

Open Genera Beta II Release Notes

Installing Open Genera

This section provides instructions for installing Open Genera 2.0, as well as special instructions for Open Genera 1.0, Beta I and Beta II customers.

Overview of Open Genera Installation Process

The installation of Open Genera consists of several steps:

- Installing the Genera application and its support files. This is done using the Digital Unix "setld" program which installs software subsets. The support files include the X-window fonts, the genera application itself, and a modification to the system's init files to allow the Virtual Lisp Machine to talk to the network. You need root privileges to install or remove subsets.
- Ensuring that Unix is configured correctly so that the genera application can run. This is mostly done by checking and/or editing configuration files by hand. Editing the configuration files requires root privilege.
- Genera installation and site configuration. These are the steps that you would perform initially on any Genera platform, not just a Virtual Lisp Machine. Site configuration means customizing the distributed image for your particular environment.
- The final step in Open Genera installation is to select a way to make the source hierarchy shipped with Genera accessible to its users.

Prerequisites to Installing Open Genera

- If you have installed any previous version of Open Genera (namely Open Genera 1.0, Open Genera Beta I or Open Genera Beta II), you must remove the older version before installing Open Genera 2.0. In the case of Open Genera Beta I (which didn't use the SETLD utility), you must do so manually by executing the instructions in the section "Upgrading From Open Genera Beta I to Open Genera 1.0".
- If you have installed Open Genera Beta II or Open Genera 1.0 on your Alpha, you must remove it by performing the following steps:

 Login as root

```
    setld -d VLMBASE100
```

- Ensure that you are running Digital Unix V3.2C or later. Open Genera 2.0 is not supported on any earlier releases of Digital Unix. Note that Digital Unix is year 2000 compliant only as of release 4.0D.
- We recommend a minimum of 200 megabytes of swap space. The disk partitioning provided with your Alpha will probably be sufficient. If this partitioning is insufficient, consult the *"Installation Guide"* manual for instructions on how to repartition your system.
- Check that the host name you will use for Open Genera is known to your Alpha, either through an NIS or BIND server, or by adding it to `/etc/hosts`. Refer to the DEC manuals *"Configuring Your Network Software"* and *"Network Administration and Problem Solving"* for details.
- Select or create a mount point for the Open Genera 2.0 CD-ROM, and check that the mount point is exported. (Refer to the DEC manual *"Network Administration and Problem Solving"* for further information on mount.) In the following instructions, we use the mount point `/cdrom` and we assume that `/dev/rz4c` is the CD-ROM drive.

How to Install Open Genera

Insert the Open Genera 2.0 CD-ROM into your Alpha's CD-ROM drive and perform the following steps:

1. Login as root.
2. Restore the Open Genera software from the CD-ROM as follows. (Note: User input text is in **bold**.)

```
# mount -t cdfs -o noversion /dev/rz4c /cdrom
# /cdrom/axp/osf/installgenera
chmod: VLMBASE200.inv: Read-only file system
chmod: VLMBASE200.scp: Read-only file system
chmod: VLMBASE200.ctrl: Read-only file system
chmod: VLMBASE200.scp: Read-only file system
```

*** Enter subset selections ***

The following subsets are mandatory and will be installed automatically unless you choose to exit without installing any subsets:

* Open Genera 2.0 Base Software

You may choose one of the following options:

- 1) ALL of the above
- 2) CANCEL selections and redisplay menus
- 3) EXIT without installing any subsets

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): **1**

You are installing the following mandatory subsets:

Open Genera 2.0 Base Software

You are installing the following optional subsets:

Is this correct? (y/n): **y**

Open Genera Base Software

Copying from /tmp/VLM.980709 (disk)

Working....Thu Jul 09 15:15:29 EDT 1993

Verifying

Working....Thu Jul 09 15:17:03 EDT 1993

An Internet hostname is required for Genera.

This name must be distinct from that of the OSF host which runs Genera.

Please enter a hostname for Genera:

YOUR-HOST-NAME

You selected "YOUR-HOST-NAME" for the Genera hostname.

Is this correct? (y/n)

y

If you need to change the hostname for Genera,
edit the /sbin/init.d/SymbolicsVLM script.

3. **Optional:** If you will be running more than one VLM on the alpha host, you should edit the SymbolicsVLM script file to add an arp command for each additional VLM command. Each arp command should contain the same ethernet address (that of the host alpha) but should mention a different VLM. You might also want to add the VLMs' host names and IP addresses to the /etc/hosts file.
4. **Optional:** In order for the Open Genera system to run with a less pessimistic algorithm for reserving swap space, execute the following shell command:
rm /sbin/swapdefault

(Digital Unix deals with swap space in two modes. The default mode reserves all the space that a program might want to use when the program requests it. When reserved, as opposed to used, space exceeds 90% of swap space, warnings are issued. In the less pessimistic mode (called swap overcommit mode), only the space a program is actually using is reserved.

If there is plenty of swap space, i.e. no chance that you will run out, there are performance advantages to running with the less pessimistic algorithm. However, if you do run out, i.e. all of a sudden enough programs increase their use to exceed the swapping available, Digital Unix just arbitrarily kills any process which needs more swap space than is available, which can cause system hangs or crashes if the process is crucial to the operation of the system, e.g. the X window system.)

5. Under certain situations you may have to rebuild the Digital Unix kernel. If you are missing packet filter support, you will have to rebuild the kernel. If you are running in a Digital Unix release before 4.0 and you have some virtual-memory related parameters set too low, you will have to rebuild the kernel. (After Digital Unix 4.0, you can set these parameters in the `sysconfigtab` file without having to rebuild the kernel.)

If you are running an older version of Digital Unix, you might have to add packet filter support to the kernel. More recent versions (since about 3.2C) generally already have this support built in. (One quick way to see if you have packet filter support in the kernel is to attempt to run the `tcpdump` program. If it works it means that packet filter support is built into the kernel.)

Edit `/sys/conf/HOSTNAME` (where `HOSTNAME` is the name of your Alpha workstation in uppercase) as follows:

a. Add the lines

```
options PACKETFILTER
pseudo-device packetfilter
```

to the file if they are not already present to enable DEC's packetfilter mechanism.

b. If you are installing Open Genera for the first time into a version of Digital Unix before 4.0, add the lines

```
vpagemax      524288
mapentries    16384
maxvas        4294967296
```

If you are installing into Digital Unix 4.0 or later and don't want to rebuild your kernel, you can get the same effect by adding the following to the end of the `/etc/sysconfigtab` file:

```
vm :
```

```
vm-vpagemax = 524288
vm-mapentries = 16384
vm-maxvas = 4294967296
```

- c. If you are upgrading from Beta I or Beta II and you intend to save incremental worlds, be sure that the value on the mapentries line is at least 1024.
- d. If you did not make any changes to the file, skip to step 7.
- e. Save the file.

6. Rebuild the Unix kernel:

```
# doconfig -c HOSTNAME
```

The following message will be displayed:

```
Do you wish to edit the configuration file [y/n]
```

Type n, which is the default.

Copy the new kernel to the root partition, after saving the old kernel.

```
# cp -p /vmunix /vmunix.save
# mv /sys/HOSTNAME/vmunix /vmunix
```

7. Reboot the system (in order to use the new kernel), and remount the Open Genera 2.0 CD-ROM (login as root after reboot):

```
# reboot
# mount -t cdfs -o noversion /dev/rz4c /cdrom
```

8. If the directory /dev/pf does not exist, you must create the packetfilter's special files and set their access appropriately.

```
# cd /dev
# ./MAKEDEV pfilt
# chmod a+w /dev/pf/*
```

9. If you are adding Virtual Lisp Machines to an existing site, use another Lisp machine at that site to create the namespace objects for both the Alpha host and the embedded Open Genera host, if you have not already done so.

The following example illustrates an entry for a typical Alpha host:

Name: ETA
Site: SCRC
Machine Type: DEC-3000-500-AXP
System Type: UNIX42
Address: INTERNET 128.81.41.49
Pretty Name: Eta
Console Location: SCRC 2 W223 x1038 OmniLab
Service: EXEC TCP EXEC
Service: EXPAND-MAIL-RECIPIENT TCP SMTP
Service: FILE TCP TCP-FTP
Service: FILE UDP NFS
Service: LOGIN TCP TELNET
Service: MAIL-TO-USER TCP SMTP
Service: RPC TCP TCP-RPC
Service: RPC UDP UDP-RPC
Service: SEND TCP TALK
Service: SHOW-USERS TCP ASCII-NAME
Service: TAPE TCP UNIX-REXEC
Service: TIME UDP TIME-SIMPLE-MSB
Service: UNIX-REXEC TCP UNIX-REXEC
Service: X-WINDOW-SYSTEM TCP X-WINDOW-SYSTEM
File Control Lifetime: 30 minutes

The following example illustrates an entry for its embedded Open Genera host:

```
Name: ETA-FISH
Site: SCRC
Nickname: EF
Machine Type: VLM
System Type: LISPM
Address: INTERNET 128.81.41.50
Address: CHAOS 24462
Pretty Name: Ate A Fish
Console Location: SCRC 2 W223 x1028 OmniLab
Printer: COMIC-NEWS
Bitmap Printer: COMIC-NEWS
Service: CONFIGURATION TCP CONFIGURATION
Service: LISPM-FINGER UDP LISPM-FINGER
Service: LOGIN TCP TELNET
Service: LOGIN TCP 3600-LOGIN
Service: NOTIFY UDP NOTIFY
Service: SEND TCP SMTP
Service: SEND TCP CONVERSE
Service: SHOW-USERS TCP ASCII-NAME
Service: TIME CHAOS-SIMPLE TIME-SIMPLE
Service: UPTIME UDP UPTIME-SIMPLE
File Control Lifetime: 15 minutes
User Property: EMBEDDED-IN ETA
```

Note: The correct Machine Type for an Open Genera host is VLM. The value of User Property EMBEDDED-IN is the name of the Alpha host that is running Open Genera. The Machine Type for the Alpha host must contain both the string "DEC" and either "AXP" or "ALPHA" in order for the remote tape facility to correctly identify that host as a Digital Unix Alpha host.

10. On another Lisp machine at your site, edit the `SYS:SITE;SYS.TRANSLATIONS` file. The following example assumes that you intend to run multiple releases of Genera at your site.

```
;;; -*- Mode: LISP; Syntax: Common-lisp; Package: USER -*-

(multiple-value-bind (major-version minor-version)
  (sct:get-release-version)
  (select major-version
    ;; Translations for Genera 8.1.1, 8.2 NXP, 8.3, 8.4 Beta and 8.5
    (8 (selector minor-version equalp
      ("1.1")
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-1>sys>**>*.*.*)")))
      ("2 NXP" "2.1 NXP")
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-2>sys>**>*.*.*)")))
      (3)
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-3>sys>**>*.*.*)")))
      ("4")
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-4>sys>**>*.*.*)")))
      ("4 Beta II")
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-4-Beta-II>sys>**>*.*.*)")))
      ("5")
      (fs:set-logical-pathname-host "SYS" :translations
        '(("sys:**;*.*.*)" "ACME-SMBX:>rel-8-5>sys>**>*.*.*)")))
      (otherwise (error "~A unknown minor version of Release 8.~2T
        Edit SYS:SITE;SYS.TRANSLATIONS to add this system."
          minor-version))))
    (otherwise (error "~A ~A unknown release or system version.~2T
      Edit SYS:SITE;SYS.TRANSLATIONS to add this system."
        major-version minor-version))))))
```

11. Now start up Open Genera by using the `genera` command. Read the section "The Genera Digital Unix Application" before proceeding with the following instructions.

Type the `genera` command with the following options if you plan to save an incremental world (**Note:** We recommend that you plan to save an incremental world.):

```
# genera -network OPEN-GENERA-HOSTNAME -ids yes
```

If you plan to save a full site-configured world instead of an incremental, type

```
# genera -network OPEN-GENERA-HOSTNAME
```

12. Set site.
13. Execute the Restore Distribution command as follows:


```
Restore Distribution (keywords): Use Disk (for input [default Yes]) Yes
```

 At the pathname prompt, type:


```
ALPHA-HOST-NAME:/cdrom/distribution/8_4_beta.source_dist.tape
```

This will restore all systems. The source contents of the Open Genera 2.0 CD-ROM are listed in the section "Contents of the Open Genera 2.0 CD-ROM".

 If you want to selectively restore systems, type:


```
Restore Distribution (keywords): Menu Yes
```

 Click on Disk and then click on Pathname and type:


```
ALPHA-HOST-NAME:/cdrom/distribution/og2_source_dist.tape
```

 Select systems to be restored from the menu.
14. Shutdown Open Genera using the Halt Genera command:


```
Halt Genera (keywords) :Query No
```
15. Start Open Genera again using the genera command, as in step 10.
16. Set site.
17. Load any systems you intend to include in your site world. A list of available loadable systems is located in the section "Contents of the Open Genera 2.0 CD-ROM".
18. Save a site-configured Open Genera 2.0 world. After you save your world, the message


```
You must update your ivory config file to use this world
```

 will appear. , Create a .VLM file as described in the section "Genera Command". This file will be read the next time you start Open Genera.

Upgrading From Open Genera Beta I to Open Genera 1.0

If you installed Open Genera Beta I on your AXP, you must manually remove it before installing Open Genera 1.0. Execute the following steps to remove Beta I:

1. Login to the Alpha as root.
2. Remove the VLM command:


```
# rm /usr/local/bin/VLM
```

3. If you created the directory `/usr/local/bin/` during the installation of Beta I, remove it as well:

```
# rmdir /usr/local/bin
```
4. Remove the Beta I world and related files:

```
# rm -r /usr/local/ivory
```
5. Remove the Genera X fonts:

```
# rm -r /usr/lib/X11/fonts/genera
```
6. Remove the startup file

```
# rm /sbin/init.d/SymbolicsVLM
```
7. Remove the Beta I installation scripts and packet filter binaries

```
# rm -r /usr/local/install  
# rm -r /usr/local/pfkit7
```

Contents of the Open Genera 2.0 CD-ROM

Open Genera Sources

The Open Genera 2.0 CD-ROM contains sources for the following systems:

- System
- CLOS
- RPC
- Embedding Support
- UX Support
- Development Utilities
- Old TV
- Zwei
- Utilities
- RPC Development
- UX Development

- Hardcopy
- Zmail
- Tape
- NSage
- Extended Help
- CL Developer
- Documentation Database
- IP-TCP
- IP-TCP Documentation
- CLX
- X Remote Screen
- X Documentation
- NFS-Client
- NFS Documentation

Open Genera Loadable Systems

The Open Genera 2.0 CD-ROM contains the binary files for the following loadable systems:

- MacIvory-Support
- CLIM
- Genera-CLIM
- CLX-CLIM
- Postscript-CLIM
- CLIM-Demo
- CLIM-Doc
- Conversion-Tools

- Hacks
- Examples
- Server-Utilities
- Mailer
- Domain-Name-Server
- Statice-Runtime
- Statice
- Statice-Server
- Statice-Documentation
- Concordia
- Metering
- Joshua
- Joshua-Metering
- Joshua-Doc
- Jericho
- C-Runtime
- C
- Fortran-Runtime
- Fortran
- Pascal-Runtime
- Pascal

In addition, the following pieces of contributed software are also directly loadable from the CD-ROM:

- From MIT, a pre-release development version of Common Lisp Hypermedia server which includes

- CL-HTTP -- basic server
- HTTP-BASE-CLIENT -- minimalist client
- W4 -- web walker
- HTTP-PROXY -- proxy support
- LAMBDA-IR -- full text retrieval software

In the SYS:CONTRIBUTED;CL-HTTP;DISTRIBUTIONS; directory are distributions of the last released version and the sources for other Lisp implementations.

- From Macsyma, Inc. version 421 of Macsyma, a symbolic math manipulation system. This requires a license to use. For details contact either Macsyma, Inc. (www.macsyma.com) or Symbolics, Inc.
- NS, a schematic, VLSI and PC board design system originally developed by Symbolics. This also requires a license to use, for details contact Symbolics, Inc.

Genera Command

There is no Halt Machine command on the Virtual Lisp Machine.

Use the Halt Genera command to pause or exit the genera application. Note that exiting the genera application is equivalent to powering off a "real" Lisp Machine: all your state is irretrievably destroyed. You must save any important state before exiting.

&keywords

- | | |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| :Logout | Yes or No, default is Yes. Logging out before halting is recommended. If you have not already logged out, :Logout Yes will perform a Logout (q.v.) before halting. Specify :Logout No if you know you do not want to log out first. |
| :Shutdown | Yes or No, default is Yes. Whether to exit the genera application after halting. Normally if you are through with Genera, you will want to exit the genera application to release the resources it is using and make them available to other OSF applications. Note that exiting the genera application is equivalent to powering off a "real" Lisp Machine: all your state is irretrievably destroyed. You must save any important state before exiting. |

If you plan to come back to Genera shortly, or do not want to lose your state, specifying :Shutdown No will pause the genera application, but retain Genera's

state and you will be able to resume your Genera session by typing `:Continue` to the VLM Debugger prompt in the Cold Load Display. While the genera application is paused, it will not consume any CPU resources, although it will retain its swapping resources (where Genera's state is stored). To reclaim those resources (and exit the genera application altogether) you can type `:Shutdown` to the VLM Debugger prompt.

<code>:Query</code>	Yes, No or Confirm-Only, default is Yes, mentioned default is Confirm-Only. Whether to ask about each decision, just confirm, or don't ask at all.
<code>:Delay</code>	None or a Time Interval, default is 5 minutes if there are active servers, otherwise None. How long to delay before halting. If Genera is serving other client processes, you can specify a delay before halting to give those clients time to finish up.
<code>:Reason</code>	A string, default for "halting." Used to warn active clients about pending halt.
<code>:Simulate</code>	Yes or No, default No. Whether to just show the effect of this command without actually doing it.

Upgrading From Open Genera Beta I to Open Genera 1.0

If you installed Open Genera Beta I on your AXP, you must manually remove it before installing Open Genera 1.0. Execute the following steps to remove Beta I:

1. Login to the Alpha as root.
2. Remove the VLM command:


```
# rm /usr/local/bin/VLM
```
3. If you created the directory `/usr/local/bin/` during the installation of Beta I, remove it as well:


```
# rmdir /usr/local/bin
```
4. Remove the Beta I world and related files:


```
# rm -r /usr/local/ivory
```
5. Remove the Genera X fonts:


```
# rm -r /usr/lib/X11/fonts/genera
```
6. Remove the startup file


```
# rm /sbin/init.d/SymbolicsVLM
```
7. Remove the Beta I installation scripts and packet filter binaries

```
# rm -r /usr/local/install  
# rm -r /usr/local/pfkit7
```