Chapter 7

Adding or removing hard disks, tapes, and other devices

After you install your UnixWare 7 system, you can install additional hard disks, tapes, and other devices using the Device Configuration Utility (DCU). This chapter provides information on:

- starting the DCU (page 70)
- adding a hardware controller (page 70)
- configuring a hardware controller (page 72)
- removing a hardware controller (page 73)
- rebuilding the system (page 74)

Specific procedures cover adding hard disks (page 75) and tape drives (page 78) to your system.

NOTE UnixWare 7 provides several other hardware configuration managers to configure network, modem, print, audio, and video devices after you install the system. See "Configuring additional hardware" (page 44) for a complete list.

Starting the DCU

You can start the Device Configuration Utility in either of these ways:

From the command line
Enter **dcu**.

From the SCOadmin launcher
Click on the **Hardware** folder, then click on **Device Configuration Utility (DCU)**.

Adding hardware controllers

Use this procedure to add a new hardware controller.

1. Manually configure the new hardware, if necessary.

   Some hardware requires manual configuration. For example, you may have to set jumper pins on a hardware card. Check the documentation provided with the hardware you are installing.

   - If you add a new controller, be careful when setting the IRQ, memory address range, I/O address range, or Direct Memory Access (DMA) channel. You generally need to select values that do not conflict with existing hardware configuration parameters (however, some controllers support shared IRQ values). To view the configuration parameters for existing hardware controllers on your system, invoke the DCU by following the procedure in “Starting the DCU” (this page).
   - If you attach a peripheral to a SCSI host bus adapter, manually set the SCSI target ID.

     If you attach a peripheral to a non-SCSI controller, configure the device according to the information found in the documentation provided with the controller and peripheral.

     To view existing SCSI hardware data, enter the following command as *root*:

     /etc/scsi/sdiconfig -l

     See the **sdiconfig**(1M) manual page for additional information.

2. Shut down the system.
3. When prompted, turn off the system power switch.

   To be safe, disconnect the power cord.

4. Connect the new hardware devices.

   Insert any needed hardware controller(s) into your system and connect the new hardware peripheral(s) to the controllers (hardware boards and/or adapters). For details, see the documentation that came with your hardware.

5. Turn on the power for your system and all devices connected to your system.

   If the hardware you are installing has its own power supply, plug in the power cord and power up the hardware.

6. Run any hardware-specific software.

   Some hardware comes with software that must be run in order to configure the device. When installing a new device (for example, a network adapter):

   - If your system came with a platform configuration utility, run that utility. This is typically true for EISA and MCA systems. For details, see the documentation that came with the hardware.
   - If the controller came with an initialization program, run that program. For details, see the documentation that came with the hardware.

   Many platform configuration utilities and/or hardware initialization programs require a DOS operating system. Sometimes the hardware vendor provides a partial DOS operating system from which you can boot your system. Otherwise, you must provide your own copy of DOS.

   a. Insert the DOS diskette into your system boot drive and reboot your system.
   b. When the DOS prompt is displayed, replace the DOS diskette with the platform configuration utility diskette or initialization program diskette. (Follow the instructions for your program. See your hardware configuration documentation.)
   c. Configure your hardware by following the instructions provided in your hardware documentation.
   d. After configuring the hardware, remove the diskette from the boot drive.

7. Reboot your system.

   Then follow the instructions given in the next section.

Configuring hardware controllers

This procedure is used to configure your devices after they have been physically added to your system.

Do the following to verify that the UnixWare 7 system is properly configured to access the new hardware and, if necessary, to revise your software configuration:

1. Make sure the device driver is installed and configured to access the new controller.

   If you are not sure whether the device driver is installed and configured, go to "Viewing hardware device configuration" (page 92) for instructions about how to verify this using the DCU.

   Use the following table to decide what to do next.

If	Then
The device driver for the controller has not been installed.	Go to Step 2.
The device driver for the controller is installed but has not been configured.	Go to Step 3.
The device driver for the controller is installed and has been automatically configured.	Go to Step 4.

2. Install the device driver in your system.

   If the device driver that supports the new controller is not installed on your system, you need to install a package that contains the driver. The driver may be on the boot diskette, or it may have been provided by your hardware vendor on a separate diskette.

   NOTE For a current list of device drivers and supported hardware point your web browser to *http://www.sco.com/chwp*.

   To install a package, insert the diskette into the diskette drive and issue a **pkgadd**(1M) command, or use the SCOadmin **Application Installer**. See "Installing and removing software" in the *UnixWare 7 System Handbook*.

3. After the device driver is installed, a message may be displayed indicating additional actions that you must perform to configure the device driver. Follow the instructions displayed on the screen.

You may be required to rebuild or reboot the system before you can use the new hardware. See "Rebuilding your system" (page 74).

4. After configuring the device driver for a controller, additional device-specific configuration may be needed. For example:
   - If you added a modem to your system, you may need to configure the modem. See "Configuring modems" in SCOhelp.
   - If you added a hard disk then you need to partition the disk and set up filesystems. See "Adding hard disks" (page 75).

Removing hardware controllers

The UnixWare 7 system automatically detects when some controllers (for example, supported EISA, MCA, or PCI hardware) are installed on the system. If such controllers are removed from the system, the controller's device driver parameter settings are automatically removed from the system resource database.

However, if the UnixWare 7 system cannot detect whether a controller is installed on your system, the controller's device driver parameter settings are not automatically removed from the system resource database when you remove the hardware. ISA controller settings must be removed manually using the Device Configuration Utility (DCU).

You can use this procedure to remove ISA hardware components from your system.

1. Start the DCU (page 70).
2. From the DCU main menu, select **Hardware Device Configuration**.
3. From the "Hardware Device Configuration" screen, move the cursor to the row containing the device driver settings for the controller.
   - If you plan to reinstall the ISA controller or peripheral later, you may want to temporarily disable access to the controller. This keeps the device driver settings for the controller in the system resource database. Change the value in the Device Name field to `unused`.

     NOTE To reactivate the controller, change the device name from `unused` back to the name of the device driver.

   - If you do not intend to reinstall the controller, remove the controller's device driver settings from the system resource database. If the value in the first field on the DCU screen is **Y**, change it to **N**.

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4. Exit the "Hardware Device Configuration" screen.
5. Select **Apply Changes & Exit DCU**.
6. If you are removing a controller from your system, decide whether the device driver parameter settings for the controller should be removed from the system resource database.
7. Select **Apply Changes & Exit DCU**.
8. Shut down the system.
9. When prompted, turn off the system power switch.
10. If the hardware peripheral(s) have power switches, turn them off.
11. Remove the hardware controller(s) or peripheral(s).
12. Turn on the power for all devices that are connected to your system.
13. Rebuild or reboot the system. See "Rebuilding your system" (this page).

Rebuilding your system

Sometimes when you add new hardware or change the kernel configuration, you need to rebuild the kernel. For example, when you add a new device driver, the package installation software may prompt you to rebuild the kernel.

The preferred way to rebuild the kernel is to use the **idbuild**(1M) command. If the rebuild fails, you can use the error messages that **idbuild** displays to determine the problem.

1. Enter **su** to become root.
2. Enter the following:

   /etc/conf/bin/idbuild -B

The **-B** option indicates that you want the kernel rebuilt now. The UnixWare 7 system attempts to rebuild the kernel and displays error message(s) if the rebuild fails.

Otherwise, you can simply reboot your system. If a kernel rebuild is required, the system will perform it automatically upon rebooting.

NOTE The new kernel is placed in */stand/unix* and the previous kernel is saved in */stand/unix.old*. If you have a problem rebooting the new kernel, you can still reboot using the old kernel. To do so, press ⟨Enter⟩ when the `Booting UnixWare...` message is displayed. Then, at the `[boot]#` prompt, enter:

boot unix.old

Adding hard disks

To add hard disks to your system:

1. Verify that the disk controller or adapter is installed. If you have not yet added a controller to the system, or if you need to add an additional controller, see "Adding hardware controllers" (page 70) for instructions.
2. Attach the new disk(s) to the disk controller or adapter. Follow the instructions provided by the disk drive manufacturer.
3. Verify that the appropriate device driver is installed, and that the disk controller or adapter has been configured. If you have not yet installed the device driver or configured the controller, see "Configuring hardware controllers" (page 72) for instructions.
4. Reboot the system.

   The system should be able to access the hard disk following the reboot.
5. Run **diskadd**(1M) to add the disk.

   The **diskadd** utility guides you through the activities necessary to complete installation of the new disk. These activities include setting up partitions, surface analysis, making new filesystems and mounting the disk, among others.

Adding a hard disk — an annotated example

This example uses the **diskadd**(1M) command to add a second disk with a single partition and two filesystems (slices) to the system.

```
# diskadd 1        # use ``1'' for a second disk. for other disks,
                   # the disk_number is in the form cCbBtTdD

UX:diskadd: INFO: You have invoked the System V disk management (s5dm)
diskadd utility.

The purpose of this utility is to set up additional disk drives.
This utility can destroy the existing data on the disk.  Do you wish
to continue? (Type y for yes or n for no followed by ENTER): y

The recommended default partitioning for your disk is:

  a 100% "UNIX System" partition.

To select this, please type "y".  To partition your disk
differently, type "n" and the "fdisk" program will let you
select other partitions. y

                              # if you type ``n'' the fdisk(1M) program is
                              # run and you can set up additional partitions
                              # (for example, a DOS partition).

Surface analysis of your disk is recommended but not required.

Do you wish to skip surface analysis? (y/n) n

                              # surface analysis is especially important for
                              # new disks

You will now be queried on the setup of your disk. After you
have determined which slices will be created, you will be
queried to designate the sizes of the various slices.

                              # before answering the following questions,
                              # determine how many filesystems you want to
                              # set up, what their names will be, and how
                              # much space they require

How many slices/filesystems do you want created on the disk (1 - 13)? 2

Please enter the absolute pathname (e.g., /home3) for
slice/filesystem 1 (1 - 32 chars)? /home3

Enter the filesystem type for this slice (vxfs,ufs,s5,sfs), type 'na'
if no filesystem is needed, or press <ENTER> to use the default (vxfs):

Specify the block size from the the following list
(1024, 2048, 4096, 8192), or press <ENTER> to use the first one:

                              # 1024 is default
```

```
Should /home3 be automatically mounted during a reboot?
Type "no" to override auto-mount or press <ENTER> to enable the option:

Please enter the absolute pathname (e.g., /home3) for
slice/filesystem 2 (1 - 32 chars)? /usr2

Enter the filesystem type for this slice (vxfs,ufs,s5,sfs), type 'na'
if no filesystem is needed, or press <ENTER> to use the default (vxfs):

Specify the block size from the the following list
(1024, 2048, 4096, 8192), or press <ENTER> to use the first one:

Should /usr2 be automatically mounted during a reboot?
Type "no" to override auto-mount or press <ENTER> to enable the option:

You will now specify the size in cylinders of each slice.
(One megabyte of disk space is approximately 1 cylinders.)
There are now 3074 cylinders available on your disk.
The filesystem type you have chosen is limited to 1048576 cylinders.
How many cylinders would you like for /home3 (0 - 3074)?
Press <ENTER> for 0 cylinders: 274

There are now 2800 cylinders available on your disk.
The filesystem type you have chosen is limited to 1048576 cylinders.
How many cylinders would you like for /usr2 (0 - 2800)?
Press <ENTER> for 0 cylinders: 2800

You have specified the following disk configuration:
A /home3 filesystem with 274 cylinders (274.0 MB)
A /usr2 filesystem with 2800 cylinders (2800.0 MB)

Is this allocation acceptable to you (y/n)? y

Filesystems will now be created on the needed slices

Creating the /home3 filesystem on /dev/rdsk/c0b0t1d0s1
Allocated approximately 70112 inodes for this file system. Specify a
new value or press <ENTER> to use the default:

Creating the /usr2 filesystem on /dev/rdsk/c0b0t1d0s2
Allocated approximately 716768 inodes for this file system. Specify a
new value or press <ENTER> to use the default:

UX:diskadd: INFO: Diskadd for Disk Drive 2 DONE at Fri Sep 05 14:47:16

# df          # the df command shows the new filesystems

/                  (/dev/root          ): 4628818 blocks  616572 files
/proc              (/proc              ):       0 blocks     342 files
/stand             (/dev/dsk/c0b0t0d0sa):   42954 blocks      79 files
```

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```
/dev/fd            (/dev/fd           ):       0 blocks       0 files
/home              (/dev/dsk/c0b0t0d0s4):   13026 blocks    1736 files
/home2             (/dev/dsk/c0b0t0d0sc):   13068 blocks    1740 files
/system/processor  (/processorfs      ):       0 blocks       0 files
/tmp               (/tmp              ):   14680 blocks   32123 files
/var/tmp           (/var/tmp          ):   61424 blocks   32765 files
/home3             (/dev/dsk/c0b0t1d0s1):  523908 blocks   69852 files
/usr2              (/dev/dsk/c0b0t1d0s2): 5372640 blocks  716348 files
```

Adding tape drives

To add a tape drive to your system:

1. Verify that the tape controller or adapter is installed. If you have not yet added a controller to the system, or if you need to add an additional controller, see "Adding hardware controllers" for instructions.

   NOTE Non-SCSI tape controllers must be set to use IRQ 5, I/O address 300, and DMA 1.

2. Attach the new tape drive(s) to the tape controller or adapter. Follow the instructions provided by the tape drive manufacturer.
3. Verify that the appropriate device driver is installed, and that the tape controller or adapter has been configured. If you have not yet installed the device driver or configured the controller, see "Configuring hardware controllers" (page 72) for instructions.
4. Reboot the system.

   The system should be able to access the tape drive following the reboot.

7.hardware.s 6 August 1998 SCCS file: /f/english/InstallG/s.7.hardware.s SCCS ID: 100.13 Last delta: 98/07/27 12:20:19