

Installing HSPICE

Version D-2010.03, March 2010

SYNOPSYS®

Copyright Notice and Proprietary Information

Copyright © 2010 Synopsys, Inc. All rights reserved. This software and documentation contain confidential and proprietary information that is the property of Synopsys, Inc. The software and documentation are furnished under a license agreement and may be used or copied only in accordance with the terms of the license agreement. No part of the software and documentation may be reproduced, transmitted, or translated, in any form or by any means, electronic, mechanical, manual, optical, or otherwise, without prior written permission of Synopsys, Inc., or as expressly provided by the license agreement.

Right to Copy Documentation

The license agreement with Synopsys permits licensee to make copies of the documentation for its internal use only. Each copy shall include all copyrights, trademarks, service marks, and proprietary rights notices, if any. Licensee must assign sequential numbers to all copies. These copies shall contain the following legend on the cover page:

“This document is duplicated with the permission of Synopsys, Inc., for the exclusive use of _____ and its employees. This is copy number _____.”

Destination Control Statement

All technical data contained in this publication is subject to the export control laws of the United States of America. Disclosure to nationals of other countries contrary to United States law is prohibited. It is the reader's responsibility to determine the applicable regulations and to comply with them.

Disclaimer

SYNOPSYS, INC., AND ITS LICENSORS MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Registered Trademarks (®)

Synopsys, AMPS, Astro, Behavior Extracting Synthesis Technology, Cadabra, CATS, Certify, CHIPit, Design Compiler, DesignWare, Formality, HDL Analyst, HSiM, HSPICE, Identify, Leda, MAST, ModelTools, NanoSim, OpenVera, PathMill, Physical Compiler, PrimeTime, SCOPE, Simply Better Results, SiVL, SNUG, SolvNet, Syndicated, Synplicity, the Synplicity logo, Synplify, Synplify Pro, Synthesis Constraints Optimization Environment, TetraMAX, UMRBus, VCS, Vera, and YIELDirector are registered trademarks of Synopsys, Inc.

Trademarks (™)

AFGen, Apollo, Astro-Rail, Astro-Xtalk, Aurora, AvanWaves, BEST, Columbia, Columbia-CE, Confirma, Cosmos, CosmosLE, CosmosScope, CRITIC, CustomExplorer, CustomSim, DC Expert, DC Professional, DC Ultra, Design Analyzer, Design Vision, DesignerHDL, DesignPower, DFTMAX, Direct Silicon Access, Discovery, Eclipse, Encore, EPIC, Galaxy, Galaxy Custom Designer, HANEX, HAPS, HapsTrak, HDL Compiler, Hercules, Hierarchical Optimization Technology, High-performance ASIC Prototyping System, HSiM^{plus}, i-Virtual Stepper, IICE, in-Sync, iN-Tandem, Jupiter, Jupiter-DP, JupiterXT, JupiterXT-ASIC, Liberty, Libra-Passport, Library Compiler, Magellan, Mars, Mars-Rail, Mars-Xtalk, Milkyway, ModelSource, Module Compiler, MultiPoint, Physical Analyst, Planet, Planet-PL, Polaris, Power Compiler, Raphael, Saturn, Scirocco, Scirocco-i, Star-RCXT, Star-SimXT, StarRC, System Compiler, System Designer, Taurus, TotalRecall, TSUPREM-4, VCS Express, VCSi, VHDL Compiler, VirSim, and VMC are trademarks of Synopsys, Inc.

Service Marks (sm)

MAP-in, SVP Café, and TAP-in are service marks of Synopsys, Inc.

SystemC is a trademark of the Open SystemC Initiative and is used under license.

ARM and AMBA are registered trademarks of ARM Limited.

Saber is a registered trademark of SabreMark Limited Partnership and is used under license.

All other product or company names may be trademarks of their respective owners.

Installing HSPICE on UNIX, Linux or Windows Platforms

This document describes how to install the HSPICE product.

Note: The installation instructions in this document are the most up-to-date available at the time of production. However, changes might have occurred. For the latest installation information, see the product release notes or documentation.

This document provides instructions for UNIX, Linux and Windows platforms.

This document includes the following sections:

- [Media Availability and Supported Platforms](#)
- [Disk Space Requirements](#)
- [Installing the Software on UNIX or Linux Platforms](#)
- [Configuring HSPICE for UNIX and Linux](#)
- [Setting Up the User Environment on UNIX and Linux](#)
- [Verifying the HSPICE Installation](#)
- [Installing the Software on Windows Platforms](#)
- [Supported Web Browsers for the HSPICE HTML Help System](#)
- [HSPICE Integration to Cadence™ Virtuoso® Analog Design Environment](#)
- [Related Documentation and Customer Support](#)

Important: You must set the `DISPLAY` environment variable before you install the software. Because the HSPICE postinstallation script is GUI based, the tool installation will fail if this variable is not set. (See [Configuring HSPICE for UNIX and Linux on page 6](#).)

Note: The "What's New" pop-up can be suppressed during installation. Use the radio button in the post-configuration interface to select or deselect the "What's New" pop-up feature. The default is Yes (display the pop-up). If No is selected, the "What's New" window will not pop up when HSPICE is run for the first time.

Media Availability and Supported Platforms

HSPICE, Discovery AMS Simulation Interface, AvanWaves, and MetaEncrypt are available by electronic software transfer (EST) or as tangible media (DVD or CD, depending on the image size), with the following exceptions:

- Discovery AMS Simulation Interface is not available on Windows platforms.
- AvanWaves is not available on the Linux platform.

For detailed information, see the Supported Platforms Guide page on the Synopsys Web site. <http://www.synopsys.com/Support/LI/SupportPlatform/ReleaseSupport/Pages/default.aspx>.

Obtain the appropriate binary executable files for your operating system. [Table 1](#) lists the supported compute platforms, operating systems, and corresponding Synopsys platform keywords, and window environments for this release. Many platforms require operating system patches. for this release.

Table 1 Platforms and Keywords

Platform	Operating system	Synopsys platform keyword	Window environment
x86_64	Red Hat Enterprise Linux v4, 5 ¹	amd64 (64-bit mode) linux (32-bit mode) ²	GNOME
Sun SPARC	Solaris 9, 10 ¹	sparc64 (64-bit mode) sparcOS5 (32-bit mode)	CDE
x86_64	SUSE Enterprise Linux v9, 10 ¹	suse64 (64-bit mode) suse32 (32-bit mode)	KDE
X86_64	Solaris 10	sparc64 (64-bit mode) sparcOS5 (32-bit mode)	CDE

Table 1 Platforms and Keywords

Platform	Operating system	Synopsys platform keyword	Window environment
IA-32 (X86)	Windows 2000, XP Professional, Vista, Windows 7	win_setup.exe (32-bit mode)	Microsoft Windows
IBMRS/6000	AIX 5.1, 5.3	rs6000 (32-bit mode)	CDE

1. Binary-compatible hardware platform or operating system. Note, however, that binary compatibility is not guaranteed. See <http://www.synopsys.com/products/platforms> for the latest information.

2. The 32-bit (x86) and 64-bit (x86_64) Linux software is binary compatible with the Intel EM64T or AMD Opteron running Red Hat Enterprise Linux. See <http://www.synopsys.com/products/platforms> for the latest information.

Note: The 32-bit binary files for HSPICE on Windows platforms are binary compatible with the Windows X64 operating system.

Disk Space Requirements

Make sure you have enough disk space for the installation. For a full installation on all platforms, 708 MB is recommended. For a single platform installation, approximately 280 MB is recommended.

Installing the Software on UNIX or Linux Platforms

HSPICE uses the Synopsys Installer tool, which allows you to use a graphical user interface (GUI) or a text script. For information about downloading the Synopsys Installer and HSPICE, see *Quickstart Installation Guide* at http://www.synopsys.com/support/installation/new_install_guide072.html.

To install HSPICE by EST or from the CD, follow the procedures described in *Quickstart Installation Guide*.

Quickstart Installation Guide shows an example Synopsys media installation script for the synthesis tools. HSPICE is installed in a similar manner.

Chapter :

Configuring HSPICE for UNIX and Linux

Important: The HSPICE postinstallation script is GUI based and will terminate abnormally unless the `DISPLAY` environment variable is set correctly.

HSPICE is a stand-alone product and cannot be installed over an existing Synopsys product, including a prior version of HSPICE. You must create a new directory for HSPICE.

HSPICE installs with other tools, including AvanWaves.

Configuring HSPICE for UNIX and Linux

The configuration program for HSPICE is automatically invoked after installation has finished. If the program does not start, you can invoke it manually by setting the `DISPLAY` variable to the correct value and invoking `config`. For example,

```
% setenv DISPLAY my_display:0.0
% install_dir/hspice/bin/config
```

This command opens the Configure Products dialog box. Follow these steps:

1. To configure AvanWaves, select Configure AvanWaves. No option is required.
Note: AvanWaves is not available on the Linux platform.
2. To configure HSPICE, select Configure HSPICE. The default settings are applied unless you set one of the following configuration options: “versions file,” “meta.cfg file...”, or “hspice.ini file...”.
3. After selecting your options, click the Configure button. The configuration log is shown in the middle of the dialog box.
4. Click Exit when the configuration has finished.

Setting Up the User Environment on UNIX and Linux

To set up the user environment, you must specify the location of the executable file and set the license environment variable.

A platform-independent wrapper script is provided for HSPICE. This script automatically determines the OS platform at runtime, which simplifies the setup required to use HSPICE. The platform-independent wrapper script is located at `install-dir/bin` and includes `-32bit` and `-64bit` options.

- `sparcOS5`
- `suse32`
- `suse64`
- `x86sol32`
- `x86sol64`

Note: If you select a platform executable file that is not available, an automatic switch is made to an available platform based on your current environment. No warning message is issued.

Specifying the Executable File Location (2 Methods)

Preferred

Source the `cshrc.meta` file in the `bin` directory (or `kshrc.meta`).

Alternatively

To set up a new HSPICE tool user, add the directory containing the HSPICE executable file to the `PATH` environment variable.

- If you are using the C shell, add the following line to the `.cshrc` file:

```
set path=(install_dir/hspice/bin $path)
```
- If you are using the Bourne, Korn, or Bash shell, add the following line to the `.profile`, `.bashrc`, or `.kshrc` file:

```
PATH=install_dir/hspice/bin:$PATH
export PATH
```

Setting the `SNPSLMD_LICENSE_FILE` or Environment Variable

You must install the SCL software, retrieve your license key file, and define the `SNPSLMD_LICENSE_FILE` environment, `LM_LICENSE_FILE`, or another tool-specific variable before you can verify the HSPICE installation.

For information about downloading and installing SCL and on setting the license variable, see the *Synopsys Licensing QuickStart Guide*, which is available from <http://www.synopsys.com/Support/Licensing/Licensing/Pages/default.aspx>.

Setting Up the Discovery AMS Simulation Interface Environment

To set up a new Discovery AMS Simulation Interface,

- If you are using the C shell, source the CSHRC_platform file located in the install directory.

```
% source install_dir/CSHRC_simif
```

The CSHRC_simif file sets the path for Discovery AMS Simulation Interface as follows:

```
setenv SNPS_SIMIF install_dir  
set path=(${SNPS_SIMIF}/bin $path)
```

where *install_dir* is the directory where the tool has been installed.

If you do not source the CSHRC_simif file, copy the preceding line and set the path from that file.

- If you are using the Bourne, Korn, or Bash shell, add the following line to the .profile, .kshrc, or .bashrc file:

```
SNPS_SIMIF=install_dir  
export SNPS_SIMIF
```

```
PATH=${SNPS_SIMIF}/bin:$PATH  
export PATH
```

Verifying the Installation

After you set up the licensing and HSPICE software packages, do the following:

- For C shell users, enter

```
% source install_dir/hspice/bin/cshrc.meta
```
- For Bourne or Korn shell users, enter

```
$ install_dir/hspice/bin/kshrc.meta
```

If this step fails, or if the cshrc.meta file does not exist, the installation program failed. To find the problem, review the installation log file:

```
install_dir/hspice/bin/synopsys_config.log_pid
```

Verifying the HSPICE Installation

To verify the HSPICE installation,

1. Make sure you are in a directory where you have read/write privileges.

```
% cd $HOME
```

The `$installdir` environment variable refers to the HSPICE installation directory. This variable is created when you source the cshrc.meta file.

2. To run a demonstration simulation, enter

```
% hspice $installdir/hspice/demo/hspice/bench/demo.sp \  
-o demo.lis
```

3. To view the simulation output, enter

```
% vi demo.lis
```

If you are able to get a license, you will see a message about licenses near the top of the listing.

```
lic: Checkout hspice; Encryption code: xxx
```

If you get a ***** job concluded statement near the bottom of the listing, the simulation was successful.

Installing the Software on Windows Platforms

The following sections describe how to install and set up the license server for HSPICE on a PC:

- [Installation Requirements](#)
- [Installing With Windows Explorer](#)
- [Installing With Windows DOS Shell](#)

Chapter :

Installing the Software on Windows Platforms

- [Using Dongle-Based Licenses](#)
- [Setting Up the User Environment on Windows](#)
- [Setting Up the Environment for Verilog-A Simulation](#)
- [Running HSPICE on Windows](#)
- [Running Older Versions of HSPICE](#)
- [The hspice.ini File](#)

Installation Requirements

To run HSPICE, your system must have

- A Pentium or compatible processor or later
- At least 64 MB of memory (128 MB or more is recommended)
- A parallel port for the security key (if you are using a dongle-based license)
- Windows 2000 or Windows XP operating system
- Approximately 180 MB of free disk space for a full installation of HSPICE, AvanWaves, and MetaEncrypt

Installing With Windows Explorer

To install HSPICE by using Windows Explorer,

1. Insert the HSPICE CD into the CD drive.
2. In Windows Explorer, double-click the CD drive icon.
3. Double-click the pc_hspice folder icon.
4. Double-click the Setup application icon.
5. To install the software, follow the screen prompts.

Installing With Windows DOS Shell

To install HSPICE by using the Windows DOS shell,

1. Insert the HSPICE CD into the CD drive.
2. At the DOS shell command prompt, enter

c:\> *CD-ROM drive letter:\pchspice\hspice_version_platform_setup.exe*

3. To install the software, follow the screen prompts.

Using Dongle-Based Licenses

The FLEXid drivers are no longer distributed with HSPICE. HSPICE now requires Synopsys Common Licensing (SCL) 10.9.1 or later to run dongle-based licenses.

After installing SCL 10.9.1 or later, follow these steps to verify that the Windows-based computer correctly identifies the dongle ID:

1. Make sure the dongle is securely attached to the parallel or USB port of your system. (The dongle must be directly attached to the computer and must be the first device attached; it cannot be piggybacked to another device.)
2. Open your Synopsys license file and locate the dongle ID. The ID is on the SERVER line or INCREMENT line of your license file. For example,
SERVER hostname1 FLEXID=8-5E700192562A 27000
3. Go to Start > Programs > Synopsys and click *SCLversion* > Launch *lmtools.exe*, where *version* is 10.9.1 or later.
4. In the LMTOOLS window, click the System Settings tab. In the FLEXID box at the lower left, verify that the correct dongle ID appears. The dongle ID must match the dongle ID specified in the license file (see step 2).
5. If no dongle ID appears, choose Start > Settings > Control Panel > Add or Remove Programs and uninstall any Globetrotter, Macrovision, or Sentinel FLEXid drivers, and install the latest driver provided by Synopsys.
 - a. Choose Start > Programs and click *SCLversion* > *flexid.exe*. (In some SCL versions, the executable file appears instead as *LaunchIDInstaller.exe*.)
 - b. Follow the onscreen instructions to install the correct FLEXID=7, FLEXID=8, or FLEXID=9 driver. Restart the system if instructed to do so.
 - c. Repeat steps 3 and 4. If this fails to resolve the problem, contact your local Synopsys Support Center.

Chapter :

Installing the Software on Windows Platforms

6. Start SCL. (See http://www.synopsys.com/support/installation/new_install_guide072.html.)
7. Set `SNPSLMD_LICENSE_FILE`, `LM_LICENSE_FILE`, or another tool-specific license variable. See “[Setting Up the User Environment on Windows](#),” next.

Setting Up the User Environment on Windows

Set the `SNPSLMD_LICENSE_FILE`, `LM_LICENSE_FILE`, or another tool-specific license variable.

1. For Windows 2000, Windows XP, or later versions of Windows, choose Control Panel > System > Advanced > Environment Variables.
2. Under User variables to affect only the current user account or System Variables to affect all users, click New to create a new variable or Edit to edit an existing variable.
3. In the New (or Edit) User Variable dialog box, enter `SNPSLMD_LICENSE_FILE`, `LM_LICENSE_FILE`, or another tool-specific license variable in the “Variable name” box.
4. In the “Variable value” box, enter the `port@hostname` variable value. For example,
`27000@license_server`
where the *port* and *hostname* variables correspond to the TCP port and license server host name specified in the `SERVER` line of the Synopsys license file (27000 is the default TCP port).
5. To save your changes, click OK (Windows 2000 or later).

Note: If you have multiple dongles connected to each other, the Synopsys dongle must be connected directly to the PC.

Setting Up the Environment for Verilog-A Simulation

Verilog-A is supported by both HSPICE and HSPICE RF on all platforms, including 64-bit and multithreading versions.

- To run Verilog-A on UNIX and Linux, source the `cshrc.meta` file located in `installdir/bin` or set the following environment variables:

```
setenv HSP_HOME installdir
set path=($HSP_HOME/bin \
          $HSP_HOME/$ARCH/verilog_utils/veriloga/include \
          $HSP_HOME/$ARCH/verilog_utils/tools/bin $path)
```

- To run Verilog-A on Windows platforms,
 - If you invoke HSPICE by using the GUI (HSPUI), Verilog-A is automatically invoked.
 - If you invoke HSPICE from the command prompt, set the following environment variables:

```
set HSP_HOME+%installdir_version%
set path=%installdir_version\bin; %path%
```

Running HSPICE on Windows

You can run HSPICE in any of the following ways:

- Double-click the HSPUI icon and then click the Simulate button.
- Double-click the HSPICE icon. You are prompted to enter names for the input netlist file and output list file. If you do not name an output file, all of the `.lis`, `.st0`, and `.tr0` files will be written in the directory in which you run HSPICE or `hspice.exe`.
- At the DOS prompt in Windows, enter

```
c:\> cd work_directory
c:\> %installdir%\BIN\HSPICE -i netlist -o listfile
```

Running Older Versions of HSPICE

You can use the HSPUI utilities to run different versions of HSPICE that are already installed on your computer. In the installation directory (`%installdir%`),

the versions.txt file contains all the information about different versions of HSPICE.

An example of a versions.txt file follows:

```
<BOF>
  c:\synopsys\Hspiceversion\BIN\hspice.exe   HSPICE version
  c:\synopsys\Hspiceversion\BIN\hspice_mt.exe HSPICE \
      version
<EOF>
```

You can add different HSPICE executable file full paths to subsequent lines in the versions.txt file. The second column contains comments as a version reminder and is ignored by the HSPUI utility. After invoking HSPUI, you can select the HSPICE version in the Version list on the HSPUI window. HSPICE will run according to the path selected in the Version list.

The hspice.ini File

On Windows platforms, the hspice.ini file is the configuration file that contains HSPICE options such as the search path. For example,

```
.Option Post =1
.Op
.Option Post_version = 9601
.....
```

If you have installed more than one version of HSPICE on the same PC, more than one hspice.ini file will exist, but only one takes effect when you start the tool.

The %installdir%\meta.cfg file points to the current hspice.ini file.

Setting Up HSPICE Online Help

The following sections provide information on customizing the HSPICE online help system. The html-based system opens by default from the command line with the following entry:

```
% hspice -help
```

The following topics are discussed below:

- [Flexible Customized API Online Help for HSPICE](#)
- [How to Create a Stand-alone Help Collection](#)
- [How to Open Help to the Search, Index, or Contents Pane From a Web Page](#)
- [Supported Web Browsers for the HSPICE HTML Help System](#)

Flexible Customized API Online Help for HSPICE

HSPICE takes advantage of an enhanced WebWorks Help API to allow more flexible user-level browser specification (non-Windows OS):

The API tests for the environment variables `SNPS_BROWSER` and `BROWSER`. Either of these variables is treated as an absolute path to the executable of an arbitrary Web browser. (`SNPS_BROWSER` takes precedence over `BROWSER`, allowing a user to specify a different browser for online help than provided as a default in the Common Desktop Environment.)

If the API does not find a browser specified by `SNPS_BROWSER`, `BROWSER`, or a call to `WWHelp_SetBrowser()`, it will first search in the user's `PATH` and then a list of typical browser installation locations for executables in this order:

1. `firefox`
2. `seamonkey`
3. `netscape6`
4. `netscape`
5. `mozilla`
6. `iexplorer`
7. `konqueror`
8. `epiphany`

How to Create a Stand-alone Help Collection

You can copy the Help system to your Windows workstation, laptop, or any Linux or UNIX system. Then you can view and use the files locally using any

Web browser. You can also place the Help system on a central company web server so that everyone with access to that server can see and search Help.

1. Copy the entire directory that contains the HTML files, including all of the subdirectories. A typical Help collection should contain the following files and subdirectories:

```
images/ (directory)
scripts/ (directory)
wwhdata/ (directory)
wwhelp/ (directory)
filenames.html
filenames.pdf
```

...and other files used by the Help system.

Important: Synopsys Help systems have files and directories with the same names for each Help collection. If you have multiple Synopsys Help systems, you must keep them in separate top directories. Copying a second Help system to the same top directory overwrites the files in first Help system.

2. To start Help, open the `index.html` file in your browser from the above directory.
3. To add a link to a stand-alone Help collection on your network, use the following link syntax:

```
file:///help_directory/index.html
```

or from a web server:

```
http://your_server/help_directory/index.html
```

How to Open Help to the Search, Index, or Contents Pane From a Web Page

You can set a link to open the Help system directly to the Search, Index, or the Contents pane.

1. **OPTIONAL:** Install a local copy of Help on your machine or on your network, as described in [How to Create a Stand-alone Help Collection](#).
2. Link to Help using the following syntax, as desired:
 - To open the Search pane from your installation:

`file:///help_directory/index.html?tab=search`

or from a web server:

`http://your_server/help_directory/index.html?tab=search`

- To open the Index pane from your installation:

`file:///help_directory/index.html?tab=index`

or from a web server:

`http://your_server/help_directory/index.html?tab=index`

- The Contents pane opens by default if you open the index.html page without any argument. However, you can also force opening the contents pane as follows:

`file:///help_directory/index.html?tab=toc`

or from a web server:

`http://your_server/help_directory/index.html?tab=toc`

Supported Web Browsers for the HSPICE HTML Help System

Synopsys recommends the following web browsers for supported platforms:

Platform	Operating Systems	Supported Browsers
IBM RS6000 AIX 32- and 64-bit	AIX 5.3	Firefox 1.5 Mozilla 1.7
SunSPARC Solaris 32- & 64-bit	Solaris 9 or 10 ¹	Firefox 1.5, 2.0 Mozilla 1.7
X86 (IA-32) 32-bit & Linux 32-bit	RedHat Enterprise Linux 4 or 5 SUSE Linux Enterprise Server 9 or 10	Firefox 1.5, 2.0, 3.0 ² Mozilla 1.7 Netscape Navigator 7.0
X86_64 Linux 64-bit	Red Hat Enterprise Linux 4 or 5 SUSE Linux Enterprise Server 9 or 10	Firefox 1.5, 2.0, 3.0 ² Mozilla 1.7 Netscape Navigator 7.0

Platform	Operating Systems	Supported Browsers
X86 Windows 2000	Windows 2000	Firefox 1.5, 2.0, 3.0 ³ Internet Explorer 6.0 Mozilla 1.7 Netscape Navigator 7.0
X86 Windows XP Professional	Windows XP Professional v2002	Firefox 1.5, 2.0, 3.0 ³ Internet Explorer 6.0 Mozilla 1.7 Netscape Navigator 7.0

1. *Synopsys does not recommend using Netscape Navigator to view Help on Solaris.*
2. *Synopsys recommends using Firefox 3.0 builds 2008052912 or later on Linux.*
3. *Synopsys recommends using Firefox 3.0 builds 2008052906 or later on Windows.*

Important: Online Help is set by default to use Netscape or Mozilla on UNIX and Linux platforms. To use Firefox, start the Firefox browser before starting Help, as described in [Using a Browser Other than Netscape or Internet Explorer](#).

Using a Browser Other than Netscape or Internet Explorer

Netscape is the default Help browser on UNIX and Linux systems. Internet Explorer is the default Help browser on Windows systems. You can use other browsers, however, as follows.

To use a browser other than Netscape on UNIX or Linux:

1. Before you use Help, open the browser you want to use, such as Firefox.
2. Then start Help from your Synopsys application.

The Help document will open in the currently opened browser.

To use a browser other than Internet Explorer on Windows:

- Set the browser you want to use, such as Firefox, to be your default browser.

The next time you click Help, the Help content will appear in the default browser.

HSPICE Integration to Cadence™ Virtuoso® Analog Design Environment

In addition to the sections below, you can refer to the README in the integration which is available in:

`/global/apps3/hspice_release_version_date/interfaces`

The following sections describe the installation processes for the HSPICE integration into the Cadence analog design environment.

Platforms Supported

sparcOS5 and linux

Software/Licenses Required

- HSPICE
- Cadence Virtuoso Analog Design Environment
Supported Versions: ic5.1 or ic6.x
- OASIS_Simulation_Interface license

1. Install the Simulator

Install the HSPICE simulator using the standard installation procedure (see [Installing the Software on UNIX or Linux Platforms](#)).

After the HSPICE installation is complete you will find directories and files as shown below under the installation directory. For example, if your installation directory is `$Installdir/hspice_2009.09`, you will see these files and directories.

```
admin  hspice  install.log  interface
```

- `hspice` - directory where all HSPICE binaries, demo, and doc directories are available.
- `interface` - directory where HSPICE-ADE interface installation files are available.

2. Create/Update the Cadence™ Virtuoso® Analog Design Environment Hierarchy with the HSPICE Integration

Whether or not you have admin privileges, use one of the following four options to install the HSPICE-ADE Interface. (Review the options to select your most appropriate procedure.)

Option 1: Install the HSPICE-ADE Interface during the HSPICE Simulator Installation Procedure

During the HSPICE installation procedure you will see a Setup dialog named 'CDS ADE interface' for the HSPICE-ADE interface installation. Follow the instructions on the dialog; select and fill in necessary path information to install.

If your first installation fails for any reason, you can invoke `$installdir/hspice/bin/config` to re-install the HSPICE-ADE interface.

If you don't install the HSPICE-ADE interface during the HSPICE installation procedure (Option 1), you can still install the HSPICE-ADE interface individually through the following three options by using the installation scripts.

Option 2: Create an Alternate Cadence Installation Hierarchy

If you prefer not to disturb your Cadence DFII installation directory, or, if you do not have write permissions to it, you can create an alternate Cadence installation hierarchy. This new hierarchy will contain soft-links to the original Cadence installation.

1. Make sure that you are in the “interface” directory.
2. Type `./mknew_HSPICECDN_install_new_install_directory`
3. Follow the instructions as you are prompted. The script asks you either to confirm the location of the existing Cadence hierarchy if it finds one in your path or to specify the location of the existing Cadence hierarchy that you want to use for the soft-links.

Option 3: Update an Existing Cadence Installation Hierarchy

If you prefer to install the HSPICE integration directly into an existing Cadence hierarchy, you can use the `install_HSPICECDN` script.

1. Make sure that you are in the “interface” directory of the unpacked tarfile.
2. Type `./install_HSPICECDN`

3. Follow the instructions as you are prompted. The script asks you either to confirm the location of the existing Cadence hierarchy if it finds one in your path, or to specify the location of the existing Cadence hierarchy that you want to update with the HSPICE Integration code.

OPTION 4: Install HSPICE-ADE interface locally without changing the Cadence Virtuoso release tree

Use these steps:

1. Make sure the 'CDSHOME' or 'CDS_ROOT' is set to the correct Cadence Virtuoso path.
2. Set the environment variable 'HSP_ADE_INTEG_HOME' to the HSPICE 'interface' directory.

Example in CSH:

```
setenv HSP_ADE_INTEG_HOME $installdir/interface
```

The 'HSP_ADE_INTEG_HOME' must be set correctly before continuing.

3. Source the csh file 'setHAI.csh' as follows:

```
source setHAI.csh
```

This creates the `.Synopsys/HSPICE/aa_integ` directory in user HOME for 'licms' to read necessary configuration files for the HSPICE-ADE interface integration.

4. Add the following load statement into your `.cdsinit` file:

```
(if
  dir=getShellEnvVar("HSP_ADE_INTEG_HOME")
  then
  load(strcat(dir "/HSPICE.ini"))
)
```

Note: For an example, refer to `$installdir/interface/.cdsinitHAI`.

5. Use the HSPICE Library Utility to update the 'analogLib' file for creating 'hspice' views for each component, and then include the updated 'analogLib' into your `cds.lib` file. For details, please refer to "Updating Libraries with HSPICE simInfo" in the *HSPICE User Guide: Integration to Cadence Virtuoso Analog Design Environment*.

Chapter :

HSPICE Integration to Cadence™ Virtuoso® Analog Design Environment

6. You can then directly invoke the 'icms' with HSPICE-ADE interface installation. If you want to create new cell with 'hspice' view, please copy the '\$installdir/interface/HSPICETemplate' file into the '\$CDSHOME/share/cdssetup/hierEditor/templates/HSPICE' directory. Then the template view information will be available during creating the new cell.

2. Setup: HSPICE in Cadence™ Virtuoso® Analog Design Environment

You must perform the following steps in order to run `icms` with the HSPICE Integration. (This should be done by all users and designers updating libraries.)

1. Update your path to point to the new version of HSPICE.

For example, if you unpacked the tarfile using the steps above while you were in the directory called `/remote/beta`, you will have a directory called: `/remote/beta/hspice/bin`. You need to add this directory to your search path:
set path=(/remote/HSPICE/C-2009.09/hspice/bin \$path)

2. Update your CDSHOME environment variable and your path to point to an alternative Cadence installation directory previously installed HSPICE integration. For example: if you created an alternate installation hierarchy in `/remote/HSPICE/C-2009.09/HSP_IC61`

First set CDSHOME to this directory in your c shell:

setenv CDSHOME /remote/HSPICE/A-2008.03/HSP_IC61

Then update the path variable

set path = (\$CDSHOME/tools/bin \$CDSHOME/tools/bin/dfll/bin \$path)

or

just source the `/remote/beta/hspice/bin/cshrc.meta` in the c-shell, which helps you to finish the environment update as in the above two steps.

Result: You are now finished with the installation and user setup.

Updating Libraries With HSPICE simInfo

In order to update your libraries with the HSPICE simInfo, you must be set up to run `icms` with the HSPICE Integration. Follow the steps in the section above ([2. Setup: HSPICE in Cadence™ Virtuoso® Analog Design Environment](#)) before proceeding with updating your libraries. Note that updating a library only needs

to be done once, and multiple users can point to the same library through their cds.lib files.

See Chapter 2 in the *HSPICE Integration User Guide* on updating your libraries for more information on the actual library update process. When installing the HSPICE-ADE interface, the analogLib is converted by default and the HSPICE simInfo is added.

Adding HSPICE simInfo to your libraries

In order to run HSPICE within the Analog Design Environment, your simulation primitive libraries (such as analogLib) must have the necessary HSPICE simulator information. Use the following steps to update all libraries from which you are instantiating simulation primitives in your designs.

Note: This update utility updates recognized components with hspiced simInfo. Most of the components in analogLib are recognized. If you have components that don't fit this category or don't have hspiced simInfo, they will have to be updated manually in order to be netlisted.

Proceed as follows:

1. Start `icms` and in the CIW, select Tools->HSPICE Library Update Utility.
Note: If you don't have this item in the Tools pulldown, your `.cdsinit` file may not be properly updated.
2. In the Library combo box, select the name of the Library that you wish to update.
3. You can instruct the Library Update Utility to make a copy of your library rather than alter your existing library. To do this, enable "Copy to New Library Before Updating" and specify the new library name. Your library will be copied to the new library name and updates will be applied to the new library.

Note: Since the Cadence tool does not allow same-named libraries, you need to specify a name other than your source library name. If you do this, and want to continue to use your original library name in your schematic instantiations, you need to change the new library logical name in your cds.lib so that it matches the source library name.

For example, the Update Utility may add this to your cds.lib:

Chapter :

HSPICE Integration to Cadence™ Virtuoso® Analog Design Environment

```
DEFINE basic_new /remote/beta/basic_new
```

You must change this to:

```
DEFINE basic /remote/beta/basic_new
```

4. Click **OK** or **Apply** to run the Update Utility.
5. Check the CDS.log file for unrecognized cells. If any were encountered, you will see a message such as:
Cell: TTL_a2d not updated as its type was not recognized
You may need to manually update these cells. Contact your Synopsys support person for information as to how this is done.
6. Once the Library Update Utility has completed its run, you may continue to use `icms` or you may exit.

Adding the HSPICE Simulator to the Tool Filter

If you need to access parameters that apply only to HSPICE, it is necessary to have the Tool Filter recognize the HSPICE integration. Although this is not necessary to run the HSPICE Integration or to run the Library Update Utility, it is highly likely that you will need to set or modify HSPICE-only parameters on components like the `vsouce`. Once you perform this step in the installation hierarchy, all users pointing to the hierarchy will benefit from the Tool Filter.

1. Change directories to:
`cadence_install_dir/tools/dfl/etc/tools/auCore`
Note: The `cadence_install_dir` is the one that you either created or updated in the steps above (**Option 1** or **Option 2**).
2. Edit the `.cdsenv` file and add HSPICE to the list of simulators. For example:
`auCore.toolFilter toolList string "spectre spectreS ams auCdl hspiceD HSPICE" nil`
3. In the schematic window, you can manually change the Tool Filter to show parameters for any specific simulator in the list above. Follow these steps to see the HSPICE parameters:
 - From the schematic window, select Tool Filter... from the Options menu.
 - Disable all selections for other simulators.
 - Enable the selection for HSPICE.

4. You can also set up your environment to automatically change the filter when you change the target simulator. To do this, add the following line to your .cdsenv file:
auCore.toolFilter autoUpdate boolean t

Optional: Making HSPICE Your Default Simulator Choice

If you want the environment to be invoked with HSPICE set as your default simulator, add the following line to your .cdsinit file:

```
envSetVal("asimenv.startup" "simulator" 'string "HSPICE")
```

Troubleshooting

If you don't see HSPICE listed in the Simulator choices pulldown, your .cdsinit file may not be properly updated.

Accessing HSPICE Documentation

The documentation for HSPICE is available as PDF files or as online Help.

Viewing and Printing HSPICE Documentation in Portable Document Format

To view and print HSPICE documentation in PDF, you must have Adobe Acrobat Reader installed on your machine.

Viewing HSPICE Online Help

The online Help system is a browser-based HTML Help system.

Chapter :
Accessing HSPICE Documentation

To view a Help system, Synopsys recommends the following minimum revisions web browsers on the Synopsys-supported platforms (later versions should also work):

Platform	Operating Systems	Supported Browsers
IBM RS6000 AIX 32- and 64-bit	AIX 5.3	Firefox 1.5 Mozilla 1.7
SunSPARC Solaris 32- & 64-bit	Solaris 9 or 10 ¹	Firefox 1.5, 2.0 Mozilla 1.7
X86 (IA-32) 32-bit & Linux 32-bit	Red Hat Enterprise Linux 4 or 5 SUSE Linux Enterprise Server 9 or 10	Firefox 1.5, 2.0, 3.0 ² Mozilla 1.7 Netscape Navigator 7.0
X86_64 Linux 64-bit	Red Hat Enterprise Linux 4 or 5 SUSE Linux Enterprise Server 9 or 10	Firefox 1.5, 2.0, 3.0 ² Mozilla 1.7 Netscape Navigator 7.0
X86 Windows 2000	Windows 2000	Firefox 1.5, 2.0, 3.0 ³ Internet Explorer 6.0 Mozilla 1.7 Netscape Navigator 7.0
X86 Windows XP Professional	Windows XP Professional v2002	Firefox 1.5, 2.0, 3.0 ³ Internet Explorer 6.0 Mozilla 1.7 Netscape Navigator 7.0

- 1. Synopsys does not recommend using Netscape Navigator to view Help on Solaris.*
- 2. Synopsys recommends using Firefox 3.0 builds 2008052912 or later on Linux.*
- 3. Synopsys recommends using Firefox 3.0 builds 2008052906 or later on Windows.*

The following sections describe:

- [Setting a Default Browser on Windows](#)
- [Using a Browser Other than Netscape or Internet Explorer](#)
- [Setting a Default Browser on UNIX or Linux](#)
- [Setting MIME Types to View PDFs from Help](#)

Setting a Default Browser on Windows

On Windows, Help opens the browser associated with .html files (typically Internet Explorer).

To use a browser other than Internet Explorer on Windows:

1. Open the browser that you want to use.
2. Open the Add or Remove Programs applet (available from the Control Panel).
3. Choose Set Program Access and Defaults.
4. Select Custom and click the down arrow to display the custom menu.
5. Choose "Use my current Web browser" and click OK.

Result: The next time you click Help, the Help content will appear in your selected default browser.

Setting a Default Browser on UNIX or Linux

Note: If you are using the "Common Code" version of the WebWorks API, released in December, 2008, include this set of steps about how to set a default browser on UNIX or Linux. If you are using the original version of the WebWorks API, released before December, 2008, delete this section and keep the previous.

The Help system searches for HTML browsers on UNIX or Linux systems as follows:

1. Searches for the browser associated with the Synopsys Help browser variable, `SNPS_BROWSER`. The value is a browser executable with full pathname.
2. Searches for the browser associated with the UNIX system variable, `BROWSER`. The value is a browser executable with full pathname.
3. *Optional:* Searches for the browser associated with a preference or other command setting provided by your Synopsys application.
4. Searches for the following browser executables, in order, in your `PATH`:

Chapter :
Accessing HSPICE Documentation

```
firefox  
seamonkey  
netscape6  
netscape  
mozilla  
iexplorer  
konqueror  
epiphany
```

5. Searches for the executables in each of the following locations in order:

For firefox and then for seamonkey:

```
/opt/browser/  
/usr/bin/  
/usr/bin/browser  
/usr/local/browser  
/usr/local/bin/  
/usr/local/bin/browser/
```

For netscape6, then for netscape, and then for mozilla:

```
/opt/browser/  
/usr/local/bin/  
/usr/local/browser  
/usr/bin/browser/  
/usr/dt/bin
```

For iexplorer:

```
/usr/local/microsoft/bin
```

For konqueror and then for epiphany:

```
/opt/browser/  
/usr/bin/  
/usr/bin/browser  
/usr/local/browser  
/usr/local/bin/  
/usr/local/bin/browser/
```

To set the default browser, you can do either of the following:

- Use the appropriate UNIX or Linux command to set one of the variables described above. For example, in C shell:

```
setenv SNPS_BROWSER /usr/bin/firefox
```

In Bourne, Korn, or Bash shell:

```
export SNPS_BROWSER=/usr/bin/firefox
```

- Use your Synopsys application's preference setting or command, if any, to set the default. The preference setting or command name varies between applications. Some applications do not provide this setting, but rely on the variables described previously. Check your application documentation for information about setting a default Help browser.

Setting MIME Types to View PDFs from Help

Online Help includes PDF versions of the documents, for use in printing. In order for links from the Help to the PDF to work, you must set an association in your browser for MIME type "application/pdf" with an appropriate PDF viewer for your platform. See the documentation for your particular browser for specific instructions on creating MIME-type associations.

Related Documentation and Customer Support

The HSPICE and HSPICE RF documentation is available through Documentation on the Web.

To access SolvNet:

1. Go to the SolvNet Web page at <http://solvnet.synopsys.com>.
2. If prompted, enter your user name and password. (If you do not have a Synopsys user name and password, follow the instructions to register with SolvNet.)

If you need help using SolvNet, click Help on the SolvNet menu bar.

The link to any recorded training is

<https://solvnet.synopsys.com/trainingcenter/view.faces>

Access recent release update training by going to

https://solvnet.synopsys.com/search/advanced_search.faces

Note: To view and print HSPICE documentation in Portable Document Format (PDF), you must have Adobe Acrobat Reader installed on your machine. To acquire the latest version of the Adobe

Chapter :

Related Documentation and Customer Support

Reader software, free of charge, go to <http://www.adobe.com> and click the Get Adobe Reader button. Follow the instructions on the Web page.

For information about contacting Customer Support, see http://www.synopsys.com/support/installation/new_install_guide072.html

If you cannot solve a problem, use an editor to review the following files for system error messages:

- */tmp/pid/synopsys_install.log_pid* (which is generated during installation)
- */tmp/pid/synopsys_config.log_pid* (which is generated during configuration)