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# ConvexOS and Utilities V10.1 Remote Upgrade Installation Procedures

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# Contents

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<b>1 Before you start.....</b>	<b>1</b>
Types of installations .....	1
Verifying your installation kit .....	2
<b>2 Upgrading ConvexOS and Utilities .....</b>	<b>3</b>
Prerequisites .....	4
Local system prerequisites.....	4
Remote system prerequisites.....	4
Required information .....	7
Space requirements .....	9
Putting the remote system in single-user mode .....	12
Backing up file systems .....	13
Halting ConvexOS .....	16
Upgrading SPU software .....	17
Restarting ConvexOS .....	22
Configuring the remote system .....	23
Upgrading standard utilities .....	25
Extracting the /sys directory .....	34
Extracting /sys from a ct-format tape.....	34
Extracting /sys from an mt-format tape.....	35
Extracting /sys from a DAT tape.....	35
Using the /sys extraction script.....	36
Restarting ConvexOS .....	37
Merging /etc/rc.local and /etc/rc.std .....	39
Completing the installation .....	40
<b>3 Installing optional products.....</b>	<b>41</b>
Optional products .....	42
Activation keys .....	43
Prerequisites .....	44
Local system prerequisites.....	44
Remote system prerequisites.....	44
Space requirements .....	46

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Determining available space.....	48
Determining available space on the SPU disk .....	50
Halting ConvexOS .....	51
Configuring the remote system .....	52
Installing a product .....	54
Booting multiuser .....	63
Booting without Domestic NFS.....	63
Booting with Domestic NFS.....	63
Running the upgrade script .....	65

---

## **A SPU files ..... 67**

IOP systems .....	67
VIOP systems .....	67
VIOP and IOP systems .....	67

---

## **B Preserved files..... 69**

Root upgrade .....	69
/usr upgrade .....	71
Accounting .....	72
Internet Services .....	72
NFS .....	72

---

## **C Restoring individual utilities..... 73**

Positioning the tape .....	73
Restoring a cat format utility .....	76
Restoring a dump format utility .....	76
Restoring a tar format utility .....	77

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# Figures

Figure 1	Determining versions of required SPU software .....	5
Figure 2	Determining Diagnostic Database version (C1 Series only) .....	6
Figure 3	Determining root disk device.....	7
Figure 4	Determining available space .....	10
Figure 5	Determining directory/partition distribution .....	11
Figure 6	Putting the system in single-user mode .....	12
Figure 7	Single-user mode.....	12
Figure 8	Backing up the root file system .....	13
Figure 9	Backing up the /usr file system .....	14
Figure 10	Unmounting the backup tape .....	14
Figure 11	Copying /usr/etc/inetd and /usr/ucb/rsh .....	14
Figure 12	Unmounting file systems.....	14
Figure 13	Formatting the SPU cartridge tape (C120s only).....	15
Figure 14	Backing up the SPU disk.....	15
Figure 15	Unmounting file systems.....	16
Figure 16	Returning to the SPU (cartridge tape only).....	16
Figure 17	Removing /mnt/old_os from the remote system.....	17
Figure 18	Determining available space on SPU disk.....	17
Figure 19	Removing unnecessary SPU processes .....	18
Figure 20	Invoking installsw.....	18
Figure 21	Time zone menu .....	19
Figure 22	Daylight savings rule menu .....	19
Figure 23	Root device prompt .....	20
Figure 24	bootcmd.local prompt .....	20
Figure 25	Root partition confirmation.....	20
Figure 26	Swap space confirmation .....	20
Figure 27	Installation password prompt.....	21
Figure 28	Installation output.....	21
Figure 29	Rebooting ConvexOS.....	22
Figure 30	System prompt .....	22
Figure 31	Configuring the remote system .....	23
Figure 32	Verifying the network .....	23
Figure 33	Verifying the network (continued).....	23
Figure 34	Disabling tape queuing .....	24
Figure 35	Mounting the ConvexOS V10.1 Utilities tape.....	25

Figure 36 Restoring /etc/fsck, /etc/preen, /etc/putst, and /etc/convst .....	25
Figure 37 Verifying the extraction.....	26
Figure 38 Converting /etc/stripecap .....	27
Figure 39 Verifying file systems .....	27
Figure 40 Rewinding tape device.....	27
Figure 41 Removing /etc/inetd.old and /bin/rsh.old.....	28
Figure 42 Mounting 4.2 file systems .....	28
Figure 43 Invoking installsw.....	28
Figure 44 Installation prompt .....	28
Figure 45 Remote system name prompt .....	29
Figure 46 ConvexOS Utilities menu.....	29
Figure 47 Selection prompt .....	30
Figure 48 Root upgrade output .....	31
Figure 49 Usr upgrade output .....	32
Figure 50 Domestic Tools installation output .....	33
Figure 51 Determining space requirements for old /sys.....	34
Figure 52 Extracting /sys (ct-format only) .....	34
Figure 53 Extracting /sys (mt-format only).....	35
Figure 54 Extracting /sys (DAT only).....	35
Figure 55 /sys file name prompt.....	36
Figure 56 Installation output.....	36
Figure 57 Terminating init and unmounting file systems .....	37
Figure 58 Returning to SPU level .....	37
Figure 59 Booting to single-user mode.....	37
Figure 60 Preening and mounting local file systems .....	38
Figure 61 Copying a new system image from the SPU.....	38
Figure 62 Cleaning up /tmp .....	38
Figure 63 Determining available space .....	49
Figure 64 Determining directory/partition distribution.....	49
Figure 65 Determining available space on SPU disk.....	50
Figure 66 Putting the system in single-user mode .....	51
Figure 67 Single-user mode.....	51
Figure 68 Configuring the remote system .....	52
Figure 69 Verifying the network .....	52
Figure 70 Verifying the network (continued).....	52
Figure 71 Disabling tape queuing .....	53
Figure 72 Mounting 4.2 file systems .....	54
Figure 73 Starting inetd.....	54
Figure 74 Invoking installsw.....	54
Figure 75 Installation prompt .....	55
Figure 76 Remote system name prompt .....	55
Figure 77 ConvexOS Utilities menu.....	56
Figure 78 ConvexOS Utilities menu with items selected.....	57
Figure 79 Selection prompt .....	57
Figure 80 CONVEX Internet Services installation output.....	58
Figure 81 CONVEX Domestic NFS installation output.....	59
Figure 82 CONVEX Share Scheduler installation output.....	60

Figure 83	CONVEX MC68000 installation output.....	61
Figure 84	CONVEX UDD installation output .....	61
Figure 85	CONVEX Optional Utilities installation output.....	62
Figure 86	Deallocating the tape drive.....	62
Figure 87	Terminating init .....	63
Figure 88	Terminating init .....	63
Figure 89	Copying a new system image from the SPU.....	63
Figure 90	Returning to SPU level .....	64
Figure 91	Rebooting ConvexOS.....	64
Figure 92	Running /usr/etc/upgrade.....	66
Figure 93	ConvexOS Utilities menu.....	75
Figure 94	Mounting the ConvexOS V10.1 Utilities tape.....	75
Figure 95	Restoring a cat format utility.....	76
Figure 96	Restoring a dump format utility .....	76
Figure 97	Reading a tar image into /tmp .....	77
Figure 98	Listing the contents of a tar image .....	77
Figure 99	Extracting a file from a tar image .....	77



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# Tables

Table 1 SPU software dependencies .....	5
Table 2 Determining SPU software versions on a C3800 .....	6
Table 3 Root disk device names and types .....	7
Table 4 Root and /usr upgrade space requirements .....	9
Table 5 Domestic Tools space requirements .....	10
Table 6 SPU space requirements .....	17
Table 7 Optional products .....	42
Table 8 Optional products space requirements in kilobytes .....	46
Table 9 ConvexOS Utilities distribution tape contents .....	74



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## 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 an earlier version 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.

This document contains instructions for upgrading to ConvexOS and Utilities V10.1 on a system that is currently running ConvexOS and Utilities V10.0 or V9.1 and that does not have a local tape drive.

This chapter contains information that you will need to perform the installation correctly and expediently. Please read it before you begin the installation.

---

## Verifying your installation kit

Installation kits for local or remote upgrades should contain the following:

- A tape containing "ConvexOS V10.1". Attached to the tape is a list of the software products it contains.

This tape may be in one of three formats depending on the type of machine 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 9-track magnetic tape containing "ConvexOS Utilities V10.1."
- You may have a second 9-track tape containing additional 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 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

Remote upgrades are performed on systems that are currently running ConvexOS V9.0 or V9.1 and that do not have a local tape drive. The upgrade is done over Ethernet from a CONVEX machine that has a local tape drive.

Throughout this chapter, the system with the tape drive is referred to as the *local* system; the system to be upgraded is the *remote* system.

In screen examples in this chapter, system prompts on the remote machine will appear as

```
remote#
```

and system prompts on the local system will appear as

```
local#
```

The system prompts at your site may not appear this way.

---

## Prerequisites

This installation requires that the following conditions be met on the remote and local systems.

---

### Local system prerequisites

- CONVEX Internet Services must be installed and properly configured to communicate with the remote system. (See the *CONVEX Internet Services System Manager's Guide* for more information.)
- The `/.rhosts` file must contain the name of the remote system.

---

### Remote system prerequisites

- The `/.rhosts` file must contain the name of the local system.
- The login shell for root must be `csh`.
- Your system must be running ConvexOS and Utilities V9.0 or V9.1. You will be unable to upgrade directly from an earlier version.
- Your system must have V4.0 or later of the CONVEX C Compiler installed and it must be in `/bin/cc`. To determine which version of C you are running, execute the command:

```
vers /bin/cc
```

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

```
vers /bin/ld
```

- 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 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:      Processor Diagnostics, Version: V5.0
Release date: Oct 15, 1990
Directories:  /mnt/bin, /mnt/test, /mnt/man
```

On a C3800 Series system, make the following replacements 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 concerning the remote machine, 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

```
remote% 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 names and types

Device name	Device type
daxx	Multibus
duxx	IDC
ddxx	VMEbus

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

- 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.
- The root password for the remote machine.

- The ConvexOS password, which you may obtain by calling the CONVEX Technical Assistance Center.
- The IP addresses for both the local and remote machines.
- 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 V10.1 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. You should be sure to have adequate space available on the remote machine 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 requirement for Domestic Tools installation, which may only be done at sites within the United States and Canada.

Please note that these values are correct for upgrade installations only.

**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

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

Directory	Kilobytes required
/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**

```
remote% 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

```
remote% 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`. 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` is not listed in Table 4.)

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

- 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" 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 remote system in single-user mode

The remote 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 remote 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

```
remote# /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 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 on the remote system 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 the installation. This ensures against loss of valuable files if problems arise during the installation.

To do this, complete the following procedure:

- Step 1** Ensure that tape unit 0 on the local system 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 on the local system.
- Step 3** On the remote machine, back up the / (root) file system by entering the commands shown in Figure 8. Note that the 0 in the command line is a zero, not the letter O.

Figure 8 Backing up the root file system

```
remote# cd /
remote# /usr/uch/rsh localhost /usr/convex/tpmount -a device-name
remote# /etc/rdump 0Gf localhost:device-name /
```

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

rdump will prompt you to unmount the file system before proceeding with the dump. Answer "n" at the prompt; the root file system cannot be unmounted.

Output from the rdump command will appear on the screen. The backup is complete when the system prompt returns.

- Step 4** Rewind, remove, and label the tape.
- Step 5** Mount another back-up tape on tape unit 0 of the local system for the /usr file system backup.
- Step 6** Back up the /usr file system by entering the command shown in Figure 9. Note that the 0 in the command line is a zero, not the letter O.

**Figure 9** Backing up the /usr file system

```
remote# /etc/rdump 0Gf localhost:device-name /usr
remote# /usr/ucb/rsh localhost /usr/convex/tpunmount
```

Output from the `rump` command will appear on the screen. The backup is complete when the system prompt returns.

- Step 7** Unmount the tape and go to single-user mode by entering the command shown in Figure 10.

**Figure 10** Unmounting the backup tape

```
remote# /usr/ucb/rsh localhost /usr/convex/tpunmount
remote# kill 1
# erase ^H, kill ^U, intr ^C
```

- Step 8** Rewind, unmount, and label the tape.

- Step 9** Make backup copies of `/usr/etc/inetd` and `/usr/ucb/rsh` by executing the commands in Figure 11.

**Figure 11** Copying `/usr/etc/inetd` and `/usr/ucb/rsh`

```
remote# cd /
remote# cp /bin/cp /usr/etc/inetd /etc/inetd.old
remote# cp /bin/cp /usr/ucb/rsh /bin/rsh.old
```

- Step 10** Unmount all file systems with the command shown in Figure 12.

**Figure 12** Unmounting file systems

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

- Step 11** Ensure that the keyswitch is in LOCAL mode, and go to the SPU by pressing `CTRL-p` at the system prompt. The `(spu)>` prompt will appear.

- Step 12** Insert a backup cartridge tape in the SPU tape drive.

**Step 13** If your machine is a C120 and you have a ct-format (full height) tape drive, enter the command in Figure 13.

---

**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 13** Formatting the SPU cartridge tape (C120s only)

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

**Step 14** Back up the SPU disk by entering the command shown in Figure 14.

**Figure 14** Backing up the SPU disk

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

The backup is complete when the system prompt returns.

**Step 15** Remove and label the tape.

---

## Halting ConvexOS

Perform the steps in this section to halt ConvexOS.

- Step 1** If you are at SPU level, 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 15.

**Figure 15** Unmounting file systems

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

- Step 3** Take the system to SPU level by entering the commands shown in Figure 16.

**Figure 16** Returning to the SPU (cartridge tape only)

```
remote# /bin/sync;/bin/sync;/bin/sync
remote# /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.

All of the commands in this section should be performed on the console of the remote machine.

- Step 1** Remove the directory `/mnt/old_os` with the command shown in Figure 17.

Figure 17 Removing `/mnt/old_os` from the remote system

```
(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 18.

Figure 18 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, consult Appendix A for a list of SPU files that may be deleted.

**Step 3** Locate the tape labeled “ConvexOS V10.1” and insert it in the SPU tape drive.

**Step 4** Terminate unnecessary SPU processes with the command shown in Figure 19.

**Figure 19** Removing unnecessary SPU processes

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

Ignore messages such as

```
osclean:SIGSEV signal
```

if they appear.

**Step 5** Load ConvexOS onto the SPU by executing the commands in Figure 20. Note that you should only enter the `mt rew` command if you have an `mt-format` cartridge tape with a yellow label.

**Figure 20** Invoking `installsw`

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

**Step 6** After extracting some files, `installsw` displays a menu of time zones, as shown in Figure 21. At the prompt, enter either the number corresponding to your time zone, or one of the abbreviations in the second column.

**Figure 21** 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 7** 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 22.

**Figure 22** 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 8** 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 23.

**Figure 23** 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 9** If you have a `bootcmd.local` file, you are asked if you want to continue to use it, as shown in Figure 24. Answer `y` if you do, `n` if you do not.

**Figure 24** `bootcmd.local` prompt

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

**Step 10** The root partition specified in `bootcmd.local` is displayed. You are asked to confirm this information, as shown in Figure 25.

**Figure 25** Root partition confirmation

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

**Step 11** 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 26.

**Figure 26** 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 12** Supply the ConvexOS password you obtained from the CONVEX Technical Assistance Center (TAC) at the prompt shown in Figure 27.

**Figure 27** Installation password prompt

```
--- Extracting v10.1 release from /dev/rmt1 into /mnt/os.  
--- /mnt/os already exists. Moving to /mnt/old_os.  
--- Loading /mnt/os from /dev/rmt1  
--- Please enter your ConvexOS password:
```

If you have supplied a valid password, the installation continues as shown in Figure 28.

**Figure 28** Installation output

```
--- Extracting /sys from /dev/rmt1. This may take a few minutes.  
--- Running ranlib on the CPU_OBJ libraries  
--- v10.1 Operating System installation Done
```

- Step 13** Leave the cartridge tape in the SPU tape drive. (You will use it again in the section titled "Extracting the /sys directory".)

---

## Restarting ConvexOS

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

The commands in this section must be entered on the console of the remote machine.

Reboot ConvexOS to single-user mode using the commands shown in Figure 29.

**Figure 29** Rebooting ConvexOS

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

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
```

Information about the boot process is displayed. After approximately five minutes, the system prompt is displayed, as shown in Figure 30.

**Figure 30** System prompt

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

---

## Configuring the remote system

Configure the remote system by completing the steps in this section.

**Step 1** Enter the commands in Figure 31.

Figure 31 Configuring the remote system

```
remote# /etc/mount -at 4.2
remote# /bin/hostname remotehost
remote# /etc/ifconfig controller remotehost arp trailers up
remote# /etc/inetd.old
```

Replace *remotehost* with the name of the remote system. Replace *controller* with the name of the Ethernet controller on the remote system. This is typically ex0.

**Step 2** Verify that the network is running by executing the command in Figure 32 on the remote machine. This command will return the name of the local system.

Figure 32 Verifying the network

```
remote# /bin/rsh.old localhost /bin/hostname
localhost
```

**Step 3** Log in to the local machine and execute the command in Figure 33. This command will return the name of the remote system.

Figure 33 Verifying the network (continued)

```
local# /usr/ucb/rsh remotehost /bin/hostname
remotehost
```

During the installation, you may be instructed to re-execute the commands in Figure 31, Figure 32, and Figure 33. You may wish to mark this page for future reference.

**Step 4** If tape queuing is enabled on the local machine, it must be disabled by executing the commands in Figure 34.

**Figure 34** Disabling tape queuing

```
local# /usr/convex/tpconfig set queue dis
```

Before proceeding, wait 10 seconds for this command to take effect.

---

## Upgrading standard utilities

This section describes how to upgrade the ConvexOS Utilities. This installation procedure takes about 35 minutes to complete.

- Step 1** Mount the tape containing ConvexOS Utilities V10.1 on the tape drive of the local system and position it correctly by entering the commands shown in Figure 35.

Figure 35 Mounting the ConvexOS V10.1 Utilities tape

```
local# /usr/convex/tpmount -R -a device-name
local# /bin/mt -f device-name rew
local# /bin/mt -f device-name fsf 5
```

*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.

---

### Caution

If you are upgrading from ConvexOS V10.0, proceed to Step 7 in this section.

- Step 2** If you are upgrading from ConvexOS V9.1, you must load /etc/fsck, /etc/preen, /etc/putst, and /etc/convst. Do this by entering the commands in Figure 36.

Figure 36 Restoring /etc/fsck, /etc/preen, /etc/putst, and /etc/convst

```
remote# cd /
remote# /etc/rrestore xGbf 64 localhost:device-name /etc/preen \
/etc/fsck /etc/putst /etc/convst
```

- 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** Verify that the extraction has completed successfully by executing the commands in Figure 37.

**Figure 37** Verifying the extraction

```
remote# cd /
remote# /bin/sod -f /etc/preen
File: /etc/preen
Options: -f

File header:
magic number      =0601
version           =V10.1
time stamp        =current date/time
.
.                (additional output not shown in this example)
.

remote# /bin/sod -f /etc/fsck
File: /etc/fsck
Options: -f

File header:
magic number      =0601
version           =V10.1
time stamp        =current date/time
.
.                (additional output not shown in this example)
.

remote# /bin/sod -f /etc/putst
File: /etc/putst
Options: -f

File header:
magic number      =0601
version           =V10.1
time stamp        =current date/time
.
.                (additional output not shown in this example)
.

remote# /bin/sod -f /etc/convst
File: /etc/convst
Options: -f

File header:
magic number      =0601
version           =V10.1
time stamp        =current date/time
.
.                (additional output not shown in this example)
.
```

If any of the version numbers displayed are other than V10.1, please attempt the extraction again. If the extraction fails a second time, contact the Technical Assistance Center.

**Step 6** Convert the /etc/stripecap file on the remote system as shown in Figure 38.

**Figure 38** Converting /etc/stripecap

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

**Step 7** Verify the file systems with the commands shown in Figure 39.

**Figure 39** Verifying file systems

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

Running preen may cause the remote system to reboot. If this happens, re-execute preen until all file systems pass and then re-execute the commands in Figure 31, Figure 32, and Figure 33.

If preen reports inconsistencies that cannot be corrected or cleared, contact the Technical Assistance Center.

**Step 8** Rewind the tape device, as shown in Figure 40. *device-name* refers to the tape device you are using (/dev/rmt20 or /dev/rdat0n, for example).

**Figure 40** Rewinding tape device

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

**Step 9** Remove the /etc/inetd.old and /usr/ucb/rsh.old files by entering the command shown in Figure 41.

**Figure 41** Removing /etc/inetd.old and /bin/rsh.old

```
remote# /bin/rm /etc/inetd.old /bin/rsh.old
```

**Step 10** Mount all the 4.2 file systems, as shown in Figure 42.

**Figure 42** Mounting 4.2 file systems

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

**Step 11** If you haven't already, ensure that your system has the required free space, as described in the section titled "Space requirements".

**Step 12** Invoke `installsw` on the console of the local system, as shown in Figure 43. Replace *device-name* with the name of the tape device you are using (`/dev/rmt20` or `/dev/rdat0n`).

**Figure 43** Invoking `installsw`

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

**Step 13** When `installsw` prompts you for the type of installation, enter `remote`, as shown in Figure 44.

**Figure 44** 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 --> remote
```

**Step 14** At the prompt, enter the name of the remote system, as shown in Figure 45.

**Figure 45** Remote system name prompt

If the remote machine HAS been configured for a remote installation, enter the host name of the remote machine as you would refer to it when using networking commands (such as rlogin) from this machine.

Enter your selection now --> *remotehost*

A message verifying the network connection will appear on the screen.

If the network connection cannot be verified, the prompt in Figure 45 will again be displayed. If the network connection cannot be verified after two attempts, contact the Technical Assistance Center.

- Step 15** A menu of ConvexOS Utilities is displayed, as shown in Figure 46. Note that your tape may contain different products, so the menu you see may not match Figure 46 exactly.

**Figure 46** 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 Sources	10.1	3	15
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?

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.)

---

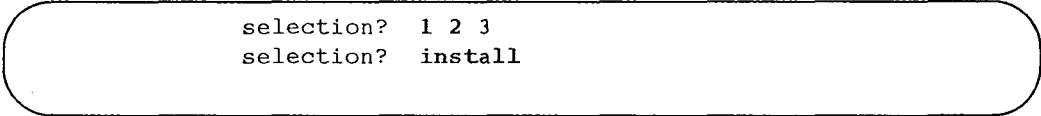
**Caution**

---

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

**Step 16** Enter `install`, as shown in Figure 47.

**Figure 47** Selection prompt



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

The output of the installation is shown in Figure 48, Figure 49, and Figure 50.

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

on the remote machine, then restart this procedure beginning again with Step 7 on page 27. If the installation fails a second time, contact the CONVEX Technical Assistance Center.

**Figure 48** 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 49** 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 50 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

The /sys directory must be extracted from the "ConvexOS V10.1" cartridge tape by hand.

- 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 51 on the console of the remote system.

**Figure 51** Determining space requirements for old /sys

```
remote# cd /sys
remote# /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 tape labeled "ConvexOS V10.1" is in the SPU drive.
- Step 3** If you are using a ct-format tape, read the subsection titled "Extracting /sys from a ct-format tape" on page 34.
- If you are using an mt-format tape, read the subsection titled "Extracting /sys from an mt-format tape" on page 35.
- If you are using a DAT tape, read the subsection titled "Extracting /sys from a DAT tape" on page 35.

---

## Extracting /sys from a ct-format tape

Execute the commands in Figure 52 to extract /sys from a ct-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 36.

**Figure 52** Extracting /sys (ct-format only)

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

---

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

Execute the commands in Figure 53 to extract /sys from an mt-format tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 36.

Figure 53 Extracting /sys (mt-format only)

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

---

### Extracting /sys from a DAT tape

Execute the commands in Figure 54 to extract /sys from a DAT tape, then continue with the instructions in the section titled "Using the /sys extraction script" on page 36.

Figure 54 Extracting /sys (DAT only)

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

---

## Using the /sys extraction script

**Step 1** As shown in Figure 55, 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 55** /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 56.

**Figure 56** 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.

---

## Restarting ConvexOS

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

- Step 1** Terminate the `init` process and unmount the file systems, as shown in Figure 57.

Figure 57 Terminating `init` and unmounting file systems

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

- Step 2** Bring the system to SPU level by executing the commands shown in Figure 58.

Figure 58 Returning to SPU level

```
remote# /bin/sync;/bin/sync;/bin/sync
remote# /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 59.

Figure 59 Booting to single-user mode

```
(spu)> osclean

(spu)> sysreset
(spu)> cd /;cd mmt;cd os
(spu)> boot single
Mon Oct 21 07:25:56 CST 1991
Beginning ConvexOS initialization

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

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
```

- Step 4** Preen and mount the file systems on the remote machine, as shown in Figure 60.

**Figure 60** Preening and mounting local file systems

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

- Step 5** Copy the ConvexOS system image from the SPU disk to the root file system by entering the command shown in Figure 61.

**Figure 61** Copying a new system image from the SPU

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

- 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 62.

**Figure 62** Cleaning up `/tmp`

```
remote# /bin/rm -f /etc/init.old
remote# /bin/rm -r /tmp/Install*
remote# /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.10.0
- /etc/rc.std.10.0

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

If you are upgrading from ConvexOS V9.1 and you intend to use the Virtual Volume Manager (VVM) 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
```

For additional information on VVM, refer to the *ConvexOS and Utilities V10.1 Release Notice*.

---

## 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," for instructions on installing optional products.

---

### 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" for instructions on completing the installation.

---

# Installing optional products

# 3

This chapter contains instructions for installing optional CONVEX products on a system without a local tape drive. The installation is done over Ethernet from a CONVEX machine that has a local 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.

Throughout this chapter, the system with the tape drive is referred to as the *local* system; the system to be upgraded is the *remote* system.

In screen examples in this chapter, system prompts on the remote machine will appear as

```
remote#
```

and system prompts on the local system will appear as

```
local#
```

The system prompts at your site may not appear this way.

---

## Optional products

Table 7 lists the optional products that are bundled with the release of ConvexOS V10.1.

**Table 7** Optional products

Product	Part number
Share Scheduler V10.0	710-010515-002
Internet ServicesV10.0	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.

---

## 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 Chapter 1, "Before you start".

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

---

### Local system prerequisites

- The local system must be running ConvexOS V10.0.
- CONVEX Internet Services must be installed and properly configured to communicate with the remote system. (See the *CONVEX Internet Services System Manager's Guide* for more information.)
- The `/.rhosts` file must contain the name of the remote system.

---

### Remote system prerequisites

- The `/.rhosts` file must contain the name of the local system.
- The login shell for root must be `csh`.
- Your system must have V4.0 or later of the CONVEX C Compiler installed and it must be in `/bin/cc`.
- Your system must have CONVEX ALL (Assembler, Loader, and Libraries) V1.0 installed.

You should also note that:

- The Domestic NFS installation will create a new kernel via `sysgen`. If you are installing this product, you should be certain that:
  - You completed the steps in the section titled "Extracting the `/sys` directory"
  - You have installed ConvexOS Domestic Tools V10.1

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 Release Notice* and the *CONVEX Share Scheduler System Manager's Guide* for additional configuration information.

- 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

**Table 8 (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 8 (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 63 shows how to display this information for the partition on which the `/tmp` directory resides.

**Figure 63** 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 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 64.

**Figure 64** 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` are not listed 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 65 on the console of the remote system.

**Figure 65** 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".

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 of the remote machine.
- Step 2** Put the system in single-user mode by issuing the shutdown command, as shown in Figure 66.

**Figure 66** Putting the system in single-user mode

```
remote# /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 in Figure 67.

**Figure 67** Single-user mode

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

---

## Configuring the remote system

Configure the remote system by completing the steps in this section.

**Step 3** Enter the commands in Figure 68.

Figure 68 Configuring the remote system

```
remote# /bin/hostname remotehost
remote# /etc/ifconfig controller remotehost arp trailers up
remote# /etc/inetd.old
```

Replace *remotehost* with the name of the remote system. Replace *controller* with the name of the Ethernet controller on the remote system. This is typically *ex0*.

**Step 4** Verify that the network is running by executing the command in Figure 69 on the remote machine. This command will return the name of the local system.

Figure 69 Verifying the network

```
remote# /bin/rsh.old localhost /bin/hostname
localhost
```

**Step 5** Log in to the local machine and execute the command in Figure 70. This command will return the name of the remote system.

Figure 70 Verifying the network (continued)

```
local# /usr/ucb/rsh remotehost /bin/hostname
remotehost
```

**Step 6** Ensure that tape unit 0 on the local system is online.

**Step 7** If tape queuing is enabled on the local machine, it must be disabled by executing the commands in Figure 71.

**Figure 71** Disabling tape queuing

```
local# /usr/convex/tpconfig set queue dis
```

Before proceeding, wait ten seconds for this command to take effect.

P

---

## 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** Mount the tape labeled "ConvexOS V10.1 Utilities" on tape unit 0 on the local system.

**Step 2** Mount only the 4.2 file systems, as shown in Figure 72.

Figure 72 Mounting 4.2 file systems

```
remote# /etc/umount -a
remote# /etc/mount -at 4.2
```

**Step 3** If you haven't already, start `inetd` with the command shown in Figure 73.

Figure 73 Starting `inetd`

```
remote# /etc/inetd.old
```

**Step 4** Invoke `installsw` on the local system, as shown in Figure 74.

Figure 74 Invoking `installsw`

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

**Step 5** When `installsw` prompts you for the type of installation, enter `remote`, as shown in Figure 75.

**Figure 75** 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 --> remote
```

**Step 6** At the prompt, enter the name of the remote system, as shown in Figure 76.

**Figure 76** Remote system name prompt

```
If the remote machine HAS been configured for a remote
installation, enter the host name of the remote machine
as you would refer to it when using networking commands
(such as rlogin) from this machine.

Enter your selection now --> remotehost
```

A message verifying the network connection will appear on the screen.

If the network connection cannot be verified, the prompt in Figure 76 will again be displayed. If the network connection cannot be verified after two attempts, contact the Technical Assistance Center.

**Step 7** A menu of ConvexOS Utilities is displayed, as shown in Figure 77. Note that your tape may contain different products, so the menu you see may not match Figure 77 exactly.

Figure 77 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 Sources	10.1	3	15
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 8** 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 78.

---

**Caution** Do not install Root Upgrade, /usr Upgrade, or Domestic Tools at this time.

---

Figure 78 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 9** Enter `install` to install the selected products, as shown in Figure 79.

Figure 79 Selection prompt

```
selection? install
```

Figure 80 contains output of the Internet Services installation. Figure 81 contains output of the Domestic NFS Utilities installation. Figure 82 contains output of the Share Scheduler installation. All of these installation scripts will prompt you for an activation key as well as other 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.

The MC68000, UDD, and Optional Utilities Sources installations are shown in Figure 83, Figure 84, and Figure 85. These products do not require activation keys or additional information.

These installation procedures continue with Step 10 on page 62.

**Figure 80** 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 81 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

*** >>> BE SURE TO 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 82 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 83 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 84 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 85** CONVEX Optional Utilities installation output

```
[Installing Optional Utilities Source 10.1]
-----
--- CONVEX V10.1 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.
```

**Step 10** Deallocate the tape drive on the local system with the command in Figure 86.

**Figure 86** Deallocating the tape drive

```
local# /usr/convex/tpunmount
```

---

## 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 87.

Figure 87 Terminating `init`

```
remote# kill 1
# erase ^H, kill ^U, intr ^C
remote# /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 88.

Figure 88 Terminating `init`

```
remote# 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 89.

Figure 89 Copying a new system image from the SPU

```
remote# /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 90.

**Figure 90** 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 91.

**Figure 91** 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 92.

**Figure 92** 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, the 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 your 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.

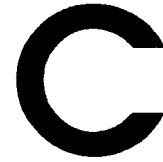
---

## **NFS**

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

---

# Restoring individual utilities



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

---

## Caution

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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).

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## 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

<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 93.

Figure 93 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 93 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 93) 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 94.

Figure 94 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.

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### 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 95 after you have correctly positioned the tape.

Figure 95 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.

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### Restoring a dump format utility

The /usr data is in dump format. To restore it, enter the commands in Figure 96, after you have positioned the tape at position 8.

Figure 96 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).

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## 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 97.

Figure 97 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 98.

Figure 98 Listing the contents of a tar image

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

Replace *filename* with the file name you supplied in Figure 97.

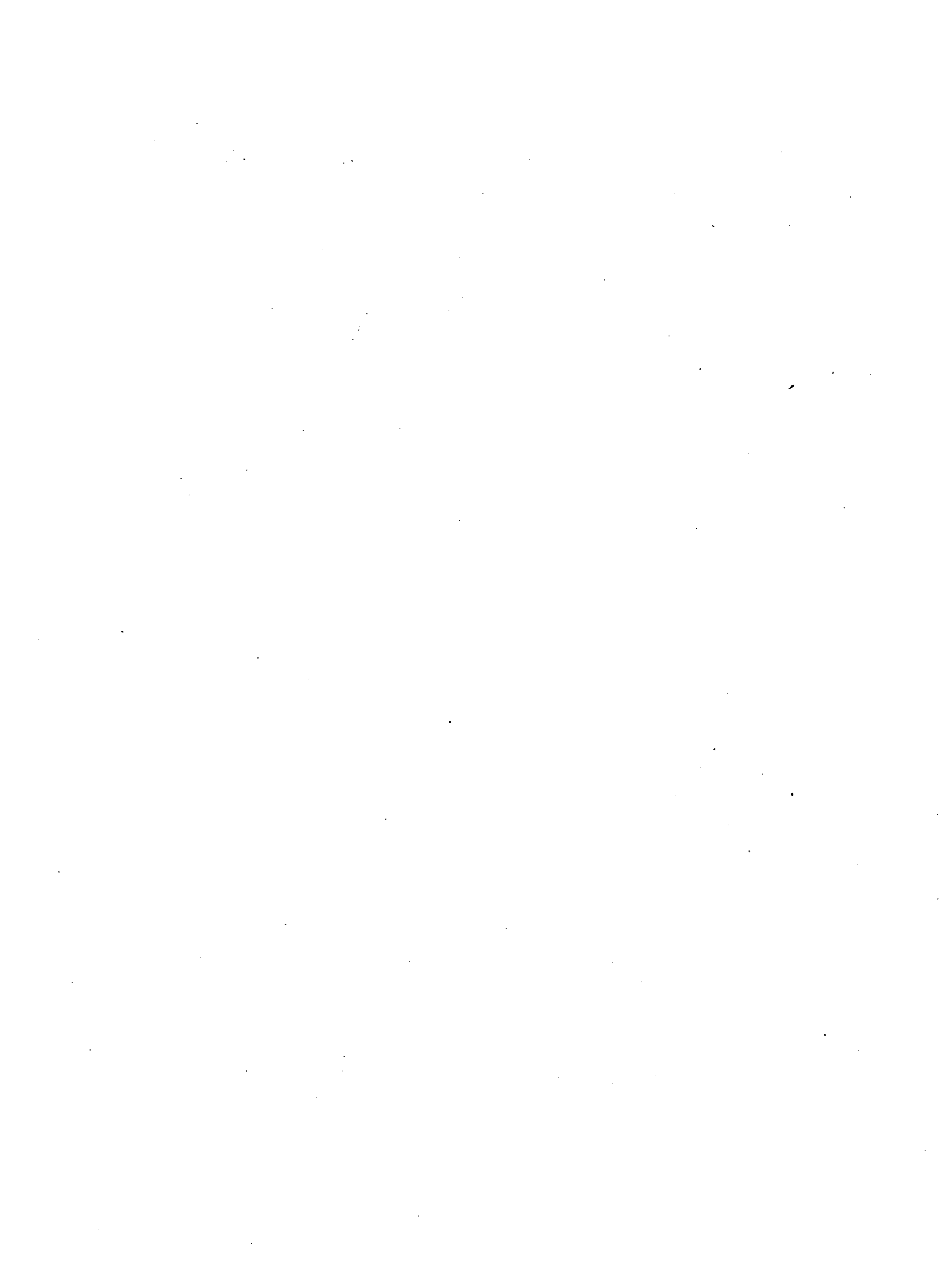
- Step 3** Extract the desired file from the tar image as shown in Figure 99.

Figure 99 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 98.









**ConvexOS and Utilities V10.1 Remote Upgrade Installation Procedures**

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