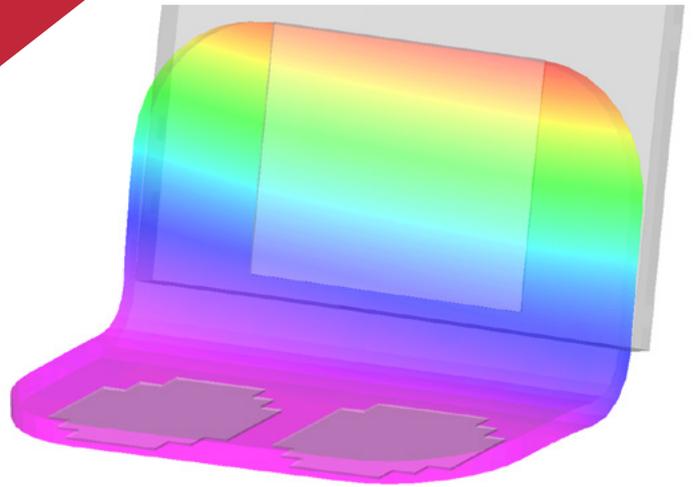


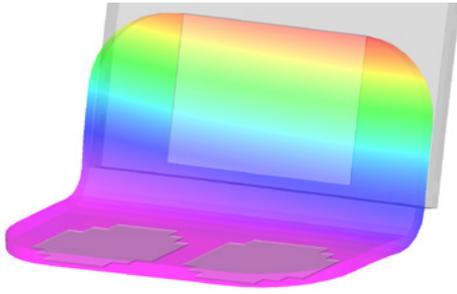
NX Nastran 10

WHITEPAPER

Understanding and Customizing Nastran Configuration with RC File



Understanding and Customizing Nastran Configuration with RC File



Software:
NX Nastran 10

Overview

Configuring Nastran may seem like a topic for the system administrator who is installing Nastran on your system, but it is actually a topic that requires broader understanding. Many behaviors and default settings are set during the Nastran installation, and those settings can have considerable impact on the performance of Nastran, so it is important for the analyst to know how their installation of Nastran is configured and how they can change it if necessary.

The configuration is governed by a Runtime Configuration file, or RC file. At the system level, the file is located in the installation directory (usually something like %INSTALL_DIR%\conf\nastn.rcf). The last “n” in nastn.rcf should be replaced by the Nastran version number, i.e., nast9.rcf for NX Nastran 9. The RC file is a text file and contains default settings for Nastran keywords and parameters. This file explains how Nastran is set up to behave on your system.

More information on RC files can be found in the NX Nastran Installation and Operation Guide → Configuring NX Nastran → Customizing Runtime Configuration Files.

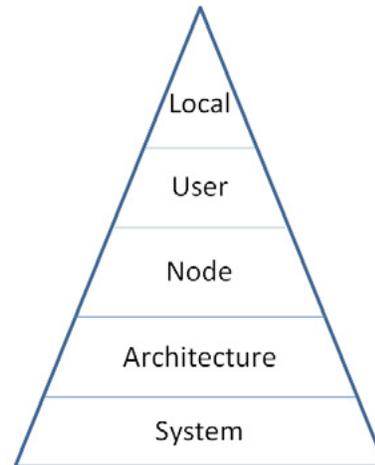
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Understanding and Customizing Nastran Configuration with RC File

Precedence of Runtime Configuration Files

There can be more than one RC file. As such, it is important to know which RC file Nastran is going to pay attention to. The main RC file is located in the installation directory (as noted above); that is referred to as the “system” RC file. If that Nastran installation is visible to multiple operating systems (Linux machines and Windows machines using the same Nastran installation), then there may be a separate RC file for each “architecture,” located in %INSTALL_

Figure 1: ►
Order of precedence.



DIR%\conf\arch\nastn.rcf. Further customization may require that an individual node in a computing cluster have a different configuration (for instance, if it has a different amount of memory available). In that case, there could be an RC file governing that node in %INSTALL_DIR%\conf\net\nodename\nastn.rcf. Each user may also have their own Nastran default setup by placing an RC file in %HOMEDRIVE%%HOMEPATH%\nastn.rcf. A user can create a special default setup by placing an RC file in the local directory. The order in which the settings take precedence is shown in Figure 1, with the local RC file taking the highest precedence while the system file takes the lowest.

As seen above in the example file path specifying the default user RC file location, environment variables affect the way keywords work. The most common ones are listed in Table 1.

Understanding and Customizing Nastran Configuration with RC File

Environment Variable	Purpose
HOME (Linux)	User home folder
HOMEPATH (Win)	User home folder
HOMEDRIVE (Win)	User home drive
LM_LICENSE_FILE	Set authorize keyword
NXN_LICENSE_FILE	Set authorize keyword
TEMP (Win)	Set sdir default
TMPDIR (Linux)	Set sdir default
NXN_BASE	Set folder as install_dir

Table 1: ▶
Removing side ribs with Remove Face.

Most of these environment variables set default values or define folder locations, and the LM_LICENSE_FILE and NXN_LICENSEFILE environment variables set the value for the authorize keyword and override authorize keyword settings in RC files. There are two places you can change the settings of any keyword that will take precedence over the RC files: on the NASTRAN statement in your input deck and on the command line (in order of precedence).

What Are Keywords and What Are They For?

When you run Nastran, you can set certain options using keywords on the command line. If you are running interactively, you can set these keywords in the Optional keywords field seen in Figure 2.

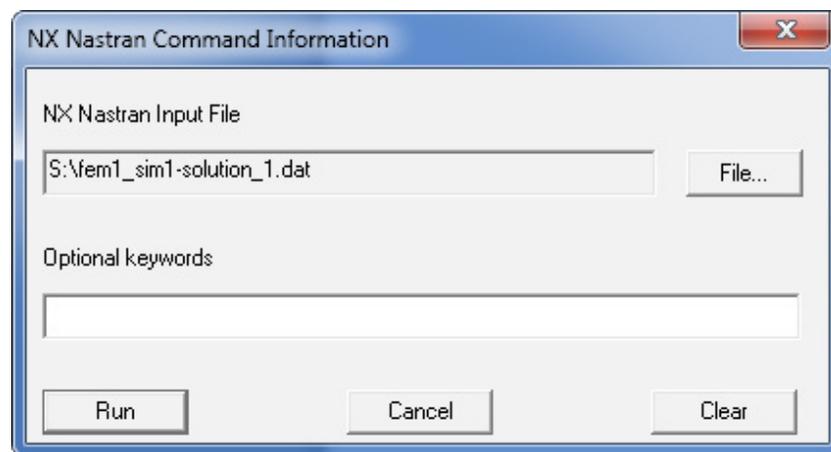


Figure 2: ▶
NX Nastran command information dialog.

Understanding and Customizing Nastran Configuration with RC File

The list of available keywords can be found in the NX Nastran Installation and Operations Guide in the section on Keywords and Environment Variables. A list of commonly used keywords is given in Table 2.

Keyword	Description	Default Value
append	Combines .f06, .f04, and .log files into .out file.	no
authorize	Selects licensing method. May take form port@host or path-name to license file.	port@host
batch	Runs the Nastran job in the background (Linux).	yes
buffsize	Sets the record size for all DBsets in words (2^n+1).	8193
dbms	Controls prefix name and/or path of database files.	.
delete	Deletes Nastran output files at end of run.	no
diag	Turns on diagnostics (same as executive control).	none
dmpparallel	Sets number of distributed memory parallel (DMP) tasks.	0
jidpath	Search path for input file or include files.	none
memory	Sets the amount of open core memory. Skips ESTIMATE.	estimate
memorymax	Sets limit on memory that can be requested.	0.8*physical (Linux) 1.2*physical (Win)
parallel	Sets number of CPUs for shared-memory parallel (SMP).	0
rcf	Sets path to the RC file.	none
scratch	Deletes database when done. "mini" only store in database sufficient for data recovery restart.	no
sdir	Sets directory to use for scratch files.	TMPDIR (Linux) TEMP (Win)
smem	Sets the amount of open core memory used for scratch.	100

Table 2: ▲

Common NX Nastran keyword options and default values.

Understanding and Customizing Nastran Configuration with RC File

Setting Parameter Defaults in RC Files

You can also change the default settings for parameters in RC files. This can be done simply by adding the parameter and its default setting to the desired RC file. The format is as follows:

```
PARAM, name, value
```

You can also create keywords to correspond with parameters by creating a `nastran.params` file. The `nastran.params` file is a text file in which each line specifies a keyword to be associated with a parameter and its associated values. The format is as follows:

```
keyword name : param name : param value
```

The keyword name should be a single word without any embedded white space and should not conflict with any existing keyword names. The keyword can be the same as the parameter name, and the parameter name must be the name of some Nastran parameter. The parameter value is used to check the syntax of the command line. The parameter value can be set to “number” if it is integer or real, or it can be set to a list of acceptable values in braces, for example

```
mykdamp : KDAMP : number
chkout : CHECKOUT : {"yes", "no"}
```

Once the keywords are defined, you can use them on the Nastran command line like any other keyword:

```
nastran example.dat mem=2gb chkout=yes
```

Remember that precedence rules for parameters are the same as for other keywords. Specification in the input deck comes first and in the system RC file comes last.

More information using keywords to set parameter values can be found in the NX Nastran Installation and Operations Guide → Configuring NX Nastran → Customizing the Runtime Configuration Files → Parameter Specification.

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