ConvexOS and Utilities V10.1 Local Upgrade Installation Procedures

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Contents

Figures

Tables

Before you start 1

Types of installations

There are four methods of installing ConvexOS and Utilities, only one of which is appropriate for your site. If you are currently running ConvexOS V10.0 or V9.1, you will be performing an *upgrade*. If this is the first installation of ConvexOS on your machine, or if you are running ConvexOS V9.0 or earlier, 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 upgrading to ConvexOS and Utilities V10.1 on a system that is currently running ConvexOS and Utilities V9.1 or V10.0 and that has a local tape drive. This chapter contains information that you will need to perform the installation correctly and expediently.

Verifying your installation kit

Installation kits for local upgrades contain:

- At least one magnetic tape. Attached to the tape is a list of the software products the tape contains.

  This tape may be in one of four 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

— A round magnetic tape, which is only appropriate for sites that will be doing an upgrade

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

- If you received a cartridge tape, you should also have a round magnetic tape.
- 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 in your installation kit.
- 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 included on your installation tapes and 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.

Upgrading ConvexOS and Utilities

2

This chapter contains information that you need to know to perform a local upgrade correctly and expediently.

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

Prerequisites

This installation requires that the following conditions be met:

- Your system must be running ConvexOS and Utilities V9.1 or V10.0. You will be unable to upgrade directly from an earlier version.
- You must have the required /etc/passwd, /etc/group, and /etc/services entries listed in the *ConvexOS and Utilities V10.1 Release Notice*.
- Your system must have V4.0 or later of the CONVEX C Compiler installed. It must be in the /bin directory and named cc. To determine which version of C you are running, enter:

```
/usr/convex/vers /bin/cc
```

- Your system must have CONVEX ALL (Assembler, Loader, and Libraries) V1.0 or later installed. To determine which version of ALL you are running, enter:

```
/usr/convex/vers /bin/ld
```

- 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 system

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.

Note

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

```
% df /
Filesystem              kbytes    used   avail capacity  Mounted on
/dev/du0a                45978   26804   14576    65%    /
```

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

Table 3 Root disk device types

Device name	Device type
da*xx*	Multibus
du*xx*	IDC
dd*xx*	VMEbus

According to Table 3, the root disk device in Figure 3 is an IDC disk.

- 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 have designated as swap space. The installation script will look in /mnt/os/bootcmd.local for this information and you will be asked to confirm it.

- Which optional products you must install. If you are currently running ConvexOS V9.1, you must upgrade all of the following products for which you hold licenses:

  — CONVEX Internet Services

  — CONVEX NFS (Domestic or International)

  — CONVEX Share Scheduler

  — CONVEX MC6800 Tools

  — CONVEX User-Written Device Driver (UDD) Tools

  If you have installed CONVEX Optional Utilities Sources, you should upgrade them at this time.

  If you are running ConvexOS V10.0 and you hold a license for Domestic NFS, you must reinstall the V10.0 version of Domestic NFS immediately after upgrading ConvexOS. If you have installed the CONVEX Optional Utilities Sources, you should also upgrade them now. You are not required to upgrade any other products at this time.

- If you are installing ConvexOS and Utilities on a CONVEX 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. Be sure to have adequate space available before you begin installation. You can avoid having to abort the installation procedure by reading this section before you begin.

Table 4 contains total space requirements for the / (root) and /usr upgrade. If you are upgrading from V10.0, you may disregard Table 4; you will need an additional 189 kilobytes of free space in / (root), an additional 214 kilobytes in /usr, and 8100 kilobytes in /tmp.

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

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

Directory	Kilobytes required
/usr/public	1
/usr/skel	6
/usr/spool	1713
/usr/src	1
/usr/sys	49
/usr/ucb	7240
/usr TOTAL	65496
/ TOTAL (bin, dev, etc, lib)	11751

Table 5 Domestic Tools space requirements

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

The `df` command displays the amount of used and available space on a disk partition. Figure 4 shows how to display this information for the partition on which the /tmp directory resides.

Figure 4 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 this installation.

If more than one of the directories listed 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 5.

Figure 5 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/dd0g on /usr type 4.2 (rw)
/dev/da1a on /usr/spool type 4.2 (rw)
/dev/da1f 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. Therefore, /usr must contain 63490 kilobytes of free space, which is the space requirements for /usr TOTAL listed in Table 4 minus the requirements /usr/adm and /usr/spool. (/usr/local does not appear in Table 4.)

If you will be installing any of the following optional products, you should also consult the section titled "Space requirements" on page 43:

- CONVEX Internet Services
- CONVEX NFS (Domestic or International)
- CONVEX Share Scheduler
- CONVEX MC6800 Tools
- CONVEX User-Written Device Driver (UDD) Tools
- CONVEX Optional Utilities Sources

Unlike previous releases, you may not be required to upgrade all of these products. Please refer to the section titled "Required information" on page 6 to determine which of these products you are required to upgrade.

If you are installing optional products not on this list, refer to the release notices for those products for space requirements.

Putting the system in single-user mode

The system must be in single-user mode for this installation.

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 6.

Figure 6 Putting the system in single-user mode

```
# /etc/shutdown +5 "to install ConvexOS 10.1"
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes. The single-user system prompt appears as in Figure 7.

Figure 7 Single-user mode

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

Backing up file systems

Before proceeding with the installation, it is important to make full backups of existing / (root), /usr, and SPU file systems using the `dump` utility and the SPU `/etc/backup` utility.

Caution

Obtain full backups of the / (root), /usr, and SPU file systems before you begin installation. This ensures against loss of valuable files if problems arise during installation.

To do this, complete the following procedure:

Step 1 Ensure that tape unit 0 is online. If you have more than one tape drive, you can determine which one is unit 0 by consulting the /ioconfig file on the SPU. Tape unit 0 is the first unit listed in this file.

Step 2 Mount a back-up tape on tape unit 0.

Step 3 Back up the / (root) file system by entering the commands shown in Figure 8. This command will write to the /dev/rmt16 device; see the dump(8) man page for information on specifying other devices.

Note that the 0 in the command line is a zero, not the letter O.

Figure 8 Backing up the root file system

```
# cd /
# /etc/dump 0G /
```

The backup is complete when the system prompt returns.

Step 4 Rewind, unmount, and label the tape.

Step 5 Mount another back-up tape on tape unit 0 for the /usr file system backup.

Step 6 Back up the /usr file system by entering the commands shown in Figure 9. This command will write to the /dev/rmt16 device; see the dump(8) man page for information on specifying other devices.

Note that the 0 in the command line is a zero, not the letter O.

Figure 9 Backing up the /usr file system

```
# /etc/dump 0G /usr
```

The backup is complete when the system prompt returns.

Step 7 Rewind, unmount, and label the tape.

Step 8 Ensure that the keyswitch is in LOCAL mode, and go to the SPU by pressing **CTRL-p** at the system prompt.

Step 9 Insert a back-up cartridge tape in the SPU tape drive.

Step 10 If your machine is a C120 and you have a ct-format (full height) tape drive, enter the command in Figure 10.

Caution **Skip this step if your machine is a C2, C3200, C3400, or C3800 Series or if you have a C120 with any other kind of SPU tape drive.**

Figure 10 Formatting the SPU cartridge cape (C120s only)

```
(spu)> ctutil fmt
```

This step may take up to 20 minutes to complete.

Step 11 Back up the SPU disk by entering the command shown in Figure 11. If you are backing up the SPU on a C3800 Series system, you must be root to execute this command.

Figure 11 Backing up the SPU disk

```
(spu)> /etc/backup
```

The backup is complete when the system prompt returns.

Step 12 Remove and label the tape.

Halting ConvexOS

Perform the steps in this section to halt ConvexOS.

Step 1 If you are at SPU leve, return to the system prompt by pressing **CTRL-d**. The system must still be in single-user mode.

Step 2 Unmount the file systems as shown in Figure 12.

Figure 12 Unmounting file systems

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

Step 3 If your "ConvexOS V10.1" tape is a cartridge tape (ct-format, mt-format, or DAT tape), take the system to SPU level by entering the commands shown in Figure 13.

Caution **Do not perform this step if your tape containing ConvexOS V10.1 is a 9-track (round) magnetic tape.**

Figure 13 Returning to the SPU (cartridge tape only)

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

Output will be written to the screen, and the SPU prompt will appear.

Upgrading 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 14.

Figure 14 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 6 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

Use the `df` command to determine the available space, as shown in Figure 15.

Figure 15 Determining available space on the 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, consult Appendix A for a list of SPU files that may be deleted.

Step 3 Locate the tape containing "ConvexOS V10.1". If it is a 9-track (round) tape, mount it on the tape drive and follow the

instructions in the section titled "Upgrading the SPU from a 9-track tape" on page 16.

If it is a cartridge tape, insert it in the SPU tape drive and follow the instructions in the next section, "Upgrading the SPU from a cartridge tape".

Upgrading the SPU from a cartridge tape

Step 1 Terminate ConvexOS processes with the command shown in Figure 16.

Figure 16 Removing processes (cartridge tape only)

```
(spu)> osclean
       .
       .
       .
(spu)> sysreset
```

Ignore messages such as

```
osclean:SIGSEV signal
```

if they appear.

Step 2 If you have a cartridge tape, execute the commands in Figure 17. Note that you should only enter the `mt rew` command if you have an mt-format cartridge tape with a yellow label.

Figure 17 Invoking `installsw` (cartridge tape only)

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

Continue with the instructions in the section titled "Installing SPU software" on page 19.

Upgrading the SPU from a 9-track tape

Step 1 Press CTRL-D to return to the system prompt and mount the /tmp and /usr directories, as shown in Figure 18. If your /usr/sys directory is on a different file system than /usr, mount that file

system also. If your /tmp directory is not located on its own partition, mount the file system /tmp is in.

Figure 18 Mounting /tmp and /usr

```
(spu)> ^D
# /etc/mount /tmp
# /etc/mount /usr
#
```

Step 2 Invoke `installsw` as shown in Figure 19.

Figure 19 Invoking `installsw` (9-track tape only)

```
# cd /
# /etc/installsw -i -d /dev/rmt20
```

Step 3 When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 20.

Figure 20 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 If the tape contains more than one product, a menu of ConvexOS Utilities is displayed, as shown in Figure 21. Note that your tape may contain different products, so the menu you see may not match Figure 21 exactly.

Select only "ConvexOS" by entering the index number that corresponds to it. Do not select any other products for installation at this time.

Enter **install** to begin the installation.

Figure 21 ConvexOS menu

```
Idx   Part Number     Description                Release      Files

  1   710-005115-020  ConvexOS C200-C3200        10.1          4
  2   710-010015-000  ALL                        10.0          3
  3   710-010115-000  CXbatch                    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

    ^ 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? 1
selection? install
```

If there is only one product on the tape, you will not see the menu in Figure 21. Instead, you will be asked if you would like to install or de-install the product, as shown in Figure 22. Enter **install** to begin the installation.

Figure 22 Installing from a tape containing a single product

```
This tape contains only release 10.1.0.1 of ConvexOS C200-C3200.

Do you wish to install or de-install it? install
```

Step 1 `installsw` displays a menu of time zones, as shown in Figure 23. At the prompt, enter either the number corresponding to your time zone, or one of the abbreviations in the second column.

Figure 23 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 2 At the prompt, enter either the number corresponding to your daylight savings rule, or the corresponding abbreviation listed in the second column, as shown in Figure 24.

Figure 24 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 3 The disk that is currently serving as the root disk device is displayed. To continue using this disk as the root disk, press **RETURN** at the prompt, as shown in Figure 25.

Figure 25 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 4 If you have a bootcmd.local file, you are asked if you want to continue to use it. Answer **y** if you do, **n** if you do not.

Figure 26 bootcmd.local prompt

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

Step 5 The root partition specified in bootcmd.local is displayed. You are asked to confirm this information, as shown in Figure 27.

Figure 27 Root partition confirmation

```
--- You have specified the following root parition
in /mnt/os/bootcmd.local

root on          da0b

--- Is this information correct? [yn]
```

Step 6 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 28.

Figure 28 Swap space confirmation

```
--- You have specified the following swap paritions
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 7 At the prompt shown in Figure 29, supply the ConvexOS password you obtained from the TAC.

Figure 29 Installation password prompt

```
--- Extracting V10.1 release from /dev/rmt12 into /mnt/os.

--- /mnt/os already exists.  Moving to /mnt/old_os.

--- Loading /mnt/os from /dev/rmt12

--- Please enter your ConvexOS password:
```

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

Caution

If you are installing from a SPU cartridge tape, skip the rest of this section and continue with the instructions in the section titled "Restarting ConvexOS" on page 24. Leave the cartridge tape in the SPU drive.

Step 8 If you are installing from a 9-track (round) tape or a DAT tape, you will be prompted to enter a file name for a tar image of the /sys directory. If you do not supply a file name, the default (/tmp/sys.tar.10.1.0.1) will be used.

If you have more that 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 30 /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 31.

Figure 31 Installation output

```
--- tar'ing existing /sys directory to /tmp/sys.tar.10.1

--- Removing old /sys directory

--- Extracting /sys from /dev/rmt12.  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 9 Rewind and unmount the tape.

Halting ConvexOS

Follow the instructions in this section only if you used a 9-track (round) tape or DAT tape to upgrade the SPU software in the previous section.

Caution

If you used a SPU cartridge tape to upgrade the SPU software, go directly to the section titled "Restarting ConvexOS" on page 24.

Step 1 Unmount the file systems as shown in Figure 32.

Figure 32 Unmounting file systems (9-track or DAT tape)

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

Step 2 Take the system to SPU level by entering the commands shown in Figure 33.

Figure 33 Returning to the SPU (9-track or DAT tape)

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

Output will be written to the screen and the SPU prompt will appear.

Restarting ConvexOS

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

Reboot ConvexOS to single-user mode using the commands shown in Figure 34.

Figure 34 Booting ConvexOS

```
(spu)> sync
(spu)> osclean
       .
       .
       .
(spu)> sysreset
(spu)> cd /;cd mnt;cd os
(spu)> boot single
```

Because of the directory caching mechansim 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
```

Information about the boot process is displayed. After approximately five minutes, the system prompt is displayed, as shown in Figure 35.

Figure 35 System prompt

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

Upgrading standard utilities

This section describes how to upgrade the ConvexOS Utilities.

Step 1 Mount the tape containing ConvexOS Utilities V10.1.

Caution

If you are upgrading from ConvexOS V10.0, proceed to Step 6 in this section.

Step 2 If you are upgrading from ConvexOS V9.1, you must load /etc/fsck, /etc/preen, /etc/convst, and /etc/putst from the tape containing "ConvexOS Utilities V10.1." To do this, enter the commands shown in Figure 36.

Figure 36 Restoring file system utilities (upgrading from ConvexOS V9.1 only)

```
# cd /
# /bin/mt -f device-name fsf 5
# /etc/restore xGbf 64 device-name /etc/preen /etc/fsck /etc/putst \
  /etc/convst
```

device-name refers to the tape device you are using. If you are using a round tape, use /dev/rmt20 as the device name; if you are using a DAT tape, use /rmt/rdat0n.

Step 3 When you are prompted for a volume number, enter `1`.

Step 4 When you are prompted to change the owner and mode on ".", enter `n`.

If this extraction fails, attempt it a second time by re-entering the commands in Figure 36. If it fails again, contact the CONVEX Technical Assistance Center.

Step 5 Convert the /etc/stripecap file as shown in Figure 37.

Figure 37 Converting /etc/stripecap

```
# /bin/mv /etc/stripecap /etc/stripecap.old
# /etc/convst < /etc/stripecap.old > /etc/stripecap
```

Step 6 Verify the file systems with the commands shown in Figure 38.

Figure 38 Verifying file systems

```
# /etc/putst -a
# /etc/preen -f
```

Step 7 Mount all the 4.2 file systems, as shown in Figure 39.

Figure 39 Mounting 4.2 file systems

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

Step 8 If you haven't already, ensure that your system has the required free space, as described in the section titled "Space requirements" on page 8.

Step 9 Rewind the tape device, as shown in Figure 40. Replace *device-name* with the name of the tape device you are using (/dev/rmt20 or /dev/rdat0n).

Figure 40 Rewinding tape device

```
# /bin/mt -f device-name rew
#
```

Step 10 Invoke `installsw` as shown in Figure 41. Replace *device-name* with the name of the tape device you are using (/dev/rmt20 or /dev/rdat0n).

Figure 41 Invoking `installsw`

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

Step 11 When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 42.

Figure 42 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
```

A menu of ConvexOS Utilities is displayed, as shown in Figure 43. Note that your tape may contain different products, so the menu you see may not match Figure 43 exactly.

Figure 43 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 12 Select Root Upgrade and Usr Upgrade. If your site is located within the United States and Canada, select Domestic Tools as well. (Sites in other countries will be unable to select Domestic Tools.)

Caution — **Do not install anything other than Root Upgrade, Usr Upgrade, and Domestic Tools (if applicable) at this time.**

Step 13 Enter `install`, as shown in Figure 44.

Figure 44 Selection prompt

```
selection?  1 2 3
selection?  install
```

The output of the installation is shown in Figure 45, Figure 46, and Figure 47.

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.

If the installation does not complete, you should enter the command

```
umount -a
```

then restart this procedure beginning again with Step 2 on page 25. If the installation fails a second time, contact the CONVEX Technical Assistance Center.

Figure 45 Root Upgrade output

```
[Installing Root Upgrade v10.1]
------------------------------------------------------------------
--- CONVEX 10.1 Production Root Upgrade
------------------------------------------------------------------
--- Installation commencing Fri Jun 19 16:11:29 CDT 1992.
--- Performing consistency check.
--- Checking disk space requirements.
--- Removing utilities that have moved to /usr/etc,
    /usr/bin and /usr/convex.
--- Saving local database files.
--- Saving active files.
--- Removing links.
--- Extracting CONVEX 10.1 Root Upgrade from tape.
--- Saving new local database files as <file>.10.1
--- Restoring local database files.
--- Establishing symlinks for files that have moved to /usr/etc.
--- Establishing symlinks for files that have moved to /usr/convex.
--- Establishing symlinks for files that have moved to /usr/bin.
--- Updating the OS version number in /etc/gettytab.
--- Updating the version database.
--- Adding message to /etc/motd.
--- Root Upgrade 10.1 installed.
--- Online release notes in /usr/doc.
--- Installation complete Fri Jun 19 16:12:58 CDT 1992.
```

Figure 46 Usr upgrade output

```
[Installing Usr Upgrade v10.1]
------------------------------------------------------------------------
--- CONVEX 10.1 Production Usr Upgrade
------------------------------------------------------------------------
--- Installation commencing Fri Jun 19 16:13:08 CDT 1992.
--- Performing consistency check.
--- Checking disk space requirements.
--- Saving local database files.
--- Saving local configuration files.
--- Saving active files.
--- Saving local adm files.
--- Extracting CONVEX 10.1 Usr Upgrade from tape.
--- Saving new sendmail.cf file in /usr/lib/sendmail.cf.10.1.
--- Consult the release notice for additional information on sendmail.
--- Restoring local database files.
--- Setting correct ownership and permissions of restored files.
--- Removing obsolete links from /lib
--- Setting lpr sub-system permissions.

--- Be sure to execute /usr/etc/upgrade after reboot.

--- Updating the version database.
--- Adding message to /etc/motd.
--- Usr Upgrade 10.1 installed.
--- Online release notes in /usr/doc.
--- Installation complete Fri Jun 19 16:23:00 CDT 1992.
```

Figure 47 Domestic Tools installation output

```
[Installing Domestic Tools v10.1]

-------------------------------------------------------------------
--- CONVEX 10.1 Production Domestic Tools
-------------------------------------------------------------------
--- Installation commencing Sun Apr  5 11:21:43 CDT 1992.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX 10.1 Domestic Tools from tape.
--- Updating /usr/lib/libc.a
--- Updating /usr/lib/libc_p.a
--- Updating /usr/lib/palib/libc.a
--- Updating /usr/lib/libc_old.a
--- Updating /usr/lib/libc_old_p.a
--- Updating /usr/lib/palib/libc_old.a
--- Updating the version database.
--- Adding message to /etc/motd.
--- Domestic Tools 10.1 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sun Apr  5 11:22:07 CDT 1992.
```

Extracting the /sys directory

If your tape containing "ConvexOS 10.1" is a SPU cartridge tape, you must extract the /sys directory manually. If your "ConvexOS V10.1" tape is a 9-track (round) or DAT tape, skip this section and go directly to the next section titled "Restarting ConvexOS" on page 35.

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 48.

Figure 48 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 V10.1" 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 49 to extract /sys from a ct-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 34.

Figure 49 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 50 to extract /sys from an mt-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 34.

Figure 50 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 51 to extract /sys from a DAT tape, then continue with the instructions in the next section, "Using the /sys extraction script" on page 34.

Figure 51 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 52, 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 that 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 52 /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 53.

Figure 53 Installation output

```
--- tar'ing existing /sys directory to /tmp/sys.tar.10.1

--- Removing old /sys directory

--- Extracting /sys from /dev/rmt12.  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.

Restarting ConvexOS

Follow the instructions in this section to reboot ConvexOS to single-user mode.

Step 1 Terminate the `init` process and unmount the file systems, as shown in Figure 54.

Figure 54 Terminating `init` and unmounting file systems

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

Step 2 Bring the system to SPU level by executing the commands shown in Figure 55.

Figure 55 Returning to SPU level

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

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

Step 3 Boot to single-user mode by entering the commands shown in Figure 56.

Figure 56 Booting to single-user mode

```
(spu)> osclean
       .
       .
       .
(spu)> sysreset
(spu)> cd /;cd mnt;cd os
(spu)> boot single
Mon Oct 21 07:25:56 CST 1991
Beginning ConvexOS initialization
       .
       .
       .
erase ^H, kill ^U, intr ^C
#
```

Because of the directory caching mechansim 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
```

Step 4 Preen and mount the local file systems, as shown in Figure 57.

Figure 57 Preening and mounting local file systems

```
# /etc/preen -f
    .
    .          (output not shown in this example)
    .
# /etc/mount -at 4.2
#
```

Step 5 Copy the ConvexOS system image from the SPU disk to the root file system by entering the command shown in Figure 58.

Figure 58 Copying a new system image from the SPU

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

Step 6 Clean out /tmp. Several files are copied to /tmp during the installation process. If your installation completed normally, you can remove these files with the commands in Figure 59.

Figure 59 Cleaning up /tmp

```
# /bin/rm -f /etc/init.old
# /bin/rm -r /tmp/Install*
# /bin/rm -rf /tmp/Ins*
```

Merging /etc/rc.local and /etc/rc.std

After the installation, two new files will be in the /etc directory:

- /etc/rc.local.10.1
- /etc/rc.std.10.1

You should compare these files with your own /etc/rc.local and /etc/rc.std files and merge changes you find appropriate for your site.

If you are upgrading from ConvexOS V9.1 and you intend to use the Virtual Volume Manager and redundant stripes, you must add the following lines to your /etc/rc.std file:

```
if [ -f /etc/vvmdaemon ]; then
    $Ex /etc/vvmdaemon & echo -n 'vvmdaemon'
fi
```

Completing the installation

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 39.

Caution

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

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

Step 1 Boot to multiuser mode by entering CTRL-d at the system prompt.

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

Step 2 Refer to the section titled "Running the upgrade script" on page 59 for important information on completing the installation.

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 will need to perform the installation correctly and expediently.

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

Optional products

Table 7 lists the optional products that are bundled with the release of ConvexOS 10.1.

Table 7 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

If you are upgrading from ConvexOS V9.1, every product in Table 7 that you have currently installed must be upgraded to the V10.0 version.

If you are upgrading from ConvexOS V10.0, you must re-install the V10.0 version of Domestic NFS. It is recommended that you upgrade CONVEX Optional Utilities Sources at this time if you have the V10.0 version currently installed.

Beginning with this release, a new tape production method is being used at CONVEX. The tape(s) you receive will not 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 10.1 running on your system. If you have not yet installed ConvexOS V10.1, please refer to the chapter titled "Before you start".

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

If you are upgrading from ConvexOS V9.1, you should also note that the 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.

You should also note that:

- Because the Domestic NFS installation creates a new kernel via `sysgen`, it must be reinstalled after upgrading to ConvexOS V10.1. If you hold a license for this product, you should be certain that:

  — You completed the steps in the section titled "Extracting the /sys directory" on page 32, if you installed ConvexOS V10.1 from a cartridge tape

  — You have installed ConvexOS Domestic Tools V10.1.

  If you have additional products that create a new kernel via `sysgen`, you will have to reinstall them after completing the Domestic NFS installation.

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

- 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 8 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 8 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	610

Table 8 (continued) Optional products space requirements in kilobytes

Product	Directory	Initial	Upgrade
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	7
	/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 8 (continued) Optional products space requirements in kilobytes

Product	Directory	Initial	Upgrade
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 60 shows how to display this information for the partition on which the /tmp directory resides.

Figure 60 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 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 8 resides 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 61.

Figure 61 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/da1a on /usr/spool type 4.2 (rw)
/dev/da1f 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 are 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 8 *except for* /usr/spool. (/usr/local and /usr/adm do not appear under "Internet Services" in Table 8.)

Determining available space on the SPU disk

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 62.

Figure 62 Determining available space on SPU disk

```
# /usr/convex/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 49.

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 63.

Figure 63 Putting the system in single-user mode

```
# /etc/shutdown +5 "to install ConvexOS 10.1"
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes. The single-user system prompt appears as shown in Figure 64.

Figure 64 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 65.

Figure 65 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 tape(s) you have received.

Step 1 Invoke `installsw` as shown in Figure 66.

Figure 66 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 2 When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 67.

Figure 67 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 3 A menu of ConvexOS Utilities is displayed, as shown in Figure 68. Your tape may contain different products, so the menu you see may not match Figure 68 exactly.

Figure 68 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 4 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 69.

Caution **Do not install Root Upgrade, /usr Upgrade, or Domestic Tools at this time. These products are already installed.**

Figure 69 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 5 Enter `install` to install the selected products, as shown in Figure 70.

Figure 70 Selection prompt

```
selection?  install
```

Figure 71 contains output of the Internet Services installation. Figure 72 contains output of the Domestic NFS Utilities installation. Figure 73 contains 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 74, Figure 75, and Figure 76, 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 before restarting the procedure.

These installation procedures continue with the section titled "Booting multiuser" on page 57.

Figure 71 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 72 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 consistancy 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 73 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 74 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 75 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 76 CONVEX Optional Source installation output

```
[Installing Optional Utilities Source 10.1]

------------------------------------------------------------------------
--- CONVEX 10.1 Production Optional Utilities Source
------------------------------------------------------------------------
--- Installation commencing Sat Nov 23 21:12:35 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX 10.1 Optional Utilities Source from tape.
--- Updating the version database.
--- Adding message to /etc/motd.
--- Optional Utilities Source 10.1 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 77.

Figure 77 Terminating `init`

```
# 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 78.

Figure 78 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 79.

Figure 79 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 80.

Figure 80 Returning to SPU level

```
# /etc/umount -a
# /bin/sync;/bin/sync;/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 81.

Figure 81 Rebooting ConvexOS

```
(spu)> osclean
(spu)> sysreset
(spu)> boot
```

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

Running 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 are set 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 82.

Figure 82 Running `/usr/etc/upgrade`

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

SPU files

A

This appendix lists files that 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 files listed here unless you are unable to create enough free space to install ConvexOS.

IOP systems

If your system has only an IOP, the following files may be removed:

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

This should provide 2.6 megabytes of space.

VIOP systems

If your system has only a VIOP, he following files may be removed:

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

This should provide 3.8 megabytes of space.

VIOP and IOP systems

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

Preserved files

B

This appendix lists files that are not affected by the ConvexOS V10.1 installation and new files that are supplied by the installation.

Root upgrade

The following files are backed up during the root upgrade phase of the installation and restored once the root upgrade completes successfully:

- /.cshrc
- /.login
- /.profile
- /etc/bootparams
- /etc/dumpdates
- /etc/ethers
- /etc/fstab
- /etc/ftpusers
- /etc/gettytab
- /etc/group
- /etc/hosts
- /etc/inetd.conf
- /etc/motd
- /etc/mtab
- /etc/netgroup
- /etc/networks
- /etc/passwd

- /etc/phones
- /etc/printcap
- /etc/remote
- /etc/rc.local
- /etc/rc.std
- /etc/services
- /etc/shells
- /etc/stripecap
- /etc/syslog.conf
- /etc/termcap
- /etc/ttys
- /etc/uidcount
- /etc/init
- /etc/installsw
- /etc/umount
- /etc/update
- /etc/utmp
- /etc/yp

The following new files are supplied. You should compare these files with their equivalents on your system and merge in any changes you find appropriate.

- /etc/rc.local.10.1
- /etc/rc.std.10.1
- /etc/services.10.1
- /etc/shells.10.1
- /etc/termcap.10.1
- /usr/lib/sendmail.cf.10.1

/usr upgrade

The following files are backed up and restored during the /usr upgrade:

- /usr/dict
- /usr/adm/acctsum.awk
- /usr/adm/disksum.awk
- /usr/adm/freesum.awk
- /usr/adm/daily
- /usr/adm/weekly
- /usr/adm/monthly
- /usr/lib/aliases
- /usr/lib/contactcap
- /usr/lib/crontab
- /usr/lib/tabset
- /usr/lib/tape/config.db
- /usr/lib/uucp/L*
- /usr/lib/uucp/SEQF
- /usr/lib/diskmail
- /usr/lib/mailuse.txt
- /usr/lib/Mail.rc
- /usr/lib/sendmail.cf
- /usr/lib/uucp/USERFILE
- /usr/skel
- /usr/spool/mqueue/syslog*
- /usr/spool/notes/.SEQ

Accounting

The following accounting files are preserved:

- /usr/adm/acct
- /usr/adm/aculog
- /usr/adm/lastacct
- /usr/adm/lastlog
- /usr/adm/savacct
- /usr/adm/shutdownlog
- /usr/adm/usracct
- /usr/adm/wtmp

Internet Services

The /etc/ftpusers file is preserved by the Internet Services installation.

NFS

The /usr/etc/rpc.mountd file is preserved by both the domestic and international NFS installations.

Restoring individual utilities C

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 the root file system 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 9.

Table 9 ConvexOS Utilities distribution tape contents

Position	File	Format
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 83.

Figure 83 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 83 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 83) 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 84.

Figure 84 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 `cat` 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 85 after you have correctly positioned the tape.

Figure 85 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 command in Figure 86, after you have positioned the tape at position 8.

Figure 86 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 87.

Figure 87 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 command in Figure 88.

Figure 88 Listing the contents of a `tar` image

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

Replace *filename* with the file name you supplied in Figure 87.

Step 3 Extract the desired file from the `tar` image as shown in Figure 89.

Figure 89 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 88.

ConvexOS and Utilities V10.1 Local Upgrade Installation Procedures
Document No. 710-003530-024