

Start Here for ModelSim[®] SE

Software Version 5.6

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Are you upgrading?

- From 5.5x or an earlier version

When you upgrade to 5.6, you'll need to regenerate your design libraries after installing the software. See "[Regenerating your design libraries](#)" (p24) for details.

- From 5.2 or an earlier version

Since version 5.3, ModelSim has used version 6.1g of FLEXlm (all FLEXlm 6.1 versions are compatible). Sites that have existing license servers running an older version must shut down the servers and restart them using the lmgrd and modeltech or mgld daemon provided in this release. The 6.1g FLEXlm license server is compatible with pre-5.3 versions of ModelSim.

- From an earlier version of EE

If you run ModelSim EE, and are upgrading to ModelSim EE 5.6, you'll need a viewer license in order to run the GUI. Contact Model Technology Sales for more information.

Supported platforms

Platform / OS	VCO name ¹	Memory capacity	Large file capability ²
SPARC / Solaris 2.6, 7, 8 ³ , 9 (32-bit only)	sunos5 (32-bit binary)	4GB	Yes
SPARC / Solaris 7, 8 ³ , 9 (64-bit capable)	sunos5 (32-bit binary) ⁴	4GB	Yes
SPARC / Solaris 7, 8 ³ , 9 (64-bit capable)	sunos5v9 (64-bit binary)	terabytes	Yes
HP 700 / HP-UX 10.2 (32-bit only)	hp700_1020 (32-bit binary)	2GB / 3.4 GB ⁵	Yes
HP 700 / HP-UX 11.x (64-bit capable)	hp700 (32-bit binary) ⁴	2GB / 3.4 GB ⁵	Yes
HP 700 / HP-UX 11.x (64-bit capable)	hppa64 (64-bit binary)	terabytes	Yes
RS/6000 / AIX 4.2.x, 4.3x (32-bit only)	rs6000 (32-bit binary)	2GB	Yes
RS/6000 / AIX 4.3.x (64-bit capable)	rs6000 (32-bit binary) ⁴	2GB	Yes
RS/6000 / AIX 4.3.x (64-bit capable)	rs64 (64-bit binary)	terabytes	Yes
x86 / Win98/2000/NT/Me/XP	win32	2GB	Yes ⁶
x86 / Redhat Linux 6.0, 6.1, 6.2, 7.0 and 7.1 (non-SMP only), 7.2	linux	3GB ⁷	No

1. The VCO name refers to the platform directories that are created during installation.
2. Large file capability means that output files (WLF and transcript files) can exceed 2GB.
3. ModelSim runs on all UltraSPARC hardware including the Sun Blade platform.
4. Due to the superior performance of the 32-bit version, we recommend that you run 32-bit ModelSim on 64-bit capable systems *unless* you actually need the capacity offered by the 64-bit version.
5. HP can access up to 3.4 GB using the locked memory feature. See the ModelSim User's Manual Appendix E under the heading "Accelerate simulation by locking memory under HP-UX 10.2."

6. This refers only to the WLF file. In FAT32 file system, the maximum possible WLF file size is 4G. In NTFS file system, WLF file size is limited by the size of the disk volume.
7. Memory usage is limited to the maximum process size allowed by the Linux kernel.

Discontinued and Retiring Operating Systems

The following is a list of discontinued operating systems and their last-supported ModelSim release. Technical support will gladly answer questions regarding discontinued operating systems but no patches are available subsequent to the last supported ModelSim version.

We also want you to be aware of the operating systems we plan to retire. Retiring operating systems will receive patches through the number release indicated.

Operating System	Status	last supported ModelSim version
AIX 3.2	discontinued	5.2b
AIX 4.1	discontinued	5.3d
Sun 4	discontinued	5.3d
SunOS 5_2.5.1	discontinued	5.4e
Win95	discontinued	5.5f
HP 10.20	retiring	5.6x ¹

1. When ModelSim 5.7 releases, this operating system will no longer be supported.

Licensing

Overview

ModelSim uses FlexLM licenses which are tied to a workstation or hardware ID (see below for how to locate your ID). When you purchase ModelSim, we'll generate and email you a license file that you install on either a license server or the stand-alone system running ModelSim. The following are two abbreviated examples of license files, one for ModelTech licensing and one for Mentor Graphics (MGC) licensing:

ModelTech license example

```
SERVER gates 117234f39g1m 1650
DAEMON modeltech ./modeltech ./options
FEATURE vsim modeltech 1997.090 dd-mmm-yyyy 2 \
6C92577EC335F4C9568D ck=61
FEATURE vcom modeltech 1997.090 dd-mmm-yyyy 2 \
6C92577EC335F4C9568D ck=61
```

MGC license example

```
SERVER gates 117234f39g1m 1650
DAEMON mgcld ./mgls/lib/mgcld ./options
FEATURE hdlcom_c mgcld 2001.010 dd-mmm-yyyy 1 \
4C78A0D4F7D6D42760FC VENDOR_STRING=aaaaaaaa \
ISSUER="MTI Ops" ck=42
FEATURE hdlsim_c mgcld 2001.010 dd-mmm-yyyy 1 \
DC8840045A90791FBA9E VENDOR_STRING=aaaaaaaa \
ISSUER="MTI Ops" ck=15
```

The installation instructions on subsequent pages tell you how to install the license file. Keep in mind that you should modify the license file only as directed in these instructions. Make sure you do not inadvertently add spaces or line breaks to the file; this may prevent ModelSim from running.

Licensing on Windows platforms

On Windows platforms the hardware identifier may be either a hardware security key or an Ethernet ID. To determine a security key ID number, check the number printed on the key. To determine the Ethernet ID, select **Start > Run** then Open "cmd" (Windows NT/2000/XP), or Open "command.com" (Windows 98/Me) to open a command prompt. At the command prompt type:

```
doskey
ipconfig -all |more
```

Check the configuration listing for your Ethernet "Physical Address". Windows 98 and Me users: Your listing may include two Physical Addresses; use the Physical Address for your Ethernet card, NOT the PPP Adapter.



Mentor Graphics Licensees—ModelSim versions 5.5 and later do not require a separate installation of PCLS.

Licensing on Unix platforms

On Unix platforms you'll need your workstation ID to obtain a license. Here are the commands that return the ID:

Syntax	Platform
/sbin/ifconfig eth0	Linux Look for the line that reads something like this: "Ethernet HWaddr 00:00:00:00:00:00." Remove the colons and you have the required 12-digit ID.
uname -i	HP-UX "uname -i" reports a long decimal number; convert to hexadecimal or pre-pend with #
uname -m	RS/6000 returns a long number; delete the last two digits and use the remaining last eight digits
hostid	SPARC

Mentor Graphics licensing on Unix platforms

To use ModelSim 5.6 in a Mentor Graphics environment you must be running MGLS version v4.0_0.8 (or newer) and Packaging Information version v3.0_3.0r (or newer). You can check your current versions using the following method:

1. Make sure the MGLS_HOME environment variable is set to
`<install directory>/modeltech/<platform>/mgls`
2. Execute `$MGLS_HOME/bin/mgls_admin -v`

If you are running a license server with an earlier version, the license server should be shut down and restarted using the `lmgrd` and `mgcld` daemon found in v4.0_0.8 MGLS. Platform-specific MGLS is included in the ModelSim installation at `<install directory>/modeltech/<platform>/mgls`. A download of v4.0_0.8 MGLS is also available on the ftp site at ftp://ftp.model.com/pub/SE/mgls_trees/.

In ModelSim versions 5.4 (and later), the MGLS_HOME environment variable is set in a non-persistent way inside the simulation environment. If MGLS_HOME is already set, it will be changed temporarily to point at the known good mgls tree while ModelSim is invoked. MGLS_HOME's persistent setting will not be changed.

In ModelSim versions 5.5 (and later), the `mgcld` daemon is automatically installed into the binary directory when ModelSim is installed.

Mentor Graphics provides additional licensing information in the [Managing Mentor Graphics Software](#) document. In addition, Model Technology provides some basic Mentor Graphics licensing files. See the readme file in the MGLS-related directory at <ftp.model.com/pub/SE> for more information.

Installation

The commands used to install ModelSim are case-sensitive, so they must be entered exactly as shown. If you are upgrading, we recommend that you install in a new directory to avoid overwriting your old files and libraries.

Read the section(s) that applies to your product(s) and platform(s).

- [Stand-alone Windows PC](#) (p12)
- [Stand-alone Unix workstation](#) (p14)
- [Windows PC client \(obtains license from a server\)](#) (p16)
- [Unix client \(obtains license from a server\)](#) (p17)
- [Windows PC license server](#) (p19)
- [Unix license server](#) (p22)

Stand-alone Windows PC

Use this setup if you are installing on a stand-alone Windows PC. ModelSim and the license server run on the same system.

1. If you received a hardware security key (dongle), install it on the parallel port of your PC. Skip this step if you licensed ModelSim to the PC's Ethernet ID.
2. Install ModelSim from the CD or via a downloaded installation executable. The ModelSim installation executable is available on the web at <http://www.model.com/products/release.asp>.
3. During installation the **Select Components** dialog asks you to select a licensing option. If you are using an Ethernet ID, select "use the Ethernet ID for this machine." If you are using a hardware key, select the option based on your key type.
4. After installation is complete, save the *license.dat* file (attached to the email you received from Model Technology) to C:\modeltech\win32\license.dat, or to your specific ModelSim pathname if different.

Make sure there are no extra spaces or line breaks in the license file. It must exactly match the license you received by email, including upper and lower case and any backslashes (\).

5. Verify the name of your PC via the Windows Control Panel by selecting Network > Identification (in Windows 2000/XP, System > Network Identification).
6. Open the *license.dat* file and change the server name to the name of your PC. Use a text editor like Notepad rather than a word processor. Word processors may add extra characters to the file and cause problems.

7. Set the LM_LICENSE_FILE environment variable with the port# and hostname:
 - For Windows NT/2000/XP, right-click the My Computer icon and select Properties, and then select the Environment tab (in Windows 2000/XP select the Advanced tab and then Environment Variables).

Add LM_LICENSE_FILE with a value of 1650@hostname, where hostname is the name of your PC.

- For Windows 98/Me, add the following line to the autoexec.bat file:

```
set LM_LICENSE_FILE=1650@hostname
```

where hostname is the name of your PC.

8. Reboot your PC.
9. Go to the FLEXlm License Manager located in your Control Panel. Choose the Setup tab and add the pathnames for *lmgrd.exe*, *license.dat*, and *debug.log*. Make sure the pathnames and extensions are correct, then save the setup. Typical entries might look like this:

```
lmgrd.exe -- C:\modeltech\win32\lmgrd.exe  
License file -- C:\modeltech\win32\license.dat  
Debug log file -- C:\modeltech\win32\debug.log
```

10. Next choose the FLEXlm Control tab. Press the Start button. Wait a moment, then press the Status button. The server should be up.
11. Invoke ModelSim through the Windows Start menu (Start > Programs > Model Tech > Modelsim)

Stand-alone Unix workstation

Use this setup if you are running ModelSim on a stand-alone Unix workstation. ModelSim and the license server run on the same system.

1. From a mounted ModelSim CD or a downloaded file, uncompress base.tar and docs.tar. Compressed ModelSim installation files are available on the web at <http://www.model.com/products/release.asp>. Use "tar xzf" to extract the compressed files.
2. Uncompress and execute the appropriate .exe file for your platform:

Platform	<filename.exe>
Sun OS-5/Solaris 2.6 Solaris 7, 8 (32-bit)	sunos5.exe
Sun OS-5 v9/ Solaris 7, 8 (64-bit)	sunos5v9.exe
HP-UX 10.2 (32-bit)	hp700_1020.exe
HP-UX 11.0 (32-bit)	hp700.exe
HP-UX 11.0 (64-bit)	hppa64.exe
IBM (32-bit)	rs6000.exe
IBM AIX 4.3 (64-bit)	rs64.exe
x86	linux.exe

Follow the onscreen instructions.

3. After installation is complete, save the *license.dat* file (attached to the email you received from Model Technology) into the <install_path>/modeltech directory.
4. Open the *license.dat* file and change the server name to the hostname of your workstation.

5. Start the license manager daemon with the following commands:

```
cd <install_path>/modeltech/<platform>  
START_SERVER
```

where <platform> can be sunos5, sunos5_251, sunos5v9, hp700_1020, hp700, hppa64, rs6000, rs64, or linux

6. Set the LM_LICENSE_FILE environment variable to the hostname:

```
setenv LM_LICENSE_FILE 1650@hostname
```

7. Enter the following command at the shell prompt to start ModelSim:

```
vsim
```

Windows PC client (obtains license from a server)

Use this setup if you are installing on a Windows PC that will obtain a license from a Windows PC or Unix license server.

1. Install ModelSim from the CD or via a downloaded installation executable. The ModelSim installation executable is available on the web at <http://www.model.com/products/release.asp>.
2. During installation the **Select Components** dialog box asks you to select a licensing option. Select "gets its license from a remote machine."
3. Once installation is complete, check with your system administrator for the license server's hostname (the network machine name) and port# (1650 is the default port number).
4. Set the LM_LICENSE_FILE environment variable with the port# and hostname given you by the system administrator.
 - For Windows NT/2000/XP, right-click the My Computer icon and select Properties, and then select the Environment tab (in Windows 2000/XP select the Advanced tab and then Environment Variables).

Add LM_LICENSE_FILE with the value port#@hostname, reflecting the data given you by your system administrator.

- For Windows 98/Me, add the following line to the autoexec.bat file:

```
set LM_LICENSE_FILE=port#@hostname
```

where port# is the port number of the license server and hostname is the name of the license server.

5. Reboot your PC.
6. Make sure the license server is running, then invoke ModelSim through the Windows Start menu (Start > Programs > Model Tech > Modelsim).

Unix client (obtains license from a server)

Use this setup if you are installing on a Unix system that will obtain a license from a Unix or PC server.

1. From a mounted ModelSim CD or a downloaded file, uncompress base.tar and docs.tar. Compressed ModelSim installation files are available on the web at <http://www.model.com/products/release.asp>. Use "tar xzf" to extract the compressed files.
2. Uncompress and execute the appropriate .exe file for your platform:

Platform	<filename.exe>
Sun OS-5/Solaris 2.6 Solaris 7, 8 (32-bit)	sunos5.exe
Sun OS-5 v9/ Solaris 7, 8 (64-bit)	sunos5v9.exe
HP-UX 10.2 (32-bit)	hp700_1020.exe
HP-UX 11.0 (32-bit)	hp700.exe
HP-UX 11.0 (64-bit)	hppa64.exe
IBM (32-bit)	rs6000.exe
IBM AIX 4.3 (64-bit)	rs64.exe
x86	linux.exe

Follow the onscreen instructions.

3. Once installation is complete, check with your system administrator for the license server's hostname (the network machine name) and port# (1650 is the default port number).

Installation

4. Set the `LM_LICENSE_FILE` environment variable with the port# and hostname:

```
setenv LM_LICENSE_FILE 1650@hostname
```

where hostname is the name of the license server.

5. Make sure the license server is running, then enter the following command at the shell prompt to start ModelSim:

```
vsim
```

Windows PC license server

Use this setup if you are installing a Windows PC license server that will checkout licenses to clients. If you already have a FLEXlm installation on the server, you need only install the modeltech or mgcld daemon and the license file (contact [Model Technology support](#) if this is your situation).

1. If you received a hardware security key (dongle), install it on the parallel port of your server. Skip this step if you licensed ModelSim to the server's Ethernet ID.
2. Install ModelSim from the CD or via a downloaded installation executable. The ModelSim installation executable is available on the web at <http://www.model.com/products/release.asp>.
3. During installation the **Select Components** dialog asks you to select a licensing option. If you are using an Ethernet ID, select "use the Ethernet ID for this machine." If you are using a hardware key, select the option based on your key type.
4. After installation is complete, save the *license.dat* file (attached to the email you received from Model Technology) to C:\modeltech\win32\license.dat, or to your specific ModelSim pathname if different.

Make sure there are no extra spaces or line breaks in the license file. It must exactly match the license you received by email, including upper and lower case and any backslashes (\).

5. Verify the name of your server via the Windows Control Panel by selecting Network > Identification (in Windows 2000/XP, System > Network Identification).
6. Open the *license.dat* file and change the server name to the name of your server. Use a text editor like Notepad rather than a word processor. Word processors may add extra characters to the file and cause problems.

7. Set the LM_LICENSE_FILE environment variable with the port# and hostname.
 - For Windows NT/2000/XP, right-click the My Computer icon and select Properties, and then select the Environment tab (in Windows 2000/XP select the Advanced tab and then Environment Variables).

Add LM_LICENSE_FILE with a value of 1650@hostname, where hostname is the name of your server.

- For Windows 98/Me, add the following line to the autoexec.bat file:

```
set LM_LICENSE_FILE=1650@hostname
```

where hostname is the name of your server.

8. Reboot the server.
9. Go to the FLEXlm License Manager located in your Control Panel. Choose the Setup tab and add the pathnames for *lmgrd.exe*, *license.dat*, and *debug.log*. Make sure the pathnames and extensions are correct, then save the setup. Typical entries might look like this:

```
lmgrd.exe -- C:\modeltech\win32\lmgrd.exe  
License file -- C:\modeltech\win32\license.dat  
Debug log file -- C:\modeltech\win32\debug.log
```

10. Next choose the FLEXlm Control tab. Press the Start button. Wait a moment, then press the Status button. The server should be up.

Troubleshooting PC server setup

The **Licensing Wizard** located in the ModelSim program group can help you solve ModelSim licensing problems. Run the wizard on a client machine to check the availability of the license from your PC server.

In addition to running the Licensing Wizard, try the following:

- Open a DOS window and go to the appropriate *modeltech\win32* directory. For example, *C:\modeltech\win32*. Enter the command:

```
lmutil.exe lmdiag
```

This allows you to verify each feature independently.

- From a DOS window, and the same *win32* directory, enter the following:

```
lmutil.exe lmstat -a
```

This shows you all licenses that are available.

- Go to the *debug.log* inside the *win32* directory. This may provide other information about the source of the license server problems.
- Verify that FLEXlm 6.1g was installed on the server by checking the FLEXlm control panel. From the Windows Start menu select: Settings > FLEXlm License Manager > About.

Unix license server

Use this setup if you are installing a Unix license server that will checkout licenses to clients. If you already have a FlexLM installation on the server, you only need to install the modeltech or mgcld daemon and the license file. Contact [Model Technology support](#) for more information.

1. From a mounted ModelSim CD or a downloaded file, uncompress base.tar and docs.tar. Compressed ModelSim installation files are available on the web at <http://www.model.com/products/release.asp>. Use "tar xzf" to extract the compressed files.
2. Uncompress and execute the appropriate .exe file for your platform:

Platform	<filename.exe>
Sun OS-5/Solaris 2.6 Solaris 7, 8 (32-bit)	sunos5.exe
Sun OS-5 v9/ Solaris 7, 8 (64-bit)	sunos5v9.exe
HP-UX 10.2 (32-bit)	hp700_1020.exe
HP-UX 11.0 (32-bit)	hp700.exe
HP-UX 11.0 (64-bit)	hppa64.exe
IBM (32-bit)	rs6000.exe
IBM AIX 4.3 (64-bit)	rs64.exe
x86	linux.exe

Follow the onscreen instructions.

3. After installation is complete, save the *license.dat* file (attached to the email you received from Model Technology) into the <install_path>/modeltech directory.
4. Open the *license.dat* file and change the server name to the hostname of your server.

5. Start the license manager daemon with the following commands:

```
cd <install_path>/modeltech/<platform>  
START_SERVER
```

where <platform> can be sunos5, sunos5_251, sunos5v9, hp700_1020, hp700, hppa64, rs6000, rs64, or linux

6. Set the LM_LICENSE_FILE environment variable with the port# and hostname:

```
setenv LM_LICENSE_FILE 1650@hostname
```

where hostname is the name of the license server.

Regenerating your design libraries

When you upgrade between number versions (e.g., from 5.5 to 5.6), you must regenerate your design libraries. This is not true for letter versions (e.g., 5.5a to 5.5d).

Regenerating methods

Explicit refresh

You can easily regenerate your design libraries with **-refresh**. You must use the **vcom** compiler with the **-refresh** option to update the VHDL design units in a library, and **vlog** with the **-refresh** option to update Verilog design units. By default, the work library is updated; use **-work <library>** to update a different library. For example, if you have a library named **mylib** that contains both VHDL and Verilog design units you would use both of these commands:

```
vcom -work mylib -refresh
vlog -work mylib -refresh
```

Rebuild libraries without source code

An important feature of **-refresh** is that it rebuilds the library image without using source code. This means that models delivered as compiled libraries without source code can be rebuilt for a specific release of ModelSim (4.6 and later only). In general, this works for moving forwards or backwards on a release. Moving backwards on a release may not work if the models used compiler switches or directives (Verilog only) that do not exist in the older release or if a bug was fixed that makes it impossible to do a “backwards” refresh.



You **don't** need to regenerate the **std**, **ieee**, **vital22b**, and **verilog** libraries as these are provided with each release of ModelSim. However, if you have your own copies of these libraries, you will need to refresh them.

AutoRefreshing

ModelSim 5.6 library files can be used by any 5.6 simulator type (PE, SE, or SE/64-bit) with the help of AutoRefresh. AutoRefresh works during simulation loading to build the library files needed by the current simulator type.

AutoRefresh builds only the files needed by the loading simulation, and then only refreshes files for design units that have changed, leaving the rest of the library files untouched.

The binary details

AutoRefresh regenerates the binaries for PE (.psm), SE (.asm), and SE/64-bit (.asm64) that are stored in the ModelSim libraries. For example, if a module is changed and recompiled on PE, the next time an SE simulator tries to use that library, ModelSim automatically regenerates the necessary .asm files.

One library can contain the code for both formats. For example, for each design unit in a "work" library, there can be an SE and PE version co-existing. In fact if you run a PE-compiled design on SE (5.2e and later), it will auto-refresh itself when you invoke **vsim**. The library format that SE needs is generated "on the fly" from the PE format. After that point, both formats exist in the library and no more format conversion will occur.

Why two different formats? The SE compiler has several performance optimizations that aren't in the PE compiler. Consequently, the generated code for SE has to be different.

Library compatibility between versions

Libraries are compatible between different letter versions of the tool as long as the version number is the same. For example, 5.5 libraries are compatible with 5.5a, but not 5.4e.

Installed directories

A typical installation for ModelSim 5.6 includes the directories listed below. All directories are located within the *modeltech* directory.

Installed directories - ModelSim 5.6	
Directory	Description
./bin	soft links to all ModelSim commands, allowing platform-independent invocation
./docs	ModelSim documentation, general ModelSim technotes, HTML versions of the Tcl/Tk man pages
./drivers	drivers for Windows hardware keys
./examples	example simulation models, testbenches, macros, and utilities
./ieee	library for accelerated IEEE and Synopsys arithmetic packages
./ieeepure	standard VHDL IEEE library
./include	include files for use with Verilog PLI, VHDL foreign interface, and TCL
./modelsim_lib	library that contains special utilities for VHDL
./std	VHDL STD library and package TEXTIO
./std_developerskit	libraries for MGC standard developer's kit
./synopsys	accelerated arithmetic packages (also in ieee)
./tcl	libraries for Tcl, Tix, Tk, and vsim
./verilog	VHDL package for mapping to Verilog states

Installed directories - ModelSim 5.6	
Directory	Description
./vhdl_src/ieee	sources for rebuilding basic IEEE std_logic_1164 library and accelerated IEEE arithmetic packages
./vhdl_src/std	sources for VHDL STD library and package TEXTIO
./vhdl_src/std_developerskit	sources and examples for MGC standard developer's kit
./vhdl_src/synopsys	sources for rebuilding accelerated arithmetic packages
./vhdl_src/verilog	source for rebuilding Verilog library
./vhdl_src/vital2.2b	sources for rebuilding VITAL version 2.2b library
./vhdl_src/vital95	sources for rebuilding VITAL version 95 library
./vhdl_src/vital2000	VITAL 2000 library

Platform-specific directories

Platform-specific directories within the *modeltech* directory (*hp700_1020*, *hp700*, *hppa64*, *rs6000*, *rs64 sunos5*, *sunos5v9*, *linux*, and *win32/win32pe*) contain ModelSim, Logic Modeling, and licensing executables.

Library notes

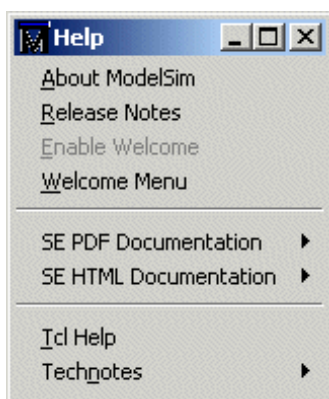
Pre-compiled versions of some non-standard libraries and packages are no longer provided. The ARITHMETIC library, which contained a package for doing signed and unsigned vector arithmetic, is no longer included. However, you can download the source file at <ftp://support.model.com/pub/obsolete/arithmetic.tar>. The source for the ieee-precompiled version is in

```
vhdl_src/synopsys/mti_std_logic_arith.vhd
```

The packages NUMERIC_EXTRA, NUMERIC_SIGNED, NUMERIC_UNSIGNED, and STD_LOGIC_1164_EXTENSIONS, all from the IEEE library, are no longer included. However you can download the source file at <ftp://support.model.com/pub/obsolete/mentor.tar>.

ModelSim documentation

To access ModelSim documentation after installation, select **Help > SE PDF / HTML Documentation** from the Main window in ModelSim. All documents are available in PDF and most are also available in HTML. You will need Acrobat Reader version 4.0 to view or print the PDF documents (free from www.adobe.com, and on the ModelSim CD).



The following documents are available:

Start Here Guide

The document you are currently reading.

User's Manual

Describes how to configure and use ModelSim including topics such as design libraries, VHDL and Verilog simulation, the GUI, SDF timing annotation, etc.

Command Reference

Describes ModelSim commands and associated options that are used from a command prompt or within macro files. Includes a section on command syntax.

Tutorial

Leads you step-by-step through common tasks such as compilation, simulation, debugging, and using the Wave window.

FLI Reference

Offers detailed description of the ModelSim Foreign Language Interface (FLI) including function description, syntax, and code samples.

Quick Guide

Provides quick reference to important commands, variables, and tools

In addition to these documents, the Help menu provides access to technotes and Tcl man (manual) pages.

Searching ModelSim's PDF documentation

We suggest you use the Search function with Acrobat Reader because it facilitates indexed searching, which is much faster than simple text-string searches. Look for these icons on the Acrobat Reader toolbar:



Search icons help you quickly search through an indexed PDF document. The small binocular icon (the Find icon is larger) returns a search criteria dialog box. To use Search you must be viewing an indexed document.



Acrobat search **does not** work on the Linux platform.

Requirements for Acrobat Search

These ModelSim documentation files must be in the *modeltech/docs/pdf* directory for Acrobat Search to work properly.

`se_man.pdf` (user's manual)

`se_cmds.pdf` (command reference)

`se_tutor.pdf` (tutorial)

`se_start.pdf` (this document)

`se_guide.pdf` (ModelSim command quick guide)

`se_index.pdx` (PDF index file)

`fli.pdf` (FLI reference)

`/se_index` (directory and subdirectories for PDF index)

Tech Support and Updates

The Model Technology web site includes links to support, software updates, and many other information sources.

Support

www.model.com/support/default.asp

Customers in Europe should contact their distributor for support. See www.model.com/contact_us.asp for distributor contact information.

Updates

www.model.com/products/release.asp

Latest version email

Place your name on our list for email notification of news and updates.
www.model.com/support/register_news_list.asp

FLEXlm Licenses

ModelSim uses Globetrotter's FLEXlm license manager and files. Globetrotter FLEXlm license files contain lines that can be referred to by the word that appears first on the line. Each kind of line has a specific purpose and there are many more kinds of lines that MTI does not use.

Since version 5.3, ModelSim has used version 6.1g of FLEXlm (all FLEXlm 6.1 versions are compatible). Sites that have existing license servers running an older version must shut down the servers and restart them using the `lmgrd` and `modeltech` daemon provided in this release. The 6.1g FLEXlm license server is compatible with pre-5.3 versions of ModelSim.

Where to obtain your license

Mentor Graphics customers must contact their Mentor Graphics salesperson for ModelSim licensing. All other customers may obtain ModelSim licenses from Model Technology. Please contact Model Technology at license@model.com.

If you have trouble with licensing

Contact your normal technical support channel. See www.model.com/support/default.asp for details.

Maintenance renewals and licenses

When maintenance is renewed, a new license file that incorporates the new maintenance expiration date will be sent to you automatically. If maintenance is not renewed, the current license file will still permit the use of software versions built before maintenance expired until the stop date is reached.

License transfers and server changes

Model Technology and Mentor Graphics both charge a fee for server changes or license transfers. Contact sales@model.com for more information from Model Technology, or contact your local Mentor Graphics sales office for Mentor Graphics purchases.

License file example

A floating *license.dat* file:

```
SERVER hostname 11111111 1650
DAEMON modeltech ./modeltech ./options
FEATURE vcom modeltech 1998.080 31-aug-98 1 \
0C944D8F0C79B02EF5CF ck=117

FEATURE vsim modeltech 1998.080 31-aug-98 1 \
FCB4FD0F2A635C20E5CF ck=128
FEATURE vlog modeltech 1998.080 31-aug-98 1 \
0C944D9F176CA773E889 ck=10
FEATURE vsim-vlog modeltech 1998.080 31-aug-98 1 \
FCB41D9FC43C87567DBC ck=116
FEATURE hdlcom modeltech 1998.080 31-aug-98 1 \
4C94EDFF6A00858BC8F2 ck=93
FEATURE hdlsim modeltech 1998.080 31-aug-98 1 \
4CF48DDF6A6EA59BCEF2 ck=89
# NOTE: You can edit the hostname on the SERVER line (1st
# arg), the port address on the SERVER line (3rd arg),
# the paths to the daemon and options files on the
# DAEMON line 2nd and 3rd args), or any right-half of a
# string (b) of the form a=b where (a) is all lowercase.
# (For example, xxx in vendor_info="xxx" can be changed).
# Any other changes will invalidate this license.
```

A Globetrotter FLEXIm floating license file contains information about the license SERVER, the DAEMON required to authorize the feature, and a line for each product FEATURE you are authorized to execute.

The SERVER line

The first line is a SERVER line; it spells out which computer on the network is the license server. The license server is a network resource that will manage the features for all users of ModelSim products. The SERVER line includes the server's hostname (the server's network identification - for Windows, check the Network properties Identification tab), hostID (a unique serial number), and a port number. The hostname and port number may be changed in a license file, but any change to the hostID will invalidate the license. If the host is a Windows machine, the hostID is the FLEXid security key number or the machine's Ethernet ID. The security key number (7-xxxxxxx for Sentinel keys, or 8-xxxxxxx for Dallas keys) relates to the driver you will select.



Dallas key IDs (8-xxxxxxx) must be upper case.

If you need to find the unique server ID on a UNIX system, use one of these commands: for Sun, **hostid**; for HP, **uname -i** (convert the result to a hexadecimal number); for IBM RS/6000, **uname -m**; for Linux, **ifconfig eth0**. To determine the security key ID on a Windows server, from the DOS prompt, invoke: **lmutil.exe lmhostid -flexid** (located in the *modeltech/win32* directory). To determine the Ethernet ID on a Windows server, from the DOS prompt, invoke: **lmutil.exe lmhostid**.

The DAEMON line

A DAEMON line specifies the name of the license daemon and the locations of the daemon and options files it will use. This is the full path to the modeltech daemon. In the example file, the UNIX *"/* means "look in the current directory". This is the directory in which the server was started. If the server is to be started from another directory, the full path to the *modeltech* and *options* files would need to be added to this line.

For example,

```
DAEMON modeltech /usr/mti5.6/sunos5/modeltech \  
/usr/mti5.6/sunos5/options
```



The "options" line is only necessary if you are using a FLEXlm options file.

The FEATURE line

A FEATURE line describes how many licenses ("tokens") are available; it contains the feature name, daemon required, most current build date authorized to run, token expiration date, number of tokens for the feature, license code, and a checksum.

Notice the FEATURE lines. If an entry is too long to fit on a single line, a backslash ("\") appears at the end of the line. A UNIX system reads that as "whatever you read on the next line belongs on this line". So never edit out the "\" when you are transcribing a license file. Never put another character after it either.

FEATURE lines in a floating license end in checksums. FLEXlm will let you know if you mistyped something when transcribing the license files because the checksum will not match the line's contents. (GLOBEtrotter has a utility that will report any checksum errors in a file. Use this command: `lmchksum <license.file>`). Lines that start with "#" are comments.

If you want to learn more about the tools that license ModelSim, read the license manager appendix in the ModelSim reference manual, or visit GLOBEtrotter at www.globetrotter.com/home.htm.

A quick ModelSim tutorial

Here are the basic steps to simulation. These commands work within ModelSim at the ModelSim prompt, or on your operating system command line. You must be in the *modeltech/examples* directory to run the examples. (Go to "[Licensing](#)" (p8) if ModelSim is NOT ready to run.)

Command	Description
vlib work	creates a work library for holding your compiled designs
vcom counter.vhd or vlog counter.v tcounter.v	compiles the HDL source code, use vcom for VHDL or vlog for Verilog
vsim counter or vsim test_counter	loads and simulates the design unit, use counter for VHDL or test_counter for Verilog

Use these commands at the *VSIM* prompt within ModelSim:

view *	opens all ModelSim windows
add wave -r /*	adds all signals in the design to the Wave window
force clk 1 50, 0 100 -repeat 100 (this command must be invoked on one line)	forces the clock (VHDL design only) to value 1 after 50 ns after the current time, then to 0 at 100 ns after the current time and repeats every 100 ns
run 1000	runs the design for 1000 ns
quit	exits ModelSim (use quit -f to exit ModelSim without confirmation)

For more simulation exercises and lessons, consult the ModelSim SE Tutorial.

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Keep these numbers handy for tech support:

UNIX server hostid # :

FLEXid security key # :

Ethernet ID # :

Rainbow dongle # :
