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# Installation Guide for Fluent Products and License Software

SYSTEMS: Unix/Linux, Windows

May 1, 2002

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## 1 Unix Operating Systems

This section explains the steps necessary to install and configure Fluent Inc. products for various platforms. For a complete list of software products, hardware platforms, operating systems and current hardware requirements, check the FLUENT User Services Center website at [www.fluentusers.com](http://www.fluentusers.com).

Additional platforms may be available for your product . Please refer to the products' **Supported Platform** list found on the User Service Center website.

### 1.1 System Requirements

! Supported platforms and operating systems vary between products. Use the table below as a guide, only, in determining the correct arch to install for your product.

<i>Platform</i>	Processor or Series	Op System(vary between products)	Product arch
Compaq	Alpha(64-bit)	Tru64(Digital) UNIX 4.0F,5.0A	alpha
HP	pa-8x00	HP-UX 10.20	hpux10p8
HP	pa-8x00	HP-UX 11.0	hpux11
IBM	Power2	AIX 4.3	aix43
IBM	Power3	AIX 4.3	power3
IBM	Power3	AIX 4.3.3 (for 64-bit)	power3
SGI	R4x-R5x	IRIX 6.5	irix5
SGI	R4x-R5x	IRIX 6.5	irix65
SGI	R8000	IRIX 6.5	irix6r8
SGI	R10000,12000	IRIX 6.5	irix6r10
SGI	R8x-R12x	IRIX 6.5	irix65_mips4
SGI	R10000 (O2)	IRIX 6.5	irix5
Sun	Ultra	Solaris 2.6, 7, 8	ultra
PC	Intel Pentium	Redhat Linux 6,7	lnx86

Online release notes for Fluent Inc. products are available in each product's **info** subdirectory (e.g., `Fluent.Inc/fluent6.0/info`). The release notes list the new features in each release, as well as other information. Consult the **README** file in that directory for descriptions of the available documents.

#### 1.1.1 Disk Space Requirements

#### 1.1.2 Memory and Swap Space

A minimum of 128 MB RAM is required, with a recommended 500 MB of additional swap space. Larger problems, in particular 3D cases with complex physical models, require considerably more swap space. For optimal performance, please be sure your RAM is always larger than the value recommended.

Table 1.1: Disk Space Requirements (MB)

<i>Product Installation</i>	Minimum Disk Space Requirement
FLUENT 4	106 MB
FLUENT 6	100MB (64-bit will require 2x space)
FIDAP	70-120 MB (dependent on op sys)
GAMBIT	70-130 MB (dependent on op sys)
MixSim	41 MB
TGrid	13 MB
FLUENT/Post	10 MB
POLYFLOW	36 MB

### 1.1.3 Graphics Requirements

Fluent Inc. products support various graphics display drivers depending on the system. The software will attempt to choose the best driver depending on the graphics hardware and system software found. Support for the X11 Windows driver is universal over all Unix systems and this driver will be selected if no other choice is detected. Driver-specific information is available under product hardware requirements found on the Fluent Inc. User Services Center website at [www.fluentusers.com](http://www.fluentusers.com).

### 1.1.4 Third-Party Software Recommendations

Complete documentation for your product will be available on a documentation CD. For immediate and general access, HTML versions of the manuals are available and can be viewed with a standard web browser (e.g., Netscape Communicator). For printing, PostScript and Adobe Acrobat PDF versions of the manuals are also provided. Both Netscape and Acrobat are free and can be downloaded from the web. If you are unable to download the programs, contact your technical support engineer for a Netscape Communicator/Adobe Acrobat CD.

## 1.2 Mounting the CD-ROM

You may skip this section if your CD-ROM is mounted automatically.

If the CD-ROM drive is not mounted automatically by your system, you need to know its device name so you can mount it, and then mount the CD-ROM according to the directions provided with your operating system. **This requires root permissions.**

Refer to the table below for sample mount commands. The examples use `/cdrom` as the mount-point directory. Any empty directory can be used as the mount point but it must exist or be created on your system before you can use the mount commands. The examples use *device* to refer to the CD-ROM device name. The *device* name and mount commands will vary from system to system. Refer to your man pages on mount for details.

System	mount command examples
Solaris	<code>mount -F hsfs -r /dev/dsk/<i>device</i> /cdrom</code>
Alpha	<code>/sbin/mount -o noversion,rrip -t cdrfs /dev/<i>device</i> /cdrom</code>
IBM	<code>mount -rv cdrfs /dev/<i>device</i> /cdrom</code>
SGI	<code>mount -rt iso9660 -o notranslate /dev/scsi/<i>device</i> /cdrom</code>
Linux 7	<code>mount /dev/cdrom mnt/cdrom</code>
HP (see below)	<code>pfs_mount -t rrip /dev/dsk/<i>device</i> /cdrom</code>

### 1.2.1 pfs\_mount (for HP platforms only)

Fluent Inc. CD-ROMs are recorded using the ISO-9660 format. This format, which requires support for long file names, is not supported directly under HP-UX 9.x or 10.x. Instead of using the HP-UX mount and umount commands to mount/unmount the CD-ROM, use the pfs\_mount and pfs\_umount commands.

#### Mounting the CD

Logged on as root, use pfs\_mount to mount the CD-ROM. You must include /usr/sbin in your \$PATH. This example refers to a CD-ROM device mounted at the point /cdrom.

```
pfs_mountd &
pfsd 4 &
pfs_mount -t rrip /dev/dsk/device /cdrom
```

#### Unmounting the CD

In order to eject a CD from the drive, your system may require you to unmount the CD. When all the files have been copied, unmount the CD:

```
pfs_umount /cdrom
```

Remove the disk from the CD reader and store it in a safe place.

## 1.3 Installing a Release

### Online Installation Support

Access FAQs and Installation Support at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

#### 1.3.1 Selecting a Location to Install the New Release

Throughout the rest of this document, “*path*” refers to the directory where you have chosen to place the release.

- ! The installation will create the `Fluent.Inc` directory structure under the *path*, which can be located anywhere if enough disk space is available (see Section 1.1.1). You will need write permissions in this directory in order to install the release.

“*arch*” will refer to the platform architecture specific to your hardware and operating system. A complete list of all *archs* is shown in Table 1.1.

A complete software installation includes the following:

- Installing a Fluent Inc. software product.
- Installing the Accessories or PrePost CD software components.
- Installing the license key.
- Installing a documentation CD.

#### 1.3.2 Installing a Release from CD-ROM

The contents of the CD-ROMs are product-specific. The layout of each is very similar to each other. An example of the contents for a FLUENT 6 CD consists of:

```
README.TXT  VERSIONS.TXT  fluent_install  bin/  lib/  fluent6.0/
info/       license/      utility/       prepdf4.0/
```

The `README` file may contain product-specific installation notes that you should refer to before beginning the installation procedure. The `VERSIONS` file contains a list of programs and platforms contained on the CD. `fluent_install` is the installation script that will install the product to your system.

1. Place the software product CD-ROM in your CD drive. Verify that your CD-ROM drive is mounted by accessing the directory that it has been mounted to. We will refer to this directory as `/cdrom` for the remaining instructions.

```
cd /cdrom
ls -l
```

2. Run `fluent_install` from the software product CD by typing:

```
./fluent_install
```

The installation program will prompt you for the installation location (the `Fluent.Inc` directory will be installed under this location). The installation will provide a list of products and archs that are on the CD. You will be able to specify what is to be installed.

3. Place the Accessories or PrePost CD in your CD drive. Run `fluent_install` from this CD, installing the software to the same location as the other Fluent products, by typing:

```
./fluent_install
```

4. Install the license key.

All Fluent Inc. software products require a license. License files are not included on the CD-ROM. Contact your local Fluent Inc. office for your license key or refer to Section 4 of this document. Once you have obtained your license file, refer to Section 1.4 for complete license installation instructions.

### 1.3.3 Installing a Release from Tape or ftp

By special request, tapes can be created for installations. A tape is created using the Unix `tar` command. To extract the tape contents, `cd` to the directory you have selected to install the programs in and use `tar` to extract the files:

```
cd path  
tar xv
```

This will create the `Fluent.Inc` directory hierarchy in the current directory *path*.

### 1.3.4 Installing an Upgrade

Upgrades under the same *arch* as a previous release may be installed in the same directory (i.e., on top of the previous release, if you have it). (Note that this requires installing the tape or CD-ROM as the same user who installed the previous release(s) or installing as the “root” or “super” user.) This will prevent the unnecessary duplication of common files, and will eliminate the need to synchronize multiple license files. With the exceptions of FIDAP and POLYFLOW, you will be able to continue using the previous release(s) by passing the “-r#” argument on the program command lines, where # is replaced by the program release numbers (e.g., 4.3). This new release contains all functionality of the old release, so you may wish to delete the previous release once you are comfortable with the new one. Before doing so, make sure you either have the original installation of the earlier release, or have made a complete backup of it. To delete the program from a previous release, remove the numbered program directory from the `Fluent.Inc` directory tree. For example,

```
rm -rf path/Fluent.Inc/tgrid3.4  
rm -rf path/Fluent.Inc/fluent6.0
```

## 1.4 License Installation

### 1.4.1 Overview

Fluent Inc. software products incorporate the FLEXlm™ license manager software. The license manager software requires a license key that you must obtain from your local Fluent Inc. distributor (see Section 4 for details).

The function of the license manager program is to control access to the licensed products by counting how many licenses are checked out. There are three types of licenses: floating/networked, unserved node-locked, and demo. Floating/networked licenses allow you to run a fixed number of copies of the software while the unserved node-locked license allows unlimited use of the software on a specific machine. A demo license allows the use of the software on any machine but has a 30-day time limitation. Most issued licenses are of the floating-license type.

The contents of a typical floating license key are similar to the following:

```
SERVER bigiron 230002e6 7241
DAEMON FluentLm path/Fluent.Inc/license/arch/FluentLm
FEATURE fluent FluentLm 5.400 1-oct-2002 2 EB48COF1C787B8DA6871 ""
FEATURE gambit FluentLm 1.000 1-oct-2002 2 BBC830D191FE38A2D6EC ""
FEATURE fluent-post FluentLm 1.000 1-oct-2002 20 5C8409BB174C91BB4446 ""
FEATURE polyflow FluentLm 1.000 1-oct-2002 2 7CE522951F30DBE811A8 ""
FEATURE fidap FluentLm 1.000 1-oct-2002 2 7CE522951F30DBE811A8 ""
FEATURE fisolv FluentLm 1.000 1-oct-2002 2 ACC592F5B228A6670C16 ""
FEATURE fidap-post FluentLm 1.000 1-oct-2002 4 DC35C285D63F652FF842 ""
FEATURE fluentall FluentLm 1.000 1-oct-2002 20 FC54399B130A9592817F
```

The **SERVER** line indicates the hostname, hostid, and network port number of your license server machine.

The **DAEMON** line indicates the daemon that your software product requires. Your license file may include multiple daemon and feature lines referencing **FluentLm** and **Fluentd**.

Demo and node-locked licenses do not require these lines although a **DAEMON** line may be present in your file.

### 1.4.2 Updated or Renewed Licenses

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key as a text file named **license.dat**.
3. Modify the **DAEMON** line in your **license.dat** file to provide the absolute path to the **FluentLm** or **Fluentd** file. Replace *path* with the location of your **Fluent.Inc** installation and *arch* with the appropriate platform name. The value of *arch* is determined by the value returned by the command **fluent\_arch** (supplied with your Fluent Inc. software).

4. Place a copy of `license.dat` in your `path/Fluent.Inc/license` directory.

If the license manager has been running from a previous installation, replace the old license file with the updated license, **shut down** the license manager, then **restart** the license manager. (Refer to Sections 1.4.6 and 1.4.8 for details.)

### 1.4.3 Demo or Unserved Node-Locked License

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key as a text file named `license.dat`.
3. Place a copy of `license.dat` in your `path/Fluent.Inc/license` directory.

Demo or unserved node-locked licenses require no further configuration setup and you are ready to start the software.

### 1.4.4 Floating/Networked or Served License

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key as a text file named `license.dat`.
3. Modify the `DAEMON` line in your `license.dat` file to provide the absolute path to the `FluentLm` or `Fluentd` file. Replace `path` with the location of your `Fluent.Inc` installation and `arch` with the appropriate platform name. The value of `arch` is determined by the value returned by the command `fluent_arch` (supplied with your Fluent Inc. software).
4. Place a copy of `license.dat` in your `path/Fluent.Inc/license` directory.

### 1.4.5 Alternate License File Locations

By default, Fluent Inc. products will look for the `license.dat` file according to the order shown below. You may choose to use the environment variables to control the search path of the `license.dat` file.

- `FLUENT_LICENSE_FILE`. You may create this environment variable to point to the location of your license file. This variable is reserved for Fluent Inc. products and will over-ride any other license settings.
- `installation location\license\license.dat`.
- `LM_LICENSE_FILE`
- `/usr/local/flexlm/licenses`

## 1.4.6 Starting the Unix/Linux License Manager

You have several options for starting the license manager daemon.

- Start a software application. When an application that requires the license manager is invoked and the license manager is not already running, it is automatically started. There is a slight delay the first time the software is run while the license manager is started.
- Start the license manager every time your machine is booted. This requires running the license manager with root permissions and dealing with complex system configuration files, but is the most robust method for networks in which you will be using multiple workstations to run our software. If you choose this option, it is assumed that you know how to install commands that are run at boot time on your platform(s). The command you need to add is the following:

```
path/Fluent.Inc/license/arch/lmgrd \  
-c path/Fluent.Inc/license/license.dat 1> log-file 2>&1 &
```

where you should replace *path* and *arch* as explained in Section 1.4.4, and *log-file* is where you would like diagnostic information to be written, e.g.,

```
path/Fluent.Inc/license/license.log
```

If you have any problems with the license manager while running our software, this file is the first place to look.

- Start the license manager interactively at the shell command prompt. If you are using the Bourne, Korn, or a compatible shell, enter the command as shown above. If you are instead using the C shell or one of its derivatives (e.g., *tcsh*), the proper syntax is

```
path/Fluent.Inc/license/arch/lmgrd \  
-c path/Fluent.Inc/license/license.dat >& log-file &
```

These commands will start the license manager daemon as a background process. The license manager daemon will continue to run in the background even after you log off. The drawback to starting the daemon interactively is that if for some reason your computer is rebooted (from loss of power, hardware failure, etc.), you'll have to manually reissue the command to start the daemon.

## 1.4.7 Configuring a Client Machine

The license server can operate in a mixed-platform environment. Windows or Unix systems running across the same network can reach the license server if properly configured.

### Requirements

- Configured TCP/IP network protocols between the license server and each client machine.

- A copy of `license.dat` must exist or be accessible on every computer in your network that should have access to the license server. By default, the file should be located in the `Fluent.Inc/license` location. You may use an environment variable to point to an alternate location. Refer to Section 1.4.5.

### 1.4.8 License Manager Utilities

The FLEXlm™ product includes tools for monitoring and checking the status of license usage. A few are mentioned below. For a complete description of license utilities, the FLEXlm™ End User Manual can be downloaded from [www.globetrotter.com/manual.htm](http://www.globetrotter.com/manual.htm).

#### Stopping the License Manager

To shut down the license manager daemon, enter

```
lmdown -c path/Fluent.Inc/license/license.dat
```

where it is assumed that you have added `path/Fluent.Inc/bin` to your Unix command path.

#### Checking License Status

You can display information on the status of the license manager by entering the command

```
lmstat -c path/Fluent.Inc/license/license.dat
```

after you have added `path/Fluent.Inc/bin` to your Unix command path. Several additional arguments can be passed to `lmstat` to customize its output; enter

```
lmstat -man
```

for more details.

#### Reading a License File

If the license manager is running from a previous installation and you received an updated license where **only** expiration dates have changed, replace the old license file with the updated license and instruct the computer to read the new license by using the following command:

```
lmreread -c path/Fluent.Inc/license/license.dat
```

### 1.4.9 Common License Manager Problems on Unix Systems

A common problem at installations that use more than one FLEXlm™-based product is incorrect usage of the `LM_LICENSE_FILE` environment variable. If you have this variable defined at the time the program startup command is invoked, the startup command automatically appends a colon and

```
path/Fluent.Inc/license/license.dat
```

to the end of your existing definition. If the original definition refers to a file with incorrect license information, or with server information that is inconsistent with your Fluent Inc. licenses, you may receive errors when our software attempts to check out a license. In such cases, you should remove the original `LM_LICENSE_FILE` definition. (If you have not predefined `LM_LICENSE_FILE`, the commands that start our software define it appropriately for you.)

## 1.5 Running the Programs

In order to run Fluent Inc. software, you need only add `path/Fluent.Inc/bin` to your execution path. You can do this in the C shell and its derivatives by entering

```
set path = (path/Fluent.Inc/bin $path)
```

or in the Bourne or Korn shell by entering

```
PATH=path/Fluent.Inc/bin:$PATH
export PATH
```

You will most likely want to add these statements to your `$HOME/.cshrc` (C shell) or `$HOME/.profile` (Bourne/Korn shell) file for regular use.

Once the `Fluent.Inc/bin` path has been properly set, you can start the programs by entering the program names (in lowercase) from any directory on your system. Refer to the product's Getting Started manual or User's Guide.

### 1.5.1 64-Bit Versions

Some products may support 64-bit addressing. A 64-bit version is required **only** when your problem size exceeds the 32-bit process address space. Most problems with less than 2 million cells will fit within a 32-bit address space. For parallel processing, it's 2 million cells **per compute node**. To use a 64-bit version, add the flag `-64` to the command line when starting a program.

## 1.6 Using the Documentation CD-ROM

The documentation is available in several formats on product-specific documentation CDs. This CD allows you to view and print the documentation independent of the software and a license file. Formats included on a documentation CD are:

- HTML, which can be viewed with your standard browser (e.g., Netscape Communicator)
- PostScript, which can be used for printing files to a PostScript printer
- Adobe Acrobat PDF, which can be used for both viewing and printing files with Adobe Acrobat Reader

## 1.6.1 Installing the Documentation CD-ROM

### Documentation Installations Released AFTER Nov. 2001 -

Products released after Nov. 2001 require the installation of the documentation CD for access to online **Help** from within the software. If you choose to access the documentation independent of the software, this can be done directly from the CD or from an alternate installation location on your hard disk. Installations options:

- Online Help Installations –

Insert the Documentation CD and run *install*. The software will attempt to locate the installed software product or prompt you for that location. A `/help` directory will be created under the product location and the documentation will be installed to that location. Once completed, online **Help** from within the software product will be available.

- Alternate Installation Locations –

You may choose to use documentation independent of the software location. You may access the software directly off the CD or install the documentation to an alternate location independent of the software. Insert the Documentation CD and run *install*. You will be prompted for the location to install the software. You may specify any alternate location.

### Documentation Installations Released BEFORE Nov. 2001 -

If you want to access the documentation independent of the software's online **Help**, you can access the manuals directly from the CD or you can install the documents to your hard disk.

With your CD-ROM drive mounted, run the Unix installation program, `install`, found on the CD. Change to the cd drive, then type:

```
./install
```

You will be prompted for the location to install the files. Enter the *path* to your `Fluent.Inc` location. For example:

```
/usr/software/apps/
```

The installation will create a `manuals` subdirectory under the `Fluent.Inc` directory and install the HTML files. Then you will be asked if you want to install PostScript or PDF files. The amount of disk space required for these two formats will be displayed to the screen.

## 1.6.2 Viewing the Documentation from the CD-ROM or Hard Disk

Viewing the online **Help** or HTML files requires a web browser, i.e. Netscape Communicator. Viewing the PDF formatted files requires Adobe Acrobat Reader. You may download Adobe Acrobat Reader from the Adobe website at [www.adobe.com](http://www.adobe.com).

If you do not have access to a browser or Acrobat Reader, please contact your technical support engineer and ask for the Netscape Communicator/Adobe Acrobat CD.

Details on navigating the documentation can be found in your Getting Started manual.

To view the HTML files directly from the CD, point your browser to */cdrom/index.htm*, where *cdrom* is the name of your CD-ROM drive. For documentation CDs created after Dec. 2001, point your browser to the *index.htm* file found under the *product/help* directory.

Details on navigating the documentation can be found in your Getting Started manual.

## 1.7 Public-Domain Utilities

Several freely-redistributable **unsupported** software packages are provided in the *path/Fluent.Inc/contrib* directory, which can be installed from the Accessories or PrePost CD. The compressed sources for all packages are included, as well as executables for your platform (available on most Unix platforms). The *contrib* area includes at least the ImageMagick image display and manipulation package and the Berkeley MPEG encoding and playback software.

The executables are located in *path/Fluent.Inc/contrib/bin/arch*. To run these programs, you must add this directory to your path. Documentation for the programs is included in the sources for each package.

## 2 Windows

This section explains the steps necessary to install and configure Fluent Inc. products for Windows platforms.

Online release notes for Fluent Inc. products are available in each product's `info` subdirectory (e.g., `Fluent.Inc/fluent6.0/info`). The release notes list the new features in each release, as well as other information. Consult the `README` file in that directory for descriptions of the available documents.

### 2.1 System Requirements

#### 2.1.1 Hardware

- CPU: Intel Pentium Family of Processors.
- Video graphics device with minimum of 1024 x 768 resolution and 4096 colors. 24-bit color is recommended.
- Windows compatible 3-button mouse is recommended.
- CD-ROM drive. All Fluent Inc. products are distributed on CD-ROM.
- Ethernet adapter card.

#### 2.1.2 Operating System

- Windows NT 4.0 (Service Pack 5 or higher).
- Windows 2000 (Service Pack 1 or higher).
- TCP/IP network transfer protocol.
- Exceed X Server for GAMBIT and FIDAP installations (see note below).

! Note: Exceed X Server is included in shipments of GAMBIT and FIDAP for commercial clients. Earlier versions of Exceed may be used, but Fluent Inc. support will be limited to the version of Exceed shipped with the Fluent Inc. products.

Exceed 3D is required for support of the OpenGL graphics mode. Fluent Inc. does not distribute this version. Please contact Hummingbird Software at [www.hummingbird.com](http://www.hummingbird.com).

#### 2.1.3 Disk Space Requirements

Minimum disk space requirements for the various products are shown below.

Product	Minimum Disk Space Requirement
FLUENT 4.5	35 MB
FLUENT 6	30 MB serial, 90 MB serial + parallel
FIDAP	65 MB
POLYFLOW	85 MB
MixSim	8 MB
GAMBIT	65 MB

## 2.1.4 Memory and Swap Space

64 MB of RAM is the minimum requirement with at least 128 MB minimum recommended for complex 3D problems. Approximately 1 MB RAM/per 1000 cells should be used as a baseline to determine adequate memory. The size of your Windows swap file should not be smaller than the amount of RAM in your system. For best results, your swap file size should be at least 1.5 times larger than your RAM. For example, if you have 64 MB of RAM, your swap file should be at least 96 MB.

## 2.1.5 Networking Protocols

Fluent Inc. products use FLEXlm<sup>TM</sup> for license management. If you choose to employ the FLEXlm<sup>TM</sup> floating license manager on a PC, your designated license server computer must be running Microsoft Windows NT 4.0 Workstation, Microsoft Windows NT 4.0 Server, or Windows 2000 Professional or Win2k Server. TCP/IP must be configured on the license server and all computers intended for access to the license file.

## 2.1.6 Graphics Support

Fluent Inc. supports Professional OpenGL graphic cards.

## 2.1.7 Third-Party Software Recommendations

Complete documentation for your product will be available on a documentation CD. For immediate and general access, HTML versions of the manuals are available and can be viewed with a standard web browser (e.g., Netscape Communicator). For printing, PostScript and Adobe Acrobat PDF versions of the manuals are also provided. Both Netscape and Acrobat are free and can be downloaded from the web. If you are unable to download the programs, contact your technical support engineer for a Netscape Communicator/Adobe Acrobat CD.

## 2.2 Installing a Release

### Online Installation Support

Access FAQs and Installation Support at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

### 2.2.1 Selecting a Location to Install the New Release

Each product **setup** program uses the default directory `C:\Fluent.Inc` in which to install Fluent Inc. products. You are allowed to change the destination drive and directory. (Directory names containing blank spaces, i.e. *Program Files*, may be problematic for some products). If you are installing multiple Fluent Inc. products, we advise installing them to the same location. This will prevent unnecessary duplication of common files. See Section 2.1.3 to determine the disk space requirements for each product.

A complete software installation includes the following:

- Installing a Fluent Inc. software product.
- Installing the PrePost CD software components if included in your package.
- Installing the Exceed X-Server software CD (required for GAMBIT and FIDAP).
- Installing the license software and a license key.
- Optional: installing a tutorial CD (not available for all products).
- Installing a documentation CD.
- Setting Initialization Files

### 2.2.2 Windows NT and Windows 2000 Permissions

Windows systems provide many levels of security management. Depending on the environment you are working in, you may encounter any of the four main types of preconfigured security user groups. The following table displays the groups and the installation ability determined by the default permissions of each group.

**Y** = installable as this group type. **N** = not installable as this group type.

User Group Type	Software	Documentation CD	Exceed
User NT 4.0	Y	Y	N
User W2k	Y	Y	N
Power User W2k	Y	Y	Y
Administrator	Y	Y	Y

W2k Power User is basically the equivalent of an NT 4.0 User type.

### 2.2.3 Installing a Release from CD-ROM

1. Insert the product CD into your CD-ROM drive.
2. From the **Start** menu, click **Run**. Click **Browse** to view the contents of the CD-ROM. There will be a **setup** program in each software product folder. Select **setup**, then click **OK**.

Follow the instructions of the **setup** program. You may change the destination default drive but we recommend using the default directory, **Fluent.Inc**, and default Programs group name, **Fluent Inc**.

3. Run **setup** for each software product you want to use from the PrePost CD if this CD is included with your package.
  - Install **flpost** (FLUENT/Post) for additional graphical postprocessing capabilities.
  - Install **tfilter** for import file options that can be used in all products.

- Install **license** on your designated license server machine if you are configuring a floating/networked license. FIDAP requires license software installation on all machines.
  - Install **prePDF** for FLUENT 4.5 chemical reaction/combustion model designs.
4. Run **setup** for the Exceed X Server software if you are using GAMBIT, FLOWLAB, or FIDAP. This requires Administrator privileges. (If you have an earlier version of Exceed installed on your system, you may omit this step, but we will not be able to support problems with Exceed installations other than the version that is shipped with our products.)
  5. Set the environment variables. This is required to run any program from a Command Prompt window. (GAMBIT, FIDAP, POLYFLOW, and parallel codes must be run from a Command Prompt.)

From the **Start** menu, select **Programs**→ **Fluent Inc**→ **Set Environment**.

6. Set required initialization files.

## 2.2.4 Initialization Files

### FIDAP

FIDAP installations require a TMP or Temp environment variable. You will need to create this manually if it does not exist on your system. The variable may point to a temporary directory on any hard disk partition. Users must have write privileges to this directory.

### FLOWLAB

To maintain a good working environment in a cluster of networked computers, it is recommended that a Flowlab.ini file be created for each user before using the FLOWLAB software. Flowlab.ini should contain 2 variables that point to the location of template files included with the software and the user's work directory:

```
FLOWLAB_WORK_DIR drive:\<<home>\myflowlab
FLOWLAB_TEMPLATE_DIR drive:\<<installArea>\flowlab1.0\templates
```

where *drive* is the name of the hard drive;

where <home> is each user's working directory;

where <installArea> is the installation location of the FLOWLAB software.

When FLOWLAB starts, it will search for Flowlab.ini in the following order:

1. HOME – if a user's HOME environment variable is set;
2. A working directory that may have been created for each user login account defined in Windows Profiles.

If Flowlab.ini cannot be located, the FLOWLAB software program will prompt the user for the location of the templates and a FLOWLAB working directory. This information will be stored in the Flowlab.ini file which will be written to the HOME location or the user's login account if the HOME environment variable does not exist.

## 2.2.5 Installing an Upgrade

Upgrades can be installed in the same directory as the previous release. This will prevent the unnecessary duplication of common files, and will eliminate the need to synchronize multiple license files. You will be able to continue using the previous release(s) by selecting the version-specific product icon. Some products may also use the “-r” or “-v” argument on the DOS command line to invoke a specific version. Please refer to the product documentation for command-line options.

The new release contains all functionality of the old release, so you may wish to delete the previous release once you are comfortable with the new one. To delete a previous release, remove the numbered program directory from the `Fluent.Inc` directory tree. (Fluent Inc. software does not write to the Windows registry). For example, if directories for `gambit1.0` and `gambit1.1` exist on your system, you may delete the earlier release by removing the `gambit1.0` folder.

For detailed instructions, please refer to the Windows FAQ *Uninstalling a Fluent Product* from the web at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

## 2.3 License Installation

### 2.3.1 Overview

Fluent Inc. software products incorporate the FLEXlm™ license manager software. The license manager software requires a license key that you must obtain from your local Fluent Inc. distributor. See Section 4 for details.

The function of the license manager program is to control access to the licensed products by counting how many licenses are checked out. There are three types of licenses: floating/networked, unserved, and demo. Floating/networked licenses allow you to run a fixed number of copies of the software while the unserved node-locked license allows unlimited use of the software on a specific machine. A demo license allows the use of the software on any machine but has a 30-day time limitation. Most issued licenses are of the floating-license type.

The contents of a typical floating license key are similar to the following:

```
SERVER bigserve 00b0dd29d86a 7241
DAEMON FluentLm fluentLm.exe
FEATURE fluent FluentLm 5.400 1-oct-2002 2 EB48C0F1C787B8DA6871 ""
FEATURE gambit FluentLm 1.000 1-oct-2002 2 BBC830D191FE38A2D6EC ""
FEATURE fluent-post FluentLm 1.000 1-oct-2002 20 5C8409BB174C91BB4446 ""
FEATURE polyflow FluentLm 1.000 1-oct-2002 2 7CE522951F30DBE811A8 ""
FEATURE fidap FluentLm 1.000 1-oct-2002 2 7CE522951F30DBE811A8 ""
FEATURE fisolv FluentLm 1.000 1-oct-2002 2 ACC592F5B228A6670C16 ""
FEATURE fidap-post FluentLm 1.000 1-oct-2002 4 DC35C285D63F652FF842 ""
```

FEATURE fluentall FluentLm 1.000 1-oct-2002 20 F1C54399B130A9592817F

The **SERVER** line indicates the hostname, hostid, and network port number of your license server machine.

The **DAEMON** line indicates the daemon that your software product requires. Your license file can include multiple daemons or feature line referencing either **Fluentd** or **FluentLm**.

### 2.3.2 Updated or Renewed Licenses

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key to a text file named **license.dat**. If you do not know how to save the file or confirm the name of the file, please refer to Section 2.3.8.
3. Replace the existing **license.dat** in your *path*\license directory with the new license. The default for most licenses is *path*\Fluent.Inc\license, where *path* is the location of your software installation.
4. If you have a floating license (identified by a **SERVER** line in the **license.dat** file), you must reboot or **stop** and **restart** the license server. Refer to Section 2.3.5 for details.

### 2.3.3 Demo or Unserved Node-Locked License

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key to a text file named **license.dat**. If you do not know how to save the file or confirm the name of the file, please refer to Section 2.3.8.
3. Place **license.dat** in your *path*\Fluent.Inc\license directory, where *path* is the location of your software installation.
4. FIDAP installations require the license software. From the PrePost CD, choose the **License** folder and run **setup.exe**.

Demo or unserved node-locked licenses require no further configuration setup

### 2.3.4 Floating/Network or Served License

#### Overview

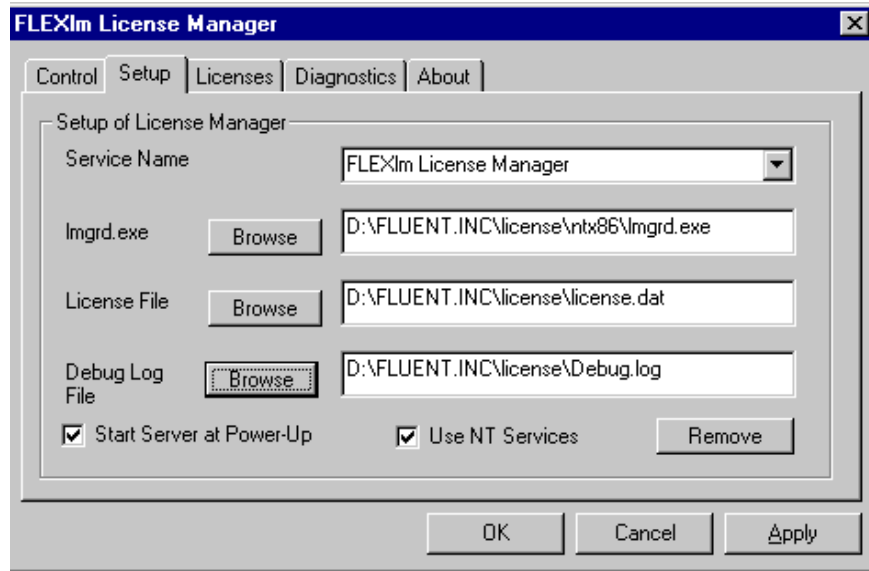
A floating license key defines the computer that you have designated as the license server. The name and Host ID of this machine is found on the **SERVER** line of the key. The license software gets installed and configured on the machine designated as the license server. Each client machine must have a copy or access to a copy of the **license.dat** file. Then, the license server and client machines use the **license.dat** file and communicate via TCP/IP network protocols to check licenses in and out.

## Requirements

- Configured TCP/IP network protocols between the license server and each client machine. Refer to your operating system guide.
- Write permissions to the **C:** drive on the computer designated as the license server. (The license manager software will create **C:\flexlm** to hold temporary files.)
- Administrator privileges for configuring an automatic license startup.
- A copy of or access to the **license.dat** must exist on every computer in your network that should have access to the license server.

### 2.3.5 Starting the Windows License Manager

1. Obtain a license key from your local Fluent Inc. distributor. See Section 4 for details.
2. Save the license key to a text file named **license.dat**. If you do not know how to save the file or confirm the name of the file, please refer to Section 2.3.8.
3. Log on to the machine designated as the license server. You must have Administrator privileges.
4. Install the license server software. This may be included on your product CD. If not, from the PrePost CD, **Browse** to the License directory. Run **setup**.
5. Place a copy of **license.dat** in your *path*\Fluent.Inc\license directory, where *path* is the installation location of the software on your system.
6. Open the FLEXlm License Manager panel shown below by selecting **Start**→ **Programs**→ **Fluent Inc**→ **License Server**. (If the **License Server** item is not on your menu, you have an earlier release of the license software and can access this panel from Windows Explorer. From Explorer, double-click **flexlm.cpl**, which will be found in the **Fluent.Inc\license\ntx86** folder.)



7. Click the **Setup** tab on the FLEXlm License Manager panel. You need to modify each input box shown on the panel, defining your installation-specific locations of each item shown on the panel.
  8. Click in the Service Name box. You may use the default Service Name or rename it (i.e, **Fluent License Manager**). This is convenient when you have other FLEXlm™-based products. Do NOT create more than one Service Name per license.
  9. Click the Imgrd.exe **Browse** button and browse to the directory where this file is located. The default location of an Intel Windows system is shown in the panel above.
  10. Click the License File **Browse** button and browse to the directory where this file is located. The default location of an Intel Windows system is shown in the panel above.
  11. Click the Debug Log File **Browse** button and browse to a directory that you will use for writing log files. The directory must exist and be writable. The log file may have any name.
  12. Click the check boxes for Start Server at Power-Up and Use NT Services.
  13. Click **Apply**.
  14. Click **OK**.
- !
- If you were not logged on as Administrator, you will not be able to start an Windows Service.
15. Select the **Control** tab and click **Start**. If your setup and your permissions are correct, a “Server Started” message will be displayed and the server configuration is completed. (License services may also be stopped and started from

the Control Panel. Open the **Services** applet, choose FLEXlm License Manager, and click **Start**.)

### 2.3.6 Configuring a Client Machine

The license server can operate in a mixed-platform environment. Windows or Unix systems running across the same network can reach the license server if properly configured.

#### Requirements

- Configured TCP/IP network protocols between the license server and each client machine.
- A copy of the `license.dat` file must exist or be accessible on every computer in your network that should have access to the license server. By default, the file should be located in the `Fluent.Inc\license` location or you may use an environment variable to point to an alternate location. See below.

You may create User or System environment variables to point to alternate locations on Windows systems, as described below.

#### Alternate License File Location on Windows Systems

By default, Fluent Inc. products will look for the `license.dat` file according to the order shown below. You may choose to use the environment variables to control the search path of the `license.dat` file.

- `FLUENT_LICENSE_FILE`. You may create this environment variable to point to the location of your license file. This variable is reserved for Fluent Inc.products and will over-ride any other license settings.
- *installation location\license\license.dat*.
- `LM_LICENSE_FILE`
- `C:\flexlm\license.dat`

You may set a variable from the Control Panel **System** properties. Refer to the Windows FAQs at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

### 2.3.7 License Manager Utilities

The FLEXlm<sup>TM</sup> product includes tools for monitoring and checking the status of license usage. Use `lmtools.exe`, which is found in the `Fluent.Inc\License\ntx86` folder. For a complete description of license utilities, the FLEXlm<sup>TM</sup> End User Manual can be downloaded from [www.globetrotter.com/manual.htm](http://www.globetrotter.com/manual.htm).

### 2.3.8 Common License Manager Problems on Windows Systems

Please visit the Fluent Inc. support FAQs at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

## 2.4 Running the Programs

! Details on running all programs can be found in the product's Getting Started manual which is included in software packages.

The installation of most products will create a shortcut icon under the **Fluent Inc** program group. **If an icon is not created**, that program **must** be started from a DOS command prompt. Currently, **GAMBIT, FIDAP, POLYFLOW, and parallel codes must be started from the command prompt.**

To start a program from the program icon: Double-click the program icon from the **Fluent Inc** program group menu.

To start a program from the MS-DOS command prompt:

1. Set the **FLUENT\_INC** environment variable. From the **Start** menu, select **Programs**→ **Fluent Inc**. Choose **Set Environment**. Click **OK** to modify the environment.
2. Open a Command Prompt window. From the **Programs** menu, select **Command Prompt**. Your user account setup will determine the directory that you are in when you open the Command Prompt window. This is referred to as the working directory. You may want to use this directory or create and move to another directory before you start a program.
3. Start the program by typing the program name and program argument list.

*program\_name* [*argument\_list*]

Refer to the product's Getting Started manual or User's Guide for complete instructions on starting an application from the command-line prompt or please visit the Fluent Inc. support FAQs at [www.fluent.com/support/installation/index.htm](http://www.fluent.com/support/installation/index.htm).

## 2.5 Using the Documentation CD-ROM

The documentation is available in several formats on product-specific documentation CDs. This CD allows you to view and print the documentation independent of the software and a license file. Formats included on the documentation CD are:

- HTML, which can be viewed with your standard browser (e.g., Netscape Communicator)
- PostScript, which can be used for printing files to a PostScript printer
- Adobe Acrobat PDF, which can be used for both viewing and printing files with Adobe Acrobat Reader

## 2.5.1 Installing the Documentation CD-ROM

### Documentation Installations Released AFTER Nov. 2001 -

Products released after Nov. 2001 require the installation of the documentation CD for access to online **Help** from within the software. If you choose to access the documentation independent of the software, this can be done directly from the CD or from an alternate installation location on your hard disk. Installations options:

- Online Help Installations –

Insert the Documentation CD and run *setup*. The software will attempt to locate the installed software product or prompt you for that location. A `/help` directory will be created under the product location and the documentation will be installed to that location. Once completed, online **Help** from within the software product will be available.

- Alternate Installation Locations –

You may choose to use documentation independent of the software location. You may access the software directly off the CD or install the documentation to an alternate location independent of the software. Insert the Documentation CD and run *setup*. You will be prompted for the location to install the software. You may specify any alternate location.

### Documentation Installations Released BEFORE Nov. 2001 -

If you want to access documentation independent of the software's online **Help**, you can access the manuals directly from the CD or you can install the files from the documentation CD to your hard disk.

Place the documentation CD in the CD-ROM drive. From the **Start** menu, select **Run**. Choose **Browse** and select the installation program `setup.exe`. The installation program allows you to choose a destination drive and directory, then creates a `Fluent.Inc\manuals` directory where all the files will be placed. (The default location is `C:\Program Files`). We recommend that you choose a new destination.

You will be given three different installation options. Choose **Typical** for installing HTML and PDF format. Choose **Compact** for installing HTML. Choose **Custom** for a customized installation of PDF or PostScript files.

## 2.5.2 Viewing the Documentation from the CD-ROM or the Hard Disk

Viewing the online **Help** or HTML files requires a web browser, i.e. Netscape Communicator. view the PDF formatted files requires Adobe Acrobat Reader. You may download Adobe Acrobat Reader from the Adobe website at [www.adobe.com](http://www.adobe.com). If you do not have access to a browser or Acrobat Reader, please contact your technical support engineer and ask for the Netscape Communicator/Adobe Acrobat CD.

- To view the HTML files directly from the CD, point your browser to */cdrom/index* or *index.htm*, where *cdrom* is the name of your CD-ROM drive.
- To view the HTML files that are installed on the hard disk, point your browser to *path\Fluent.Inc>manuals\index* or *index.htm*, where *path* is the directory where *Fluent.Inc* is located.

Details on navigating the manual can be found in your Getting Started manual.

### 3 Installing the Tutorial and Validation CD-ROM

**Products Released AFTER Nov. 2001** - Tutorials will be included on the product's Documentation CD. When the documentation is installed, a */tutfiles* directory will be created. If the space required to copy the files to the hard disk is significant, only the **README** file will be installed. You may use the standard copy command and copy the tutorials of your choice to the hard disk or you may choose to access the files directly from the CD-ROM.

**Products Released BEFORE Nov. 2001** - Some Fluent Inc. products include an addition Tutorial and Validation CD. This CD does not include an installation program. The contents consists of directories containing case, data, and documentation files that may be copied to your hard drive or read from within a Fluent Inc. program.

## 4 Obtaining a License File

License files are not included on the CD-ROM. You must arrange for your permanent license through your local Fluent office. You may use the license form in Section 5.

To obtain a new license you will need to provide the computer/server name and Host ID of the standalone computer or computer designated to run as the license server. You may obtain this information by following the appropriate procedure below:

- Systems running Windows :

For Windows systems, the `hostid` can be either the 12-character hexadecimal ethernet address or the 8-hexadecimal-character volume serial number of the `C:` drive (with the `-` removed). There are several ways to get a `hostid` with the Fluent Inc. software:

1. Install a Fluent Inc. software product, then select **Start**→ **Programs**→ **Fluent Inc**→ **System Info**.(This may not exist for all products.)

This will display the name of the computer and the Host ID identification number. The ID is preceded by an `E=` or `D=`. Please include the entire string when requesting your license file (e.g., `E=080024cf89dd` or `D=4261Fab8`).

2. Open the `FLEXlm License Manager` panel (accessed with `Fluent.Inc\license\ntx86\flexlm.cp1`). Choose the **Diagnostics** tab, then **Hostids**.
3. Open the application `Fluent.Inc\license\ntx86\lmtools.exe` and choose **System Settings** tab. Locate the **Ethernet Address** box and provide this information to your local Fluent Inc. license administrator.

- Systems running Unix:

From the `path/Fluent.Inc/bin` directory, type:

```
lmhostid
```

This will print the exact Host ID that `FLEXlmTM` expects to use on a given machine.

Once you have your computer/server name and Host ID information, you are ready to request a new license file from your local Fluent Inc. license administrator. (See the Fluent License Form in Section 5.)

## 5 Fluent License Form

Fill in the fields below and FAX or email to the License Administrator or your local Fluent Inc. distributor at the appropriate FAX number or email address below. Use "License Key" as the subject for email or FAX.

### Mail addresses and FAX numbers:

Region	email address	FAX
Europe	license@fluent.co.uk	+44 114 281 8818
Japan		+81 3 5324 7302
North America	license@fluent.com	603-643 3967
anywhere else	license@fluent.com	603-643 3967

### Customer information:

Your Name:

Company:

Email address:

Fax:

Telephone:

Enter the license information below for your designated license server machine or standalone computer.

Computer/License Server Name:

Host ID: