

# **ADINA System 8.8**

## **Installation Notes**

*for*

**x86\_64 Linux**

**IBM AIX**

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### System Requirements

The following table describes the system requirements for ADINA System 8.8.

Category	Minimum Requirement
Operating System	Linux kernel 2.6.9 (x86_64) IBM AIX 5.1
Hardware	About 370 MB free disk space CD-ROM drive if installing from CD
Software	FORTRAN compiler (optional) to customize the user-coded subroutines
Memory	256 MB (more recommended)

## 1. Installation and Setup

### 1.1 Mounting the CD-ROM Drive

Insert the ADINA System 8.8 CD in the CD-ROM drive and mount the drive if it is not automatically mounted. The `mount` commands described below are provided as a reference. Please consult your system administrator if you have problem mounting the CD-ROM drive.

```
Linux: mount /mnt/cdrom (or /media/cdrom)
AIX:   mount -rv cdrfs /dev/cd0 /cdrom
```

### 1.2 Selecting the ADINA Home Directory

Select the directory to install the ADINA System. This directory will be referred to as the "ADINA home directory" or <ADINAHOME>. Create the directory if it does not exist. Change the working directory to the ADINA home directory.

For example, if the ADINA home directory is `/usr/adina88`, the commands will be:

```
umask 022
mkdir /usr/adina88
cd /usr/adina88
```

### 1.3 Starting the setup Script

Enter the command to start the setup script.

```
<CD-ROM mount directory>/setup
```

During the setup, you will be asked for the type of ADINA license you have. The procedures for setting up the node-locked license and floating license are described in Sections 1.4 and 1.5 respectively.

#### 1.3.1 `-t` option

In normal cases, the setup script will automatically detect the type and operating system of the machine you are installing the ADINA System. In some cases, where you may want to specify the installation of a particular version, or when the setup script fails to detect the system correctly, you can use the `-t` option to indicate the version to install. To see the list of target versions that can be specified, use the `-h` option.

### 1.3.2 Online Manuals

The ADINA manuals are available as online pdf documents. You need to select the option to install the online documents in order to access them. To view the online documents, you also need to have Acrobat Reader. If you do not have Acrobat Reader on your system, you will need to download and install Acrobat Reader from the Adobe web site.

### 1.3.3 User Environment

Once you have successfully installed the ADINA System, including the passwords, please refer to Section 1.6 on the proper user's command search path and the scripts to run the ADINA System.

## 1.4 Node-Locked License Setup

During setup (Section 1.3), you will be prompted whether you want to install the password. The automatic node-locked license installation can read either an existing license file (**license.dat**) or the password file (renamed as **adina.txt**) that you receive from ADINA R & D.

To obtain the password file, please run the **adhostid** command to get the system ID of your machine and send the system ID to ADINA R & D ( [password@adina.com](mailto:password@adina.com) ). The password file will be sent to you via email (recommended) or fax.

The easiest way to install the password is to rename the password file (received via email) as **adina.txt** and placing it in the ADINA home directory for automatic installation. If you did not install the password during setup, you can use the **adpass** script to install the password at any time.

```
cd <ADINAHOME>
./adpass
```

If you received the ADINA password file via fax, you will need to use the `Install` program to install the password manually.

## 1.5 Floating License Server Setup

For the machine to be used as the ADINA license server,

1. Please run the **echoid** command (in <ADINAHOME>/slm) to obtain Lock Code 1

for the server and send it to ADINA R & D ( [password@adina.com](mailto:password@adina.com) ).

2. For **University users**, please also provide the IP subnets where ADINA will be used, e.g. 152.12.\*.\*. You may specify up to 6 subnets.
3. Once you receive the floating password file **lserverc** (lowercase with no extension), put the file in the <ADINAHOME>/slm directory and start the floating license manager using the command **lserv**.

```
cd <ADINAHOME>/slm
./echoid
[send Lock Code 1 to ADINA R & D]
[put the password file lserverc in directory]
./lserv
```

Please refer to the README file in <ADINAHOME>/slm for additional information.

## 1.6 Accessing the ADINA System

The shell scripts to access the ADINA System are all located in the **tools** subdirectory. Therefore, you should add the directory <ADINAHOME>/**tools** to the user's command search path for the user to properly access the ADINA system.

The script to start ADINA User Interface (AUI) program is **auis8.8**. You can access the components of the ADINA System from the AUI. The individual components of the ADINA System can also be accessed using the following scripts:

Component / Feature	Script
AUI (ADINA User Interface) program	auis8.8
ADINA Structures, ADINA Thermal, ADINA CFD, ADINA-FSI (Fluid-Structure Interaction) and ADINA-TMC (Thermo-Mechanical Coupling) Solvers	adina8.8
User Interface for Solution Programs ADINA Structures Iteration Convergence Graph (-ite option) ADINA FSI/CFD Steered Adaptive Meshing (-adp option)	ais8.8
Verification problem checking	apdiff

Each of these scripts supports the `-help` option, which provides a description of the available options for the script.

## 1.7 Verification Problems

The `samples` subdirectory contains the set of verification problems (in batch commands) to help you verify your installation as well as to build your own models. It contains the following subdirectories and the `ref.pl2` file.

Directory/File	Contents
<code>a</code>	ADINA Structures linear problems
<code>b</code>	ADINA Structures nonlinear problems
<code>em</code>	ADINA EM problems
<code>f</code>	ADINA CFD and ADINA-FSI problems
<code>t</code>	ADINA Thermal and ADINA-TMC problems
<code>primer</code>	ADINA primer problems
<code>iges</code>	ADINA-AUI IGES interface examples
<code>ref.pl2</code>	Reference result file

## 2. User-Coded Subroutines

The user-coded subroutines for ADINA Structures, ADINA Thermal, ADINA CFD are used to incorporate user-coded materials and loadings (Structures only) into the ADINA System. These user-coded subroutines are compiled and linked into a shared library which is then loaded automatically in the corresponding executable when the program starts.

### 2.1 Building the Shared Library

Building the shared library is the same as building any other FORTRAN programs. The compiler and linker options are all set up properly in the `Makefiles` located in the `adina8.8`, `adinat8.8`, `adinaf8.8`, `adfsi8.8` and `adtmc8.8` subdirectories, and you can simply type `make` to rebuild the corresponding shared library. Please refer to the ADINA Theory and Modeling Guide manuals for instructions to modify the user-coded subroutines.

### 2.2 Location of the Shared Library (option `-lib`)

Note: The ADINA program will not start if the shared library is not found.

The default location of the shared library is in the same directory as the respective executable (i.e., in the `adina8.8`, `adinat8.8`, `adinaf8.8`, `adfsi8.8`, `adtmc8.8` subdirectories respectively). The script `adina8.8`, supports the `-lib` option which can be used to specify the directory that contains the corresponding shared

library. This `-lib` option is very useful if you have a different number of user-coded materials/loadings, as you can keep the corresponding shared libraries in different directories and use the `-lib` option to select the one you want to use.

### 3. File Naming Conventions

The ADINA System uses certain filename extension conventions, which are illustrated in the table below (the problem name is *femodel*).

<b>Filename</b>	<b>Description</b>
<b>Pre-Processing</b>	
<i>femodel.in</i>	ADINA-IN input file
<i>femodel.ilg</i>	ADINA-IN log file
<i>femodel.idb</i>	ADINA-IN database file saved by the AUI
<b>Analysis</b>	
<i>femodel.dat</i>	ADINA Structures, Thermal, or CFD/EM input file generated by the AUI pre-processor
<i>femodel.out</i>	Solution program output file
<i>femodel.log</i>	Additional output files for ADINA-FSI and ADINA-TMC analyses
<i>femodel.mtx</i>	ADINA Structures stiffness and mass matrix file.
<i>femodel.oux</i>	ADINA Structures extended output file
<i>femodel.mds</i>	ADINA Structures mode shape file
<i>femodel.tem</i>	ADINA Structures temperature file
<i>femodel.tgr</i>	ADINA Structures temperature gradient file
<i>femodel.res</i>	ADINA Structures, Thermal, or CFD/EM restart file
<i>femodel.por</i>	ADINA Structures, Thermal, or CFD/EM porthole file
<b>Post-Processing</b>	
<i>femodel.plo</i>	ADINA-PLOT input file
<i>femodel.pl2</i>	ADINA-PLOT check list file
<i>femodel.pdb</i>	ADINA-PLOT database file saved by the AUI