



User Environment

- Environment Variables
- Application Resources
- The *.pcl and *.def Setup Files
 - Command Line Arguments
 - UNIX Shell Resource Limits
 - The PDB Database System

5.1 Environment Variables

UNIX - The site_setup File

The `site_setup`, located in the installation directory, provides a central file for setting environment variables. The file is a standard Bourne shell script that is included in the MSC/PATRAN run shell when you execute MSC/PATRAN.

You can enter any standard Bourne shell command in this file. You can also set environment variables in this file using the “setEnv” command. The MSC/PATRAN startup script interprets this as the proper environment variable command for its shell. For example, to set the InterBase scratch directory to `/msc/tmp` add the following line to `site_setup`:

```
setEnv MSC_LICENSE_FILE /msc/flexlm/licenses/codes.dat
```

This is equivalent to setting the cshell variable:

```
setenv MSC_LICENSE_FILE /msc/flexlm/licenses/codes.dat
```

During the installation process, the `mscsetup` utility creates a default `site_setup` file in the installation directory. You may modify this file to provide site-wide parameters, or users may copy the file into their home directories for individual customization.

Available environment variables are listed in [Table 5-1](#). Note that some variables are specific to UNIX or to Windows NT. This is noted in the table.

Windows NT Environment Variables

MSC/PATRAN on Windows NT supports most of the same environment variables as the UNIX versions. To set these environment variables, use Control Panel | System | Environment. Alternatively, you can use a DOS command line to define a variable.

Setting environment variables on the DOS command line uses the “set” command. The table lists examples in UNIX form (using `setenv`). For example the following UNIX command:

```
setenv MSC_LICENSE_FILE /msc/flexlm/licenses/codes.dat
```

would look something like this when set in DOS:

```
set MSC_LICENSE_FILE=c:\msc\flexlm\licenses\codes.dat
```

Available environment variables are listed in **Table 5-1**. Note that some variables are specific to UNIX or to Windows NT. This is noted in the table. In particular, application variables are replaced on Windows NT by the p3trans.ini file. See **Customizing Analysis Preferences in p3trans.ini** (p. 62) for more information

Table 5-1 MSC/PATRAN Environment Variables

Variable	Purpose
MSCP_[app]_HOST <hostname>	<p><i>UNIX only.</i> See Customizing Analysis Preferences in p3trans.ini (p. 62) for Windows NT equivalent.</p> <p>Sets the name of the host on which to execute the given application, [app].</p> <p>For example, to set MSC/NASTRAN to run on a machine called “alpha”:</p> <pre>setenv MSCP_NASTRAN_HOST alpha</pre> <p>For a complete listing of application variables see the default site_setup file.</p>
MSCP_[app]_CMD[vers] <command>	<p><i>UNIX only.</i> See Customizing Analysis Preferences in p3trans.ini (p. 62) for Windows NT equivalent.</p> <p>Sets the command path for the application [app]. Some applications may allow MSC/PATRAN to call multiple versions.</p> <p>For example, if MSC/NASTRAN v69 is located in /msc/bin/nast69 on the host defined by MSCP_NASTRAN_HOST:</p> <pre>setenv MSCP_NASTRAN_CMD69 /msc/bin/nast69</pre> <p>For a complete listing of application variables see the default site_setup file.</p>
NASTRAN_VERSION	<p><i>UNIX only.</i> See Customizing Analysis Preferences in p3trans.ini (p. 62) for Windows NT equivalent.</p> <p>Sets the default MSC/NASTRAN version on the Preference translation parameters form.</p>
MSCP_[app]_SCRATCHDIR <dir>	<p><i>UNIX only.</i> See Customizing Analysis Preferences in p3trans.ini (p. 62) for Windows NT equivalent.</p> <p>Sets the scratch directory for application, [app]. Default is /tmp. For example, to use /msc/tmp as scratch for MSC/NASTRAN:</p> <pre>setenv MSCP_NASTRAN_SCRATCHDIR /msc/tmp</pre> <p>For a complete listing of application variables see the default site_setup file.</p>

Variable	Purpose
P3_ALLOW_USER_UGII_SETTINGS <yes/no>	Setting to “yes” forces MSC/PATRAN to use current Unigraphics environment variables instead of built in MSC/PATRAN Unigraphics Access library variables. This allows MSC/PATRAN to use alternate installations of Unigraphics. setenv P3_ALLOW_USER_UGII_SETTINGS yes
UGII_TMP_DIR <dir> UGII_UGSOLIDS_TMP <dir>	Set the scratch directories for Unigraphics CAD Access and the Unigraphics CAD Access UGSOLID module. setenv UGII_UGSOLIDS_TMP /tmp
CAT_UNLOAD <dir>	Directory where CATIA is unloaded for use by MSC/PATRAN CATIA Direct Access. Default is /usr/catia/unload.
CATIA <dir>	Directory where CATIA configuration files are located for use by MSC/PATRAN CATIA Direct Access. Default is /usr/catia/cfg.
CAT_CUST ~<username>	CATIA administrator’s account for use by MSC/PATRAN CATIA Direct Access. Default is ~catadm.
CATMSTR <declaration_file>	CATIA user declaration file to be used by MSC/PATRAN CATIA Direct Access. Default is \$HOME/USRENV.dcls.
MSCP_CATIA_LANG <language>	CATIA language to be used by MSC/PATRAN CATIA Direct Access. Default is en_US (en_US.iso88591 on HP-UX systems).
CATIA_TMP_DIR <temporary directory>	A directory used by MSC/PATRAN CATIA Direct Access as temporary storage for the working model. CATIA must have write and read permission in this directory. It must be declared in the USRENV.dcls file (that is specified by the CATMSTR variable) as shown in the following two lines: alias PATRAN_T = catia.model = 'xxxxxxx'; Where 'xxxxxxx' is the location of the directory that you entered here. Note: Do not use tabs or other invisible characters. There is no default for this directory.
AFEA_TMP_DIR <dir> SPLIT_SCRATCH <dir> AUX_SCRATCH <#> <dir>	Set directory paths and options for the MSC/PATRAN Advanced FEA module. See MSC/PATRAN ADVANCED FEA User’s Guide for additional information.
P3_PORT <port_num> P3_MASTER <hostname> P3_PLATFORM <platform> P3_ORG <org_name>	These environment variables for MSC/ANALYSIS MANAGER can be set in site_setup. For more information see Organization Environment Variables (p. 73) in the <i>MSC/PATRAN ANALYSIS MANAGER User’s Guide</i> . Applicable to UNIX installations only.

Variable	Purpose
PDB_C_CACHE_SIZE <bytes>	<p>Specifies the maximum amount of virtual memory the MSC/PATRAN database system (PDB) will access. Set this value prior to executing MSC/PATRAN.</p> <p>setenv PDB_C_CACHE_SIZE 138412032</p> <p>For additional information see MSC/PATRAN Database Caching and Swapping (p. 84)</p>
PDB_C_SWAP_DIR <dir>	<p>Specifies the locally mounted directory in which a scratch/swap file is to be allocated, if necessary. The setting of this value only takes effect before swapping starts.</p> <p>The default is NULL, which causes the value stored in the unix TMPDIR environment variable, or the value stored in the NT TMP environment variable to be used if they are set.</p> <p>For additional information see MSC/PATRAN Database Caching and Swapping (p. 84)</p>
MSC_LICENSE_FILE <port@hostname> MSC_LICENSE_FILE <license_file_path>	<p>Sets the location of the license.dat file or the port address for the license server for FLEXlm licensing of MSC/PATRAN products. If not set, MSC/PATRAN will look in /msc/flexlm/licenses/licenses.dat</p> <p>setenv MSC_LICENSE_FILE 1011@alpha1 setenv MSC_LICENSE_FILE /msc/license.dat</p>
P3_ENABLE_NFS_DB_ACCESS <yes/no>	<p><i>UNIX only.</i> Applicable only when accessing MSC/PATRAN v7.6 or earlier databases.</p> <p>Sets InterBase NFS Access option on or off. If set to yes, the “Enable NFS Access” will be on by default on the File/New and File/Open forms.</p> <p>setenv P3_ENABLE_NFS_DB_ACCESS yes</p>
TMP <dir>	<p>Sets the directory used by InterBase for scratch. Applicable only when accessing MSC/PATRAN v7.6 or earlier databases. Default is /tmp:</p> <p>setenv TMP /tmp</p>
TMPDIR <dir>	<p>A standard UNIX or NT variable. Used by MSC/PATRAN to determine the location for PDB scratch files.</p> <p>setenv TMPDIR /tmp</p> <p>For additional information see MSC/PATRAN Database Caching and Swapping (p. 84)</p>
P3_mainFont <main_font>	<p>Set the main font for menu windows. Can also be set with an application resource file. See Application Resources (p. 74) for more details.</p> <p>setenv P3_mainFont 9x15bold</p>
P3_textFont <text_font>	<p>Sets font used for databox text. See above.</p>
P3_spreadFont <spread_font>	<p>Sets font used in spreadsheets. See above.</p>

5.2 Application Resources

MSC/PATRAN uses application resources files (listed in **Table 5-2**) to define the minimum set of X resources needed for specific MSC/PATRAN. These resources include an optimal color scheme, default window locations and appropriate font sizes.

The MSC/PATRAN CD-ROM provides these resource files, automatically placing them under the `<installation_dir>/patran8x/app-defaults` directory when you execute the `mscsetup` program. In Unix installations, each user may copy these files to their home directory for individual customization.

In Windows NT installations, application files are copied into the `<exceed_dir>\users` directory. See **Application Resources** (p. 66) in the Windows NT Installation chapter for additional information.

Table 5-2 MSC/PATRAN Application Resource Files

MSC/PATRAN Application or Module	Application Resource File ^a
FrameMaker and FrameViewer (the MSC/PATRAN on-line help system)	Maker
MSC/PATRAN ANALYSIS MANAGER	P3Mgr
MSC/FATIGUE	P3fatigue
PATRAN	Patran

a. All MSC/PATRAN application resource files are located under the directory, `<installation_dir>/patran8x/app-defaults`.

Font Selection Using .Xdefaults or Patran File

To specify a font for one or all three types used by MSC/PATRAN, edit the `.Xdefaults` or `Patran` file (see above) and enter the appropriate line(s):

```
Patran*mainFont: <main_font>
Patran*textFont: <text_font>
Patran*spreadFont: <spread_font>
```

where `<main_font>` is the font name to be used for the main font selection; `<text_font>` is the font name to be used for the databox text entries; and `<spread_font>` is the font name to be used for the spreadsheet text.

Alternatively, fonts can be specified at the command line using the `-fn`, `-tfn`, and `-sfn` options. See **Command Line Arguments** (p. 79) for additional information.

You can determine the available font names as follows:

UNIX:

Run the xlsfonts utility.

```
% xlsfonts | more
```

NT:

Run the Xconfig utility (:Start|Exceed|Xconfig") and choose the menu "Fonts|Font Database|List Fonts".

5.3 The *.pcl and *.def Setup Files

MSC/PATRAN's various customization files are applicable to both UNIX and Windows NT installations unless otherwise noted.

5.3.1 settings.pcl

The `settings.pcl` file contains parameters that MSC/PATRAN uses on start-up. All entries are PCL commands and use the format:

```
pref_env_set_<datatype>( "<variable>", "<setting>" )
```

MSC/PATRAN searches for a `settings.pcl` in the following order: current working directory, users home directory (login directory on UNIX, and home directory as defined by the user profile on Windows NT), and finally in `$P3_HOME`.

If it does not find a `settings.pcl` file, it creates the file in the working directory. Users may wish to copy this file to their home directory.

MSC recommends that users modify a file created by MSC/PATRAN since the format is very specific. Important variables and settings are listed in **Table 5-3**. For example, a proper setting to turn on hardware graphics would be:

```
pref_env_set_string( "graphics_hardware", "YES" )
```

Table 5-3 settings.pcl Variables

Variable	Setting	Purpose
graphics_hardware	string: YES/NO	Turns on or off use of hardware graphics. See MSC/PATRAN 3D Graphics Drivers (p. 25)
graphics_colors	integer: 64<val<256	Number of Xwindow colormap colors MSC/PATRAN will use.
graphics_fullcolor	string: YES/NO	Sets MSC/PATRAN color mode. Normally not set by user since it is set automatically. See MSC/PATRAN 3D Graphics Drivers (p. 25)
graphics_refresh	string: YES/NO	If set to YES, MSC/PATRAN will automatically refresh the viewport when it changes. This is useful on systems that do not have backing store capability.
graphics_hardware_OpenGL	string: YES/NO	Indicates if MSC/PATRAN will use OpenGL graphics libraries with the current graphics device. See MSC/PATRAN 3D Graphics Drivers (p. 25)
ToolbarHeight	real: 0<val<1	Height of the icon toolbar. Set automatically.

Variable	Setting	Purpose
ApplSwitchHeight	real: 0<val<1	Height of form switch area. Set automatically.
VisibleHistoryItems	integer: 1<val<80	Size of history window in lines.
pick_rectpoly	integer: 1,2,3	Whether you enclose the entire entity (1), its centroid(2), or a portion of the entity(3).
show_cycle_picking_form	logical: TRUE/FALSE	Causes MSC/PATRAN to display a cycle clicking box when select databoxes are active.
entity_picking_cursor	string: holeangle xhole +hole + x	Defines cursor type for selecting when select databoxes are active. Typically this is set using the Preferences Picking form.
select_menu_always_on_top	logical: TRUE/FALSE	Causes the select menu to always float above all other forms. <i>This should be set to “FALSE” on Windows NT installations or users will not be able to type into select list boxes.</i>
SmallScreenLayout	logical: TRUE/FALSE	A TRUE setting invokes MSC/PATRAN in a layout suitable for 1024x768 displays. This variable is not automatically created in the <code>settings.pcl</code> file and must be entered by hand. Default is FALSE.

5.3.2 p3epilog.pcl

Use the `p3epilog.pcl` file to include custom PCL programs into MSC/PATRAN on start-up. For example, a sample `p3epilog.pcl` file, included in the shareware directory, creates the shareware utilities menu (see **Installing PCL Utilities and MSC Institute Files on UNIX** (p. 45) or **Installing PCL Utilities on Windows NT** (p. 64)).

MSC/PATRAN searches for the `p3epilog.pcl` in the same manner as for the `settings.pcl` (see **settings.pcl** (p. 76)), but does not create a template file if none exists. For more information see **PCL Start-Up File** (p. 46) in the *MSC/PATRAN User's Guide, Part 9: PCL and Customization*.

5.3.3 Definition Files

MSC/PATRAN recognizes several files ending in “.def” at start-up.

MSC/PATRAN searches for .def files first in the current working directory, next in the users home directory (login directory on UNIX, and home directory as defined by the user profile on Windows NT), and finally in \$P3_HOME. The exception is `p3toolbar.def` which is NOT searched for in the working directory.

The MSC/PATRAN User's Manual describes each of these files. Default examples are created in the <installation>/patran8x directory during installation.

- `p3_printers.def` - Defines printers available for hardcopy. See **Printer Configuration File** (p. 117) in the *MSC/PATRAN User's Guide, Part 2: Basic Functions*
- `p3_user_menu.def` - Defines a user menu on the top menu bar for shareware PCL utilities.
- `p3_quickpick.def` - Defines icons and commands for the floating quickpick tools. See **Quickpick** (p. 279) in the *MSC/PATRAN User's Guide, Part 2: Basic Functions*
- `p3toolbar.def` - Defines icons and commands for the icon toolbar. See **Quickpick** (p. 279) in the *MSC/PATRAN User's Guide, Part 2: Basic Functions*

5.4 Command Line Arguments

MSC/PATRAN recognizes a number of command line arguments. For example, the following UNIX command causes MSC/PATRAN to execute the commands in test.ses upon opening, to this session to example1.ses, and to store 500 lines of commands in the history window:

```
% patran -sfp test.ses -sfr example1.ses -hl 500
```

Command line options are applicable to both UNIX and Windows NT unless otherwise noted:

Table 5-4 MSC/PATRAN Command Line Arguments

Command Line Arguments	Purpose
-display <device>	Redirects display to given device. Equivalent to environment variable "setenv DISPLAY device:0.0".
-sfp <ses_file>	Causes MSC/PATRAN to execute the user supplied session file named <ses_file> upon start-up
-sfr <ses_file>	Causes MSC/PATRAN to open and record the executed MSC/PATRAN commands to the session file named <ses_file> instead of the default "patran.ses.xx"
-hl <#_lines>	Sets the number of visible lines stored in the history window. Default is 200. Maximum is 10000.
-b	Causes MSC/PATRAN to execute in batch mode (without windows). If given with no other flags MSC/PATRAN will run a test of licensing and write permissions then exit. In batch mode MSC/PATRAN does not accept input from the mouse or keyboard. If given with the -sfp flag MSC/PATRAN will execute given session file with no graphics.
-fn 	Font used for menu windows.
-tfm 	Font used for text data boxes.
-sfm 	Font used in spreadsheets.
-showfonts	Causes MSC/PATRAN to show which fonts are being used. <i>UNIX only.</i>
-EchoEnv	Causes MSC/PATRAN to list environment variables that it has recognized including those set in the .site_setup file. <i>UNIX only.</i>
-ans <yes/no>	Forces all prompts in MSC/PATRAN to be answered yes or no. Use this with extreme caution.
-hb <idle/off>	Controls the MSC/PATRAN heartbeat in the upper right corner of the screen. If set to "idle" the heart "beats" constantly regardless of activity. If set to "off" it will never "beat."
-bg <xcolor> -fg <xcolor>	Sets the background and foreground colors for menu windows (not the viewport). These are typically set in the application resource file.

5.5 UNIX Shell Resource Limits

Shell resource limits are applicable to UNIX installations only. The `cshell` under many operating systems has built in resource limits which the `limit` command controls:

```
% limit
cputime      unlimited
filesize    1048575 kbytes
datasize    131072 kbytes
stacksize   32768 kbytes
coredumpsize 1024 kbytes
memoryuse   32768 kbytes
```

If users encounter crashes or memory related errors, have them change the limits for `cputime`, `filesize`, `datasize`, `stacksize`, and `memoryuse` to their maximums immediately before running MSC/PATRAN (in the same shell) with the following command:

```
% limit datasize unlimited
% limit stacksize unlimited
```

Note that the value shown by the `limit` command may be “unlimited” or may show the maximum system allowable.

Place these commands in the users `.cshrc` file to make the change effective in all shells.

If you are running Korn shell, replace the `limit` command by a similar command called `ulimit`, since the Korn shell does not have limits by default.

5.6 The PDB Database System

As of MSC/PATRAN version 8, the InterBase database system has been replaced by a custom database system tailored specifically to MSC/PATRAN. This **Patran Database (PDB)** includes aspects of both relational and object oriented databases. Its features include:

- Improved performance and stability for MSC/PATRAN products
- Enhanced compatibility between platforms (see **Moving Databases Between Platforms** (p. 83))
- Automatic compression on database close.
- Greater control over memory management (see **Environment Variables** (p. 70))
- No additional installation requirements since it is built into MSC/PATRAN
- Improved compatibility with NFS mounted databases and working directories.

Important: While the PDB database system is generally quite stable, a system failure (i.e. running out of disk space) can corrupt databases if they occur while MSC/PATRAN is performing significant database activity. For this reason, The MacNeal-Schwendler Corporation recommends regular backups.

5.6.1 Upgrading Databases

MSC/PATRAN automatically upgrades old databases to the current version when you open them. If you have a large number of databases, we recommend that you upgrade these in one “batch” process. Note that once a database is converted, it cannot be reopened in an older version.

Conversion from version 7.5 or earlier (InterBase) to version 8 or later (PDB) requires a valid InterBase installation. For this reason, The MacNeal-Schwendler Corporation recommends updating all databases as soon as possible following installation of version 8 or later. InterBase is available on the version 8 CD-ROM, but must be specially installed. For additional information, see **InterBase in Version 8 or later** (App. B).

Important: MSC strongly recommends that you backup all MSC/PATRAN databases prior to running a batch conversion. A catastrophic system failure could result in database corruption.

The following command converts files from their current database schema version to the latest version (at least one filename must be supplied):

```
# <installation_dir>/patran8x/bin/p3convert <file1.db> <file2.db>
```

5.6.2 Creating Custom Template Databases

MSC/PATRAN provides a file called `template.db` under the directory, `<installation_dir>/patran8x`. By default, this file is copied to the user's directory when you create a new database. This `template.db` file becomes your new, empty database.

Important: The following analysis preferences are not loaded into the `template.db` by default. If you use one of these preferences you should create a new custom `template.db` by following the instructions below.

- MSC/PATRAN LS-DYNA 3D Preference
- MSC/PATRAN MSC/DYTRAN Preference

The `template.db` file contains information for the many Application Preferences. If your site uses a small number of the Application Preferences and Modules, you may wish to create custom database to reduce the size of empty databases. MSC provides a `base.db` file to create a customized template file. We also provide an MSC/NASTRAN only database called `mscnastran_template.db`. See **Modifying the Database Using PCL** (Ch. 7) in the *MSC/PATRAN User's Guide, Part 9: PCL and Customization* for more information.

Create Custom File from `base.db`

1. Execute MSC/PATRAN, and create a new database called `custom_template.db`.
2. Load desired Analysis Preference data sets by entering one or more of the following commands in the MSC/PATRAN *Command Line*:

<code>load_abaqus()</code>	For MSC/PATRAN ABAQUS
<code>load_ansys()</code>	For MSC/PATRAN ANSYS (pre Revision 5.0)
<code>load_ansys5()</code>	For MSC/PATRAN ANSYS (Revision 5.0)
<code>load_lsdyna3d()</code>	for MSC/PATRAN LS-DYNA 3D
<code>load_marc()</code>	For MSC/PATRAN MARC (pre K5).
<code>load_marck5()</code>	For MSC/PATRAN MARC (K5)
<code>load_mscnastran()</code>	For MSC/PATRAN MSC/NASTRAN
<code>load_padvancedfea()</code>	For MSC/PATRAN ADVANCED FEA
<code>load_patran2nf()</code>	For PATRAN 2 Neutral File
<code>load_pfea()</code>	For MSC/PATRAN FEA
<code>load_pthermal()</code>	For MSC/PATRAN THERMAL
<code>load_samcef()</code>	For MSC/PATRAN SAMCEF
<code>load_pamcrash()</code>	For MSC/PATRAN PAMCRASH
<code>load_mscdytran()</code>	For MSC/PATRAN MSC/DYTRAN
<code>load_mscdroptest()</code>	For MSC/PATRAN MSC/DROPTTEST
<code>load_generics()</code>	Loads generic definitions for those developing a MSC/PATRAN custom interface.

3. Exit MSC/PATRAN by selecting Quit from the File menu.

4. Make the custom database available to users by moving the `custom_template.db` file to either the `<installation_dir>/patran8x` directory or to another directory. Tell your users about this `custom_template.db` file so they can reference it when they create a new database.

5.6.3 Moving Databases Between Platforms

In MSC/PATRAN versions prior to v8 databases were platform specific. For example, you could not move a database that MSC/PATRAN created on a HP-UX to a SUN SOLARIS without using a special utility (see **InterBase in Version 8 or later** (App. B) for information on the InterBase `gbak` utility).

As of version 8, MSC/PATRAN databases are directly transportable between Hewlett-Packard HP-UX, IBM AIX, SGI IRIX, and SUN Solaris. No conversion is necessary. Windows NT and Digital UNIX, however, use different binary structures. For this reason transporting a database to or from Windows NT or Digital UNIX requires conversion.

Table 5-5 System Binary Formats

Platform	Binary Format
HP-UX , IBM AIX, SGI IRIX, SUN SOLARIS	32 bit Big Endian
Digital UNIX	64 bit Little Endian
Intel or clones running Windows NT	32 bit Little Endian

MSC/PATRAN will perform this conversion automatically. For example, FTP (*remember to use binary mode*) a database from a DEC UNIX workstation, and open it on a SUN SOLARIS workstation. MSC/PATRAN will automatically recognize the format and convert it.

The utility can also be executed outside of MSC/PATRAN:

```
% /msc/patran80/bin/dbport <filename>
```

Important: MSC/PATRAN and the `dbport` utility cannot act on files that are in *both* the wrong binary format and the wrong version. For example, if you have a v7.5 database on a SUN SOLARIS workstation and FTP it to a DEC UNIX workstation, MSC/PATRAN v8.x will not be able to open the file. You must run `p3convert` on the SUN before moving the file. See **Upgrading Databases** (p. 81) for additional information.

5.6.4 MSC/PATRAN Database Caching and Swapping

The PDB database stores frequently accessed data in a memory cache. The size of this cache is controlled by the `PDB_C_CACHE_SIZE` environment variable.

While memory space required by the database system is less than the cache size, MSC/PATRAN write to system memory and swap space normally. If the cache size is exceeded, MSC/PATRAN will write to a scratch file in the directory defined by the `PDB_C_SWAP_DIR` environment variable.

The scratch file allows you to manage files that would normally exceed available memory/swap space, but is significantly slower. For this reason, the default `PDB_C_CACHE_SIZE` value is 1GB allowing MSC/PATRAN to use all available system memory and swap (unless more than 1GB is available). You may wish to increase the cache size if your database size exceeds the 1GB default. To modify environment variables see [Environment Variables](#) (p. 70).

Note that these values only affect memory required by database operations. A large meshing operation, for example, will still require system memory and swap. If your system runs out of memory or swap space MSC/PATRAN (or other programs) may shutdown. See [Memory and Performance](#) (p. 9) for more information on memory and swap space.