

# Installation Guide

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Version U-2003.03, March 2003

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# Preface

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This preface includes the following sections:

- [What's New in This Release](#)
- [About This Guide](#)
- [Customer Support](#)

The installation instructions in this guide reflect the latest version of Synopsys software for each product. Not all products are the same version.

**Important:**

Install each version of the software in a new directory. Do not install different versions of Synopsys software in the same directory.

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## What's New in This Release

This guide has been divided into two parts: Part 1 contains synthesis, test, and verification tools and Part 2 contains placement and routing tools.

The following verification and test tools have been added to this guide:

- VCS, VCSi
- Vera
- VHDL Simulation (Scirocco)

The following placement and routing tools have been added to this guide:

- Astro, Columbia, and JupiterXT
- HSPICE
- Star-RCXT
- TCAD

For information about new features and changes in specific Synopsys tools, see the individual product documentation. For links to Synopsys documentation, see [“Related Publications”](#) in the next section.

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## About This Guide

The *Installation Guide* provides the basic information and procedures required to install Synopsys tools.

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### Audience

This guide is written for system administrators responsible for installing Synopsys software tools.

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### Related Publications

For additional information about Synopsys tools, see

- Synopsys Online Documentation (SOLD), which is included with the software for CD users or is available to download through the Synopsys Electronic Software Transfer (EST) system
- Documentation on the Web, which is available through SolvNet at <http://solvnet.synopsys.com>
- The Synopsys MediaDocs Shop, from which you can order printed copies of Synopsys documents, at <http://mediadocs.synopsys.com>

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## Conventions

The following conventions are used in Synopsys documentation.

Convention	Description
<code>Courier</code>	Indicates command syntax.
<i>Courier italic</i>	Indicates a user-defined value in Synopsys syntax, such as <i>object_name</i> . (A user-defined value that is not Synopsys syntax, such as a user-defined value in a Verilog or VHDL statement, is indicated by regular text font italic.)
<b>Courier bold</b>	Indicates user input—text you type verbatim—in Synopsys syntax and examples. (User input that is not Synopsys syntax, such as a user name or password you enter in a GUI, is indicated by regular text font bold.)
[ ]	Denotes optional parameters, such as <code>pin1 [pin2 ... pinN]</code>
	Indicates a choice among alternatives, such as <code>low   medium   high</code> (This example indicates that you can enter one of three possible values for an option: low, medium, or high.)
_	Connects terms that are read as a single term by the system, such as <code>set_annotated_delay</code>
Control-c	Indicates a keyboard combination, such as holding down the Control key and pressing c.
\	Indicates a continuation of a command line.
/	Indicates levels of directory structure.
Edit > Copy	Indicates a path to a menu command, such as opening the Edit menu and choosing Copy.

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## Customer Support

Customer support is available through SolvNet online customer support and through contacting the Synopsys Technical Support Center.

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### Accessing SolvNet

SolvNet includes an electronic knowledge base of technical articles and answers to frequently asked questions about Synopsys tools. SolvNet also gives you access to a wide range of Synopsys online services including software downloads, documentation on the Web, and “Enter a Call to the Support Center.”

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 SolvNet Help in the Support Resources section.

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## **Contacting the Synopsys Technical Support Center**

If you have problems, questions, or suggestions, you can contact the Synopsys Technical Support Center in the following ways:

- Open a call to your local support center from the Web by going to <http://solvnet.synopsys.com> (Synopsys user name and password required), then clicking “Enter a Call to the Support Center.”
- Send an e-mail message to [support\\_center@synopsys.com](mailto:support_center@synopsys.com).
- Telephone your local support center.
  - Call (800) 245-8005 from within the continental United States.
  - Call (650) 584-4200 from Canada.
  - Find other local support center telephone numbers at [http://www.synopsys.com/support/support\\_ctr](http://www.synopsys.com/support/support_ctr).

Part I:      Synthesis, Test, and Verification  
                 Tools

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# 1

## Preparing for Installation

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This chapter provides information about steps to complete before you install Synopsys tools.

The chapter contains the following sections:

- [Checking Your Hardware and Software Configuration](#)
- [Acquiring a License](#)
- [Finding Your Site Identification Number](#)
- [Creating the Synopsys Root Directory](#)
- [Defining the SYNOPSIS Environment Variable](#)

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## Checking Your Hardware and Software Configuration

You must check your hardware and software configuration (including patch requirements) before you attempt to load any Synopsys tools.

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### Supported Platforms and Operating Systems

[Table 1-1](#) lists the supported platforms, operating systems, and corresponding Synopsys platform keywords for this release. Many platforms require operating system (OS) patches, including year 2002 patches. For detailed information, see the Qualified Runtime System Configuration page on the Synopsys Web site. Go to

[http://www.synopsys.com/products/sw\\_platform.html](http://www.synopsys.com/products/sw_platform.html)

and click Qualified Runtime System Configuration.

This Web page provides information about supported hardware, operating systems, and required OS patches. If the required patch described in the Qualified Runtime System Configuration is not available from the platform vendor, install the most recent patch instead.

*Table 1-1 Supported Platforms, Operating Systems, and Keywords*

Platform	Operating system	Synopsys platform keywords	Windows environment
HP	HP-UX 11.0, 11i	hp32 (32-bit mode) hp64 (64-bit mode)	CDE
Sun	Solaris 8, 9	sparcOS5 (32-bit mode) sparc64 (64-bit mode)	CDE

*Table 1-1 Supported Platforms, Operating Systems, and Keywords*

Platform	Operating system	Synopsys platform keywords	Windows environment
IBM	AIX 4.3.3	rs6000 <sup>1</sup>	CDE
Intel IA-32	Red Hat Linux 7.2	linux (32-bit mode)	GNOME

1. The RS/6000 platform is not available on CD. It will be available for download by EST at a later date. For availability, check with your Synopsys sales representative.

## HP-UX Requirements

The HP-UX operating system has the following requirements:

- Local (non-NFS) file systems must be configured for long file names.

See the `/etc/convertfs` man page for details.

- The `chown` privilege must be switched off.

To switch off `chown`, enter

```
% setprivgrp -n chown
```

See the `setprivgrp` man page for details.

## Red Hat Linux 7.2 Shared Object File Problem

If you receive an error about `libncurses.so.4` (cannot open shared object file: no such file or directory) when you run a Synopsys tool on a Red Hat 7.2 platform, install the `ncurses4` package. This package is available on the Red Hat CD, or you can download it from the Red Hat FTP server at

ftp://ftp.redhat.com/pub/redhat/linux/7.2/en/os/i386/RedHat/RPMS/  
ncurses4-5.0-4.i386.rpm

## 64-Bit Mode on HP-UX and Solaris Platforms

The Synopsys tools now support 64-bit operation on HP-UX and Solaris platforms. When you run the tools in 64-bit mode, the upper limit for virtual address space is extended beyond the 4-gigabyte limit imposed by the 32-bit mode, allowing you to process larger designs. With both the 32-bit and 64-bit platforms installed, you have the flexibility to run either 32-bit or 64-bit applications without running out of memory.

You can install the 64-bit version of the Synopsys tools in the same root directory as the 32-bit version or in a separate directory. When both 32-bit and 64-bit `dc_shell` executable files are installed and you specify `dc_shell`, the first executable file in the `PATH` environment is invoked.

### Note:

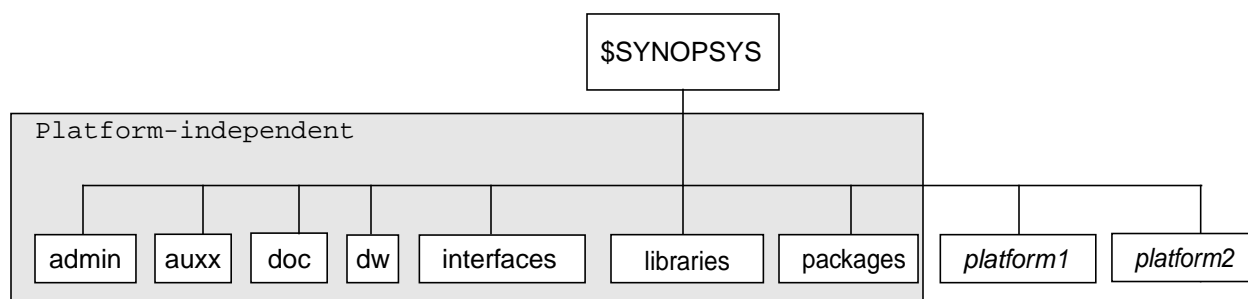
If you attempt to use the 64-bit mode on a 32-bit platform, you will see an error message.

---

## Multiple-Platform Installation

When you install files on a network that connects different platforms, the result is the directory tree shown in [Figure 1-1](#).

Figure 1-1 Illustration of a Multiple-Platform Installation



Each Synopsys product includes a platform-independent package (indicated by the shaded box in [Figure 1-1](#)) containing files common to all platforms. When you select multiple platforms, the installation script installs one platform-independent package and a platform-dependent package for each selected platform.

If you have previously installed a product on one platform and want to install it on another platform,

1. Rerun the installation script for the product.
2. In the installation script,
  - Answer **n** to the query about installing the platform-independent package.
  - Specify the new platform when queried about which platform to install.

---

## Products and Platforms

[Table 1-2](#) lists the products and their supported platforms. For the latest product-specific platform information, see the release notes for your tool.

*Table 1-2 Products and Supported Platforms*

Product	Product ID	Platform keyword
AMPS	amps	sparcOS5, hp32
Arcadia	arc	sparcOS5, sparc64, hp32, hp64, rs6000
CoCentric Fixed-Point Designer	fxd	sparcOS5, hp32, linux
CoCentric System Studio	css	sparcOS5, hp32, linux gccsparcOS5
Floorplan Compiler	fpc	sparcOS5, sparc64, hp32, hp64
Formality	fm	sparcOS5, sparc64, hp32, hp64, rs6000, linux
FPGA Compiler II	fc2	sparcOS5, hp32, Windows
NanoSim (including ADFMI, NanoSim Integration with VCS, turboWave, Verilog-A, and VTRAN)	ns	sparcOS5, sparc64, hp32, hp64, rs6000, linux
PathMill	pm	sparcOS5, sparc64, hp32, hp64, linux, rs6000
PowerArc	pa	sparcOS5, hp32
PowerMill (including ADFMI, VTRAN, and turboWave)	pw	sparcOS5, sparc64, hp32, hp64, rs6000
PrimePower	pp/pps	sparcOS5, hp32, linux
PrimeTime	pt/pts	sparcOS5, sparc64, hp32, hp64, linux

*Table 1-2 Products and Supported Platforms (Continued)*

<b>Product</b>	<b>Product ID</b>	<b>Platform keyword</b>
RailMill	rm	sparcOS5, sparc64, hp32, hp64, rs6000
Synthesis	syn <sup>1</sup>	sparcOS5, sparc64, hp32, hp64, rs6000, linux
TetraMAX	tx/txs	sparcOS5, sparc64, hp32, hp64, linux, gccsparcOS5
TimeMill (including ADFMI, VTRAN, and turboWave)	tm	sparcOS5, sparc64, hp32, hp64, rs6000
VCS	vcs, vcsi	sparcOS5, sparc64, hp11.0 PA2.0_32, 64, linux, AIX 32, dec_alpha_osfl_4.0_64
Vera	vera	sparcOS5, sparc64, hp32, linux, rs6000
VHDL Simulation (Scirocco)	scirocco	sparcOS5, hpux10, linux, rs6000

1. For individual synthesis tool platforms, see the product-specific release notes.

**Note:**

Products that support the RS/6000 platform will be available by EST at a later date. For more information, contact your local applications consultant.

---

## Disk Space Requirements

Table 1-3 lists the amount of disk space required to install the various Synopsys tools. Each CD also includes this information in the top-level README.*product\_name* file.

Table 1-3 *Disk Space Requirements*

Synopsys product	Required size in MB (approximate)
AMPS	
Platform independent	35
Per platform	110
Arcadia	
Platform independent	3
Per platform	400
CoCentric Fixed-Point Designer	
Platform independent	1
Per platform	20
CoCentric System Studio	
Platform independent	700
Per platform	600
CoCentric System Studio SOLD	100
Floorplan Compiler	
Platform independent	50
Per platform	400
Formality	
Platform independent	102
Per platform	132
FPGA Compiler II	
Platform independent	150
Per platform	100
NanoSim	
Platform independent	50
Per platform	500

*Table 1-3 Disk Space Requirements (Continued)*

Synopsys product	Required size in MB (approximate)
PathMill	
Platform independent	11
Per platform	172
PowerArc	
Platform independent	50
Per platform	300
PowerMill	
Platform independent	50
Per platform	300
sparcOS5	450
PrimePower	
Platform independent	492
Per platform	122
PrimeTime	
Platform independent	300
Per platform	350
RailMill	
Platform independent	3
Per platform	250
Synthesis tools	
Platform independent	400
Per platform	1160
Synopsys online documentation (English)	385
Synopsys online documentation (Japanese)	350
TetraMAX (overlay)	
Platform independent	9
Per platform	40

*Table 1-3 Disk Space Requirements (Continued)*

Synopsys product	Required size in MB (approximate)
TetraMAX (stand-alone)	
Platform independent	9
Per platform	112
TimeMill	
Platform independent	50
Per platform	300
sparcOS5	450
VCS	
Per platform	400
Vera	
Per platform	400
VHDL Simulation (Scirocco)	
Platform independent	320
Per platform	150

---

## Memory Requirements

The UNIX kernel defines hard per-process limits on the maximum amount of memory that can be used, and the `limit` command creates soft limits. If ignored, these limits can cause processes (jobs) to fail even when sufficient memory is available. For more information, see [“Memory” on page 25-2](#).

**Table 1-4** lists the general guidelines for the minimum amount of physical memory and swap space (virtual memory) required to run Synopsys tools.

*Table 1-4 Minimum Memory Requirements*

<b>Tool</b>	<b>Physical memory (MB)</b>	<b>Swap space (MB)</b>
AMPS	256 Recommended: 1G	512 Recommended: 2G
Arcadia	256	512
CoCentric Fixed-Point Designer	64	140
CoCentric System Studio	256	512
Floorplan Compiler	256	512
Formality <sup>1</sup>	256	512
FPGA Compiler II	64	140
NanoSim	256 Recommended: 1G	512 Recommended: 2G
PathMill	256 Recommended: 1G	512 Recommended: 2G
PowerArc	150	256
PowerMill	256 Recommended: 1G	512 Recommended: 2G
PrimePower	128	256
PrimeTime	150	256
RailMill	256	512
Synthesis tools	128	256
TetraMAX <sup>2</sup>	256	512

*Table 1-4 Minimum Memory Requirements (Continued)*

Tool	Physical memory (MB)	Swap space (MB)
TimeMill	256 Recommended: 1G	512 Recommended: 2G
VCS	256 Recommended: 2 G	768
Vera	256 Recommended: 1G	512 Recommended: 2G
VHDL Simulation (Scirocco)	256 Recommended: 1G	512 Recommended: 2G

1. For large designs, the expected amount of required memory is approximately 1 million bytes per 2,000 gates.

2. Physical memory and swap space requirements are dependent on design size. The above figures assume that design size is less than 1 million (equivalent NAND) gates.

## **Physical Memory Requirements for Synthesis, PrimeTime, and Design Budgeting**

To run the synthesis, PrimeTime, or design budgeting tools efficiently, the physical memory must equal 25 to 50 percent of the swap space. For example, if you have 128 MB of swap space, you need at least 32 MB of physical memory. You might need as much as 64 MB, however. The more physical memory you have, the more quickly your job runs.

## **Swap Space Requirements for Synthesis Tools**

The amount of swap space required by the synthesis tools depends on the size and type of each circuit design.

Use the following formula to help you determine the minimum amount of available swap space required for HDL designs:  
 $16.3 \text{ MB} + (5.9 \times (\text{size of the design in K gates}))$ .

For example, a 5K-gate design requires  $16.3 + (5.9 \times 5) = 45.8$  MB of available swap space.

## **Accessing Memory Beyond 2 GB With 32-Bit Synopsys Tools**

In general, UNIX-based systems support a maximum memory of 2 GB for 32-bit processes. However, the following Synopsys tools can extend memory beyond 2 GB:

- Behavioral Compiler
- Design Compiler
- DFT Compiler
- Floorplan Compiler
- Floorplan Manager
- Formality
- HDL Compiler (Presto Verilog)
- NanoSim
- Physical Compiler
- Power Compiler
- PowerArc
- PowerMill
- PrimePower
- PrimeTime
- RailMill

- RailMill
- Scirocco
- TimeMill
- VCS
- Vera
- VHDL Compiler

Note:

Available memory is space not used by the OS, the windowing system, or other applications.

To access memory beyond 2 GB,

1. Do one of the following, depending on the platform you are using:
  - For HP-UX,  
Make sure your server has HP-UX 11.0 (or later) loaded.
  - For Solaris,  
Make sure your server has Solaris 8 (or later) loaded.
2. Make sure your server has at least 4 GB of memory (physical and swap space) available.

Note:

Physical memory equals data size plus stack size, and stack size is used before data size. Therefore setting stack size to a large value causes problems for designs that need to go over 2 GB. If you set the stack size too high, you cannot get enough memory for your data. To check the settings, use the `limit` command at the system prompt. For more information, see [“Memory” on page 25-2](#).

3. Make sure the system you are using does not have restrictions that prevent you from using more than 2 GB of memory.
4. Create unlimited data size in the shell that you are using: C, Bourne, Korn or Bash. If there are systemwide limits on the data size you can create, you can remove them or override them. You can do this in one of two ways:

- Enter one of the following commands:

For the C shell,

```
% limit datasize 3800000
```

For the Bourne, Korn, or Bash shell,

```
# ulimit -s -d 3800000
```

- Modify the kernel of your server. This approach allows everyone using your server to extend memory beyond 2 GB.

**Note:**

On HP-UX systems, you will see a data size of 2 GB. This value is accurate. After your process reaches the 2-GB limit, the Synopsys product extends the address space.

---

## Acquiring a License

The Synopsys Common Licensing (SCL) system provides a single, common licensing base for all Synopsys tools. The SCL software and the documentation describing how to install and configure it are separate from the tools that use it.

Before you can use the Synopsys tools, you must do the following:

- If you have not already done so, retrieve your license keys from the SmartKeys Web page.
- Install the SCL software.

Note:

Installation of Synopsys tools and SCL is not order dependent. You can install SCL before or after you install your Synopsys tools. However, you cannot use your Synopsys tools until you have installed, configured, and started SCL.

---

## Obtaining Your License Keys

To obtain your license key file from SmartKeys,

1. Go to the SmartKeys Web page at  
<http://www.synopsys.com/smartkeys>
2. On the SmartKeys Web page, click Key Retrieval.
3. In the Key Retrieval box, enter the following information:

- Your site ID. This is the numeric site ID that identifies your customer site. If you have synthesis, test, or VHDL simulation tools installed, you can obtain the site ID by viewing your site\_info file: `$SYNOPTSYS/admin/license/site_info`.
- Your host ID (optional). To obtain a license key file for a single host, enter its host ID. To obtain license keys for all hosts at the specified site, leave this field blank.
- Your e-mail address. The default is your Synopsys e-mail address. This is the address that your key file will be sent to.

4. Click Continue to submit your request.

---

## Installing Synopsys Common Licensing Software

You need to install, configure, and start a single copy of SCL software for all Synopsys tools. If you don't have the SCL software, you can download it by EST or FTP: See the [http://www.synopsys.com/keys/#download\\_SCL](http://www.synopsys.com/keys/#download_SCL) Web page.

Alternatively you can order the SCL software CD from the Synopsys MediaDocs Shop at <http://mediadocs.synopsys.com>.

If you already have SCL running, you do not need to reinstall it. However, if you are updating your license key file, you need to notify the SCL daemons that the license file has changed. See the SCL documentation for instructions on this process.

### Note:

Do not install SCL into an existing directory. You must install SCL into a stand-alone directory.

For more information about licensing, see the following documents:

- *Licensing Quick Start*
- *Licensing Installation and Administration Guide*

Soft copies of the *Licensing Quick Start* document and the *Licensing Installation and Administration Guide* are available in Portable Document Format (PDF) from [http://www.synopsys.com/keys/#Info\\_SCL](http://www.synopsys.com/keys/#Info_SCL).

---

## Finding Your Site Identification Number

Before you install any Synopsys product CD, locate and make a note of your Synopsys site identification number. Enter your site ID when prompted during the installation process.

Your site ID was shipped in the package with your Synopsys tools, or if you download the software, it is in your Synopsys Order Notification e-mail. If you have trouble locating it, contact your Synopsys sales representative.

---

## Creating the Synopsys Root Directory

To create a new directory tree for this Synopsys release, enter

```
% mkdir -p /usr/synopsys/productversion
```

To set the permissions on the new directory tree, enter

```
% chmod 755 /usr/synopsys/productversion
```

**Important:**

Install each version of the software in a new directory. Do not install different versions of Synopsys software in the same directory.

---

## Defining the SYNOPSYS Environment Variable

Set the `SYNOPSYS` environment variable (`$SYNOPSYS`) in the shell that you are using: C, Bourne, Korn, or Bash. In the following examples, the `root_directory` argument is the name of the Synopsys root directory.

If you are using the C shell, enter the following command to set the `SYNOPSYS` environment variable:

```
% setenv SYNOPSYS root_directory
```

If you are using the Bourne, Korn, or Bash shell, enter the following command to set the `SYNOPSYS` environment variable:

```
# SYNOPSYS=root_directory; export SYNOPSYS
```



# 2

## Downloading and Installing the Software

---

This chapter provides information about downloading and installing Synopsys tools.

The chapter contains the following sections:

- [Downloading and Installing the Software by EST](#)
- [Performing EST Installation](#)
- [Installing Product Files From a CD](#)
- [Installing Tools in the Correct Sequence](#)

---

## Downloading and Installing the Software by EST

You can download Synopsys software in two ways:

- By FTP
- From the Web

For help with download problems, contact the Synopsys Electronic Software Transfer department:

E-mail support: [est-adm@synopsys.com](mailto:est-adm@synopsys.com)

Telephone support: 650-584-1631

To access the online EST Troubleshooting Guide, go to <http://www.synopsys.com/cgi-bin/est.cgi>.

### Caution!

Install each version of the software in a new directory. Do not install different versions of Synopsys software in the same directory.

---

## Using the Product Files

Depending on file size, product files are packaged by one of three processes, tar, tar.Z, or tar.gz. These instructions cover each process.

The product files use the following naming convention:

For .tar files

*productname\_productversion\_common.tar*  
*productname\_productversion\_platform.tar*

## For tar.Z files

```
productname_productversion_common.tar.Z  
productname_productversion_platform.tar.Z
```

## For tar.gz files

```
productname_productversion_common.tar.gz  
productname_productversion_platform.tar.gz
```

For each tool you want to install, substitute the appropriate product ID and version for *productname\_productversion* and platform keyword for *platform*. (See [“Products and Platforms” on page 1-6.](#))

### **Important:**

For each product except SOLD, VHDL Simulation (Scirocco), and VCS, you must install one common file (platform-independent package) and one or more platform-specific files. (See [Figure 1-1 on page 1-5.](#)) For VHDL Simulation (Scirocco) and VCS, install the platform file only. For SOLD, install only the tar files. (SOLD version U-2003.03 does not have a common file and is platform independent.)

---

## Downloading the Files by FTP

To download the files by FTP,

1. For each tool, you must create a separate empty directory to download your product files into. For example,

```
% mkdir /tmp/product  
% cd /tmp/product
```

2. Start an FTP session to ftp.synopsys.com:

```
% ftp ftp.synopsys.com
```

3. Enter your SolvNet user name and password.

4. At the ftp prompt, enter the following commands:

```
ftp> binary
ftp> cd rev
ftp> cd productname_productversion
ftp> get productname_productversion_common.tar
ftp> get productname_productversion_platform.tar
```

For a list of supported platforms and products for this release, see [Table 1-2 on page 1-6](#).

5. Download the files into the directory you just created.
6. For installation instructions, see [“Performing EST Installation” on page 2-5](#).

---

## Downloading the Files From the Web

To download files from the Web,

1. For each tool, you must create a separate temporary directory to download your product files into. For example,

```
% mkdir /tmp/product
% cd /tmp/product
```

2. Go to the Electronic Software Transfer (EST) Web page at <http://www.synopsys.com/cgi-bin/est.cgi>
3. Click the Authenticated Access button.
4. Enter your SolvNet user name and password.
5. Read the legal page and, if you agree, click “Yes, I agree to the above terms.”
6. Click the rev folder.
7. Click the file folder for the product and version you want to install.

8. Download the files into the temporary directory.

Note:

For each product, you must download one common file (platform-independent package) and one or more platform-specific files.

9. For installation instructions, see [“Performing EST Installation,”](#) next.

---

## Performing EST Installation

To install the software,

1. Untar the .tar files, or untar and uncompress the tar.Z or tar.gz files. For example,

For tar files

```
% tar xvf productname_productversion_common.tar
% tar xvf productname_productversion_platform.tar
```

For tar.Z files

```
% cat productname_productversion_common.tar.Z | uncompress | tar xvf -
% cat productname_productversion_platform.tar.Z | uncompress | tar xvf -
```

or

```
% zcat productname_productversion_common.tar.Z | tar xvf -
% zcat productname_productversion_platform.tar.Z | tar xvf -
```

For tar.gz files

```
% gzip -dc productname_productversion_common.tar.gz | tar xvf -
% gzip -dc productname_productversion_platform.tar.gz | tar xvf -
```

Substitute the appropriate product ID and version for *productname\_productversion* and platform keyword for *platform*. (See “[Products and Platforms](#)” on page 1-6.)

2. Execute the following command to install the software:

```
% ./install.now
```

To install Synopsys tools, it is recommended that you log on as root or have system administrator privileges. You need write permission for the installation directory.

3. Answer the installation program prompts.

**Important:**

When you are prompted to choose a location for installing the software, do not select the temporary files directory. You must specify a new directory. Do not install different versions of Synopsys software in the same directory.

Repeat steps 1 through 3 for each tool you want to install.

---

## Installing Product Files From a CD

Use the same installation procedure to transfer the files from each CD (or CD set) to your system.

To install a CD,

1. Mount the CD.
2. Run the installation script.
3. Unmount the CD.

Complete information about these steps is given in the following sections.

---

## Mounting the CD

Mounting the CD might require root access privileges. If you do not have root access privileges, see your system administrator for instructions on mounting the CD. If you have the proper privileges, complete the following steps.

To mount the CD,

1. Place the CD in the CD drive.
2. Create a CD directory. For example, enter

```
% mkdir /cdrom
```

3. Mount the CD by using the appropriate command for your operating system. For example, enter

```
% mount -o ro /dev/dsk/c2t1d4s0 /cdrom
```

### Note:

Mounting instructions are different for each platform. See your system documentation for the correct CD mounting commands.

Also, for sparcOS5 with vold (the volume management daemon for managing CD and floppy devices), the /cdrom directory already exists and the CD is automatically mounted. Therefore, use `cd /cdrom/cdrom0` instead of `cd /cdrom` (and use `eject` to unmount the CD).

---

## Installing the Software From the CD

The following steps apply only to tools that use the standard installation. For CD installation of FPGA Compiler II, see [“Installing the Software” on page 10-3](#).

To install the software,

1. Move to the CD-ROM directory. For example, enter

```
% cd /cdrom
```

2. View the README.1ST file on the CD for more information. View the README.*productname* file for the most up-to-date disk space requirements.

3. Enter the installation command.

```
% ./install.now
```

4. Answer the installation program prompts.

If you receive an UNCOMPRESS/TAR ERROR during the installation script, rerun the installation command, using the `-i` option to correct the problem. For example, enter

```
% ./install.now -i
```

[Example 2-1](#) shows a sample Synopsys media installation script for the synthesis tools; it applies to installation by EST and from the CD. Other tools are installed in a similar manner.

**Note:**

To perform an overlay installation for PrimePower or TetraMAX, when you are prompted to select the product you want to install, enter **pp** (for PrimePower) or **tx** (for TetraMAX). To perform a stand-alone installation, enter **pps** (for PrimePower stand-alone) or **txs** (for TetraMAX stand-alone).

*Example 2-1 Synopsys Media Installation Script for the Synthesis Tools*

Synopsys Media Installation

Instructions: The list within {} shows the choices for a given option. The entry within [] shows the default selection when you hit the Return key. You can cancel the installation by entering quit when prompted for input.

---

The current mounted Synopsys CD file system is U-2003.03.

```
VERSION:      U-2003.03
PRODUCTS:    syn sf3 sf4 pc
PLATFORMS:   sparcOS5
PART NUMBER: XXXXXX
```

---

Install U-2003.03 release? {y,n} [y] **y**

Enter the full path to the directory where you want to install Synopsys U-2003.03 products. If the directory does not exist, it will be created. [/usr/synopsys]: **/usr/synopsys/U-2003.03**

Creating Synopsys root directory /usr/synopsys/U-2003.03 ...  
Select Synopsys product(s) to install:

```
{
  syn - Core Synthesis Tools
  sf3 - Synopsys Integrator for Falcon Framework MentorC
  sf4 - Synopsys Integrator for Falcon Framework MentorD
  pc  - DALI (Protocol Compiler)
}
```

Enter the list of product(s) to install [syn]: **syn sf3 pc**

Product(s) selected: syn sf3 pc

Platform Independent Package for a particular product contains support files that are common to all the platforms. You must install this package for each product if you are installing it to the /usr/synopsys/U-2003.03 directory for the first time.

Install Platform Independent Package for syn? {y,n} [y]: **y**

Install Platform Independent Package for sf3? {y,n} [y]: **y**

Install Platform Independent Package for pc? {y,n} [y]: **y**

Platform(s) selected: sparcos5

---

Here is your final selection for installing Synopsys Tools:

VERSION: U-2003.03  
PRODUCTS: syn sf3 pc  
PLATFORMS: sparcos5

Synopsys Media Directory (from) : /cdrom  
Synopsys Install Directory (to) : /usr/synopsys/U-2003.03

Platform Independent Package(s) for : syn sf3 pc

Disk space required : 1138 MB  
Disk space available : 12918 MB

If all the information is correct, continue with the installation.

---

Install? {y,n} [y]: **y**

Starting Installation ... Please do not interrupt.

INSTALLING syn product, platform\_independent package, U-2003.03 version.  
uncompress < ./syn.taz | ( cd /usr/synopsys/U-2003.03; tar xvfp - )  
sparcos5

INSTALLING syn product, sparcos5 package, U-2003.03 version.  
uncompress < ./sparcos5/syn.taz | ( cd /usr/synopsys/U-2003.03; tar xvfp - )

INSTALLING sf3 product, platform\_independent package, U-2003.03 version.  
uncompress < ./sf3.taz | ( cd /usr/synopsys/U-2003.03; tar xvfp - )  
sparcos5

INSTALLING sf3 product, sparcos5 package, U-2003.03 version.

```
uncompress < ./sparcos5/sf3.taz | (cd /usr/synopsys/U-2003.03; tar xvfp - )
INSTALLING pc product, platform_independent package, U-2003.03 version.
```

```
uncompress < ./sf3.taz | ( cd /usr/synopsys/U-2003.03; tar xvfp - )
sparcos5
INSTALLING pc product, sparcos5 package, U-2003.03 version.
```

Installing Design Compiler ...

Installing Module Compiler ...

Installing power\_estimate ...

Installing Library Compiler ...

Installing BC View ...

Installing MemWrap ...

Installing Design Vision ...

Installing Physical Compiler ...

Synopsys Integrator for Falcon Framework Installation Script

Platform [ sparcOS5 ]: **sparcOS5**

Falcon Framework Version [ C ]: **C**

Synopsys root directory [ /usr/synopsys/U-2003.03 ]: **/usr/synopsys/U-2003.03**

Synopsys integrator directory [ /usr/synopsys/U-2003.03/sparcOS5/syn/interfaces/mentorC ]:

Synopsys Site Identification Number appears on the upper right corner of your Synopsys License Key Certificate.

-n Synopsys Site Identification Number [Hit return for 000]: 000

Synopsys License Administrator is a person who must be contacted for Synopsys product related administrative tasks at your site.

-n Local Synopsys License Administrator [Hit return for customer]:

License Administrator Contact is the current phone number and/or  
Email address of customer.

-n License Administrator Contact [Hit return for ###-#### and/or user@email]:

Created site file /usr/synopsys/U-2003.03/admin/license/site\_info.

Done.

You must now continue with the product-specific installation procedures,  
install the Synopsys keys, and start the license servers.

For more information, refer to ./README.{syn sf3 pc} file(s) and  
the Installation Guide version U-2003.03.

Thank you ...

**Example 2-2** shows a sample Synopsys media installation script for  
version U-2003.03 of the PrimeTime tools; it applies to installation by  
EST and from the CD. Other version U-2003.03 tools are installed in  
a similar manner.

## *Example 2-2 Synopsys Media Installation Script for PrimeTime*

Synopsys Media Installation

Instructions: The list within {} shows the choices for a given option. The entry  
within [] shows the default selection when you hit the Return key. You can  
cancel the installation by entering quit when prompted for input.

---

The current mounted Synopsys CD file system is U-2003.03.

```
VERSION:      U-2003.03
PRODUCTS:    pts
PLATFORMS:   sparcOS5 sparc64
PART NUMBER: XXXXXX
```

---

Install U-2003.03 release? {y,n} [y] y

NOTE: The product(s) pts on this CD-ROM must be installed in a standalone directory.

Enter the full path to the directory where you want to install Synopsys U-2003.03 products. If the directory does not exist, it will be created. [/usr/synopsys]: /usr/synopsys/U-2003.03

Select Synopsys product(s) to install:

```
{
  pts - PrimeTime_StandAlone
}
```

Enter the list of product(s) to install [pts]: pts

Product(s) selected: pts

The Platform Independent Package for a particular product contains support files that are common to all the platforms.

You must install this package for each product if you are installing it to the /usr/synopsys/U-2003.03 directory for the first time.

Install Platform Independent Package for pts? {y,n} [y]: y

Select platform(s) to install:

```
{
  sparcOS5 (for Solaris 8, 9)
  sparc64 (for Solaris 8, 9; 64bit Kernel)
}
```

Enter the list of platform(s) to install [sparcOS5]: sparcOS5  
sparcos5

Platform(s) selected: sparcos5

---

Here is your final selection for installing Synopsys Tools:

VERSION: U-2003.03  
PRODUCTS: pts  
PLATFORMS: sparcos5

Synopsys Media Directory (from) : /cdrom  
Synopsys Install Directory (to) : /usr/synopsys/U-2003.03

Platform Independent Package(s) for : pts

Disk space required : 290 MB  
Disk space available : 10063 MB

If all the information is correct, continue with the installation.

---

Install? {y,n} [y]: y

Starting Installation ... Please do not interrupt.

```
INSTALLING pts product, platform_independent package, U-2003.03 version.
uncompress < ./pts.taz | ( cd /usr/synopsys/U-2003.03; tar xvfp - ) sparcos5
INSTALLING pts product, sparcos5 package, U-2003.03 version.
uncompress < ./sparcos5/pts.taz | (cd /usr/synopsys/U-2003.03; tar xvfp - )
```

Installing PrimeTime ...

Synopsys Site Identification Number appears on the upper right corner of your Synopsys License Key Certificate.

-n Synopsys Site Identification Number [Hit return for 000]:  
000

Synopsys License Administrator is a person who must be contacted for Synopsys product related administrative tasks at your site.

-n Local Synopsys License Administrator [Hit return for ryang]:

License Administrator Contact is the current phone number and/or Email address of ryang.

-n License Administrator Contact [Hit return for ###-#### and/or user@email]:

Created site file /usr/synopsys/U-2003.03/admin/license/site\_info.

Done.

You must now continue with the product-specific installation procedures, install the Synopsys keys, and start the license servers.

For more information, refer to ./README.{pts} file(s) and the Installation Guide.

Thank you ...

---

## Unmounting the CD

To unmount the CD,

1. Move to another directory. For example, enter

```
% cd /tmp
```

2. Unmount the CD by using the appropriate command for your operating system. For example, enter

```
% umount /cdrom
```

Note:

If you are running the volume management daemon, use the `eject` command to unmount the CD.

3. Remove the CD from the drive.

---

## Installing Tools in the Correct Sequence

Most Synopsys tools are stand-alone products and cannot be installed into another Synopsys tool directory. However, with products that allow overlay installation, the installation order is important. For example, install these tools in the following sequence:

- Synthesis tools
- PrimePower (overlay)
- TetraMAX (overlay)

Note:

To run the Synopsys tools, Synopsys Common Licensing (SCL) software must be installed. For details about Synopsys licensing software, see the *Licensing Quick Start* document and the *Licensing Installation and Administration Guide*, which are available online at [www.synopsys.com/keys](http://www.synopsys.com/keys).

# 3

## Installing the Synopsys Synthesis Tools (version U-2003.03)

---

This chapter contains the following sections:

- [Synthesis Tools](#)
- [Installing the Software](#)
- [Configuring the Synthesis Tools](#)
- [Installing Optional Tools](#)
- [Verifying the Synthesis Tools Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).

- Define the `SYNOPTSYS` environment variable (see [“Defining the SYNOPTSYS Environment Variable” on page 1-19](#)).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License” on page 1-16](#)).

Beginning with the 2002.05 release, PrimeTime no longer overlays the synthesis tools.

---

## Synthesis Tools

The Synopsys synthesis tools include the following:

- Core synthesis tools
  - Automated Chip Synthesis
  - BCView
  - Behavioral Compiler
  - BSD Compiler
  - CoCentric SystemC Compiler
  - Design Analyzer
  - Design Compiler
  - Design Vision
  - DesignWare
  - DFT Compiler
  - EDIF 2 0 0 Interface
  - Floorplan Manager

- HDL Compiler (Presto Verilog)
- Library Compiler
- Module Compiler
- Physical Compiler
- Power Compiler
- Protocol Compiler
- VHDL Compiler
- Synopsys Integrator for Falcon Framework
  - Mentor C version
  - Mentor D version

If you have purchased any of these tools, you must install the Synthesis tools suite.

Even though the synthesis tools install as a suite, individual products within the suite might not be available on all platforms.

---

## Installing the Software

To download and install the synthesis tools from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To transfer the files from the Synthesis CD to your system, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6.

On the sparcOS5 platform, you can choose to install either version C (sf3) or D (sf4) of the Synopsys Integrator for Falcon Framework product, but not both. On the hp32 platform, you can install only version D (sf4).

[Example 2-1 on page 2-9](#) shows a sample Synopsys media installation script for the synthesis tools.

---

## Configuring the Synthesis Tools

This section describes how to

- Set up the synthesis tools for each user
- Set up the systemwide defaults for Design Analyzer

---

### Setting Up the Synthesis Tools for Each User

To set up a new synthesis tools user,

1. Add the directory for the synthesis executable files to the `PATH` environment variable.

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

```
set path=($SYNOPSYS/platform/syn/bin $path)
```

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

```
PATH=$SYNOPSYS/platform/syn/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

When you install the synthesis files, a copy of the synthesis setup file is placed in `$SYNOPSISYS/admin/setup/.synopsys_dc.setup`. The `.synopsys_dc.setup` file contains the system defaults for the synthesis tools. You can modify this file to customize the settings for your environment.

2. Place a `.synopsys_dc.setup` file in the user's home directory.

If you are using the C shell, enter

```
% cp $SYNOPSISYS/admin/setup/.synopsys_dc.setup ~/.synopsys_dc.setup
```

If you are using the Bourne, Korn, or Bash shell, enter

```
# cp $SYNOPSISYS/admin/setup/.synopsys_dc.setup $HOME/.synopsys_dc.setup
```

You can modify this file to customize the settings for each user.

3. To use a graphical user interface (GUI), such as Design Analyzer, you must also add the X Window System executable files to the `PATH` environment variable.

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

```
set path=(/usr/dt/bin /usr/bin/X11 $path)
```

For Solaris 8 or 9, add

```
set path=(/usr/dt/bin /usr/openwin/bin $path)
```

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

```
PATH=/usr/dt/bin:/usr/bin/X11:$PATH  
export PATH
```

For Solaris 8 or 9, add

```
PATH=/usr/dt/bin:/usr/openwin/bin/X11:$PATH  
export PATH
```

---

## Setting Up the Systemwide Defaults

If you are using the Design Analyzer product, you can customize the display for all users at a site by modifying the Design Analyzer application defaults (app-defaults) file. This file is placed in the following location during installation:

```
$$SYNOPSYS/admin/setup/Design_analyzer
```

To see a list of available colors for the Solaris 7 and 8 platforms, enter

```
% more /usr/openwin/lib/X11/rgb.txt
```

For all other platforms, enter

```
% more /usr/lib/X11/rgb.txt
```

To see a list of available fonts, enter

```
% xlsfonts | more
```

To install the changes, copy the modified app-defaults file into the systemwide app-defaults location, which varies from site to site. To find the systemwide location at your site, contact your system administrator.

Note:

You must have root access privileges to install this systemwide defaults file.

If your app-defaults location is in X11 (a common location), install the Design\_analyzer file by entering a command similar to the one in the following example:

```
% cp $$SYNOPSYS/admin/setup/Design_analyzer /usr/openwin/lib/X11/app-defaults
```

```
% cp $SYNOPSIS/admin/setup/Design_analyzer /usr/lib/X11/app-defaults
```

You can customize the GUI display for an individual Design Analyzer user by adding color and font definitions to the .Xdefaults file in each user's login directory. Values defined in the .Xdefaults file override the values in the systemwide app-defaults file.

If you are using the Design Vision or Physical Compiler GUI tools, see the appropriate online Help system for information about customizing the tool environment.

---

## Additional SystemC Compiler SetUp for Each User

To set up a CoCentric SystemC Compiler user, in addition to the other synthesis settings, you must define the absolute path to a C++ compiler and the compiler options.

If you are using the C shell, add the following lines to the .cshrc file:

```
setenv SYSTEMC_CPP "compiler_home options"
```

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

```
SYSTEMC_CPP=compiler_home options  
export SYSTEMC_CPP
```

For the GNU C++ Compiler version 2.95.2 or later (or version 3.2 for Linux), replace *compiler\_home* with the absolute path to the GNU C++ Compiler, and replace *options* with the typical compiler options you use. For example,

```
setenv SYSTEMC_CPP "/usr/local/bin/gcc -E -C"
```

For the Sun SparcWorks C++ Compiler (version 5.0 or later), replace *compiler\_home* with the absolute path to Sun SparcWorks C++ Compiler, and replace *options* with the typical compiler options you use. For example,

```
setenv SYSTEMC_CPP "/usr/local/bin/cc -E -xCC -Xc"
```

The SystemC Compiler default path to the SystemC library include files is \$SYNOPSIS/auxx/systemc/include. To define a different path to the SystemC library include files, specify the `-I` option for SYSTEMC\_CPP. For example,

```
setenv SYSTEMC_CPP "/usr/local/bin/gcc -E -C  
-I/my_systemc/include"
```

---

## Configuring the Browser for Physical Compiler and Design Vision Online Help

The Physical Compiler and Design Vision online Help systems are browser-based HTML Help systems. For optimal viewing, use Netscape Navigator version 4.78 for UNIX. These Help systems are not supported in Netscape Navigator version 6 or later.

Both Help systems make extensive use of Java, JavaScript, and style sheets. In your browser preferences, select the Advanced category and make sure that

- The Enable Java, Enable JavaScript, and Enable Style Sheets options are all selected
- The Enable Java Plugin option is deselected

You can open either Help system from within its respective GUI tool or open it stand-alone in Netscape Navigator.

---

## Installing Optional Tools

The synthesis media installation script automatically installs most of the synthesis tools. However, the following tools require manual setup or installations:

- Synopsys Integrator for Falcon Framework
- Power Compiler VPOWER

---

### Installing Synopsys Integrator for Falcon Framework

To complete the setup for the Synopsys Integrator for Falcon Framework product, set the `SYNOPSIS_IFF_ROOT` environment variable to point to the Synopsys integrator directory.

When asked for the Falcon Framework version, enter

- C if you selected the sf3 product from the installation script
- D if you selected the sf4 product from the installation script

Note:

You can install Falcon Framework version C or D, but not both. Version C is supported only on the Solaris 8 (sparcOS5) operating system; version D is supported on both HP-UX 11.0 or 11i (hp32) and Solaris 8 (sparcOS5) operating systems.

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

```
setenv SYNOPSIS_IFF_ROOT $SYNOPSIS/platform/syn/interfaces/mentorC
```

If you are using the Bourne, Korn, or Bash shell, add the following lines to the `.profile` file:

```
SYNOPTSYS_IFF_ROOT=$SYNOPTSYS/platform/syn/interfaces/mentorC
export SYNOPTSYS_IFF_ROOT
```

Replace *platform* with one of the following: hp32 or sparcOS5.

---

## Installing Power Compiler VPOWER

VPOWER is the Power Compiler interface to VCS, the Cadence Verilog-XL and NC-Verilog simulators, and the MTI Verilog simulator. VPOWER contains user tasks that allow you to monitor toggle activity during simulation and to output the information in a form readable by Power Compiler. To use VPOWER, link the user tasks to the executable file of your simulator.

The following sections describe the steps for static-linking VPOWER with Verilog-XL and VCS simulators only. For information about linking VPOWER with other simulators, see the *Power Compiler User Guide*.

### Verilog-XL Simulator

The following procedure describes how to link VPOWER to a version of the Verilog-XL simulator that contains the standard features you normally use at your site and includes the toggle count utilities needed for Power Compiler.

Note:

You must perform this installation on a machine that has access to your Verilog-XL simulator vendor distribution.

Consult your Verilog system administrator to obtain the following information before beginning the VPOWER installation:

- The directory path to your Verilog .o, .a, and .h files

- The directory location of your central Verilog distribution, for obtaining a current site copy of the veriuser.c file

This installation requires modification of your veriuser.c file. By obtaining a current site copy of the veriuser.c file, you can be sure to include any current site modifications when you modify this file.

To install VPOWER,

1. Change to the Synopsys vpower directory.
2. Modify a copy of your site veriuser.c file.
3. Link the VPOWER user tasks to the simulation executable file.
4. Copy the linked executable file.

The following sections describe these steps.

**Changing to the Synopsys power Directory.** All directories listed are relative to the root of the vpower directory: \$SYNOPSIS/auxx/syn/power/vpower.

To change to the Synopsys vpower directory,

1. Make sure the environment variable \$SYNOPSIS is set.

```
% echo $SYNOPSIS
```

If it is not set, set it to the correct value.

```
% setenv $SYNOPSIS root_directory
```

2. Change to the Synopsys vpower directory.

```
% cd $SYNOPSIS/auxx/syn/power/vpower
```

**Modifying the veriuser.c File.** To modify the veriuser.c file to define the new toggle count utilities,

1. Change to the vx1/vx1.sample directory, and review the sample veriuser.c file, which shows the edits you will have to make.

```
% cd vx1/vx1.sample
```

2. Copy your current site version of veriuser.c into the sample directory. To copy veriuser.c, you must know the directory location of your central Verilog distribution.

```
% cp site_location_dir_path/veriuser.c .
```

By using a current site copy of veriuser.c, you ensure that any existing customizations are included in the VPOWER installation.

3. As shown in the sample veriuser.c file, make the following changes in your current site copy of veriuser.c:

- Add the following line:

```
# include "tc_extern.h"
```

- Add the following user tasks:

```
{usertask, 0, 0, 0, tc_set, tc_set_sync, "$toggle_set", 1},  
{usertask, 0, 0, 0, tc_start, 0, "$toggle_start", 1},  
{usertask, 0, 0, 0, tc_stop, 0, "$toggle_stop", 1},  
{usertask, 0, 0, 0, tc_reset, 0, "$toggle_reset", 1},  
{usertask, 0, 0, 0, tc_compatibility, 0, "$toggle_count", 1},  
{usertask, 0, toggle_report_check, 0, toggle_report, 0, "$toggle_report", 0},  
{usertask, 0, 0, 0, read_lib_saif, tc_lib_sync, "$read_lib_saif", 1},  
{usertask, 0, 0, 0, read_rtl_saif, tc_set_sync, "$read_rtl_saif", 1},
```

- Comment out the following line:

```
char *veriuser_version_str = "";
```

4. Save your modified veriuser.c file.

5. Exit your text editor and remain in the sample directory to link the executable file.

### **Linking User Tasks to the Simulation Executable File.**

VPOWER provides two ways to link the user tasks to your simulator executable file: by using the vconfig utility or by using a UNIX makefile. Each method links your simulator to the VPOWER user tasks. Choose the method that you find familiar or comfortable.

**Using vconfig to Link the Executable File.** The vconfig utility creates a script called cr\_vlog. The cr\_vlog script links your Verilog-XL simulator's executable file to the VPOWER user tasks. You must define the name of the executable file created by cr\_vlog, for example, verilog\_toggle.

To use the vconfig method to link your executable file,

1. Use your vconfig utility or an equivalent utility to generate the cr\_vlog script or an equivalent script.
2. In the script, set an environment variable pointing to the directory of the generated library archive. For example (if you are using Solaris 7 or later),

```
setenv PPLILIB "../..lib-sparcOS5/libvpower.a"
```

3. In cr\_vlog, look for the line that includes the math libraries:

```
-lm \
```

4. Add a line above this line to include the libvpower.a library. For example,

```
$PPLILIB \  
-lm \
```

5. Run cr\_vlog.

```
% cr_vlog
```

This script links your executable file to the VPOWER user tasks and creates the customized executable file called `verilog_toggle`. For details about linking the programmable language interface (PLI) by using the `vconfig` utility, see the *Power Compiler User Guide*.

Proceed to [“Copying the Linked Executable File” on page 3-15](#).

**Using a Makefile to Link the Executable File.** Using the UNIX `make` command, you can use a makefile to link your Verilog-XL executable file to the VPOWER user tasks. The makefile creates a modified executable file called `verilog_toggle`.

Two makefiles exist: `Makefile.sol` and `Makefile.hp`.

To use the makefile method to link your executable file,

1. Using a text editor such as `vi`, edit the appropriate makefile to set variable values for `VERILOG_LIB` and `VERILOG_INC`.

Modify the lines in the makefile to read according to your data. For example, enter

```
VERILOG_LIB = path1  
VERILOG_INC = path2
```

where *path1* is the path to your Verilog distribution `.o` and `.a` files, and *path2* is the path to your Verilog distribution `.h` files.

The `VERILOG_LIB` variable must point to the directory path of the `vlog.o` and `omnitasks.o` files. The `VERILOG_INC` variable must point to the directory path of the `acc_user.h` and `veriusers.h` files.

2. Save the modified makefile and exit your text editor.

3. Use the make utility to link the executable file.

```
% make -f Makefile.platform
```

The *platform* extension is sol or hp.

The `make` command uses the modified makefile to link your executable file, creating a customized executable file called `verilog_toggle`.

**Copying the Linked Executable File.** After you create your customized executable file, change the permissions so that the file is not writable, and copy it to a directory suitable for group access.

Enter the following commands at the UNIX prompt:

```
% chmod ogu-w verilog_toggle
```

This removes write access to other, group, and user.

```
% cp verilog_toggle site_verilog_bin_location
```

This copies the file to the `site_verilog_bin_location` directory for group access.

## VCS Simulator

The following procedure describes how to link VPOWER to a version of VCS that contains the standard features you normally use at your site and includes the toggle count utilities needed for Power Compiler.

Note:

The PLI library has been tested with VCS version 3.0 and later versions.

To install VPOWER,

1. Change to the Synopsys vpower directory.
2. Modify a copy of the PLI table file.
3. Compile the simulation executable file.

The following sections describe these steps.

**Changing to the Synopsys vpower Directory.** All directories listed are relative to the root of the vpower directory: \$SYNOPSYS/auxx/syn/power/vpower.

1. Make sure the environment variable \$SYNOPSYS is set.

```
% echo $SYNOPSYS
```

If it is not set, set it to the correct value.

```
% setenv $SYNOPSYS synthesis_root_directory
```

2. Change to the Synopsys vpower directory.

```
% cd $SYNOPSYS/auxx/syn/power/vpower
```

**Modifying the PLI Table File.** To modify the PLI table file (vpower.tab) to define the new toggle count utilities,

1. Change to the vcs/vcs.sample directory, and review the sample vpower.tab file, which shows the edits you will have to make.

```
% cd vcs/vcs.sample
```

2. Make the necessary changes to the vpower.tab file.

**Compiling the Simulation Executable File.** VCS is a compiled simulator, so you must compile your designs along with VCS libraries to make a simulation executable file. To add PLI functionality to the simulation executable file, you need to link an extra PLI library when you compile your designs.

For Solaris the appropriate PLI library is

```
../lib-sparcOS5/libvpower.a
```

You normally get a VCS simulation executable file by entering the following command at the UNIX prompt:

```
% vcs -Mupdate your_verilog_design_files compiler_options
```

To link with the PLI library, enter

```
% vcs -Mupdate \  
-P $SYNOPTSYS/auxx/syn/power/vpower/vcs/vcs.sample/vpower.tab \  
your_verilog_design_files compiler_options \  
$SYNOPTSYS/auxx/syn/power/vpower/lib-sparcOS5/libvpower.a
```

This generates an executable file called simv that includes PLI functionality.

**Note:**

You can copy vpower.tab and libvpower.a into any file locations that are convenient for you.

---

## Verifying the Synthesis Tools Installation

### Note:

The Synopsys Common Licensing (SCL) software must be installed and `SNPSLMD_LICENSE_FILE` or `LM_LICENSE_FILE` must be defined before you can verify the synthesis tools installation. For information on installing SCL, see [“Acquiring a License” on page 1-16](#).

To verify installation,

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

```
% cd $HOME
```

2. Invoke one of the synthesis tools on a licensed machine. For example, invoke Design Compiler, Library Compiler, Design Analyzer, or Design Vision by entering one of the following commands:

```
% $SYNOPSYS/platform/syn/bin/dc_shell
```

```
% $SYNOPSYS/platform/syn/bin/lc_shell
```

```
% $SYNOPSYS/platform/syn/bin/design_analyzer
```

```
% $SYNOPSYS/platform/syn/bin/design_vision
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)). Note that not all `dc_shell`-based tools install on all platforms listed under “Synthesis.” For information about tool-specific platform support, see the documentation for your product.

**Note:**

You can verify other synthesis tools by using the preceding command. Simply replace the executable file name with the name of another synthesis tool.

If you get the correct prompt, or if a GUI appears, the installation was successful.



# 4

## Installing AMPS (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up AMPS for Each User](#)
- [Verifying the AMPS Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install AMPS from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the AMPS software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. AMPS is installed in a similar manner.

The AMPS tool is on the PathMill CD. AMPS is a stand-alone product and cannot be installed over an existing Synopsys product, including a prior version of AMPS. You must create a new directory for AMPS.

---

## Setting Up AMPS for Each User

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

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

```
set path=($SYNOPSYS/platform/amps/bin $path)
```

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

```
PATH=$SYNOPSYS/platform/amps/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the AMPS Installation

To verify the AMPS installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% $SYNOPSYS/platform/amps/bin/amps
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

If you see information about the product version, production date, and copyright, the installation was successful.



# 5

## Installing Arcadia (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up Arcadia for Each User](#)
- [Verifying the Arcadia Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install Arcadia from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the Arcadia software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. Arcadia is installed in a similar manner.

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

### Note:

The installation procedure for Arcadia has changed with this release. Arcadia now installs by using the `install.now` script.

---

## Setting Up Arcadia for Each User

To set up a new Arcadia tool user,

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

```
% cd install dir
% source CSHRC_platform
```

The install script for Arcadia creates a `CSHRC_platform` file for each platform installed. The term *platform* is replaced with the platform you installed.

The CSHRC\_platform file contains the line

```
set path=(/install_directory/platform/arc/bin $path)
```

where *install\_directory* is the directory in which the tool has been installed.

If you don't source the CSHRC\_platform file, copy the preceding line and set the path from that file.

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

```
PATH=/install_directory/platform/arc/bin:${PATH}  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

---

## Verifying the Arcadia Installation

To verify the Arcadia installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% DBCONVERT --version
```

If you see information about the product version, production date, and copyright, the installation was successful.

3. Run the Arcadia GUI on each installed platform by entering the following command:

```
% $SYNOPSIS/platform/arc/bin/sviewer
```

4. Exit the GUI by choosing File > Exit in any GUI window.

# 6

## Installing CoCentric Fixed-Point Designer (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Installing the SystemC Software](#)
- [Setting Up CoCentric Fixed-Point Designer for Each User](#)
- [Verifying the CoCentric Fixed-Point Designer Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPTSYS` environment variable (see [“Defining the SYNOPTSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

Note:

For detailed information on operating systems and acquiring patches, see [“Supported Platforms and Operating Systems”](#) on page 1-2.

---

## Installing the Software

To download and install CoCentric Fixed-Point Designer from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To install the CoCentric Fixed-Point Designer software from the CD, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. CoCentric Fixed-Point Designer is installed in a similar manner.

---

## Installing the SystemC Software

During the CoCentric Fixed-Point Designer installation process, a compressed tar file containing the compiled version of SystemC 2.0.1 was copied to \$SYNOPSIS/ccfxd.

To install SystemC,

1. Copy the \$SYNOPSIS/ccfxd/SystemC-2.0.1.bin.tar.Z file to the directory in which you want to install SystemC.
2. Uncompress and untar the file.

3. Set the `SYSTEMC_HOME` environment variable to point to the SystemC 2.0.1 installation directory.

---

## Setting Up CoCentric Fixed-Point Designer for Each User

Set the systemwide defaults for each user according to the user's shell and operating system. [Table 6-1](#) lists the path name and description of systemwide defaults for CoCentric Fixed-Point Designer.

Note:

If you are using CoCentric Fixed-Point Designer with CoCentric System Studio, you must set the corresponding System Studio environment variables.

*Table 6-1 CoCentric Fixed-Point Designer Systemwide Defaults*

Path name	Description
SYNOPSISYS	Identifies the installation directory for Synopsys tools.
SYNOPSISYS_CCFXD	Identifies the CoCentric Fixed-Point Designer installation directory. For example, <code>\$SYNOPSISYS/sparcOS5/ccfxd</code> .
<code>\$SYNOPSISYS_CCSS</code>	Identifies the CoCentric System Studio installation directory. For example, <code>\$SYNOPSISYS/sparcOS5/ccss</code> .
SYSTEMC_HOME	Identifies the SystemC installation directory.
CCFXD_KEYS	Specifies the complete file name of the license file. If CCFXD_KEYS is not set, the tool searches for other license keys in the following order:  SNPSLMD_LICENSE_FILE LM_LICENSE_FILE

---

The CoCentric Fixed-Point Designer installation script creates the following files and puts them into the `$SYNOPSIS/admin/install` directory:

- `environ.csh` (C shell)
- `environ.sh` (Bourne, Korn, or Bash shell)

You might need to modify these files to customize the settings for your environment.

To add CoCentric Fixed-Point Designer to each user's environment, add the following commands to the end of each user's startup file.

- If you are using the C shell, add this command to the end of the `.cshrc` file:

```
source $SYNOPSIS/admin/install/ccfxd/bin/environ.csh
```

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

```
. $SYNOPSIS/admin/install/ccfxd/bin/environ.sh
```

---

## Verifying the CoCentric Fixed-Point Designer Installation

To verify the CoCentric Fixed-Point Designer installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% ccfxd
```

If CoCentric Fixed-Point Designer is correctly installed, this command invokes the tool, displays the welcome screen, and then opens CoCentric Fixed-Point Designer Studio.



# 7

## Installing CoCentric System Studio (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up CoCentric System Studio for Each User](#)
- [Verifying the CoCentric System Studio Installation](#)
- [Troubleshooting Startup Problems](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

Note:

CoCentric System Studio works with certain versions of Solaris and HP-UX platforms in combination with a C++ compiler. A new platform, Solaris 8 or 9 (32-bit mode) with the GCC compiler, is available for the CoCentric System Studio tool. To install this version of CoCentric System Studio, use gccsparcOS5 as the platform keyword.

For detailed information on operating systems and acquiring patches, see [“Supported Platforms and Operating Systems”](#) on page 1-2.

---

## Installing the Software

To download and install CoCentric System Studio from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To install the CoCentric System Studio software from the CD, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-1](#) on page 2-9 shows a Synopsys media installation script for the synthesis tools. CoCentric System Studio is installed in a similar manner.

---

## Setting Up CoCentric System Studio for Each User

This section describes how to set up CoCentric System Studio for each user on Solaris and HP-UX platforms.

Set the defaults for each user according to the user's shell and operating system. [Table 7-1](#) lists the path name and description of systemwide defaults for CoCentric System Studio.

*Table 7-1 CoCentric System Studio Systemwide Defaults*

Path name	Description
SYNOPSISYS_CCSS	Identifies the CoCentric System Studio installation directory. For example, \$SYNOPSISYS/sparcOS5/ccss.
CCSS_SIM_DIR	Path to the directory for code generation and simulation results (defaults to \$HOME/ccss/sim)
CCSS_KEYS	Specifies the complete file name of the license file. If CCSS_KEYS is not set, the tool searches for other license keys in the following order: <ul style="list-style-type: none"><li>- SNPSLMD_LICENSE_FILE</li><li>- LM_LICENSE_FILE</li></ul>

### For C Shell Users

To use the C shell to set up a new CoCentric System Studio tool user,

1. Add the CoCentric System Studio executable directory to the PATH environment variable.

Add the following line to the .cshrc file:

```
setenv SYNOPSISYS_CCSS ccss_home/platform/ccss
setenv CCSS_SIM_DIR ccss_sim_dir
set path = ($SYNOPSISYS_CCSS/bin $path)
```

Replace *platform* with the appropriate platform (see “[Products and Supported Platforms](#)” on page 1-6).

Note:

You can define `CCSS_SIM_DIR`, but if it is not set, the GUI provides a reasonable default.

2. Point to your license key file by adding one of the following lines to your `~/.cshrc` file:

```
setenv CCSS_KEYS /path/to/synopsys.lic
```

or

```
setenv SNPSLMD_LICENSE_FILE /path/to/synopsys.lic
```

3. If the paths to the C++ compiler, debugger, and `make` command are not already included in your `~/.cshrc` file, add the following line to your `~/.cshrc` file:

```
set path = (compiler_home/bin make_home/bin $path)
```

4. To source the CCSS setup file, add the following line to your `~/.cshrc` file:

```
source $SYNOPTSYS_CCSS/./gnupackages/source_me.csh
```

5. Make these changes effective by logging out and logging in again or by entering the following command:

```
% source ~/.cshrc
```

## For Bourne Shell Users

To use the Bourne, Korn, or Bash shell to set up a new user,

1. In your `$HOME` directory, add the following lines to the appropriate user setup file (`.profile`, `.kshrc`, or `.bashrc`).

```
SYNOPTSYS_CCSS=ccss_home/platform/ccss  
export SYNOPTSYS_CCSS
```

```
CCSS_SIM_DIR=ccss_sim_dir
export CCSS_SIM_DIR
```

```
PATH=$SYNOPSYS_CCSS/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

Note:

You can define CCSS\_SIM\_DIR, but if it is not set, the GUI provides a reasonable default.

2. If the System Studio license file will not be installed in the default location, add the following lines to your setup file:

```
CCSS_KEYS=lic_file
export CCSS_KEYS
```

3. If the paths to the C++ compiler, debugger, and `make` command are not already included in your setup file, add the following lines to it:

```
PATH=compiler_home/bin:make_home/bin:$PATH
export PATH
```

4. To source the CCSS setup file, add the following line to your setup file:

```
. $SYNOPSYS_CCSS/./gnupackages/source_me.sh
```

5. Make these changes effective by logging out and logging in again, or by entering

```
$. $HOME/setup_file
```

where *setup\_file* is `.profile`, `.kshrc`, or `.bashrc`.

---

## VHDL Simulation

If you intend to use the external simulation interface for VHDL cosimulation under the algorithmic domain of System Studio, you must ensure that the VHDL packages are analyzed before you use them. Your system administrator should analyze the files when System Studio is installed.

The relevant commands are

```
% cd $SYNOPSIS_CCSS/packages/vsscli/src
% vhdlan -nc ccss_vsscli_package.vhdl
% cd $SYNOPSIS_CCSS/platform/ccss/packages/bittrue/vhdlsynopsys/src
% vhdlan -nc ccss_PACKAGE_SYNOPTSYS.vhdl LIB_0_0_1_PACKAGE_SYNOPTSYS.vhdl
```

---

## Verifying the CoCentric System Studio Installation

To verify the CoCentric System Studio installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% ccss &
```

If System Studio is correctly installed, this command invokes System Studio, displays the System Studio welcome screen, and then opens System Studio.

---

# Troubleshooting Startup Problems

This section addresses common startup problems.

---

## Key File Problems

To test the System Studio installation, start the System Studio Design Center. If the software does not start, check the contents of the key file as follows:

1. If you are using a network license file, check the first line of the key file and make sure the host name and the host ID match those of the machine on which the license is running.

```
SERVER hostname hostid 26585
```

2. If you are using a network license file, check the second line of the key file and make sure the path to snpslmd exists and is correct.

```
VENDOR snpslmd scl_root/platform/bin/snpslmd
```

In this line, *platform* is the operating system keyword (see [Table 1-1 on page 1-2](#)). Make sure there are no blank lines and no leading or trailing spaces in the license file.

3. For all types of license files, make sure that all System Studio users have read access to the key file.

Set the file permission for the key file with the following command:

```
% chmod 644 $CCSS_KEYS/ccss/admin/license/CCSS.keys
```

Or, if you have defined the symbol `CCSS_KEYS`, use this command:

```
% chmod 644 $CCSS_KEYS
```

Then use the following command to check that the read access is correct:

```
% ls -l $SYNOPTSYS_CCSS/../../../../ccss/admin/license/CCSS.keys
```

You should see a report something like this:

```
-rw-r--r-- 1 thisuser group 4623 Apr 26 11:09 ccss.keys
```

---

## Insufficient Interprocess Communication (IPC) Semaphores

When starting CoCentric System Studio or CoCentric DAVIS on Solaris 5.x platforms, if you see the following report,

```
sem_create->semget->IPC_CREATE: No space left on device  
GMA failed  
FATAL: Exec_ ../sparcOS5/ccss/bin/ccss_exec_ failed:status = 139
```

you need to increase the number of system semaphores. Add the following command to the `/etc/system` file (see the man page `system(4)` for details):

```
set semsys:seminfo_semmnu=0x100
```

After you change the `/etc/system` file, restart your system by using `boot -r`.

### Caution!

Changing the `/etc/system` file incorrectly will prevent the system from starting.

# 8

## Installing Floorplan Compiler (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up Floorplan Compiler for Each User](#)
- [Verifying the Floorplan Compiler Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install Floorplan Compiler from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To install the Floorplan Compiler software from the CD, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-1](#) on page 2-9 shows a Synopsys media installation script for the synthesis tools. Floorplan Compiler is installed in a similar manner.

---

## Setting Up Floorplan Compiler for Each User

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

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

```
set path=($SYNOPSYS/platform/fpc/bin $path)
```

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

```
PATH=$SYNOPSYS/platform/fpc/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

---

## Configuring the Browser for Floorplan Compiler Online Help

The Floorplan Compiler online Help system is a browser-based HTML Help system. For optimal viewing, use Netscape Navigator version 4.78 for UNIX. This Help system is not supported in Netscape Navigator version 6 or later.

Floorplan Compiler Help makes extensive use of Java, JavaScript, and style sheets. In your browser preferences, select the Advanced category and make sure that

- The Enable Java, Enable JavaScript, and Enable Style Sheets options are all selected
- The Enable Java Plugin option is deselected

You can open the Help system from within the Floorplan Compiler GUI tool or stand-alone in Netscape Navigator.

---

## Verifying the Floorplan Compiler Installation

To verify the Floorplan Compiler installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% $SYNOPSYS/platform/fpc/bin/fpc_shell
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

If you see information about the product version, production date, and copyright, the installation was successful.

3. Exit `fpc_shell` by entering `exit` on the command line.
4. Run the Floorplan Compiler GUI on each installed platform by entering the following command:

```
% $SYNOPSYS/platform/fpc/bin/fpc_gui
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

5. Exit the GUI by choosing File > Exit in any GUI window.

# 9

## Installing Formality (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up Formality for Each User](#)
- [Verifying the Formality Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPTSYS` environment variable (see [“Defining the SYNOPTSYS Environment Variable”](#) on page 1-19).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install Formality from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the Formality software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for the PrimeTime tool. Formality is installed in a similar manner.

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

---

## Setting Up Formality for Each User

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

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

```
set path=($SYNOPSYS/platform/fm/bin $path)
```

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

```
PATH=$SYNOPSYS/platform/fm/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

For information about the Synopsys setup file, see the *Formality User Guide*.

---

## Verifying the Formality Installation

To verify the Formality installation,

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

```
% cd $HOME
```

2. Invoke the Formality shell by entering the following command:

```
% $SYNOPSYS/platform/fm/bin/fm_shell
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

If you see information about the product version, production date, and copyright, the installation was successful.

3. Exit `fm_shell` by entering `exit` on the command line.
4. Run the Formality GUI on each installed platform by entering the following command:

```
% $SYNOPSYS/platform/fm/bin/formality
```

5. Exit the GUI by choosing File > Exit in any GUI window.



# 10

## Installing FPGA Compiler II (version 2002.05-3.7) on UNIX Platforms

---

This chapter explains how to install FPGA Compiler II on a workstation running Solaris or HP-UX. For instructions on how to install FPGA Compiler II on a system running a Windows NT platform, see [Chapter 11, “Installing FPGA Compiler II \(version 2002.05-FC3.7\) on Windows Platforms.”](#)

This chapter contains the following sections:

- [Product Support](#)
- [System Requirements](#)
- [Installing the Software](#)
- [Enabling Online Document Readers](#)

---

## Product Support

The FPGA Solutions Web page is regularly updated. Check it for application notes, online Help updates, and other valuable information:

<http://www.synopsys.com/products/fpga/>

For additional installation instructions, go to

[http://www.synopsys.com/products/fpga/install\\_fc2.htm](http://www.synopsys.com/products/fpga/install_fc2.htm)

---

## System Requirements

[Table 10-1](#) shows the minimum system requirements for UNIX installations of FPGA Compiler II.

*Table 10-1 UNIX System Requirements*

Operating system	Memory	Disk space for installation
Solaris 7, 8 (32-bit mode only)	64 MB of RAM 140 MB of swap space <sup>1</sup>	100–150 MB
HP-UX 11.0, 11.11 (11i) (32-bit mode only)	64 MB of RAM 140 MB of swap space <sup>1</sup>	100–150 MB

*1. 200 MB of virtual memory (RAM + swap space) is recommended for most designs. Larger designs might require more memory.*

---

## Installing the Software

Mounting the CD might require root access privileges. If you do not have root access privileges, see your system administrator for instructions on mounting the CD.

To install FPGA Compiler II,

1. Mount the CD-ROM, following the instructions in [“Mounting the CD” on page 2-7](#).
2. Make sure that your licensing software is installed. For information on Synopsys Common Licensing (SCL) software, see [“Acquiring a License” on page 1-16](#).
3. Change directory to the UNIX directory of the CD-ROM. For example,

```
% cd /cdrom0/UNIX
```

4. Run the setup script `setup.csh` from the UNIX directory of the CD-ROM drive and follow the instructions.
5. For a typical shared installation, choose option 1 to install the software and set up the license path.
6. Next, choose option 1 for Solaris, option 2 for HP-UX, or option 3 for both platforms.
7. Enter the path to the network keys in the format `port@hostname` (for example, `27000@keyserv`).

---

## Enabling Online Document Readers

The *FPGA Compiler II User Guide* is available online in Portable Document Format (PDF).

To read this online document, you must have version 4.0 or later of Adobe Acrobat Reader with Search plug-in installed on your system. To install Acrobat Reader with Search plug-in, download the latest version of Acrobat Reader from the Adobe home page, at

<http://www.adobe.com>

For more information, see [“Downloading Acrobat Reader from the Web” on page 24-3](#).

# 11

## Installing FPGA Compiler II (version 2002.05-FC3.7) on Windows Platforms

---

You can install the FPGA Compiler II software to run PC running Windows. The procedure is explained in the following sections:

- [Product Support](#)
- [System Requirements for Windows](#)
- [Installing FPGA Compiler II](#)
- [Enabling Online Document Readers](#)

---

## Product Support

The FPGA Solutions page on the Synopsys World Wide Web site is regularly updated with the latest information. Check this page to find application notes, online help updates, and other valuable information:

<http://www.synopsys.com/products/fpga/>

For additional installation instructions, go to

[http://www.synopsys.com/products/fpga/install\\_fc2.htm](http://www.synopsys.com/products/fpga/install_fc2.htm)

---

## System Requirements for Windows

[Table 11-1](#) shows the minimum system requirements for installing FPGA Compiler II on Windows.

*Table 11-1 Windows System Requirements*

Operating system	Memory	Disk space for installation
Windows NT 4.0 (Service Pack 4 or later), Windows 98, Windows ME, or Windows 2000	32 MB of RAM 70 MB of swap space <sup>1</sup>	50–270 MB, depending on file system and partition size (50 MB for NTFS or small FAT partition and 270 MB for large FAT partition)

*1. 100 MB of virtual memory (RAM + swap space) is recommended for most designs. Larger designs might require more memory.*

---

## Installing FPGA Compiler II

You can install FPGA Compiler II on a PC running Windows by downloading the tool from the Web or installing it from the CD.

Note:

Make sure that your licensing software is installed. For information on Synopsys Common Licensing (SCL) software, see [“Acquiring a License” on page 1-16](#).

To install FPGA Compiler II from the Web,

- Go to [http://www.synopsys.com/products/fpga/download\\_fc2.html](http://www.synopsys.com/products/fpga/download_fc2.html) and follow the instructions.

To install FPGA Compiler II from the CD, do the following:

1. Insert the FPGA Compiler II CD into your computer's CD drive.

In most cases, the setup program automatically starts. If the setup program does not start automatically, run setup.exe from the CD directory.

2. Follow the instructions on the screen.

As you move through the installation screens, note the following:

- You can install a subset of the available target devices to save disk space. To do this, select Custom in the Setup Type dialog box and follow the instructions.

- The program installation directory path cannot contain space characters.

---

## Enabling Online Document Readers

The *FPGA Compiler II User Guide* is available online in Portable Document Format (PDF). The setup program installs this document in the directory where you installed the software.

To read the Synopsys FPGA online document, you must have Adobe Acrobat Reader version 4.0 or later installed on your system. Install Acrobat Reader version 4.0 by one of the following methods:

- To install Acrobat Reader on a Windows system from within FPGA Compiler II, enter the following command:

```
CD_ROM_drive:\acrosrch\32bit\setup
```

- Download the latest Acrobat Reader from the Adobe home page, at

<http://www.adobe.com>

For more information, see [“Downloading Acrobat Reader from the Web”](#) on page 24-3.

# 12

## Installing NanoSim (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up NanoSim for Each User](#)
- [Verifying the NanoSim Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install NanoSim from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the NanoSim software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. NanoSim is installed in a similar manner. The NanoSim subtools (ADFMI, NanoSim Integration with VCS, turboWave, Verilog-A, and VTRAN) are automatically installed with the NanoSim installation.

NanoSim can be installed as a stand-alone installation or with any of the tools (PowerMill and TimeMill) it comes packaged with.

---

## Setting Up NanoSim for Each User

To set up a new NanoSim tool user,

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

```
% cd install_dir
% source CSHRC_platform
```

The install script for NanoSim creates a CSHRC\_platform file for each platform installed. The term **platform** is replaced with the platform you installed.

The CSHRC\_platform file contains the line

```
set path=(/install_directory/platform/ns/bin $path)
```

where *install\_directory* is the directory where the tool has been installed.

If you don't source the CSHRC\_platform file, copy the above 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:

```
PATH=install_directory/platform/ns/bin:${PATH}  
export Path
```

Replace **platform** with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the NanoSim Installation

To verify the NanoSim installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% nanosim
```

If you see information about the product version, production date, and copyright, the installation was successful.

3. Run the NanoSim GUI on each installed platform by entering the following command:

```
% $SYNOPSYS/platform/ns/bin/nanosimgui
```

4. Exit the GUI by choosing File > Exit in any GUI window.



# 13

## Installing PathMill (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up PathMill for Each User](#)
- [Verifying the PathMill Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install PathMill from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the PathMill software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. PathMill is installed in a similar manner.

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

---

## Setting Up PathMill for Each User

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

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

```
set path=($SYNOPTSYS/platform/pm/bin $path)
```

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

```
PATH=$SYNOPTSYS/platform/pm/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the PathMill Installation

To verify the PathMill installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% $SYNOPSYS/platform/pm/bin/pathmill
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

If you see information about the product version, production date, and copyright, the installation was successful.



# 14

## Installing PowerArc (version 2002.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up PowerArc for Each User](#)
- [Verifying the PowerArc Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install PowerArc from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the PowerArc software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. PowerArc is installed in a similar manner.

PowerArc can be installed as a stand-alone installation or with any of the tools (PowerMill, NanoSim, and TimeMill) it comes packaged with.

---

## Setting Up PowerArc for Each User

To set up a new PowerArc tool user,

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

```
% cd install_dir
% source CSHRC_platform
```

The install script for PowerArc creates a CSHRC\_platform file for each platform installed. The term *platform* is replaced with the platform you installed.

The CSHRC\_platform file contains the line

```
set path=(/install_directory/platform/ns/bin $path)
```

where *install\_directory* is the directory where the tool has been installed.

If you don't source the CSHRC\_platform file, copy the above 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 or .kshrc file:

```
PATH=/install_directory/platform/ns/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the PowerArc Installation

To verify the PowerArc installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% pwarc
```

If you see information about the product version, production date, and copyright, the installation was successful.



# 15

## Installing PowerMill (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up PowerMill for Each User](#)
- [Verifying the PowerMill Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install PowerMill from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the PowerMill software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. PowerMill is installed in a similar manner. The PowerMill subtools (ADFMI, turboWave, and VTRAN) are automatically installed with the PowerMill installation.

PowerMill can be installed as a stand-alone installation or with any of the tools (NanoSim and TimeMill) it comes packaged with.

---

## Setting Up PowerMill for Each User

To set up a new PowerMill tool user,

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

```
% cd install_dir
% source CSHRC_platform
```

The install script for PowerMill creates a CSHRC\_platform file for each platform installed. The term *platform* is replaced with the platform you installed.

The CSHRC\_platform file contains the line

```
set path=(/install_directory/platform/ns/bin $path)
```

where *install\_directory* is the directory where the tool has been installed.

If you don't source the CSHRC\_platform file, copy the above 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 or .kshrc file:

```
PATH=/install_directory/platform/ns/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the PowerMill Installation

To verify the PowerMill installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% powrmill
```

If you see information about the product version, production date, and copyright, the installation was successful.



# 16

## Installing PrimePower (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up PrimePower for Each User](#)
- [Verifying the PrimePower Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

PrimePower can be installed as a stand-alone product or as an overlay to the U-2003.03 version of the synthesis tools.

- Stand-alone

Install PrimePower stand-alone in its own directory.

- Overlay

Install PrimePower overlay in the same directory as the Synopsys synthesis tools.

---

### Stand-Alone Installation

PrimePower stand-alone must be installed in its own directory and not over an existing synthesis release.

To perform stand-alone installation,

1. Download and install PrimePower from the Web or by FTP, following the instructions described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

Or

Install the files from the PrimePower CD to your system, as explained in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. PrimePower is installed in a similar manner.

Note:

When you are prompted to select the product you want to install, enter **pps** to perform a stand-alone installation.

2. Make sure that your licensing software is installed. For information on SCL software, see [“Acquiring a License” on page 1-16](#).

---

## Overlay Installation

You perform overlay installation in the directory in which you installed the Synopsys synthesis tools (\$SYNOPSIS). You must log in as the same user who installed the Synopsys synthesis tools so that you have write permission in the \$SYNOPSIS directory.

Note:

If you have not installed the Synopsys synthesis tools, install them before proceeding with overlay installation (see Chapter 3). If you do not have the synthesis tools installed, the installation of PrimePower overlay will not be allowed.

To perform overlay installation,

1. Download and install PrimePower from the Web or by FTP, following the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

Or

Install the files from the PrimePower CD to your system, as explained in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. PrimePower is installed in a similar manner.

Note:

When you are prompted to select the product you want to install, enter **pp** to perform an overlay installation.

2. Make sure your Synopsys license server and license key file are set up to work with the synthesis tools. If you encounter problems, see the SCL documentation, *Licensing Quick Start* and *Licensing Installation and Administration Guide*.

---

## Setting Up PrimePower for Each User

To set up a new PrimePower tool user for stand-alone installation,

1. Add the PrimePower directory containing the 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_directory/platform/syn/bin $path)
```

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

```
PATH=/install_directory/platform/syn/bin:$PATH
export PATH
PATH=$SYNOPSYS/platform/syn/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

2. Place a `.synopsys_pp.setup` file in the user’s home directory.

If you are using the C shell, enter

```
% cp $SYNOPSYS/admin/setup/.synopsys_pp.setup ~/.synopsys_pp.setup
```

If you are using the Bourne, Korn, or Bash shell, enter

```
# cp $SYNOPSYS/admin/setup/.synopsys_pp.setup $HOME/.synopsys_pp.setup
```

You can modify this file to customize the settings for each user.

Note:

This step is optional. You can still run PrimePower if you do not set this file in the user's home directory.

---

## Verifying the PrimePower Installation

To verify the PrimePower installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% pp_shell
```

If you see information about the product version, production date, and copyright, the installation was successful.

3. Exit `pp_shell` by entering `exit` on the command line.

4. Run the PrimePower GUI on each installed platform by entering the following command:

```
% primepower &
```

5. Exit the GUI by choosing File > Exit in any GUI window.

# 17

## Installing the PrimeTime Tools (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up PrimeTime for Each User](#)
- [Verifying the PrimeTime and budget\\_shell Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPTSYS` environment variable (see [“Defining the SYNOPTSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install PrimeTime from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To install the PrimeTime software from the CD, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime.

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

Note:

Beginning with the 2002.03 release of PrimeTime, you can no longer overlay PrimeTime on the synthesis tools.

---

## Using the PrimeTime Budgeter

After installing PrimeTime, if you want to use the PrimeTime budgeter in the Automatic Chip Synthesis flow, add the following lines to the `.synopsys_dc.setup` file in the synthesis directory:

```
set acs_use_dc_gate_level_budgeting false
set acs_bs_exec /path/to/budget_shell
```

By default, Automatic Chip Synthesis uses the Design Compiler budgeter.

---

## Setting Up PrimeTime for Each User

PrimeTime does not require the `$SYNOPSYS` variable. If you have installed other Synopsys tools, such as the synthesis tools, that use the `$SYNOPSYS` variable, a conflict might arise. To avoid this, do the following:

- Set another variable for PrimeTime, for example, `$STATIC`.
- Set the PrimeTime `$SYNOPSYS` variable in a tool-specific setup file, not in the `.profile` or `.cshrc` file.
- Create an alias for PrimeTime in the `.cshrc`, `.profile`, or `.bashrc` files. For example,

For `.cshrc` files,

```
% alias pt_setup 'setenv SYNOPSYS /path/to/PrimeTime_root; echo  
"PrimeTime tools setup "'
```

For `.profile` or `.bashrc` files,

```
% alias pt_setup = 'set SYNOPSYS=/path/to/PrimeTime_root; echo  
"PrimeTime tools setup"'
```

Execute the alias before executing PrimeTime.

To set up a new PrimeTime user,

1. Add the PrimeTime directory containing the executable file to the `PATH` environment variable.

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

```
set path=($SYNOPSYS/platform/syn/bin $path)
```

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

```
PATH=$SYNOPTSYS/platform/syn/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

Note:

If you are using another variable “such as \$STATIC” to define the PrimeTime root directory, substitute that variable for \$SYNOPTSYS in the remainder of this chapter.

2. Place a .synopsys\_pt.setup file in the user’s home directory.

If you are using the C shell, enter

```
% cp $SYNOPTSYS/admin/setup/.synopsys_pt.setup ~/.synopsys_pt.setup
```

If you are using the Bourne, Korn, or Bash shell, enter

```
# cp $SYNOPTSYS/admin/setup/.synopsys_pt.setup $HOME/.synopsys_pt.setup
```

You can modify this file to customize the settings for each user.

---

## Verifying the PrimeTime and budget\_shell Installation

### Note:

The Synopsys Common Licensing (SCL) software must be installed and `SNPSLMD_LICENSE_FILE` or `LM_LICENSE_FILE` must be defined before you can verify the PrimeTime tools installation. For information on installing SCL, see [“Acquiring a License” on page 1-16](#).

To verify installation of the PrimeTime and budget\_shell tools,

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

```
% cd $HOME
```

2. Invoke any of the tools by entering one of the following commands on a licensed machine:

```
% $SYNOPSYS/platform/syn/bin/pt_shell
```

```
% $SYNOPSYS/platform/syn/bin/budget_shell
```

```
% $SYNOPSYS/platform/syn/bin/primetime
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

If you get the correct prompt, or if a GUI appears, the installation was successful.



# 18

## Installing RailMill (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up RailMill for Each User](#)
- [Verifying the RailMill Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install RailMill from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST”](#) on page 2-2.

To install the RailMill software from the CD, follow the installation procedure described in [“Installing Product Files From a CD”](#) on page 2-6. [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. RailMill is installed in a similar manner.

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

### Note:

The installation procedure for RailMill has changed. RailMill now installs by using the Synopsys `./install.now` script.

---

## Setting Up RailMill for Each User

To set up a new RailMill tool user,

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

```
% cd install dir
% source CSHRC_platform
```

The install script for RailMill creates a `CSHRC_platform` file for each platform installed. The term *platform* is replaced with the platform you installed.

The CSHRC\_platform file contains the line

```
set path=(/install_directory/platform/rm/bin $path)
```

where *install\_directory* is the directory where the tool has been installed.

If you don't source the CSHRC\_platform file, copy the above 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 or .kshrc file:

```
PATH=/install_directory/platform/rm/bin:$PATH  
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms”](#) on page 1-6).

---

## Verifying the RailMill Installation

To verify the RailMill installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% railmill
```

If you see information about the product version, production date, and copyright, the installation was successful.

3. Run the RailMill GUI on each installed platform by entering the following command:

```
% $SYNOPSIS/platform/rm/bin/chipviewer
```

4. Exit the GUI by choosing File > Exit, and clicking Yes in the dialog box.

# 19

## Installing TetraMAX (version U-2003.03)

---

This chapter contains the following sections:

- [Installing TetraMAX](#)
- [Setting Up the User Environment](#)
- [Verifying the TetraMAX Installation](#)

If you are installing TetraMAX stand-alone, to ensure a successful installation complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License” on page 1-16](#)).

---

## Installing TetraMAX

This section describes Synopsys license key requirements and the two types of installation for TetraMAX ATPG and TetraMAX IddQTest, version U-2003.03:

- Stand-alone  
Install TetraMAX stand-alone in its own directory.
- Overlay  
Install TetraMAX overlay in the same directory as the U-2003.03 synthesis tools.

---

## License Key Requirements

TetraMAX version U-2003.03 uses the Synopsys Common Licensing (SCL) system. For information on installing SCL, see [“Acquiring a License” on page 1-16](#).

### Note:

Optional features such as Diagnosis, IddQTest, PatternMap, and transition delay fault ATPG each require a separate license. For specific information on the licenses required for TetraMAX options, install the product and see the online Help for the “Understanding TetraMAX License Usage.”

---

## 64-Bit Mode on HP-UX and Solaris Platforms

In 64-bit mode, TetraMAX supports both the shell and GUI on HP-UX and Solaris platforms.

To invoke TetraMAX ATPG in 64-bit mode, use the `-64` switch:

```
% tmax -64 [other options]
```

An alternative method is to set the `TMAX_64BIT` environment variable to true (or to any string other than null):

```
% setenv TMAX_64BIT true  
% tmax [other options]
```

---

## Stand-Alone Installation

TetraMAX stand-alone is a complete installation of all TetraMAX applications. It must be installed in its own directory and not over an existing synthesis release.

To perform stand-alone installation,

1. Download and install TetraMAX from the Web or by FTP, as the described in [“Downloading and Installing the Software by EST” on page 2-2](#).

Or

Install the files from the TetraMAX CD to your system, as explained in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. TetraMAX is installed in a similar manner.

Note:

When you are prompted to select the product you want to install, enter **txs** to perform a stand-alone installation.

2. Make sure that your licensing software is installed. For information on SCL software, see [“Acquiring a License” on page 1-16](#).

---

## Overlay Installation

Install TetraMAX version version U-2003.03 over version U-2003.03 of the synthesis tools only. (Do not install it over any other versions of the synthesis tools.)

You perform overlay installation in the directory in which you installed the Synopsys synthesis tools (\$SYNOPSIS). You must log in as the same user who installed the Synopsys synthesis tools so that you have write permission in the \$SYNOPSIS directory.

Note:

If you have not installed the Synopsys synthesis tools, install them before proceeding with overlay installation (see [Chapter 3](#)). If you do not have the synthesis tools installed, the installation of TetraMAX overlay will not be allowed.

To perform overlay installation,

1. To download and install TetraMAX from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

Or

Install the files from the TetraMAX CD to your system, as explained in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. TetraMAX is installed in a similar manner.

Note:

When you are prompted to select the product you want to install, enter **tx** to perform an overlay installation.

2. Make sure your Synopsys license server and license key file are set up to work with the synthesis tools. If you encounter problems, see the SCL documentation, *Licensing Quick Start* and *Licensing Installation and Administration Guide*.

---

## Optional Installation of IddQTest

The IddQTest option of TetraMAX is installed separately from TetraMAX ATPG and requires a special license.

To install IddQTest,

1. Run the same installation script again, but enter **idq** at the “Product(s) Selected” prompt.
2. For the IddQTest target directory, specify the location where you installed the TetraMAX overlay product.

Note:

The installation script does not allow you to install IddQTest into a TetraMAX stand-alone installation. To create a stand-alone installation of IddQTest, you must specify a completely separate directory. Once you have done this, manually copy IddQTest into the same directory as the TetraMAX stand-alone product.

---

## Setting Up the User Environment

To successfully invoke TetraMAX, you must define a separate environment variable, `SYNOPSYS_TMAX`, and set the path to the directory where TetraMAX ATPG is installed.

Perform one of the following procedures for the UNIX version of TetraMAX. Note that these examples are for the C shell. Setups in other shells will differ.

- To set up the user environment by using an alias, enter

```
% setenv SYNOPSYS_TMAX $SYNOPSYS
% alias tmax '$SYNOPSYS_TMAX/bin/tmax \!*'
```

- To set up the user environment by using a path, enter

```
% setenv SYNOPSYS_TMAX $SYNOPSYS
% set path=($SYNOPSYS_TMAX/bin $path)
```

- To set up the user environment for using SoCBIST, enter

```
% setenv SYNOPSYS_TMAX $SYNOPSYS
% set path=($SYNOPSYS_TMAX/bin $SYNOPSYS/platform/syn/bin $path)
```

Replace *platform* with the required platform.

---

## Verifying the TetraMAX Installation

To verify installation of the TetraMAX tools,

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

```
% cd $HOME
```

2. Invoke the TetraMAX GUI by entering the following command on a licensed machine:

```
% $SYNOPSYS_TMAX/bin/tmax
```

If the GUI appears, the installation was successful.



# 20

## Installing TimeMill (version U-2003.03)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up TimeMill for Each User](#)
- [Verifying the TimeMill Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License”](#) on page 1-16).

---

## Installing the Software

To download and install TimeMill from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the TimeMill software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. TimeMill is installed in a similar manner. The TimeMill subtools (ADFMI, turboWave, and VTRAN) are automatically installed with the TimeMill installation.

TimeMill can be installed as a stand-alone installation or with any of the tools (NanoSim and TimeMill) it comes packaged with.

---

## Setting Up TimeMill for Each User

To set up a new TimeMill tool user,

- If you are using the C shell, source the CSHRC\_ platform file located in the install directory.

```
% cd install_dir
% source CSHRC_ platform
```

The install script for TimeMill creates a CSHRC\_ platform file for each platform installed. The term *platform* is replaced with the platform you installed.

The CSHRC\_ platform file contains the line

```
set path=(/install_directory/platform/ns/bin $path)
```

where `install_directory` is the directory where the tool has been installed.

If you don't source the `CSHRC_platform` file, copy the above 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:

```
PATH=/install_directory/platform/ns/bin:$PATH
export PATH
```

Replace *platform* with the appropriate platform (see [“Products and Supported Platforms” on page 1-6](#)).

---

## Verifying the TimeMill Installation

To verify the TimeMill installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% timemill
```

If you see information about the product version, production date, and copyright, the installation was successful.



# 21

## Installing VCS (version 7.0)

---

This chapter contains the following sections:

- [Installing the Software](#)
- [Setting Up VCS for Each User](#)
- [Verifying the VCS and VCSi Installation](#)
- [Customer Support](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory”](#) on page 1-18).
- Define the `SYNOPSYS` environment variable (see [“Defining the SYNOPSYS Environment Variable”](#) on page 1-19).

- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License” on page 1-16](#)).

The instructions in this chapter also apply to VCSi.

---

## Installing the Software

To download and install VCS from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the VCS software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#).

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

---

## Setting Up VCS for Each User

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

1. Set the `VCS_HOME` environment variable to the installation directory. For example,

```
% setenv VCS_HOME /u/edatools/vcs7.0
```

2. Update your PATH environment variable as follows:

```
% set path=($VCS_HOME/bin/$VCS_HOME/`$VCS_HOME/bin/vcs -location`/ \
bin/$VCS_HOME/`$VCS_HOME/bin/vcs -location`/util $path)
```

3. Set the `LM_LICENSE_FILE` or `SNPSLMD_LICENSE_FILE` environment variable to point to the license file. For example,

```
% setenv LM_LICENSE_FILE /u/edatools/vcs7.0/license.dat
```

or

```
% setenv SNPSLMD_LICENSE_FILE 27000@my_server
```

---

## Verifying the VCS and VCSi Installation

To verify the VCS and VCSi installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering

```
% $VCS_HOME/bin/vcs -ID
```

If you see information about the product version, production date, and copyright, the installation was successful.

3. Run the VCS GUI on each installed platform by entering

```
% $VCS_HOME/bin/vcs -RPP
```

Note:

The VCS GUI is available on both 32-and 64-bit platforms (sparcOS5 or hp32).

4. Exit the GUI by choosing File > Exit in any GUI window.

---

## Customer Support

The VCS support page on the Synopsys World Wide Web site is regularly updated with the latest information. Check this page for application notes, online help updates, and other valuable information:

<http://www.synopsys.com/products/vcs>

You can also send an e-mail message to VCS Support at [vcs\\_support@synopsys.com](mailto:vcs_support@synopsys.com).

# 22

## Installing Vera (version 6.0.3)

---

This chapter contains the following sections:

- [Downloading and Installing the Software](#)
- [Setting the Environment Variables](#)
- [Customer Support](#)

---

## Downloading and Installing the Software

1. Create a Vera installation directory. For example,

```
% mkdir -p /usr/synopsys/vera
```

2. Download the Vera release to the installation directory. The latest Vera download instructions can be obtained from the SolvNet Release Library or from vera-support@synopsys.com.

If a Vera directory does not already exist, you must create one.

3. Uncompress and untar the files:

```
% pwd /usr/synopsys/vera
```

```
% gzip -dc vera-version-platform.tar.gz
```

This will create a subdirectory under the Vera installation directory. For example,

```
/usr/synopsys/vera/vera-version-platform
```

In the remainder of this chapter, this subdirectory is referred to as the Vera installation directory.

4. To set the file permissions on the new directory tree and its contents, enter

```
% chmod -R 755 /usr/synopsys/vera
```

5. Remove the vera-version-platform.tar.gz file:

```
% rm vera-version-platform.tar.gz
```

6. For each user, set the required environment variables. See [“Setting the Environment Variables” on page 22-3](#).

---

## Setting the Environment Variables

This section discusses the following environment variables:

- VERA\_HOME
- SNPSLMD\_LICENSE\_FILE
- LM\_LICENSE\_FILE

It is recommended that you place these variables in your \$HOME/.cshrc or \$HOME/.profile file as your default settings.

---

### Setting the \$VERA\_HOME Environment Variable

1. Set the \$VERA\_HOME environment variable to point to your VERA installation directory.

- If you are using the C shell, add the following line:

```
setenv VERA_HOME directory_path
```

- If you are using the Bourne shell, enter these lines:

```
VERA_HOME=directory_path  
EXPORT VERA_HOME
```

2. Add \$VERA\_HOME/bin to your search path:

- If you are using the C shell, enter

```
set path=($VERA_HOME/bin $path)
```

- If you are using the Bourne shell, enter

```
PATH=$VERA_HOME/bin:$PATH
```

---

## Setting the SNPSLMD\_LICENSE\_FILE or LM\_LICENSE\_FILE Environment Variables

1. To enable Vera to check out a license, set the SNPSLMD\_LICENSE\_FILE or the LM\_LICENSE\_FILE environment variable.

- If you are using C shell, add the following line

```
setenv SNPSLMD_LICENSE_FILE port@hostname
```

- If you are using Bourne shell, enter these lines:

```
set SNPSLMD_LICENSE_FILE=port@hostname
export SNPSLMD_LICENSE_FILE
```

The port and host name variables correspond to the TCP port and license server hostname specified in the SERVER line of the Synopsys license file. To ensure better performance, it is recommended that you use port@host rather than using the path to the license file.

2. Each license file can contain licenses for many packages from multiple vendors. You can specify multiple license files by separating each entry with a colon (:).

---

## Customer Support

You can get support for Vera from the following locations:

- For technical Issues, enhancement requests, and feedback, contact Customer Support at [vera-support@synopsys.com](mailto:vera-support@synopsys.com).
- For documentation Issues, send e-mail to [vera-doc@synopsys.com](mailto:vera-doc@synopsys.com)

For general information on Synopsys licensing, see <http://solvnet.synopsys.com/keys>.

For information on Vera licensing, see

- The *Vera Installation Guide*, which is packaged in Portable Document Format (PDF) with the product files
- SolvNet article 900006, “VERA Licensing Structure,” at <http://solvnet.synopsys.com/retrieve/900006>



# 23

## Installing VHDL Simulation (Scirocco) (version 2002.12)

---

This chapter contains the following sections:

- [Creating the Scirocco Root Directory](#)
- [Defining the SYNOPSIS\\_SIM Environment Variable](#)
- [Installing the Software](#)
- [Setting Up Scirocco for Each User](#)
- [Verifying the Scirocco Installation](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Scirocco root directory (see [page 23-2](#)).

- Define the `SYNOPSYS_SIM` environment variable, (see [page 23-2](#)).
- Have your license server running and have the appropriate license keys installed (see [“Acquiring a License” on page 1-16](#)).

---

## Creating the Scirocco Root Directory

To create a new directory tree for this Synopsys release, enter

```
% mkdir -p /usr/SYNOPSYS_SIM/productversion/scirocco
```

To set the permissions on the new directory tree, enter

```
% chmod 755 /usr/SYNOPSYS_SIM/productversion/scirocco
```

### Important:

Install each version of the software in a new directory. Do not install different versions of Synopsys software in the same directory.

---

## Defining the SYNOPSYS\_SIM Environment Variable

Set the `SYNOPSYS_SIM` environment variable in the shell that you are using: C, Bourne, Korn, or Bash. Use the following commands, in which the *root\_directory* argument is the name of the Scirocco root directory.

- If you are using C shell, enter the following command to set the `SYNOPSYS` environment variable:

```
% setenv SYNOPSYS_SIM root_directory
```

- If you are using the Bourne, Korn, or Bash shell, enter the following command to set the `SYNOPSYS` environment variable:

```
# SYNOPSYS_SIM=root_directory; export SYNOPSYS_SIM
```

---

## Installing the Software

To download and install Scirocco from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To install the Scirocco software from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#). [Example 2-2 on page 2-12](#) shows a Synopsys media installation script for PrimeTime. Scirocco is installed in a similar manner.

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

---

## Setting Up Scirocco for Each User

To set up a new Scirocco user, add the directory containing the Scirocco executable files to the PATH environment variable.

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

```
set path=($SYNOPSYS_SIM/bin $path)
```

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

```
PATH=(path:$SYNOPSYS_SIM/bin)
```

---

## Verifying the Scirocco Installation

To verify Scirocco installation, enter

```
% $SYNOPSYS_SIM/admin/install/sim/bin/verify_install
```

If Scirocco is correctly installed, the system responds by printing the following information and various copyright messages:

```
Info: Checking files in image
.....
.....
.....
Info: Checking file permissions - passed
Info: Running Scirocco existence tests - passed
Verification of /snps/tools/2002.12/scirocco PASSED
```

# 24

## Installing Synopsys Online Documentation (version U-2003.03)

---

This chapter contains the following sections:

- [About SOLD](#)
- [Acquiring and Installing the Acrobat Software](#)
- [Verifying Your Acrobat Software](#)
- [Installing SOLD](#)
- [Verifying the SOLD Installation](#)
- [Configuring SOLD for Each User](#)
- [Searching SOLD on Linux](#)

To ensure a successful installation, complete the following procedures before beginning the installation process:

- Create the Synopsys root directory (see [“Creating the Synopsys Root Directory” on page 1-18](#)).
- Define the `SYNOPTSYS` environment variable (see [“Defining the SYNOPTSYS Environment Variable” on page 1-19](#)).

The U-2003.03 version of SOLD contains documentation for the U-2003.03 release of Synopsys tools. You can access the documentation by clicking the product name on the SOLD front panel.

---

## About SOLD

This chapter describes how to install and verify Synopsys Online Documentation (SOLD). The SOLD CD and the SOLD directory contain document files in the cross-platform Adobe Portable Document Format (PDF), as well as Portable Document Index files (PDX) that enable full-text searching across all SOLD documents.

To read and search these files, you need version 4.0 or later of Adobe Acrobat Reader with Search plug-in or Adobe Acrobat. You can download Acrobat Reader with Search plug-in free of charge from the Adobe Web site. For more information, see [“Acquiring and Installing the Acrobat Software” on page 24-3](#).

The online documentation for CoCentric System Studio (CoCentric System Studio SOLD) is distributed to CoCentric System Studio customers on a separate CD. The installation instructions in this chapter apply to both SOLD and CoCentric System Studio SOLD.

---

## Acquiring and Installing the Acrobat Software

You can acquire the Acrobat software in three ways:

- By downloading the freeware Acrobat Reader from the Web
- By installing the freeware Acrobat Reader from a CD
- By purchasing Adobe Acrobat

The following sections describe these options.

---

### Downloading Acrobat Reader from the Web

To download Acrobat Reader from the Adobe Web site, go to <http://www.adobe.com/> and perform the following procedure. (The details of these instructions might change if Adobe modifies its Web site.)

1. Click the Get Acrobat Reader button.
2. On the Welcome page, click Get Acrobat Reader.
3. On the Acrobat Reader page, select the appropriate OS platform under Step 1, and the Acrobat Reader features box under Step 2.
4. Click DOWNLOAD.
5. Select the “Save to Disk” option.
6. Uncompress the tar.Z or use the gunzip utility for the tar.gz file.  
For example,

```
% gunzip -d solaris-506.tar.gz
```

7. Untar the resulting file. For example,

```
% tar xvf solaris-506.tar
```

8. Enter `./install` to start the installation script.

For more information, consult the `instguid.txt` installation guide that you get when you download Acrobat Reader.

---

## Installing Acrobat Reader From a CD

If you do not have access to the World Wide Web, you can get a CD containing Acrobat Reader software from your Synopsys sales representative. You can also order the CD directly from Adobe for a nominal fee.

To install Acrobat Reader from a CD,

1. Mount the Acrobat Reader CD.
2. Change the directory to the mount point of the CD-ROM. For example,

```
% cd /cdrom
```

3. Change the directory to `acroread/unix/Rdr_srch` (`ACROREAD/UNIX/RDR_SRCH` on the HP platform). For example,

```
% cd acroread/unix/Rdr_srch
```

Be sure to install the software from the `Rdr_srch` directory. Using this directory ensures that the Search capability is enabled.

Note:

Acrobat doesn't support the search capability for Linux, so you will see a different directory if you are running Linux.

4. Enter `./install` (or `./INSTALL` for the HP platform) to start the installation script.

---

## Using Adobe Acrobat

If you choose to purchase Adobe Acrobat (formerly called Acrobat Exchange), install it by following the instructions in the product documentation.

Adobe Acrobat allows you to alter PDF files in certain limited ways. For example, you can add annotations and hypertext links to PDF documents. With Acrobat Reader, you can view but not alter PDF files.

---

## Verifying Your Acrobat Software

To view SOLD, you must have Acrobat version 4.x or later.

To search SOLD, you must have the Search plug-in. For information about searching SOLD on the Linux platform, see [“Searching SOLD on Linux” on page 24-11](#).

The following sections describe how to determine your current software configuration.

---

### Checking the Version Number

If you are using 3.x or an earlier version of Acrobat, you must upgrade in order to view SOLD. Follow the instructions in [“Acquiring and Installing the Acrobat Software” on page 24-3](#).

To check the version number,

1. Open Acrobat Reader or Adobe Acrobat.

2. Choose Help > About Acrobat Reader (or Help > About Adobe Acrobat).
3. In the window that appears, verify that the words “Acrobat Reader 4.0” or “Adobe Acrobat 4.0” appear. (Later versions of Acrobat are also supported.)
4. Close the About screen by clicking anywhere in the window.

---

## Checking for the Search Plug-In

If you are using Acrobat Reader without the Search plug-in, you must upgrade in order to have full-text searching capability in SOLD. The Search plug-in cannot be downloaded from the Adobe site as a separate file; to upgrade, you must download the entire Acrobat Reader with Search plug-in package. Follow the instructions in [“Acquiring and Installing the Acrobat Software” on page 24-3](#).

To check for the Search plug-in,

1. Open Acrobat Reader or Adobe Acrobat (if it is not already open).
2. Choose Help > About Plug-Ins to verify that Acrobat Search is on the list of installed plug-ins.

---

## Installing SOLD

You can install SOLD by electronic software transfer (EST) or from the SOLD CD.

---

### Contents of SOLD

The SOLD documentation set contains PDF document files, the index (PDX) files that enable full-text searching, and the UNIX installation scripts.

SOLD contains several collections of documents. Each collection describes a particular subject area and resides in its own directory. Each collection directory contains all the PDF files for the books in its subject area, as well as the index files for searching in that collection.

The README.1ST file in the SOLD directory and on the SOLD CD lists the contents of SOLD.

---

### Installation Options

The SOLD installation procedure copies files from the SOLD directory (for EST) or SOLD CD into the appropriate places in the Synopsys root directory structure.

SOLD offers the following installation options:

- Full installation on hard drive
- Partial installation on hard drive
- No installation on hard drive (read from CD)

The installation script performs a full installation. Most sites use a full installation for shared access by many users. If disk space is at a premium, you can create a partial installation by removing unused directories after the installation is complete (see [“Partial Installation” on page 24-9](#)).

---

## Electronic Software Transfer Installation

To download and install SOLD from the Web or by FTP, follow the procedures described in [“Downloading and Installing the Software by EST” on page 2-2](#).

To access the complete collections of SOLD, download CDs 1 and 2. The SOLD files use the following convention:

```
sold_U-2003.03_ssd1.tar.Z  
sold_U-2003.03_ssd2.tar.Z
```

Two additional SOLD CDs are available: one for the Japanese version of SOLD and one specifically for CoCentric System Studio customers.

If you want to download only J-SOLD, download the `sold_U-2003.03_jsd3.tar.Z` file. To download only CoCentric System Studio SOLD, download the `sold_U-2003.03_ssd4.tar.Z` file.

[Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. SOLD is installed in a similar manner.

---

## CD Installation

The SOLD collections are packaged in four tar files and each file is on a separate CD. To install SOLD from the CD, follow the installation procedure described in [“Installing Product Files From a CD” on page 2-6](#).

Untar and uncompress the SOLD files before running install.now.

To access the complete collections of SOLD, copy CDs 1 and 2 to you hard disk. The SOLD files use the following convention:

```
sold_U-2003.03_ssd1.tar.Z  
sold_U-2003.03_ssd2.tar.Z
```

Two additional SOLD CDs are available: one for the Japanese version of SOLD and one specifically for CoCentric System Studio customers.

If you want to install only J-SOLD, copy the sold\_U-2003.03\_jsd3.tar.Z file. To install only CoCentric System Studio SOLD, copy the sold\_U-2003.03\_ssd4.tar.Z file.

[Example 2-1 on page 2-9](#) shows a Synopsys media installation script for the synthesis tools. SOLD is installed in a similar manner.

---

## Partial Installation

Because each collection directory is self-contained, partial installations of SOLD are possible.

To effect a partial installation of SOLD, perform a standard installation, then delete from \$SYNOPSYS/doc/online those collection directories you do not need at your site.

Note:

Do not delete the top.pdf file; it contains the SOLD front panel, which lists the products that are documented. Do not delete the solid directory; it contains the *SOLD User Guide*.

Keep the remaining collection directories intact: Do not remove files from them or move the files in a collection relative to each other. Such modifications can cause hypertext links and the search mechanism to fail.

---

## Verifying the SOLD Installation

Verify the installation by opening SOLD. To open SOLD, issue the command

```
% $SYNOPSYS/sold
```

If SOLD is correctly installed, this command invokes Acrobat and displays the SOLD welcome screen in the Acrobat window.

---

## Configuring SOLD for Each User

The search engine uses index files to perform full-text search and retrieval on a document. SOLD provides an index file (index.pdx) with each collection.

When you open a document, the associated index file is automatically available to the search engine. However, to search SOLD before opening a document, you can manually make an index available to the search engine.

To manually make an index available to the search engine,


1. Choose Edit > Search > Select Indexes in the Acrobat window.
2. Click the Add button.
3. Navigate to one of the collection directories, for example, \$SYNOPTSYS/doc/online/synth.
4. Select the index.pdx file.
5. With the index.pdx file selected, click the Apply button.

The selected index is added to the list of available indexes.

For information about using SOLD, see the *SOLD User Guide*. To access the *SOLD User Guide*, open SOLD and click the hypertext link labeled "Using Synopsys Online Documentation."

---

## Searching SOLD on Linux

Only the Find command (Edit > Find) is available for searching the Linux version of SOLD. To locate information with the Find command, use the print version of a document. From the SOLD front page, select a document set, then click the print version icon (  ) next to the document you want.



# 25

## Troubleshooting

---

This chapter contains the following sections:

- [Memory](#)
- [X Window System](#)

---

## Memory

Some common memory problems and possible solutions are described in this section.

---

### Why Do I Get an “out of memory” Message?

Here is a possible scenario: A large job is running on a machine that has abundant swap space. You try to run a Design Compiler job on this machine and assume that you don't need to be concerned about running out of swap space. But the application terminates with a fatal out-of-memory message before the machine runs out of swap space.

UNIX limits the amount of memory a job or process can consume while it is running. If a job reaches these limits before the system runs out of swap space, the job terminates with the fatal out-of-memory error message. These limits are built into the UNIX OS to prevent a single job or process from consuming all system resources (swap space, CPU time, number of processes, and so on), thereby depleting resources for other jobs. Some limits applicable to Synopsys applications are

- Data size—The maximum data size (including stack) for the process
- CPU time—The maximum CPU seconds per process
- Core dump size—The maximum size of a core dump

The data-size limit is the most important. It can be set at two levels:

- The system level

Limits are enforced for everyone who runs on that system.

- On a per-user basis

On all machines except those running HP-UX, you can change your personal limits by using the `limit` command (C shell) or `ulimit -s -d` command (Bourne, Korn, or Bash shell). On the HP-UX platform, only the system administrator can set the limits. Personal limits cannot exceed the systemwide limit. For example, the limits on a Sun client (Solaris 7) might look like this:

```
% limit
cputime          unlimited
filesize        unlimited
datasize        524280 kbytes
stacksize       8192 kbytes
coredumpsize    unlimited
descriptors     256
memorysize      unlimited
```

**Note:**

In this example, any jobs or processes started on the Sun client can grow to 524 MB before limits are enforced.

On some solaris systems, setting the data size to `unlimited` defaults to a data size of only 2 GB. To set a larger data size, set the data size explicitly. For example, set it to 3.8 GB by using the following command:

```
% limit datasize 3891 MB
```

If the data size is sufficient, check the stack size. A stack size that is larger than the default (8,192 KB) can cause the data size to be smaller than required. Because the stack size is taken at the beginning of the process, it uses memory that would normally be available for data. Therefore you should set the stack size higher than the default only when absolutely necessary.

Most system administrators do not adjust the limits unless they are confronted with problems. If you do not adjust the limits, it is possible for a tool requiring a lot of swap space (such as Design Compiler) to experience an out-of-memory problem.

Note, however, that it is possible to extend memory (physical and swap space). For more information, see [“Accessing Memory Beyond 2 GB With 32-Bit Synopsys Tools”](#) on page 1-13.

---

## What Should I Do When an “out of memory” Error Occurs?

Make sure that you are not running out of swap space on the system. Use the `swap -l` command for Sun SPARC systems to obtain swap space information. For example,

```
% swap -l
swapfile          dev  swaplo  blocks  free
/dev/dsk/c0t3d0s1 32,25    8  822520  628872
```

To determine available swap space on systems other than Sun SPARC, contact your system administrator.

If you have enough swap space but still encounter OS limits, use the `limit` command to find out what the `datasize` variable is set to (for all machines except HP). The `limit` command displays user-level limits.

```
% limit
cputime          unlimited
filesize        unlimited
datasize        524280 kbytes
stacksize       8192 kbytes
coredumpsize    unlimited
descriptors     256
memorysize      unlimited
```

If your user-level data-size limit is too low, you can increase it by entering `limit datasize xxxxm` at the UNIX prompt, where `xxxx` is the number of megabytes and `m` stands for megabytes. For example,

```
% limit datasize 3891m
```

**Note:**

The `limit` command is a built-in C shell (`cs`) command. Make sure you are in `cs` before you execute `limit`.

For additional information about the `limit` command, see the appropriate man page. On HP systems you cannot change the user-level limits. User-level limits can be changed only at the system level.

The procedure for making limit changes varies from platform to platform. The system administrator at each site should be familiar with the procedure. If you still encounter problems, contact your ncuSynopsys technical representative.

---

## **X Window System**

Some common X Window System problems and possible solutions are the following:

- If you cannot use the `vi` text editor in the `xterm` window, add an `xterm` entry in your `/etc/termcap` file.
- If, after an upgrade, you can no longer open Design Analyzer from your host, verify that the fonts assigned in `.synopsys_dc.setup` or the server default fonts are loaded. A fatal error results if the fonts are not available.

- Your `~/.xinitrc` script might not be read on startup because it is a C shell script. In this case, you must rewrite it as a Bourne (`/bin/sh`) script.

## Part II: Placement and Routing Tools



# 26

## Installing Astro, Columbia, and JupiterXT (U-2003.03)

---

Note:

The installation instructions in this chapter 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 chapter contains the following sections:

- [Media Availability and Supported Platforms](#)
- [Installing the Software](#)
- [Setting Up Astro for a New User](#)
- [Verifying the Astro Installation](#)

---

## Media Availability and Supported Platforms

Astro is available on CD or by FTP download. Obtain the appropriate binary executable files based on the operating system you need. The U-2003.03 release supports the following platforms:

Operating System	Platform keyword
Solaris 8	sun.32, sun.64
HP-UX 11.0, 11i	hp.32, hp.64
Red Hat Linux 7.2	ia.32

---

## Installing the Software

The steps in this procedure describe how to install Astro on the Sun Solaris 32-bit platform. For other platforms, use the appropriate file name and platform for the tool you want to install.

To install the Astro software on your server,

1. Change directory to the install directory,

```
% cd install_dir
```

where *install\_dir* is the directory where you want to install the software.

2. Begin the installation:

```
% ls /cdrom/volume_name/3.5.0.3.astro.sun.32.tar.gz
```

The *volume\_name* file name might vary, depending on your workstation. Check the title bar of the pop-up File Manager window for the accurate volume name.

3. Examine the contents of your directory:

```
% ls /cdrom/volume_name
```

You should see the following file:

```
% /cdrom/volume_name/3.5.0.3.astro.sun.32.tar.gz
```

4. Unzip the file:

```
% gzip -dc /cdrom/volume_name/3.5.0.3.astro.sun.32.tar.gz | tar -vxf -
```

5. Change to the bin directory:

```
% cd bin/SUN.32
```

6. Copy the Synopsys license daemon to the /etc directory:

```
% cp -p avantd /etc
```

7. Create a license directory:

```
% mkdir /usr/local/flexlm /usr/local/flexlm/licenses
```

8. Copy the license to the license directory:

```
% cp source_dir/license.dat /usr/local/flexlm/licenses
```

where *source\_dir* is where the license.dat (and package.dat) file resides.

9. Start the license server:

```
% lmgrd -c /usr/local/flexlm/licenses/license.dat -l /usr/local/flexlm/ \
  licenses/license.log
```

10. To automatically start the license server whenever you reboot the server, add the following line to the /etc/rc.local file,

```
install_dir/bin/SUN.32/lmgrd -c /usr/local/flexlm/licenses/license.dat -l / \
  usr/local/flexlm/licenses/license.log
```

where *install\_dir* is the directory where you installed the software.

For more information about the license server, see [www.synopsys.com/keys](http://www.synopsys.com/keys) or the FLEXlm user guide.

Note:

Beginning with the Astro U-2003.03 release, the online Help is included with the release image. There is no longer a separate tar.gz file for online Help.

---

## Setting Up Astro for a New User

This section describes how to set up local machines for Solaris so that it can access the Synopsys software. Perform this procedure for each machine on the network.

1. To set up your machine, update your environment variables by adding one of the following groups of variables in your `.cshrc` file.

```
setenv LM_LICENSE_FILE /usr/local/flexlm/licenses \
/license.dat:$LM_LICENSE_FILE
```

```
set path = (install_dir/bin/$platform $path)
```

where *install\_dir* is the directory in which the Synopsys software is installed and *platform* is the appropriate platform.

2. Update your path variable by entering the following from the UNIX prompt:

```
% source .cshrc
```

Make sure the XKeysymDB file resides in or is linked from `/usr/lib/X11`.

---

## Verifying the Astro Installation

To verify the Astro installation,

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

```
% cd $HOME
```

2. Invoke the tool by entering the following command:

```
% Astro
```

If you see information about the product version, production date, and copyright, the installation was successful.



# 27

## Installing HSPICE (version U-2003.03)

---

Note:

The installation instructions in this chapter 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 chapter includes the following sections:

- [Media Availability and Supported Platforms](#)
- [Installing the Software on UNIX or Linux Platforms](#)
- [Configuring HSPICE and AvanWaves for UNIX and Linux](#)
- [Setting Up HPICE and AvanWaves for Each User](#)
- [Verifying the HSPICE and AvanWaves Installation](#)
- [Installing the Software on Windows Platforms](#)

- [Troubleshooting](#)
- [Customer Support](#)

---

## Media Availability and Supported Platforms

HSPICE is available on CD or by FTP download. Obtain the appropriate binary executable files for your operating system. [Table 27-1](#) lists the supported platforms for this release.

*Table 27-1 Products and Supported Platforms*

	Sun Solaris 2.5, 7,8	HP-PA HP-UX 10.20, 11.0	IBM RS/6000 AIX 4.3	Red Hat Linux 6.2, 7.2	DEC Alpha OSF 4.0	Windows NT, 2000, XP
HSPICE	CD FTP	CD FTP	CD FTP	CD FTP	CD FTP	CD FTP
Interface	CD FTP	CD FTP	CD FTP	N/A <sup>1</sup>	N/A	N/A
AvanWaves	CD FTP	CD FTP	CD FTP	CD FTP	N/A	CD FTP
Metaencrypt	CD FTP	CD FTP	CD FTP	CD FTP	CD FTP	CD FTP

1. *Not available.*

The supported platforms and platform keywords for the binary files you need are as follows:

- sun55 executable files support Sun Solaris 2.5.1, or 7 (sparc).
- pa10\_awaves executable files can be executed on HP-UX 10.20 or HP-UX 11.00.

Note:

When you use HSPICE with Windows platforms using AMD Athlon CPUs, only a single processor is supported.

---

## Installing the Software on UNIX or Linux Platforms

To install HSPICE and AvanWaves from the CD,

Note:

If you have problems reading the CD on the Solaris 7 platform, contact Sun to obtain OS patch version 107465-04 or later (/kernel/fs/hsfs/patch).

1. Make sure you have enough disk space for HSPICE and AvanWaves installation. For a full installation on one platform, 120 MB is recommended.

2. To load the software, enter

```
% path_to_cdrom/install_dir/synopsys_install
```

The Synopsys Installation Program dialog box appears.

3. Enter the name of the installation directory in which you want to load the products.
4. Select the products and platforms that you want to load, and then click Load.
5. After the loading is completed, click Exit.

To install HSPICE and AvanWaves by electronic software transfer,

1. If necessary, create an HSPICE installation directory. For example,

```
% mkdir -p /usr/synopsys/hspice
```

2. Change to the HSPICE installation directory:

```
% cd /usr/synopsys/hspice
```

3. Download the HSPICE binary files to the installation directory.

You can get the latest HSPICE download instructions from the SolvNet Release Library.

4. Uncompress and untar the files.

```
% pwd /usr/synopsys/hspice
% gzip -dc hspice-version-platform.tar.gz
```

Note:

This will create a subdirectory under the HSPICE installation directory. For example,

```
/usr/synopsys/hspice/version
```

In the remainder of this chapter, this subdirectory is referred to as the installation directory or `$installdir`.

5. To set the file permissions on the new directory tree and its contents, enter

```
% chmod -R 755 /usr/synopsys/hspice
```

6. Remove the `hspice-version-platform.tar.gz` file.

```
% rm hspice-version-platform.tar.gz
```

7. Configure HSPICE and AvanWaves for your site.

8. Verify the HSPICE and AvanWaves Installations.
9. For each user, set the required environment variables.

To configure the tools, verify the installations, and set the environment variables for each user, see the following sections.

---

## Configuring HSPICE and AvanWaves for UNIX and Linux

This section describes how to set up and configure the HSPICE and AvanWaves products after loading them from the CD.

To configure the products for UNIX and Linux platforms,

1. Verify the platform on which you want to configure the products.
2. Invoke the configuration program by entering

```
% installation_directory/bin/config
```

The Configure Products dialog box appears.

3. If you want to configure AvanWaves, select Configure AvanWaves. No option is required.
4. If you want to configure HSPICE, select Configure HSPICE. The configuration options are “versions file...,” “meta.cfg file ...,” “hspice.ini file ...,” and setup buttons. If you do not select these options, the default settings apply.
5. After selecting your options, click the Configure button. The configuration log is shown in the middle of the dialog box.
6. Click Exit when the configuration has finished.

---

## Setting Up HPICE and AvanWaves for Each User

To set up a new tool user,

- Source the `.cshrc.meta` or `.kshrc.meta` file
- Enter the path information
- Set up a license variable that points to the license server

Add the following information to the `.cshrc`, `.kshrc`, or an HSPICE source file:

1. Add the HSPICE and AvanWaves executable files to your search path.

- If you are using C shell, enter

```
set path=(installation_directory/bin $path)
```

- If you are using Bourne shell, enter

```
PATH=installation_directory/bin:$PATH
```

2. Set one of the following licensing variables:

```
AVANTD_LICENSE_FILE
```

or

```
LM_LICENSE_FILE
```

3. Source the `cshrc.meta` or `.kshrc.meta` file.

- For C shell users, enter

```
% source installation_directory/bin/cshrc.meta
```

- For Korn shell users, enter

```
$ . installation_directory/bin/kshrc.meta
```

---

## Verifying the HSPICE and AvanWaves Installation

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

- For C shell users, enter

```
% source installation_directory/bin/cshrc.meta
```

- For Korn shell users, enter

```
$ . installation_directory/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 logfile:

```
% installation_directory/bin/synopsys_config.log_pid
```

---

## Verifying the HSPICE Installation

To verify the HSPICE installation, follow these steps:

1. Enter

```
% cd $installdir/demo/hspice/bench
```

The `$installdir` environment variable specifies the path to the directory where the HSPICE products are installed.

2. To run a demo simulation, enter

```
% hspice demo.sp > demo.lis
```

3. To view the simulation output, enter

```
% vi demo.lis
```

4. 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.

---

## Verifying the AvanWaves Installation

To verify the AvanWaves installation,

1. Change to the installation directory.

```
% cd $installdir/bin/
```

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

2. To start AvanWaves, enter

```
% awaves &
```

---

## Installing the Software on Windows Platforms

This section describes how to install and set up the license server for HSPICE on a PC. To run HSPICE, your system must have

- A Pentium or compatible processor or higher.
- At least 32 MB of memory (64 MB or more is recommended)
- A parallel port for the security key
- Windows NT, Windows 2000, or Windows XP operating system

- Approximately 100 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 pchspice 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  

```
% CD-ROM drive letter:\pchspice\setup.exe
```
3. To install the software, follow the screen prompts.

---

## Installing the Sentinel System Drivers

For information about the Win32 sentinel\_key driver (dongle key), see the README.txt file located in the %installdir% installation directory.

1. Enter

```
$installdir\DRIVERS and execute flexid.exe to install the Win32
```

2. Set the LM\_LICENSE\_FILE environment variable.

```
% /path_to_license_file
```

For additional information about the FLEXlm licensing, see the *FLEXlm End User Manual*.

---

## Running HSPICE

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 files. 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.
- From the DOS prompt in Windows, enter

```
%installdir%\BIN\HSPICE -i netlist -o listfile {-b}
```

**Note:**

Make sure you have set the environment variable correctly before running circuit.

---

## Running AvanWaves

Start AvanWaves in any of the following ways:

- Double-click the HSPUI icon and then click the AvanWaves button.
- Double-click the AvanWaves icon.
- From the DOS prompt in Windows, enter

```
%installdir%\BIN\AWAVES
```

### Important:

If you start AvanWaves by using a method other than selecting the HSPUI icon and then you open online Help, you must delete the Galaxy Help Server task from the Task List after you exit AvanWaves. Otherwise the next invocation of HSPICE can have a memory conflict with the AvanWaves Galaxy Help server.

---

## Running Older Versions of HSPICE

You can use the HSPUI utilities to run different versions of HSPICE that are already installed on your computer. Under 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:\avanti\Hspice2001.2\BIN\hspice.exe    HSPICE 2001.2  
  c:\avanti\Hspice2002.2\BIN\hspice_mt.exe HSPICE 2002.2  
<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 HSPUI is invoked, you can select the HSPICE version in the combo box of the HSPUI window. HSPICE will run according to the path selected in the combo box.

The following executable files are provided on the HSPICE, AvanWaves, and Utility disks:

```
*.EXE File
%installdir%\bin\lmutil (lmutil hostid - sentinel; run from the DOS
prompt)
\%installdir%\bin\hspice (HSPICE executable running in a PC Windows
environment)
%installdir%\bin\awaves (AvanWaves executables running in a PC Windows
environment)
%installdir%\bin\hspui (GUI utility that launches HSPICE.EXE and
AWAVES.EXE)
```

---

## The hspice.ini File on Windows Platforms

The hspice.ini file is the configuration file that contains HSPICE options. 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 will take effect.

To find the hspice.ini file, on Windows NT, 2000, or XP platforms, look in the meta.cfg file, which HSPICE reads into the `installdir` system environment variable.

---

## Troubleshooting

- If you have multiple dongles connected to each other, the Windows dongle must be connected directly to the PC.
- If you are a Novell Network user, be aware that it is common for Novell Networks to have search drives replace the standard path set in the autoexec.bat file, which might cause HSPICE to fail to locate the executable file.

See your Novell system administrator to get an additional search drive that points to the installation directory.

---

## Customer Support

For documentation about using HSPICE and AvanWaves, see the

- *AvanWaves User Guide*
- *Device Models Quick Reference Guide*
- *Elements and Device Models Manual*
- *HSPICE Applications Manual*
- *HSPICE Quick Reference Guide*
- *HSPICE Signal Integrity Guide*
- *HSPICE Simulation and Analysis User Guide*
- *MOSFET Models Manual*

All documentation is available on SOLD or through Documentation on the Web. Print versions are available only for the *HSPICE Quick Reference Guide* and *Device Models Quick Reference Guide*.

For information about accessing HSPICE documentation, see [“Related Publications” on page xvii](#).

For information about contacting Customer Support, see [“Customer Support” on page xix](#).

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)

# 28

## Installing Star-RCXT (version U-2003.03)

---

Note:

The installation instructions in this chapter 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 chapter includes the following sections:

- [Media Availability and Supported Platforms](#)
- [Installing the Software](#)
- [Setting Up Star-RCXT for Each User](#)
- [Verifying the Star-RCXT Installation](#)
- [Customer Support](#)

---

## Media Availability and Supported Platforms

Star-RCXT is available on CD or by FTP download. Obtain the appropriate binary executable files based on the operating system you need. The U-2003.03 release supports the following platforms:

Operating System	Platform keyword
Solaris 5.6	Sun5_6
Solaris 5.7+	Sun64-57
HP-UX B.10.20+	HP160
HP-UX B.11.00+	HP6452
Red Hat 7.2+	I386-L24

---

## Installing the Software

To install Star-RCXT from the CD,

1. To load the software, enter

```
% path_to_cdrom/install_dir/synopsys_install
```

The Synopsys Installation Program dialogue box appears.

2. Enter the name of the installation directory in which you want to load the products.
3. Select the products and platforms that you want to load, and then click Load.
4. After the loading is completed, click Exit.

To install Star-RCXT by electronic software transfer,

1. Create a Star-RCXT installation directory. For example,

```
% mkdir -p /usr/synopsys/star-rcxt/version
```

2. Change to the Star-RCXT installation directory:

```
% cd /usr/synopsys/star-rcxt/version
```

3. Download the Star-RCXT binary files to the installation directory:

You can get the latest Star-RCXT download instructions from the SolvNet Release Library.

4. Uncompress and untar the files. For example

```
% gzip -dc platform_star-rcxt-version.tar.gz | tar xvf -
```

Substitute the appropriate platform keyword for *platform*. (See [“Media Availability and Supported Platforms”](#) on page 28-2.)

**Note:**

This will create a subdirectory under the Star-RCXT installation directory. For example,

```
/usr/synopsys/star-rcxt/version
```

In the remainder of this chapter, this subdirectory is referred to as the installation directory or `$installdir`.

5. To set the file permissions on the new directory tree and its contents, enter

```
% chmod -R 755 /usr/synopsys/star-rcxt
```

6. Remove the star-rcxt-version-platform.tar.gz file

```
% rm star-rcxt-version-platform.tar.gz
```

---

## Setting Up Star-RCXT for Each User

To set up a new tool user, each user must,

- source `.cshrc.meta` or `.kshrc.meta`
- Enter the path information
- Set up a license variable that points to the license server

It is recommended that the following information be added to the `.cshrc`, `.kshrc`, or an Star-RCXT source file:

1. Add the Star-RCXT executable files to your search path:

- If you are using C shell,

```
set path=(installation_directory/bin $path)
```

- If you are using Bourne shell,

```
PATH=installation_directory/bin:$PATH
```

2. Set the following licensing variable:

```
LM_LICENSE_FILE
```

---

## Verifying the Star-RCXT Installation

To verify the Star-RCXT installation,

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

```
% cd $HOME
```

2. Run the Star-RCXT GUI on each installed platform by entering the following command:

```
% StarXtract -gui
```

The GUI will appear on your screen.

3. Exit the GUI by choosing File > Exit in any GUI window.

---

## Customer Support

For information about using Star-RCXT, see the *Star-RCXT User Guide*.

For information about accessing Star-RCXT documentation, see [“Related Publications” on page xvii](#).

For information about contacting Customer Support, see [“Customer Support” on page xix](#).



# 29

## Installing TCAD Products and Utilities

---

This chapter describes the procedures for installing Synopsys TCAD products on UNIX systems.

Note:

The installation instructions in this chapter 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 chapter includes the following sections:

- [Media Availability and Supported Platforms](#)
- [Installing TCAD Products](#)
- [Installing the TCAD Network License Software](#)
- [Running TCAD Products](#)

- [Using the TCAD Network License System and Software](#)
- [Troubleshooting](#)
- [TCAD Utilities](#)

---

## Media Availability and Supported Platforms

For the U-2003.03 release, the Aurora, Raphael, and Raphael NES TCAD products are available on CD or by FTP download. Obtain the appropriate binary executable files for your operating system.

[Table 29-1](#) lists the supported platforms for this release.

*Table 29-1 Products and Supported Platforms*

Product	Operating system	Platform keyword
TCAD, Aurora, Raphael, Raphael NES	IBM R/S6000 AIX 4.3.3	aix43
	DEC ALPHA Digital UNIX 4.0	dec
	HP-UX 11.00	hpux
	Sun Solaris 8	sparcOS5 (32-bit platforms)

---

## Installing TCAD Products

The general procedure for installing a TCAD product consists of the following steps:

1. Obtain a SolvNet account.
2. Download TCAD software or request CD media.
3. Establish a TCAD directory.

4. Run the product installation script.
5. Create the license.dat file in the license directory and start the license daemon.

Steps 1 through 4 are discussed in this section. Step 5 is discussed in [“Using the TCAD Network License System and Software” on page 29-29.](#)

---

## Obtaining a SolvNet Account

SolvNet is the online gateway to Synopsys service and support. Through SolvNet, customers can retrieve software, request media, retrieve license files, and view online documentation.

If you do not have a SolvNet account, register for an account by visiting the SolvNet Web site (<http://solvnet.synopsys.com>) and clicking the Register Today link.

### Note:

To access all Synopsys online services in SolvNet, you need to register with a valid Synopsys site ID.

---

## Downloading TCAD Software or Requesting CD Media

After establishing a SolvNet account using your site's Synopsys site ID, you can download the TCAD software from the Synopsys electronic software transfer system (ftp) or request CD media.

To download the software, follow these steps:

1. Go to <ftp.synopsys.com>.

```
% ftp ftp.synopsys.com
```

2. When prompted for a name and password, enter your SolvNet login name and password.

3. At the ftp prompt, set the transfer mode to binary.

```
ftp> binary
```

4. Change directory to the revenue vault.

```
ftp> cd /rev
```

5. Change directory to the appropriate product directory (for example, *a\_tcad-medici\_version*).

```
ftp> cd <product>
```

6. List the directory contents.

```
ftp> dir
```

7. For each file that you want (for example, *tcad-medici\_version\_platform.install*), retrieve the file by using the `get` command.

```
% get <filename>
```

8. After retrieving the product files, quit the ftp session.

```
ftp> quit
```

To request CD media,

- Log on to the SolvNet Web site (<http://solvnet.synopsys.com>) and click the MediaDocs link.

Note:

Because of contract restrictions, only certain sites are authorized to order CD media. If you are not sure about your site's eligibility, contact your Synopsys account manager.

---

## Establishing a TCAD Directory Tree

If a TCAD product has previously been installed on your system, a TCAD directory with a name such as /usr/tcad or /usr/myaccount/tcad should already exist. If you are uncertain about its name, contact your system administrator for assistance.

If a TCAD directory does not exist, decide where to store the TCAD products on your system. Consult [Table 29-2](#) to determine the approximate disk space required for the products you need. Make sure you select a location with sufficient disk space to install these products and allow room for future installations.

*Table 29-2 TCAD Disk Requirements*

Product	Disk (MB)
Aurora	165
Davinci	125
Medici	135

Table 29-2 TCAD Disk Requirements (Continued)

Product	Disk (MB)
Raphael	85
Raphael NES	75
Taurus Layout	20
Taurus Process/Device	140
Taurus Visual	125
Taurus WorkBench	355
TSUPREM-4	100

---

## Running the Installation Script

If you are installing from a file retrieved from the FTP site, make sure the file has the correct file permissions:

```
% chmod 755 <product script>
```

If you are installing from CD, mount the CD and change directory to the CD drive. Contact your system administrator if you require assistance in mounting the CD. Next you must run the installation script:

```
% ./<product script>
```

The *<product script>* creates the appropriate directories and installs the product. During execution of a program installation script, several actions take place, and some require you to respond to prompts.

1. The installation script prompts you for your TCAD directory. Enter the full path to your TCAD directory. The installation script then extracts the product into your TCAD directory.
2. Upon successful completion of the installation, the script displays a summary. A copy of this summary, as well as a log of your responses to the system prompts, is located in the `install_<program>.log` file in the program directory.

### Caution!

You must add the `tcad/bin` directory to your search path if it is not already there. For example, if your TCAD directory is `/usr/myaccount/tcad`, your search path must include `/usr/myaccount/tcad/bin`. For details, see [“Setting Up Your Search Path” on page 29-8](#).

After the installation is completed, the directory tree shown in [Table 29-3](#) exists as subdirectories of the TCAD directory:

*Table 29-3 TCAD Directory Tree*

Subdirectory	Contents
<code>bin/</code>	Contains links to the TCAD executable files.
<code>&lt;program&gt;_&lt;version&gt;/</code>	Contains the TCAD product files and directories, including the <code>install_&lt;program&gt;</code> product installation script.
<code>utility/</code>	Contains various utilities for use with TCAD products. See the <a href="#">“TCAD utility Directory” on page 29-38</a> for a discussion of the contents of the utility directory.
<code>license/</code>	Contains the TCAD Network License Software and the <code>license.dat</code> license data file.
<code>license_tma/</code>	Contains the TCAD Network License Software for all supported platforms in compressed tar format.

---

## Setting Up Your Search Path

A search path is a list of directory paths. The system searches through directories to find an executable file. Each TCAD product user must have a search path that contains the TCAD bin directory. This section explains how to set up your search path so that you can run a TCAD product from any directory.

## Checking Your Search Path

If a TCAD product has already been installed on your system with the installation script, the TCAD bin directory might already exist in your search path. To determine whether it does, enter

```
% which <program>
```

where <program> is a TCAD executable file such as `medici`, `raphael`, or `taurus`.

If you get a response similar to

```
/usr/myaccount/tcad/bin/<program>
```

your search path is set correctly.

If you get a response similar to

```
no <program> in /bin /usr/bin /usr/local/bin
```

you must modify your search path as described in the following section.

## Modifying Your Search Path

Your search path is defined by the PATH environment variable. Determine your current search path by entering

```
% echo $PATH
```

Note:

PATH must be entered in uppercase letters.

This is an example of a search path:

```
./bin:/usr/bin:/usr/local/bin
```

## Modifying Your Path in the C shell

The following example illustrates the commands used to modify your path. In this example, the TCAD directory on your system is named /usr/myaccount/tcad.

- To permanently add this directory to your search path, add the following line to your \$HOME/.profile.

```
set path=(/usr/myaccount/tcad/bin $path)
```

Save your changes.

- Enter the following command:

```
% source .cshrc
```

## Modifying Your Path Under the Bourne or Korn Shell

To modify your path you must use specific commands. In this example, the TCAD directory on your system is named /usr/myaccount/tcad.

- To permanently add this directory to your search path, add the following line to your `$HOME/.profile` or `$HOME/.kshrc` file:

```
PATH=/usr/myaccount/tcad/bin:$PATH
export PATH
```

Save your changes.

- Enter one of the following commands:

```
$ . profile
```

or

```
$ . kshrc
```

---

## Installing the TCAD Network License Software

The TCAD Network License Software is automatically loaded by the installation script.

### Note:

To install TCAD license keys formatted for Synopsys licensing, you must have version 5.12 or later of the `tmald` daemon. You can check the version number by entering `tmald -v`. Version 5.12 of the `tmald` daemon is not available separately—it is included with the latest TCAD products. The products also include `lmgrd` and `lm` utilities. To download the latest license keys, click the Smartkeys link in SolvNet or go to [www.synopsys.com/smartkeys](http://www.synopsys.com/smartkeys). A SolvNet user name and password, as well as your Synopsys site ID, are required.

This section describes the basic procedure for completing the installation of the TCAD Network License Software on your UNIX computer.

1. Move to the license directory:

```
% cd <name of TCAD directory>/license
```

2. Modify the keyfile you received through e-mail (from SmartKeys) to remove all extraneous text.

- a. Save the e-mail message in a file named `license.dat` in the license directory in the TCAD directory.
- b. Use a text editor to edit this file and remove the mail header information and any blank lines. All comment lines must begin with `#` and cannot wrap to the next line.

The `license.dat` file should contain only lines that begin with `SERVER`, `#`, `DAEMON`, `INCREMENT`, `PACKAGE`, and `FEATURE`.

3. Modify the `SERVER` and `DAEMON` lines:

- a. Replace the `hostname1` field with your license server's machine name (determined by the UNIX `hostname` command).

```
SERVER my_server 87654321 27000
```

- b. Modify the `DAEMON` line so that it contains the full path to the `tmald` daemon.

```
DAEMON tmald/usr/myaccount/tcad/license/tmald
```

- c. (Optional) Change the default TCP port number (at the end of the `SERVER` line) to an unused TCP port of your choice.
- d. Save your changes.

After making these changes, your file should look similar to this one:

```
# Date:10/09/2002
# SYNOPSIS INC. KEY CERTIFICATE
# Site Id: xxxx
# XYZ Corporation
SERVER hostname 87654321 27000
DAEMON tmald /usr/tcad/license/tmald
INCREMENT MD tmald 2002.2 18-nov-2002 10 4CA7B27176E3EAD691E3 \
VENDOR_STRING=MD SUPERSEDE ISSUED=9-oct-2002 ck=28 \
SN=RK:5447-0:431131:0
INCREMENT MDCA tmald 2002.2 18-nov-2002 1 1CC72201FA7990F2D5E2 \
VENDOR_STRING=MDCA SUPERSEDE ISSUED=9-oct-2002 ck=2 \
SN=RK:5447-0:431131:0
INCREMENT MDLT tmald 2002.2 18-nov-2002 1 DC0742C1FD0D57EECEF9 \
VENDOR_STRING=MDLT SUPERSEDE ISSUED=9-oct-2002 ck=84 \
SN=RK:5447-0:431131:0
#
```

4. Log on to the server node indicated by the SERVER line hostid field of the license.dat file. (In the preceding example, the hostid is 87654321.)
5. Log on to the server node indicated by the SERVER line of the license.dat file. (In the preceding example, the hostid is 87654321.)
6. Start the TCAD license daemon.

a. If you are using the C shell, enter

```
% ./lmgrd -c <TCAD directory>/license/license.dat >& \
<TCAD directory>/license/license.log &
```

b. If you are using the Bourne or Korn shell, enter

```
$ ./lmgrd -c <TCAD directory>/license/license.dat > \
<TCAD directory>/license/license.log 2>&1 &
```

7. Check the license.log (debug logfile) to make sure the TCAD `tmald` daemon has started correctly. If it hasn't, contact your system administrator for assistance, and see [Table 29-2 on page 29-5](#).
8. Create a script to start up the `tmald` daemon automatically each time you start up the license server. See [“Starting the License Daemon Automatically” on page 29-13](#).

---

## Setting the User Environment to Find the TCAD License

When you start a TCAD tool, the tool looks for a license in this order:

- The default location, `<TCAD directory>/license/license.dat`
- `TCADLIC`
- `LM_LICENSE_FILE`

where `TCADLIC` and `LM_LICENSE_FILE` are environment variables that point to the license server. For example,

```
setenv LM_LICENSE_FILE /path/to/license.dat
```

---

## Starting the License Daemon Automatically

If you want to start the TCAD license daemon every time the server machine starts, your system administrator must modify the startup files. Following are the procedures for the various platforms.

Note:

You must be logged on as root to run the following procedures.

## HP 9000/700 Series HP-UX

To make the TCAD license daemon start at startup,

1. Create a file named `tmald` in the `/sbin/init.d` directory and add the following lines:

```
#
# TCAD Software
#
if [ ! -f /<TCAD directory>/license/lmgrd ]; then
    echo 'cannot startup TCAD Network License Software
daemon: no
    lmgrd found'
    exit
fi

case "$1" in
'start')
    /<TCAD directory>/license/lmgrd -c /<TCAD directory>/
license/license.dat\
    > /<TCAD directory>/license/license.log 2>&1 &
        ;;
'stop')
    /<TCAD directory>/license/lmdown -q -c \
    /<TCAD directory>/license/license.dat
        ;;
esac
```

2. Link the script to the `/sbin/rc3.d` file so that the license daemon is automatically stopped and started when the init state changes to run level 3. Level 3 is multiuser with resources exported. Link the script by entering the following commands:

```
ln -s /sbin/init.d/tmald /sbin/rc3.d/S17tmald
ln -s /sbin/init.d/tmald /sbin/rc3.d/K17tmald
```

## IBM RS/6000 AIX

Modify the `/etc/inittab` file by adding the following line to the end of the file:

```
tmald:2:once: /<TCAD directory>/license/lmgrd -c \
    /<TCAD directory>/license/license.dat \
    > /<TCAD directory>/license/license.log 2>&1 & # TCAD
Software
```

## Sun Solaris 2

To make the TCAD license daemon start at startup,

1. Create a file named tmald in the /etc/init.d directory and add the following lines:

```
#
# TCAD Software
#
if [ ! -f /<TCAD directory>/license/lmgrd ]; then
    echo 'cannot startup TCAD Network License Software
daemon: no
    lmgrd found'
    exit
fi

case "$1" in
'start')
    /<TCAD directory>/license/lmgrd -c /<TCAD directory>/
license/license.dat\
    > /<TCAD directory>/license/license.log 2>&1 &
    ;;
'stop')
    /<TCAD directory>/license/lmdown -q -c \
    /<TCAD directory>/license/license.dat
    ;;
esac
```

2. Link the script to the /etc/rc3.d file so that the license daemon is automatically stopped and started when the init state changes to run level 3. Level 3 is multiuser with resources exported. Link the script by entering the following commands:

```
ln -s /etc/init.d/tmald /etc/rc3.d/S17tmald
ln -s /etc/init.d/tmald /etc/rc3.d/K17tmald
```

## DEC Alpha OSF/1

To make the TCAD license daemon start at startup,

1. Create a file named `tmald` in the `/sbin/init.d` directory, containing the following lines:

```
#
# TCAD Software
#
if [ ! -f /<TCAD directory>/license/lmgrd ]; then
    echo 'cannot startup TCAD Network License Software
daemon: no
    lmgrd found'
    exit
fi

case "$1" in

'start')
    /<TCAD directory>/license/lmgrd -c /<TCAD directory>/
license/license.dat\
    > /<TCAD directory>/license/license.log 2>&1 &
    ;;
'stop')
    /<TCAD directory>/license/lmdown -q -c \
/<TCAD directory>/license/license.dat
    ;;
esac
```

2. Link the script to the `/sbin/rc3.d` file so that the license daemon is automatically stopped and started when the init state changes to run level 3. Level 3 is multiuser with resources exported. Link the script with the following commands:

```
ln -s /sbin/init.d/tmald /sbin/rc3.d/S17tmald
ln -s /sbin/init.d/tmald /sbin/rc3.d/K17tmald
```

---

## Checking the Status of the License Daemon

You can check the status of the TCAD license daemon in either of the following ways:

- Check the contents of the license.log license log file.
- Use the lmstat utility.

The license.log file logs information about the license manager and the licenses that are checked out and in. An example of a license.log file follows:

```
8/05 17:57:57 (lmgrd) FLEXlm - Copyright 1988, 1992, Highland
Software, Inc.
8/05 17:57:57 (lmgrd) FLEXlm (v2.40) started on mycomputer
(Sun) (8/5/93)
8/05 17:57:57 (lmgrd) License file: "/usr/myaccount/tcad/
license/license.dat"
8/05 17:57:57 (lmgrd) Started tmald
8/05 17:57:57 (tmald) Server started on mycomputer for:    MD
8/05 17:57:57 (tmald)  MDCA                               S4
8/05 17:59:11 (tmald) OUT: MD v1.100 by usera@computera(/
dev/ttyp6)
8/05 18:05:22 (tmald) IN: MD v1.100 by usera@computera(/dev/
ttyp6) (used: 0:00:06:11)
```

The status of the TCAD license daemon can also be checked by running the lmstat utility. The format of lmstat is

```
<TCAD directory>/license/lmstat -c <TCAD directory>/
license/license.dat
[-a] [-S <daemon>] [-f <feature>] [-s <server>] [-t <value>]
[-A] [-l
<regular expression>]
```

where

Value	Description
-a	Displays everything.
-S <daemon>	Lists all users of <daemon> feature.
-f <feature>	Lists all users of <feature>.
-s <server>	Displays the status of <server> node.
-t <value>	Sets lmstat timeout to <value>.
-A	Lists all active licenses.
-l <regular expression>	Lists all users of license matching <regular expression>.

For example, if your TCAD directory is /usr/tcad and you enter

```
/usr/tcad/license/lmstat -c /usr/tcad/license/license.dat -a
```

you get a message similar to the following one:

```
lmstat - Copyright (C) 1989, 1992 Highland Software, Inc.  
Flexible License manager status on Wed 11/3/93 16:01
```

```
License server status:
```

```
    mycomputer: license server UP (MASTER)
```

```
Vendor daemon status (on mycomputer):
```

```
    tma1d (v3.x): U  
Feature usage info:
```

```
    Users of MD: (Total of 5 licenses available)
```

```
    Users of MDCA: (Total of 2 licenses available)
```

Users of S4: (Total of 5 licenses available)

---

## Rereading the License File

You can use the `lmreread` utility to reread the contents of the license file, so that any changes made in the file are put into effect. The format of `lmreread` is

```
<TCAD directory>/license/lmreread -c <TCAD directory>/  
license/license.dat
```

---

## Shutting Down the License Manager

You can use the `lmdown` utility to shut down the license daemon. The format of `lmdown` is

```
<TCAD directory>/license/lmdown -c <TCAD directory>/  
license/license.dat
```

---

## Removing a User's License

If your system crashes while a license is checked out, the license might remain checked out. You can use the `lmremove` utility to remove a single user's license for a specified feature and return the license to the pool of available licenses. The format of `lmremove` is

```
<TCAD directory>/license/lmremove -c <TCAD  
directory>license  
/license.dat <feature> <user> <host> [<display>]
```

---

## Adding New TCAD Products or Licenses

If you receive new TCAD products or new licenses, use the following procedure to install the new authorization codes:

1. Change to the license directory in the TCAD directory by entering

```
% cd <TCAD directory>/license
```

2. Make a copy of your existing license.dat file by entering

```
% cp license.dat license.dat.org
```

3. Using a text editor, edit the license.dat file. Add the new FEATURE lines provided by TCAD. Do not change the existing SERVER or DAEMON lines.

4. Make the TCAD license daemon reread the new license file by entering

```
% ./lmreread -c <TCAD directory>/license/license.dat
```

---

## Customizing the options File

The options file allows you to customize the use of the licenses and the behavior of some of the TCAD license software actions.

An options file consists of lines in the following format:

```
RESERVE <number of licenses> <feature> USER <userid>  
RESERVE <number of licenses> <feature> HOST <hostname>  
RESERVE <number of licenses> <feature> DISPLAY <display name>  
RESERVE <number of licenses> <feature> GROUP <group name>  
INCLUDE <feature> USER <userid>  
INCLUDE <feature> HOST <hostname>  
INCLUDE <feature> DISPLAY <display name>  
INCLUDE <feature> GROUP <group name>
```

```
EXCLUDE <feature> USER <userid>
EXCLUDE <feature> HOST <hostname>
EXCLUDE <feature> DISPLAY <display name>
EXCLUDE <feature> GROUP <group name>
GROUP <name> <list of userids>
TIMEOUT <feature> <timeout in seconds>
NOLOG IN
NOLOG OUT
NOLOG DENIED
NOLOG QUEUED
REPORTLOG <file>
```

RESERVE allows you to set aside a number of licenses of a given program for a specific user, a specific CPU, a specific display, or a specific group. A group is created by the GROUP line.

INCLUDE allows you to specify who is authorized to use a program. With INCLUDE you can allow a specific user, a specific CPU, a specific display, or a specific group to use a program. A group is created by the GROUP line.

EXCLUDE allows you to specify who is not authorized to use a program. With EXCLUDE you can deny access to a specific user, a specific CPU, a specific display, or a specific group. A group is created by the GROUP line.

GROUP defines a grouping of users for use with the RESERVE, INCLUDE, or EXCLUDE control lines. Following the GROUP keyword is a name that represents the group and a list of user IDs separated by spaces.

TIMEOUT makes idle licenses return to the free pool so they can be used by someone else.

NOLOG lets you turn off the message reporting for IN, OUT, DENIED, or QUEUED messages. This option is useful for reducing the license log file size.

REPORTLOG allows you to specify a file for reporting activity. If the file name starts with a plus sign (+) character, the old report log file is opened for appending.

**Note:**

This file is useful only with third-party tools such as the Globetrotter SamSuite/FLEXadmin license administration utility. Synopsys does not support problems with the REPORTLOG utility. For more information about REPORTLOG, go to <http://www.macrovision.com/solutions/esd/support/samfaq.htm#Q2>.

The following is an example of an option file:

```
GROUP tcad art joe bill
RESERVE 5 MD GROUP tcad
EXCLUDE MD USER sales
NOLOG IN
NOLOG OUT
```

The GROUP line defines a group named tcad that contains the user IDs art, joe, and bill. The RESERVE line reserves 5 Medici licenses for the group tcad. The EXCLUDE line does not allow the sales user ID access to Medici. The NOLOG IN line turns off the message reporting of licenses being checked back in. The NOLOG OUT line turns off the message reporting of licenses being checked out.

To use an option file, add the full path to the option file on the DAEMON line of the license.dat file. For example, if your option file is the /usr/tcad/license/option.dat file, your DAEMON line looks similar to the following one:

## Running TCAD Products

[Table 29-4](#) lists the general format for most TCAD products. (For product availability for this release, see [“Media Availability and Supported Platforms” on page 29-2.](#)) If you install multiple versions of a product, the executable name is whatever you chose during installation. For most products, if you run them without specifying an input file, you are in interactive mode.

*Table 29-4 Formats for TCAD Products*

Product	Format	Description
Aurora	aurora <input filename>	Runs Aurora with an input file.
Aurora	auroragui	Runs the Aurora GUI.
Davinci	davinci <input filename>	Runs Davinci (30,000 nodes) with an input file.
Davinci	dv30k <input filename>	Runs Davinci (30,000 nodes) with an input file.
Davinci	dv60k <input filename>	Runs Davinci (60,000 nodes) with an input file.
Davinci	dv100k <input filename>	Runs Davinci (100,000 nodes) with an input file.
Medici	medici <input filename>	Runs Medici (10,000 nodes) with an input file.
Medici	md3200 <input filename>	Runs Medici (3,200 nodes) with an input file.
Medici	md10000 <input filename>	Runs Medici (10,000 nodes) with an input file.

*Table 29-4 Formats for TCAD Products (Continued)*

<b>Product</b>	<b>Format</b>	<b>Description</b>
Medici	md20000 <input filename>	Runs Medici (20,000 nodes) with an input file.
Medici	md60000 <input filename>	Runs Medici (60,000 nodes) with an input file.
Raphael	raphael <Raphael program> <input filename>	Runs Raphael with an input file.
Raphael	dplot <input filename>	Runs Dplot with an input file.
Taurus Layout	layout <input filename>	Runs Taurus Layout with an input file.
Taurus Visual	tv	Runs Taurus Visual.
Taurus WorkBench	twb <input filename>	Runs Taurus WorkBench with an input file.
TSUPREM-4	tsuprem4 <input filename>	Runs TSUPREM-4 with an input file.

---

## **Using Graphics Devices**

This section discusses how graphics devices are described to TCAD products and how they are specified with parameters of program statements.

### **Graphics Device Hierarchy**

With TSUPREM-4, the graphics device used is determined as follows:

- If a graphics device is specified in the input file with the DEVICE parameter on the OPTION statement, TSUPREM-4 uses that device.

- Otherwise, if the DEFPDEV environment variable is defined, TSUPREM-4 uses its value as the graphics device.
- Otherwise, if the TERM environment variable is defined, TSUPREM-4 uses its value as the graphics device.
- Otherwise, TSUPREM-4 uses the default device specified in the s4pcap file, which is initially set to ps for Postscript. The s4pcap file contains a description of each device known to the program. You can modify the file to make the default device refer to any available real plotting device. The default device specified in the s4pcap file is used if neither DEFPDEV nor TERM is defined.

With the other simulators, the graphics device used is determined as follows:

- If a graphics device is specified in the input file with the DEVICE parameter on the PLOT statement, that device is used.
- Otherwise, if the DEFPDEV environment variable is defined, its value is used as the graphics device.
- Otherwise, the default graphics device is used. The default graphics device is defined by the first line in the <pr>pdev file that contains an asterisk (\*) as the first nonblank character. The <pr>pdev file is located in your TCAD directory in <program>\_<version>/library.

## Specifying a Graphics Device

With TSUPREM-4, you can specify the graphics device in the input file with the DEVICE parameter on the OPTION statement. For example, the following statement sets the graphics device to X:

```
OPTION DEVICE=X
```

If you do not specify a graphics device in the input file, the DEFPDEV environment variable is used if it is set. You can set DEFPDEV to specify the graphics device by entering the following command:

```
% setenv DEFPDEV <graphics device>
```

If you are using the Bourne or Korn shell, you can specify a graphics device using DEFPDEV by entering the following commands:

```
$ DEFPDEV=<graphics device>  
export DEFPDEV
```

If you are using the C shell, you can set DEFPDEV so that the X graphics device is used by entering the following command:

```
% setenv DEFPDEV x
```

**Note:**

The graphics device must be entered in lowercase letters.

By setting the value of the DEFPDEV environment variable, you can set the graphics device to any device you want to use without disrupting work in progress by other TCAD software users.

With TSUPREM-4, if neither OPTION nor DEFPDEV is specified, TSUPREM-4 checks the TERM environment variable. TSUPREM-4 looks for the graphics device specified by TERM in the s4pcap file. If the graphics device is not found, and neither the OPTION statement nor DEFPDEV is specified, TSUPREM-4 prints the following messages:

```
** Plot device vt100 not found in s4pcap file.
```

```
** Plotting to default device in s4pcap file.
```

where

`vt100` is the name of the device to which TERM is set.

With TSUPREM-4, if OPTION is not used and neither DEFPDEV nor TERM is set, TSUPREM-4 uses the default graphics device set in the `s4pcap` file. By default, the graphics device is set to `ps` in the `s4pcap` file.

With most other simulators, you can specify the graphics device in the input file with the DEVICE parameter on the PLOT statement. For example, the following statement sets the graphics device to X:

```
PLOT.2D TITLE="EXAMPLE" DEVICE=X
```

With the other TCAD simulators, if the PLOT statement does not specify a graphics device and DEFPDEV is not set, the simulator uses the default graphics device. The default graphics device is defined by the first line in the `<pr>pdev` file that contains an asterisk (\*) as the first nonblank character. (The `<pr>pdev` file is located in your TCAD directory in `<program>_<version>/library`.)

For example, if you want to change the default graphics device from Sun to X, edit the `<pr>pdev` file and move the asterisk (\*) from the Sun entry to the X entry.

Before modification:

```
*SUN      29  20.32  15.24  33.0  33.0  -1  F  F  FTFF 9999
I/SUN    29  20.32  15.24  33.0  33.0  -1  F  F  FTFT 9999
X        30  20.32  15.24  500.0  500.0  -1  F  F  FTFF 9999
```

After modification:

SUN	29	20.32	15.24	33.0	33.0	-1	F	F	FTFF	9999
I/SUN	29	20.32	15.24	33.0	33.0	-1	F	F	FTFT	9999
*X	30	20.32	15.24	500.0	500.0	-1	F	F	FTFF	9999

For further information on the <pr>pdev file and possible graphics devices, see the manual for the TCAD product you are installing.

## Sun, X, and tmaplot

Both Sun and X drivers use the tmaplot graphics utility to generate graphics by piping graphics output through the tmaplotx executable program. The tmaplot utility automatically remembers up to 200 plots and allows you to scroll through them.

Use the following means to control the display:

- Right mouse button:scroll backward
- Left mouse button:scroll forward
- Control-C:Kill tmaplot display

To use X graphics, you must set the DISPLAY environment variable to your display machine. Usually, DISPLAY is set to the name of your computer followed by :0.0. For example, if the name of your machine is *mymachine*, enter the following command to set DISPLAY:

```
% setenv DISPLAY mymachine:0.0
```

Note:

To Sun users—You must also set the LD\_LIBRARY\_PATH environment variable to your OpenWindows library directory. For example,

```
% setenv LD_LIBRARY_PATH /usr/openwin/lib
```

---

## Using the TCAD Network License System and Software

The TCAD authorization system is a networkwide license system that uses the popular Globetrotter Software package, FLEXlm. This program offers choices of licensing options.

- If you have a floating-type license, you can run the program on any CPU on a computer network.
- If you prefer the CPU-based system of the old authorization system, use a node-locked license.

Instead of each program having its own separate authorization file, the new system uses a single license file for all programs.

With the TCAD Network License System, a server on your network runs the TCAD license daemon, unless you have an unlimited node-locked license. When you run a TCAD program, it requests a license from the TCAD license daemon. If a license is available, the program runs as normal. If no licenses are available, you are given the option of waiting for the next available license, listing the current users of the program, or exiting the program.

No daemon is required for an unlimited node-locked license. When you run a TCAD program, it checks the license file. If the CPU you are running on is authorized, the program runs as normal. If the CPU is not authorized, the program exits with an authorization failure.

---

### Handling an Authorization Failure

For TCAD Network License Software authorized products, an authorization failure can occur if the TCAD Network License Software is installed incorrectly. An authorization failure produces a message similar to this one:

```
Error during attempt to get PR Version #.# license.  
Error was: no such feature exists
```

If you have problems, see [“Authorization Troubleshooting” on page 29-31](#). If your license has expired or you require additional licenses, contact TCAD for assistance.

You must give the correct machine ID to TCAD so TCAD can give you the proper codes. For node-locked licenses, TCAD requires this ID number for each CPU on which the TCAD product is to be executed. For floating licenses, TCAD requires this ID number for each CPU that acts as a license server. If TCAD Network Licensing Software is installed, you can run the `Imhostid` command to get the CPU’s ID.

The command you use to get your machine ID and the returned value is platform dependent. Use [Table 29-5](#) to determine the appropriate command for your platform.

*Table 29-5 Platforms and Commands*

Platform	Command	Returned value
DEC Alpha	<code>/usr/ucb/pfstat</code> or <code>/usr/sbin/arp&lt;hostname&gt;</code>	The Ethernet address
HP-UX	<code>echo 'uname -i' 16o p   dc</code>	The 8-digit hex ID
IBM RS/6000 <sup>1</sup>	<code>uname -m</code>	The 12-digit hex ID
Linux	<code>/sbin/ifconfig eth0</code>	The 12-digit hex ID
Sun Solaris	<code>hostid</code>	The 8-digit hex ID

*1. Products that support the RS/6000 platform will be available by EST at a later date. For more information, contact your local applications consultant.*

If you have problems with these commands, you can download the Imutil executable file for your platform from <http://www.globetrotter.com/flexlm/lmgrd.shtml> and run the Imutil Imhostid command.

**Note:**

To DEC Alpha users—The /usr/sbin/arp command should be run on another machine. For example, if the names of your machines are mach1 and mach2 and you want to install the TCAD product on mach1, run the /usr/sbin/arp mach1 command on the mach2 machine. If you have problems determining the Ethernet address of your DEC Alpha machine, ask your system administrator for assistance.

---

## Troubleshooting

This section describes some of the common error messages and what to do if you receive them.

---

### Authorization Troubleshooting

**Error Message:**

```
Error during attempt to get XX Version Y.Y license
Error was: no such feature exists
```

**Explanation:**

Either the license file does not have the authorization codes for the program, or the program is looking at the wrong license file.

- Check to be sure the license.dat file in the <TCAD directory>/license directory contains authorization codes for the program.

- If you just added the authorization codes for the program and your license is not an unlimited node-locked license, make sure the daemon rereads the license file by running the `lmreread` command. For details on using `lmreread`, see [Table 29-2 on page 29-5](#).
- Check to determine whether the `LM_LICENSE_FILE` environment variable is set by entering the following command:

```
% env
```

This command prints a list of the environment variables you set. If you have the `LM_LICENSE_FILE` environment variable set, the program might be looking at the license files specified by `LM_LICENSE_FILE` rather than the license file specified by `TCADLIC`.

If you have `LM_LICENSE_FILE` set and you are using the C shell, you can add the TCAD license file to the environment variable by entering the following command:

```
setenv LM_LICENSE_FILE ${LM_LICENSE_FILE}:\
<TCAD directory>/license/license.dat
```

Add this command to your `.cshrc` or `.login` file so that the environment variable is set correctly every time you log on.

If you are using the Bourne or Korn shell, you can add the TCAD license file to the environment variable by entering the following commands:

```
LM_LICENSE_FILE=$LM_LICENSE_FILE:<TCAD directory>/ \
license/license.dat
export LM_LICENSE_FILE
```

Add this command to your .profile file so that the environment variable is set correctly every time you log on.

#### Error Message:

```
Error during attempt to get XX Version Y.Y license  
Error was: cannot find license file
```

#### Explanation:

The license file cannot be found.

- Check to be sure the license.dat file exists in the <TCAD directory>/license directory.
- Check to be sure the LM\_LICENSE\_FILE environment variable is set. Refer to the previous error message for details on checking and setting the environment variable.

#### Error Message:

```
Error during attempt to get XX Version Y.Y license  
Error was: cannot read license file
```

#### Explanation:

The license file cannot be read.

- Check to be sure the users have read permission on the license.dat file.
- Check to be sure the license.dat file that exists in the <TCAD directory>/license directory is valid.

#### Error Message:

```
Error during attempt to get XX Version Y.Y license
```

Error was: wrong host for program XX

#### Explanation:

Either the license file contains node-locked licenses and the CPU is not authorized or the program is fetching the CPU ID incorrectly.

- Check to be sure the CPU you are running the program on is authorized to run it.
- If you are on an HP machine, check the file permissions on the /dev/lan0 file. If the file permissions on this file are not set to read/write by owner, group, and world, the CPU ID could be obtained incorrectly.

#### Error Message:

```
Error during attempt to get XX Version Y.Y license  
Error was: Checkout of program XX failed  
feature has expired
```

#### Explanation:

Either the license for the program has expired or the date is set incorrectly.

- Check the date on the system.

#### Error Message:

```
Error during attempt to get XX Version Y.Y license  
Error was: Checkout of program XX failed  
cannot connect to license server
```

Explanation:

The license daemon is no longer running on the server.

- Log on to the server and restart the TCAD license daemon.

Error Message (in license log file):

```
3/18 15:46:17 (lmgrd) FLEXlm - Copyright 1988, 1992, Highland  
Software, Inc.  
3/18 15:46:17 (lmgrd) Retrying socket bind (address in use;  
port 7606)
```

Explanation:

The TCP port specified in the license.dat file is in use.

- Change the TCP port number in the license.dat file to an available port.

---

## General Troubleshooting

Error Message:

```
Xlib: connection to "machine:0.0" refused by server  
Xlib: Client is not authorized to connect to Server  
Bad return from XOpenDisplay
```

Explanation:

The program does not have permission to open a window on the display.

- Check to be sure the DISPLAY environment variable is set correctly.

- If the DISPLAY environment variable is set correctly on the console of the display, enter the following command:

```
% xhost +
```

#### Error Message:

```
tmafork: command not found
```

#### Explanation:

The tmafork TCAD utility cannot be found.

- Check to be sure the TCAD bin directory is in the search path.
- Check to be sure the TCAD utilities are installed correctly and that tmafork is linked to the TCAD bin directory.

#### Error Message:

```
*** Open Pipe = signal 13 code 0
```

#### Explanation:

The TCADPLOT process is terminating abnormally, leaving the TCAD program piping data to a broken pipe.

- Check to be sure TCADPLOT works correctly outside the TCAD program by entering the following command:

```
% tmaplot x test
```

- If TCADPLOT works correctly outside the TCAD program, the error is most likely caused by insufficient system resources to start the TCADPLOT process. Check your system resources when running the TCAD program to be sure there are enough resources to run the TCADPLOT process.

#### Error Message:

```
window: Base frame not passed parent window in environment  
Cannot create base frame. Process aborted.
```

#### Explanation:

You are attempting to run a SunView application when you are not running in the SunView window environment. This error can occur during STUDIO if your path is not set correctly.

- If you are running OpenWindows, be sure the OpenWindows bin directory precedes the /bin and /usr/bin directories.

---

## TCAD Utilities

The TCAD utilities are a set of programs designed to help you use TCAD products more effectively. TCAD utilities are installed automatically as part of a TCAD product installation.

---

### TCAD utility Directory

The utility directory for all new releases of TCAD products (after June 1991) is product independent. The utility directory contains a file named V#.# (where # is a number). V#.# is the version number of the utility in that directory.

[Table 29-6](#) lists the utilities that TCAD provides.

*Table 29-6 TCAD Utilities*

Utility	Description
tmaplot	Generates Sun (SunView) and X graphics. For products released after June 1991, you must use tmaplot if you use Sun or X graphics.
tmafork	Allows systems that do not have a vfork system call to run a TCAD product without temporarily doubling the virtual memory required.
replot	Allows you to re-create TCAD graphical output without rerunning a simulation.
rbtoa	Takes a TCAD binary output file, such as a structure file, and converts it to ASCII format.
tfatob	Takes a TCAD formatted (ASCII) file and converts it to binary format.

The tfatoa and tfbtob utilities are useful if you have TCAD products on multiple machine types. A binary file can be transferred between machines by converting it to ASCII on one machine and then transferring it to the second machine. Then it can be converted back to binary on the second machine.

Following is the directory structure of the utility directory, as it exists in a standard installed TCAD directory tree. The directories are shown with a trailing slash.

```
<TCAD directory>/bin/<TCAD product>/utility/  
V#.#  
install_utility  
    replot/  
        replot  
        replotx  
        rppdev  
        rperr0  
        tfatob/  
        tfatob  
        tfatovx  
        tfbtoa  
        tfbtoax  
        tferr0  
        tmafork/  
        tmafork  
        tmaplot/  
        tmaplot  
        tmaplotx  
        tfbtoa  
        tfbtoax  
        tferr0
```

**Note:**

The TCAD utilities do not require licenses. You can use them on any machine under the direct control of your organization. However, you are not allowed to copy or distribute the TCAD utilities elsewhere.

---

## Executing the TCAD Utilities

To execute the TCAD utilities, you must include the tcad/bin directory in your search paths, as described in [“Setting Up Your Search Path” on page 29-8](#).

If you install updates to the TCAD utilities in the future, the installation script creates links from the new version of the TCAD utilities to the tcad/bin directory. Therefore once the search path has been modified to include tcad/bin, it is already set up for updates.

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