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# ConvexOS and Utilities V10.0 Local Upgrade Installation Procedures

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# Table of Contents

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<b>Before you start</b> .....	11
Types of installations .....	11
Verifying your installation kit .....	12
<hr/>	
<b>Local upgrades</b> .....	15
Prerequisites .....	15
Required information .....	18
Space requirements .....	19
Backing up file systems .....	22
Halting ConvexOS .....	25
Upgrading SPU software .....	26
Halting ConvexOS .....	33
Restarting ConvexOS .....	34
Upgrading standard utilities .....	35
Extracting the /sys directory .....	42
Extracting /sys from a ct-format tape .....	42
Extracting /sys from an mt-format tape .....	43
Extracting /sys from a DAT tape .....	43
Restarting ConvexOS .....	44
Merging /etc/rc.local and /etc/rc.std .....	46
Completing the installation .....	47
<hr/>	
<b>Local optional product installation</b> .....	49
Optional products .....	49
Activation keys .....	50
Prerequisites .....	50
Space Requirements .....	51
Determining available space .....	53
Determining available space on the SPU disk .....	54
Halting ConvexOS .....	56
Installing a product .....	57
Booting multi-user .....	65
Booting without Domestic NFS .....	65
Booting with Domestic NFS .....	65
The upgrade script .....	67
<hr/>	
<b>SPU files</b> .....	69
IOP systems .....	69
VIOP systems .....	69
VIOP and IOP systems .....	69

---

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<b>Preserved files</b> .....	71
Root upgrade.....	71
/usr upgrade .....	73
Accounting.....	74
Internet Services.....	74
NFS.....	74

---

<b>Restoring individual utilities</b> .....	75
Positioning the tape.....	75
Restoring a cat format utility .....	77
Restoring a dump format utility.....	78
Restoring a tar format utility .....	78

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# List of Figures

Figure 1	Determining versions of SPU OS, System Diagnostics, and Diagnostic Database .....	17
Figure 2	Determining root disk device .....	18
Figure 3	Determining available space .....	21
Figure 4	Determining directory/partition distribution .....	21
Figure 5	Putting the system in single user mode .....	22
Figure 6	Single user mode .....	22
Figure 7	Backing up the root file system .....	23
Figure 8	Backing up the /usr file system .....	23
Figure 9	Formatting the SPU cartridge cape (C120s only) .....	23
Figure 10	Backing up the SPU disk .....	24
Figure 11	Unmounting file systems (cartridge tape only) .....	25
Figure 12	Returning to the SPU (cartridge tape only) .....	25
Figure 13	Removing /mnt/old_os .....	26
Figure 14	Determining available space on SPU disk .....	26
Figure 15	Removing unnecessary SPU processes (cartridge tape only) .....	27
Figure 16	Mounting /tmp and /usr .....	27
Figure 17	Invoking installsw (cartridge tape only) .....	28
Figure 18	Invoking installsw (6250-bpi tape only) .....	28
Figure 19	Installation prompt .....	28
Figure 20	ConvexOS menu .....	29
Figure 21	Time zone menu .....	30
Figure 22	Daylight savings rule menu .....	30
Figure 23	Root device prompt .....	30
Figure 24	bootcmd.local prompt .....	31
Figure 25	Swap space confirmation .....	31
Figure 26	Installation password prompt .....	31
Figure 27	/sys filename prompt .....	32
Figure 28	Installation output .....	32
Figure 29	Unmounting file systems (6250-bpi tape only) .....	33
Figure 30	Returning to the SPU (6250-bpi tape only) .....	33
Figure 31	Rebooting ConvexOS .....	34
Figure 32	System prompt .....	34
Figure 33	Restoring /etc/fsck and /etc/preen .....	35
Figure 34	Converting /etc/stripecap .....	35
Figure 35	Verifying file systems .....	36

Figure 36	Mounting 4.2 file systems .....	36
Figure 37	Rewinding tape device .....	36
Figure 38	Invoking <code>installsw</code> .....	36
Figure 39	Installation prompt .....	37
Figure 40	ConvexOS Utilities menu .....	37
Figure 41	Selection prompt .....	38
Figure 42	ConvexOS Utilities installation output .....	39
Figure 43	ConvexOS Utilities installation output (continued) .....	40
Figure 44	ConvexOS Utilities installation output (continued) .....	41
Figure 45	Determining space requirements for old <code>/sys</code> .....	42
Figure 46	Extracting <code>/sys</code> (ct-format only) .....	42
Figure 47	Extracting <code>/sys</code> (mt-format only) .....	43
Figure 48	Extracting <code>/sys</code> (DAT only) .....	43
Figure 49	Terminating <code>init</code> and unmounting file systems .....	44
Figure 50	Returning to SPU level .....	44
Figure 51	Booting to single-user mode .....	44
Figure 52	Preening and mounting local file systems .....	45
Figure 53	Copying a new system image from the SPU .....	45
Figure 54	Cleaning up <code>/tmp</code> .....	45
Figure 55	Rewinding tape device .....	45
Figure 56	Determining available space .....	53
Figure 57	Determining directory/partition distribution .....	54
Figure 58	Determining available space on SPU disk .....	55
Figure 59	Putting the system in single-user mode .....	56
Figure 60	Single-user mode .....	56
Figure 61	Mounting 4.2 file systems .....	56
Figure 62	Invoking <code>installsw</code> .....	57
Figure 63	Installation prompt .....	57
Figure 64	ConvexOS Utilities menu .....	58
Figure 65	ConvexOS Utilities menu with items selected .....	59
Figure 66	Selection prompt .....	59
Figure 67	CONVEX Internet Services installation output .....	60
Figure 68	CONVEX Domestic NFS installation output .....	61
Figure 69	CONVEX Share Scheduler installation output .....	62
Figure 70	CONVEX MC68000 installation output .....	63
Figure 71	CONVEX UDD installation output .....	63
Figure 72	CONVEX Optional Utilities Source installation output .....	64
Figure 73	Terminating <code>init</code> .....	65
Figure 74	Terminating <code>init</code> .....	65
Figure 75	Copying a new system image from the SPU .....	65
Figure 76	Returning to SPU level .....	66
Figure 77	Rebooting ConvexOS .....	66
Figure 78	Running <code>/usr/etc/upgrade</code> .....	67
Figure 79	ConvexOS Utilities menu .....	76
Figure 80	Mounting the ConvexOS V10.0 Utilities Tape .....	77
Figure 81	Restoring a cat format utility .....	77
Figure 82	Restoring a dump format utility .....	78
Figure 83	Reading a tar image into <code>/tmp</code> .....	78

Figure 84 Listing the contents of a tar image .....	78
Figure 85 Extracting a file from a tar image .....	79



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# List of Tables

Table 1 Types of ConvexOS and Utilities installations .....	12
Table 2 SPU OS, System Diagnostics, and Diagnostic Database dependencies .....	16
Table 3 Root disk device types .....	18
Table 4 Root upgrade space requirements .....	19
Table 5 /usr upgrade space requirements .....	20
Table 6 Domestic Tools space requirements .....	20
Table 7 SPU space requirements .....	26
Table 8 Optional products .....	49
Table 9 Optional products space requirements in kilobytes .....	52
Table 10 Optional products space requirements in kilobytes (continued) .....	53
Table 11 ConvexOS Utilities distribution tape contents .....	75



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# Before you start

# 1

This document contains instructions for upgrading to ConvexOS and Utilities V10.0 on a system that is currently running ConvexOS and Utilities V9.0 or V9.1 and 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 ConvexOS and Utilities.*

---

## 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.

Optional products may also be installed locally or remotely. Table 1 lists the documents that describe these installations.

**Table 1** Types of ConvexOS and Utilities installations

<b>Installation Type</b>	<b>Document</b>
Local upgrade	<i>ConvexOS and Utilities V10.0 Local Upgrade Installation Procedures</i>
Remote upgrade	<i>ConvexOS and Utilities V10.0 Remote Upgrade Installation Procedures</i>
Local initial installation	<i>ConvexOS and Utilities V10.0 Local Initial Installation Procedures</i>
Remote initial installation	<i>ConvexOS and Utilities V10.0 Remote Initial Installation Procedures</i>

---

## **Verifying your installation kit**

Installation kits for local upgrades should contain the following:

- A tape containing "ConvexOS V10.0". 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 magnetic tape containing "ConvexOS Operating System V10.0".
- If you have received one magnetic tape, you may or may not have a second one. Refer to the packing slip to be certain that the optional products you have licenses for are on the tape(s) you have.
- A single sheet of paper that contains installation activation keys that are specific for your machine.

- A copy of the *ConvexOS and Utilities V10.0 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.



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:

- All disks must be formatted. Disks that are already formatted do not need to be re-formatted for this installation.
- 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
```

- Your /etc/group file must contain entries for the following groups:
  - auth with GID 20
  - audit with GID 21
  - fs with GID 22

- lpr with GID 23
- batch with GID 24
- tapeop with GID 29
- preserve with GID 30

You should be certain that these GIDs are not currently assigned to other groups. For additional information on adding new groups, refer to *Managing ConvexOS: Configuration Guide*.

- Your /etc/passwd file must contain entries for:
  - user lpr with UID and GID 23
  - user auth with UID and GID 20
  - user audit with UID and GID 21
  - user fs with UID and GID 22

You should be certain that these UIDs are not currently assigned to other users.

For additional information on adding users, refer to *Managing ConvexOS: Configuration Guide*

- Your system must have the versions of SPU OS, System Diagnostics, and the Diagnostic Database listed in Table 2.

**Table 2** SPU OS, System Diagnostics, and Diagnostic Database dependencies

CONVEX System	SPU OS	System Diagnostics	Diagnostic Database
C120	V5.2	V6.6 or later	V2.7 or later
C2x0, C32x0	V5.2	V3.5 or later	V3.7 or later
C34x0	V6.0	X1.0 or later	X1.0 or later
C38x0	X0.5.0.0	X0.5.0.0 or later	X0.5.0.0 or later

Figure 1 shows the commands to use 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 SPU OS, System Diagnostics, and Diagnostic Database

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

---

## Required information

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

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

You should know:

- The name of your time zone and your daylight savings rule.
- The type of disk device that contains your root partition. Figure 2 shows the command used to display this device. The root disk device is highlighted.

**Figure 2** 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
daxx	Multibus
duxx	IDC
ddxx	VMEbus

According to Table 3, the root disk device in Figure 2 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.

---

## Space requirements

This section describes space requirements for ConvexOS and Utilities V10.0. You should be sure to have adequate space available before you begin the installation.

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

Table 4 contains space requirements for the root upgrade. Table 5 contains space requirements for the /usr upgrade.

Table 6 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 upgrade space requirements

Directory	Kilobytes Required
/tmp	8100
/bin	520
/dev	2
/etc	2800
/lib	1
/mnt	1
/sys	1
/usr	1

**Table 5 /usr upgrade space requirements**

<b>Directory</b>	<b>Kilobytes Required</b>
/tmp	5400
/usr/adm	30
/usr/bin	640
/usr/convex	900
/usr/dict	40
/usr/doc	1
/usr/etc	500
/usr/include	40
/usr/infosys	70
/usr/lib	1600
/usr/man	420
/usr/msg	1
/usr/skel	1
/usr/spool	200
/usr/src	1
/usr/sys	250
/usr/tmp	1
/usr/ucb	670
/usr TOTAL	5365

**Table 6 Domestic Tools space requirements**

<b>Directory</b>	<b>Kilobytes Required</b>
/tmp	3000
/usr/68k	300
/usr/lib	1

The `df` command displays the amount of used and available space on a disk partition. Figure 3 shows how to display this information for the partition on which the `/tmp` directory resides.

**Figure 3** 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 4.

**Figure 4** Determining directory/partition distribution

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

In this example, the directories `/usr/adm`, `/usr/spool`, and `/usr/local` are on partitions other than `/usr`. Therefore, `/usr` must contain 5437 kilobytes of free space, which is the sum of the space requirements for all the `/usr` directories listed in Table 4, Table 5, and Table 6 *except for* `/usr/adm` and `/usr/spool`. (`/usr/local` does not appear in Table 5.)

If you will be installing optional products, you should also consult the section titled "Space requirements" on page 19 to determine additional space requirements.

---

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

Figure 5 Putting the system in single user mode

```
# /etc/shutdown +5 "to install ConvexOS V10.0"  
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes. The single-user system prompt appears as in Figure 6.

Figure 6 Single user mode

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

- Step 3: Be certain you know the type of disk device your root file system resides on. See the section titled "Required information" on page 18 for information on how to determine this.
- Step 4: 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 5: Mount a scratch tape on tape unit 0.

- Step 6: Back up the / (root) file system by entering the commands shown in Figure 7. Note that the 0 in the command line is a zero, not the letter O.

Figure 7 Backing up the root file system

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

The backup is complete when the system prompt returns.

- Step 7: Rewind, remove, and label the tape.
- Step 8: Mount another scratch tape on tape unit 0 for the /usr file system backup.
- Step 9: Back up the /usr 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 /usr file system

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

The backup is complete when the system prompt returns.

- Step 10: Rewind, remove, and label the tape.
- Step 11: Go to the SPU by pressing CTRL-P at the system prompt.
- Step 12: Insert a scratch 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 9. *Skip this step if your machine is a C2, C3100, C3200, C3400, or C3800 series or if you have a C120 with any other kind of SPU tape drive.*

Figure 9 Formatting the SPU cartridge cape (C120s only)

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

Step 14: Back up the SPU disk by entering the command shown in Figure 10.

**Figure 10** 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

If your "ConvexOS V10.0" tape is a cartridge tape (ct-format, mt-format, or DAT tape), you should perform the steps in this section.

---

## Caution

---

Do not perform the steps in this section if your tape containing ConvexOS V10.0 is a 6250-bpi (round) magnetic tape. Skip to the section titled "Upgrading SPU software" on page 26.

Step 1: Return to the system prompt by pressing CTRL-D.

Step 2: Unmount the files systems as shown in Figure 11.

Figure 11 Unmounting file systems (cartridge tape only)

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

Step 3: Take the system to SPU level by entering the commands shown in Figure 12.

Figure 12 Returning to the SPU (cartridge tape only)

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

Output will appear on 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: If you are not already at SPU level, go to the SPU by pressing CTRL-P at the system prompt.
- Step 2: Remove the directory /mnt/old\_os with the command shown in Figure 13.

Figure 13 Removing /mnt/old\_os

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

- Step 3: Verify that there is a sufficient amount of free space in /mnt on the SPU disk. Table 7 lists space requirements by machine type.

Table 7 SPU space requirements

System	Kilobytes Required
C1x0	3120
C2x0, C32x0	3490
C34x0	3320
C38x0, HP SPU	4490
C38x0, Opus SPU	3960

Use the df command to determine the available space, as shown in Figure 14.

Figure 14 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 4: Locate the tape containing "ConvexOS V10.0". If it is a 6250-bpi (round) tape, mount it on the tape drive. If it is a cartridge tape, insert it in the SPU tape drive.
- Step 5: If you have a cartridge tape, terminate unnecessary SPU processes with the command shown in Figure 15.

---

**Caution**

---

**Do not perform the step in Figure 15 if you are using a 6250-bpi (round) tape. Follow the procedure in Figure 16 instead.**

**Figure 15** Removing unnecessary SPU processes (cartridge tape only)

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

Ignore messages such as

```
osclean:SIGSEV signal
```

if they appear.

Or, if you have a 6250-bpi (round) tape, press **CTRL-D** to return to the system prompt and mount the /tmp and /usr directories, as shown in Figure 16. If your /usr/sys directory is on a different file system than /usr, mount that file system also.

---

**Caution**

---

**Do not perform the step in Figure 16 if you are using a cartridge tape. Follow the procedure in Figure 15 instead.**

**Figure 16** Mounting /tmp and /usr

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

- Step 6: Load ConvexOS onto the SPU.

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

---

**Caution**

---

Do not perform the step in Figure 17 if you are using a 6250-bpi (round) tape. Follow the procedure in Figure 18 instead.

Figure 17 Invoking `installsw` (cartridge tape only)

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

Replace *device-name* with the name of the SPU tape device, usually `/dev/rmt0`.

If you are using a 6250-bpi (round) tape, enter the commands shown in Figure 18.

---

**Caution**

---

Do not perform the step in Figure 18 if you are using a cartridge tape. Follow the procedure in Figure 17 instead.

Figure 18 Invoking `installsw` (6250-bpi tape only)

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

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

Step 7: When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 19.

Figure 19 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 8: A menu of ConvexOS Utilities is displayed, as shown in Figure 20. Note that your tape may contain different products, so the menu you see may not match Figure 20 exactly.

Select "ConvexOS Operating System" by entering the index number that corresponds to it.

Enter `install` to begin the installation.

Figure 20 ConvexOS menu

Idx	Part Number	Description	Release	Files
1	710-009915-000	ConvexOS Operating System	10.0	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
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?

Step 9: 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
--- What is your local time zone?
```

Step 10: Enter your daylight savings rule at the prompt, 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 11: At the prompt, enter the type of device your root file system is on, as shown in Figure 23.

**Figure 23** Root device prompt

```
-- Is your root file system on a VME, Multibus, or IDC device? [v/m/i]
```

Step 12: 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 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 13:** 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 25.

**Figure 25** 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 14:** Supply the ConvexOS password at the prompt shown in Figure 26.

**Figure 26** Installation password prompt

```
--- Extracting v10.0 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 as shown in Figure 27.

**Step 15:** If you are installing from a 6250-bpi (round) 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.X10.0) 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 27** /sys filename prompt

```
--- Filename of where you would like to save the /sys directory
(via tar)? (The default is /tmp/sys.tar.v10.0, 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.v10.0]:
```

The installation continues as shown in Figure 28.

**Figure 28** Installation output

```
--- tar'ing existing /sys directory to /tmp/sys.tar.v10.0
--- Removing old /sys directory
--- Extracting /sys from /dev/rmt12. This may take a few minutes.
--- Running ranlib on the CPU_OBJ libraries
--- v10.0 /sys directory extraction Done
--- v10.0 Operating System installation Done
```

**Step 16:** If you are using a 6250-bpi (round) tape, rewind and unmount the tape.

If you are using a cartridge tape, you may leave it in the SPU tape drive. (You will use it again in the section titled "Extracting the /sys directory" on page 42.)

---

## Halting ConvexOS

Follow the instructions in this section only if you used a 6250-bpi (round) tape to upgrade the SPU software in the previous section.

---

## Caution

---

If you used a cartridge tape to upgrade the SPU software, go directly to the section titled "Restarting ConvexOS" on page 34.

Step 1: Unmount the files systems as shown in Figure 29.

Figure 29 Unmounting file systems (6250-bpi tape only)

```
# 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 30.

Figure 30 Returning to the SPU (6250-bpi tape only)

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

Output will appear on 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 31.

Figure 31 Rebooting ConvexOS

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

Information about the boot process is displayed. After approximately five minutes, the system prompt is displayed, as shown in Figure 32.

Figure 32 System prompt

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

---

## Upgrading standard utilities

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

- Step 1: Before you begin the Utilities installation, you must load `/etc/fsck`, `/etc/preen`, `/etc/putst`, and `/etc/convst` from the tape containing "ConvexOS Utilities V10.0." To do this, mount the tape on the tape drive and enter the commands shown in Figure 33.

Figure 33 Restoring `/etc/fsck` and `/etc/preen`

```
# 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 (`/dev/rmt20` or `/dev/rdat0n`, for example).

- Step 2: When you are prompted for a volume number, enter 1.
- Step 3: 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 33. If it fails again, contact the CONVEX Technical Assistance Center.
- Step 4: Convert the `/etc/stripecap` as shown in Figure 34.

Figure 34 Converting `/etc/stripecap`

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

- Step 5: Verify the file systems with the commands shown in Figure 35.

**Figure 35** Verifying file systems

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

Step 6: Mount all the 4.2 file systems, as shown in Figure 36.

**Figure 36** Mounting 4.2 file systems

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

Step 7: If you haven't already, ensure that your system has the required free space, as described in the section titled "Space requirements" on page 19.

Step 8: Rewind the tape device, as shown in Figure 37. *device-name* refers to the tape device you are using (/dev/rmt20 or /dev/rdat0n, for example).

**Figure 37** Rewinding tape device

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

Step 9: Invoke `installsw` as shown in Figure 38.

**Figure 38** Invoking `installsw`

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

Step 10: When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 39.

**Figure 39** 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 11: A menu of ConvexOS Utilities is displayed, as shown in Figure 40. Note that your tape may contain different products, so the menu you see may not match Figure 40 exactly.

**Figure 40** ConvexOS Utilities menu

```
Idx  Part Number  Description  Release  Files
1    710-009915-000  Root Upgrade  10.0    3
2    710-010015-000  /usr Upgrade  10.0    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?
```

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 12: Enter `install`, as shown in Figure 41.

**Figure 41** Selection prompt

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

The output of the installation is shown in Figure 42, Figure 43, and Figure 44.

If the installation does not complete, you should attempt to restart this procedure. If the installation fails a second time, contact the CONVEX Technical Assistance Center.

**Figure 42 ConvexOS Utilities installation output**

```
[Installing Root Upgrade v10.0]
-----
--- CONVEX V10.0 Production Root Upgrade
-----
--- Installation commencing Sat Nov 23 20:55:03 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Removing utilities that moved to /usr/etc,/usr/bin,/usr/convex.
--- Saving local database files.
--- Saving active files.
--- Removing links.
--- Extracting CONVEX V10.0 Root Upgrade from tape.
--- Saving new local database files as <file>.10.0.
--- 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 V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 20:56:06 CST 1991.
```

**Figure 43 ConvexOS Utilities installation output (continued)**

```
[Installing /usr Upgrade v10.0]
-----
--- CONVEX V10.0 Production Usr Upgrade
-----
--- Installation commencing Sat Nov 23 20:56:09 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Saving local database files.
--- Saving local configuration files.
--- Saving active files.
--- Saving local adm files.
--- Extracting CONVEX V10.0 Usr Upgrade from tape.
--- Saving new sendmail.cf file in /usr/lib/sendmail.cf.10.0.
--- Consult the release notice for additional information on sendmail.
--- Restoring local database files.
--- Setting correct ownership and permissions of restored files.
--- Creating include file links.
--- Linking /lib/crt0.o to /usr/lib/lib/crt0.o
--- Setting lpr sub-system permissions.
--- Removing old sendmail configuration file and refreezing.

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

--- Updating the version database.
--- Adding message to /etc/motd.
--- Usr Upgrade V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:02:48 CST 1991.
```

**Figure 44 ConvexOS Utilities installation output (continued)**

```
[Installing Domestic Tools v10.0]
-----
--- CONVEX V10.0 Production Domestic Tools
-----
--- Installation commencing Sat Nov 23 21:02:53 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 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 V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:03:28 CST 1991.
```

---

## Extracting the /sys directory

If your tape containing "ConvexOS V10.0" is a cartridge tape, you must extract the /sys directory by hand. If your "ConvexOS V10.0" tape is a 6250-bpi (round) tape, you should skip this section and go directly to the next section titled "Restarting ConvexOS" on page 44.

- 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 45.

Figure 45 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 tape 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".
- If you are using an mt-format tape, read the subsection titled "Extracting /sys from an mt-format tape".
- If you are using a DAT tape, read the subsection titled "Extracting /sys from a DAT tape".
- Skip this section completely if you are using a 6250-bpi (round) tape.

---

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

Execute the commands in Figure 46 to extract /sys from a ct-format tape.

Figure 46 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 47 to extract /sys from an mt-format tape.

Figure 47 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 48 to extract /sys from a DAT tape.

Figure 48 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
```

---

## 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 49.

Figure 49 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 50.

Figure 50 Returning to SPU level

```
# /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 51.

Figure 51 Booting to single-user mode

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

- Step 4: Preen and mount the local file systems, as shown in Figure 52.



---

## 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.

The only major change to either of these files for ConvexOS V10.0 is the inclusion of the following lines in /etc/rc.std:

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

If you will be using the Virtual Volume Manager and redundant stripes, you must add these lines to /etc/rc.std. (For additional information on VVM, refer to the *ConvexOS V10.0 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, "Local optional product installation" on page 49

---

## Caution

---

**If you are installing optional products, do not boot to multi-user mode at this time.**

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

Step 1: Boot to multi-user 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 "The upgrade script" on page 67 for important information on completing the installation.



---

# Local optional product installation

# 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 8 lists the optional products that are bundled with the release of ConvexOS V10.0.

Table 8 Optional products

Part Number	Product
710-010515-002	Share V10.0
710-010415-002	UDD Tools V10.0
710-010315-002	MC68000 Tools V10.0
710-009615-002	NFS (Domestic) V10.0
710-009515-002	NFS (International) V10.0
710-009715-002	Internet Services V10.0
710-010215-002	ConvexOS Optional Sources

Beginning with this release, a new tape production method is being used at CONVEX. The tape(s) you receive may 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 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 V10.0 running on your system. If you have not yet installed ConvexOS V10.0, please refer to the chapter titled "Before you start".

All the prerequisites for the ConvexOS and Utilities V10.0 installation also apply to optional products installations.

You should also note that:

- 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.

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" on page 42, if you installed ConvexOS V10.0 from a cartridge tape
  - you have installed ConvexOS Domestic Tools V10.0.

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 9 and Table 10 list 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 Install" 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 Install".

**Table 9** Optional products space requirements in kilobytes

Product	Directory	Initial Install	Upgrade Install
Internet Services	/tmp	6600	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
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
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/lib	50	5
	/usr/ucb	310	31
	/usr/doc	10	1
	/usr/infosys/optscreens	6	1
/usr/infosys/optfscreens	6	1	

**Table 10** Optional products space requirements in kilobytes (continued)

Product	Directory	Initial Install	Upgrade Install
Share Scheduler	/tmp	2000	2000
	/usr/convex	1600	160
	/usr/doc	10	1
	/usr/etc	100	10
	/usr/infosys	10	1
	/usr/lib	40	4
MC68000	/tmp	3000	3000
	/usr/68k	3000	300
	/usr/lib	10	1
UDD	/tmp	500	500
	/usr/doc	10	1
	/usr/lib	400	40
Optional Sources	/tmp	9000	9000
	/usr/lib	1000	100
	/usr/src	8000	800

### Determining available space

The `df` command displays the amount of used and available space on a disk partition. Figure 56 shows how to display this information for the partition on which the `/tmp` directory resides.

**Figure 56** 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 that one of the directories listed in Table 9 and Table 10 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 57.

Figure 57 Determining directory/partition distribution

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

In this example, the directories /usr/adm, /usr/spool, and /usr/local are on partitions other than /usr. For example, if you 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 9 *except for* /usr/spool. (/usr/local and /usr/adm do not appear under "Internet Services" in Table 9.)

---

### Determining available space on the SPU disk

The Domestic NFS installation requires 3000 kilobytes of free space in the /mnt directory on the SPU disk. To check the amount of available space, execute the command in Figure 58.

**Figure 58** 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 V10.0, your system is already in single user mode and you should skip to the section titled "Installing a product" on page 57.

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 59.

**Figure 59** Putting the system in single-user mode

```
# /etc/shutdown +5 "to install ConvexOS V10.0"  
#
```

Messages warning users of the impending shutdown will be displayed for approximately five minutes. The single-user system prompt appears as in Figure 60.

**Figure 60** Single-user mode

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

- Step 3: Mount the tape labeled "ConvexOS V10.0 Utilities" on tape unit 0.
- Step 4: Mount all the 4.2 file systems, as shown in Figure 61.

**Figure 61** 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 62.

Figure 62 Invoking `installsw`

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

Step 2: When `installsw` prompts you for the type of installation, enter `local`, as shown in Figure 63.

Figure 63 Installation prompt

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

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

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

Step 3: A menu of ConvexOS Utilities is displayed, as shown in Figure 64. Your tape may contain different products, so the menu you see may not match Figure 64 exactly.

Figure 64 ConvexOS Utilities menu

```
Idx  Part Number      Description                Release  Files
 1  710-009915-000    Root Upgrade              10.0    3
 2  710-010015-000    /usr Upgrade              10.0    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?
```

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 65.

---

**Caution**

---

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

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

```
Idx  Part Number      Description              Release    Files
  1  710-009915-000  Root Upgrade            10.0      3
  2  710-010015-000  /usr Upgrade           10.0      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? 4 5 6
selection?
```

Step 5: Enter `install` to install the selected products, as shown in Figure 66.

**Figure 66** Selection prompt

```
selection? install
```

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

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

These installation procedures continue with the section titled "Booting multi-user" on page 65.

Figure 67 CONVEX Internet Services installation output

```
[Installing Internet Services v10.0]

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

      Enter Internet Services activation key? activation-key

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

Figure 68 CONVEX Domestic NFS installation output

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

-----
--- CONVEX V10.0 Production Domestic NFS Utilities
-----
--- Installation commencing Sat Nov 23 21:05:12 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Checking free space in /sys.
--- Installation of des_soft.o commencing Sat Nov 23 21:05:43 CST 1991.
--- Enter the configuration file to use or ABORT.

    Press return alone to use REL_C2:?

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

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

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

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

--- Activation key required.

    Enter Domestic NFS Utilities activation key? activation key

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

Figure 69 CONVEX Share Scheduler installation output

```
[Installing Share Scheduler v10.0]
-----
--- CONVEX V10.0 Production Share Scheduler
-----
--- Installation commencing Sat Nov 23 21:11:29 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 Share Scheduler from tape.
--- Adding links for share utilities moved from /etc to /usr/etc.
--- Checking share database for shared groups
--- Activation key required.

    Enter Share Scheduler activation key? activation key

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

**Figure 70 CONVEX MC68000 installation output**

```
[Installing MC68000 Tools v10.0]
-----
--- CONVEX V10.0 Production MC68000 Tools
-----
--- Installation commencing Sat Nov 23 21:12:09 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 MC68000 Tools from tape.
--- Updating the version database.
--- Adding message to /etc/motd.
--- MC68000 Tools V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:12:26 CST 1991.
```

**Figure 71 CONVEX UDD installation output**

```
[Installing UDD Tools v10.0]
-----
--- CONVEX V10.0 Production UDD Tools
-----
--- Installation commencing Sat Nov 23 21:12:29 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 UDD Tools from tape.

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

**Figure 72** CONVEX Optional Utilities Source installation output

```
[Installing Optional Utilities Source v10.0]
-----
--- CONVEX V10.0 Production Optional Utilities Source
-----
--- Installation commencing Sat Nov 23 21:12:35 CST 1991.
--- Performing consistency check.
--- Checking disk space requirements.
--- Extracting CONVEX V10.0 Optional Utilities Source from tape.
--- Updating the version database.
--- Adding message to /etc/motd.
--- Optional Utilities Source V10.0 installed.
--- Online release notes in /usr/doc.
--- Installation complete Sat Nov 23 21:14:16 CST 1991.
```

---

## Booting multi-user

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

---

## Booting without Domestic NFS

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

Figure 73 Terminating init

```
# 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 and unmount the file systems, as shown in Figure 74.

Figure 74 Terminating init

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

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

Figure 75 Copying a new system image from the SPU

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

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

**Figure 76** Returning to SPU level

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

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

Step 4: Boot multi-user by entering boot at the SPU prompt, as shown in Figure 77.

**Figure 77** Rebooting ConvexOS

```
(spu) > boot
```

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

---

## The upgrade script

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

- checks your `/etc/passwd` file to make sure that it contains entries required by ConvexOS V10.0. (See the *ConvexOS V10.0 Release Notice* for more information on required `/etc/passwd` entries.)
- checks your `/etc/groups` file to make sure that it contains entries required by ConvexOS V10.0. (See the *ConvexOS V10.0 Release Notice* for more information on required `/etc/groups` entries.)
- checks your `/etc/services` file to make sure that it contains entries required by ConvexOS V10.0. (See the *ConvexOS V10.0 Release Notice* for more information on required `/etc/services` entries.)
- changes the permissions on users' `.crontab` and `.cronrc` files to 644. (See the *ConvexOS V10.0 Release Notice* for more information about `cron`.)
- 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/upgrade.txt`, via the `script` utility.

You should invoke `/usr/etc/upgrade` while the system is in multi-user mode. Invoke the upgrade script by issuing the command in Figure 78.

Figure 78 Running `/usr/etc/upgrade`

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



---

# SPU files

# A

This appendix lists files which may be removed from the SPU disk in order to obtain the required amount of free space for the ConvexOS V10.0 installation.

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

---

## IOP systems

The following files may be removed:

- the jptest directory
- /mnt/test/io5000
- /mnt/test /dev5\*

This should provide 2.6 megabytes of space.

---

## VIOP systems

The following files may be removed:

- the jptest directory
- /mnt/test/io4000
- /mnt/test/dev4\*

This should provide 3.8 megabytes of space.

---

## VIOP and IOP systems

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



---

# Preserved files

# B

This appendix lists files which are not affected by the ConvexOS V10.0 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.10.0
- /etc/rc.std.10.0
- /etc/services.10.0
- /etc/shells.10.0
- /etc/termcap.10.0
- /usr/lib/sendmail.cf.10.0

---

## **/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.

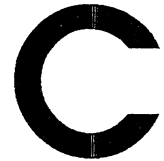
---

## 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 V10.0 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.

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

---

## Positioning the tape

Since your ConvexOS V10.0 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 11.

Table 11 ConvexOS Utilities distribution tape contents

Position	File	Format
0	Master header	cat
1	Master script	cat
2	gip support	tar
3	root header	cat
4	root script	cat
5	root data	dump
6	/usr header	cat
7	/usr script	cat
8	/usr data	dump

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

- the header, in cat format
- the script, in cat format
- the data, in tar format

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

Figure 79 ConvexOS Utilities menu

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

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

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

selection?

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

- Step 1: Determine the position of the product you wish to retrieve. To do this, multiply its index number (shown in the left column of Figure 79) by 3. For example, the MC68000 tools (index number 7) product begins at position 21. The header is at 21, the script is at 22 and the data is at 23.
- Step 2: Mount the tape on the tape drive of the local system and position it correctly by entering the commands shown in Figure 80.

Figure 80 Mounting the ConvexOS V10.0 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 81 after you have correctly positioned the tape.

Figure 81 Restoring a cat format utility

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

Replace *filename* with the name of the file to which the utility is restored.

---

## Restoring a dump format utility

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

Figure 82 Restoring a dump format utility

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

---

## Restoring a tar format utility

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

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

Figure 83 Reading a tar image into /tmp

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

Replace *device-name* with the name of the tape device you are using.

- Step 2: List the files in the tar image by entering the command in Figure 84.

Figure 84 Listing the contents of a tar image

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

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

**Figure 85** Extracting a file from a tar image

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

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

ConvexOS and Utilities V10.0 Local Upgrade Installation Procedures

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