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# Software Installation Guide

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## HP 64000-UX for Solaris and SunOS

The tape in this package contains one or more HP 64000-UX software products.

HP 64000-UX is a collection of emulator and analyzer user interfaces, simulators, debuggers, compilers, and other software tools for UNIX<sup>®</sup>-based operating systems such as Solaris, SunOS and HP-UX.

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## Solaris Installation

### System Requirements

This software is designed to run on a Sun SPARCsystem with Solaris version 2.3 (SunOS 5.3) or Solaris version 2.4 (SunOS 5.4). The tape uses the QIC-24 data format.

If you will be using a Motif (graphical) interface, you must have installed:

- OpenWindows version 3.0 or higher
- OpenWindows nonessential MIT core clients (package SUNWowMIT)
- OpenWindows optional fonts (package SUNWowoft)
- SunSoft OSF/Motif (version 1.2.2 or higher) or IXI OSF/Motif (version 1.2.1 or higher)

**If you are installing the HP Connection for Microtec Research MasterWorks XRAY HP ICE**

Install the Microtec Research XRAY HP ICE software *before* you install the HP connection software. Check that you have set the environment variables according to the Microtec Research instructions before you proceed: set \$USR\_MRI to the installation directory and \$XRAYMASTER to \$USR\_MRI/master. If you install the HP connection software first, refer to the *HP Connection for Microtec Research XRAY HP ICE User's Guide* for information on the **envinstall** script.

### Installation at a Glance

Here is a summary of the steps to follow to install the software. Each step is explained in detail later in this guide.

- 1 Mount the tape.
- 2 Install the software.
- 3 Run the customize script.
- 4 Run the envinstall script.
- 5 Set the necessary environment variables.

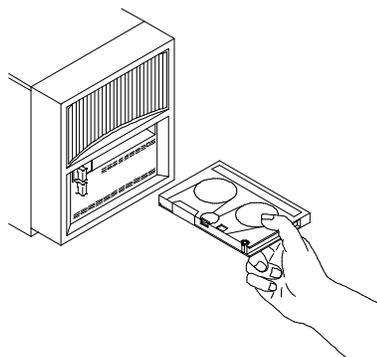
## Step 1: Mount the tape

- 1 Check that you are installing the correct tape.
- 2 Check that the tape's write-protect screw points to SAFE.



- 3 Insert the tape in the tape drive.

The label should face up. The openings in the tape cartridge should face left.



- 4 Slide the lever on the tape drive to the right.
- 5 Check that your tape drive can read QIC-24 tapes.

If you have a QIC-150 (Archive Viper), Emulex MT-02, or Sysgen SC4000 tape drive, it can read QIC-24 tapes. 4-track QIC-11 tape drives cannot read 9-track QIC-24 tapes.

To find out what kind of tape drive you have, type:

```
mt -f <tape_device_name> status
```

If your tape drive cannot read QIC-24 tapes, stop now and find another tape drive.

---

## Step 2: Install the software.

**1** Log in as root.

**2** Clear the file permissions mask:

```
umask 0
```

**3** Change to the directory under which you want the software to be installed. For example:

```
cd /
```

All of the software will be installed into the directory `opt/hp64000` relative to your current directory.

**3** Extract the software. Type:

```
tar xvfbp <device> 20 | tee tar.log
```

If you are installing the software from a tape drive which is on a remote system, type the following command (on one line).

```
rsh -n <hostname> "dd if=<device> bs=20b" |  
tar xvfbp - 20 | tee tar.log
```

*<device>* is the name of your tape device. *<hostname>* is the name of the system with the tape drive.

### Step 3: Run the customize script

The following instructions assume that you are using "csh"; if you are using "sh", environment variables are set in the "<VARIABLE>=<value>; export <VARIABLE>" form.

- 1** Set the HP64000 environment variable to `opt/hp64000` relative to the directory from which you installed the software. For example:

```
setenv HP64000 /opt/hp64000
```

- 2** Run the script from your current directory:

```
$HP64000/bin/run.customize.scripts tar.log
```

Do not `cd` to `$HP64000/bin` to run the customize script. You must run the script from the directory from which the software was installed.

Messages generated by this script are saved in the file `$HP64000/etc/install.log`.

The customize script only accesses files in the `$HP64000` path, except as noted in the next step.

- 3** If you are updating an HP graphical emulator/analyzer interface, and you have previously installed the HP B1487 Software Performance Analyzer (SPA) or an HP real-time OS measurement (RTOS) tool, re-run the SPA or RTOS customize script.

This is necessary because the HP B1487 Software Performance Analyzer and HP real-time OS measurement tools need to modify the emulator/analyzer interface files. For SPA, enter:

```
$HP64000/system/B1487XUI/customize
```

For an HP real-time OS measurement tool, enter:

```
$HP64000/system/RTOS_prodnum/customize
```

where *RTOS\_prodnum* is the product number of the HP real-time OS measurement tool.

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## Step 4: Run the envinstall script

- 1 If the server file system is not completely shared by individual clients and standalone workstations (that is, they have local file systems), run the script **\$HP64000/bin/envinstall** on each client or standalone workstation.

This stand alone script may be run as root at any time to verify that the Motif files required by the HP 64000 software are in place in the file system.

The customize script runs envinstall only for the file system on which you originally installed the software.

The envinstall script does the following:

- 1 Verifies that the SUNWowMIT package is installed.
  - 2 Verifies that the LD\_LIBRARY\_PATH environment variable includes the required paths.
  - 3 Verifies that libXm.so.2 exists.
- 2 Follow the instructions printed by the envinstall script and keep re-running it until it succeeds.

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### Example

Assume the HP 64000 products were installed on the file server *snow\_white* in the root directory */home/snow\_white*. There are seven workstations who want to share *snow\_white*'s \$HP64000 install directory. To share this directory, you must do the following for each dwarf workstation:

- 1 Log in to the dwarf's system as root.
- 2 Mount *snow\_white*'s \$HP64000 install directory:

```
mount snow_white:/home/snow_white/opt/hp64000 /opt/hp64000
```

- 3 Set the HP64000 variable to */opt/hp64000*

```
setenv HP64000 /opt/hp64000
```

Run the envinstall script. This script is verbose and will print which files failed to install. Follow the instructions printed by this script and keep re-running it until it succeeds.

```
$HP64000/bin/envinstall
```

---

## Step 5: Set the necessary environment variables

The HP 64000 software uses environment variables to find files on your system. The following instructions show you how to set these variables at the UNIX prompt.

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**Note**

These environment variables must be set for each user of the software.

Modify your ".cshrc" file to set these environment variables when you log in. The following instructions assume that you are using "csh"; if you are using "sh", set the environment variables using the "<VARIABLE>=<value>; export <VARIABLE>" syntax in your ".profile" or ".login" file.

### 1 Set the HP64000 environment variable.

If you installed the HP 64000 software relative to the root directory, "/", enter:

```
setenv HP64000 /opt/hp64000
```

If you installed the HP 64000 software relative to "/extra", enter:

```
setenv HP64000 /extra/opt/hp64000
```

To avoid problems with users forgetting to set HP64000, you can use a symbolic link to make the software appear to be under /opt/hp64000. For example, if you installed the software relative to the directory /users/team, enter:

```
ln -s /users/team/opt/hp64000 /opt/hp64000
```

### 2 Set the PATH environment variable to include the opt/hp64000/bin directory by entering:

```
setenv PATH ${PATH}:${HP64000}/bin
```

Including /opt/hp64000/bin in your PATH relieves you from prefixing HP 64700 executables with the directory path.

### 3 Set the LD\_LIBRARY\_PATH environment variable to include the path for the shared run-time library files.

If you are using Sun Motif and Solaris 2.3, enter:

```
setenv LD_LIBRARY_PATH  
${LD_LIBRARY_PATH}:/usr/openwin/lib:/opt/SUNWmotif/lib
```

If you are using Sun Motif and Solaris 2.4, enter:

```
setenv LD_LIBRARY_PATH  
  ${LD_LIBRARY_PATH}:/usr/openwin/lib:/usr/dt/lib
```

If you are using IXI Motif, enter:

```
setenv LD_LIBRARY_PATH  
  ${LD_LIBRARY_PATH}:/usr/openwin/lib:/Motif1.2/usr/lib
```

If you installed the Motif run-time libraries in a directory other than the default, substitute the appropriate path. If LD\_LIBRARY\_PATH was not already defined, you will see an "Undefined variable" error; in this case, omit the "\${LD\_LIBRARY\_PATH}:" from the command.

- 4 Set the MANPATH environment variable to include the /opt/hp64000/man and /opt/hp64000/contrib/man directories by entering:**

```
setenv MANPATH  
  /usr/share/man:${HP64000}/man:${HP64000}/contrib/man
```

Including these directories in your MANPATH variable lets you access the on-line "man page" information included with the software.

- 5 If the software will be run on a read-only NFS mounted file system, then you must set the HP64TMPDIR environment variable to a writable path.**

For example, you could enter:

```
setenv HP64TMPDIR /usr/tmp/hp64000
```

The HP 64000 software will use the HP64TMPDIR directory to store temporary files. It is recommended that all users share the same temporary directory.

- 6 Look for product-specific configuration instructions.**

Some products may require additional installation or configuration steps. Look for this information in the following places:

- The *HP 64700 Series Installation/Service* manual (if you are installing an emulator interface).
- The *Installation Notice* for the product.
- The *Operating Notice* for the product.
- The *User's Guide* for the product.

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## SunOS Installation

### System Requirements

This software is designed to run on a Sun SPARCsystem with SunOS version 4.1 or 4.1.1. The tape uses the QIC-24 data format.

**If you are installing the HP Connection for Microtec Research MasterWorks XRAY HP ICE**

This product requires SunOS version 4.1.3 or later.

Install the Microtec Research XRAY HP ICE software *before* you install the HP connection software. Check that you have set the environment variables according to the Microtec Research instructions before you proceed: set \$USR\_MRI to the installation directory and \$XRAYMASTER to \$USR\_MRI/master. If you install the HP connection software first, refer to the *HP Connection for Microtec Research XRAY HP ICE User's Guide* for information on the **envinstall** script.

### Installation at a Glance

Here is a summary of the steps to follow to install the software. Each step is explained in detail later in this guide.

- 1** Link the library files.
- 2** Install the System V software.
- 3** Install the IPC facilities.
- 4** Mount the tape.
- 5** Install the software.
- 6** Run the customize script.
- 7** Run the envinstall script.
- 8** Set the necessary environment variables.

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## Step 1: Link the library files

If your system is using SunOS 4.1, continue with the following steps. If your system is using SunOS 4.1.1 or later, skip to Step 2.

This step needs to be performed only once. If you have done this before, skip to Step 2.

- 1 Log in as root.**
- 2 Clear the file permissions mask:**

```
umask 0
```

- 3 Enter the following commands:**

```
ln -s /usr/5lib/libc.so.2.5 /usr/5lib/libc.so.2.6
ln -s /usr/5lib/libc.sa.2.5 /usr/5lib/libc.sa.2.6
ln -s /lib/libc.so.1.5 /lib/libc.so.1.6
ln -s /lib/libc.sa.1.5 /lib/libc.sa.1.6
```

- 4 Enter the following command:**

```
ldconfig
```

The HP 64000-UX executable files were built under SunOS 4.1.1 or later. Creating the links avoids warning messages from the Sun's dynamic loader.

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## Step 2: Install the System V software

The HP 64000-UX software will use some of the System V features. To find out whether the System V environment is already installed on your system, check that the directory `/usr/5bin` exists. For instructions on installing System V, see the Sun *Installing SunOS* manual.

### Step 3: Install the IPC facilities

If you intend to use the Softkey Interface or the Graphical User Interface, you must have the System V IPC facilities (semaphores) installed on your system.

**1 To determine whether the IPC facilities are already installed, type:**

```
ipcs
```

If the IPC facilities are not installed, you will see messages like the following:

```
Message Queue facility not installed.  
Shared Memory facility not installed.  
Semaphore facility not installed.
```

If you see these messages you will have to install the System V IPC facilities in your kernel.

**2 To install the IPC facilities, you must reconfigure the kernel.**

For information on how to install the IPC facilities, see the Sun *System and Network Administration* manual.

For a typical installation, the following commands are needed to reconfigure the kernel:

```
cd /usr/kvm/sys/sun4c/conf  
cp GENERIC <sys_name>  
chmod +w <sys_name>  
config <sys_name>  
cd ../<sys_name>  
make  
mv /vmunix /vmunix.org  
cp vmunix /vmunix
```

where <sys\_name> is the name of your computer.

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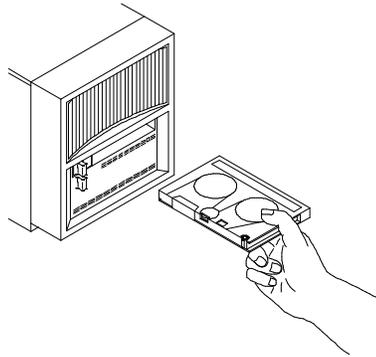
## Step 4: Mount the tape

- 1 Check that you are installing the correct tape.
- 2 Check that the tape's write-protect screw points to SAFE.



- 3 Insert the tape in the tape drive.

The label should face up. The openings in the tape cartridge should face left.



- 4 Slide the lever on the tape drive to the right.
- 5 Check that your tape drive can read QIC-24 tapes.

If you have a QIC-150 (Archive Viper), Emulex MT-02, or Sysgen SC4000 tape drive, it can read QIC-24 tapes. 4-track QIC-11 tape drives cannot read 9-track QIC-24 tapes.

To find out what kind of tape drive you have, type:

```
mt -f <tape_device_name> status
```

If your tape drive cannot read QIC-24 tapes, stop now and find another tape drive.

## Step 5: Install the software.

- 1 Log in as root.
- 2 Change to the directory under which you want the software to be installed. For example:

```
cd /
```

All of the software will be installed into the directory `opt/hp64000` relative to your current directory.

- 3 Extract the software. Type:

```
tar xvfbp <device> 20 | tee tar.log
```

If you are installing the software from a tape drive which is on a remote system, type the following command (on one line).

```
rsh -n <hostname> "dd if=<device> bs=20b" |  
tar xvfbp - 20 | tee tar.log
```

`<device>` is the name of your tape device. `<hostname>` is the name of the system with the tape drive.

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## Step 6: Run the customize script

The following instructions assume that you are using "csh"; if you are using "sh", environment variables are set in the "`<VARIABLE>=<value>; export <VARIABLE>`" form.

- 1 Set the HP64000 environment variable to `opt/hp64000` relative to the directory from which you installed the software. For example:

```
setenv HP64000 /usr/hp64000
```

- 2 Run the script from your current directory:

```
$HP64000/bin/run.customize.scripts tar.log
```

Do not `cd` to `$HP64000/bin` to run the customize script. You must run the script from the directory from which the software was installed.

Messages generated by this script are saved in the file `$HP64000/etc/install.log`.

- 3** If you are updating an HP graphical emulator/analyzer interface, and you have previously installed the HP B1487 Software Performance Analyzer (SPA) or an HP real-time OS measurement (RTOS) tool, re-run the SPA or RTOS customize script.

This is necessary because the HP B1487 Software Performance Analyzer and HP real-time OS measurement tools need to modify the emulator/analyzer interface files. For SPA, enter:

```
$HP64000/system/B1487XUI/customize
```

For an HP real-time OS measurement tool, enter:

```
$HP64000/system/RTOS_prodnum/customize
```

where *RTOS\_prodnum* is the product number of the HP real-time OS measurement tool.

---

## Step 7: Run the envinstall script

- If the server file system is not completely shared by individual clients and standalone workstations (that is, they have local file systems), run the script **\$HP64000/bin/envinstall** on each client or standalone workstation.

This stand alone script may be run as root at any time to verify that all files required by the HP 64000 software are in place in the file system.

Due to the complexity of installing on NFS mounted file systems, you may need to run this script several times.

If the required HP 64000 files are not found, this script will attempt to symbolically link them from the \$HP64000 install directory to their proper locations.

The customize script runs envinstall only for the file system on which you originally installed the software. If the server file system is not completely shared by individual clients and standalone workstations (that is, they have local file systems) then you must run envinstall on each client or standalone workstation. This will symbolically link the HP 64000 files to absolute locations on the local file system.

The envinstall script does the following:

- 1 Verifies that the LD\_LIBRARY\_PATH environment variable has the required components set.
- 2 Installs the ITO/SAIC Motif run-time libraries (shipped with the HP software) into /usr/lib/libXvX\*.

- 3 Installs the HP 64000 application-specific scheme files into `$OPENWINHOME/lib/X11/app-defaults/HP64*`.
  - 4 Installs the XKeysymDB file if the required OSF keymappings do not exist in `$OPENWINHOME/lib/XKeysymDBfile`.
  - 5 Verifies that the Optional MIT Release Package is installed.
- `$OPENWINHOME` is `/usr/openwin` by default.

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**Example**

Assume the HP 64000 products were installed on the file server *snow\_white* in the root directory `/home/snow_white`.

There are seven workstations who want to share *snow\_white*'s `$HP64000` install directory. To share this directory, you must do the following for each dwarf workstation:

- 1 Log in to the dwarf's system as root.
- 2 Mount *snow\_white*'s `$HP64000` install directory:

```
mount snow_white:/home/snow_white/usr/hp64000 /usr/hp64000
```

- 3 Set the `HP64000` variable to `/usr/hp64000`

```
setenv HP64000 /usr/hp64000
```

- 4 Run the `envinstall` script to install files outside of `$HP64000`. This script is verbose and will print which files failed to install. Follow the instructions printed by this script and keep re-running it until it succeeds.

```
$HP64000/bin/envinstall
```

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## Step 8: Set the necessary environment variables

The HP 64000 software uses environment variables to find files on your system. The following instructions show you how to set these variables at the UNIX prompt.

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**Note**

These environment variables must be set for each user of the software.

Modify your `".cshrc"` file to set these environment variables when you log in. The following instructions assume that you are using `"csh"`; if you are using `"sh"`, set the environment variables using the `"<VARIABLE>=<value>; export <VARIABLE>"` syntax in your `".profile"` or `".login"` file.

- 1 Set the `HP64000` environment variable.

If you installed the HP 64000 software relative to the root directory, "/", enter:

```
setenv HP64000 /usr/hp64000
```

If you installed the software relative to a directory other than the root directory, it is strongly recommended that you use a symbolic link to make the software appear to be under /usr/hp64000. For example, if you installed the software relative to the directory /users/team, enter:

```
ln -s /users/team/usr/hp64000 /usr/hp64000
```

**2 Set the PATH environment variable to include the usr/hp64000/bin directory by entering:**

```
setenv PATH ${PATH}:${HP64000}/bin
```

Including /usr/hp64000/bin in your PATH relieves you from prefixing HP 64700 executables with the directory path.

**3 Set the MANPATH environment variable to include the /usr/hp64000/man and /usr/hp64000/contrib/man directories by entering:**

```
setenv MANPATH  
${MANPATH}:${HP64000}/man:${HP64000}/contrib/man
```

Including these directories in your MANPATH variable lets you access the on-line "man page" information included with the software.

**4 Look for product-specific configuration instructions.**

Some products may require additional installation or configuration steps. Look for this information in the following places:

- The *HP 64700 Series Installation/Service* manual (if you are installing an emulator interface).
- The *Installation Notice* for the product.
- The *Operating Notice* for the product.
- The *User's Guide* for the product.

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## If you have problems

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### If files or directories are missing

- Check for the existence of `$HP64000/tmp/install.log`. This file is written to by the installation process, `envinstall`, which is the last item extracted from the tape. `install.log` can be scanned for installation errors. If `envinstall` was successful there will be a corresponding message in `install.log`. If the installation did not complete, there may have been a tape error.

---

### If you see the message: `emul700dmn` failed to start

This message is printed if `$HP64000/inst/emul/runtime` is not writable or there is insufficient disk space.

- Solaris: Ensure that `$HP64000/inst/emul/runtime` has sufficient disk space and is writable. If not, set `$HP64TMPDIR` to a writable path.
- SunOS: Remount the disk with write permission.

---

### If you see a "file not found" message you try to run the software.

- Check that the `HP64000` environment variable is set.
- Check that the `HP64000` environment variable ends with `"opt/hp64000"` (Solaris) or `"/usr/hp64000"` (SunOS).

A example of a valid value for `$HP64000`:

```
/mypath/opt/hp64000
```

Examples of invalid values for \$HP64000:

```
/mypath/opt/something/hp64000  
/mypath  
/mypath/hp64000
```

---

## If dynamic loader references are not resolved

- ❑ Solaris: Check that the LD\_LIBRARY\_PATH environment variable is set correctly, as described on page 8.

If this variable is not set correctly, the run-time dynamic loader (ld.so.1) will not be able to open or resolve Motif and X11 library references. This can produce error messages like the following:

```
ld.so.1: /opt/hp64000/inst/emul/64742A/xui-xemul: fatal: libXm.so.2  
can't open file: errno=2
```

Check that libXm.so.2 exists in the library path. You may need to link libXm.so.2 to an appropriate Motif library (such as libXm.so.3). To create such a link, use a command like:

```
ln -s libXm.so.3 libXm.so.2
```

- ❑ SunOS: Run the envinstall script again.

---

## If fonts are not found

If you see error messages about missing fonts when you start a graphical user interface:

- ❑ Install the Open Windows optional fonts (package SUNWowoft).

---

## If you see key symbol mapping errors

If you see several pages of key symbol mapping errors when you start an interface under SunOS:

- Run `envinstall`, or
- Manually merge the following two files:
  - `$HP64000/lib/X1/XKeySymDB`
  - `$OPENWINHOME/lib/XKeysymDB`

---

## If no softkeys appear in an xterm window.

Some non-graphical user interfaces use softkeys. If you are using an xterm window and the softkeys don't appear:

- Start the xterm window with the `-sf` option. Look at the file `/usr/hp64000/bin/hp64term` to see which options we recommend.

---

## If you seem to have terminal configuration problems.

- Use `TERM=sun` or `TERM=sun-cmd` and `TERMINFO=$HP64000/lib/terminfo` to get a proper terminal and keyboard from a sun shelltool or command tool.
- Start a window via `$HP64000/bin/hp64term` to verify the emulation installation. This file is a script which can be used as a guide in setting `TERM` values.

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## To remove the software

### 1 Find the fileset name of the product you wish to remove.

To see a list of the fileset names which you can remove, type:

```
ls $HP64000/etc/filesets
```

Each file in this directory contains a list of files which were installed for that fileset.

### 2 Log in as root.

### 3 At the operating system prompt, type:

```
sysrm <product_number>
```

Sometimes you may wish to remove all of the files which were installed for a certain product. For example, maybe you have finished a software development project and you need to make more free space on your hard disk.

To make removing software easier, the installation script creates two files. The first file is a list of all of the files installed for a certain product. The list is stored by product number in the \$HP64000/etc/filesets directory. The second file is the sysrm script, which is stored in the \$HP64000/opt/hp64000/bin directory (\$HP64000/opt/hp64000/bin for SunOS). The sysrm script removes the files listed in \$HP64000/etc/filesets for the specified product.

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### Example

If you wish to remove all of the files which were installed for the B1460 product, type:

```
$HP64000/bin/sysrm B1460
```

If you wish to remove all HP 64000-UX products from your system, use the following command:

```
rm -r $HP64000
```

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