Chapter 5

Software notes

This section describes software limitations under the following headings:

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See also *Differences for SCO OpenServer and SCO UnixWare 1 and 2 users* for areas in which UnixWare software differs from SCO UnixWare 2.0 and SCO OpenServer.

Localization and internationalization

- The Latin1 locales which were provided in SCO UnixWare 2.1 in the IBM codepages 437, 850, 865, 646 and 863 are preserved for backward compatibility. They will be retired in the next release of UnixWare and are not supported in this release.
- The **International Settings Manager** should not be used to administer the settings on a remote system and should only be run as a foreground task.
- In single-user mode, the console is only configured correctly for displaying text. It is not configured correctly for entering of text. The root password can therefore only contain 7 bit characters if the *root* user wishes to be able to log in in single-user mode.

  Once logged in, the *root* user needs to do the following:

  1. Run **mapkey**(1M)
  2. Run **mapchan**(1M)
  3. Run **stty**(1) with the **istrip** option to stop the high bit being stripped.
  4. Set **TERM=AT386-ie** and export it.

  This is necessary before running any kind of command which is screen-orientated, for example, **vi** or **scoadmin**.

  In multiuser mode, on any virtual terminal other than vt00, the console is not configured correctly. If a user's password contains 8-bit characters they will not be able to log in on these virtual terminals. If the console is in multibyte mode, any multibyte character will not be displayed correctly.

  Once logged in, an ordinary user in an 8-bit locale needs to run the following:

  /etc/mapchan

  An ordinary user in a multibyte locale needs to run the following:

  /sbin/loadfont

Not internationalized or localized

The following **scoadmin** managers, applications and commands are not internationalized, or are only partially internationalized, and therefore will only appear in English:

scoadmin managers

- parts of the Netconfig (TCP, WAN) Manager
- **ISA Plug and Play Configuration Manager**
- **Netscape Server Admin Manager**
- the titles in the **NetWare Service Manager**
- **Process Manager**
- **SLIP Manager**
- **Veritas Volume Manager**
- The list of timezones in the **Time Zone Manager** is not translated.

Applications

- VisionFS is not internationalized. The interface appears in English only.
- SCO ARCserve/Open is not internationalized and therefore displays its menus and other interface components in English only. It will backup and restore filenames which include non-ASCII characters.
- Lynx is only partially internationalized. English messages appear on some menus and prompts.
- **pine**(1) is not internationalized and therefore displays all its messages in English. In addition, **pine** does not support Japanese mail standard ISO2022-JP.

Commands

- The messages for the following commands always appear in English:
  - **sdipath**(1M)
  - **sdimkosr5**(1M)
  - **rlpconf**(1M)
  - **hpnpcfg**(1M)
- The list of timezones is not translated.
- The responses to questions from **fsck**(1M) are not localized. Press “ y ” for “yes” and “ n ” for “no” in all locales.

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Documentation

- When the locale is set to one whose codeset is not Latin 1 (for example, C, Japanese, Polish, Russian), the following characters may be displayed incorrectly or cause the terminal layout to be disrupted when viewing the English documentation:
  - Copyright
  - Registered Trademark
  - Plus or minus
  - Acute accent
  - “Half” character
  - “Multiply” character

  The copyright character occurs only at the foot of man pages and on copyright pages. The other characters may occur intermittently throughout the documentation set.
- Searching is currently supported in English, French, German and Spanish. Searching is not supported for Asian languages.
- The Verity search engine uses only English-language rules to find “stemmed” (plural and other inflected) forms of words. This may result in spurious results in languages other than English. If this is a problem, enclose all search strings inside double quote (“ " ”) characters.

CDE and X11

- **dtlogin**(X1) does not support dead keys or compose keys. In general, users should not select passwords that contain non-alphanumeric (8-bit) characters.

  On the German keyboard, the following ASCII characters are unavailable to **dtlogin**:

  ˜ [ ] { } | @

  On the Spanish keyboard, the following ASCII characters are unavailable to **dtlogin**:

  | @ # [ ] { }

  On the French keyboard, the following ASCII characters are unavailable to **dtlogin**:

  ˜ # { } [ ] | ‘ ˆ @

  Please refer to your own keyboard for details on other characters.

- The following Xkeyboards cannot be installed:
  - Russian
  - Polish
  - Czech
  - Hungarian
- Non-Latin1 locales, other than Japanese, are supported only on the console and not under X. The primary reason for this is that no X fonts are provided for these locales. Users may download their own fonts from a variety of sources. They may also need to modify several X font resources.

  The non-Latin1 locales are:
  - Chinese
  - Croat
  - Czech
  - Greek
  - Hungarian
  - Polish
  - Romanian
  - Russian
  - Slovak
  - Slovenian
  - Turkish
  - Ukrainian

Japanese

- Neither **dtterm** nor **xterm**(X1) correctly handles multibyte characters. Do not use them if you are in a multibyte locale such as Japanese.
- Japanese buttons do not display completely in a **dtterm** or **xterm**.
- The input method for Japanese using SJXM is not fully functional in a **dtterm** or **xterm**.
- **dtmail** does not support the Japanese mail standard ISO-2022-JP.

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System management

See also "Emergency recovery with an encapsulated or mirrored root disk" (page 76).

- In order to install the Data Management services (SCO® ARCserve®/Open), it is first necessary to install SCO NetWare (nuc and nwnet). This dependency exists even if your server is not connected to a NetWare LAN because SCO ARCserve/Open tests for the presence of NetWare at runtime.
- To use the command **emergency_disk**(1M) while you are logged in to the CDE desktop, you must specify the full pathname of the command:

  #**sh /sbin/emergency_disk -d / diskette1**

  This example assumes that you are logged in as *root* and that */sbin* is in your **PATH** environment.
- **fstyp**(1M) does not recognize the format of the emergency boot floppies.
- This release of UnixWare 7 is 7.0.1.
- If the **Online Data Manager** (ODM) is installed on the system, messages stating that a panic dump is available in */swap* are not displayed. The panic dump information is, however, always available in */swap*.
- When you add an ODM license, the following message is displayed:

  ```
  unknown product with id 157
  ```

  This message indicates a correctly installed VxVM mirroring or ODM.
- The LDAP, Network Config and Virtual Domain SCOadmin managers cannot be run as system owner; they must be run as **root**.
- **devnm**(1M) works only on filesystems mounted on devices that have backing storage. It fails on memfs and under ODM, and on other pseudo-filesystems.
- To reboot from the **kdb**(1M) prompt, enter the following:

  kdb>> **1 0 mdboot 2 call**

- Loading **kdb**(1M) dynamically does not enable the Debug Extension bit of cr4 on Pentium processors and higher. Use statically linked **kdb** on these processors.

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- On some multi-processor systems, the keyboard may become irrecoverably corrupted while **kdb**(1M) is running. The only solution to this is to press the restart button on the computer.
- When installing an application such as a commercial database package which makes use of raw asynchronous I/O (**AIO_RAW**), you will need to change the mode, group and owner (as appropriate) of the device node */dev/async*. See *Node*(4dsp).
- The system variable **SYSDUMP_SELECTIVE** is not configurable via the System Tuner. See **crash**(1M) for details.
- You cannot run **pkgtrans**(1) from **csh**.
- The **Installation Manager** leaves the CD-ROM mounted when installation is complete. Use **umount**(1M) to unmount the CD-ROM before removing it. Enter the following:

  umount /dev/cdrom/cCbBtTlL

  from the shell. C,B,T, and L are controller, bus, target (SCSI ID), and logical unit number (LUN) respectively.

  Once the update is installed, use the command:

  umount /dev/cdrom/cdromN

  where N is the CD-ROM driver number.
- The license scheme used by UnixWare 7 is different from that used by UnixWare 2. Applications originally designed to install on UnixWare 2, such as Oracle® 7.3.3, use the file */etc/.snum* to verify that the operating system is UnixWare. This file is not part of the UnixWare 7 licensing system, and therefore the installation of these applications may fail.

  To work around this problem, log on to the system as *root* or the system owner and enter:

  touch /etc/.snum
- When limited space is available on the hard disk, it may not be possible to remove unwanted packages to free up more space. Try to install only packages that are actually required.
- Do not use **cp**(1) or any other method to replace an executable file with an updated version while the existing file is being executed. This will result in a core dump.
- The real time performance monitor, **rtpm**(1M), may lose track of the current tty if the same session runs for a number of days.
- The **Process Manager** exits if it is running in background when you view processes using **tty**(1).

- The first time the details of a **cron**(1M) job are displayed, there is an extra zero in front of the hour field.
- To use SCOadmin managers in single-user mode, you must first set the terminal type manually. To identify and set the correct terminal type, see */etc/default/coterm* or run the following command:

  eval ‘defadm coterm TERM‘; export TERM

- The “ h ” accelerator key selects only the **Help** menu in the **System Defaults Manager**. Use the mouse or ⟨Tab⟩ and ⟨Space⟩ keys to select the **Hosts** menu.
- You can select only years up to 2037 in the **Set Time Manager**.
- The desktop menu option **Copy to Folder** is useful only on the CDE desktop. Do not attempt to use it on other desktops.
- In addition to the */etc/magic* file shipped with UnixWare, there is a Java class aware version of the file available on the Skunkware CD-ROM.
- You can only select one processor at a time in the **Processor Manager**.
- SCOadmin managers may take a long time to start if the machine goes off the network.
- You cannot set the values of a table of MIB items using the SCOadmin **Intranet Manager**. This must be done from the command line using **setany**(1Msnmp).
- **pkgadd**(1M) may display the following message before exiting:

  ```
  UX:mailx: WARNING: No message
  ```

  This is harmless and may be ignored.
- In the SCOadmin **License Manager**, when you select a license from the list in character mode, be sure to deselect any license you do not want to act on by using the arrow keys to highlight the item, then pressing the space bar.
- When a package fails to install for any reason, the installation GUI may still report that the set of packages that contains it was installed successfully. The message reporting the failure is generated by **pkgadd**(1M).

  Similarly, if the removal of a package fails, the GUI does not report the failure. The icon for the set of packages goes away and is not replaced by the package icon for the package that is still on the system.

  The log created by **pkgadd**, which contains details of the failed processes, is in */var/sadm/install/logs/**pkg**.log* where ***pkg*** is the name of the package.
- You cannot run the network installation server as *owner*. Use a *root* login.
- If the **-c** option to **pkgmk** is specified, you must also specify the **-r** option.
- **pkgmk** does not work with a tape device.

- The information provided in the documentation about starting the Hot-Plug Manager is incorrect. The correct procedures are as follows:

  You can start the **Hot-Plug Manager** in any of these ways:

  - Choose **SCOadmin** from the **SCO** menu (above the SCO logo) on the CDE desktop, then select **Hardware**, then select **Hot-Plug Manager**.
  - Start the SCOadmin launcher by entering **scoadmin** on the command-line, then select **Hardware**, then select **Hot-Plug Manager**.
  - Enter **scoadmin Hotplug Manager** on the command-line (or abbreviate to **scoadmin hot**).

Command line and shell

echo ignores -n argument

The built-in **echo** command in **ksh**(1) ignores the **-n** argument if provided. This may cause problems with legacy shell scripts.

ksh fails when incorrect script run

ksh(1) fails when an incorrect script similar to the following is run:

```
foo()
{
echo ${$1}
```

The following error is displayed:

```
The error: ksh: syntax error: '1' unexpected
Memory fault(coredump)
```

In some circumstances, the failure may occur when the next shell command is run.

TIMEOUT for sh

The manual page for **sh**(1) incorrectly implies that **TIMEOUT** can be set in the user's *.profile*. **TIMEOUT** can be set only on a system-wide basis.

tr (1)

tr(1) now requires the dash (-) character to be escaped with a backslash (\).

vi editor

When you edit a multiline command from the history file using **vi**(1), the cursor does not correctly step over a newline character (displayed as ^J). Therefore, the cursor position in the edit buffer is incorrect. The multiline command can be edited correctly by entering control mode, fetching the multiline command and typing **v**. This will invoke the **/bin/vi** command.

SCO OpenServer scoterm

If you run the SCO OpenServer **scoterm** command, it will corrupt the entries in */var/adm/utmpx*. As a result, all further login attempts will be blocked (as well as causing invalid data for any other administration commands which use it) until the utmpx entry is removed, and a UnixWare

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command rebuilds it. Since this corruption can not be prevented, it is recommended that the SCO OpenServer **scoterm** binary is not run on UnixWare.

Passwords reported as locked
The command **passwd -s -a** always shows the user's password as locked ("LK"), even when the password is present or missing.

terminfo settings
The commands **vi**(1), **pg**(1) and possibly others that use the *terminfo*(4) settings, may fail unexpectedly if the settings for **stty**(1) are changed from the default. Use the command

stty sane

to restore the default **stty** settings.

Using cu as root
If your system is configured with a modem that accepts incoming calls, you cannot use **cu**(1bnu) to log into a remote **sh** shell as *root*.

Users and groups

- When you log into an FTP server, the home directory is always " / ".
- The *root* user is not permitted to perform a number of system administration tasks from the desktop. Only the *root* user, however, can install software using **pkgadd**(1M) from the command line.
- Only numbers and lower case letters are permitted in login names. Accented characters are not permitted.
- You cannot run the SCOadmin **Account Manager** in an xterm on an NCD-19 system.
- If you create a user in the **Account Manager** and specify that the user must change the password at the first login, you must still enter a password in the password field. The user cannot log in without a password on the first login.
- The SCOadmin **Account Manager** does not set up a proper *.login* file for new **csh** users. **csh** users wishing to use SCOadmin tools should add the following line to their *.login*:

  ```
  eval `/usr/lib/scoadmin/account/setenv -c $HOME`
  ```

  See **csh**(1) for full information.
- The SCOadmin **Account Manager** may create new user accounts with home directory permissions that differ from those specified in */etc/default/useradd*. Use **Options ⇨ User Defaults** in the **Account Manager** to set the desired permissions.

Filesystems

For VisionFS known problems and workarounds, see “Late-breaking information” in the online documentation.

Panic when two processes close a FIFO

A race condition may occur when two processes attempt to close the same FIFO. One process will find **fn_open** to be greater than 0 and will free the kernel memory for the stream. If that happens before the other process has woken up all the associated sleeping processes, the system will panic.

NFS server man page

The **nfsd**(1Mnfs) manual page for the NFS server front end refers to two options, **-c** and **-q**, which are not supported in UnixWare 7.

These options relate to connection-based transports which are not supported by UnixWare 7 NFS, and should be ignored in the documentation.

Listing of symbolic links over NWS

The command **ls -l** (see **ls**(1)), when run over NWS, returns the size of the destination file, not that of the symbolic link in the directory in which it is run. This may cause problems when the output of the command is used as input to **cpio**(1).

devnm

The command **devnm**(1M) does not run on the root filesystem.

Filesystem Manager permissions

The owner may appear to not have permission to run the SCOadmin **Filesystem Manager**, even though permission has been granted. This occurs when *fsUtils.tlib* has a newer date than *fsUtils.tndx* but the mode on *fsUtils.tndx* does not permit the owner to rebuild the *.tndx* file.

Run the **Filesystem Manager** as *root* once, then it will work for owner.

Bad block for VTOC causes panic

The virtual table of contents (VTOC) resides on block 29 in the active UNIX Partition. The system will panic if the physical block is bad. If this occurs, modify the UNIX partition by moving it up one cylinder so that the 29th block in the active partition no longer touches the bad block and is not used at all.

Advanced Option option in Filesystem Manager

In the **Filesystem Manager**, the text in the option “Advanced Options for Mounting CD-ROM” does not display correctly in character mode. Use the desktop version of the SCOadmin **Filesystem Manager** to use this option.

Enabling DMAPI access to VXFS

Data Management API (DMAPI) access to the kernel is not enabled by default. Do the following to enable DMAPI kernel access.

> **NOTE** Besides enabling DMAPI, you must also license it before you can use it.
>
> VXFS **must** be configured into the system otherwise the system will not build with DMAPI.

1. Edit */etc/conf/sdevice.d/vxportal* to change the second column of the last line from a N to a Y. That is, change this line:

   ```
   vxportal    N    0    0    0    0    0    0    0    0    -1
   ```

   to this:

   ```
   vxportal    Y    0    0    0    0    0    0    0    0    -1
   ```

2. Rebuild and reboot the system:

   /etc/conf/bin/idbuild -B

Veritas Volume Manager (VxVM)

The **Veritas Volume Manager** (VxVM) product will not install if the system is configured to have a separate */var* file system. If you wish to use VxVM to manage the root disk do not configure your system to have a separate */var* file system.

Shared directories error VxFS

The **Filesystem Manager** may incorrectly display the following error when specifying shared directories on high-specification systems:

`Error while sharing` ***directory***

This error is caused because the copy of the filesystem database that the graphical manager uses is updated only once per second. The process of sharing a filesystem updates the filesystem record more quickly than this on a fast system, and the modification date on the filesystem may therefore not match that of its record.

You should install osmp during system installation if possible, in order to avoid possible corruption of large drivers that may occur when ODM is installed without osmp being present. This corruption may cause the **Volume Manager** and other managers to crash.

In the SCOadmin **Filesystem Manager**, in a character environment, the **Select** button for the Remote Directory field on the Add Remote Filesystem screen is not reachable. Either enter the remote directory name by hand or use the X/Motif version of the **Filesystem Manager**.

The SCOadmin **Filesystem Manager** may not show any mount status information after the **Volume Manager** has been installed. Refresh the view in the **Filesystem Manager** by selecting **View ➪ Disk Usage** then selecting **View ➪ Mount Status** again.

Netscape and NFS

Files may be truncated when saved from the Netscape browser and other clients to remote NFS filesystems. This problem can only occur if the NFS filesystem is explicitly mounted with the **intr** or **soft** **mount**(1Mnfs) options. If you do save files from clients onto a remote file system mounted with the **intr** or **soft** options, you should check the file contents immediately afterwards.

Large file support

Filesystems up to 2^40 bytes (1TB) are supported. A single file can thus consume up to 1TB of disk store. A sparse file can exhibit length up to 2^63 bytes. New system interfaces, **lseek64**(2) and **mmap64**(2), permit operations of this entire length. Compiler extensions allow for a C application to conveniently manipulate files of such size via 64 bit integers (called "long long").

The **pax**(1) utility supports the archival of files larger than 2 Gigabytes (2GB) in size when using the default "ustar" format. Files up to 2^63-1 bytes in size are supported. The **pax** utility also supports filenames and symbolic link filenames up to 1024 characters long when using the default "ustar" format. Older versions of **pax** will not be able to extract files larger than 2GB in size, or files whose filenames or symbolic link names are larger than 255 characters long.

The **cpio**(1) utility supports the archival of files larger than 2 gigabytes (2GB) in size when using the ASCII (**-c**) or CRC (**-H crc**) formats. Files up to 2^63-1 bytes in size are supported. Previous versions of **cpio** will not be able to extract files larger than 2GB in size.

A limited set of system utilities have been made large-file aware, and are noted as such on their respective manual pages.

NOTE Large file support is intended for specialized applications which need to deal with more than 2GB of data in a single file, and not for general purpose text files and similar.

Backup and restore

The SCO OpenServer version of **cpio**(1) is available so that you can restore archives made using the **Backup Manager** under SCO OpenServer. You should not use the SCO OpenServer command to make backups under UnixWare.

Set the environment variable **OSRCMDS=on** to use the SCO OpenServer version of **cpio** or any command. Remember to unset the variable when you have finished restoring the backup. Alternatively, use the full pathname **/OpenServer/bin/cpio**.

Restore operations can be performed using the **cpio** utility on the command line. The examples included here assume you are using the standard tape device, */dev/ctape1*.

To restore a backup:

> **cpio -iAmudB -I /dev/ctape1**

Restore individual files or directories by adding them to the end of the command line. Use the full pathname and omit the leading "/", as in this example:

> *tmp/hold/time*

Use the "*" Bourne shell wildcard character to restore a directory, as in this example:

> *tmp/hold/other/**

To verify a backup:

> **cpio -itvn -I /dev/ctape1**

To list the files on a backup:

> **cpio -iABmudq -I /dev/ctape1 ***

This command reads the first file off the media. Backups created by the SCO OpenServer **Backup Manager** include a file list called *_BACKUP_CONTENTS_* at the beginning of each backup. If the backup was created by another means, use this command to list the files:

> **cpio -itv -I /dev/ctape1**

NOTE When a disk is recovered, the size of the slices is rounded up. This means that the recovered filesystem may not fit on the same size disk if the backed up disk was nearly full.

SCO ARCserve/Open locks SCSI tape devices

By default, SCO ARCserve/Open locks all of the SCSI tape devices attached to your system. Because of this, your tape devices are unavailable for use by backup commands such as **tar**(1) or **cpio**(1), even if the devices are not currently in the process of performing a backup or restore operation by SCO ARCserve/Open.

> **NOTE** SCO ARCserve/Open Lite, the version of ARCserve/Open provided by default with UnixWare 7 is limited to the use of a single SCSI tape drive.

Depending on the number of tape devices available on your system, there are two possible workarounds to this situation.

- If your system contains a single SCSI tape drive, you can temporarily unlock the device by running **astop** as *root* user to shut down the SCO ARCserve/Open backend. When you are finished using the tape drive, restart SCO ARCserve/Open by running **astart** as *root* user.
- If your system contains multiple tape drives, you can unlock one or more individual devices by editing the */usr/lib/ARCserve/tapesvr.cfg* file and commenting out the desired devices in the Device Table section. Specific instructions on how to make these changes are documented within the *tapesvr.cfg* file.

  > **NOTE** Any tape devices that are commented out of the *tapesvr.cfg* file are unavailable to SCO ARCserve/Open. You should only use this approach if you do not mind dedicating a tape device to non-SCO ARCserve/Open uses.

ARCserve/Open and high security systems

If you run ARCserve on a system that has been configured with high security, and you create a backup using the **Compare Tape to Disk** verification option, file privileges for any file backed up are lost. This harms the system because commands that depend on fixed or inherited privileges, such as **ftp**, **rlogin**, **ping**, **passwd**, and **share** fail for users other than *root*.

There are two workarounds:

- If you have not already created a backup using the **Compare Tape to Disk** option, turn the option off, by selecting one of the other Backup Options (**None** or **Scan Tape Contents**) when scheduling your backup.

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- If you already have removed permissions by running a backup with the **Compare Tape to Disk** option turned on, you can restore your privileges by logging in as *root* and executing the following command:

  /etc/security/tools/setpriv -x

Printing

The following notes apply to printing:

- You cannot add a printer using the **Printer Setup Manager** if the printer output is sent to a file instead of to a printer.

  To add a printer of this type, use the command line as follows:

  ```
  /usr/lib/scoadmin/printer/pradmin printer_name filename\
  lpadmin  -T hplaserjet -D "HP LaserJet 5L/5ML (PCL)" -I pcl\
  -m standard -v filename -A mail -o nobanner\
  -o "stty='clocal -onlcr'" -p filename
  ```

  lp must have permissions to write to the ***filename***

- The **Printer Setup Manager** displays the following error message if you use it to add a NetWare printer:

  ```
  Unexpected error: Vtcl Server VtSet - Widget not found
  ```

  This may be ignored.

- In the **Printer Setup Manager**, if you attempt to specify a nonexistent port as the connection port when you add a printer, the process will fail.

- When you use the **Printer Setup Manager** to add, copy or view the details of a TCP/IP printer connected via a remote server, using the ⟨Tab⟩ key to move the cursor across the screen again to the field “On Remote Server” erroneously toggles the values given for Remote Server and Remote Printer.

- ⟨Del⟩ has no effect on the **Printer Setup Manager**. ⟨Ctrl⟩**C** puts the terminal into raw mode, and should be avoided.

- The SCOadmin **Printer Setup Manager** does not permit printer names to contain the “ _ ” character. To add a printer whose name includes a “ _ ”, add it from the command-line. Once the printer name is created, the **Printer Setup Manager** will be able to manage it.

- If you install the highest level of security during installation, the **Printer Setup Manager** will not execute.

- To print to Hewlett-Packard printers, you must have installed the netmgt package.

Networking

The following notes apply to networking:

- If you defer network configuration during installation, then use **netcfg**(1M) to configure network drivers, you must reboot the system for the network configuration to take effect.
- The associated ttymon entry is not deleted when a modem is deleted in the **Modem Manager**. Delete it by hand if necessary, using **pmadm**(1M) with the **-r** option.
- Version 4.9.7 of BIND, which is shipped with UnixWare, does not allow underscore characters in hostnames. This is in compliance with RFC952.
- The SCOadmin **SNMP Agent Manager** may fail to run with an error of the form:

  ```
  Fatal error: building package index for
  `/usr/lib/scoadmin/snmpmgr/generic.tlib' failed: couldn't open
  "/usr/lib/scoadmin/snmpmgr/generic.tndx": permission denied
  ```

  To resolve this problem, run the **SNMP Agent Manager** as *root*. After it has been run once by *root*, the **SNMP Agent Manager** can then be run by any user with owner privileges.
- If a socket performs a **listen**(3sock), a semaphore is allocated for the socket. By default, there are 150 semaphores available on the system. If more than 150 semaphores are required the kernel tunable **SEMMNI** must be increased.

  listen(3sock) will fail with **ENOSPC** if no semaphores are available.
- The routine **hstrerror** is not available. The manual page **gethostent**(3N) is incorrect.
- When TCP/IP is stopped, a message is displayed from **talkd**(1Mtcp). This should be ignored.
- DHCP only supports a single subnet on each network interface
- If an NIS user who has a long password enters more than eight characters of the password, **ftpd**(1Mtcp) refuses the login. The user should only type the first 8 characters.
- A problem in IP puts the wrong value, 8 instead of 4, in the "dl_dest_addr_length" field of the **DL_UNITDATA_REQ** message sent downstream when ARP is disabled.

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- RFC 1323 is not fully implemented in UnixWare 7. Specifically:
  - **ifconfig**(1Mtcp) options relating to rfc1323 are not present.
  - **inconfig**(1Mtcp) options relating to rfc1323 are not present.
  - TCP/IP support for scalable windows and timestamps is not present.
- To remove a network adapter configured with TCP using the **Network Configuration Manager** in a graphical session, launch the manager from the Panorama desktop only. Doing this task while the CDE desktop is running will cause CDE to hang. To recover from a hung CDE desktop, switch to a character screen, and reboot the system.
- You may encounter an error message, similar to the following, when trying to configure IPX/SPX over token ring:

  ```
  NetWare IPX setup at Fri May 15 11:46:23 EDT 1998
  NWCM-2.1-147: Folder 7 is NOT valid.
  NWNET-2.1-232: Invalid frame_type for configured adapter_type
  Novell Protocol Suite Streams Architecture Daemon
  Reading configuration from "/etc/netware/nwconfig"
  IPX Internal Network configured, setting Router Type to FULL
  Problem starting up npsd
  ```

  If you see this message, you should enter:

  ```
  nwcm -s "lan_1_adapter_type=TOKEN-RING_DLPI
  ```

  and reboot the system.
- The connection server can dump core if the Systems file does not have a phone number in the phone number field.

  The work around is to place a '-' in the phone number field when you do not have any phone numbers (for Direct connections for example).
- When UnixWare attempts to communicate with older RPC mechanism, it may fail. This is likely to happen if you try to NFS mount a disk on a system that uses older versions of the RPC mechanism.
- The **Network Configuration Manager** incorrectly deletes the domain name associated with the primary interface to a gateway in */etc/resolv.conf* if the domain name for a second interface is added. You must update */etc/resolv.conf* by hand to include both domain names. See *resolv.conf*(4tcp) for details.
- The command **finger**(1tcp) may report the idle time of the session from which it is called incorrectly.
- If you have installed DNS, make sure you have a valid Ethernet connection. If your Ethernet connection is faulty or disconnected, and you try to remove packages, the system tries to send email to acknowledge the package removal. The system uses the *resolve.conf* file in */etc* that was created during the DNS installation to acknowledge the package removal.

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If the Ethernet is faulty, the system cannot reconcile any email addresses on the network. Thus the system will appear to hang. If this occurs, ensure the Ethernet connection is valid and retry the package removal, or kill the email processes to free up the removal process.

- Do not specify a fully qualified domain name (FQDN) when adding a hostname to a primary zone using the **DNS Manager**. The domain name for the zone is appended automatically. For example, specify the hostname "myhost" rather than "myhost.test.net." in the **Records** ➪ **Add** ➪ **Host** ➪ **Hostname** dialog.

Anonymous FTP configured as NIS user

When you use the FTP Server Manager to create the anonymous FTP user, if the host under configuration is a client in an NIS domain, the creation of the anonymous FTP user will fail if the user is already present in the NIS domain.

To create a local anonymous FTP user, temporarily suspend NIS; create the user using the **FTP Server Manager**; then resume NIS.

- To use **netcfg**(1M) in single-user mode, you must set the terminal type. To identify the terminal type, run the following command:

  eval 'defadm coterm TERM'; export TERM.

- Incoming and outgoing ISDN V.120 calls are not supported. Devices configured as type **ISDN_ASYNC** are not supported. Service types of **isdn_async** in Callfilter and Callservices are not supported.

Networking: PPP

The following notes and limitations apply to the **PPP Manager** and **PPP Internet Connection Manager**:

- By default an ISDN adapter is configured with the Line Direction of Outgoing and Incoming enabled. If the Outgoing Line Direction is disabled in the **Network Configuration Manager**, the ISDN adapter will not be available to the **PPP Manager** for configuration with PPP. Do not disable the Outgoing Line direction for an ISDN adapter if you intend to configure the adapter with PPP, even for an incoming only PPP bundle.

- If the host under configuration is a client in an NIS domain the creation of PPP user will fail if the user is already present in the NIS domain.

  To create a local PPP user, temporarily suspend NIS; create the user using the **PPP Server Manager**; then resume NIS.

- Ensure that all WAN devices are configured for communication in the direction required before including them in any PPP configuration. Use the WAN view of the **Network Configuration Manager**, **netcfg**(1M), to set the communication direction for each device.

- When creating outgoing connections, ensure that the remote host name for the destination system is configured correctly in the **Dialup Systems Manager**.
- When creating incoming connections ensure that the devices used for the links are configured in the **Dialer Services Manager**.

Configuring router discovery on multiple routers

The routing daemon, **routed**(1Mtcp), in UnixWare 7 implements router discovery by default.

On a router (a system with more than one network interface configured, and with **ipforwarding** and **ipsendredirects** set to 1), **routed** advertises and responds to router discovery solicitation messages. Note that systems that are configured with both a LAN connection and a WAN connection (PPP or SLIP) may also be acting as routers to external networks such as the Internet.

On non-routing hosts, **routed** keeps track of received router advertizements, adding a default route for the highest preference route. For this reason, multiple routers running router discovery on the same subnet should use different preference values. A preference value is an integer greater than 0. The most preferred route should have the highest value. You should not configure a router to advertize a route on an interface if this might lead to inefficient routing of packets through the local subnets.

The following example entries from the */etc/inet/gateways* configuration file on a router cause **routed** to advertize a route with a preference of 10 on the subnet connected to the *net1* interface, but not to advertize on the subnet connected to the *net0* interface:

```
if=net0 no_rdisc_adv
if=net1 rdisc_pref=10
```

If some routers on a subnet implement router discovery while others do not, or if identical or incorrect preference values are configured on the routers, non-routing hosts may install an incorrect default route.

To disable router discovery on routers and non-routing hosts running **routed**:

1. Add the following line to */etc/inet/gateways* (create this file if it does not already exist):

   ```
   no_rdisc
   ```

2. Find out the process ID (***PID***) of **in.routed** by entering the following command:

   ps -ef | grep in.routed

The process ID is the number in the second column. For example, the ***PID*** in the following output is 1991:

```
root  1991  1   TS  80  0 11:28:32 ?   0:02 /usr/sbin/in.routed
```

3. Kill and restart **routed** by entering the following commands:

   kill *PID*
   in.routed

   Alternatively, shut down and reboot the router.

NetWare Services

The following notes apply to the NetWare Services software and documentation:

NetWare licensing

UnixWare 7 is shipped with a zero-user NetWare Services license. This allows an installed UnixWare system to participate in a NetWare network as documented without further action on your part. It is visible to other nodes, and users can see the NDS directory. For the system to use NWS services, you must obtain an Additive License Pack. Contact your SCO supplier for details.

Directory Services Repair

Running Directory Service Repair in an xterm can corrupt the display. To avoid this, run it on the console. See "Directory Services Repair" in the online documentation under **Networking ➪ Administering NetWare Services (NWS)** for information.

The "nwsup" package

The NetWare Services (NWS) "nwsup" package (NetWare Integration Kit) is not distributed with UnixWare 7, although references to it appear in the UnixWare 7 documentation.

This package was distributed with SCO UnixWare 2.1 and contained floppy images of additional NetWare Loadable Modules (NLMs) which could be installed on top of existing Native NetWare servers. These NLMs added support for additional UnixWare semantics when accessing files on the server (mode and ownership in particular). They were known collectively as the "NUC NLM" or sometimes the "UnixWare NLM".

A standard Native NetWare server supports file access semantics in what is called "DOS Mode". The NUC NLM added two more additional modes called "NetWare Mode" and "UnixWare Mode" which provided increasing levels of SCO UnixWare file access semantics.

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While the NUC NLM is no longer supported, references to "NetWare Mode" and "UnixWare Mode" appear in the context of modes supported by the UnixWare NetWare server. These are still valid. They are only obsolete when referring to the Native NetWare server with NUC NLMs added.

This issue affects the **Networking ➪ Administering NetWare Services (NWS) ➪ Administering NetWare Connectivity** online documentation topic, particularly the following:

- *Overview of NUC Connectivity*
- *NetWare Loadable Modules*
- *Accessing NetWare volumes from UnixWare*
- *NetWare backup and restore*

nwcm (1Mipx)

The **nwcm**(1Mipx) manual page refers to the **lan_x_adapter** and **lan_x_network** parameters. These can no longer be accessed via **nwcm**: instead, configuration of these values is now handled with the **netcfg**(1M) utility.

Directory Services installation in an xterm

The Directory Services installation program may display empty dialog boxes when used in an xterm. To avoid this, run it on the console.

NetWare Setup

The owner user cannot use NetWare Setup. The *root* user must use this manager.

NetWare installation from command line

The online topic **Networking ➪ Administering NetWare Services (NWS) ➪ Installing NetWare Services ➪ Installing using the command line** the command

pkgadd -d cdrom nws

should be as follows:

pkgadd -d cdrom1 nws

This assumes that there is only one CD-ROM on the machine. If you have more than one CD-ROM drive, enter

pkgadd -d cdrom*n* nws

In this case, ***n*** is the number of the CD-ROM drive in which you have inserted the CD-ROM.

Mail and messaging

The following notes apply to mail and messaging:

- **biff**(1) and **comsat**(1M) are not supported in UnixWare.
- **xbiff**(X1) is not fully supported in UnixWare. It does not automatically determine the location of users' mailboxes configured in the message store. By default it will monitor mailbox location */usr/spool/mail/**username***, where ***username*** is your login name. If users' mailboxes are configured to be in a location other than the system spool directory (*/usr/spool/mail*, which is a symbolic link to */var/mail*), then you must specify the filename location to **xbiff** by using its **-file filename** command line option.

  Also, **xbiff** does not use the "flagup" and "flagdown" bitmaps by default to show incoming mail status (as reported in the man page text), but rather uses the image of a two-tiered "inbox" which becomes filled with messages.
- The Netscape MUA does not recognize the inbox folder location specified for the message store configuration in */etc/default/mail*.
- The message `New mail has arrived` is displayed after **mailx**(1) even when messages have been read or deleted.
- **mailx**(1) cannot make an IMAP connection to a remote host when the user is *root*, because IMAP will not allow root login for security reasons. If this is attempted, the message `No new mail` may be displayed when there is mail on the remote host.
- When **mailx**(1) is run as an IMAP client, the "From " line of a displayed message shows the date instead of the correct sender.
- Mail folders may not be configured as hard or symbolic links. The message store system will reject them for security reasons.
- For a non-networked system, the **sendmail**(1M) startup script */etc/mail/sendmailrc* (which is linked to */etc/rc2.d/S81sendmail*, */etc/rc1.d/K68sendmail*, and */etc/rc0.d/K68sendmail*) automatically creates the file */etc/service.switch* with an entry which directs sendmail to only look up host names in */etc/hosts*, effectively disabling DNS lookups. The *sendmailrc* script overwrites any existing */etc/service.switch* file. You must therefore edit */etc/mail/sendmailrc* if you wish to include your own customizations for *service.switch*.

  See "The service switch" in the online documentation under **Mail and Messaging ➪ Administering Mail and Messaging ➪ sendmail operations**

- If you have added or removed a networking card from your hardware configuration using the **Network Configuration Manager**, you must stop and re-start **sendmail**(1M) in the case where the manager does not ask you to reboot the system. You may do so by executing the following commands:

  /etc/mail/sendmailrc stop
  /etc/mail/sendmailrc start

Desktop, SCOhelp and Netscape

- You cannot use the desktop **File Manager** to change the properties of files larger than 2GB.
- A rare race condition may occur on reboot that causes the following **dtlogin** error message to be displayed on the console:

  `The X Server cannot be started on display` ***machine_name*** `:0`

  The message incorrectly tells you to log in to the console and log out again to start **dtlogin**. You must in fact log in to the console, use **ps**(1) to identify the dtlogin-daemon process, then send a **kill -9** signal to it. You can now run **scologin start** command from the console.
- The ⟨Del⟩ key is not set up as the delete character for **dtterm**, which instead uses ˆC as the delete character by default. To use ⟨Del⟩ as the delete key, execute the following command in the **dtterm** window:

  stty intr ˆ?

  "ˆ?" consists of the two characters " ˆ " and " ? ".
- Using the **Back** button in the SCOhelp frame to return to the first page of search results causes an error. This is harmless, and may be ignored. You may wish to redo the search.
- When you invoke SCOhelp from the SCO ARCserve/Open window, and click on any of the hotlinks displayed, a Javascript error similar to the following is displayed:

  `Window.node has no property named 'location'`

  This error may be ignored. Click **OK** in the error window to close it.
- If you resize the SCOhelp window, a JavaScript error message is displayed. This is harmless. Click **OK** to close the error message window.
- You cannot assemble a topic in SCOhelp for printing until the search capability has been enabled.
- When Netscape and SCOhelp browsers are open at the same time, exiting from either closes both browsers. To exit from just one browser, use the **File ⇨ Close** menu option.

- The **Back** and **Forward** buttons in each frame in the SCOhelp browser behave differently from the buttons with the same names in the browser tool bar and in the Netscape browser. The frame buttons work within frames, but only with the UnixWare online documentation set. Navigating to pages outside the documentation set causes the frame buttons to behave in unpredictable ways.
- A PostScript version of the *Netscape Navigator Gold Authoring Guide* is available on the web at:

  http://www.sco.com/documentation/postscript/navau/goldauth/

- The **Directory** buttons (and **Directory** menu options) have changed for the UnixWare version of Netscape. To return to standard Netscape Directory behavior, move aside the following file: */usr/X/lib/app-defaults/Netscape.cfg*.
- In some circumstances, you may not be able to return to SCOhelp via the Netscape **back** buttons. If this happens, select **File ➪ Open Location** and enter the address *localhost:457*.
- SCOhelp may not be able to access the documentation set if the help browser was installed while a network was configured, and the network is disconnected.
- The Netscape Mail/News Preferences window is too big for an 800x600 display. This means that the **OK**, **Cancel** and **Defaults** buttons are not visible.

  You can access these buttons using the ⟨Tab⟩ key. Move the cursor to the last item on the tab, then press ⟨Tab⟩ once more to move the cursor to just off the screen for **OK**. Press ⟨Tab⟩ once again for **Cancel**, and a third time for **Defaults**. The next ⟨Tab⟩ should bring the cursor back to the top of the tab.
- If you kill all the processes owned by the current desktop user while you are *root* in a console on the Panorama desktop, the desktop becomes unusable.
- During installation, the **config_help**(1M), **config_man**(1M), and **config_views**(1M) tools are run and the output captured to log files. After installation, you need to run the **config_search**(1M) tool (with the **-f** option) to complete SCOhelp configuration.

  These tools can return errors that might indicate a problem with the SCOhelp system; more typically, they return warnings that do not affect the integrity of SCOhelp.

  The following paragraphs explain some of the messages you may see when running these tools.

  ```
  config_search: lang: No search collection at
  /usr/lib/scohelp/lang/_SearchIndex.
  First run config_help or config_man
  ```

This message (where ***lang***: is a language specifier such as es, fr, de, ja), indicates that **config_search** was run with either no options or a **-L** option that pointed to a particular language, and no input to the search index was found for that language. The result is that no search index processing is done for the indicated language, but otherwise SCOhelp is unaffected by this error. However, if there is documentation for ***lang***: present on the system, then run **config_help** and **config_man**, and run **config_search** again, this time with the -L ***lang***: option.

```
mktitles: lang: 1: Warning: manpage claims to be in
          section n: path
```

This error indicates a problem in the source file at */usr/man/**path***. Specifically, the file named by ***path*** is in section ***n***, but the text in the file says that the page is in another section. The source file itself needs to be corrected or moved to the proper section under */usr/man*. This is typically a problem caused by the application package that installed the manual pages.

```
mktitles: lang: path: No documentation found.
```

The **mktitles** tool looks for documentation files in every directory it finds under */usr/lib/scohelp*. If prints a message like the above for every directory in which it expected to find documentation files but found none. This usually occurs when a doc package has been removed, but the directories it used were not deleted during package removal. Directories are typically left behind in case users have added their own source files.

```
config_views: lang: path parent view <view-name> does not exist

config_views: lang: <view-name> view has non-existant
              OverviewURL: path

config_views: lang: path view refers to non-existant
              URL: path
```

These messages usually indicate a reference to a topic view (a left frame table of contents) that does not exist. This is usually due to a reference in one package that depends on doc in another package that is not currently installed. For example, if you install the BASEdoc package but not the ARCdoc package (for ARCserve documentation), then you will get messages like this since the top-level BASEdoc view *Backup and Restore* will not have any ARCserve documentation to which it can point.

X server and graphical environment

- The option **-crt** to **X**(X1M) does direct the X server to a virtual terminal (*/dev/vt10*, for example).
- **DISPLAY** settings for applications for SCO OpenServer (including those on the Skunkware 96 disk) may not be valid for UnixWare 7. An error similar to the following may result:

  ```
  Connection broken
  ```

  You may wish to try the following workaround:

  ```
  DISPLAY=localhost;export DISPLAY
  xhost +localhost
  ```

- When **startx**(X1M) is used to start a **pmwm**(X1) session, the X session continues to run in an xterm after the pmwm session is closed.
- If you have a two button mouse, then a middle button mouse click may be generated by holding down and releasing the left and right buttons of the mouse simultaneously. However the middle button simulation can be unreliable with **dtterm** on the CDE desktop.

  If after installation you decide to use a three button mouse then change the value of **MOUSEBUTTONS** in */etc/default/mouse* from 2 to 3 and reboot your system.

man pages

If you install any raw man pages, that is, man pages that are coded with the man troff macros, then you must have the BSDcompat package installed first. That is because such pages require **nroff**, which is in BSDcompat.

After installing the BSDcompat package, include */usr/ucb* in the **PATH** variable if you want to run **catman** to process unformatted man pages from the root.

Security

- In character mode, the **Security Profile Manager** fails with a hung remote session if you try to use the **OpenHost** option to access a host where you do not have permission to use **rsh**(1) (for example, where you have no *.rhost* entry).
- A Strong Encryption Supplement is included on the UnixWare 7 CD-ROM. This turns on the Netscape 128-bit encryption.

  Both weak encryption (40-bit) and strong encryption binaries for the Netscape products (FastTrack, NavGold) are packaged as part of UnixWare. By default, the 40-bit binaries are in place. Installing and licensing the Strong Encryption Supplement causes the 128-bit binaries to be moved into place. Any Netscape products subsequently loaded onto the system will also get the strong encryption binaries.

The Strong Encryption Supplement is separate from the encryption included in the base UnixWare 7, in that it currently applies to the Netscape products only (and the Internet Security package on SCO OpenServer).

- Two problems have been reported that concern administering groups via the SCOadmin Account Manager.

  If a user account has a group configured in its "multiple group" set, the SCOadmin Account Manager cannot remove that group.

  The **Change Group Membership** feature in the SCOadmin Account Manager does not remove groups in the "Member of" column from the */etc/groups* file if all the groups are selected. A partial selection works correctly.

  It is recommended that the **usermod**(1M) command be used for these operations.

Tcl

The command **select**(1tcl) exits when a selected socket file descriptor closes, and then blocks the socket.

Emergency recovery with an encapsulated or mirrored root disk

There are three phases to performing an emergency recovery with an encapsulated or mirrored root disk:

1. "Creating the Emergency Recovery diskettes and tapes" (page 77)
2. "Bringing the system back after emergency media is created" (page 78)
3. "Performing recovery when the primary and mirrored root disks fail" (page 79)

> **WARNING** If the following procedures are not adhered to *exactly*, it may result in your system entering an unrecoverable state.

During the following process, use the **vxprint**(1M) command to obtain information about the encapsulated root disk and the disk to which it is mirrored. In this example, an initial install was done with all additional filesystems created, and mirrored onto another disk. Your installation may differ, so you may have a different number of partitions on the root disk. This procedure is valid for recovering from a disaster where the primary and mirror disks both fail, and ODM was used only to encapsulate the root disk and mirror it. Information on any other ODM disks should be saved so that they may later be restored.

Creating the Emergency Recovery diskettes and tapes

1. Bring the machine down to init state 1 and log in as *root*
2. Run **vxconfigd**(1M) to start up the ODM configuration daemon
3. Use **vxplex**(1M) to disconnect the mirrored root plexes. Examples are given below:

   vxplex dis home-02
   vxplex dis home2-02
   vxplex dis rootvol-02
   vxplex dis standvol-02
   vxplex dis swapvol-02
   vxplex dis tmp-02
   vxplex dis var-02

4. Set up the kernel to ignore the ODM configuration:

   - Make a backup copy of */etc/conf/pack.d/vol/space.c* using the following command:

     cp /etc/conf/pack.d/vol/space.c /etc/conf/pack.d/vol/space.c.old

     then edit */etc/conf/pack.d/vol/space.c*, and change the two lines:

     ```
     #define VOL_ROOTDEV_IS_VOLUME
     #define VOL_SWAPDEV_IS_VOLUME
     ```

     to:

     ```
     #undef VOL_ROOTDEV_IS_VOLUME
     #undef VOL_SWAPDEV_IS_VOLUME
     ```

   - Make a backup copy of */etc/conf/init.d/kernel* using the following command:

     cp /etc/conf/init.d/kernel /etc/conf/init.d_kernel.old

     then edit */etc/conf/init.d/kernel* to move the “swp1” entry located just after the “vol2” entry to just below the “vol1” entry, and change the line from:

     ```
     swp1::sysinit:/sbin/swap -a /dev/vx/dsk/swapvol > /dev/sysmsg 2>&1
     ```

     to:

     ```
     swp1::sysinit:/sbin/swap -a /dev/swap > /dev/sysmsg 2>&1
     ```

   - Make a backup copy of */etc/conf/inittab* using the following command:

     cp /etc/conf/inittab /etc/conf/inittab.old

     then edit */etc/conf/inittab* in the same manner as you edited */etc/conf/init.d/kernel*.

- Make a backup copy of */etc/vfstab* using the following command:

  cp /etc/vfstab /etc/vfstab.old

  then edit */etc/vfstab*, and make the following type of substitutions on the non-commented lines:

  Replace "/dev/vx/[r]dsk/home" with "/dev/[r]dsk/c0b0t0d0s4"
  Replace "/dev/vx/[r]dsk/var" with "/dev/[r]dsk/c0b0t0d0sb"
  Replace "/dev/vx/[r]dsk/home2" with "/dev/[r]dsk/c0b0t0d0sc"
  Replace "/dev/vx/[r]dsk/tmp" with "/dev/[r]dsk/c0b0t0d0sd"

  You should also comment out any other ODM-defined slices.

- Make a backup copy of */etc/swaptab* using the following command:

  cp /etc/swaptab /etc/swaptab.old

  then edit */etc/swaptab*, replacing "/dev/vx/dsk/swapvol" with "/dev/swap"

- Run the following command:

  touch /etc/vx/reconfig.d/state.d/install-db

- Run the following command to obtain the major/minor numbers of the root slice:

  ls -l /dev/dsk/c0b0t0d0s1

- Replace the major/minor numbers for */.io/bootdisk/[r]root*:

  rm /.io/bootdisk/*root
  mknod root b ***MAJOR MINOR***
  mknod rroot c ***MAJOR MINOR***

  where ***MAJOR*** and ***MINOR*** are the major and minor numbers displayed by the **ls** in the previous step.

5. Rebuild the kernel:

   /etc/conf/bin/idbuild -B

6. Reboot using the **init 6** command. When you see the UnixWare logo appear, immediately press ⟨Space⟩ to enter the Bootstrap Command Processor. Enter the command **initstate=1**, followed by "'boot"'. This will cause the machine to boot into single-user mode.

7. Run the **emergency_disk**(1M) and **emergency_rec**(1M) commands.

Bringing the system back after emergency media is created

1. Undo the steps in step 4 of the previous procedure to restore the ODM configuration.

When you use **mknod**(1M) to create the */.io/bootdisk/*root nodes*, use the major and minor numbers listed by the following command:

ls -l /dev/vx/dsk/rootvol

2. Rebuild the kernel again:

   /etc/conf/bin/idbuild -B

3. Reboot using the **init 6** command. When you see the UnixWare logo appear, immediately press ⟨Space⟩ to enter the Bootstrap Command Processor. Enter the command **initstate=1**, followed by "'boot"'. This will cause the machine to boot into single-user mode.
4. When the system comes back up, log in as root, and run **vxconfigd**(1M) to start the ODM configuration daemon
5. Re-attach the plexes disconnected earlier, for the mirrored disk.

   For example:

   vxplex att home home-02
   vxplex att home2 home2-02
   vxplex att rootvol rootvol-02
   vxplex att standvol standvol-02
   vxplex att swapvol swapvol-02
   vxplex att tmp tmp-02
   vxplex att var var-02

   You should also remove the comments from other ODM-defined slices you previously commented out.
6. Reboot using **init 6** and let the machine boot all the way into multiuser mode.

Performing recovery when the primary and mirrored root disks fail

1. Boot from the Emergency Recovery diskettes.

   A message should be displayed indicating that the system is *not* sane.

   Continue to the **Emergency Recovery** menu and perform the **Restore Disk(s)** process.
2. After the recovery has completed, select the option to Reboot. When you see the UnixWare logo appear, immediately press ⟨Space⟩ to enter the Bootstrap Command Processor. Enter the command **initstate=1**, followed by "boot". This will cause the machine to boot into single-user mode.
3. Enter the following command:

   rm /etc/vx/reconfig.d/state.d/install-db

4. Run **vxconfigd** to remove all information about the mirrored disk:

    vxplex -o rm dis home-02
    vxplex -o rm dis home2-02
    vxplex -o rm dis rootvol-02
    vxplex -o rm dis standvol-02
    vxplex -o rm dis swapvol-02
    vxplex -o rm dis tmp-02
    vxplex -o rm dis var-02
    vxedit rm disk01

5. Run **/etc/vx/bin/vxunroot**.

6. Remove the VOLPUBLIC partition from BOTH the root disk and the mirrored disk, if they exist:

    prtvtoc -f /tmp/vtoc /dev/rdsk/c0b0t0d0s0

    Edit the */tmp/vtoc* file and change the line that is similar to this:

    ```
    14      0xe     0x201   2048    2064384
    ```

    to:

    ```
    14      0x0     0x0     0       0
    ```

    Then rewrite the VTOC:

    edvtoc -f /tmp/vtoc /dev/rdsk/c0b0t0d0s0

    Reboot using the **init 6** command. When you see the UnixWare logo appear, immediately press ⟨Space⟩ to enter the Bootstrap Command Processor. Enter the command **initstate=1**, followed by "boot". This will cause the machine to boot into single-user mode. Ignore the **vxconfigd** errors.

7. Run **vxinstall** to re-install ODM and re-encapsulate root. After the three reboots take place, you can re-mirror the root disk, add any other ODM disks, and restore the data to them. The machine will be running in multiuser mode.

XENIX

XENIX compatibility has been removed. Various modules and commands have been removed from the system. These include the DOS commands **doscat**, **doscp**, **dosdir**, **dosls**, **dosmkdir**, **dosrmdir**, and **dosrm**. Equivalent functionality can be obtained from the "mtools" package found on the Skunkware CD.

The following **exec** modules and commands **i286x**, **x286emul**, **i286emul**, and **xout** were removed. These modules and commands provided compatibility for 286 and 386 XENIX binaries. The XENIX filesystem and all supporting commands for it have been removed. The module **xnamfs** has been removed which supports XENIX semaphores and shared data.

The XENIX libraries **libx**, **libxcurses**, and **libxtermlib** have been removed. Support for the system call **nap** is now in **libc**. The system calls **creatsem**, **execseg**, **chsize**, **locking**, **nbwaitsem**, **opensem**, **proctl**, **sdenter**, **sdfree**, **sdgetv**, **sdleave**, **sdwaitv**, **sigsem**, **unexecseg**, and **waitsem** that were in **libx** were not moved to another library. The corresponding man pages for these system calls no longer exist.

If you execute a XENIX binary you can expect **exec** to return **ENOEXEC**, and an error message similar to:

```
file: cannot execute [Exec format error]
```

depending on your shell. You can identify whether a binary is a XENIX binary by using the **file** command.

Domestic encryption

Domestic encryption is broken when update701 is installed. If the **crypt**(1) version of **libnsl** or the "crypt" package are already installed, the following warning is given:

```
Overriding the installed domestic libnsl
```

You should update your system with a new version of the "crypt" package, obtained by ordering the UnixWare DES encryption utilities. This package is for North American customers only.

The "crypt" package contains a domestic **libnsl** that is UNIX95 conformant.

If you do not update the "crypt" package, the secure **rpc** functionality in **libnsl** is broken.

software.s 7 August 1998 SCCS file: /pubs/f/english/RNOTES/s.software.s SCCS ID: 100.125 Last delta: 98/07/24 21:52:13

Documentation

The UnixWare 7 documentation states that multiple instances of an application may be installed, and that on installing a second (or ***n***th) package instance, the instance component of the package identifier is automatically incremented. It goes on to state that, subsequently, using this identifier, each instance can be removed from the system independently of any other instances.
This is incorrect. To increment package instances, you begin by installing the package (using the **pkgadd**(1M) utility), called for example "package". Then, you create a second image of the package called "package.1", and install that version. This provides a variant of the package instance handling functionality described in the UnixWare 7 documentation, because the identifiers are different.

However, it is *not* then possible to remove one instance without also removing all of the others, as **pkgrm**(1M) does not correctly use the **VERSION** parameter (in the package characteristics file) to distinguish one instance from another.

Accordingly, the following modifications should be made to the online documentation topic **Software Development ➪ Software Development Tools ➪ Packaging your Software Applications** :

- In the section entitled "Installation Parameters", the description of **PKGINST** should be removed.
- "Step 2. Defining a Package Instance" in the section entitled "Basic Steps of Packaging" should also be removed.
- The pointer to this documentation given in the second item of the list in "Basic Steps of Packaging" should also be removed.

The following manual pages should also be modified. In all cases, references to the ***inst*** component of the ***pkginst*** command line argument should be ignored.

- **installf**(1M)
- **pkgadd**(1M)
- **pkgask**(1M)
- **pkgchk**(1M)
- **pkginfo**(1)
- **pkgmk**(1)
- **pkgparam**(1)
- **pkgrm**(1M)
- **pkgtrans**(1)
- **removef**(1M)

Similarly, the following manual pages should be amended as described:

- *admin*(4)

  References to the ***instance*** parameter should be ignored.
- *depend*(4)

  References to the (***arch***)***version*** field should be ignored.
- *pkginfo*(4)

  References to the **MAXINST** parameter should be ignored.