

IRIX[®] Environment Variables Ready Reference

007-3942-002

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About This Guide

This publication documents the environment variables which are used on IRIX operating systems. It documents common environment variables used in the operating system, as well as those used by other products which run on IRIX operating systems.

In many cases, additional documentation is available about these environment variables in specific documents. See the following section for publications that contain detailed information about environment variables for specific products.

Related Publications

The following documents contain additional information that may be helpful:

- *Fortran Language Reference Manual, Volume II*
- *ImageVision Library Programming Guide*
- *IRIS FailSafe Version 2 Programmer's Guide*
- *IRIX Admin: System Configuration and Operation*
- *IRIX NetWorker BusinessSuite for Informix (DBMI) Admin Guide*
- *IRIX NetWorker BusinessSuite Module for Oracle Administrator's Guide*
- *Message Passing Toolkit: MPI Programmer's Manual*
- *Message Passing Toolkit: PVM Programmer's Guide*
- *NQE User's Guide*
- *SpeedShop User's Guide*

In addition, the following man pages provide information about environment variables used in the IRIX operating environment:

- `environ(5)`
- `pe_environ(5)`
- `catopen(3c)`

- `ctime(3f)`
- `explain(1)`
- `setenv(1)`
- `Performer(3pf)`

Obtaining Publications

To obtain SGI documentation, go to the SGI Technical Publications Library at:

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Conventions

The following conventions are used throughout this document:

Convention	Meaning																		
<code>command</code>	This fixed-space font denotes literal items such as commands, files, routines, path names, signals, messages, and programming language structures.																		
<code>manpage(x)</code>	Man page section identifiers appear in parentheses after man page names. The following list describes the identifiers: <table><tbody><tr><td>1</td><td>User commands</td></tr><tr><td>1B</td><td>User commands ported from BSD</td></tr><tr><td>2</td><td>System calls</td></tr><tr><td>3</td><td>Library routines, macros, and opdefs</td></tr><tr><td>4</td><td>Devices (special files)</td></tr><tr><td>4P</td><td>Protocols</td></tr><tr><td>5</td><td>File formats</td></tr><tr><td>7</td><td>Miscellaneous topics</td></tr><tr><td>7D</td><td>DWB-related information</td></tr></tbody></table>	1	User commands	1B	User commands ported from BSD	2	System calls	3	Library routines, macros, and opdefs	4	Devices (special files)	4P	Protocols	5	File formats	7	Miscellaneous topics	7D	DWB-related information
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8 Administrator commands

Some internal routines (for example, the `_assign_asgcmd_info()` routine) do not have man pages associated with them.

variable

Italic typeface denotes variable entries and words or concepts being defined.

Reader Comments

If you have comments about the technical accuracy, content, or organization of this document, please tell us. Be sure to include the title and document number of the manual with your comments. (Online, the document number is located in the front matter of the manual. In printed manuals, the document number is located at the bottom of each page.)

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Operating System Environment Variables

This chapter explains some of the environment variables that are used with the IRIX operating system.

To view a complete list of environment variables that are in use, type the following command in any shell window:

```
% env
```

A list of all currently set environment variables appears in the shell window.

The specific environment variables that are set depend on the shell used (for example, `korn` shell or the `c` shell). However, the variables discussed in this chapter are often used regardless of shell.

1.1 Basic Operating System Environment Variables

EDITOR	The name of the user's preferred editor (such as <code>vi</code>).
HOME	The full pathname of the user's home directory.
LOGNAME	The user's login name.
MAIL	Full name of the directory in which electronic mail files are located.
PAGER	The default command used to page through information in a window.
PATH	A list of directories to search for executable programs.
PRINTER	The name of the default printer used for print jobs.
PWD	The present, or current, working directory.
SHELL	The current login shell.
TERM	Name of the user's terminal. The <code>TERM</code> variable is listed in a table of terminals, describing the capabilities of the terminals on the network.

TZ	The time zone for the machine.
USER	The user's login name.

1.2 Other Environment Variables

This section describes several other environment variables which are frequently included in the shell's start-up file.

NNTPSERVER	The name of the default news server.
TMPDIR	The path where swap files and other temporary files are stored.
VISUAL	Similar to the EDITOR environment variable, used to designate the preferred full screen text editor.
WEBBROWSER	The path to the default browser for Web use.

IRIS/IRIX System Administration Environment Variables

The following environment variables are used to refine the operating environment that is in place. This chapter has the following sections:

- Section 2.1, page 3, describes the Iris FailSafe environment variables.
- Section 2.2, page 5, describes the PROM environment variables.

2.1 Iris FailSafe Variables

HA_HOSTNAME	The output of the <code>uname</code> command with the <code>-n</code> option, which is the host name or nodename. The nodename is the name by which the system is known to communications networks. Default: <code>'uname -n'</code>
HA_CMDSPATH	Path to user commands. Default: <code>/usr/cluster/bin</code>
HA_PRIVCMDSPATH	Path to privileged commands (those that can only be run by root). Default: <code>/usr/sysadm/privbin</code>
HA_LOGCMD	Command used to log into the IRIS FailSafe logs. Default: <code>ha_cilog</code>
HA_RESOURCEQUERYCMD	Resource query command. This is an internal command that is not meant for direct use in scripts; use the <code>ha_get_info()</code> function of <code>scriptlib</code> instead. Default: <code>resourceQuery</code>
HA_SCRIPTTMPDIR	Location of the script temporary directory. Default: <code>/tmp</code>

HA_CDB	Location of the IRIS FailSafe database. Default: <code>/var/cluster/cdb/cdb.db</code>
HA_SCRIPTGROUP	Log for the script group.
HA_SCRIPTSUBSYS	Log for the script subsystem.
HA_NORMLVL	Normal level of script logs. Default: 0
HA_DBGLVL	Debug level of script logs. Default: 10
HA_LOGQUERY_OUTPUT	Determine the current logging level for scripts.
HA_DBGLOG	Command used to log debug messages from the scripts. Default: <code>ha_dbglog</code>
HA_CURRENT_LOGLEVEL	Display the current log level. The default will be 0 (no script logging) if the <code>loggrouQuery</code> command fails or does not find configuration information.
HA_LOG	Command used to log the scripts. Default: <code>ha_log</code>
HA_SUCCESS	Successful execution of the script. This variable is used by the start, stop, restart, monitor, and probe scripts. Default: 0
HA_NOT_RUNNING	The script is not running. This variable is used by exclusive scripts. Default: 0
HA_INVALID_ARGS	An invalid argument was entered. This is used by all scripts. Default: 1
HA_CMD_FAILED	A command called by the script has failed. This variable is used by the start, stop, restart, monitor, and probe scripts. Default: 2

HA_RUNNING	The script is running. This variable is used by exclusive scripts. Default: 2
HA_NOTSUPPORTED	The specific action is not supported for this resource type. This is used by all scripts. Default: 3
HA_NOCFGINFO	No configuration information was found. This is used by all scripts. Default: 4

2.2 Command (PROM) Monitor

netaddr	Specifies the local network address for booting across the Ethernet. See the <code>bootp</code> protocol.
dbgtty	Specifies the interactive debugger for the IRIX operating system.
root	Specifies filesystem information that is passed on to the IRIX system.
dbaud	Specifies the diagnostics console baud rate. You can change it by setting this variable (acceptable rates include 75, 110, 134, 150, 300, 600, 1200, 2400, 4800, 9600, and 19200), or by pressing the <code>Break</code> key. IRIS uses the <code>dbaud</code> rate for the diagnostics console during the entire system startup. Pressing the <code>Break</code> key changes the baud rate only temporarily; the baud rate reverts to the value specified in <code>dbaud</code> or <code>rbaud</code> when you press the reset switch or issue an <code>init</code> command.
rbaud	Specifies the remote console baud rate. The list of acceptable baud rates is the same as for <code>dbaud</code> .
bootfile	Specifies the name of the file to use for autobooting, normally a standalone shell (<i>sash</i>). This variable is valid for pre-ARCS PROMs only. ARCS PROMs store this information in the <code>OSLoader</code> variable.

<code>bootmode</code>	<p>Specifies the type of boot in pre-ARCS PROMs. ARCS PROMs store this information in the <code>AutoLoad</code> variable. The options have these meanings:</p> <ul style="list-style-type: none">• <code>c</code>: Performs a complete cold autoboot, using the file pointed to by the <code>bootfile</code> variable to boot the kernel; boots sash, then boots kernel; and runs power-on diagnostics.• <code>m</code>: Goes straight to the command monitor, clears memory, and runs power-on diagnostics.• <code>d</code>: Goes straight to the command monitor, does not clear memory and does not run power-on diagnostics. <p>Default: <code>m</code>.</p>
<code>boottune</code>	<p>Selects the boot music string. A value of 0 randomizes the selection each time. (It is supported only on Power Indigo2 and Octane systems.)</p> <p>Default: 1.</p>
<code>autopower</code>	<p>Allows systems with software power control to automatically reset after a power failure if set to <code>y</code>. (It is supported only on Power Indigo2 and Octane systems.)</p>
<code>console</code>	<p>Specifies which console to use. The following values are accepted:</p> <ul style="list-style-type: none">• <code>G</code>: Specifies a graphics console with the SGI logo in the upper left corner.• <code>g</code>: Specifies a graphics console without the SGI logo.• <code>d</code>: Specifies the terminal is not available. <p>Default: <code>g</code>.</p> <p>The <code>gConsoleIn/gConsoleOut</code> variable specifies the following variables for the graphic console.</p>
<code>keybd</code>	<p>Specifies the type of keyboard used. The default is <code>df</code>. Available settings depend on the exact PROM revision, but may include some or all of the following settings:</p>

	USA, DEU, FRA, ITA, DNK, ESP, CHE-D, SWE, FIN, GBR, BEL, NOR, PRT, CHE-F.
	On systems with the keyboard layout selector, the settings may include: US, DE, FR, IT, DK, ES, deCH, SE, FI, GB, BE, NO, PT, frCH. On some systems, JP is also acceptable to specify a Japanese keyboard.
dbgname	Specifies whether to obtain symmon, the debugger.
diskless	Specifies that the system is diskless and must be booted over the network. On ARCS systems, diskless system environment parameters should be set as follows: <ul style="list-style-type: none">• diskless=1• SystemPartition=bootp()host:/path• OSLoader=kernelname
monitor	Specifies the monitor resolution on Indy systems when an unrecognized brand of monitor is used. Set this variable to h or H to specify a high-resolution monitor. Default: low-resolution monitor.
nogfxkbd	Specifies that the keyboard is not required to be connected if set to 1.
notape	Specifies that no tape drive is attached to the system. If a tape drive is attached to the system, this variable must be set to 1 (true) in order to access a tape drive on another system on the network.
volume	Specifies (numerically) the system speaker volume.
pagecolor	Specifies the background color of the textport using a set of 6 hexadecimal RGB values.
ProbeAllScsi	Specifies that all devices on the SCSI bus are automatically examined for disks.
prompoweroff	Specifies that the system should return to the PROM monitor before powering off on shutdown if set to y. Indy systems only.
rebound	Specifies that the system should automatically reboot after a kernel panic if set to y. This variable interacts

	with the <code>AutoLoad</code> variable and the <code>reboot_on_panic</code> kernel tunable parameter.
<code>RestorePastEnv</code>	Specifies whether partition information is restored. (Supported only on SGI 3000 Series systems.)
<code>sgilogo</code>	Specifies that the SGI logo and related information is displayed on the PROM monitor graphical screen if set to <code>y</code> .
<code>diagmode</code>	Specifies the mode of power-on diagnostics. If set to <code>v</code> , diagnostics are verbose and extensive.

The following list describes command monitor environment variables that directly affect the IRIX operating system. These are not stored in nonvolatile RAM, but they do affect the operation of the PROM and of the IRIX system and are discarded if the system is powered off.

<code>showconfig</code>	Prints extra information as IRIX boots. If set through <code>setenv</code> , its value must be <code>istrue</code> .
<code>initstate</code>	Passed to the IRIX system, where it overrides the <code>initdefault</code> line in <code>/etc/inittab</code> . Permitted values are <code>s</code> and the numbers 0-6. See <code>init(1M)</code> .
<code>swap</code>	Specifies in IRIX notation the swap partition to use. If not set, it defaults to the partition configured into the operating system, which is normally partition 1 on the drive specified by the <code>root</code> environment variable.
<code>path</code>	Specifies a list of device prefixes that tell the command monitor where to look for a file, if no device is specified.
<code>verbose</code>	Tells the system to display detailed error messages.

When you boot a program from the command monitor, it passes the current settings of all the environment variables to the booted program.

The ARCS PROM defines some environment variables that are not found in older PROMs, and these are listed below:

<code>ConsoleIn/Console Out</code>	These variables are set automatically at system startup.
<code>OSLoadPartition</code>	The disk partition where the operating system kernel is located. This is also used as the default root partition and is set automatically at system startup.

OSLoader	The operating system loading program. By default, this is <code>sach</code> (the stand-alone shell). This is set automatically at system startup.
SystemPartition	The disk partition where the operating system loading program is found. This is set automatically at system startup.
OSLoadFilename	The filename of the operating system kernel. By default, this is <code>/unix</code> . This variable is automatically set at system startup.
OSLoadOptions	This variable specifies options to the boot command used to load the operating system.
AutoLoad	This variable specifies whether the operating system will boot automatically after a reset or power cycle. This variable supersedes <code>bootmode</code> and can be set to <code>yes</code> or <code>no</code> . This variable interacts with the <code>rebound</code> variable and the <code>reboot_on_panic</code> kernel tunable parameter.

Application Environment Variables

The following environment variables are used by applications that run on IRIX systems. This chapter has the following sections:

- Section 3.1, page 11, describes variables used by the Message Passing Toolkit (MPT).
- Section 3.2, page 14, describes NQS/NQE variables.
- Section 3.3, page 17, describes BusinessSuite for Oracle variables.
- Section 3.4, page 18, describes Message System variables.
- Section 3.5, page 19, describes ImageVision Library variables.

3.1 MPT/MPI/PVM Variables

The Message Passing Toolkit (MPT) is a software package that supports parallel programming across a network of computer systems through a technique known as message passing. The Parallel Virtual Machine (PVM) is used to support high-speed, internode communications between supported systems. The Message Passing Interface (MPI) is a component of the Message Passing Toolkit.

All environment variables for MPI are documented on the `mpi(1)` man page.

<code>PVM_ARCH</code>	Specifies the architecture type. The following types are supported:
<code>SGI32</code>	N32 ABI/MIPS III version using sockets
<code>SGI32mips4</code>	N32 ABI/MIPS IV version using sockets
<code>SGIMP64mips3</code>	64 ABI/MIPS III version using POSIX shared memory and sockets
<code>SGIMP64</code>	64 ABI/MIPS IV version using POSIX shared memory and sockets

PVM_ROOT	If software is installed in default locations, set this variable to <code>/usr/array/PVM</code> and the <code>PATH</code> variable to <code>\$PVM_TOOT/lib/\$PVM_ARCH</code> .
PVM_VMID	Specifies the virtual machine ID.
NLB_SERVER	Specifies the location of the NQE load balancer. This host is known as the master server. Your system administrator might have this set automatically in the <code>nqeinfo</code> file. If NQE load balancing is enabled on your system, it is used automatically by PVM. To disable NQE load balancing for PVM applications, set the <code>NLB_SERVER</code> environment variable to 0.
<hr/> Note: Support for this environment variable is deferred on IRIX systems. <hr/>	
	The default is the value in the <code>nqeinfo</code> file.
PVM_DEBUGGER	Specifies the debugger script to use when <code>pvm_spawn(3)</code> is called with <code>PvmTaskDebug</code> set. Default: <code>\$PVM_ROOT/lib/debugger</code>
PVM_DPATH	Specifies the path of the <code>pvmd3(1)</code> command or the startup script. If you use a shell (such as <code>.kshrc</code>) that does not automatically execute a startup script that sets <code>PVM_ROOT</code> on added hosts, you can set <code>PVM_DPATH</code> to the full or relative path of the <code>pvmd</code> startup script, such as <code>\$PVM_ROOT/lib/pvmd</code> . This startup script automatically sets <code>PVM_ROOT</code> . Default: <code>\$PVM_ROOT/lib/pvmd</code> . You can override this setting by using the <code>dx=loc</code> option in the host file.
PVM_EXPORT	Names the environment variables that a parent task exports to its children by using the <code>pvm_spawn(3)</code> function. Multiple names must be separated by a colon. No default.
PVM_ROOT	Specifies the path where PVM libraries and system programs are installed. For PVM to function, this

	variable must be set on each PVM system. This is set automatically when you load the <code>mpt</code> module to access the Message Passing Toolkit software.
PVM_RSH	<p>Specifies that an alternative remote shell command, such as <code>krsh</code> (a Kerberos version of <code>rsh</code>), can be selected. <code>PVM_RSH</code> can specify the full path or relative path to the alternative remote command.</p> <p>If using Array Services, default is <code>/usr/sbin/arshell</code>. If not using Array Services, <code>/usr/bsd/rsh</code>.</p>
PVM_SHMEM_DIR	<p>Directory location of the POSIX shared memory files.</p> <p>Default: <code>/usr/tmp</code> (only valid for SGIMP64 and SGIMP64mips3 architecture types)</p>
PVM_SLAVE _STARTUP_TIMEOUT	<p>Specifies the length of time that the master daemon will wait for a slave daemon to make contact after the slave daemon is started.</p> <p>Default: 60 seconds</p>
PVM_VMID	<p>Sets the virtual machine identification (VMID) number for the host. This environment variable allows a host to be included in more than one virtual machine by using one <code>pvmd3</code> command per virtual machine per host. The virtual machine number is appended to the file name of the PVM log and daemon socket files, so that they appear as <code>pvml.uid.vmid</code> and <code>pvmd.uid.vmid</code>.</p> <p>The previous name of this variable is <code>PVMJID</code>. This name is supported in the MPT 1.3 release, but will not be supported in subsequent releases.</p> <p>Default: 0</p>

Note: This environment variable prevents IRIX PVM from interoperating with any implementation other than SGI IRIX PVM implementations.

PVMBUFSIZE Specifies the size of the shared memory buffer for each task and daemon.

See the `INTRO_SHMEM(3)` man page for details about shared memory (SHMEM) environment variables.

3.2 NQE/NQS

NQE is a product that lets users submit, monitor, and control batch requests for execution on an NQS server in an NQE cluster.

3.2.1 Variables Set by NQS

QSUB_HOME	Path name of the home directory for the user who submitted the request.
QSUB_LOGNAME	Login ID (user name) of the user who submitted the request.
QSUB_MAIL	Path name of the mail box for the user who submitted the request.
QSUB_PATH	Search path for commands for the user who submitted the request.
QSUB_TZ	Time zone for the user who submitted the request.
QSUB_USER	User name of the user who submitted the request.
NQE_SHEPHERD_PID	Shepherd process ID (PID) of the job.
QSUB_HOST	Host name of the NQS server.
QSUB_REQID	Request identifier for the request.
QSUB_REQNAME	Name of the request.
QSUB_WORKDIR	Current directory when the request was submitted.
QSUB_NQC	Host name of the NQE client.
TMPDIR	Requests temporary directory, created by NQS.
ENVIRONMENT	NQS sets the <code>ENVIRONMENT</code> environment variable to a value of <code>BATCH</code> . You can use this variable, for example, in <code>.profile</code> , <code>.login</code> , or <code>.cshrc</code> files to differentiate between interactive and batch sessions. This

environment variable can be used to avoid performing terminal setup operations for a batch request. A benefit of NQS initiating the batch request as a login shell is that `.profile`, `.login`, or `.cshrc` scripts are run, and your environment is set up as expected.

3.2.2 Environment Variables Set by the LWS

<code>NQEDB_CLIENHOST</code>	Host from which the request was submitted.
<code>NQEDB_ID</code>	Database name and the task ID (for example, <code>nqedb.t123</code>).
<code>NQEDB_USER</code>	NQE database user name that owns the task (usually <code>\$LOGNAME</code>).

3.2.3 NQE Environment Variables That Users Can Set

<code>QSUB_QUEUE</code>	Names a specific queue to be used.
<code>NQSATTR</code>	Lists attributes associated with the request.
<code>NQSCHGINVOKE</code>	Specifies that NQS invoke one shell instead of two shells.
<code>NQEINFOFILE</code>	Specifies the path name of the NQE configuration file, which is the <code>nqeinfo</code> file. If this is set, the values for all environment variables that are set within the <code>nqeinfo</code> file will be used. If you use the command line interface, this environment variable is effective only when using the client commands (<code>cevent</code> , <code>clload</code> , <code>cqdel</code> , <code>cqstatl</code> , and <code>cqsub</code>). For more information about the <code>nqeinfo</code> variables, see the <code>nqeinfo(5)</code> man page.
<code>NQE_GROUP</code>	Specifies a name associated with one or more job dependency events. If you do not set this variable, you must specify a group name on each <code>cevent</code> command line. NQS automatically exports the value of the environment variable if you set it, so you do not have to export all environment variables each time you submit the request. If you use the command line interface, this environment variable is effective only

	when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).
<code>NQE_DEST_TYPE</code>	Designates the destination of your request (either <i>nqs</i> or <i>nqedb</i>). If you use the command line interface, this environment variable is effective only when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).
<code>NQEDB_USER</code>	Designates the NQE database user name for a request being submitted to the NQE database. If you use the command line interface, this environment variable is effective only when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).
<code>NQS_PASSWORD_NEEDED</code>	Prompts for a password when you submit requests, request status, delete requests, or send signals to requests from the client. If you use the command line interface, this environment variable is effective only when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).
<code>NQS_SERVER</code>	Directs your request to run on a specified server or to communicate with the specified server. If you use the command line interface, this environment variable is effective only when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).
<code>NLB_SERVER</code>	Designates a specified host in your network on which the NLB software is located. This environment variable is used for system load displays. If you use the command line interface, this environment variable is effective only when using the client commands (<i>cevent</i> , <i>cload</i> , <i>cqdel</i> , <i>cqstat1</i> , and <i>cqsub</i>).

3.2.4 ILB Variables

You can set the following *ILB* (interactive load balancing) environment variables. For information about executing a load-balanced interactive command, see the *ilb(1)* man page:

<code>ILB_USER</code>	Defines the login name to use on the remote system. This variable also alters the value of <code>\$USER</code> in the <i>ilbrc</i>
-----------------------	--

files. The default value is whatever \$LOGNAME is set to be in your environment.

ILB_PROMPT

A regular expression that identifies your prompt on a remote machine. The default value is "`^\.[%$#:\]\$`", which looks for any string ending with `%`, `$`, `#`, or `:`.

The NLB_SERVER environment variable can also be used when using the `ilb` environment variables; NLB_SERVER defines the machine name and port number of the NLB server.

To use NQE, you must set the following environment variables:

- DISPLAY must be set to `local_workstation_name:0` for the NQE graphical user interface (GUI) to work.

Note: If your site has access control in place for using X Window System applications, contact your system administrator to determine if you need additional settings.

- PATH must include the path name of the NQE commands. The default path name is `/nqebase/bin`. System administrators also must include `/nqebase/etc` in their PATH environment variable to use certain NQE administrator commands.
- MANPATH must include the path name of the NQE man pages. The default name is `/nqebase/man`.

To verify that your site's path names are the NQE system default, use the following command:

```
% cd /nqebase/bin
```

3.3 BusinessSuite Module for Oracle (DMO)

NSR_CLIENT

The NSR_CLIENT environment variable indicates the NetWorker client resource to use for the recover session.

Default: Host from which the session is initiated, as indicated by `getlocalhost()`.

NSR_COMPRESSION	Indicates whether to compress the backup data as it is sent to the NetWorker server. Default: FALSE.
NSR_DATA_VOLUME_POOL	Indicates the volume pool to which datafiles should be backed up. Default: BusinessSuite Module does not set a pool by default - if none is specified, the pool is selected by the NetWorker server based on its pool resources configuration.
NSR_DEBUG_FILE	Indicates the full pathname and filename of the file where BusinessSuite Module for Oracle messages should be written. Message logs for BusinessSuite Module are separated from regular NetWorker messages. Default: none
NSR_NO_BUSY_ERRORS	Indicates if the savegroup should wait for a busy NetWorker server or fail immediately. Default: FALSE. Wait for the NetWorker server to accept the connection.
NSR_SAVESET_EXPIRATION	Sets the date (in <code>getdate(3)</code> format) when this save set will expire. By default, no explicit save set expiration date is used. No default.
NSR_SERVER	Indicates the hostname of the server BusinessSuite Module for Oracle should use for a save session. Default: The most appropriate server, based on the index name and client name for the session. See also <code>NSR_CLIENT</code> .

3.4 Message System

NLSPATH	The NLSPATH variable provides both the location of message catalogues, in the form of a search path, and the naming conventions associated with message catalogue files.
---------	--

CFTIME	Used to override the format of the time stamp produced by <code>cftime</code> .
MSG_FORMAT	Used to format messages in the message system.
CMDMSG_FORMAT	Used to format messages in the message system.
PAGER	Specifies the type of pager used for online man page viewing. Default: <code>more -s</code> .

3.5 ImageVision Library

IFL_DATABASE	Specifies the file location where the IFL-supported image file formats are defined. Default: <code>ifl/src/ifl_database</code> .
IL_ARENA_MAXUSERS	Specifies the maximum number of threads that can share a multi-processing arena. Default: 40.
IL_CACHE_FRACTION	Specifies the amount of user memory reserved for the cache. Default: <code>.3</code> (30%).
IL_CACHE_SIZE	Specifies the size of the cache. Default: <code>IL_CACHE_FRACTION</code> .
IL_COMPUTE_THREADS	Specifies the number of threads generated. Default: the number of processors in the system.
IL_DEBUG	Specifies the debug level. Default: 0.
IL_HW_ACCELERATE	Specifies if hardware is used to accelerate image processing. Default: all enabled.

IL_HW_DISPLAY	Specifies the X display used by IL to obtain a display connection which is then passed to <code>XOpenDisplay()</code> .
IL_HW_RENDERER	Overrides the return value of <code>glGetString(GL_RENDERER)</code> which forces IL to treat the display as a different type of renderer.
IL_MONITOR	Specifies if all monitors are on. Default: off. Monitors print messages when specific events occur.
IL_MONITOR_CACHE	Specifies if a log entry is generated when the cache is used. Default: off.
IL_MONITOR_COMPACTION	Specifies if a log entry is generated when the cache is compacted. Default: off.
IL_MONITOR_RESET	Specifies if a log entry is generated when an operator resets. Default: off.
IL_MONITOR_LOCKS	Specifies if a log entry is generated each time a lock is created or destroyed. Default: off.
IL_MP_ARENA_SIZE	Specifies the size of the arena. Default: 2 Mb.
IL_MP_LOCKS	Specifies if concurrent access to IL data structures is allowed for threads. Default: on.
IL_NUM_PBUFFERS	Specifies how many <code>pbuffers</code> to try to allocate. Default: 1. IL tries to get as many as it can up to this value.

`IL_READ_THREADS` Specifies the number of read threads used per processor to handle disk I/O.

Default: 1.

3.6 Performance Co-Pilot (PCP)

All environment variables are detailed on the `PCPintro(1)` man page. See that man page for the current list of environment variables.

3.7 IRIS Performer

IRIS Performer provides a programming interface with ANSI C and C++ bindings for creating real-time visual simulation and other interactive graphics applications.

The following environment variables are used with Performer:

`PFPATH`

A colon-separated list of directories in which to find Performer data files.

`PFLD_LIBRARY_PATH`

`PFLD_LIBRARY{N32,64}_PATH`

A colon-separated list of additional directories in which to find database loaders. These directories are searched before `LD_LIBRARY_PATH`.

`PFFNFYLEVEL`

The maximum allowed of IRIS Performer print message. Use the following values: 1 (FATAL), 2 (WARN), 3 (NOTICE), 4 (INFO), 5 (DEBUG), 6 (FP_DEBUG), 7 (INTERNAL_DEBUG).

`PFSHAREDSIZE`

The size (in bytes) of the shared memory arena to create.

`PFSHAREDBASE`

The address at which to place the shared memory arena.

PF_LPOINT_BOARD

Pretend there is a calligraphic light point board for calligraphic debugging.

PFXDEBUG

Turns on X Synchronization for debugging. Very slow, but helpful if you are exiting with X Errors. Setenv PFXDEBUG 1, use dbx to check the program, breakpoint in exit, run, look at stack trace when it stops.

PFMACHTYPE

Force the gfx machine type to be the give token for debugging. Uses the values from /usr/include/sys/invent.h.

PFASDLODSIZE

Set the number of LODs to be constructed in pfASD using routines in pfdBUILDASD.c. In general, a value less than 8 runs a lot faster and uses much less space than any value beyond 8.

PFTMPDIR

Sets the tmp directory location.

PFMEMDEBUG

This variable sets up the trace on pfMemory usage.

PFULLSPINCOUNT

If DRAW has finished previous frame, wait for DRAW to grab most recent buffer before updating it. This avoids hairy edge problems when the CULL is short and the DRAW wakes up just after the CULL has finished a new buffer.

See Performer(3pf) for more details.

Compiling System Environment Variables

This chapter details environment variables which are used by the MIPSpro compiling environment. The following sections are included in this chapter:

- Section 4.1, page 23, describes the variables used with OpenMP directives.
- Section 4.2, page 24, describes variables recognized on Origin 2000 and Origin 200 systems.
- Section 4.3, page 26, describes the multiprocessing environment variables that allow you to set up your multiprocessing environment.
- Section 4.4, page 29, describes variables used by the I/O libraries.
- Section 4.5, page 30, describes other environment variables directly used by the compiler.
- Section 4.6, page 32, describes environment variables used by SpeedShop.

4.1 OpenMP Environment Variables

`OMP_SCHEDULE`

Sets the schedule type and (optionally) the chunk size for `DO` and `PARALLEL DO` loops declared with a schedule of `RUNTIME`. For these loops, the schedule is set at run time when the system reads the value of this environment variable. Valid values for this environment variable are `STATIC`, `DYNAMIC`, and `GUIDED`. The default value for this environment variable is `STATIC`.

For `DO` and `PARALLEL DO` directives that have a schedule type other than `RUNTIME`, this environment variable is ignored.

If the optional chunk size is not set, a chunk size of 1 is assumed, except in the case of a `STATIC` schedule. For a `STATIC` schedule, the default chunk size is set to the loop iteration space divided by the number of threads applied to the loop.

OMP_NUM_THREADS	<p>Sets the number of threads to use during execution, unless that number is explicitly changed by calling the OMP_SET_NUM_THREADS(3) subroutine.</p> <p>When dynamic adjustment of the number of threads is enabled, the value of this environment variable is the maximum number of threads to use. The default value is the minimum of 8 and the number of CPUs on the system.</p>
OMP_DYNAMIC	<p>Enables or disables dynamic adjustment of the number of threads available for execution of parallel regions.</p> <p>If set to TRUE, the number of threads that are used for executing parallel regions can be adjusted by the runtime environment to best utilize system resources. The default value is TRUE. If set to FALSE, dynamic adjustment is disabled.</p>
OMP_NESTED	<p>Enables or disables nested parallelism. If set to TRUE, nested parallelism is enabled. If set to FALSE, it is disabled (default).</p>

4.2 Origin Series Variables

The following environment variables are recognized on Origin 2000 and Origin 200 systems.

_DSM_BARRIER	<p>Controls the barrier implementation within the MP run-time system. This environment variable accepts one of the following values:</p> <ul style="list-style-type: none">• FOP: Uses the uncached operations available on Origin series systems. FOP achieves the best performance. This requires kernel patch #1856.• LLSC: Uses load-linked (LL), store-conditional (SC) operations on shared memory.• SHM: Uses regular shared memory. Default
_DSM_MIGRATION	<p>Specifies aspects of automatic page migration. Values can be OFF (disables migration), ON (enables migration)</p>

	for all but explicitly placed data using <code>PAGE_PLACE</code> or a data distribution directive), or <code>ALL_ON</code> (enables migration for all data).
	Default: <code>OFF</code> .
<code>_DSM_MIGRATION_LEVEL</code>	Controls the aggressiveness level of automatic page migration. This environment variable must be set to an integer value between 0 (most conservative setting) and 100 (most aggressive). Specifying 0 disables this feature.
	Default: 100.
<code>_DSM_MUSTRUN</code>	Locks each thread to the corresponding CPU. This environment variable is not set by default.
<code>_DSM_OFF</code>	When set to <code>OFF</code> , disables nonuniform memory access (NUMA) calls. This can be used, for example, to allocate pages from a particular memory.
	On Origin series systems, <code>_DSM_OFF</code> is set to <code>ON</code> by default.
<code>_DSM_PLACEMENT</code>	Allocates memory for all stack, data, and text segments. Values can be <code>FIRST_TOUCH</code> (specifies first-touch data placement) or <code>ROUND_ROBIN</code> (specifies round-robin data allocation.)
	Default: <code>ROUND_ROBIN</code> .
<code>_DSM_PPM</code>	Specifies the number of processors to use per memory module. Must be set to an integer value. To use only one processor per memory module, set this environment variable to 1.
<code>_DSM_ROUND_ROBIN</code>	Specifies round-robin data allocation across memories rather than first-touch, for all of stack, data, and text segments.
<code>_DSM_VERBOSE</code>	When set, writes messages to <code>stdout</code> about parameters used during execution to <code>stdout</code> .
<code>_DSM_WAIT</code>	Controls how a thread waits for a synchronization event, such as a lock or a barrier. Values can be <code>SPIN</code> (specifies that a thread wait in a loop until the synchronization event succeeds) or <code>YIELD</code> (specifies that a waiting thread should spin for a while and

invokes `sginap(2)`, which surrenders the CPU to another waiting process, if any).

Default: `YIELD`.

4.3 Multiprocessing Variables

The multiprocessing environment variables allow you to set up your multiprocessing environment. Some of the settings that these environment variables control can also be set through library routines. For more information on the multiprocessing library routines, see `MP(3f)`.

Note: Many of the environment variables in the following list are outmoded. The descriptions for each one indicate the preferred alternative, if one exists.

`MP_SCHEDTYPE` and `CHUNK`

Specifies the type of scheduling to use on `PARALLEL DO` loops with scheduling specified as `RUNTIME`.

The defaults are the same as those for the `DOACROSS` directive clauses. If neither environment variable is set, `SIMPLE` scheduling is assumed. If `MP_SCHEDTYPE` is set and `CHUNK` is not set, a `CHUNK` of 1 is assumed. If `CHUNK` is set, but `MP_SCHEDTYPE` is not set, `DYNAMIC` scheduling is assumed.

Note: The `MP_SCHEDTYPE` and `CHUNK` environment variables are outmoded. The preferred alternative is the `OMP_SCHEDULE` environment variable.

`MP_SET_NUMTHREADS`, `MP_BLOCKTIME`, `MP_SETUP`, and `NUM_THREADS`

Acts as an implicit call to `MP_SET_NUMTHREADS(3f)`, `MP_BLOCKTIME(3f)`, and `MP_SETUP(3f)` (respectively).

The `MP_SET_NUMTHREADS` environment variable determines the number of processors across which an array is distributed during program execution, regardless of the number of processors physically present on the machine. `MP_BLOCKTIME` accepts an integer value. `MP_SETUP` accepts no values.

Note: The `MP_SET_NUMTHREADS` and `NUM_THREADS` environment variables are outmoded. The preferred alternative is the `OMP_NUM_THREADS` environment variable.

`MP_SIMPLE_SCHED`

Controls simple scheduling of parallel loops. Values can be `EQUAL` or `BLOCK`. If you are using distributed arrays, the default is `BLOCK`. For all other cases, the default is `EQUAL`. The critical path (that is, the largest piece of the iteration space) is the same in either case.

`MP_SLAVE_STACKSIZE`

Controls the stack size of slave processes. As its value, it accepts an integer number that indicates the desired stack size, in bytes. The default is 16 Mbytes (4 Mbytes for greater than 64 threads). Slave processes allocate their local data only onto their stacks. Shared data, even if allocated on the master's stack, is not counted.

`MP_STACK_OVERFLOW`

Controls stack overflow checking. In a multi-threaded program (for example, one using OpenMP constructs) the MP runtime system automatically detects and reports stack overflow errors at runtime. When stack overflow errors are encountered, you can use the `MP_SLAVE_STACKSIZE` environment variable or the `MP_SET_SLAVE_STACKSIZE` library routine to request larger stacks for the parallel threads.

The `MP_SLAVE_STACKSIZE` environment variable and the `MP_SET_SLAVE_STACKSIZE` library routine affect the allocation of stack space for parallel threads. If this effect is not desired, it can be disabled by setting the `MP_STACK_OVERFLOW` environment variable to `OFF`. By default, this environment variable is set to `ON`.

`MP_SUGNUMTHD` and `MPC_SUGNUMTHD`

Enables an additional, asynchronous process that monitors the system load. This environment variable may be useful on a system with long-running jobs and varying workloads.

The process that is enabled allows you to vary the number of threads during execution of some jobs. When idle processors exist, the number of threads is increased, up to the maximum specified by `MP_SET_NUMTHREADS`. When the system load increases, the number of threads is decreased, possibly to as few as one. Note that the number of threads being used is adjusted only at the start of a parallel region (for example, at a `DOACROSS` directive); it is not adjusted within a parallel region. Using this environment variable can improve overall system throughput. By avoiding excessive concurrency, this feature can reduce delays at synchronization points within a single application.

These environment variables are on by default.

Note: The `MP_SUGNUMTHD` and `MPC_SUGNUMTHD` environment variables are outmoded. The preferred alternative is the `OMP_DYNAMIC` environment variable.

`MP_SUGNUMTHD_MIN` and `MP_SUGNUMTHD_MAX`

Limits the effect of `MP_SUGNUMTHD`. These environment variables accept an integer value between 1 and the value of `MP_SET_NUMTHREADS`. When these environment variables are set, the number of processors is not lowered below the `MP_SUGNUMTHD_MIN` setting and it is not increased beyond the `MP_SUGNUMTHD_MAX` setting.

Note: These environment variables are outmoded.

`MP_SUGNUMTHD_VERBOSE`

Determines whether or not the system writes informational messages to `stderr` whenever the process changes the number of threads in use.

The compiler interprets library calls to `MP_NUMTHREADS(3f)` and `MP_SET_NUMTHREADS(3f)` as a sign that the application depends on the number of threads in use, and the number is frozen upon encountering either of these calls. If `MP_SUGNUMTHD_VERBOSE` is set, a message to that effect is written to `stderr`. By default, this environment variable is not set.

Note: The `MP_SUGNUMTHD_VERBOSE` environment variable is outmoded. The preferred alternative is the `_DSM_VERBOSE` environment variable.

`MPC_GANG`

Controls the use of gang scheduling, which is enabled by default. To disable gang scheduling, set this environment variable to `OFF`. By default, this environment variable is not set.

Note: The `MPC_GANG` environment variable is outmoded.

`PAGESIZE_STACK`, `PAGESIZE_DATA`, and `PAGESIZE_TEX`

Specifies the desired page size for each of the stack, data, and text segments. The default page size is 16 Kbytes on IRIX 6.4 and later systems; the default is 4 Kbytes on systems running previous IRIX revisions. These environment variables accept an integer value that represents the desired size in Kbytes. Typical values for this environment variable are 4, 16, or 64. Your operating system may not be able to accommodate larger values. If unsuitable values are specified, the system may adjust your page size to be lower than requested.

4.4 I/O Environment Variables

The following environment variables are used by the I/O libraries.

`FF_IO_AIO_LOCKS`, `FF_IO_AIO_NUMUSERS`, `FF_IO_AIO_THREADS`

Specifies aspects of the `aioinit` structure. This structure contains the following fields: `aio_locks`, `aio_numusers`, and `aio_threads`. These environment variables alter the values used for these fields. For more information on using these environment variables, see `AIO_SGI_INIT(3)` man page.

`FF_IO_LOGFILE`

Names a file to which statistics are written by the event FFIO layer.

`FILENV`

Specifies the location of the `assign` environment information. Use `FILENV` to assign a file name to store the `assign` information or to specify that it be stored in the process environment.

4.5 Miscellaneous Compiler Environment Variables

The following miscellaneous environment variables also affect compiling.

`COMPILER_DEFAULTS_PATH`

Specifies the a path or a colon-separated list of paths designating where the compiler is to look for the `compiler.defaults` file.

`F2CFLAGS`

Controls the Fortran-to-C interface. As a value for this environment variable, specify options to the `mkf2c(1)` command.

`FORMAT_TYPE_CHECKING`

Determines restrictions for various data types.

`F90_BOUNDS_CHECK_ABORT`

Controls whether the compiler aborts execution if a bounds check fails.

The `f90 -C` option performs array bounds checking. By default, execution continues even if the bounds check fails. To cause the compiler to abort on a failed bounds check, set the `F90_BOUNDS_CHECK_ABORT` environment variable to `YES`.

`LD_LIBRARY_PATH`, `LD_LIBRARY64_PATH`, and `LD_LIBRARYN32_PATH`

Specifies the default library search path. This differs depending on the ABI being used. For more information on these environment variables, see `rld(5)`.

`LISTIO_PRECISION`

Controls the number of digits of precision printed by list-directed output.

NLSPATH

Affects interactions with the message system. For more information, see `catopen(3c)`.

SGI_ABI

Specifies the Application Binary Interface (ABI) used during compilation. This environment variable can be used to change the default ABI. Specify `-o32`, `-n32`, or `-64` as values.

SGI_CC

Specifies the default C compile mode. This environment variable can be set to any one of `ansi`, `cckr` (cc only), or `xansi`, and is interpreted as an option before any other options specified on the command line.

TMPDIR

Specifies a path for temporary files. When set, the value used is the directory in which the system places temporary files, rather than the default, `/tmp`.

TRAP_FPE

Controls the handling and classifying of floating-point exceptions and substitutes new values. It also provides a mechanism to count, trace, exit, or abort on enabled exceptions. The `-TENV:check_div` option on the command line inserts checks for divide by zero and for overflow. See `FSIGFPE(3f)` for information on `HANDLE_FSIGFPES`, which performs a function similar to that of this environment variable.

_XPG

Specifies that compilation should proceed according to X/Open XPG4 specifications. If set, `cc` or `f77` (`c89` or `fort77`, as they are known under XPG4, respectively) operates in conformance with the X/Open XPG4 specifications. The options and the command line behavior may differ in accordance to the XPG4 standards.

ZERO_WIDTH_PRECISION

Sets the default size of the fractional field using real formatting specifications.

You can also set an environment variable to specify the compilation mode:

```
setenv SGI_ABI -n32
```

Sets the environment for new 32-bit compilation.

```
setenv SGI_ABI -64
```

Sets the environment for 64-bit compilation.

```
setenv SGI_ABI -o32
```

Sets the environment for old 32-bit compilation.

4.6 SpeedShop Environment Variables

SpeedShop is a tool used to help you analyze compiler performance on IRIX systems.

4.6.1 General Environment Variables

`_SPEEDSHOP_VERBOSE`

Causes a log of each program's operation to be written to `stderr`. If this variable is set to an empty string, only major events are logged; if it is set to a non-empty string, more detailed events are logged.

`_SPEEDSHOP_SILENT`

Suppresses all SpeedShop output other than fatal error messages. If both `_SPEEDSHOP_VERBOSE` and `_SPEEDSHOP_SILENT` are set, `_SPEEDSHOP_VERBOSE` is ignored.

`_SPEEDSHOP_CALIPER_POINT_SIG sig_num`

Causes the specified signal number to be used for recording a caliper point in the experiment.

_SPEEDSHOP_REUSE_FILE_DESCRIPTOR

Opens and closes the file descriptors for the output files every time performance data is to be written

_SPEEDSHOP_HWC_COUNTER_NUMBER

Specifies the counter to be used for `prof_hwc` experiments. Counters are numbered between 0 and 31, Counter 0 counters are numbered 0-15, and counter 1 counters are numbered 16-31.

_SPEEDSHOP_HWC_COUNTER_OVERFLOW

Specifies the overflow value for the counter to be used in `prof_hwc` experiments. The value chosen can be any number greater than 0. Some choices may produce data that is not statistically random but reflects a correlation between the overflow interval and a cyclic behavior in the application. Users may want to do two or more runs with different overflow values.

_SPEEDSHOP_OUTPUT_NOCOMPRESS

Disables the compression of performance data.

_SPEEDSHOP_OUTPUT_DIRECTORY

Causes the output data files to be placed in the specified directory rather than the current working directory

_SPEEDSHOP_OUTPUT_FILENAME

Causes the output file to be saved under the specified name. If set to `myfile`, the experiment file is named `myfile.suffix` (for example, `myfile.m12345`).

If `_SPEEDSHOP_OUTPUT_DIRECTORY` is also specified, the directory is prepended to the file name you specify.

4.6.2 Process Tracking Environment Variables

_SPEEDSHOP_TRACE_FORK

If `True`, specifies that processes spawned by calls to `fork()` will be monitored if they do not call `exec()`. If they do call `exec()` and

`_SPEEDSHOP_TRACE_FORK_TO_EXEC` is not set to `True`, the data covering the time between the `fork()` and `exec()` will be discarded.

Default: `true`.

`_SPEEDSHOP_TRACE_FORK_TO_EXEC`

If `True`, specifies that a process spawned by calls to `fork()` will be monitored, even if they also call `exec()`.

Default: `false`.

`_SPEEDSHOP_TRACE_EXE`

If `True`, specifies that a process spawned by calls to any of the various flavors of `exec()` will be monitored.

Default: `true`.

`_SPEEDSHOP_TRACE_SPROC`

If `True`, specifies that a process spawned by calls to `sproc()` will be monitored.

Default: `true`.

`_SPEEDSHOP_TRACE_SYSTEM`

If `True`, specifies that `system()` calls will be monitored.

Default: `true`.

4.6.3 Expert-Mode Environment Variables

A number of variables may be used for debugging and finer control of the operation of SpeedShop:

`_SPEEDSHOP_SAMPLING_MODE`

Used for PC sampling and hardware counter profiling. If set to 1, generates data for the base executable only. If not set or set to a value other than 1, data is generated for the executable and all the DSOs it uses.

`_SPEEDSHOP_INIT_DEFERRED_SIG`

If specified, initialization of the experiment is not performed when the target process starts. Initialization is delayed until the specified signal is sent to the process. A handler for the given signal is installed when the process starts. It is the user's responsibility to ensure that it is not overridden by the target code.

`_SPEEDSHOP_SHUTDOWN_SIG`

If specified, termination of the experiment is not performed when the target process exits. Termination happens when the specified signal is sent to the process. A handler for the given signal is installed when the process starts, and it is the user's responsibility to ensure that it is not overridden by the target code.

`_SPEEDSHOP_EXPERIMENT_TYPE`

Passes the name of the experiment to the run-time DSO. It is normally set by `ssrun` but can be overwritten.

`_SPEEDSHOP_MARCHING_ORDERS`

Passes the marching orders of the experiment to the run-time DSO. The marching orders are usually set by `ssrun` from the experiment type, but they can be overwritten.

`_SPEEDSHOP_SBRK_BUFFER_LENGTH`

Defines the maximum size of the internal `malloc` (memory allocation) area used. This area is completely separate from the user's area and has a default size of 0x100000.

`_SPEEDSHOP_FILE_BUFFER_LENGTH`

Defines the size of the buffer used for writing the experiment files. The default length is 8 KB. The buffer is used only for writing small records to the file; large records are written directly to avoid the buffering overhead.

`_SPEEDSHOP_DEBUG_NO_SIG_TRAPS`

Disables the normal setting of signal handlers for all fatal and exit signals.

`_SPEEDSHOP_DEBUG_NO_STACK_UNWIND`

Suppresses the stack unwind, as in usertime experiments and at caliper samples, for all experiments. The option is used as a workaround for various unwind bugs in `libexc`.

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