1.3.8.1 bootp

HDSware includes source code for bootp and executable files for both BSD and Sys V type hosts. The operation of bootp is discussed in detail in Section 3.2

1.3.8.2 hdsrunwm Launcher Program

The hdsrunwm launcher program is a host-based script to launch your ViewStation window managers.

1.3.8.3 xscope Diagnostic Utility

Xscope is a diagnostic program that records the X requests between the client and the server. This is very useful in analyzing problems at a low level.

The pexscope utility program is included with HDSware 3.2 as an HDSperx client. Pexscope is identical in function to xscope and is easier to use as a local client. Pexscope man pages are in Section 2.6.17.

1.3.8.4 xmkmf Utility Program

Xmkmf is an X utility to make a makefile.

1.3.8.5 snftobdf Font Conversion Program

This is a font utility program to generate .bdf font files from .snf font files. You must know the .snf format parameters in order to use snftobdf.

1.3.8.6 usepty Utility Program

This is a utility to use a pseudo-tty connection. This is discussed in Section 1.2.6.3.

1.3.8.7 xrsh Utility Program

This is an X utility for doing remote shell commands.

this argument because the default value is the current DISPLAY environment variable. If you are not running **hdsfc960** on the target server, you must make sure your host has access privileges on the target server.

[-help] gives some help information about the **hdsfc960** command.

1.3.7.5 getbdf Font Conversion Utility

The **getbdf** font conversion utility creates a .bdf format font file from the font information supplied by the target server.

The **hdsfc960** utility uses this program automatically, so unless you have special requirements, you probably won't use this as a separate utility program.

The **getbdf** utility uses the following command line:

```
getbdf [-d display] -fn <font name>
```

where [-d display] specifies the target server for the font named.

1.3.7.6 hdscrypt Encryption Utility Program

The **hdscrypt** program is used for the encryption of user passwords in a remote configuration file. If you are using this ViewStation feature on your system, you will need this encryption utility. This program is based on a public-domain routine included with MicroEMACS written and copyrighted by Dana L. Hoggett. The name has been changed to **hdscrypt** to avoid confusion with other crypt programs.

The encryption program is used to protect the integrity of user passwords when the ViewStation is started with Bootp and a configuration file containing a user password is used. The configuration file, because it is loaded with the TFTP protocol, must be generally accessible, but the *bootptab* file, since it belongs to the root user, can be hidden and protected.

The user password is entered as the key in the **hdscrypt** program and the encrypted value obtained. The password is entered as plain text in the **T128** field in the *bootptab* and the encrypted value entered in the configuration file. When the file is loaded, the ViewStation compares the plain text password from its Bootp message with the configuration file password it has decrypted with its own internal **hdscrypt** program. If the two values match, the session proceeds. If they don't match, the session fails.

The **hdscrypt** directory includes the **hdscrypt** source file and a makefile in addition to several executable files for various host architectures.

There are examples of encryption with hdscrypt in Section 1.11.1.6.

1.3.7.7 flashfilesys Utility Program

These scripts are discussed in detail in Section 1.10.5.

1.3.8 HDSware Contributed Programs

There are a number of contributed programs included with HDSware.

hdsfc960 command to convert some or all of the DECwindows fonts into HDS ViewStation .snf fonts.

To use the **hdsfc960** program, you must first create a directory for the new HDS .snf fonts. It can be in any location, but should be specifically for the HDS fonts and should be empty. For example, the directory might be named: */usr/lib/X11/fonts/HDS/snffonts*.

The **hdsfc960** program converts, in its default setting, ALL the font files currently available in the target server's fontpath. You can use **xlsfonts** to see what fonts are in the target server's fontpath. You probably want to restrict (temporarily) the target server's fontpath to the fonts you want.

Enter the command with the address of the target server (the host running the .snf fonts you're converting) and the destination directory of the HDS ViewStation .snf fonts you're making:

```
hdsfc960 -d  target IP address:display  <dest. directory>
```

or, in this example

```
hdsfc960 -d 128.91.3.12:0 /usr/lib/X11/fonts/HDS/snffonts
```

The **hdsfc960** program works automatically; it locates the fonts in the target server's fontpath (it uses **xlsfonts**), reads the font data (and reconstructs the .bdf format), then creates the correct .snf font files (using **bdfto960**), creates a *fonts.dir* file for the fonts (using **hdsmkdir**), and puts them in the directory you specified. Note that the command program, **hdsfc960**, must be in your search path and you must have execute privileges for it. The other utility programs, **getbdf**, **bdfto960**, and **hdsmkdir**, must also be present to run **hdsfc960**. You may find it necessary to log onto the target server where the fonts are located rather than trying to execute these commands from a remote location.

The command also accepts other arguments for specific usage:

```
hdsfc960 [-f filename] [-d display] [-help] [<dest direct.>]
```

where:**[-f *filename*]** specifies a file name of fonts to convert.

If you don't want to convert all your fonts, you can specify a file which contains the fonts you've selected. The file must have font file names in it, with one entry per line. For instance, you could use the command:

```
xlsfonts -1 > font.list
```

or, to select some particular adobe fonts from the whole list:

```
xlsfonts -1 -fn "*adobe*" > font.list
```

to generate this file. The -1 (one, not lowercase L) specifies that **xlsfonts** prints one font name per line. This file is redirected to the *font.list* file, which you can edit to remove any fonts you don't want converted.

[-d *display*] specifies the target display of the fonts.

This is the IP address or name of the server host followed by the server display where the fonts can be found. This must be shown as a display, <IP host:display>. If this display is different from the display you're working on, you must specify

Compiliing large numbers of fonts can sometimes be a lengthy process. This little shell script program will help you handle the conversion process by handlling the font files in a loop.

For the C Shell: */bin/csh*

```
foreach i (*.bdf)

echo $i

bdfto960 $i > $i:r.snf

end
```

For the Bourne shell: */bin/sh*

```
for i in *.bdf

{

echo $i

bdfto960 $i > ‘basename $i .bdf‘.snf

}
```

Note that ´ is an accent grave; be careful with spaces in these commands.

When the conversion to .snf files is complete, you must make a *fonts.dir* file for each directory. This can be done with the **hdsmkdir** utility, described below.

1.3.7.3 hdsmkdir Font Utility Program

The **hdsmkdir** utility program creates a fonts.dir file for the .snf font directory you’ve created. It is similar to the **mkfontdir** program included with the MIT X distribution except that it works on machines with any type of architecture. Erase any existing fonts.dir files before you start.

The **hdsmkdir** utility uses the following command line:

```
hdsmkdir [<dir 1> [<dir 2> ...]]
```

where[<dir 1> [<dir 2> ...]] specifies which directories should be used to create the fonts.dir file(s). If no directory is specified, the current directory is used.

1.3.7.4 hdsfc960 Font Conversion Utility

If you do not have .bdf font files to convert with the **bdfto960** utility, you can use the **hdsfc960** utility program to produce .snf files for the HDS ViewStation. If you do have .bdf files, this utility is not needed. It is used to convert fonts that you have only in some server format, such as the DEC .dwf font files, or for fonts that are in non-bdf generic format, such as PostScript font files.

The **hdsfc960** font converter is a special utility program that automatically creates .snf files for the HDS ViewStation from any type of font files available to and readable by a target X Window System server. The **hdsfc960** utility reads the font information with standard X protocols and creates an .snf font from that data. For instance, if you have DECwindows server using its .dwf fonts, you can use the

Then use the **tar** command to extract the files and create their separate directories:

tar xvf 100dpi.tar

The files will be read into the current directory as individual subdirectories.

1.3.7 HDSware Utility Programs

There are a number of utility programs provided with HDSware. These are programs for ViewStation management and handling fonts.

There are two HDSware directories, one with executable files for a variety of host computers, and another with the source code and appropriate makefiles for your own compilations.

1.3.7.1 Compiling the Utility Programs from Source Code

Generating executable files for the utility programs for other host types should present few problems, since the source files use standard X Window System libraries. A makefile is included for each of the programs and may require slight modification for some systems.

If your host machine doesn't correspond to or emulate one of the machines for which an executable file exists, you will have to compile the source code for your machine. The compilation is straightforward and uses normal compilation routines. The */contrib* directory has a shell script, xmkmf, which creates a makefile from an Imake file.

1.3.7.2 bdfto960 Font Utility Program

This program lets you convert .bdf fonts to HDS ViewStation .snf format. Since the HDSware tape contains the standard MIT fonts, and many specialized fonts, you will probably only use this for your own special fonts.

The fonts included in the MIT X distribution are .bdf fonts (Bitmap Distribution Format), which means that they are a generic type of font file intended to be compiled into different .snf (Server Natural Format) required by each server. The X distribution also provides a compiler, **bdftosnf**, to create the .snf fonts, but this compiler creates correct .snf fonts only if the machine doing the compilation is the same architecture as the server using the .snf files.

If you have the standard X distribution, you can create the .snf fonts needed for the ViewStation by using the **bdfto960** font conversion utility. This is similar to the X distribution's **bdftosnf** except that **bdfto960** converts fonts to the ViewStation format on machines of any architecture.

Create a special directory for the new HDS .snf files. Copy the .bdf files to the new location and then use the **bdfto960** utility to convert them.

The **bdfto960** font conversion utility converts a .bdf file to an HDS ViewStation .snf format (that is, Least Significant bit and byte first, scanline padding = 1, and glyph padding = 4).

On your host system, move to the destination directory for your font utilities and font files. Then issue the tar command to extract the files from the tape:

```
tar xvf /dev/rmt0h
```

- **DEC TK50 cartridge tape** (VMS systems):

  Refer to Section 4.3.5 and related material in Section 4.3.

- **4mm and 8mm DAT tape**:

  These tape formats also use the **tar** command. The device names used for these tape devices are dependent on your system. The HDSware 4mm DAT tapes use a block size 512 and a blocking factor of 20 as default settings.

  ```
  tar xvf /dev/rst0
  ```

  Some systems, such as Ultrix systems, use other settings, and may need entries on the command line to read the tape. This can be set on the **tar** command line; for example, this command sets a blocking factor of 40:

  ```
  tar xvbf 40 /dev/rmt0h
  ```

  Check your system for the correct setting and syntax of this command.

- Other formats

  Special formats, such as HP QIC cartridges and 9-track tapes, work normally on those tape devices. The device names used for these tape devices are dependent on your system.

1.3.6.2 Diskette handling (5.25" or 3.5"):

- **Sun and SCO diskettes**:

  On your host system, move to the destination directory for your utility programs and font files. Then issue the **tar** command to extract the files from the diskettes:

  ```
  tar xvf <device name>
  ```

  You will be prompted to insert the diskettes in order. The files will be read into the current directory as individual subdirectories.

- **MS-DOS diskettes**:

  These diskettes are high density MS-DOS format (1.2 MB for 5.25" diskettes, 1.44 MB for 3.5" diskettes). There are a number of diskettes containing the fonts and client application programs. The files are compressed tar files copied onto MS-DOS diskettes. Transfer the files as binary files from the MS-DOS host to an appropriate UNIX directory. (With an FTP transfer use the **binary** command; with MS-DOS transfers use the **xcopy /b** command.)

  With the files in the UNIX directory, rename them to comply with UNIX syntax and uncompress them:

  ```
  mv 100dpi.trz 100dpi.tar.Z     and so on for all compressed files
  uncompress 100dpi.tar.Z        and so on for all compressed files
  ```

flash server <*/hostIP/path/filename*>

flash boot <*/hostIP/path/filename*>

These procedures are discussed in more detail in Section 1.10.

Upgrading a hard disk drive takes a few more steps. First, make the file containing the HDSware 3.0 files you want. A sample file is:

./hds-fx/utils/src/flashfilesys/disk.files

Use this text file (with your changes) to prepare the disk file. Keep track of the size of the files on your list and make sure there is room on the disk for them. Remember to make any desired additions or deletions to the file list, or changes to your individual *config.fx.dsk* and *clients.config.dsk* files before you put them on the disk.

When your file is complete, prepare the disk file with the command:

flashfilesys <*text_filename*> <*disk_filename.ffs*>

For example, with Version 3.0.3, the file system file might be V303.ffs.

This reads the text file, finds the actual files listed in it, and then puts them all together into a single disk file. Make sure you have enough space on your host to create this file. Note that a complete .ffs file, with default settings, is included on the HDSware CD-ROM.

Then load the disk file onto the hard disk with the command:

flash files <*disk_filename.ffs*>

1.3.6 Loading the HDSware Tape Manually

These instructions describe loading HDSware on different systems without using the HDSinstall script. The instructions may have to be modified slightly to correspond to the requirements of your system. Use them as a guide, particularly noting differences such as device designations. The crucial items to watch for are that the file transfer is done in binary format and that the correct destination directories are created.

1.3.6.1 Cartridge tape handling

- **QIC150 tape handling** (Unix tape format):

  On your host system, move to the destination directory for your utility programs and font files. Then issue the **tar** command to extract the files from the tape:

  tar xvf */dev/rst8* (use the device name appropriate to your system)

  The files will be read into the current directory as individual subdirectories. Note also that the fonts.dir and fonts.alias files are present in the font directories.

  Some systems, such as HP and SGI, sometimes require byte swapping of the data. The tar command prompts you for the byte swapping option.

- **DEC TK50 cartridge tape** (Ultrix systems):

/xrsh - utility program for Xrsh

./hds-fx/extensions

X11R5 extensions downloadable into the FX server

These files require approximately 30 MB of storage space (or less, depending on the directories you choose to load), so you should allocate sufficient space for them.

1.3.4 Automatic ViewStation Configuration

When the HDSware is loaded, start your ViewStation and go into Setup Mode. Select "HDSware" from the Main Menu. There are three entries to make for HDSware automatic configuration.

- Set your ViewStation's IP address
- Set the host IP address where you loaded the HDSware
- Set the path to the HDSware directory

The ViewStation stores this information in its configuration file. It creates an abbreviation for *"/hostIP/path"* as "HDSware" or "FXUtilities". The configuration file entries for HDSware paths are then */HDSware/hds-fx/fonts*, and so on. In this way, the ViewStation configures itself automatically as soon as it knows the location of the HDSware software.

Suppose you created a directory for the software called "HDSware" in the following path: */usr/lib/HDSware*. The ViewStation uses this as a mount point and creates full paths from it; such as a fontpath equal to: */hostIP/usr/lib/HDSware/hds-fx/fonts*, and so on for other variables.

Note that these are equivalent paths to the ViewStation:

```
/hostIP/usr/lib/HDSware/hds-fx/fonts/100dpi
/FXUtilities/hds-fx/fonts/100dpi
```

and that the second entry is the default entry in the configuration file, where it can be used as soon as "HDSware" or "FXUtilities" is defined.

This automatic configuration of the ViewStation depends on two things: first, the correct specification of the host and path, and second, the correct operation of the file transfer protocol (TFTP by default) used to move the file.

When you restart the ViewStation, it reads the configuration file just created and enters these paths in Setup Mode so these important settings are made for your ViewStation automatically. You can save these values in NVM by clicking on the Save button.

At this point, you can make other settings important for your system, such as communication gateways, domain name servers, your list of remote hosts, etc. in the appropriate Setup Mode fields.

1.3.5 HDSware Upgrades

If you have ROM storage, you can load the new server and bootprom code into your FlashPROM with the Console window command:

/src/bdfto960
/src/getbdf
/src/hdsmkdir
/src/hdscrypt (for password encryption)
/src/flashfilesys (scripts to manage flash file system)
/execs (executable HDS utility programs above)
/execs/SUN4
/execs/VAX_Ultrix
/execs/sco386
/execs/HP700
/execs/DG_AViiON
/execs/IBM_RS6000
Other utilities and sample files

./hds-fx/rgb
Sample rgb.txt stored in ViewStation memory

./hds-fx/man
Manual pages for the HDS clients in several formats

./hds-fx/config
Sample configuration files
/lpd-support (LPD print spooler)
clients.config (configuration for HDSperx clients)
config.fx (the FX configuration file)
config.syntax.fx (a config file showing syntax)
syslog.conf (the syslog.conf file for error reporting)

./hds-fx/docs
/sysadmin (Postscript files of the *System Administrator's Guide*)

./hds-fx/include
Include files needed for some compilations

./hds-fx/contrib
Other contributed files provided for the user's convenience
/bootp - source code and BSD and Sys V executables
/xscope - source code and Sun4 executables
/xmkmf - script to make a makefile from an Imakefile
/snftobdf - utility program for generating bdf font files
/usepty - program for pseudo-terminal operations

mat rather than the ISO 9660 format of the CD-ROM. The tape itself consists of a **tar** file which contains a number of directories. The directories are shown below with their subdirectories.

HDSware Tape Contents

./HDSinstall

./Vnn.ffs (flashfilesystem file for disk loading)

./hds-fx/image

Server code files - FX server files in different configurations

README

/Vnn-D.hds (server code to download clients)

/Vnn.hds (no download capability in server code)

/Vnn-bootprom.bin (bootprom file)

./hds-fx/image_u

These same files in uncompressed format (.uhds extensions)

./hds-fx/fonts

Font directories - a main font directory, with subdirectories:

/100dpi

/75dpi

/misc

/Xol (MIT X11R5 OPEN LOOK fonts)

/Asterx2.1 (Applix Aster*x v2.1 fonts)

/Asterx3.0 (Applix Aster*x v3.0 fonts)

/wp5.1 (special WordPerfect v5.1 fonts)

/Lotus123 (special Lotus 123 fonts)

/SoftPC (special SoftPC fonts)

./hds-fx/bin

HDS clients, such as window managers and HDSperx

./hds-fx/lib

Library directory - libraries needed for HDS clients

/shared

/app-defaults

/bitmaps

./hds-fx/utils

Utility program directories, with two subdirectories

/src (Source code with appropriate Makefiles, etc.)

/src/hdsfc960

These same image files in uncompressed format (.UHD extensions)

./HDSFX/INCLUDE

Include files needed for some compilations

./HDSFX/LIB

Library directory - libraries needed for HDS clients

/SHARED

/APPDEFAU

/BITMAPS

./HDSFX/MAN

Manual pages for the HDS clients in several formats

./HDSFX/RGB

Sample rgb.txt stored in ViewStation memory

./HDSFX/UTILS

Utility program directories, with two subdirectories

/SRC *(Source code with appropriate Makefiles, etc.)*

/SRC/HDSFC960

/SRC/BDFTO960

/SRC/GETBDF

/SRC/HDSMKDIR

/SRC/HDSCRYPT *(for password encryption)*

/SRC/FLASHFIL *(scripts to manage flash file system)*

/EXECS *(executable HDS utility programs above)*

/EXECS/SUNOS4

/EXECS/SUN_SOLA

/EXECS/VAX_ULTR

/EXECS/SCO386

/EXECS/HP700

/EXECS/DG_AVIIO

/EXECS/IBM_RS60

Other utilities and sample files

These files require approximately 60 MB of storage space (or less, depending on the directories you choose to load), so you should allocate sufficient space for them.

1.3.3 HDSware Tape Contents

The HDSware tape contains server code files, fonts, client application programs, utility programs, font management programs, etc. The filenames are in UNIX for-

CONFIG.SYN;1 *(a config file showing syntax)*
SYSLOG.CON *(the syslog.conf file for error reporting)*

./HDSFX/CONTRIB

Other contributed files provided for the user's convenience
/BOOTP - *source code and BSD and Sys V executables*
/HDSRUNWM - *utility program to launch local WM*
/NETAUDIO - *an alternate way to play audio files*
/SNFTOBDF - *utility program for generating bdf font files*
/USEPTY - *program for pseudo-terminal operations*
/XMKMF - *script to make a makefile from an Imakefile*
/XRSH - *utility program for Xrsh*
/XSCOPE - *source code and Sun4 executables*

./HDSFX/DOCS

/SYSADMIN
Postscript files of the HDS ViewStation System Adminstrator's Guide

./HDSFX/EXTENSIO

X11R5 extensions downloadable into the FX server

./HDSFX/FONTS

Font directories - a main font directory, with subdirectories:
/100DPI (X11R5 fonts)
/75DPI (X11R5 fonts)
/MISC (X11R5 fonts)
/XOL (MIT X11R5 OPEN LOOK fonts)
/ASTERX21 (Applix Aster*x v2.1 fonts)
/ASTERX30 (Applix Aster*x v3.0 fonts)
/WP51 (special WordPerfect v5.1 fonts)
/LOTUS123 (special Lotus 123 fonts)
/SOFTPC (special SoftPC fonts)

./HDSFX/IMAGE

Server code files - server files in different configurations
README
/VnnD.HDS;1 *(server code to download clients)*
/Vnn.HDS;1 *(no download capability in server code)*
/VnnBOOT.BIN;1 *(bootprom file)*

./HDSFX/IMAGE_U

From the CD mount directory, type: INSTALL.CD

Tape Installation

Insert the tape in your tape device (for other types of media, use your appropriate devices). Then type (be careful with the syntax):

```
tar xvf <device name> HDSinstall
```

which finds the HDSinstall script; it is the first file on the tape. The **tar** command continues to search through the entire tape, which may take several minutes. Once the screen reports that HDSinstall is loaded, you can discontinue the search and exit the **tar** process with *Ctrl-C* to save time. Then start the script by typing:

```
./HDSinstall
```

This starts the HDSinstall script. This is a Bourne shell script and should run without modification. There are explanatory screens and a menu to select installing the entire tape or only parts of it. There are suggestions for files to include or omit.

When you've selected all your files, the HDSinstall script prompts for your HDSware directory and the name of your tape device, and then installs your selections automatically. If you don't use the HDSinstall script, you can load the tape manually. Suggested procedures are outlined in the last section of this note.

1.3.2.5 HDSware CD-ROM Contents

The HDSware software contains server code files, fonts, client application programs, utility programs, font management programs, etc. as well as a set of postscript files containing the *HDS ViewStation System Administrator's Guide*.

The CD-ROM contains a number of directories for each of these groups of files; your operating system may have changed these file names based on its ISO 9660 or High Sierra formatting. The HDSware tape distributions may have some differences in content and filenames.

HDSware CD-ROM Contents (Version 3.1)

./INSTALL.CD

./Vnn.FFS;1 ***(flashfilesystem file for disk loading)***

./HDSWARE.TAR;1

./HDSFX/VERSION;1

./HDSFX/BIN

HDS clients, such as window managers and HDSperx

./HDSFX/CONFIG

Sample configuration files

/LPDSUPPO *(LPD print spooler)*

/LPSUPPOR *(LP print spooler)*

CLIENTS.CON;1 *(configuration for HDSperx clients)*

CONFIG.FX;1 *(the FX configuration file)*

```
mount <CD-ROM device name> <mount point>
```

The device name varies with each operating system and environment (some examples are given below), and the mount point is a directory that becomes the parent directory of the CD-ROM file system, usually named */cdrom*. Note that the “mount” command lines usually have some designation for the ISO 9660 naming, whether “hsfs” (for High Sierra) or “cdrfs”, or something similar; with more recent OS versions this may be optional.

For SunOS 4.1.3

```
/etc/mount -r -t hsfs /dev/sr0 /cdrom
```

For Solaris 2.3

```
/etc/mount -r -F hsfs /dev/dsk/c0t6d0s0 /cdrom
```

For IBM RS/6000 AIX 3.2

```
/etc/mount -r -v -p /dev/cd0 /cdrom
```

For HP 700 HP-UX

```
/etc/mount /dev/dsk/c201d2s0 /cdrom -r -t cdfs
```

For SCO systems

```
/etc/mount -r -f HS /dev/cd0 /cdrom
```

DECstation Ultrix 4.x

```
/etc/mount -t cdfs /dev/rz3c /cdrom
```

For OSF/1 for DEC Alpha

```
/usr/sbin/mount -t cdfs -o noversion /dev/rz3c /cdrom
```

For SGI IRIX 5.2

```
/etc/mount -o ro,notranslate -t iso9660 /dev/scsi/sc0d510 /
cdrom
```

Consult your man pages or your system administrator for device designations and directories for your systems.

The mounted CD-ROM can be read as a normal file system.

1.3.2.3 Loading files from the CD-ROM

The HDSware CD-ROM contains an installation script, called “INSTALL.CD”, to manage the selection and installation of HDSware files from the CD-ROM.

Login as root user. Insert the CD-ROM into the ROM drive; check the device name (the examples above are typical, but may vary on your system). Mount the CD-ROM and run the installation script, as below.

1.3.2.4 HDSware Installation Script

You can install HDSware easily with a script available on the CD-ROM or tape. The HDSinstall script lets you select which files to include on your host installation.

CD-ROM Installation

1.3.1.1 HDSware on an Internal Hard Disk Drive

HDSware is also available on an internal hard disk drive available as optional equipment on a ViewStation. In this case, only one ViewStation per site would need this HDSware installation. The HDSware host for other ViewStations would be the hard disk ViewStation's IP address and the HDSware directory would be */dev/flash*. The other ViewStations would get their server code, fonts, and clients from the ViewStation's hard disk drive instead of a host computer's disk.

Note that there are two relevant configuration files, *config.fx.dsk* for the hard disk ViewStation and *config.fx* for other ViewStations. In the first case (the hard drive ViewStation), the HDSware host would be the IP loopback address, 127.0.0.1, and the path would be */dev/flash*; in the second case (other ViewStations), the HDSware host would be the hard disk ViewStation's IP address and the path would be */dev/flash*.

1.3.1.2 Premium Software Service and Software Upgrades

New software versions and feature enhancements for the HDS ViewStation are distributed on the HDSware CD-ROM. Customers who have ordered the Premium Software Service receive automatic distribution of the HDSware CD-ROM. HDSware is also available to Premium Software Service customers from the Internet, at *http://www.hds.com* (a password is required for downloading HDSware - this password can be obtained from your Customer Care representative).

Customers who have not subscribed to this service can receive a no-charge HDSware upgrade for one year after purchase of their HDS ViewStation.

There is a charge for upgrades on formats other than CD-ROM. For further information you can call the HDS Service Department at 800-762-0357 or email at *info@hds.com*.

1.3.2 HDSware CD-ROM Format

The HDSware CD-ROM can be used either as a mounted file system, or as a medium to transfer the files onto your own disk file system. Both options are discussed below.

1.3.2.1 HDSware CD-ROM File Naming

The HDSware CD-ROM conforms to ISO 9660 file naming conventions. You should be aware that some file names may be different, or have different extensions because of this naming convention. You may need to notify your operating system that the CD-ROM is using ISO 9660 filenames (or High Sierra conventions, an earlier version of ISO 9660). Refer to the man pages of your "mount" command to see how your operating system handles ISO 9660 names (some examples are given below).

1.3.2.2 Mounting the CD-ROM

The HDSware CD-ROM can be used as a file system (read-only). This file system uses the "mount" command, as follows:

HDS ViewStation: HDSware

This chapter describes HDSware, the ViewStation's software distribution, which includes the server software, fonts, local clients, and so on.

Section 1.0 - HDS ViewStation

1.3 HDSware

HDSware is HDS Network Systems' X terminal software and operating environment. One copy of HDSware is needed at each site where ViewStation terminals are used. HDSware includes a number of important files needed to operate HDS ViewStation terminals. In addition, HDSware includes HDSperx, a set of local X client applications designed to run in an HDS X terminal.

HDSware is distributed on a local hard disk drive or a CD-ROM or a tape that the system administrator should load onto an appropriate host at each site. Each ViewStation should enter this host address and HDSware location in their "HDSware" menu in Setup Mode (or in the remote configuration file, or in Monitor Mode).

1.3.1 HDSware Software Formats

The HDSware tape is distributed on a variety of media, CD-ROM, tapes and diskettes. The CD-ROM distribution contains the HDSware files in loadable directories or as a mountable filesystem. The distribution on tape consists of a **tar** file which contains a number of directories to be downloaded. The diskettes contain compressed tar files for the fonts and individual compressed tar files for the utilities. The HDSware tape is normally available on QIC150 format cartridges. Other formats, like 4mm and 8mm DAT, QIC24, TK50 Ultrix or TK50 VMS, 9-track tape, Sun, SCO, and MS-DOS diskette formats, etc., are also available.