AVS 5.5 INSTALLATION

CHAPTER TWO

Introduction

AVS 5.5 is supplied on a multi-product compact disk (CD-ROM) providing AVS for different hardware platforms along with optional products such as AVS Demos and AVS5 Doc.

AVS5.5 NOTE: The AVS 5 Documentation package is new with AVS 5.5 and can be installed from the AVS5_DOC package or used directly on the CD under the *avs5_doc* directory (see Chapter 3 for more information). No other significant changes in installation have been made from the AVS 5.4 release. If you are already familiar with this process, proceed with mounting the CD, running *install.avs*, and selecting the platform(s) you wish to install. You should not need to change your existing AVS 5.x license or the license daemons installed with AVS 5.4. A new "Quick Start" installation summary has also been added.

Quick Start Instructions

Because it provides so much detail, the installation chapter for AVS 5.5 can seem more intimidating than it needs to be. This is a simplified process that should work for most customers:

- System Prerequisites: AVS 5.5 requires 60-90 Megabytes disk space, 16-32 Megabytes memory, X windows, and OpenGL, which is usually installed on recent workstations. If AVS doesn't initially run in your configuration, read the appropriate platform chapter for more detailed information.

- Installation: Mount the CD according to the booklet instructions (many systems automount on insertion) and run */cdrom/install.avs* (the CD folder name and filename case varies by platform). Indicate which platform you have and the installation directory you want to use (the default is */usr/avs*). Set the **AVS_PATH** environment variable to the installation directory you chose ("setenv AVS_PATH <dir>").

- Licensing:
  - Evaluation customers: demo_license makes licensing easy. Just run *$AVS_PATH/license/demo_license*, give it the password you were given by your sales representative and make a temporary *license.dat* file; type "setenv LM_LICENSE_FILE ‘pwd‘/license.dat" to tell AVS where to find the license file and that’s it.
  - Existing users: No need to change existing licenses for AVS 5.5.
  - New users: If you have not licensed AVS 5 before, you will need to fill out and submit a license request form. This can be done online at *http://help.avs.com/licensing/request.asp*.
  - All users: Use *$AVS_PATH/license/licdiag* to help you get your hostid and change or install licenses. If licensing becomes a major obstacle, contact AVS Customer Support for help and potential alternatives.

- Running: Startup *$AVS_PATH/bin/avs*, select "AVS Applications" and "AVS Demo" then select which demos you would like to run. Running the demos will provide a good test of the installation and also help to familiarize you with AVS 5 modules and features.

If you have problems after installation, read the appropriate platform chapter for your system to check the prerequisites in more detail. If necessary you can easily uninstall AVS 5 ("rm -rf $AVS_PATH"); uninstalling will remove any other data files or changes you have made in the AVS 5 installation area.

Installation Steps

This is the full installation story with all the details.

NOTE: There are two distinct SGI products, both of which are based on IRIX 6.5: "*SGN32*" is based on a 32-bit architecture using the N32 ABI and compiled for Mips3 architectures; and "*SGN64*" is based on a N64 ABI (64-bit) architecture and compiled for Mips4 architectures. For installation purposes, there is no significant difference between these two versions of the SGI OS except where noted; use the *SGI* instructions for both.

There are six basic steps to an AVS installation:

Step 1
Decide where you want to install AVS.

Step 2
Mount the CD-ROM media.

Step 3
Install AVS using the *install.avs* script. This reads the remainder of AVS off the CD-ROM into the specified directory. Optionally install links from *usr* and install the man pages.

Step 4
Install or update the AVS license. This is a multi-step procedure. AVS will not execute without a license (AVS 5.4 users do not require a new license for AVS 5.5 nor do they need to update license daemon's).

Step 5 (Optional)
Run the AVS Demos to confirm installation

Step 6
Inform your users how to set the variables necessary to find AVS when they try to start it.

Remote Installations

The installation script assumes that you are logged in on the system that is connected to CD-ROM drive. There is no provision for "remote" data reads across the network. If the system with the CD-ROM drive can't access the file space where you want to install AVS, then do the following:

- Mount the CD-ROM where you can read it (see Step 2 for more information) and list out the CD contents using *ls* to see what you need.

- Copy the installation script (*INSTALL.AVS*) and the compressed tar archives you need (<*platform*>*.Z, AVS_DEMO.Z, etc*) to a hard disk area the target machine ("target") can access. For example,

```
rcp /cdrom/hp1020.z target:/tmp
rcp /cdrom/install.avs target:/tmp
```

- Log onto the target machine and run *INSTALL.AVS* from the temporary space you copied it to. You will need to tell it which directory the archives are in, but after that it will work as if it is coming off the CD.

Note: You can also copy installed AVS directories to other systems but beware that there is a circular link, $AVS_PATH/include/avs that must first be removed to avoid an infinite loop. Remove this link before copying and then restore it after installation as follows:

```
cd $AVS_PATH/include
ln -s ../include avs
```

Step 1: Decide Where to Install AVS

AVS can be installed anywhere in a file system hierarchy.

AVS requires different amounts of disk space to install on different platforms, ranging from 50 to 100 megabytes The exact size required will be reported as you do the installation. You can check the amount of free disk space on your system by using the *df*, *df -k*, or *bdf* command (system dependent).

The file system must be mounted and available to each system that will execute AVS. Each system must have a useable file pathname to the AVS directory.

A description of what a user must do to find AVS at startup is described below in "Step 6: Tell Users How to Find AVS", and also in the "$Path—Installing and Finding AVS Anywhere in a Directory Tree" section of the *AVS 5 Update* manual.

By default, AVS 5.5 expects to be found in */usr/avs*, but it can be installed anywhere in a file system hierarchy. If you wish to create special links to place AVS in */usr/avs* or to remove existing links, see "Making and Unmaking Links" in Step 3 below.

You may keep multiple versions of AVS 5 on the same system as long as they are in different directories, either using links or different AVS paths.

Step 2: Mount the CD

The next step is to mount the CD-ROM and access the *install.avs* script. Follow these steps:

1. *login* or *rlogin* to the system that is connected to the CD-ROM drive. On some systems, you will need to be "root" user to mount the CD initially.

2. Insert the CD into the CD-ROM drive.

   If there is already another CD in the drive, you should first follow the unmounting instructions below ("Step 3: Install AVS", last instruction) to properly unmount it.

3. Create the CD mount directory. The default mount directory on most systems is */cdrom*. (You can use a different directory, if necessary.) If */cdrom* does not already exist, create it (as root):

```
mkdir /cdrom
```

Note: Some systems (notably SunOS 5.5 and SGI platforms) will "automount" a CD once it is inserted in the drive, using a standard mount directory. See the table below for more information.

4. As root, *mount* the CD onto the */cdrom* directory. All *mount* commands take a CD-ROM device name, the mount directory (*/cdrom* or your name) and a set of options that vary from platform to platform. Consult your system administrator if you do not know the CD-ROM device name for your system.

Table 2-1. CD Mount Commands on Different Platforms

Platform	**Device / Mount Command**
Compaq Tru64	CD-ROM drive's SCSI ID example: */dev/rz4c* for SCSI ID 4 # mount -r -t cdfs /dev/rz4c /cdrom
HP 9000/7*xx*	Query with SAM utility. CD-ROM drive's SCSI ID example: */dev/dsk/c1t2d0* for SCSI ID 2 or use SAM on some systems, device may be */dev/cdrom* # mount -r -F cdfs */dev/dsk/c1t2d0* /cdrom
IBM RS/6000	Query with: /etc/lsdev -C -c cdrom -H example: cd0 Available 00-08-00-10 CD-ROM Drive means */dev/cd0* # mount -r -v cdrfs */dev/cd0* /cdrom
SGI	See note below. CD-ROM drive's SCSI ID example: */dev/scsi/sc0d4l0* for SCSI ID 4 Note: "*l*" is a lowercase L, not "one" # mount -r -t iso9660 /dev/scsi/sc0d4l0 /cdrom
Sun SunOS 5.x	See note below. CD-ROM drive's SCSI ID example: */dev/dsk/c0t6d0s0* for SCSI ID 0 # mount -r -f hsfs */dev/dsk/c0t6d0s0* /cdrom

SGI Note: IRIX systems usually come with a CD-ROM device already "mounted" at */CDROM*. Any CD inserted into this drive is automatically available. If this is how your system is configured, you do not need to issue a *mount* command.

SunOS 5.x Note: In the default configuration of a SunOS 5.x system, the *vold* system daemon automatically mounts the CD as */cdrom/<cd-name>* where *<cd-name>* is the CD title, such as "avs". You need to specify this full directory (i.e. */cdrom/avs*) when you run the

INSTALL.AVS script and tell it where the CD is mounted. If the *vold* daemon is not running, mount the CD as indicated in the table above.

General Note: HP 9000/7xx and Compaq Tru64 UNIX platforms may not recognize the ISO 9660 format used in the AVS5 CD; the ISO drivers are an optional CD format selected during operating system installation. See your network administrator if you have difficulties.

5. At this point, the *install.avs* script should exist in the */cdrom* directory (in some cases you may see it as *INSTALL.AVS*. Verify with the *ls -l /cdrom* command as appropriate.

System administrators can examine the *install.avs* script before using it to verify that it is acceptable to their system's administrative restrictions.

Once the CD is *mount*ed, you do not need to be root. (However, you will again need to be root to *umount* the CD at the end of the installation.) Systems which automount the CD do not require that you be root during mounting or dismounting.

Step 3: Install AVS

The installation script uses the *tar* command to read AVS off of the CD. In almost all cases, *tar* will keep the AVS file protections as they are on the media. The script will catch and warn you when this may not be true.

During installation *tar* will assign the files the user and group ownership of the user executing the installation script. Be conscious of this and execute the installation script as the entity—either root or otherwise—suitable for the pattern of use at your installation.

1. Run the *install.avs* installation script. Depending on your system, this may appear as all uppercase or all lowercase. Type the case that you see.

```
     /cdrom/INSTALL.AVS

or   /cdrom/avs/install.avs   (SunOS 5 with vold running)

or   /CDROM/install.avs       (SGI)
```

2. If your default file protection *umask* will alter the file protections on the media (for example, **HP** platforms), then you will see this message:

```
Installation on this platform is affected by the 'umask' value
which will change the file protections of the installed files
possibly limiting public and group access.

If you want the original file protections to be setup
you should quit now and change the 'umask' setting as follows:

    umask 0
    install.avs
    umask <original umask value>
```

Press return to continue or type quit:

You should do as the message says: *quit* out of the installation script, reset the *umask* as shown, rerun the *install.avs* script, then restore the original *umask*.

3. **Product Selection:**

You will see a table of possible product choices.

```
This CD-ROM provides the following AVS products:

Name          Platform    Product        Version       Size in Megabytes
AVS_JHELP     all         AVS_JHELP      5.00 (1.06)   3  (3072 Kbytes)
DAO           DAO         AVS            5.5 (50.88)   71  (88064 Kbytes)
HP1020        hp1020      AVS            5.5 (50.86)   70  (59392 Kbytes)
SGN32         sgN32       AVS            5.5 (50.86)   87  (70656 Kbytes)
SGN64         sgN64       AVS            5.5 (50.88)   90  (74752 Kbytes)
S7            SunOS5      AVS            5.5 (50.86)   76  (61440 Kbytes)
IBM           ibm         AVS            5.5 (50.86)   81  (65536 Kbytes)
DEMOS         all         AVS_DEMOS      5.5 (1.4)     27  (25600 Kbytes)
AVS5_DOC      all         AVS5_DOC       5.5 (1.0)     40  (40000 Kbytes)

Please enter the Name of the product to install [default HP1020] or type quit:
```

Enter the name of the product you want to install, for example:

```
IBM
```

The script confirms the selection with a message like the following:

```
Selecting IBM
```

4. The script asks to confirm the CD-ROM mount directory:

```
The default CD-ROM directory is /cdrom
If this is OK, hit return, otherwise enter the appropriate directory:
```

Note that the default is */cdrom*. This is different from the */CDROM* that you need on most SGI systems, and the */cdrom/avs* that you need on SunOS 5.x systems running the *vold* daemon.

Either press return or enter a different CD-ROM directory.

5. **Select Installation Directory**

   The script prompts for an installation directory. The default ("[/u2]:" for the example) is the current directory. **Note:** the script creates the *avs* or *relnotes* directory automatically. Pressing return at this point will create */u2/avs*.

   ```
   Enter directory in which to install AVS
   [/u2]:
   ```

   Since you've already changed to the directory in which you want to install AVS, press return.

6. If this directory contained an existing copy of a directory called *avs*, you will see the following:

   ```
   There is an existing directory called /u2/avs.
   Move it now or it will be removed.
   [Hit return to continue]:
   ```

   If you do not want the existing copy deleted, then use another window to move it or type Control-C to terminate the installation.

7. Next you will see:

   ```
   mkdir /u2/avs; cd /u2/avs
   ```

   followed by a message like the following. The exact format and size estimate varies from platform to platform.

```
Installing AVS in:  /u2/avs

AVS requires approximately:  60 Megabytes (61440 Kbytes) of data
df -k  yields:
File System            kbytes    used   avail capacity  Mounted on
/dev/sd0a                7735    5052    1909    73%    /
/dev/sd0g              151399  126178   10081    93%    /usr
/dev/sd1c              299621  185600   84058    69%    /u2
/dev/sd3c              189534  126055   44525    74%    /home2
```

```
Ensure that /u2 has enough space then hit return or type quit:
```

Note that the actual Kbyte size may vary from what is listed here.

8. Hit return and the installation will begin.

Note: At the end of the installation the script tells you that you may optionally run "install.avs links to setup links from /usr". Read the discussion under "Making and Unmaking Links" below before deciding to do this. The links from */usr* are no longer required.

```
Reading AVS from media
Reading IBM archive
tar -xvof /dev/rmt/0m
x .version, 33 bytes, 1 blocks
x ./bin/avs_dbx, 2708 bytes, 6 blocks
x ./bin/avs, 2589380 bytes, 5058 blocks
  .
  .
x ./license/error_hints, 4852 bytes, 10 blocks
122978 blocks
Read from media successfully
Installation of AVS is complete.
You may optionally run "./install.avs links" to setup links from /usr.
```

Note that the actual block count may vary from what is listed here.

Again, read the discussion under "Making and Unmaking Links" before deciding to make links from */usr*. These links are no longer necessary.

9. **Unmounting the CD**

If you mounted the CD as root, you will need to unmount as root also. This is usually done with the *umount* command with either the directory name or device name as argument:

```
# umount /cdrom
```

SGI Note: On SGI workstations, you should type the following instead. It both "unmounts" and ejects the CD. You do not have to be root to type this command.

```
# /usr/sbin/eject
```

SunOS 5 Note: On SunOS 5 workstations running the *vold* utility, you should type the following instead. It both "unmounts" and ejects the CD. You do not have to be root to type this command.

```
% /usr/5bin/eject
```

Install man page

The *avs* man page is supplied in two forms:

- an *avs.txt* pre-formatted ASCII text file. This file can be copied to one of the pre-formatted */usr/man/cat* man page directories and renamed appropriately (for example: */usr/man/cat1/avs.1*).
- an *avs.6 nroff/troff* source file. This file can be copied to one of the unformatted */usr/man/man* man page directories and renamed appropriately (for example: */usr/man/man1/avs.1*).

Both man page files are located in the installation directory *<installdir>/avs/runtime/help/modules*. Copy the file, in whichever form is suitable for your system, to its appropriate *man* page directory. See your platform's documentation for more information on how man pages are handled on your system.

You may need to manually update the *whatis* database with the one-line description at the top of the man page to make it findable with the *man -k* command. You may need to do this on both a server, and any standalone workstations.

Making and Unmaking /usr Links (Optional)

Links from */usr* to the AVS home directory are optional. Instead, most AVS users specify AVS's location with either the **AVS_PATH** environment variable, **Path** .avsrc file option, or **-path** command line option (see *Step 6* below for more details.)

Some users may wish to continue to use links if they are already using them or to simplify access by local users. The *install.avs* script can make ("links") and unmake ("rm_links") the AVS links which include */usr/avs*, */usr/bin/avs_dbx*, */usr/bin/avs*, and */usr/include/avs*.

Type *install.avs usage* for more information. Note that you will probably need to be "root" user to make or break links in the */usr* directory.

```
Usage:  install.avs [<Flag>]

The install.avs script is used to install AVS and other software products from
CD-ROM media. With no arguments, it will present the available
products and assist in installing them into a specified target area.
```

```
In addition, AVS may optionally install or remove soft links used to help
locate key AVS components from /usr directories (links or rm_links).

Flags:
   links                | Create all standard avs links in /usr
   rm_links             | Remove all standard avs links in /usr
   usage                | Print out this usage message
```

One disadvantage of using */usr/avs* links is that it complicates uninstalling AVS. If there are no extraneous links, then you can uninstall AVS just by removing its main directory:

```
rm -rf $AVS_PATH
```

Step 4: Install license

Your license installation procedures depend on whether you are installing licensing for the first time, upgrading an existing license, or using a short-term demonstration license. This section gives specific instructions on what you must do in each of these cases. This section also includes a brief overview of the Flexible License Manager (FLEXlm) licensing system that is used to administer licensing for AVS. More detailed information about FLEXlm can be found in the *Administering Licenses* chapter. **Note: Existing AVS 5.4 users do not need a new AVS 5.5 license nor do they need to reinstall and restart the license daemons.** If licensing becomes a serious obstacle in your access to AVS 5, please contact AVS Customer Support for potential alternatives.

AVS 5.5 Note: SGI Users: In IRIX 6.5, SGI has begun using FlexLM to license its compilers, storing the license file in */var/flexlm*. If you use the LM_LICENSE_FILE environment variable to set the license file name, you may end up ignoring this SGI license and the compilers will not be licensed. See "Known Problems" in the SGI chapter for more information on this problem and how to work around it.

If you are installing a new license:

If you are a new AVS user installing a license for the first time, you need to install the FLEXlm licensing mechanism from scratch. To do so, you must do the following:

1. Read "Before you begin" below to determine whether your site has any unusual licensing requirements.

2. Find out what kind of AVS license you have purchased (a node-locked or floating license). Installation for all of these licenses are identical in most cases, but you need to know what you have

purchased in case of differences. If you want to know more about the different kinds of licenses, see Chapter 10, *Administering Licenses*, "How licensing works."

3. Select the host machine in your network that is to be the licensing server. FLEXlm works on the client/server model so you must decide where the licensing server processes will run. See "Selecting your host server" below.

4. Make arrangements with Advanced Visual Systems Inc. to obtain a *license.dat* file. See "Obtaining a license" below.

5. Install the *license.dat* file on your system. Follow the instructions in "Installing a new *license.dat* file" below.

6. Run the *licdiag* utility to verify that licensing is installed properly. See "Running licdiag to verify your licensing installation" below.

7. Install and start the FLEXlm-based licensing software on your system. See "Installing the FLEXlm software daemons" below.

If you are upgrading an existing license:

If you are upgrading to AVS 5.5 from AVS 5.4, you already have the FLEXlm licensing mechanism installed on your system and will **NOT** need to update it. You will also **NOT** need a new license for AVS 5.5 if you already have a valid AVS 5.0 or higher license.

If you need to install an AVS 5.5 license, you must:

1. Read "Before you begin" to determine whether your site has any unusual licensing requirements.

2. Make arrangements with Advanced Visual Systems Inc. to obtain a new *license.dat* file only if you need to transfer an existing license. See "Obtaining a license" below for instructions on how to get this information.

3. Replace or modify your existing *license.dat* file with the information in the new *license.dat* file. Follow the instructions in "Upgrading an existing *license.dat* file" below.

4. Run the *licdiag* utility to verify that licensing is installed properly and to make sure you are using the correct version of FLEXlm. You must be using FLEXlm 5.12 or higher. See "Running *licdiag* to verify your licensing installation" below.

5. If necessary, install and start the FLEXlm-based licensing software on your system. See "Installing the FLEXlm software daemons."

If you are using a demonstration license:

If you are installing AVS 5.5 for only a short time - if, for example, you are evaluating AVS on your system - you only need to install a short-term demonstration license. Follow the instructions in "Installing a demonstration license" below.

Before you begin

In most cases, installing and using AVS licenses is straightforward and transparent to the end-user of AVS. There are, however, certain situations that require additional attention - either when you install your licenses or as part of on-going license administration. You should be aware of the following special cases before you install your licenses.

- FLEXlm is used by other software vendors on your system

The FLEXlm licensing system used to administer AVS licenses may already be in use on your system to administer licenses for other products. On Sun networks, for example, use of the SunSoft compiler(s) is controlled by FLEXlm. If other software on your system is already being administered by FLEXlm, see *Administering Licenses*, "Multiple vendors using FLEXlm" for information on how to set up your licensing.

- You want to customize how licenses are allocated on your system

If you are responsible for license administration for your system and you would like to customize the way licenses get allocated, you must be familiar with how licensing works; specifically, you need to understand how the *license.dat* file is used and customized. See all of the overview information in *Administering Licenses*, especially the discussion in "*license.dat* control options."

How licensing works

This section gives a very brief sketch of how the FLEXlm licensing system works. If you want a more detailed description of FLEXlm, see *Administering Licenses.*"

AVS and its associated applications are licensed products of Advanced Visual Systems Inc. Access to AVS is controlled by the Flexible License Manager (FLEXlm) network-wide floating licensing system provided by Globetrotter Software. The FLEXlm system, which is supplied with the AVS product, consists of licensing software, several utility programs that support the licensing mechanism, and associated documentation.

IMPORTANT NOTE: *licdiag* will help you examine and administer your licensing setup. This utility, found in *$AVS_PATH/license,* is designed to help make license installation and administration easier. *licdiag* can be used for most licensing procedures; it is described in detail in *Administering Licenses*, "licdiag".

The license.dat file

The FLEXlm licensing mechanism uses the information in a file named *license.dat* to administer licenses. The *license.dat* file resides in either the */usr/local/flexlm/licenses* directory (its default location) or at the location defined by the **LM_LICENSE_FILE** environment variable. The contents of the file varies somewhat, depending on the kind of license you have purchased; here is a sample of what a *license.dat* file might look like:

```
SERVER menelaus 67069f38 1700
DAEMON avs_lmd /usr/avs/lic/avs_lmd
FEATURE AVS avs_lmd 5.000 1-jan-00 4 FB4FB43AFD04E643099C "" 67069f38
```

The contents of this file determine the assigning of licenses; therefore, it is this file that you install or modify when you add a new license or upgrade an existing one. When you obtain a license from Advanced Visual Systems, you will receive a *license.dat* file that you must then install on your system. **Note:** The "1-jan-00" date indicates "permanent", not "2000".

If you want to know more about the *license.dat* file and how it works, see *Licensing Administration*, "How licensing works."

The licensing daemons

FLEXlm works on the client/server model. The FLEXlm license manager daemon, named *lmgrd,* is the server process, which runs continuously on a host server machine somewhere in your network. The AVS process is the client. When you start AVS, a license request is passed to the *lmgrd* process which, along with another daemon process - the *avs_lmd* vendor daemon - handles and administers the request.

Thus, in order to have licensing work correctly at your installation, you need to have:

- a valid *license.dat* file,
- the *lmgrd* license daemon (FLEXlm version 5.12 or higher) running on the host server, and
- a copy of the *avs_lmd* vendor daemon running on the host server.

Note: Short-term demonstration licenses do not use the licensing daemons. See "Installing a demonstration license" below.

If you want to know more about the licensing daemons and how they work, see *Licensing Administration*, "How licensing works."

Selecting your host server

You must decide which machine in your network will be the host server on which the licensing daemons, *lmgrd* and *avs_lmd* will run; in order to obtain your *license.dat* file, you must provide Advanced Visual Systems with the machine id of this machine. When selecting the host server, some points you should consider are:

- If you have purchased a node-locked license (where AVS executes on a single host workstation), will that same workstation be used as the license server, or will you be using a different machine as the license server? If you are using different machines, you will have to provide Advanced Visual Systems with the machine ids for both machines.

To find out more about node-locked licenses, see *Licensing Administration*, "Using node-locked versus floating licenses."

- Is FLEXlm already being used on your network and, if so, do you plan to use the same licensing daemon and license.dat file for AVS? If so, you must provide Advanced Visual Systems with the same machine id being used in the existing *license.dat* file.

To find out more about multiple-vendor use of FLEXlm, see *License Administration*, "Multiple vendors using FLEXlm."

Once you decide which machine in your network will act as the licensing server, you must obtain a valid *license.dat* file from Advanced Visual Systems or your local distributor. See the next section, "Obtaining a license," for instructions.

Obtaining a license

Whether you are installing a new license or upgrading an existing license, you must obtain the appropriate licensing information from Advanced Visual Systems or your local distributor. This is the information that goes into the *license.dat* file that FLEXlm uses to control licenses. Follow these procedures to obtain the new or upgrade license information.

1. Determine your AVS order number. The order number (format 00xxxx) is written on the envelope inside of the AVS shipment box. A copy of the number may also be on the packing slip

outside the box. Write this order number down. Without it, Advanced Visual Systems cannot quickly verify your purchase.

2. Find the machine id of the host system that you have selected as your licensing server; this is the machine where the *lmgrd* license manager daemon and the *avs_lmd* vendor daemon will be running. If you have purchased a node-locked license, you will also need to get the machine id for the node machine if it is different from the host server.

3. The simplest way to find your machine ids depends on whether you are upgrading an existing license or obtaining a new license.

   - If you are upgrading an existing license:

     The easiest way to re-identify the machine id that is required by your licensing configuration is to locate your existing *license.dat* file and use the machine id that appears on the **SERVER** line of the file. The *license.dat* file is either in the */usr/local/flexlm/licenses* directory or at the location defined by the **LM_LICENSE_FILE** environment variable. In the following example of a *license.dat* file, the machine id is shown in **boldface** type:

     SERVER sherman **machineid** 1700
     DAEMON avs_lmd /usr/avs/license/avs_lmd
     FEATURE AVS avs_lmd 5.000 1-jan-00 4 FB9FE40AF9AA12EEC80A ""

     If you have purchased a node-locked license, the machine id of the node where AVS runs appears at the end of the **FEATURE** line. If this is different from the server machine, you must provide this machine id to Advanced Visual Systems as well:

```
FEATURE AVS avs_lmd 5.000 1-jan-00 4 FB9FE40AF9AA12EEC80A "" machineid
```

     SGI platform note: SGI users cannot use the hexadecimal machine id as it appears in the *license.dat* file. Instead, use the decimal representation produced by the */etc/sysinfo -s command.*

   - If you are installing a new license:

Use option #9 of the *licdiag* utility to obtain the machine id on any UNIX platform. (See *Administring Licenses*, "licdiag", for more information about *licdiag.*)

If the *licdiag* utility is not available, enter the appropriate command - using *rlogin* or *rsh* - on the system(s) you are trying to identify. The machine id is usually not the hostid. Rather, it is a unique number, akin to a serial number. Case ("E" or "e") is not significant. Different platforms have different commands for finding the machine id, as listed in the following table.

Table 2-2. Getting Machine ID on Different Platforms

System type	**Command to obtain machine id**	**Sample result**
HP 9000/7xx	$AVS_PATH/license/lmhostid	77DBB9B3
IBM RS/6000	/bin/uname -m	000018221800
SGI	/etc/sysinfo -s (See SGI platform note below.)	1662007164
SunOS 5.x	/usr/ucb/hostid or /usr/5bin/hostid	230001cd
Compaq Tru64	$AVS_PATH/license/lmhostid	0000f82536ce

SGI platform note: On SGI workstations the command shown above produces a decimal representation of the machine id. This is the number that you should report to Advanced Visual Systems when discussing licensing issues. However, the *license.dat* file requires the hexadecimal representation of the machine id. The license codes that you receive from Advanced Visual Systems are in the correct hexadecimal representation.

4. File a request for a license with Advanced Visual Systems Customer Support. You must provide your AVS order number, your machine ids, and information about your site. The easiest way to do this is using the interactive license request form on our web site *http://www.avs.com*. Look under "Services" and "Licensing" for further information. This web site also provides additional information on common problems users have with licensing and other helpful topics.

   If you are outside the United States or Canada, or if you do not have web access, fill out the "Request for License" form that is inside of the envelope that came with the AVS shipping box. FAX the completed form to the location appropriate for you:

   In the US and Canada, contact Advanced Visual Systems Customer Support:

```
FAX:   781-890-6903
e-mail:   support@avs.com
Phone:   1-800-4AVS-001 (800-428-7001)
```

   - Outside of the US and Canada, contact the local sales office through which you purchased the product.

Once you have relayed this information, Advanced Visual Systems will send you your new *license.dat* file either by FAX or by e-mail. If you are installing a license for the first time, see the following section, "Installing a new license.dat file." If you are upgrading an existing license, turn to "Upgrading an existing license.dat file."

Installing a new license.dat file

If you are installing an AVS license for the first time, you must obtain a *license.dat* file from Advanced Visual Systems. If you have not yet obtained this file, follow the instructions in "Obtaining a license" below to get this information from Advanced Visual Systems.

Once you have obtained your *license.dat* file:

1. Make a backup copy of the original file that you received from Advanced Visual Systems for safekeeping. It is extremely important to keep a copy of the original file for trouble-shooting purposes.

2. Edit the non-backup copy and replace the "unknown" string on the **SERVER** line with the hostname of the server system.

3. On the **DAEMON** line, modify the pathname to the *avs_lmd* binary file if it is incorrect, or if you have moved *avs_lmd* to another location. By default, *avs_lmd* is installed in *$AVS_PATH/license.*

4. Install the file either in */usr/local/flexlm/licenses/license.dat* (its default location) or at another location if you prefer. If you install it in a non-default location, you must set the **LM_LICENSE_FILE** environment variable to point to the new location.

Be extremely careful when editing and copying the *license.dat* file. Let long lines wrap; do not insert carriage returns; and do not modify the file in any way unless specifically instructed to do so.

Once you have installed the *license.dat* file, use the *licdiag* utility to confirm that the file is correct and complete so that licensing will work properly. Turn to "Running licdiag to verify your licensing installation" below.

Upgrading an existing license.dat file

If you are upgrading to AVS 5.5 from a previous release you do **NOT** have to obtain a new *license.dat* file to replace your existing *license.dat* file unless you require a transfer. If necessary, follow the instructions in "Obtaining a license" to get a new license file from Advanced Visual Systems.

Once you have obtained the new *license.dat* file:

1. Locate your existing *license.dat* file. This file is either in the */usr/local/flexlm/licenses* directory (its default location) or at the location defined by the **LM_LICENSE_FILE** environment variable.

2. Make backup copies of both your existing *license.dat* file and the new *license.dat* file for safekeeping. It is extremely important to keep these copies for trouble-shooting purposes.

3. Either replace the old *license.dat* file with the new file, or edit the old file and add the new **FEATURE** and **DAEMON** lines to it, replacing the old **DAEMON** and **FEATURE** lines for the earlier Advanced Visual Systems product(s). The old **FEATURE** line(s) will start with the following:

   ```
   FEATURE AVS . . .
   ```

   It is extremely important that you enter the line exactly as sent. If you received the new **FEATURE** line through e-mail, cut and paste the information into *license.dat.* Let long lines wrap; do not insert carriage returns.

Once you have updated the *license.dat* file, use the *licdiag* utility to confirm that the file is correct and complete so that licensing will work properly. Turn to "Running licdiag to verify your licensing installation."

Installing a demonstration license

If you are installing AVS 5.5 for only a short time - if, for example, you are evaluating AVS on your system - follow the instructions in this section to install a short-term demonstration license.

1. Obtain the daily demo license password from Advanced Visual Systems. In all cases, contact the local Advanced Visual Systems sales office that is working with you.

2. From a UNIX shell, run the program:

   ```
   $AVS_PATH/license/demo_license
   ```

   where *$AVS_PATH* is the name of the directory in which you installed AVS 5.5. The *demo_license* program creates a temporary *license.dat* file in the current directory.

3. When prompted, enter the daily demo license password you obtained from Advanced Visual Systems.

4. Enter the number of days for which the license will be valid; the maximum number shown is the default. You may enter a smaller, but not a larger number. The program then exits, printing an explanation of what to do with the temporary license.dat file that has been created in the current directory.

5. Follow the instructions provided by the *demo_license* program that will make the temporary *license.dat* file available to the licensing system. The easiest approach is to set the **LM_LICENSE_FILE** variable as follows:

```
setenv LM_LICENSE_FILE ‘pwd‘/license.dat
```

   Note: If you are using the FLEXlm licensing mechanism for other products in your environment, **LM_LICENSE_FILE** may already be set for this purpose. If that is the case, append the contents of the temporary *license.dat* file to the *license.dat* file currently in use on your system. Always make a backup copy of the file before you edit it.

Alternatively, if FLEXlm is not currently being used on your system, you can use *mkdir* to create the default */usr/local/flexlm/licenses* directory and copy your new *license.dat* file into that directory. This is the default location for the *license.dat* file, so you do not need to set **LM_LICENSE_FILE** in this case.

Short-term demonstration licenses do not use the licensing daemons so you are ready to run the AVS product once you have completed these installation procedures.

Running licdiag to verify your licensing installation

The *licdiag* licensing diagnostic utility is designed to help you examine and administer your licensing setup. Use this utility, which is installed in *$AVS_PATH/license,* make sure that your *license.dat* file is complete and correct, and that you are using the appropriate version of the FLEXlm-based licensing software. For more information about *Administering Licenses*, "licdiag."

When you invoke *licdiag,* the utility prints out information about your licensing installation. Check this information to make sure that it is complete and accurate. In particular, make sure that machine you have selected as the licensing server is correctly identified. If the server is incorrect or absent, contact Advanced Visual Systems. Although it is unlikely, you may need to obtain a new *license.dat* file.

Once you have confirmed that your installation is set up properly, you must install and/or start the licensing software. See the following section, "Installing the FLEXlm software daemons," for instructions on how to do so.

Installing the FLEXlm software daemons

There are two software daemon processes that are used to administer licensing for AVS: the FLEXlm *lmgrd* license manager daemon and the *avs_lmd* vendor daemon. You must install these software daemons on your system if:

- you are installing an AVS license for the first time, or
- FLEXlm is already in use in your network (either for a previous Advanced Visual Systems product or another vendor's product) but is not FLEXlm version 5.12 or later.

In particular, if you are already running AVS 5.4, you are most likely using FLEXlm version 5.12 already. Earlier versions of FLEXlm do not work with AVS 5.4 and above; you must install and start FLEXlm version 5.12 instead, which will also work for all earlier versions of AVS5.x.

If another vendor is using FLEXlm to administer licensing, see *Administering Licenses*, "Multiple vendors using FLEXlm" for information on how to set up your licensing.

You can use option #4 of the *licdiag* utility to find out what version of FLEXlm is currently running. See *License Administration*, "licdiag" for more information.

Installing the daemons

When you install AVS, the *lmgrd* and *avs_lmd* binary files are put into the $AVS_PATH/licensed directory.

You can either leave these binaries in their default directory or, if you want, move them to another directory on your host server system. Note that if you move *avs_lmd* to another directory, you will need to edit the **DAEMON** line in your *license.dat* file to reflect its new location (see step 3 in "Installing a new *license.dat*' below.

Starting the daemons

You only need to arrange to start the *lmgrd* license manager daemon; *lmgrd* starts the *avs_lmd* vendor daemon (and all other vendor daemons, if there are any) when it initializes. The basic command to start the lmgrd license daemon is:

```
lmgrd
```

Option #1 of the *licdiag* utility provides an easy way to start or restart the *lmgrd* license daemon. See *License Administration*, "licdiag", more information about licdiag.

The easiest way to start the *lmgrd* license daemon for ongoing use is to put the command into your server system's boot file so that *lmgrd* will be automatically started when the system boots. The following command will start *lmgrd* running in background, and direct all transaction messages to the output file *license.logfile:*

```
lmgrd > license.logfile &
```

See *Administering Licenses*, "Starting the lmgrd license daemon", for more information about the *lmgrd* command line. For a complete description of *lmgrd* command line options, see the *lmgrd* manpage.

Step 5: Test Install

Once AVS has been installed and licensed, you can verify its operation by running some of the demos:

First, just try to execute AVS:

```
 $AVS_PATH/bin/avs
```

A message such as "Checkout failed. No such feature exists" indicates a licensing problem (See "Step 4: Licensing" above).

Select "AVS Applications" then "AVS Demo" to access the demo menus. Each pull down menu presents functional areas or sets of demos. For starters, select "General AVS" then "Geometry Viewer". Under the "Objects" menu, try "Transforming Objects" to see basic Geometry Viewer operations. Explore the other areas as your interests dictate. When done, use the "Return" selection on the "Control" menu to return to the top level, then use "Exit" on the "Control" menu to leave the demos. You can abort or pause any script using the script brower window at the bottom.

You will also find a list of demo scripts under the Network Editor. Select the "Help" button on the main Network Editor window, then select "Help Demos" from that panel. This will provide a list of module specific demos useful in learning how the modules work.

Step 6: Tell Users How to Find AVS

This section summarizes what users must do to find AVS. The story is re-described in more detail in the "$Path—Installing and Finding AVS Anywhere in a Directory Tree" section of the *AVS 5 Update* manual.

In order to find AVS, you and all of your users will have to define the AVS **Path** variable. In addition, if the FLEXlm *license.dat* file is located anywhere except in the file */usr/local/flexlm/licenses/license.dat*, users will need to define the **LM_LICENSE_FILE** environment variable.

Briefly, assuming AVS was installed in */u2/avs*, both you and your users would:

1. Add */u2/avs/bin* to your directory file search path.

2. Tell AVS where to find itself by one of three methods, in this order of precedence:

   - Start AVS with the **-path** option:

     ```
     avs -path /u2/avs
     ```

   - or, define **Path** in your personal *.avsrc* file:

     ```
     Path      /u2/avs
     ```

   - or, set the **AVS_PATH** environment variable in one of the user's startup files, usually either *.login* or *.cshrc* (*csh*), or *.profile* (*sh/ksh*).

     ```
     csh:     setenv AVS_PATH /u2/avs

     sh/ksh:  AVS_PATH=/u2/avs
              export AVS_PATH
     ```

     It is convenient to define **AVS_PATH** even if the other mechanisms are used so that one can find AVS files by referring to $AVS_PATH/*filespec*.

   - If none of these is explicitly defined, **Path** will default to */usr/avs*.

3. If the *license.dat* file is anywhere except in the default */usr/local/flexlm/licenses/license.dat* (as viewed from each user's workstation file system hierarchy), then the user must explicitly tell AVS where to find the critical *license.dat* file. To do this, each user must define the **LM_LICENSE_FILE** environment variable in

one of their personal system startup files (usually *.login*, *.cshrc*, or *.profile*).

Assuming the *license.dat* file is being kept in */u2/avs/license/license.dat*:

```
csh:     setenv LM_LICENSE_FILE /u2/avs/license/license.dat

sh/ksh:  AVS_PATH=/u2/avs/license/license.dat
         export AVS_PATH
```

More information on AVS licensing from a user's perspective is found in the online files *<install-dir>/avs/license/user.ps* (PostScript) and *<install-dir>/avs/license/usermessages* (ASCII).

Distribution Contents

All files for this distribution are kept in the directory in which you installed AVS.

The following is a detailed listing of the contents of this release:

avs/LUI
Contains LUI-specific runtime files, the pixmaps for the icons used in AVS.

avs/applications
Contains the command files for the canned applications.

avs/avs_library
Contains the supported module executables. Also contains the Animator executable and the animation module executables.

avs/bin
Contains most of the geometry conversion executables that were created in the *filter* directory and the *avs* and *avs_dbx* programs.

avs/chem_lib
Contains the Chemistry module executables.

avs/data
Contains sample datasets for use with AVS.

avs/demo
Contains a number of demonstration CLI scripts that allow you to more easily explore AVS functionality. You can access the scripts through the Help Demos button on the Help Browser.

avs/demosuite
Contains all the CLI scripts and help text associated with the AVS Demo Suite. You can access the scripts through the AVS Demo button under AVS Applications.

avs/examples
Contains source files for example AVS modules. It also contains a *Makefile* that you should use as a template for your own module make files.

avs/filter
Contains the source and some example data for building geometry tools and for template/example geometry converters.

avs/include
Contains the header files necessary for using the AVS libraries.

avs/lib
Contains the library files necessary for using the AVS libraries.

avs/license
Contains binaries for the license daemons and administrative commands, a sample *license.dat*, and licensing software man pages.

avs/math
Contains information and files to enable a direct interface between AVS and Mathematica™. (See the README file in that directory for more information.)

avs/networks
Contains links to the viewer subdirectories of *avs/applications*, which can be used to access sample networks that make up the canned viewer applications.

avs/relnotes
Contains printable PostScript versions of these *Installation and Release Notes*. The printer must support the Palatino font.

avs/runtime
Contains AVS-specific files that must exist in order to run *bin/avs*, including the online *help* files.

avs/test
Contains an automated test procedure for verifying AVS operation.

avs/unsupp_mods
Contains the unsupported module executables.

Source Code

Source code provided with this release consists of templates and examples that are useful for creating new geometry converters (in *<installdir>/avs/filters*) and AVS modules (in *<installdir>/avs/examples*). The AVS/Animator module source code is now under the *examples* directory as well. For more information see Chapter 3, "AVS 5.5 on UNIX Platforms".

Source code for AVS supported modules may be requested through AVS Customer Support. Please see Chapter 11, "Debugging in AVS5.5" for more information.