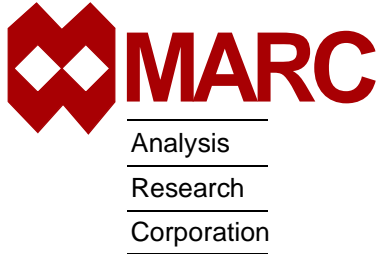


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**MARC<sup>®</sup> K7.3.2**  
**Mentat<sup>®</sup> 3.3.0**

Installation Instructions  
for Windows NT

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## MARC<sup>®</sup> Installation and Usage on Windows NT machines

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This document describes the installation and usage of the MARC and Mentat programs on Windows NT platforms configured as shown in Table 1. The instructions given here require a basic knowledge of the machine on which you are loading the MARC software, no attempt is made to teach the use of Microsoft Windows commands.

This document contains a quick installation section intended for experienced MARC users, a section containing details about the installation procedure, a section concerning the usage of the MARC and Mentat programs and a section about making permanent changes to MARC.

Appendices include hints about troubleshooting.

If you encounter a problem during the installation, please contact the customer support staff at the nearest MARC office. See the addresses listed below.

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MARC Corporate Headquarters  
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GERMANY - Munich  
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Ismaninger Str. 9  
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CONNECTICUT - E. Berlin  
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UNITED KINGDOM  
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Linford Wood  
Milton Keynes, MK14 6LY  
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Fax: 44 (1908) 606 633  
Email: support@marc.co.uk

**Table 1 Requirements of MARC & Mentat Running on Windows NT**

<b>Operating System</b>	Microsoft Windows NT 4.0
<b>CPU</b>	Intel Pentium or higher CPU
<b>Graphics Card</b>	SVGA or better running in at least 16 bit color mode
<b>Hard Drive</b>	Minimum 300 MB (MARC-K7 will require at least 200 MB of swap space)
<b>CD-ROM Drive</b>	Required
<b>Mouse</b>	3 button mouse is recommended
<b>Memory</b>	Minimum 64 MB Recommended 128 MB
<b>FORTTRAN Compiler</b>	Digital Fortran Version 6.0 or Digital Fortran Version 5.0



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## Contents

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Chapter 1:	Read me first: Installation Prerequisites . . . . .	1
Chapter 2:	Quick Installation Procedure . . . . .	2
Chapter 3:	Installation Procedure Information . . . . .	4
Chapter 4:	Running MARC. . . . .	6
Chapter 5:	Running Mentat . . . . .	11
Chapter 6:	Making Changes to the MARC Programs . . . . .	12
Chapter 7:	Mentat Interfaces . . . . .	13
Chapter 8:	Managing FlexLM. . . . .	15
Appendix A:	MARC subdirectories . . . . .	17
Appendix B:	Mentat subdirectories. . . . .	18
Appendix C:	Troubleshooting. . . . .	19



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## Chapter 1: Read me first: Installation Prerequisites

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- Before running setup** Decide where you want the version to be installed before running the *Setup* program on the CD-ROM. When running *Setup*, you will be prompted to supply a directory pathname to install the MARC products. In the remainder of this document, the directory that you specify will be referred to as *marc*. The directories *marck73*, *mentat330*, *doc* and *security* will be created in the directory that you specify.
- Personal data** During installation, you will be prompted to supply your name, address, telephone number, etc. You will also be asked to enter the client specific administration number (e.g. MENT330.U0123 and/or MARCK73.U0123) which is listed on the accompanying delivery letter. This information will be sent to the MARC office supplying you the installation passwords and is intended to keep your data as known to the MARC company up to date.
- Password protection** The MARC version you have received is protected against illegal usage by means of Globetrotter's FLEXlm licensing software. You *cannot* run the program directly after you have installed from the CD-ROM until you obtain these passwords. Passwords will be supplied to you from the nearest MARC office after you have performed the first two steps of the installation procedure. These steps are as follows:
1. Run the setup program, and generate a machine specific identifier for the purpose of creating passwords.
  2. Send the machine specific identifier to the nearest MARC office.
  3. Upon return of the password file, place this file in the *marc\security* directory.
- Passwords normally need to be entered only once.
- Should I be "administrator"?** Normally, there is no need to be logged in as *administrator*. However, you will need administrator privileges since the system registry will be updated. Also, check that you have read and write permissions to the installation directory.
- Fortran compiler** We strongly advise you to have a FORTRAN compiler on your system if you are installing the MARC-K7.3.2 product. During installation you will be asked which compiler version you currently have installed.
- Note:** After you install the Fortran compiler, make sure that all users have their "path" and "lib" environment variable include the path to the Fortran compiler. Otherwise using user subroutines will not work properly.
- Computer Name** Your machine *must* have a computername (hostname). If no computername is known, supply one by using the **Control Panel\Network** applet to set the "Computer Name". You should also make sure the the "Host Name" specified in the DNS tab of **Network\Protocols\TCP/IP Protocol** is the same as the "Computer Name".
- Previous Versions** If you have previous versions of MARC and/or Mentat installed, you may want to adjust your PATH environment variable to remove the reference to the previous version.

## Chapter 2: Quick Installation Procedure

**Step 1:  
install the  
program**

From the MS-DOS command prompt type **d:\setup**, or from the Program Manager select File\Run **d:\setup**.

Select the MARC Product you wish to install:

- MARC K7.3.2
- Mentat 3.3
- AutoForge 2.3
- MARC/Link-Pro
- Register Products
- MARC-K7.3.2 Online Documentation

Select Compiler:

- Digital Fortran Version 6.0
- Digital Fortran Version 5.0
- No compiler

Choose Destination Location:

Destination Folder:

C:\MARC

Browse

Select Program Folder:

Program Folder:

MARC

set location

**Step 2:  
create the  
system  
identifier**

Registration Information

- I would like to view the README file.
- I would like to view the sid001.dat file.
- I would like to print the sid001.dat file.

**Step 3: send  
the system  
identifier to  
MARC**

Start the Setup program. Substitute the drive letter for your CD-ROM drive.

After the *Welcome* banner the *Software License Agreement* screen appears. Please read it carefully.

The next screen will be prompt you to select which products you wish to install.

Press the **N**ext button to proceed.

If you have selected MARC-K7.3.2, you will be prompted to select which compiler you are using. If you do not have a compiler installed, select the *No compiler* option.

A screen will appear which will prompt you to set the location where you want the products installed. This path is the “parent” directory. It defaults to C:\MARC. The directories `marck73`, `mentat330`, `doc` and `security` will be created in the directory that you specify.

Select the folder that you wish to place the shortcut to the Mentat startup script. The default program folder name is MARC.

After the files have been copied to your disk, you will be presented with the *Registration Information* form. Filling out the registration form will generate a unique system identifier to be used when creating your passwords. You will need to supply your name, address, etc. Also, if you are not a U.S. customer, be prepared to supply your license code which is in the accompanying letter; e.g. MENT330.U0123 or MARCK73.U0123.

The last screen is the *Setup Complete* screen. It will present you with an option to print or view the system identifier. It is stored in the *marc* subdirectory *security*, in a file called `sid001.dat`. Send the contents of this file to the nearest MARC office to receive your passwords.



**Step 4:  
enter the  
passwords**

```
cd \marc\security
notepad license.dat
```

**Step 5:  
Start the  
License  
Manager**

Start the FLEXlm license manager.  
You may also want to enable the license manager to run as an NT service and to start the server at power-up.

**Step 6:  
checking****For Network Version, skip Step 6.**

Run Mentat by either selecting the Mentat item in the program folder that you chose, or run it from the MS-DOS Command Prompt using:

```
cd \marc\mentat330
bin\mentat
```

On the Mentat command line enter:  
*exec\_p examples/confirm/confirm.proc*

Check MARC-K7.3.2 by running one of the standard demo problems:

```
cd \marc\marck73\demo
run_marc -j e2x1
```

```
cd \marc\marck73\demo
run_marc -j e2x4 -u u2x4
```

**Step 7:  
For  
Network  
Version  
only**

Click on the **Finish** button to leave Setup.

Logoff from your Windows NT session and log back in again so that the environment settings will take effect.

The passwords you receive from the MARC office should be entered by means of creating a file named `license.dat` in the `\marc\security` directory.

To start the license server, open up the Control Panel from the Start\Settings menu and select the FLEXlm License Manager icon.

Select the *Setup* tab and verify that the settings are correct; i.e., the “License File” is set correctly. Then start the license manager from the *Control* tab by pressing the *Start* button.

Check the installation by running Mentat. You have two methods you can use to run Mentat. You may use either the Mentat icon which is created in the Mentat program group, or run it from an MS-DOS Command Prompt window.

To run from the command prompt, `cd` to the `\marc\mentat330` directory, and enter the command `bin\mentat` to start Mentat.

Check the Mentat program by opening a procedure file called *confirm.proc* on Mentat’s command line. Four elements will be automatically created. Select the Quit button when finished.

Run one of the standard MARC demonstration examples as proof of a successful installation.

Open an MS-DOS window and `cd` to the `\marc\marck73\demo` directory.

Enter the command:

```
run_marc -j e2x1
```

to check the MARC installation.

If all goes well, one of the final messages on screen should read:

**marc exit number 3004**

**If you have a FORTRAN compiler**, run a user subroutine example using:

```
run_marc -j e2x4 -user u2x4
```

Here again, MARC should give a **marc exit number 3004**.

Follow the *MARC K7.3.2 Network Version for Windows NT, Installation and User Notes* (Parts I and II) for important information on installing and running jobs with the network version.

---

## Chapter 3: Installation Procedure Information

---

**Step 1: install the products** Decide where you want the products to be installed before running the *Setup* program on the CD-ROM. This directory will be created during the installation process. The name does not have to be **C:\MARC**. Rename it if you like. This location is the installation path, and in the remainder of this document, the directory that you specify will be referred to as **marc**.

You may want to check the contents against the list supplied in Appendices A and B of this document. Should any subdirectory be missing, please contact MARC customer support for further details.

**select products** Select the products that you wish to install. All of the products will be selected by default. You should also select the *Register Products* option at this time. This will enable you to generate the system identifier, described in Step 2, which is required so that your passwords may be generated.

**select compiler** If you have selected the product MARC-K7.3.2 to install, you will be prompted to select which compiler version you have installed. Select either **Digital Fortran Version 6.0**, or **Digital Fortran Version 5.0**. If you do not currently have a compiler installed, select the **No Compiler** option.

**set paths** The next screen will prompt you to enter the installation path. You may type in the path in the box provided, or browse to the location. The directories **marck73**, **mentat330**, **doc**, and **security** will be created in the location that you specify.

**Step 2: system identifier** After the files have been copied from the CD-ROM to your disk, you will need to fill out the **Registration Information** form. By filling out the form, the program will generate a unique *system identifier* for your current system.

<p><b>Note:</b> You will be asked for your name, address etc. If you are <u>not</u> a U.S. customer, you should also supply the license number which you will find in the accompanying letter; e.g., MENT330.U0123 and/or MARCK73.U0123.</p>
--

**Step 3: send to MARC** The system identifier is stored in the *marc* subdirectory *security* in a file called **sid001.dat**. Send this file to the nearest MARC office. The file can be printed from the **Setup Complete** screen. Send the printout by means of telefax to the nearest MARC office. If you have access to the E-mail facility, you can mail the system identifier by attaching the file to a mail message, or cut and paste the contents of the file into the message body.

Select the **Finish** button in Setup. Logoff from your Windows NT session and log back in to again so that the environment settings will take effect.

**Step 4:  
enter  
password**

After receiving the passwords from the MARC office, enter them by means of the creating the file *license.dat* in the *marc* subdirectory *security*.

The password will consist of at least 3 lines:

“SERVER” line which specifies the system hostname

“DAEMON” line which specifies the vendor specific daemon name and path

“FEATURE” line(s) which specifies the product and options. This line contains the password and the expiration dates.

The **mentat** and the **run\_marc** batch scripts use the environment variable FLEXDIR to locate the *license.dat* file. The FLEXDIR environment variable typically points to the *security* directory, and the name *license.dat* is appended to it for the full pathname. If the file does not exist in the %FLEXDIR% directory, then FLEXlm will use the environment variable LM\_LICENSE\_FILE to obtain the full pathname for the license file. You may set the LM\_LICENSE\_FILE variable to point to another license file if you wish.

See Globetrotter’s *FLEXlm End User Manual* for more information on entering your license password.

**Step 5:  
Starting the  
License  
Manager**

You must start the *FLEXlm License Manager* before attempting to run MARC or Mentat. To start the license manager, open up the Control Panel from the Start\Settings menu and select the FLEXlm License Manager icon. You can also edit the *license.dat* file by selecting the *Licenses* tab.

Select the *Setup* tab and verify that the settings are correct; i.e., the “License File” is set to *\marc\security\license.dat*. Then start the license manager from the *Control* tab by pressing the *Start* button.

**Note:** You should specify the options “Use NT Services” and “Start Server at Power-Up” in the FLEXlm License Manager control panel under the *Setup* tab. This will enable the license manager to start automatically at boot time.

**Step 6:  
checking**

Run Mentat by going to the Start menu on the taskbar. Then select the *Programs\Marc\Mentat 3.3* menu item. You may also start Mentat by typing *mentat* in a MS-DOS Command Prompt window.

To check that MARC-K7.3.2 is working properly, run one of the standard MARC demonstration examples as proof of a successful installation. Open an MS-DOS Command Prompt window and *cd* to the *\marc\marck73* subdirectory *demo*. Run the *e2x1* demo using the command:

```
run_marc -j e2x1
```

If all goes well, one of the final messages on screen should read **marc exit number 3004**. If you have a FORTRAN compiler, choose a second demonstration example by running a user subroutine example using:

```
run_marc -j e2x4 -user u2x4
```

Again, MARC should give a **marc exit number 3004**.

**Note:** Should any of these examples not run, please use the checklist in Appendix A to verify whether the installation was executed correctly. Refer to Chapter 4 of this document for the syntax of **run\_marc**. Contact MARC customer support if you are still unable to run the examples.

---

## Chapter 4: Running MARC

---

This section describes the MARC usage on Microsoft Windows NT based machines. The MARC programs are mainly controlled by a batch script program called `run_marc.bat` which is stored in the `marc` subdirectory `marck73\tools`.

The batch script will submit a job and automatically take care of the file assignments providing that use is made of the default FORTRAN file units as specified in Table 4. Note that the program automatically opens file units 1-36, excluding 26-30. The batch script must be executed in the directory where all relevant input and output files concerning the job are available. To use the batch script, each MARC job should have a unique name qualifier and all MARC output files connected to that job will use this same qualifier.

MARC input files should always be named `job_name.dat`, whereby the prefix `job_name` is the name qualifier which you are free to choose. The suffix `.dat` is obligatory.

To actually submit a MARC job, the following command should be used. The single input line is split over multiple lines for clarity:

```
run_marc  -jid      job_name (required as minimum)
          -rid      restart_name
          -pid      post_name
          -sid      substructure_name
          -nprocd   number_of_processors
          -prog     program_name
          -user     user_subroutine_name
          -save     save_user_executable
          -vf      viewfactor_name
          -def      defaults_name
          -nprocd   number_of_processors
          -dist     for distributed execution in network version
          -host     host_file
```

Table 2 describes the meaning of these input options and Table 3 gives examples. Table 4 gives FORTRAN file units used.

Table 2 run\_marc Input Options\*

Keyword	Options	Description
-jid (-j)	job_name	Job and input file name identification. Requires job_name.dat for all programs.
-prog (-pr)	progname	Run saved executable progname.exe from a previous job.
-user (-u)	user_name	User subroutine user_name.f will be used to generate a new executable program called user_name.exe.
-save (-sa)	<b>no</b> yes	Do <i>not</i> save the new executable program user_name.exe. Save the executable program user_name.exe for a next time.
-rid (-r)	restart_name	For marc or progname: identification of previous job that created RESTART file.
-pid (-p)	post_name	For marc or progname: identification of previous job that created postfile containing temperature data. For plot: identification of job that created post file.
-sid (-si)	substructure	Substructure jobs only: name of the substructuring file <i>substructure.t31</i> .
-vf	vf_filename	Refers to the viewfactor file for a heat transfer radiation analysis.
-def	defaults_file	Used to define an auxiliary input file containing default values.
-nprocd	nprocd	Number of processors to be used for Domain Decomposition.
-host	hostfile	Specify the name of the host file for running over a network (default is execution on one machine only).
-dist	yes <b>no</b>	When the execution is distributed over a network. The run script checks this automatically.
*Default options are shown in <b>bold</b> .		

**Table 3 Examples of Running MARC Jobs**

Examples of running MARC jobs	Description:
<code>run_marc -jid e2x1</code>	Runs the job <i>e2x1</i> , the input file <i>e2x1.dat</i> resides in the current working directory.
<code>run_marc -jid e2x14 -user u2x14 -save yes</code>	Runs the job <i>e2x14</i> , using the user subroutine <i>u2x14.f</i> and the input file <i>e2x14.dat</i> . An executable program named <i>u2x14.dat</i> will be saved after completion of the job.
<code>run_marc -jid e2x14a -prog u2x14</code>	Runs the job <i>e2x14a</i> using the executable produced by job <i>e2x14</i> .
<code>run_marc -jid e3x2a</code>	Runs the job <i>e3x2a</i> .
<code>run_marc -jid e3x2b -rid e3x2a</code>	Performs a restart job using the results of the previous job <i>e3x2a</i> .
<code>run_marc -jid e2x1 -nproc 2</code>	Runs a two processor job on a single parallel machine.
<code>run_marc -jid e2x1 -nproc 2 -host hostfile</code>	Runs a two-processor job over a network. The hosts are specified in the file <i>hostfile</i> .

**Table 4 FORTRAN File Units Used by the Windows NT version of MARC**

File name	Unit	Description	Comments
jidname.log	0	Error message output unit	
jidname.t01	1	Formatted data file	Usually contains mesh
jidname.t02	2	OOC* solver scratch file	random access binary file
jidname.t03	3	ELSTO file	sequential access binary file
jidname.t04	4	Neutral plot file	sequential access binary file
jidname.dat	5	Formatted data input file	formatted FORTRAN file
jidname.out	6	Printed output file	formatted FORTRAN file
jidname.t08	8	New RESTART file	sequential access binary file
ridname.t08	9	Old RESTART file	sequential access binary file
jidname.t11	11	OOC* solver scratch file	sequential access binary file
jidname.t12	12	OOC* solver scratch file	sequential access binary file
jidname.t13	13	OOC* solver scratch file	sequential access binary file
jidname.t14	14	OOC* solver scratch file	random access binary file
jidname.t15	15	OOC* solver scratch file	sequential access binary file
jidname.t16	16	New POST file (FORTRAN file)	sequential access binary file
jidname.t17	17	Old POST file (FORTRAN file)	sequential access binary file
jidname.t18	18	Formatted data file, optimization table	formatted FORTRAN file
jidname.t19	19	New POST file	formatted FORTRAN file
ridname.t19	20	Old POST file	formatted FORTRAN file
jidname.t22	22	Subspace iteration scratch file	sequential access binary file
jidname.t23	23	Fluid-solid interaction file	sequential access binary file
pidname.t19	24	Heat data input file	formatted FORTRAN file
pidname.t16	25	Heat data input file (FORTRAN file)	sequential access binary file
sidname.t31	31	Substructure master data file	random access binary file
jidname.t32	32	Secant method file	sequential access binary file
jidname.t34	34	Neutral plot file	formatted FORTRAN file
sidname.t35	35	Substructure file	sequential access binary file
sidname.t36	36	Substructure file	sequential access binary file
jidname.t41	41	Post output for domain decomposition	sequential access binary file
*OOC denotes Out-Of-Core solution.			

**Table 4 FORTRAN File Units Used by the Windows NT version of MARC**

jidname.t42	42	Post output for domain decomposition	formatted FORTRAN file
jidname.t45	45	Design Optimization	formatted FORTRAN file
jidname.t46	46	Design Sensitivity or Optimization	sequential access binary file
def.dat	49	Defaults File	formatted FORTRAN file
jidname.lck	51	Post File Lock File	formatted FORTRAN file
jidname.cnt	52	Dynamic Control File	formatted FORTRAN file
Environment variable EXITMSG	97	Exit Messages	formatted FORTRAN file
Environment variable USRDEF	98	Global default File	formatted FORTRAN file
Environment variable AFMATDAT	99	Material Database	formatted FORTRAN file
*OOO denotes Out-Of-Core solution.			



---

## Chapter 5                      Running Mentat

---

This section describes the Mentat usage on Window NT machines. The Mentat program is started by a batch script called `mentat.bat` which is stored in the `marc\mentat330\bin` directory. It may also be started by using the Mentat 3.3 menu item in the Start menu in the MARC folder.

You do not need to start the batch script from a specific directory.

The Mentat program creates the default files in your current working directory; i.e., where you are located at the time of starting the Mentat program.

The batch script **mentat.bat** contains a number of arguments which are passed on to the Mentat program. Table 2 gives the meaning of these input options. You are free to alter these commands to suit your preference.

**Table 2 Mentat Input Options**

Keyword	Options	Description
-mf	main.ms	The name of the startup menu file.
-mp	%DIR%\menus\	Directory path name where the menu files are located.
-ml	%DIR%\materials\	Directory path where the material files are located.
-hp	%DIR%\help\	Directory path name where the help files are located.
-bp	%DIR%\bin\	Directory path name where the external Mentat programs and shell scripts are located.
-fn	SYSTEM_FONT	Default font type.
-as	0.8	Ratio between screen width and height.
-ar	0.85	Area fill ratio: full screen is 1.00.
-db	on	Double buffering: a screen refresh is first assembled in a separate memory section and then displayed. This option results in a smooth appearance.
-rf	filename	Record the Mentat commands in the procedure file filename.
-pr	filename	Any additional set-up commands you wish to add. Store these in a procedure file containing the Mentat commands.

---

## Chapter 6: Making Changes to the MARC Programs

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### The MARC Program Sizing

The K7 release of MARC uses dynamic memory. As opposed to previous versions of the product, the program will not need to relink if the value on the **SIZING** parameter is large, or if additional memory is required. If no value for **SIZING** is entered, the program will initially request **NORMAL** number of words. The value of **NORMAL** is given in the `include` file in the `tools` directory. It is set to **5,000,000** words. It may be reset as discussed below. The program will continue to allocate memory as necessary until it reaches a value of **MAXSIZE**. The value of **MAXSIZE** is set at **200,000,000** words. If the analysis requires more than **MAXSIZE** number of words, MARC will select at least one of the out-of-core options, either **ELSTO** or out-of-core solver.

You may choose to modify the **NORMAL** or **MAXSIZE** size permanently by means of editing the `include.bat` file used to specify the default environment settings. First, `cd` to the `\marc\marck73` subdirectory `tools`. Then, edit the `include.bat` file using either notepad or another text editor. Scroll down near the bottom of the file where the statement

```
SET NORMAL=5,000,000
```

is located. Change **NORMAL** to be the default value of your choice. You may also change the upper limit value, which is the line immediately below **NORMAL**. It is set as **MAXSIZE**, such as:

```
SET MAXSIZE=200,000,000
```

Change this value to reflect the maximum permissible program size which your computer can handle. Both values are single precision words; i.e., four bytes per word. Save the file and exit the editor.

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## Chapter 7: Mentat Interfaces

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### Mentat External Programs

Mentat supports a number of CAD interfaces: IGES, Patran, Ideas, VDA, and ProEngineer. These interfaces are programmed in external programs which are called from within Mentat. The interface programs are stored in the *marc* subdirectory `mentat330\bin`. These programs read the data files in their native format and translate the contents into a Mentat model file. This file is subsequently read by Mentat. The external programs are called from within Mentat by means of the *file* submenu.

### MARC Jobs

The subdirectory `mentat330\bin` contains batch script files to start a MARC job or to abort the job using the following batch scripts:

```
submit1.bat, submit2.bat, submit3.bat,
and
kill1.bat, kill2.bat, kill3.bat
```

These batch scripts are called by means of the buttons in the *job* menu. You may alter these files to suit your environment.

### Plotter Interface

Because of the many variations in plotting environments, we have created plotting interfaces in the form of batch scripts that operate from within Mentat. Currently, Mentat recognizes the following plotting formats:

- PostScript
- WinDump (translated into Windows bitmap (.BMP) format)

This section describes a template batch script for each of the formats mentioned above. They are located in the `mentat320\bin` directory and are named as follows:

```
pcolor1.bat, pcolor2.bat, pcolor3.bat
psgray1.bat, psgray2.bat, psgray3.bat
xdump1.bat, xdump2.bat, xdump3.bat
```

### PostScript

The PostScript function is activated by pressing the **Gray** or **Color Print** button from the **UTILS** menu on the **POSTSCRIPT** panel. The program captures the graphics portion of the screen into a file and sends this file to a PostScript printer using the `psgray` or `pcolor` batch scripts located in the `mentat330\bin` directory. In the example listed below, the file is sent to the printer `LPT1`. This can be a printer attached locally, or located somewhere on the network. After the file is sent, it is removed from disk automatically.

```
print /D:LPT1: %1
del %1
```

The argument `%1` is the filename handed to the batch script by Mentat. If there is more than one printer on-line, the `pscolor2.bat` and `pcolor3.bat` batch scripts may be used to address these other printers.

You can use the `setup_printer` program to configure a network printer. Run `setup_printer` for more details.

## **Edit**

The `edit_window.bat` batch script is used to control the editor associated with the EDIT commands. It is possible to change the type of editor, e.g., from notepad to emacs.

## **System Shell**

The `system_window.bat` batch script is used to control the type of window opened with the `system_shell` command.

## **Marc\_movie**

The `marc_movie` program has been rewritten in this release to be a Microsoft Windows Application. The control of the program is through a standard Microsoft Windows interface. You can control the play speed and the start and end delay times. A “Frame Selector” will allow you to select any frame. There is a “play” control that is a dockable toolbar. It also supports drag and drop of “.rgb” files to the program.

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## Chapter 8: Managing FLEXlm

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### FLEXlm License File

FLEXlm is the network based licensing product from Globetrotter Software used in MARC products.

The license file, *license.dat*, should be placed in the *marc\security* directory once you receive your licenses from your nearest MARC office. Everyone should have read permission to the file. The license file has the following format:

Line	Description
SERVER	This line specifies the license server. It has the format: <div style="margin-left: 40px;">SERVER hostname hostid port</div> The hostid is the machine specific identifier for your computer.
DAEMON	This line specifies the name of the vendor daemon (marcd), and the path. It has the format: <div style="margin-left: 40px;">DAEMON marcd marc\security\marcd</div>
FEATURE	This line lists the feature, or license names. This line <u>cannot</u> be modified from what is sent to you. For your MARC license, it has the format: <div style="margin-left: 40px;">FEATURE marck71 marcd 1.000 ... (for single processor version)</div> <div style="margin-left: 40px;">FEATURE marcp marcd 1.000 (for single machine parallel version)</div> <div style="margin-left: 40px;">FEATURE marcn marcd 1.000 (for network version)</div>
USE_SERVER	When used together with the SERVER line, this line is used on the licensed “client system” (as opposed to the license server), to specify that it should obtain a license from the specified license server. It has no options.

### Flexlm License Manager

When you install MARC or Mentat, the FLEXlm License Manager is installed in the *security* directory. Once **lmgrd.exe** is running, it will read the license file *license.dat* which is also located in the *security* directory. The license file contains the MARC and Mentat license (and other MARC product licenses, if necessary). In addition, **lmgrd.exe** will also start the MARC vendor daemon **marcd.exe**. The path to **marcd** is specified in the license file on the DAEMON line. These processes must be running on the license server for the MARC security system to obtain a license. The only exception to this is for a “zero count” license. If the number of licenses for a feature (the number following the expiration date) is 0, then neither **lmgrd.exe** or **marcd.exe** are used. The license manager is only used to keep track of licenses that are checked in/out.

MARC will contact these daemons at regular intervals. If no contact is made after a specified time period, then MARC will terminate execution.

## Environment Variables

The environment variable **FLEXDIR** is used to specify the directory containing the *license.dat* file. The variable is set in the **marck73\tools\include.bat** and **mentat330\bin\mentat.bat** scripts, and the default setting is *marc\security*. When MARC executes, it will look for the file *license.dat* in the FLEXDIR directory. If it cannot find the file or if it cannot find the license, then it will check the list of license files specified by the environment variable **LM\_LICENSE\_FILE**. This environment variable can be set using the System applet in the Control Panel, and is a semicolon separated list of file pathnames or hosts. You may have it point to a license server using the syntax *port@host*, as follows:

Variable: LM\_LICENSE\_FILE

Value: 10620@myserver

If you have other products that use FLEXlm and they are required to be available when MARC is running (such as a Fortran compiler license), then you should modify the LM\_LICENSE\_FILE setting to point to the proper license file for that product. You may instead want to combine the licenses into one file and change the FLEXDIR setting appropriately.

Note that because the FLEXDIR environment variable is specified in the **run\_marc.bat** script, you cannot run a MARC job without using the script unless you set the FLEXDIR environment variable in the System applet.

## Security Directory

The security directory defaults to *marc\security*. It must be writable by all MARC users since **lmgrd.exe** will write the logfile (*security\license.log*) to that directory. If you do not wish to have the security directory writable by others, then you must modify the update this location by starting the FLEXlm applet located in the Control Panel. You may also want to monitor the size of the logfile, since all FLEXlm activity is recorded.

**Note:** The *license.log* file contains important status information regarding the license manager daemon. Always check this file when you get a security error.

If you move the security directory to a different location, or more specifically if you move **lmgrd.exe** and **marcd.exe**, then you must modify the FLEXDIR environment variable specified in the **run\_marc.bat** or **mentat.bat** script to specify their new path.

## Client/Server Licensing

The default installation assumes that the system in which MARC is installed will function as the *license server*. The term *license server* only refers to the fact that **lmgrd.marc** and **marcd** will be running on that system, and will maintain the state of available licenses. Even if you have purchased a nodelocked license, the nodelocked system will function as the license server for that license. A nodelocked license can be distinguished from a floating license by the string **HOSTID=xxx** specified in the feature line.

If you have purchased a floating license, the system that is to be the license server must be determined before generating the system identification file (*sid001.dat*). You must generate the system identification file from the license server, since the **lmhostid** value of the server is needed to generate your passwords. The license file that is returned to you should be placed in the security directory. The client systems can use the same license file, or they can use a brief license file with just the **SERVER** and **USE\_SERVER** lines.

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## Appendix A: MARC subdirectories

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The MARC version you have received contains a full set of subdirectories listed below. You can save disk space by removing the subsets that you do not need.

**Table 5 Contents of the MARC Distribution CD-ROM\***

<b>Basic set:</b>	<b>Contents: required as minimum</b>
bin	executable MARC programs
tools	batch scripts to run and maintain the MARC programs
..\security	FLEXlm security files
AF_flowmat	material data for database
<b>Extended set:</b>	<b>Contents: only for use with user subroutines</b>
lib	binary libraries with the compiled MARC routines
common	insert files containing MARC common blocks
main	MARC programs main routines
user	templates for all available MARC user subroutines
<b>Examples:</b>	<b>Contents: example files</b>
demo	input files and user subroutines for the MARC demonstration manual E
demo_ddm	input files and user subroutines for the single parallel machine as well as the network parallel version of MARC
benchmark	small set of demonstration examples for performance measurement
test_ddm	one, two, and four processor test examples for installation testing of the single parallel machine as well as the network parallel version
primer	input files for the MARC primer manual
<b>Utilities:</b>	<b>Contents:</b>
pldump	source routines for the post-file conversion program pldump

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## Appendix B: Mentat Files and Subdirectories

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The Mentat version you have received contains a full set of subdirectories listed below. You can save disk space by removing the subsets that you do not need.

**Table 5 Contents of the Mentat directory unloaded from CD-ROM**

Basic set:	Contents: required as minimum
bin	Batch scripts and programs for Mentat
help	Mentat online help files
materials	Mentat material files
menus	Mentat menu files
Extended set:	Contents: example Mentat procedure files
examples	Sample Mentat procedure files.

**Table 6 Contents of the Security directory unloaded from CD-ROM**

Program	Description
lmutil.exe	The Flexlm utility program
lmgrd.exe	FLEXlm license manager
marcd.exe	The vendor daemon used to pass MARC specific licensing information to lmgrd
See the <i>FLEXlm End User Manual</i> for more information	



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## Appendix C: Troubleshooting

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- Access is denied** This type of problem is caused by not having write permissions to the file or directories to which you are installing.
- To correct this problem, open up an MS-DOS Command Prompt window, `cd` to the directory in which you are installing MARC, and run the **attrib** program to remove the read-only attributes (with the `-R` option).
- You can also use the File Manager's **Security** menu to change *Ownership* of files and directories, and to change *Permissions* on them.
- Security failed or MARC exit 67**
- The environment settings are not set properly. If you have not already logged out and logged back in again, do so now and try again. If you have not installed your passwords yet, then you must do so before security will succeed.
  - Check that the FLEXlm license manager has been started from the FLEXlm License Manager applet in the control panel. This must be done after you have saved your `license.dat` file in the `security` directory. Test that it is working by pressing the Status button in the Control menu.
  - You are attempting to run on a machine that according to the MARC password(s) you are not allowed to use.
  - Your license period has expired. Check the date on your machine.
  - Cannot access or read the file `license.dat` in the `security` subdirectory.
  - Every MARC user should have read and write rights for the `marc` subdirectory `security`.
- Marc will not run**
- In an MS-DOS Command Prompt window, type **set** to display your environment settings. If you do not see a setting for `MARCK73DIR`, then either the installation did not complete, or the environment settings were inadvertently changed. To correct this problem, run select the System applet from the Control Panel, and then add setting for `MARCK73DIR` as "`marc\marck73`", where `marc` is the path to your MARC installation directory.
- Link failed**
- Your user subroutine causes compiler errors.
  - You have no FORTRAN compiler or FORTRAN libraries not available.
- FORTRAN files are not being compiled**
- The FORTRAN compiler is not in your search path, or the `INCLUDE` and `LIB` environment variables are not set. You can verify that your settings are correct with the **set** command. If you selected the default installation path, you should run the `\Program Files\DevStudio\DF\bin\dfvars.bat` script (or substitute your installation directory). These items can be set from the System applet located in the Control Panel.
- User subroutines are not being called**
- With Digital FORTRAN, the argument list for subroutines must match exactly. If the argument does not match exactly, your subroutine will not replace the existing subroutine in the MARC Library. The linker will continue to use the subroutine that is defined in the MARC Library, and since your routine will not be linked in, it will never be called.

