 GB of general-purpose RAM, purchase two ProLiant 6400R servers with 4 GB of RAM in each and network the two servers together. You might also consider purchasing a Compaq ProLiant 8000 or 8500 series server that ships with 8 GB of RAM.

***Let’s look at installing options.***

Generally, you can install hardware and firmware in this order:

1. Install any PCI Hot Plug and PCI Expansion Boards.

---

**Note:** Install any ISA expansion boards after the Compaq System Configuration Utility has been run during the SmartStart portion of the installation process. Switch settings will be provided by the System Configuration Utility.

---

2. Install other options such as additional memory, hard drives, and external storage devices.
3. Connect peripheral devices (keyboard, mouse, monitor, external SCSI, network cables, and the AC Power cord).
4. Install additional memory.
5. Turn server to ON.

---

**Note:** Until you run the System Configuration Utility, an information message indicating that you are running with a default configuration will occur each time you boot your system.

---



For our ProLiant 6400R options installation, we followed the following steps:

1. Install the Remote Insight Board in slots 5 or 6. Follow the hardware installation instructions listed in the *User Guide for the Remote Insight Board/PCI* for further details.
2. Connect the monitor to the Remote Insight Board.
3. Install 64-bit Dual-Channel Wide-Ultra2 SCSI Controller.
4. Install Smart 221 and 3200 Array Controllers.
5. Install Fibre Channel Host Controller (PCI).
6. Install Gigabit Ethernet NC6134.

*Now we shall proceed with our system configuration and the installation of UnixWare 7.1.*

## UnixWare 7.1 Installation

You can choose either of the following methods to install your UnixWare 7.1 system.

- Automatic installation using the Compaq SmartStart for Servers integration tool
- Manual installation using only the printed SCO *UnixWare 7.1 Installation Guide* available with the Installation CD

---

**Note:** The custom utility used in SCO OpenServer for installation of software is not available on UnixWare 7.1.

---

- SmartStart for Servers Assisted Integration

*Now, let's look a little closer at SmartStart Assisted Integration.*

This Integration Note details the installation process using the SmartStart Assisted Integration that helps you setup, configure, and install your UnixWare 7.1 system. More specifically, SmartStart performs the following tasks:

- Configures your ISA modem and PCI boards automatically
- Provides jumper and switch settings
- Resolves resource conflicts in areas such as memory, port addresses, and interrupts (IRQs)
- Manages the installation of memory, processor upgrades, and mass storage devices; such as hard drives, tape drives, and diskette drives
- Sets and stores power-on features, such as time and date
- Stores configuration information in non-volatile memory
- Assists in the installation of the operating system
- Assists in running diagnostic tools
- Ensures installation of the correct Compaq drivers
- Provides a SmartStart Interview that highlights and enables configuration of powerful Compaq server features, such as Automatic Server Recovery (ASR)

A Compaq SmartStart and Support Software CD ships with each Compaq server. As each version of SmartStart is released, it supports the current version of SCO UnixWare. It also knows how to

handle any previous version. If you obtain a later release of a SCO OS, you probably need to get a newer version of SmartStart.

Table 7 lists the available SCO-related software on the SmartStart CD that pertain to our SCO UNIX installation.

**Table 7. SmartStart and Support Software CD v4.40**

Item	Description
Compaq Array Configuration Utility	Setup program for Compaq array controllers that configures physical drives attached to the controller into arrays and logical drives that the OS uses.
Compaq Array Diagnostic Utility	Diagnostics for Compaq drive arrays.
Compaq Options ROMPaq	Program that updates the onboard ROM on all Compaq options that support <i>flashing</i> in order to take advantage of expanded capabilities.
Compaq System Configuration Utility	Configuration tool for the server and its expansion boards.
Compaq Systems ROMPaq	Program that updates the system ROM in all Compaq servers that support <i>flashing</i> in order to ensure that the server can utilize all the capabilities of new hardware.
Extended Feature Supplement (EFS) v7.28a	Collection of the latest drivers, utilities, patches, supplements, and other information for enhancing SCO UNIX operations on Compaq systems; includes installation instructions and HBA creation.
SmartStart for Servers	Windows-based program that guides you through the setup of your server hardware and operating system.

Compaq also provides customers with the ability to purchase a Compaq SmartStart and Support Software CD subscription that provides the latest management and support software on a regular basis, usually monthly. More information about this subscription service, including an online order form, can be obtained from the Compaq website:

<http://www.compaq.com/support/files/portables/us/ssminfo.html>.

*Now, let's continue with our UnixWare 7.1 installation.*

As we have already stated, Compaq highly recommends that you backup your server BEFORE you upgrade to UnixWare 7.1. Afterward, you can then proceed with the following basic installation steps. And although you should be able to easily follow the detailed *SCO Installation Guide*, every migration entails a few incompatibilities, workarounds, or special considerations. For that reason, we will highlight and expound upon some of the more critical steps.

### Step 1: Enter command for SmartStart workaround.

---

**IMPORTANT:** Currently, SmartStart v4.40 will not boot on an OpenServer 5.0.5 system that had been installed using SmartStart for Servers. Use the following temporary workaround. Sign in as root and run the command `#!/usr/user/local/compaq/bin/eisaCfg -w CQTBOOTIN 0`. This problem should be fixed in the near future.

---

### Step 2: Physically install additional RAM

---

*To remove all power from the system, you must disconnect all power cords from the server.*

---

Power down your server. The system power in the Compaq ProLiant 6400R Server does not shut off completely with the front panel Power ON/STANDBY switch. The two positions function as ON and STANDBY, rather than ON and OFF. The standby position removes power from most of the electronics and the drives, but portions of the power supply and some internal circuitry remain active.

If you unplug the power cord, you can safely install additional RAM at this time (if you have not already done this). Afterward, power on your server.

**Migration Tip:**

Compaq servers offer enhanced memory performance through Address Bit Permuting (ABP), an option that distributes memory addresses across two or four banks of memory. However, all four DIMMs in a bank must be populated and all four DIMMs must be the same size, type, and speed.

---

**IMPORTANT:** If you add more memory, it should not exceed a total memory size of 4 GB (what the server was designed to hold). Otherwise your memory will not be under warranty.

---

**Step 3: Insert your SmartStart and Support Software CD.**

**Step 4: Insert your Compaq Server Profile diskette.**

This is a new feature of SmartStart and ships with each SmartStart CD v4.23 or later.

**Step 5: Update firmware (ROMPaqs).**

You can easily update the onboard firmware (operating program in ROM) in your Compaq server and for most Compaq options. This is done by *flashing* the ROM, using the special Compaq utilities—System ROMPaq and Option ROMPaq—listed in Table 7. These utilities replace the existing contents of the ROM with an updated version stored on the Compaq SmartStart and Support Software CD.

To obtain even more recent System and Option utilities, you might have to download the SoftPaqs from the Compaq website [www.compaq.com/support/files/server/Rompaq/index.html](http://www.compaq.com/support/files/server/Rompaq/index.html) and follow the instructions that accompany the SoftPaqs.

**Step 7: Cycle power.**

**Step 8: Select UnixWare 7.1 as your OS.**

SmartStart will prompt you to select a language, to set the date and time, to agree to the licensing agreement, and to choose a SmartStart path: Manual or Assisted Integration. (This Integration Note describes the *Assisted Installation* procedure).

**Step 9: Configure your system and create System Partition.**

With SmartStart, the Compaq System Configuration Utility starts automatically. Of prime importance, check if the SCO OpenServer 5.0.5 controller order, Host Bus Adapter (HBA) number, device interrupts, and SCSI IDs match the ones needed for UnixWare 7.1. If not, follow the System Configuration instructions.

**System Configuration Procedures**

1. Select Review and Modify Your System.
2. Select Hardware.
3. Select View.

4. Edit details and ensure that no hardware configuration conflicts exist.
5. Change any configuration information that does not match your desired configuration: (1) controller order, (2) Host Bus Adapter numbers, (3) device interrupts, and (4) SCSI IDs. See Appendix C.
6. Save your configuration and restart your server, when prompted.
7. SmartStart automatically creates your System Partition.

### **System Partition Tips**

The partition is approximately 200 MB. This Compaq System Partition should not be confused with the partition(s) created by your operating system. You can have up to four partitions on your disk when installing your new OS, or you can use the rest of the disk to install UnixWare 7.1. See the *SCO UnixWare 7.1 Installation Guide* for more details.

---

*Your utilities run faster when executed from the System Partition.*

---

**A word of caution:** Creating a boot partition removes all data on your hard disk. Do not remove or reconfigure the System (boot) partition from this point on because it now contains information specific to your current hardware setup. Compaq utilities also use the system partition for

diagnostics.

---

**Note:** Storing your Compaq utilities in the System Partition also eliminates the need to store and track diskettes.

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See the Integration Note: *Compaq and SCO UnixWare 7 Frequently Asked Questions* (Document #ECG030/0698) on the Compaq website, [www.compaq.com](http://www.compaq.com), for more detailed information.

---

**Note:** You can now run Compaq System Configuration Utility during startup from the System Partition by pressing **F10**.

---

## **Step 10: SmartStart automatically runs the Array Configuration Utility**

Follow the screen instructions.

## **Step 11: Select additional software.**

At this time, you will see a list of several optional software packages— as well as their setup procedures—that can optimize server management and performance,. You may install them at this time or defer installation to a later time.

Options include

- Configuration of Automatic Server Recovery (ASR)
- Selection of Network Media Connection. (Default is 10/100 Base-T connector)
- Setup of Integrated Remote Console (IRC)
- Installation of Compaq Insight Manager

Compaq Insight Manager is automatically selected. See the “Migration Tips” in this section. At the prompt insert the Compaq Management CD so that SmartStart can check the version number.

Save your configuration and restart your server.

### **Migration Tips**

- ASR-2 detects many types of server failures, sends a fault notification to your network administrator, and automatically restarts your server. However you must enable Software Error Recovery and configure the ASR Software Error Fault Isolation Feature. See Appendix B for options you had configured on your OpenServer system.
- IRC gives authorized users direct access to your server console, independent of OS or other software, from locations a few feet away or on another continent. Also see the *Integrated Remote Console User Guide*.
- Insight Manager monitors performance on your Compaq server including HBAs, disks, NICs, system boards, and cooling fans. While ASR-2 recovers from the majority of critical server failures, Insight Manager complements ASR by providing complete remote maintenance and control facilities that work over a TCP/IP network, IPX network, or dial-up modem connection. Currently, you can only run Insight Manager on a Microsoft Windows 95, 98, or NT system. If you do not wish to install this management tool at this time, you must de-select this option.
- If you wish to configure identical systems on other servers, save a copy of your system configuration to your Server Profile (Replication) diskette and port the diskette to your other designated servers.

You are now ready to start the SmartStart Interview.

### **Step 12: Check your UnixWare 7.1 Installation CD.**

SmartStart automatically starts the Interview process (installation guide) and checks the version information of your SCO UnixWare 7.1 CD. Follow these procedures:

1. Remove the SmartStart CD.
2. Insert the UnixWare 7.1 Installation CD.
3. After SmartStart checks the OS CD, remove it.
4. Insert the SmartStart CD.

---

**Note:** Your UnixWare 7.1 does require newer drivers than those provided on your SCO media, so SmartStart will prompt you to create a new Host Bus Adapter (HBA) diskette for use during the install.

---

### **Step 13: Create new EFS diskettes (including an HBA diskette).**

Once the OS version is verified, the Interview process may resume. SmartStart now prompts you to create four EFS diskettes, including the Host Bus Adapter (HBA) diskette.

The EFS is a collection of device drivers that provide maximum performance with Compaq hardware. It also includes several utilities to monitor and increase the performance of your Compaq server. Refer back to section "Create EFS Diskettes" to see if you need to proceed with this step.

If so, follow these procedures:

1. Insert SmartStart CD.

2. Select Create EFS diskettes.
3. Select Create a Compaq Host Bus Adapter diskette.
4. Insert a DOS-formatted diskette and create the Compaq Host Bus Adapter diskette.
5. Insert a DOS-formatted diskette and create the Compaq EFS #1 diskette.
6. Insert a DOS-formatted diskette and create the Compaq EFS #2 diskette.
7. Insert a DOS-formatted diskette and create the Compaq Documentation diskette.

### ***Migration Tips***

- The HBA diskette contains up-to-date drivers and support software needed to run SCO UnixWare 7.1 on your particular server.
- Traditionally, the term HBA only refers to SCSI Host Bus Adapters. In UnixWare, every disk controller is now referred to as an HBA, even if it's non-SCSI.

### **Step 14: Remove SmartStart CD when prompted.**

### **Step 15: Insert the UnixWare 7.1 [boot] diskettes and restart your server.**

1. Insert the UnixWare 7.1 [boot] Diskette #1. Keep your license and activation keys close. You will need the license number, code, and other data. Remove diskette.
2. Insert the UnixWare 7.1 [boot] Diskette #2. UnixWare 7.1 Documentation and Manual Pages (SCO Online Help) are automatically installed at this time. Remove diskette.
3. Insert the UnixWare 7.1 Installation CD and continue with the installation.

### **Step 16: Insert additional UnixWare 7.1 CDs and the HBA diskette, when prompted.**

1. Insert the UnixWare 7.1 Operating System Updates CD for more layered products.
2. Remove the UnixWare 7.1 Operating System Updates CD.
3. Insert the UnixWare 7.1 Installation CD.
4. Install the latest copy of the HBA.
5. Remove the UnixWare 7.1 Installation CD.
6. Insert the UnixWare 7.1 Optional Services CD to install Internet services, such as Netscape; Windows connections; ARCserve IT; and other services.
7. Remove the UnixWare 7.1 Optional Services CD.

### **Step 17: Remove the EFS from the System Partition.**

SmartStart automatically installs the Compaq EFS v7.28 for SCO UnixWare 7.1 during the installation process. However, since updates to the drivers and utilities may occur more frequently than a new OS release or an EFS release, you might need to install a newer EFS version than the one on your SmartStart CD. See section "Check for the Latest Drivers and Utilities."

If you wish to install a newer version of the EFS, you must first remove the old drivers and utilities. This rule also applies to updating only a particular driver or utility in the future. Removing the EFS also ensures the integrity of the OS patches and supplements.

For this Integration Note, we will delete the old EFS. Check for the following drivers, utilities, and documentation among the installed packages.

- cpqdoc - Compaq EFS documentation package
- cpqhpcd - Compaq PCI Hot Plug Driver update
- ptf7012 - UnixWare 7 SNMP ptf (i386)b
- ptfcasa - Compaq Attached Storage Array Driver
- ptfcasau - Compaq Fibre Channel Diagnostic Utility
- ptfcnet - Compaq Cnet Network Driver
- ptfcpqasr - Compaq Advanced Server Recovery
- ptfcpqsmu - Compaq SCSI-2 Management Utility
- ptfcrom - Compaq CROM Driver
- ptfcpqw - Compaq Wellness Driver
- ptfcrd - Compaq Remote Insight Board Driver.
- ptfcultra - Compaq Wide-Ultra SCSI Utility.
- ptfidamnu - Compaq IDA Diagnostic Utility.
- ptfn1000 - Compaq Gigabit NIC/Module Driver.
- ptfn100c - Compaq Ethernet or Fast Ethernet NIC driver.
- ptfssd - Compaq Standby Server Daemon Utility.

If installed, remove the appropriate packages by typing the SCO UNIX **pkgrm** command: **pkgrm cpqdoc**. Then press **Enter**.

### Step 18: Insert the Compaq Management CD when prompted.

Compaq Management Agents for Servers have adopted a new architecture. Under the new architecture, the Compaq Management Agents v 3.86 for Servers are identifiable and installable as four components:

- Compaq Foundation Agents
- Compaq Server Agents
- Compaq Storage Agents
- Compaq NIC Agents

Under the new architecture, you have the choice to update individual pieces for new

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*The four components can also be downloaded as separate SoftPaqs from [www.compaq.com](http://www.compaq.com).*

---

functionality and need not update all your Management Agents. For example, if you add a new storage subsystem to a server, you will only need to update the Storage Agents. This architecture also (1) positions Compaq to better address customer needs by delivering new agent

functionality independent of hardware releases and (2) expedite hardware releases by adding management support independent of each other.

- Compaq Foundation Agents (SP 10597) — collect information for your host server, including clustering, software version, and external MIB status; also provide threshold support and SNMP alerts.
- Compaq Server Agents (SP 10598) — collect and display configuration information on your system and the Remote Insight Board; also provide SNMP alerts.
- Compaq Storage Agents (SP 10599) — display information on your Mass Storage Subsystems: Fibre Channel, drive array, SCSI, and IDE subsystems; also provide SNMP alerts.
- Compaq NIC Agent (SP 11551) — display information on logical Compaq Network Interface Controllers (NICs) that are configured on your system.

### **Step 19: Install any relevant OS patches and supplements.**

You need to install several patches and supplements that correct OS deficiencies. See the section “Check for the Latest OS Patches and Supplements.” To install a patch or supplement, follow the installation instructions given in the cover letter or documentation file.

### **Step 20: Install new EFS.**

Use the latest version of the EFS created in section “Create EFS Diskettes” or in Step 13. Continue with your installation.

#### ***EFS Installation***

1. Log in as root.
2. Insert your first Compaq EFS diskette.
3. Enter **pkgadd -d diskette1**.
4. Press **Enter**. A list of software packages is displayed.
5. Select All. Before installation of each package, a description about the package is displayed, as well as a query as to whether you want to install the package.
6. Press **Enter** if you wish to install the package.
7. Continue the procedure until all packages are installed.
8. Complete Steps 2-7 for all four EFS diskettes, changing the “1” to “2,” “3,” and “4, as appropriate.”

#### ***Migration Tip***

After the Compaq EFS is installed, SCO UNIX manual pages (*Help* file) are available for online help describing configuration and operations. From a UNIX prompt, type the following to see a list of EFS-related page topics:

```
man compaq_efs.
```



## Step 21: Configure your video adapters.

Follow these procedures:

- Enter **scoadmin**.
- Select Video Configuration Manager.
- Enter information from backup.

### ***Migration Tip***

UnixWare 7.1 supports several video adapters—including those supported by OpenServer 5.0.5. In addition, UnixWare 7.1 provides the VESA X server driver. This generic driver can operate any new video card that honors the VESA BIOS interface. This VESA X server driver supplies high-resolution support to any video card that does not have a specific accelerated driver.

## Step 22: Configure your modem.

- Enter **scoadmin**.
- Select Modem Manager.
- Select Manual Configuration.
- Fill in information from backup.
- Select Configure Port.
- Insert port configuration information.
- Exit.

## Step 23: Configure your TCP/IP.

- Enter **scoadmin**.
- Enter Network Configuration Manager.
- Select Protocols.
- Select View Protocol Configuration.
- Select TCP/IP as the protocol to be configured.
- Add information from backup.
- Select Advanced Options.
- Add gateway and frame format information from backup.
- Exit.

## Step 24: Configure your Point-To-Point Protocol (PPP).

- Enter **scoadmin**.
- Select WAN.
- Select Network.

- Select Network Configuration Manager.
- Select Configure PPP.
- Select Bundle.
- Select Configuring Outgoing PPP.
  - Enter Bundle name.
  - Select Outgoing as the Bundle Type.
  - Enter the remote system name and method of initiating the link.
  - Select Edit to add a remote system.
  - Select Add.
  - Enter remote system name, device type, line speed, and phone number.
  - Select Edit.
  - Insert login name and password.
  - Select OK.
  - Enter the local IP address, remote IP address, and network mask from the backed up information.
  - Select OK.
  - Select Link Group from the list of available link groups.
  - Select OK.
  - Select Configure PPP Outgoing Link.
    - Highlight Available Configuration.
    - Select Modify.
    - Insert telephone number of the remote system.
    - Select Next.
    - Select the required authentication and enter the appropriate details.
    - Select Next.
    - Enter login name and password.
    - Select Next and make the required changes (if you want to configure DNS).
    - Select Next.
    - Select Finish.
    - Select Exit to return to Network Configuration Manager.
    - Select Exit to complete the PPP outgoing configuration.
- Configuring Incoming PPP
  - Select Bundles.

- Select PPP Manager screen.
- Enter bundle name.
- Select Incoming.
- Disable auto-detected PPP session
- Enter login username.
- Select OK to get the Modify IP Protocol screen.
- Enter the local IP address, remote IP address, and network mask from backed up information.
- Select OK to get the Add Links screen.
- Select the link group, from the list of available link groups.
- Select OK to complete the configuration.
- Select Exit from Host menu to return to Network Configuration Manager.
- Select Exit from Hardware menu to complete the Incoming PPP configuration.

**Step 25: Remove all CDs and diskettes.**

**Step 26: Restart (reboot) your system.**

## Post-installation Tasks

- ✍ Restore your filesystems.
- ✍ Create emergency recovery backup media.

### ✍ Restore Your Filesystems



#### Restore your user and group data files.

1. Restore the user data into **/home** directory.
2. If the data files were archived to a tape cartridge, extract the data by using the command
3. If the data is archived on another system on the network, use *ftp* or another file transfer program system to copy the data onto your UnixWare 7.1 system.
4. If the data will be transferred over the network, copy it onto the UnixWare 7.1 system using the command

```
cpio -icdv -I /dev/rct0
```

```
find . -depth -print -follow | cpio -ocvd > /tmp/name.cpio.
```

(name identifies cpio archive)

---

**IMPORTANT:** You must define the /tmp filesystem as a memfs filesystem if you want to use the UnixWare 7.1 Emergency Recovery Media Utility. See the section “Create Emergency Recovery Media” in the *SCO UnixWare 7.1 Installation Guide*.

---

5. Put in User Profile diskette. Transfer *profile.acct* to the UnixWare 7.1 server on which the accounts are to be created by using the command

**tar xv / profile.acct** from the root directory.

### **Migration Tip**

As long passwords are supported in different ways in SCO OpenServer and in UnixWare 7.1, there are two ways that you can create a user account from the profile depending on how you want to handle user accounts that have long passwords.

- Truncate long passwords to 8 characters. Enter the following command:

**ap -r -f profile.acct usernames**

The new accounts should now be in place and ready for use. The **ap** command will warn you if a user password was longer than 8 characters and had to be truncated. You should inform the user that they should enter only the first 8 characters of their password when they first login. They will also be required to change their password at this time.

- Specify a clear text password using the **-p** option. Enter the following command:

**ap -r -f profile.acct -p password usernames**

All users in the list of usernames whose existing passwords were longer than 8 characters will be assigned the same password. These users will be prompted to change their password when they first login. For example, if users Jane and Anshu both had passwords that were longer than 8 characters, the following command sets their login password to Global1:

**ap -r -f profile.acct -p Global1 robert amit jane anshu**

Jane's and Anshu's passwords would remain unchanged provided they were less than 9 characters. If you want Jane and Anshu to have different initial passwords, invoke the command separately for each user:

**ap -r -f profile.acct -p Hidden1 jane**  
**ap -r -f profile.acct -p Secret1 anshu**



### **Restore your TCP/IP files/filesystems.**

Once the system has restarted, add the backed up */etc/hosts* entry to existing */etc/hosts* entry by copying and pasting with any text editor. The backed up */etc/inetd.conf* file will show the information that was available through inetd daemon. It will also help to amend */etc/inetd.conf* files on UnixWare system if required.



## Restore your FTP Server.

Follow these procedures:

1. Any username added to your backed up `/etc/ftpusers` file will be added to `/etc/ftpusers` on your UnixWare 7.1 system in order to continue to deny access to those users.
2. Any shell name added to backed up `/etc/ftpshells` file will be added to `/etc/ftpshells` on your UnixWare 7.1 system in order to continue to allow access to a user who has one of those shells as their login shells.
3. Copy backed up `/etc/ftpaccess` file to your UnixWare 7.1 system. Then modify the file, as follows:
  - In SCO OpenServer 5.0.5, the **private** keyword is followed by pathname of the group access file.
  - In UnixWare 7.1, it will be modified to *yes* or *no*, and the group access file will be in `/etc/ftpgroups`.
4. Rename your backed up `/etc/ftpconv` file as `/etc/ftpconversions`. Change the partname of the conversion utility where appropriate, for example `/etc/ftpconv` to `/ftp/conversions`.



## Restore your NFS filesystem.

Use the information from your backed up files to configure your UnixWare 7.1 system. Do not, however, copy the `/etc/default/filesys` and `/etc/exports` files from your OpenServer system to their equivalents in your UnixWare system as the format of these files is not the same. See Table 8 for new filenames.

**Table 8. UnixWare 7.1 filenames for your NFS filesystem**

OpenServer 5.0.5	UnixWare 7.1	Definition
<code>/etc/default/filesys</code>	<code>/etc/vfstab</code>	Used by clients to define filesystems to be mounted
<code>/etc/exports</code>	<code>/etc/dfs/dfstab</code>	Used by server to define filesystems that client can mount
<code>/etc/auto.master</code>	<code>/etc/auto.master</code>	Lists initial automount configurations
<code>/etc/auto.direct;</code> <code>/etc/auto.indirect</code>	<code>/etc/auto.home</code>	Lists direct and indirect automount configuration

### ***Migration Tip***

It is recommended that you set up automatic sharing when you first set up your Network File System (NFS) if you need to share the same set of resources on a regular basis. For example, if your server is a server that supports diskless clients, you need to make your client root directories available at all times. If you want to set up your system so that certain files and directories are shared automatically whenever you start NFS operations, you need to edit the file `/etc/dfs/dfstab`.

---

**Note:** The following options, which are supported by mount in SCO OpenServer Release 5, are not supported in UnixWare 7.1: **exec**, **noexec**, **trunc**, **notrunc**, **tcp**, and **spongy**.

---

Use the *dfstab* file to list all the resources that your server shares with its clients and to control which clients may mount a resource. Once a resource has been shared on a server through the NFS, it can be accessed from a client. Mounting can be done automatically when NFS operation begins on the client or when NFS is started using the script ***/etc/init.d/nfs***.

---

**Note:** A server can be a client of another server on a local network, in which case, your server *vfstab* file may need to include both local and remote mounts.

---

Table 9 lists the entries (variables) in the */etc/vfstab* file.

**Table 9. Variables in the *etc/vfstab* file**

Variable	Definition
special	Name of the server sharing the resource that the client wants to mount, followed by a colon and the pathname of the resource to be mounted.
fsckdev	Name of a raw device; for a remote mount, the parameter is not applicable and a hyphen (-) should be entered instead.
mountp	The mount point on the client through which the user accesses the resources mounted from the server.
fstype	Type of the mount taking place. An NFS mount is indicated by <i>nfs</i> .
fsckpass	Pass number for multiple fsck; for a remote mount, the parameter is not applicable and a hyphen (-) should be entered instead.
automnt	Indicator of whether the entry should be mounted automatically (yes) or not (no).
mntopts	A list of comma-separated options identical to the options passed to mount.

Example: To automatically mount the directory */usr/local* of the server *Dancer* on the client directory */usr/local/tmp* with read-only permission, add the following line to the client *vfstab* file:

**dancer:/usr/local - /usr/local/tmp nfs - yes ro.**

See your *SCO UnixWare 7.1 Installation Guide* for detailed instructions.



## Restore your Network Information Service (NIS).

You may need to copy over the archived */etc/hosts* file. This file contains information about the hostnames and IP addresses of localhost and other systems. It is recommended that you merge this information with the existing */etc/hosts* file to avoid accidentally removing the localhost entry.

---

**Note:** NIS in UnixWare 7.x does not support **copyonly** servers.

---



---

**Note:** UnixWare 7.1 NIS files are located in */var/yp* hierarchy rather than */etc/yp* of SCO OpenServer 5.0.5.

---

For more information on adding and modifying filesystems after your system is installed, see the description of the Filesystem Manager in the *SCO Help* file or refer to the *SCO UnixWare 7.1 Installation Guide*.

## Create Emergency Recovery Backup Media

You will typically create Emergency Recovery diskettes and tape(s) only once—after you have installed UnixWare 7.1 and all add-on software. The commands **emergency disk** and **emergency rec** create bootable diskettes and tape(s) to archive your primary hard disk. These commands backup both user and system data and allow recovery if your system is ever non-bootable and/or the hard disk is damaged.

See the *SCO UnixWare 7.1 Installation Guide* for detailed instructions.

## Appendix A: SCO-certified Compaq Controllers and NICs

Table A-1. SCO-certified Compaq storage controllers

Model Name and Number	OpenServer 5.0.5	UnixWare 7.1	UnixWare 7.0.1
32-Bit Fast-SCSI-2 Controller	SCO Certified	SCO Certified	SCO Certified
32-Bit Fast-Wide SCSI-2/E Controller	SCO Certified	SCO Certified	SCO Certified
32-Bit Fast-Wide SCSI-2/P Controller	SCO Certified	SCO Certified	SCO Certified
32-Bit Fast-Wide Ultra SCSI Controller	SCO Certified	SCO Certified	SCO Certified
Dual Channel Wide-Ultra SCSI-3 Controller	SCO Certified	SCO Certified	SCO Certified
64-Bit Dual Channel Wide-Ultra2 SCSI Controller	SCO Certified	SCO Certified	SCO Certified
Intelligent Drive Array Controller	SCO Certified	SCO Certified	SCO Certified
IDA-Expansion Controller	SCO Certified	SCO Certified	SCO Certified
IDA-2 Expansion Controller	SCO Certified	SCO Certified	SCO Certified
IDA-2 Controller	SCO Certified	SCO Certified	SCO Certified
SMART Controller	SCO Certified	SCO Certified	SCO Certified
SMART-2/DH Controller	SCO Certified	SCO Certified	SCO Certified
SMART-2/E Controller	SCO certified	SCO certified	SCO Certified
SMART-2/P Controller	SCO Certified	SCO Certified	SCO Certified
SMART-2/SL Controller	SCO Certified	SCO Certified	SCO Certified
Smart 221 Controller	SCO Certified	SCO Certified	SCO Certified
Smart 3100ES Controller	SCO Certified	SCO Certified	SCO Certified
Smart 3300 Controller	SCO Certified	SCO Certified	SCO Certified
Smart 4200 Controller	SCO Certified	SCO Certified	SCO Certified
Smart 4250 Controller	SCO Certified	SCO Certified	SCO Certified



## Appendix A: SCO-certified Compaq Controllers and NICs (cont)

**Table A-2. SCO-certified Compaq network interface controllers for SCO OpenServer 5.0.5, UnixWare 7.1, and UnixWare 7.0.1**

Model Name and Number	OpenServer 5.0.5	UnixWare 7.1	UnixWare 7.0.1
Gigabit Ethernet NIC NC6134	N/A	SCO Certified	?
Fast Ethernet NIC NC3122	SCO Certified	SCO Certified	SCO Certified
Fast Ethernet NIC NC3131	SCO Certified	SCO Certified	SCO Certified
NetFlex-1 ENET	SCO Certified	SCO Certified	SCO Certified
NetFlex-1 Token Ring	SCO Certified	SCO Certified	SCO Certified
NetFlex-2 DualPort ENET	SCO Certified	SCO Certified	SCO Certified
NetFlex-2 DualPort Token Ring	SCO Certified	SCO Certified	SCO Certified
NetFlex-2	SCO Certified	SCO Certified	SCO Certified
NetFlex-2 TR	SCO Certified	SCO Certified	SCO Certified
NetFlex-2 TR	SCO Certified	SCO Certified	SCO Certified
NetFlex-3/E Controller	SCO Certified	SCO Certified	SCO Certified
NetFlex-3/P Controller	SCO Certified	SCO Certified	SCO Certified
Netelligent 10 T/2 PCI UTP/Coax	SCO Certified	SCO Certified	SCO Certified
Netelligent 10/100 TX PCI Dual	SCO Certified	SCO Certified	SCO Certified
Netelligent 10/100 TX PCI UTP	SCO Certified	SCO Certified	SCO Certified
Netelligent 100 FDDI PCI DAS Fiber SC	SCO Certified	SCO Certified	SCO Certified
Netelligent 100 FDDI PCI DAS UTP	SCO Certified	SCO Certified	SCO Certified
Netelligent 100 FDDI PCI SAS Fiber MIC	SCO Certified	SCO Certified	SCO Certified
Netelligent 100 FDDI PCI SAS Fiber SC	SCO Certified	SCO Certified	SCO Certified
Netelligent 100 FDDI PCI SAS UTP	SCO Certified	SCO Certified	SCO Certified
Netelligent 10BaseT PCI UTP	SCO Certified	SCO Certified	SCO Certified
Netelligent Integrated 10/100 TX	SCO Certified	SCO Certified	SCO Certified
Netelligent Integrated 10/100 TX	SCO Certified	SCO Certified	SCO Certified
Netelligent Integrated 10/100TX UTP	SCO Certified	SCO Certified	SCO Certified

Gigabit Ethernet — These cards can transfer data at 1000Mb/s (1 GB/s). All Compaq offerings are upgrades replacing existing (or empty) ports on existing NICs with Gigabit ports. Depending on the card you choose, you will use either UTP cabling, short-wave and short-distance fiber cables, or long-wave and long-distance fiber cables.

---

**IMPORTANT:** Compaq does not support the Gigabit Ethernet NIC for OpenServer 5.0.5.

---

## Appendix B: Current OpenServer 5.0.5 System Configuration

When SmartStart begins the System Configuration Utility, the following should appear on your screen. Review each item and modify as appropriate.

### System: Compaq ProLiant 4500 Server

```

Primary Operating System ..... SCO 5
.
.
.
Integrated Interfaces
  Serial (A) ..... COM1
  Serial (B) ..... COM2
  Parallel ..... LPT1
  Aux Input (Pointing Device) ..... Interrupt Enabled

Server Management Interrupt ..... IRQ 13
Integrated Modem Resources ..... COM3

Integrated VGA
  Color text modes status ..... Supported - 16 bit
access
  Monochrome text modes status ..... Supported - 16 bit
access
  Graphics modes status ..... Supported - 16 bit
access
  ROM Bus Width ..... 8 - Bit

System ROM Information
  Revision ..... E14
  Date ..... 08/17/98

Advanced Features
  Alternative A20 Switching ..... Disable Port 92
  ISA Cycle Wait Control ..... 420 nanoseconds
  Software Generated NMI ..... Disabled
  Fail-Safe Timer NMI ..... Disabled
  Bus-Master Timeout NMI ..... Enabled
  Diskette Controller DMA Timing ..... Type B
  Video Refresh Mode ..... Non-interlaced
  Refresh Queue Overflow NMI ..... Disabled

Erase non-volatile memory ..... Select to erase non-
volatile
                                     memory
  Warm Boot Bus Reset ..... Enabled
  F1 Boot Prompt ..... Enabled - stop at
prompt

```

## Appendix B: Current OpenServer 5.0.5 System Configuration (cont)

### Slot 2 - Compaq Fibre Channel Controller

```

Controller Order ..... Second
Interrupt ..... Enabled
Drive Characteristics ..... View with Compaq
Array
Configuration Utility
    
```

### Slot 3 - Compaq SMART-2/E Array Controller

```

Controller Order ..... Third
Interrupt ..... Enabled
Option ROM ..... Enabled
Online Recovery Server Status ..... Disabled
Drive Characteristics ..... View with Compaq
Array
Configuration Utility
    SCSI Bus Speed ..... Auto-detection
    Cache Size ..... 4 MB
    Firmware Revision ..... 3.18
    
```

### Slot 5 - Compaq NetFlex-3/E Controller

```

Network Controller Interrupt ..... IRQ5, Level triggered
Network Address ..... 00 80 5F E2 34 9E
Network Interface Module ..... 10 Base-T
    
```

### Embedded - Compaq 32-Bit Fast-Wide SCSI-2/E Controller

```

Controller Order ..... First
Host Adapter Number ..... 0
Controller ..... Resources Enabled
SCSI ID ..... # 7
Bus Speed ..... SCSI-2 Compliant
    
```

#### Attached Devices

```

SCSI ID 0 ..... COMPAQ 1.05-GB Hard
Drives
    Drive
    SCSI ID 5 ..... COMPAQ CD-ROM CR-
    503BCQ
    
```

### Embedded - Compaq Automatic Server Recovery (ASR)

**Appendix B: Current OpenServer 5.0.5 System Configuration (cont)**

```

Automatic Server Recovery
  Software error recovery ..... Enabled
  Software error recovery time-out ..... 10 minutes
  Standby recovery server option ..... Disabled
  Standby recovery server port ..... COM1
  Standby recovery time-out ..... 1 minute
  Software error recovery boot option ..... Boot operating system
  Thermal shutdown ..... Enabled
  UPS shutdown ..... Disabled
  UPS shutdown threshold ..... 5 minutes

Server Failure Notification
  Pager status ..... Disabled
  Pager dial string ..... None
  Pager message ..... None
  Pager test ..... Select to test pager

setup

Remote Options
  Serial interface ..... COM2
  Serial fixed baud rate ..... None
  Port initialization commands ..... None
  Modem initialization commands ..... None
  Dial in status ..... Disabled
  Dial out status ..... Disabled
  Dial out string ..... None
  Network status ..... Disabled
  Network protocol ..... IPX
  Network token-ring source routing ..... Disabled
  Network controller ..... Compaq
  Network host name ..... None
  Network card slot ..... Slot 5
  Network frame type ..... ETHERNET_802.3 (IPX
Only)
  Network IP address ..... None
  Network IP netmask ..... None
  Network IP router address ..... None

```