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# ConvexOS and Utilities V10.1 Local Initial Installation Procedures

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# ConvexOS and Utilities V10.1

## Local Initial Installation

### Procedures

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# Before you start

# 1

---

## Types of installations

There are four different methods of installing ConvexOS and Utilities, only one of which is appropriate for your site. If you are currently running V10.0 or V9.1 of ConvexOS, you will be performing an *upgrade*. If this is the first installation of ConvexOS on your machine, you will be performing an *initial installation*.

If your machine has a tape drive, you will be doing a *local* installation; if you will be using the tape drive on another machine, you will be doing a *remote* installation.

Optional products may also be installed locally or remotely.

This document contains instructions for performing an initial installation on a system with a tape drive.

---

## Verifying your installation kit

Installation kits for local initial installations should contain the following:

- A tape containing "ConvexOS V10.1". This tape may be in one of three formats depending on the type of machine, the type of installation, and the format of your SPU tape drive. This tape may be:
  - A ct-format cartridge, for a full-height SPU tape drive. This tape has a white label.
  - An mt-format cartridge, for a half-height SPU tape drive. This tape has a yellow label.
  - A DAT-format cassette, for a SPU equipped with a digital audio tape drive.

If you received a cartridge tape, be certain that it is appropriate for the drive on your SPU.

- A magnetic tape containing "ConvexOS Utilities V10.1". Check the packing slip to be certain that this tape also contains:

- CONVEX C V4.0 or V4.1
- CONVEX ALL V10.0

If the ConvexOS V10.1 Utilities tape does not contain these products, you should have received these products on two separate round magnetic tapes.

- If you have received one magnetic tape, you may or may not have a second one. This second tape may contain optional products for which you hold licenses. Refer to the packing slip to determine which optional products are included on this tape.
- Installation activation keys specific for your machine. These activation keys are in an envelope attached to each tape.
- The ConvexOS password for upgrading SPU software, which you must obtain by calling the CONVEX Technical Assistance Center (TAC).
- A copy of the *ConvexOS and Utilities V10.1 Release Notice*.
- These installation procedures.
- Release notices for optional products for which you hold licenses.

If you are missing any of these items, contact the CONVEX Technical Assistance Center (TAC) or a CONVEX field representative.

---

# Installing ConvexOS and Utilities

# 2

This chapter contains information that you must know to perform a local initial installation correctly and expediently.

Please read this chapter completely before attempting installation of ConvexOS and Utilities V10.1.

---

## Prerequisites

This installation requires that the following conditions be met:

- You must have V4.0 or later of the CONVEX C Compiler available for installation. This may be included on the "ConvexOS V10.1 Utilities" tape or may be on a separate tape.
- Your system must have CONVEX ALL (Assembler, Loader, and Libraries) V1.0 available for installation. This may be included on the "ConvexOS V10.1 Utilities" tape or may be on a separate tape.
- Your system must have the versions of SPU software listed in Table 1. C1 Series machines have both System Diagnostics and a Diagnostic Database. For other machines, the system diagnostics and database have been combined into a single product called Processor Diagnostics.

Table 1 SPU software dependencies

CONVEX system	SPU OS	System Diagnostics or Processor Diagnostics	Diagnostic Database
C120	V5.2	V6.6 or later	V2.7 or later
C200, C3200 Series	V6.1	V5.0 or later	NA
C3400 Series	V6.1	V1.2 or later	NA
C3800 Series	V2.0	V2.1 or later	NA

Figure 1 shows the commands to use on a C120, C200 Series, C3200 Series, or C3400 Series system to determine which versions you are running. Relevant information is highlighted; commands you enter are in bold type. You must be root to execute these commands.

**Figure 1** Determining versions of required SPU software

```

# /usr/convex/spucmd cat /UNIX_REV
+ cat /UNIX_REV
!<installsw>
Copyright 1990 CONVEX Computer Corp.
All rights are reserved.
CREATED ON Fri Jan 12 14:36:22 1990
Product:      SPU UNIX, Version: V5.2
Release date: Jan 8, 1990
Installation date:      Mon Jan 22 11:57:56 CST 1990
# /usr/convex/spucmd cat /mnt/DIAG_REV
+ cat /mnt/DIAG_REV
!<installsw>
Copyright 1990 CONVEX Computer Corp.
All rights are reserved.
CREATED ON Mon Nov 19 15:38:37 1990
Product:      System Diagnostics, Version: V3.5.0.2
Release date: Oct 15, 1990
Directories:  /mnt/bin, /mnt/test, /mnt/man
    
```

On a C3800 Series system, make the replacements shown in Table 2 to the command lines in Figure 1.

**Table 2** Determining SPU software versions on a C3800

Replace:	With:
/UNIX_REV	/SPU_OS
/mnt/DIAG_REV	/diag/DIAG_REV

If you have a C1 Series system, enter the command in Figure 2 to determine your version of the Diagnostic Database.

**Figure 2** Determining Diagnostic Database version (C1 Series only)

```

# /usr/convex/spucmd cat /mnt/DIAG_DB_REV
+ cat /mnt/DIAG_DB_REV
!<installsw>
Copyright 1990 CONVEX Computer Corp.
All rights are reserved.
CREATED ON Mon Nov 19 15:55:52 1990
Product:      Diagnostics Data Base, Version: V3.7
Release date: Oct 19, 1990
Directories:  /mnt/usr, /hw/cputest, /hw/field
    
```

---

## Required information

The installation script requires you to provide several pieces of information, many of which you may not know offhand.

You can avoid having to abort the installation procedure by reading this section before you begin.

You should know:

- The name of your time zone and your daylight savings rule.
- The type of disk device that contains your root partition. Figure 3 shows the command used to display this device. The root disk device is highlighted.

**Figure 3** Determining root disk device

```
(spu)> cat /ioconfig
iop 6
  mbus 0
    ctrlr DKC-001 csr 0x3f8 int 3
      unit 0 type DKD-005
      unit 1 type DKD-005
    ctrlr ACM-001 csr 0x3c8 int 6
      unit 0 type TTY
      unit 1 type TTY
      unit 2 type TTY
      (additional output not shown)
```

Table 3 shows how to determine the device type from this output.

**Table 3** Root disk device types

Device name	Device type
mbus	Multibus
ipi	IDC
vme	VMEbus

According to Table 3, the root disk device in Figure 3 is a Multibus.

- The type of device unit 0 on the root disk device is. In Figure 4, this device is highlighted.

**Figure 4** Determining root device unit

```
(spu)> cat /ioconfig
iop 6
  mbus 0
    ctrl DKC-001 csr 0x3f8 int 3
      unit 0 type DKD-005
      unit 1 type DKD-005
    ctrl ACM-001 csr 0x3c8 int 6
      unit 0 type TTY
      unit 1 type TTY
      unit 2 type TTY
      (additional output not shown)
```

- Whether or not you have a `/mnt/os/bootcmd.local` file on the SPU, and whether or not you wish to continue to use it after the installation.
- Which partitions you intend to designate as swap space. The installation script will look in `/mnt/os/bootcmd.local` for this information, and you will be asked to confirm it.
- If you are installing ConvexOS and Utilities V10.1 on a C3800 Series system, you should enter the commands described in this document in the CONVEXOS CONSOLE window on the SPU, unless otherwise noted.

---

## Space requirements

This section describes space requirements for ConvexOS and Utilities V10.1. You should be sure to have adequate space available before you begin the installation.

You can avoid having to abort the installation procedure by reading this section before you begin.

Table 4 contains space requirements for the root and /usr upgrade. Table 5 contains space requirements for Domestic Tools installation, which may only be done at sites within the United States and Canada.

**Table 4** Root and /usr upgrade space requirements

Directory	Kilobytes required
/tmp	8100
/bin	6988
/dev	21
/etc	4739
/lib	3
/usr/adm	293
/usr/bin	8854
/usr/convex	12125
/usr/dict	356
/usr/doc	257
/usr/etc	5241
/usr/include	348
/usr/infosys	595
/usr/lib	25086
/usr/man	3330
/usr/preserve	1
/usr/public	1
/usr/skel	6
/usr/spool	1713

**Table 4 (continued)** Root and /usr upgrade space requirements

<b>Directory</b>	<b>Kilobytes required</b>
/usr/src	1
/usr/sys	49
/usr/ucb	7240
/usr TOTAL	65496
/ TOTAL (bin, dev, etc, lib)	11751

**Table 5** Domestic Tools space requirements

<b>Directory</b>	<b>Kilobytes required</b>
/tmp	366
/usr/bin	90
/usr/ucb	306
/usr/lib	260

If you will be installing optional products, you should also consult the section titled "Space requirements" on page 38 to determine additional space requirements.

---

## Halting ConvexOS

Bring the system to SPU level by following the steps in this section.

- Step 1** Log in as root at the system console.
- Step 2** Put the system in single-user mode by issuing the shutdown command, as shown in Figure 5.

**Figure 5** Putting the system in single-user mode

```
# /etc/shutdown +5 "to install ConvexOS V10.1"  
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes.

- Step 3** Unmount the file systems as shown in Figure 6.

**Figure 6** Unmounting file systems

```
# kill 1  
#erase ^H, kill ^U, intr ^C  
# /etc/umount -a
```

- Step 4** Take the system to SPU level by entering the commands shown in Figure 7.

**Figure 7** Halting the system

```
# /bin/sync;/bin/sync;/bin/sync  
# /etc/halt
```

Output will be written to the screen and the (spu) > prompt will appear.

---

## Installing SPU software

Follow the instructions in this section to upgrade the SPU software. It should take about ten minutes to complete this section.

- Step 1** Remove the directory /mnt/old\_os with the command shown in Figure 8.

Figure 8 Removing /mnt/old\_os

```
(spu)> rm -rf /mnt/old_os
(spu)>
```

- Step 2** Verify that there is a sufficient amount of free space in /mnt on the SPU disk. Table 9 lists space requirements by machine type.

Table 6 SPU space requirements

System	Kilobytes required
C120 Series	3230
C200, C3200 Series	3610
C3400 Series	3430
C3800 Series	3970

- Step 3** Use the df command to determine the available space, as shown in Figure 9.

Figure 9 Determining available space on SPU disk

```
(spu)> df /mnt
Filesystem Mounted on kbytes used free % used
/dev/dk0d /mnt 81174 75999 5175 93%
```

In this example, there are 5175 kilobytes free, which is adequate for this installation.

If you do not have enough available space, refer to Appendix A for a list of SPU files that may be deleted.

- Step 4** Locate the tape labeled "ConvexOS V10.1" and insert it in the SPU tape drive.

**Step 5** Terminate unnecessary SPU processes with the command shown in Figure 10.

**Figure 10** Removing unnecessary SPU processes .

```
(spu)> osclean  
(spu)>
```

Ignore messages such as

```
osclean:SIGSEV signal
```

if they appear.

**Step 6** Load ConvexOS onto the SPU.

Execute the commands in Figure 11. Note that you should only enter the `mt rew` command if you have an `mt-format` cartridge tape with a yellow label.

**Figure 11** Invoking `installsw`

```
(spu)> cd /  
(spu)> mt rew          (mt-format only)  
(spu)> /etc/installsw -i
```

**Step 7** `installsw` displays a menu of time zones, as shown in Figure 12. At the prompt, enter either the number corresponding to your time zone, or one of the abbreviations in the second column.

**Figure 12** Time zone menu

```
--- Time zone settings
  0   ast/adt      US: Atlantic
  1   est/edt      US: Eastern
  2   cst/cdt      US: Central
  3   mst/mdt      US: Mountain
  4   pst/pdt      US: Pacific
  5   eet/eetdst   Eastern European
  6   met/metdst   Middle European
  7   wet/wetdst   Western European
  8   aest/aedt    Australia: Eastern
  9   acst/acdt    Australia: Central
 10   awst/awdt    Australia: Western
 11                   None of the above
--- What is your local time zone?
```

If you enter 11 (None of the above), you will be prompted for your time zone offset (in minutes) from GMT.

**Step 8** Enter your daylight savings rule at the prompt, as shown in Figure 13.

**Figure 13** Daylight savings rule menu

```
--- Daylight Savings rule
  0   none         No DST rule
  1   us           United States
  2   aus          Australia
  3   wet          Western European
  4   met          Middle European
  5   eet          Eastern European
  6   can         Canada
--- Which daylight savings rule do you use?
```

**Step 9** The disk that is currently serving as the root disk device is displayed. To continue using this disk as the root disk, press **PETURN** at the prompt, as shown in Figure 14.

**Figure 14** Root device prompt

```
-- The root disk is currently da0.  
-- Which disk do you wish to use as the root disk?  
-- Enter a DISK, not a partition. [da0]
```

**Step 10** If you have a `bootcmd.local` file, you are asked if you want to continue to use it, as shown in Figure 15. Answer `y` if you do, `n` if you do not.

**Figure 15** `bootcmd.local` prompt

```
--- You have your own boot commands file "bootcmd.local"  
--- Do you wish to use it for this release also? [yn]
```

**Step 11** The root partition specified in `bootcmd.local` is displayed. You are asked to confirm this information, as shown in Figure 16.

**Figure 16** Root partition confirmation

```
--- You have specified the following root partition  
in /mnt/os/bootcmd.local  
  
root on          da0b  
  
--- Is this information correct? [yn]
```

**Step 12** If you have a `bootcmd.local` file and have specified additional swap partitions in this file, this information is displayed. You are asked to confirm this information, as shown in Figure 17.

**Figure 17** Swap space confirmation

```
--- You have specified the following swap partitions  
in /mnt/os/bootcmd.local  
  
swap on         da5c  
  
--- Is this information correct? [yn]
```

`installsw` loads the release contents and moves the SPU directory `/mnt/os` to `/mnt/old_os`. If the installation fails, the old files are returned to `/mnt/os`.

**Step 13** Supply the ConvexOS password at the prompt shown in Figure 18.

**Figure 18** Installation password prompt

```
--- Extracting v10.1 release from /dev/rmt0 into /mnt/os.  
--- /mnt/os already exists. Moving to /mnt/old_os.  
--- Loading /mnt/os from /dev/rmt0  
--- Please enter your ConvexOS password:
```

If you have supplied a valid password, the installation continues.

The installation of SPU software is complete when the `(spu)>` prompt returns

---

## Extracting the mini-root file system

The ConvexOS mini-root file system is used to boot ConvexOS and restore the contents of the installation tape.

If your tape cartridge has a white label, follow the instructions in the section titled "Extracting mini-root from a ct-format tape".

If your tape cartridge has a yellow label, follow the instructions in the section titled "Extracting mini-root from an mt-format tape".

If your SPU drive is a DAT drive, follow the instructions in the section titled "Extracting mini-root from a DAT tape".

---

### Extracting mini-root from a ct-format tape

Complete the following steps:

**Step 1** Enter the commands shown in Figure 19.

**Figure 19** Extracting mini-root from a ct-format tape

```
(spu)> initall
(spu)> cd /mnt/os
(spu)> scn_util -b > /mnt/boot_db
(spu)> pqutil -I
(spu)> cpfs ct0d vv0b 12288
```

Replace *vv* with the appropriate letters for your root disk device, as shown in Table 7.

**Table 7** Root disk device types

Device type	Replace vv with:
Multibus	da
IDC	du
VMEbus	dd

**Step 2** When asked to confirm the copy, answer *y*.

Caret (^) characters appear to indicate that the copy is proceeding. The procedure is complete when the (spu) > prompt returns.

---

## Extracting mini-root from an mt-format tape

Complete the following steps:

**Step 1** Enter the commands shown in Figure 20.

**Figure 20** Extracting mini-root from an mt-format tape

```
(spu)> initall
(spu)> cd /mnt/os
(spu)> scn_util -b > /mnt/boot_db
(spu)> pqutil -I
(spu)> mt rew
(spu)> mt fsf 3
(spu)> cpfs mt0 vv0b 12288
```

Replace *vv* with the appropriate letters for your root disk device, as shown in Table 8.

**Table 8** Root disk device types

Device type	Replace vv with:
Multibus	da
IDC	du
VMEbus	dd

**Step 2** When asked to confirm the copy, answer *y*.

A block countdown will appear to indicate that the copy is proceeding. The procedure is complete when the (spu) > prompt returns.

---

## Extracting mini-root from a DAT tape

Complete the following steps:

**Step 1** Enter the commands shown in Figure 21.

**Figure 21** Extracting mini-root from a DAT tape

```
(spu)> initall
(spu)> cd /;cd mnt;cd os
(spu)> scn_util -b > /mnt/boot_db
(spu)> pqutil -I
(spu)> mnt rew
(spu)> mt fsf 4
(spu)> cpfs mt0 vv0b 12288
```

Because of the directory caching mechanism on the C3800 Series SPU, you must enter three separate `cd` commands to get to the `/mnt/os` directory. If you are installing on any C Series machine other than the C3800, you may make `/mnt/os` the current directory with a single command:

```
cd /mnt/os
```

Replace `vv` with the appropriate letters for your root disk device, as shown in Table 9.

**Table 9** Root disk device types

Device type	Replace vv with:
Multibus	da
IDC	du
VMEbus	dd

**Step 2** When asked to confirm the copy, answer `y`.

A block countdown will appear to indicate that the copy is proceeding. The procedure is complete when the `(spu)>` prompt returns.

---

## Booting ConvexOS

You must reboot ConvexOS to single-user mode to load the newly-installed software.

Reboot ConvexOS to single-user mode using the command shown in Figure 22.

**Figure 22** Rebooting ConvexOS

```
(spu)> boot mini
```

Information about the boot process is displayed. After approximately five minutes, the system prompt is displayed, as shown in Figure 23.

Ignore warning messages about changing the date and time if they appear.

**Figure 23** System prompt

```
# erase ^H, kill ^U, intr ^C  
#
```

---

## Setting up the root file system

To create the root (/) file system, complete the steps in this section.

- Step 1** Mount the tape containing "ConvexOS Utilities V10.1".
- Step 2** If you are using a DAT tape, create the DAT device by entering the command shown in Figure 24.  
If you are not using a DAT tape, skip this step.

**Figure 24** Creating a DAT device on miniroot

```
# cd /dev
# MAKEDEV dat0
```

- Step 3** Create the root file system by entering the commands shown in Figure 25.

**Figure 25** Creating the root file system

```
# cd /
# /etc/newfs -v /dev/rvv0a unit-type
```

Replace *vv* with the appropriate letters for your root disk device, as shown in Table 10.

**Table 10** Root disk device types

Device type	Replace <i>vv</i> with:
Multibus	da
IDC	du
VMEbus	dd

Replace *unit-type* with the unit type for unit 0, for example, DKD-005 or DKD-001. Refer to Figure 4 on page 7 if you do not know the unit type.

- Step 4** Verify the integrity of the new file system by executing the command in Figure 26.

**Figure 26** Running `fsck`

```
# /etc/fsck -f -p /dev/rvv0a
/dev/rvv0a:277 files,8517 used,11428 free(36 frags,1424 blocks)(8k/1k)
/dev/rvv0a: File system marked clean
```

Replace *vv* with the appropriate characters, as shown in Table 10. Output similar to Figure 26 will be displayed.

- Step 5** Mount the root file system by entering the commands in Figure 27.

**Figure 27** Mounting the root file system

```
# /etc/mount /dev/vv0a /root
# cd /root
# /bin/mt -f device-name rew
# /bin/mt -f device-name fsf 5
# /etc/restore xGf device-name
```

Continue to replace *vv* with the appropriate characters, as shown in Table 10.

Replace *device-name* with the name of the local tape device, usually `/dev/rmt20`. If you are using a DAT drive, use device `/dev/rdat0n`.

Ignore all warning messages if they appear.

- Step 6** When prompted for a volume number, enter 1.
- Step 7** When prompted to change the owner and mode of the current directory, enter *y*.
- Step 8** When the system prompt returns, bring the system to SPU level by executing the commands shown in Figure 28.

**Figure 28** Returning to SPU level

```
# cd /
# /etc/umount /root
# /bin/sync
# /etc/halt
```

Output is printed to the screen and the system returns to the `(spu)>` prompt.

**Step 9** Boot to single-user mode by entering the commands shown in Figure 29.

**Figure 29** Booting to single-user mode

```
(spu)> osclean
(spu)> boot single

#erase ^H, kill ^U, intr ^C
#
```

Ignore messages such as

```
osclean:SIGSEV signal
```

if they appear.

**Step 10** Verify the integrity of the new file system a second time by executing the command in Figure 30.

**Figure 30** Running fsck

```
# /etc/fsck -f -p /dev/vv0a
/dev/rvv0a:277 files,8517 used,11428 free(36 frags,1424 blocks)(8k/1k)
/dev/rvv0a: File system marked clean
```

Replace *vv* with the appropriate characters, as shown in Table 10. Output similar to Figure 30 will be displayed.

If any errors occur, contact the Technical Assistance Center (TAC).

**Step 11** If you have VME or IDC devices on your system, you must edit the `/etc/fstab` file using the `/bin/ed` editor. All of the device names in the default `/etc/fstab` specify Multibus devices in the form of:

```
/dev/daxx
```

where *xx* defines the file partition. For VME devices, change this to:

```
/dev/ddxx
```

and for IDC devices:

```
/dev/duxx
```

**Step 12** Create an entry for the root file system in the `/etc/mstab` file by entering the commands in Figure 31.

**Figure 31** Creating an entry in /etc/mtab

```
# cp /dev/null /etc/mtab  
# /etc/mount -f /
```

**Step 13** If you are using a DAT drive, create a DAT device by issuing the commands shown in Figure 32.

**Figure 32** Creating a DAT device

```
# cd /dev  
# MAKEDEV dat0
```

---

## Setting up the /usr and /tmp file systems

The commands in this section will create /usr on the e partition of disk 0 and /tmp on the f partition of disk 0. You may choose to specify different partitions or disks, but be certain to read Chapter 4, "Setting up the disk system," in *Managing ConvexOS: Configuration Guide* first.

- Step 1** Create the /usr file system by entering the commands shown in Figure 33.

**Figure 33** Creating the /usr file system

```
# cd /
# /etc/newfs -v /dev/rvv0e unit-type
```

Replace *vv* with the appropriate letters for your root disk device, as shown in Table 11.

**Table 11** Root disk device types

Device type	Replace vv with:
Multibus	da
IDC	du
VMEbus	dd

Replace *unit-type* with the unit type for unit 0, for example, DKD-005 or DKD-001. Refer to Figure 4 on page 7 if you do not know the unit type.

- Step 2** Create the /tmp file system by entering the commands shown in Figure 34.

**Figure 34** Creating the /tmp file system

```
# /etc/newfs -v /dev/rvv0f unit-type
```

Replace *unit-type* and *vv* as you did in Figure 33.

- Step 3** Verify the integrity of the new file system by executing the command in Figure 35.

**Figure 35** Running `fsck`

```
# /etc/fsck -f -p /dev/rvv0e /dev/rvv0f
/dev/rvv0e: 277 files, 8517 used, 11428 free (36 frags, 1424 blocks) (8k/1k)
/dev/rvv0e: File system marked clean
/dev/rvv0f: 13 files, 402 used, 935 free (3 frags, 139 blocks) (8k/1k)
/dev/rvv0f: File system marked clean
```

Continue to replace *vv* with the appropriate characters, as shown in Table 11. Output similar to Figure 35 will be displayed.

- Step 4** Mount the `/usr` and `/tmp` file systems by entering the commands in Figure 36.

**Figure 36** Mounting the `/usr` and `/tmp` file systems

```
# /etc/mount /dev/vv0e /usr
# /etc/mount /dev/vv0f /tmp
# /bin/mt -f device-name rew
# /bin/mt -f device-name fsf 8
# cd /usr
# /etc/restore xGf device-name
```

Continue to replace *vv* with the appropriate characters, as shown in Table 11.

Replace *device-name* with the name of the tape device you are using, usually `/dev/rmt20`.

Ignore all warning messages if they appear.

- Step 5** When prompted for a volume number, enter 1.
- Step 6** When prompted to change the owner and mode of the current directory, enter `y`.
- Step 7** Change the access modes for the root (`/`), `/usr` and `/tmp` file systems by entering the commands in Figure 37.

**Figure 37** Changing modes on file systems

```
# cd /  
# /bin/chmod 755 /usr  
# /bin/chmod 777 /tmp
```

**Step 8** Unmount the /usr file system by entering the command in Figure 38.

**Figure 38** Unmounting /usr

```
# /etc/umount /usr
```

**Step 9** Verify the integrity of the new file system a second time by executing the command in Figure 39.

**Figure 39** Running fsck

```
# /etc/fsck -f -p /dev/rvv0e  
/dev/rvv0e:277 files,8517 used,11428 free(36 frags,1424 blocks)(8k/1k)  
/dev/rvv0e: File system marked clean
```

Replace *vv* with the appropriate characters, as shown in Table 11. Output similar to Figure 39 will be displayed.

If any errors occur, contact the Technical Assistance Center (TAC).

**Step 10** Mount the /usr file system by entering the command in Figure 40.

**Figure 40** Mounting /usr

```
# /etc/mount /usr
```

---

## Extracting the /sys directory

This section describes how to extract the /sys directory from the ConvexOS V10.1 cartridge tape.

- Step 1** The extraction script will prompt you for a directory in which to save the old /sys directory. To determine the disk space needed for this, execute the commands in Figure 41.

**Figure 41** Determining space requirements for old /sys

```
# cd /sys
# /bin/du -s .
10389
```

In this example, the directory you choose to save the old /sys directory in must have at least 10389 kilobytes of free space.

- Step 2** Ensure that the "ConvexOS VV10.1" tape is in the SPU drive.
- Step 3** If you are using a ct-format tape, follow the directions in the subsection titled "Extracting /sys from a ct-format tape".
- If you are using an mt-format tape, follow the directions in the subsection titled "Extracting /sys from an mt-format tape".
- If you are using a DAT tape, follow the subsection titled "Extracting /sys from a DAT tape".

---

### Extracting /sys from a ct-format tape

Execute the commands in Figure 42 to extract /sys from a ct-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 29.

**Figure 42** Extracting /sys (ct-format only)

```
# cd /tmp
# /usr/convex/ctar xvpf /dev/rct0b extract_script
# ./extract_script
```

---

### Extracting /sys from an mt-format tape

Execute the commands in Figure 43 to extract /sys from an mt-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 29.

Figure 43 Extracting /sys (mt-format only)

```
# cd /tmp
# /usr/convex/spucmd mt rew
# /usr/convex/spucmd mt fsf 2
# /usr/convex/ctar xvpf /dev/rmt0 extract_script
# ./extract_script
```

---

### Extracting /sys from a DAT tape

Execute the commands in Figure 44 to extract /sys from a DAT tape, then continue with the instructions in the next section, "Using the /sys extraction script" on page 29.

Figure 44 Extracting /sys (DAT only)

```
# cd /tmp
# /usr/convex/spucmd mt rew
# /usr/convex/spucmd mt fsf 3
# /usr/convex/ctar xvpf /dev/rmt0 extract_script
# ./extract_script
```

---

## Using the /sys extraction script

**Step 1** As shown in Figure 45, you will be prompted to enter a file name for a tar image of the current /sys directory. If you do not supply a file name, the default shown will be used.

If you have more than one tape drive and would like to save the old /sys directory directly onto tape, enter the name of the tape device at the prompt.

**Figure 45**/sys file name prompt

```
--- Filename of where you would like to save the /sys directory
(via tar)? (The default is /tmp/sys.tar.10.1, and an answer
of "nowhere" will cause /sys not to be saved if, for example,
you have already saved it)
--
--- Please enter filename [/tmp/sys.tar.10.1]:
```

The installation continues as shown in Figure 46.

**Figure 46** Installation output

```
--- tar'ing existing /sys directory to /tmp/sys.tar.10.1
--- Removing old /sys directory
--- Extracting /sys from /dev/rmt20. This may take a few minutes.
--- Running ranlib on the CPU_OBJ libraries
--- 10.1 /sys directory extraction Done
--- 10.1 Operating System installation Done
```

**Step 2** Rewind and remove the tape from the SPU drive.

---

## Copying the ConvexOS system image

Follow the instructions in this section to copy the ConvexOS system image from the SPU.

- Step 1** Copy the ConvexOS system image from the SPU disk to the root file system by entering the command shown in Figure 47.

Figure 47 Copying a new system image from the SPU

```
# /usr/convex/spu -r /mnt/os/vmunix | /bin/gut > /vmunix  
#
```

---

## Setting up a file system for user directories

Follow the instructions in this section to create a file system for user directories.

**Step 1** Select the disk partition to use for the /mnt partition.

If you have only one disk, you should consider using the h partition. If you have two or more disks, you should consider using the g partition of disk unit 1.

If you will be using disk unit 1, you must invoke the commands in Figure 48 to create a new device entry.

**Figure 48** Creating a device for disk unit 1

```
# cd /dev
# MAKEDEV vvn
```

Replace *vv* with:

- da for Multibus devices
- dd for VME devices
- du for IDC devices

Replace *n* with the number of the disk you are using, either 0 or 1.

**Step 2** If you have VME or IDC devices on your system, you must edit the /etc/fstab file using either /bin/ed or /usr/ucb/vi. All of the device names in the default /etc/fstab specify Multibus devices in the form of:

```
/dev/daxx
```

where *xx* defines the file partition. For VME devices, change this to:

```
/dev/ddxx
```

and for IDC devices:

```
/dev/duxx
```

For example, Figure 49 shows an example of /etc/fstab for VME devices.

**Figure 49** /etc/fstab file for VME devices

```
/dev/dd0a    /        4.2    rw 1 1
/dev/dd0e    /usr     4.2    rw 1 1
/dev/dd0h    /mnt     4.2    rw 1 1
/dev/dd0f    /tmp     4.2    rw 1 1
```

**Step 3** Create the /mnt file system with the command in Figure 50.

**Figure 50** Creating the /mnt file system

```
# /etc/newfs -v /dev/rvpp unit-type
```

Replace *vv* with the appropriate letters for the device type, DKD-001 or DKD-005, for example.

Replace *pp* with the partition you have chosen to use, 0g or 1h, for example.

Replace *unit-type* with the unit type for unit 0, for example, DKD-005 or DKD-001. Refer to Figure 4 on page 7 if you do not know the unit type.

**Step 4** Verify the integrity of the new file system by running *fsck*, as shown in Figure 51.

**Figure 51** Running *fsck*

```
# /etc/fsck -f -p /dev/rvpp
/dev/rvpp:277 files,8517 used,11428 free(36 frags,1424 blocks)(8k/1k)
/dev/rvpp: File system marked clean
```

Replace *vv* with the appropriate letters for the device type, DKD-001 or DKD-005, for example.

Replace *pp* with the partition you have chosen to use, 0g or 1h, for example.

**Step 5** Mount the file system and set its access mode using the commands in Figure 52.

**Figure 52** Mounting the /mnt file system

```
# /etc/mount /dev/vvpp /mnt
# chmod 755 /mnt
```

**Step 6** Set the host name of the machine by entering the command in Figure 53.

**Figure 53** Setting the host name

```
# hostname name
```

Replace *name* with the host name of the machine.

**Step 7** Unmount all file systems by entering the command in Figure 54.

**Figure 54** Unmounting file systems

```
# /etc/umount -a
```

---

### Caution

---

If you are installing optional products, do not boot to multiuser mode at this time.

If you are installing optional products on your system, you *must* upgrade them at this time. Skip to Chapter 3, "Installing optional products" on page 35.

If you are not installing optional products, complete the following steps:

**Step 8** Boot to multiuser mode by entering **CTRL-D** at the system prompt. The boot procedure is complete when the standard login prompt appears.

**Step 9** Complete the installation by following the instructions in the section titled "The upgrade script" on page 54.



---

# Installing optional products

# 3

This chapter contains instructions for installing optional CONVEX products on a system with a tape drive. This chapter contains information that you need to perform the installation correctly and expediently.

Please read this chapter completely before attempting installation of optional products.

---

## Optional products

Table 12 lists the optional products that are bundled with the release of ConvexOS V10.1.

Table 12 Optional products

Product	Part number
Share Scheduler V10.0	710-010515-002
Internet Services V10.0	710-009715-002
NFS (Domestic) V10.0	710-009615-003
NFS (International) V10.0	710-009515-003
UDD Tools V10.0	710-010415-002
MC68000 Tools V10.0	710-010315-002
Optional Utilities Sources V10.1	710-010215-004

The tape(s) you receive will contain products for which you do not hold licenses. Also, additional products (such as compilers) may be included on your tape.

---

## Activation keys

Some optional products require a special password, called an *activation key*, to be supplied during installation. Activation keys are machine-specific and are included on a single sheet of paper in an envelope attached to each tape in your installation kit.

Activation keys are *not* required for:

- MC68000 Tools
- UDD Tools
- ConvexOS Optional Sources

If you will be installing optional products other than these and do not have your activation keys, contact the CONVEX Technical Assistance Center (TAC).

---

## Prerequisites

To install optional products, you must have ConvexOS V10.1 running on your system. If you have not yet installed ConvexOS V10.1, please refer to the Chapter1, "Before you start".

All the prerequisites for the ConvexOS and Utilities V10.1 installation also apply to optional products installations.

You should also note that:

- If you have separate installation tapes for CONVEX ALL V1.0 and CONVEX C V4.0 or V4.1, you should install them *before* installing additional optional products. Please refer to the *CONVEX ALL Installation Procedures* and the *CONVEX C Installation Procedures*.
- The Domestic NFS installation will create a new kernel via *sysgen*. If you are installing this product, you should be certain that you installed ConvexOS Domestic Tools V10.1 at this time.

Domestic NFS is only available to sites located in the United States and Canada.

- CONVEX Share Scheduler requires that you edit */etc/rc*, */etc/rc.std* and */etc/rc.local*. If you are installing this product, please refer to the *CONVEX Share Scheduler V10.0 Release Notice* and the *CONVEX Share Scheduler System Manager's Guide* for additional configuration information.

---

## ConvexOS Optional Source

The ConvexOS Optional Source product will install:

- Complete source for GNU Emacs and Perl in the */usr/src* directory
- C source for the *nu* program in the */usr/src/convex* directory
- C source for the *accounting* program in the */usr/src/convex/accounting* directory

---

## Space requirements

Table 13 lists space requirements for the optional products that are bundled with ConvexOS. Your installation tape may contain additional products; please refer to the installation instructions for those products to determine space requirements.

Refer to the column labeled "Upgrade" if you are replacing a previous version of an optional product. If this is the first time you are installing an optional product, refer to the column labeled "Initial".

**Table 13** Optional products space requirements in kilobytes

Product	Directory	Initial	Upgrade
Internet Services	/tmp	6000	6600
	/etc	200	20
	/usr/convex	5	1
	/usr/doc	5	1
	/usr/etc	3800	380
	/usr/infosys	20	2
	/usr/lib	50	5
	/usr/spool	5	1
	/usr/ucb	2200	220
	/usr TOTAL		6085

**Table 13 (continued)** Optional products space requirements in kilobytes

<b>Product</b>	<b>Directory</b>	<b>Initial</b>	<b>Upgrade</b>
Domestic NFS	/bin	680	68
	/etc	10	1
	/usr/bin	1500	150
	/usr/etc/yp	1300	130
	/usr/etc/install	360	36
	/usr/lib/verify	20	2
	/usr/lib	70	7
	/usr/ucb	310	31
	/usr/doc	10	1
	/usr/infosys/optscreens	10	1
	/usr/infosys/optfscreens	10	1
	/usr TOTAL	3590	359
	SPU /mnt	3000	3000
	International NFS	/bin	70
/etc		10	1
/usr/bin		940	94
/usr/etc/yp		1400	140
/usr/etc/install		310	31
/usr/lib/verify		10	1
/usr/doc		10	1
/usr/infosys/optscreens		6	1
/usr/infosys/optfscreens		6	1
/usr TOTAL		2692	269

**Table 13 (continued) Optional products space requirements in kilobytes**

<b>Product</b>	<b>Directory</b>	<b>Initial</b>	<b>Upgrade</b>
Share	/tmp	2000	2000
	/usr/convex	1600	160
	/usr/doc	10	1
	/usr/etc	100	10
	/usr/infosys	10	1
	/usr/lib	40	4
	/usr TOTAL	1760	176
MC6800 Tools	/tmp	3000	3000
	/usr/68k	3000	300
	/usr/lib	10	1
	/usr TOTAL	3010	301
UDD Tools	/tmp	500	500
	/usr/doc	10	1
	/usr/lib	400	40
	/usr TOTAL	410	41
Optional Utilities Sources	/tmp	9000	9000
	/usr/lib	1000	100
	/usr/src	8000	800
	/usr TOTAL	9000	900

---

### **Determining available space**

The `df` command displays the amount of used and available space on a disk partition. Figure 55 shows how to display this information for the partition on which the `/tmp` directory resides.

Figure 55 Determining available space

```
% df /tmp
Filesystem            kbytes  used  avail capacity  Mounted on
/dev/du3a             45978  3550  37830      9%    /tmp
```

In this example, `df` indicates that there are over 37000 kilobytes available, which is more than enough for installation of all of these products.

When an optional product installation completes normally, the files it placed in `/tmp` are automatically removed. If you are installing multiple products, you only need enough free space in `/tmp` to satisfy the largest `/tmp` requirement. In other words, if you are installing Optional Sources and Share, you only need 9000 kilobytes of space in `/tmp`, not 11000.

If more than one of the directories listed in Table 13 reside on a single partition, you should sum the requirements and verify that the total amount of space is available. The `mount` command can be used to find out how directories are distributed among partitions, as shown in Figure 56.

Figure 56 Determining directory/partition distribution

```
% mount | grep 4.2
/dev/da0a on / type 4.2 (rw)
/dev/da0g on /mnt type 4.2 (rw)
/dev/dd0b on /export type 4.2 (rw)
/dev/dd1g on /export/Frame type 4.2 (rw)
/dev/dd0g on /usr type 4.2 (rw)
/dev/dala on /usr/spool type 4.2 (rw)
/dev/dalf on /tmp type 4.2 (rw)
/dev/da2g on /usr/local type 4.2 (rw)
/dev/da2h on /test type 4.2 (rw)
/dev/da3c on /doc type 4.2 (rw)
/dev/dd0a on /usr/adm type 4.2 (rw)
```

In this example, the directories `/usr/adm`, `/usr/spool`, and `/usr/local` are on partitions other than `/usr`. For example, if you installing an upgrade of Internet Services, `/usr` must contain 609 kilobytes of free space, which is the sum of the space requirements for all the `/usr` directories listed in Table 13 *except for* `/usr/spool`. (`/usr/local` and `/usr/adm` are not listed under "Internet Services" in Table 13.)

---

## Determining available space on the SPU disk

The Domestic NFS installation requires 3000 kilobytes of free space in the /mnt directory on the SPU disk. To check the amount of available space, execute the command in Figure 57.

**Figure 57** Determining available space on SPU disk

```
# spucmd df /mnt
+ df /mnt
Filesystem    Mounted on    kbytes    used    free    % used
/dev/dk0d     /mnt          81174    75999    5175     93%
```

In this example, there are 5175 kilobytes free, which is adequate for this installation.

If you do not have enough available space, consult Appendix A for a list of SPU files that may be deleted.

---

## Halting ConvexOS

If you have just completed the upgrade or initial installation of ConvexOS and Utilities V10.1, your system is already in single-user mode, and you should skip to the section titled "Installing a product" on page 44.

All optional product installations must be done while the system is in single user mode. To do this, complete the following procedure:

- Step 1** Log in as root at the system console.
- Step 2** Put the system in single-user mode by issuing the shutdown command, as shown in Figure 58.

Figure 58 Putting the system in single-user mode

```
# /etc/shutdown +5 "to install ConvexOS V10.1"
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes. The single-user system prompt appears as shown in Figure 59.

Figure 59 Single-user mode

```
#erase ^H, kill ^U, intr ^C
#
```

- Step 3** Mount the tape labeled "ConvexOS V10.1 Utilities" on tape unit 0.
- Step 4** Mount all the 4.2 file systems, as shown in Figure 60.

Figure 60 Mounting 4.2 file systems

```
# /etc/mount -at 4.2
#
```

---

## Installing a product

Follow the instructions in this section to install any of the optional products on the "ConvexOS V10.1 Utilities" tape.

- Step 1** If you just finished installing ConvexOS and Utilities V10.1 and your optional products are on the same tape, rewind the tape with the command shown in Figure 61.

Figure 61 Rewinding the tape

```
# mt rew
```

- Step 2** Invoke `installsw` as shown in Figure 62.

Figure 62 Invoking `installsw`

```
# /etc/installsw -i -d device-name
```

Replace *device-name* with the name of the tape device you are using (`/dev/rmt20` or `/dev/rdat0n`).

- Step 3** When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 63.

Figure 63 Installation prompt

```
Choose the type of installation you want to perform:
```

```
LOCAL          --> install on this machine
REMOTE         --> install on a remote machine
ABORT          --> abort installation
```

```
Enter your selection now --> local
```

- Step 4** A menu of ConvexOS Utilities is displayed, as shown in Figure 64. Your tape may contain different products, so the menu you see may not match Figure 64 exactly.

Figure 64 ConvexOS Utilities menu

Idx	Part Number	Description	Release	Files	Offset
1	710-009915-006	Root Upgrade	10.1	3	3
2	710-010015-005	Usr Upgrade	10.1	3	6
3	710-010115-004	Domestic Tools	10.1	3	9
4	710-009615-003	Domestic NFS Utilities	10.0.3	3	12
5	710-010215-004	Optional Utilities	10.1	3	15
		Sources			
6	710-009715-000	Internet Services	10.0.3	3	18
7	710-010515-000	Share Scheduler	10.0.3	3	21
8	710-010315-000	MC68000 Tools	10.0.3	3	24
9	710-010415-000	UDD Tools	10.0.3	3	27

^ Items marked with a + will be installed.  
Items marked with a - will be de-installed.

To toggle selection on an item, type its number or part of its description. Patches auto-select with their base product. Use negative numbers to choose to de-install and remove it from your system. Use a - by itself to toggle all items. Use "install" to quit this menu and do the install.

selection?

**Step 5** Select the products you wish to install by entering either the index number or the name of the product. In this example, to select Share Scheduler, enter either the number 6 or the word share.

"+" signs indicate selected products, as shown in Figure 65.

---

**Caution**

---

If you select Domestic NFS Utilities, you must also select Domestic Tools at this time. If CONVEX ALL and CONVEX C appear on this menu, be certain to select them as well. Do not select Root Upgrade or /usr Upgrade.

**Figure 65** ConvexOS Utilities menu with items selected

```
Idx Part Number      Description      Release      Files Offset
1   710-009915-006   Root Upgrade   10.1         3     3
2   710-010015-005   Usr Upgrade    10.1         3     6
3   710-010115-004   Domestic Tools 10.1         3     9
4 + 710-009615-003   Domestic NFS Utilities 10.0.3       3    12
5 + 710-010215-004   Optional Utilities 10.1         3    15
Sources
6 + 710-009715-000   Internet Services 10.0.3       3    18
7 + 710-010515-000   Share Scheduler 10.0.3       3    21
8 + 710-010315-000   MC68000 Tools   10.0.3       3    24
9 + 710-010415-000   UDD Tools       10.0.3       3    27

^ Items marked with a + will be installed.
  Items marked with a - will be de-installed.

To toggle selection on an item, type its number or part of its
description. Patches auto-select with their base product. Use
negative numbers to choose to de-install and remove it from
your system . Use a - by itself to toggle all items.
Use "install" to quit this menu and do the install.

selection? 4 5 6 7 8 9
selection?
```

**Step 6** Enter `install` to install the selected products, as shown in Figure 66.

**Figure 66** Selection prompt

```
selection? install
```

Figure 67 contains the output of the Internet Services installation. Figure 68 contains the output of the Domestic NFS Utilities installation. Figure 69 contains the output of the Share Scheduler installation. All of these installation scripts will prompt you for an activation key as well as other information.

The MC68000, UDD, and Optional Utilities Sources installations are shown in Figure 70, Figure 71, and Figure 72, respectively. These products do not require activation keys or additional information.

In the event that installation of any product fails, you should not attempt to abort the installation of the other products you've

selected by entering **CTRL-C** or **CTRL-Z**. Instead, you must wait for the installation of each product to either complete successfully or abort.

These installation procedures continue with the section titled "Booting multiuser" on page 52.

**Figure 67** CONVEX Internet Services installation output

```
[Installing Internet Services v10.0]
-----
--- CONVEX V10.0 Production Internet Services
-----
--- Installation commencing Sat Nov 23 21:03:31 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Saving local database files.
--- Extracting CONVEX V10.0 Internet Services from tape.
--- Adding links in /etc for internet utilities
--- Restoring local database files.
--- Setting correct ownership and permissions of restored files.
--- Activation key required.

    Enter Internet Services activation key? activation key

--- Stamping executables
--- Testing activation of Internet Services
--- Updating the version database.
--- Adding message to /etc/motd.
--- Internet Services V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:05:08 CST 1991.
```

Figure 68 CONVEX Domestic NFS installation output

```
[Installing Domestic NFS Utilities v10.0]

-----
--- CONVEX V10.0 Production Domestic NFS Utilities
-----

--- Installation commencing Sat Nov 23 21:05:12 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Checking free space in /sys.
--- Installation of des_soft.o commencing Sat Nov 23 21:05:43 CST 1991.
--- Enter the configuration file to use or ABORT.

    Press return alone to use REL_C2:?

--- Enter the output configuration file name to use or ABORT.

    Press return alone to use REL_C2.SECURE: ?
--- Getting des_soft.o from /usr/lib/libc.a.
--- Loading des_soft.o into /sys/CPU_OBJ/lib_rpc.a.
--- Performing consistency check.
--- Inserting des_soft.o into system.
--- Performing sysgen (this step will take a few minutes)
--- make: REL_C2.SECURE.
--- make install: REL_C2.SECURE.--- Backing up old system on the SPU.

--- Moving the new system to the SPU.
--- Remember to spu up /mnt/os/vmunix after you reboot.
--- Installation of des_soft.o complete Sat Nov 23 21:09:38 CST 1991.
--- Extracting CONVEX V10.0 Domestic NFS Utilities from tape.
--- Adding links in /etc for Domestic NFS utilities
--- Turning on the rpc daemons in /etc/inetd.conf

*** >>> START /usr/etc/portmap IN YOUR /etc/rc.local FILE <<< ***

--- Activation key required.

    Enter Domestic NFS Utilities activation key? activation-key

--- Stamping executables
--- Testing activation of Domestic NFS Utilities
--- Updating the version database.
--- Adding message to /etc/motd.
--- Domestic NFS Utilities V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:11:24 CST 1991.
```

**Figure 69** CONVEX Share Scheduler installation output

```
[Installing Share Scheduler v10.0]
```

```
-----  
--- CONVEX V10.0 Production Share Scheduler  
-----
```

```
--- Installation commencing Sat Nov 23 21:11:29 CST 1991.  
--- Performing consistency check.  
--- Checking disk space requirements.  
--- Extracting CONVEX V10.0 Share Scheduler from tape.  
--- Adding links for share utilities moved from /etc to /usr/etc.  
--- Checking share database for shared groups  
--- Activation key required.
```

```
Enter Share Scheduler activation key? activation-key
```

```
--- Stamping executables  
--- Testing activation of Share Scheduler  
--- Updating the version database.  
--- Adding message to /etc/motd.  
--- Share Scheduler V10.0 installed.  
--- Online release notes in /usr/doc.  
--- Installation complete Sat Nov 23 21:12:06 CST 1991.
```

**Figure 70 CONVEX MC68000 installation output**

```
[Installing MC68000 Tools v10.0]

-----
--- CONVEX V10.0 Production MC68000 Tools
-----
--- Installation commencing Sat Nov 23 21:12:09 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 MC68000 Tools from tape.
--- Updating the version database.
--- Adding message to /etc/motd.
--- MC68000 Tools V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:12:26 CST 1991.
```

**Figure 71 CONVEX UDD installation output**

```
[Installing UDD Tools v10.0]

-----
--- CONVEX V10.0 Production UDD Tools
-----
--- Installation commencing Sat Nov 23 21:12:29 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 UDD Tools from tape.

--- Updating the version database.
--- Adding message to /etc/motd.
--- UDD Tools V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:12:32 CST 1991.
```

**Figure 72 CONVEX Optional Source installation output**

```
[Installing Optional Utilities Source v10.1]
```

```
-----  
--- CONVEX V10.0 Production Optional Utilities Source  
-----
```

```
--- Installation commencing Sat Nov 23 21:12:35 CST 1991.  
--- Performing consistency check.  
--- Checking disk space requirements.  
--- Extracting CONVEX V10.1 Optional Utilities Source from tape.  
--- Updating the version database.  
--- Adding message to /etc/motd.  
--- Optional Utilities Source V10.1 installed.  
--- Online release notes in /usr/doc.  
--- Installation complete Sat Nov 23 21:14:16 CST 1991.
```

---

## Booting multiuser

If you have just installed Domestic NFS, follow the instructions in the section titled "Booting with Domestic NFS". If you have *not* installed Domestic NFS, follow the instructions in "Booting without Domestic NFS".

---

## Booting without Domestic NFS

- Step 1** Terminate the `init` process and unmount the file systems, as shown in Figure 73.

Figure 73 Terminating `init` and unmounting file systems

```
# kill 1
#erase ^H, kill ^U, intr ^C
# /etc/umount -a
```

- Step 2** Press **CTRL-D** at the system prompt. The boot procedure is complete when the standard login prompt appears.

---

## Booting with Domestic NFS

The Domestic NFS installation modifies the kernel via `sysgen`. To use the new kernel, complete the following steps:

- Step 1** Terminate the `init` process as shown in Figure 74.

Figure 74 Terminating `init`

```
# kill 1
#erase ^H, kill ^U, intr ^C
```

- Step 2** Copy the new system image from the SPU disk with the command shown in Figure 75.

Figure 75 Copying a new system image from the SPU

```
# /usr/convex/spu -r /mnt/os/vmunix | /bin/gut > /vmunix
#
```

- Step 3** Bring the system to SPU level by executing the commands shown in Figure 76.

**Figure 76** Returning to SPU level

```
# /etc/umount -a  
# /bin/sync  
# /etc/halt
```

Output is printed to the screen, and the system returns to the (spu)> prompt.

- Step 4** Boot multiuser by entering `boot` at the SPU prompt, as shown in Figure 77.

**Figure 77** Rebooting ConvexOS

```
(spu)> boot
```

The boot procedure is complete when the standard login prompt appears.

---

## The upgrade script

`/usr/etc/upgrade` is an interactive Perl script that does the following:

- Checks your `/etc/passwd` file to make sure that it contains entries required by ConvexOS V10.1. (See the *ConvexOS and Utilities V10.1 Release Notice* for more information on required `/etc/passwd` entries.)
- Checks your `/etc/group` file to make sure that it contains entries required by ConvexOS V10.1. (See the *ConvexOS and Utilities V10.1 Release Notice* for more information on required `/etc/group` entries.)
- Checks your `/etc/services` file to make sure that it contains entries required by ConvexOS V10.1. (See the *ConvexOS and Utilities V10.1 Release Notice* for more information on required `/etc/services` entries.)
- Ensures that the permissions on users' `.crontab` and `.cronrc` files to 644. (See the *ConvexOS and Utilities V10.1 Release Notice* for more information about `cron`.)
- Moves the contents of `/usr/msgs` to `/usr/spool/msgs`.
- Merges new words into your `/usr/dict/words` file.
- Rebuilds the `makewhatis` database. (See the `makewhatis(8)` man page for more information.)
- Builds formatted man pages. (See the `catman(8)` man page for more information.)
- Copies `/vmunix` from the SPU disk. If you have followed these installation procedures completely, you have already completed this step.
- Creates a frozen `sendmail` configuration file.
- Runs `verify`.

You will be prompted before each step. If you do not want some of these tasks done, simply enter `n` in response to the appropriate prompt.

The upgrade script automatically creates a file of its output, `/tmp/install.txt`, via the `tee` utility.

You should invoke `/usr/etc/upgrade` while the system is in multiuser mode. The script will offer to create an `/etc/nologin` file, which will prevent users from logging in. If you choose to create this file, it will be removed when the script terminates.

Invoke the upgrade script by issuing the command in Figure 78.

**Figure 78** Running `/usr/etc/upgrade`

```
# /usr/etc/upgrade
```



---

# SPU files

# A

This appendix lists files which may be removed from the SPU disk in order to obtain the required amount of free space for the ConvexOS V10.1 installation.

Do not remove any of the files listed here unless you are unable to create enough free space to install ConvexOS.

---

## IOP systems

The following files may be removed:

- the jptest directory
- /mnt/test/io5000
- /mnt/test/dev5 directory and its contents

This should provide 2.6 megabytes of space.

---

## VIOP systems

The following files may be removed:

- the jptest directory
- /mnt/test/io4000
- /mnt/test/dev4 directory and its contents

This should provide 3.8 megabytes of space.

---

## VIOP and IOP systems

If your system has both a VIOP and an IOP, contact the Technical Assistance Center (TAC).



---

# Restoring individual utilities

# B

This appendix describes how to restore individual products from the ConvexOS Utilities V10.1 tape.

---

## Caution

---

Some programs in CONVEX Internet Services, CONVEX Share Scheduler, and both international and domestic NFS require activation keys to run. You will be unable to restore working versions of these products using the procedure outlined here. Please follow the procedures in Chapter 3, or contact the CONVEX Technical Assistance Center (TAC).

Also, you should not restore root using these procedures. If you find it necessary to restore root, contact the CONVEX Technical Assistance Center (TAC).

---

## Positioning the tape

Because your ConvexOS V10.1 Utilities tape may contain many products, the exact location of each product on the tape is variable. However, the first nine files are always in the same position. These are listed in Table 14.

**Table 14** ConvexOS Utilities distribution tape contents

<b>Position</b>	<b>File</b>	<b>Format</b>
0	Master header	text
1	Master script	text
2	gip support	tar
3	Root header	text
4	Root script	text
5	Root data	data
6	Usr header	text
7	Usr script	text
8	Usr data	dump

Optional products begin in position 9. Each optional product consists of at least three files, which are always in the same order:

- Header, in text format
- Script, in text format
- At least one data file, in tar format

To determine the exact position of an optional product on the tape, look at the `installsw` menu, as shown in Figure 79.

Figure 79 ConvexOS Utilities menu

Idx	Part Number	Description	Release	Files
1	710-009915-000	Root Upgrade	10.1	3
2	710-010015-000	/usr Upgrade	10.1	3
3	710-010115-000	Domestic Tools	10.0	3
4	710-009715-000	Internet Services	10.0	3
5	710-009615-000	Domestic NFS Utilities	10.0	3
6	710-010515-000	Share Scheduler	10.0	3
7	710-010315-000	MC68000 Tools	10.0	3
8	710-010415-000	UDD Tools	10.0	3
9	710-010215-000	Optional Utilities Source	10.0	3

^ Items marked with a + will be installed.  
Items marked with a - will be de-installed.

To toggle selection on an item, type its number or part of its description. Patches auto-select with their base product. Use negative numbers to choose to disinstall. Use - to toggle all items.  
Use "install" to quit this menu and do the install.

selection?

Note that your tape may contain different products, so the menu you see may not match Figure 79 exactly.

**Step 1** Determine the position of the product you wish to retrieve. To do this, sum the number of files (shown in the left column of Figure 79) for each product that appears before the product you want, then add 3 (for the files in positions 0, 1, and 2 that do not appear on this menu). For example, the MC68000 tools product begins at position 21. The header is at 21, the script is at 22, and the data is at 23.

**Step 2** Mount the tape on the tape drive of the local system and position it correctly by entering the commands shown in Figure 80.

Figure 80 Mounting the ConvexOS V10.1 Utilities tape

```
# /bin/mt -f device-name rew
# /bin/mt -f device-name fsf position-number
```

Replace *device-name* with the name of the tape device you are using (for example, /dev/rmt20 or /dev/rdat0n). Replace *position-number* with the position of the first file of the optional product.

---

## Restoring a text format utility

The header and script files for an optional product are always in cat format. To retrieve these from the tape, execute the command in Figure 81 after you have correctly positioned the tape.

Figure 81 Restoring a cat format utility

```
# cat < device-name > filename
```

Replace *device-name* with the name of the tape device you are using (for example, /dev/rmt20 or /dev/rdat0n). Replace *filename* with the name of the file to which the utility is restored.

---

## Restoring a dump format utility

The /usr data is in dump format. To restore it, enter the commands in Figure 82, after you have positioned the tape at position 8.

Figure 82 Restoring a dump format utility

```
# /etc/restore xGbf 64 device-name
```

Replace *device-name* with the name of the tape device you are using (for example, /dev/rmt20 or /dev/rdat0n).

---

## Restoring a tar format utility

To restore a tar format utility, follow the steps in this section after you have correctly positioned the tape.

- Step 1** Read the tar image into /tmp on the local machine, as shown in Figure 83.

Figure 83 Reading a tar image into /tmp

```
# /bin/dd if=device-name of=/tmp/filename bs=64k
```

Replace *device-name* with the name of the tape device you are using. Replace *filename* with any name you find appropriate.

- Step 2** List the files in the tar image by entering the commands in Figure 84.

Figure 84 Listing the contents of a tar image

```
# cd /tmp
# tar tvf filename
```

Replace *filename* with the file name you supplied in Figure 83.

- Step 3** Extract the desired file from the tar image as shown in Figure 85.

Figure 85 Extracting a file from a tar image

```
# cd /tmp
# tar xvf filename
```

Replace *filename* with the name of the file as it appears in the output of the command in Figure 84.





ConvexOS V10.1 Local Initial Installation Procedures

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