

Leda

Installation Guide

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Comments?
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leda-support@synopsys.com.

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Preface

About This Manual

This guide explains how to install, configure, and test the Leda Specifier and Checker tools.

Related Documents

This manual is part of the Leda documentation set. To see a complete listing, refer to the [Leda Document Navigator](#).

Manual Overview

This manual contains the following chapters:

Preface	Describes the manual and lists the typographical conventions and symbols used. Explains how to get technical assistance.
Chapter 1 “ Installing Leda ”	Detailed instructions for downloading, installing, configuring, and testing the Leda Specifier and Checker tools.

Typographical and Symbol Conventions

The following conventions are used throughout this document:

Table 1: Documentation Conventions

Convention	Description and Example
%	Represents the UNIX prompt.
Bold	User input (text entered by the user). % cd \$LMC_HOME/hd1
Monospace	System-generated text (prompts, messages, files, reports). No Mismatches: 66 Vectors processed: 66 Possible"
<i>Italic or Italic</i>	Variables for which you supply a specific value. As a command line example: % setenv LMC_HOME <i>prod_dir</i> In body text: In the previous example, <i>prod_dir</i> is the directory where your product must be installed.
(Vertical rule)	Choice among alternatives, as in the following syntax example: -effort_level low medium high
[] (Square brackets)	Enclose optional parameters: <i>pin1</i> [<i>pin2</i> ... <i>pinN</i>] In this example, you must enter at least one pin name (<i>pin1</i>), but others are optional ([<i>pin2</i> ... <i>pinN</i>]).
TopMenu > SubMenu	Pulldown menu paths, such as: File > Save As ...

Getting Leda Help

For help with Leda, send a detailed explanation of the problem, including contact information, to leda-support@synopsys.com.

The Synopsys Web Site

General information about Synopsys and its products is available at this URL:

<http://www.synopsys.com>

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Installing Leda

Introduction

This chapter explains how to install, configure, and test the Leda Specifier and Checker tools. The information is presented in the following sections:

- [“Pre-Installation Requirements and Setup” on page 7](#)
- [“Global and Local Installation” on page 8](#)
- [“Hardware/OS Requirements” on page 8](#)
- [“Loading Leda” on page 9](#)
- [“Global Installation \(Required\)” on page 10](#)
- [“Configuring the Checker” on page 12](#)
- [“Running the Post-Installation Test” on page 15](#)

Pre-Installation Requirements and Setup

Before installing the Leda software, you need to obtain a license from Synopsys. Contact your sales rep if you need assistance.

The root directory where Leda is installed is referred to by the environment variable `LEDA_PATH`. Set this variable before installing the software, as shown in the following example:

```
% setenv LEDA_PATH installation_dir
```

Global and Local Installation

When you install Leda, the Specifier and Checker tools are installed in the target directory. The licenses you purchased from Synopsys determine which tools you can use. The Specifier tool is licensed separately and includes the Checker. The Checker tool is also licensed separately as a standalone product. The Checker GUI looks just like the Specifier GUI. The only difference is the absence of a Policy Manager in the Leda Rule Wizard. This means that you cannot write and compile your own rules if you only have a Checker license.

There are two ways to install the Leda software. Global installation is required and is the only way to install Leda if you only have a Checker license. If you have a Specifier license, you also install the Leda software globally, and then have the option to install locally if you want to add or modify rules for your own use without affecting other users at your site who are referencing the global installation.

- **Global Installation**—You or a system administrator installs the software in a location that cannot be overwritten by other users. See [“Global Installation \(Required\)” on page 10](#).
- **Local Installation**—Here, the executables are referenced from the global installation, but you can add or modify rules at a local level. Therefore, you must complete the global installation first, before installing locally. See [“Configuring the Checker” on page 12](#).

Hardware/OS Requirements

To install and use Leda, you must be running one of the following operating systems:

Table 2: Supported Operating Systems

Supported Operating Systems	Compiler Version
Solaris Sparc - 32 bit (sparcOS5) and 64 bit (sparc64)	Sun Studio 12
Linux RedHat Enterprise v4,v5 32-bit	GNU 4.2.2
Linux RHEL Opteron AMD v4,v5 64-bit	GNU 4.2.2
SUSE 32-bit running on Intel Xeon - EM64T processor	GNU 4.2.2
SUSE 64-bit running on Intel Xeon - EM64T processor	GNU 4.2.2

Table 2: Supported Operating Systems

Supported Operating Systems	Compiler Version
IBM - AIX 5.3 (RS600) - 32-bit	XL C/C++ Enterprise Edition V9

**Note**

SparcOS and gccsparcos5 should be installed in two different locations.

Your system should have at least the following:

- 30 MB of RAM
- 300 MB of free disk space
- 50 MB of swap space

The size of the design that the Leda tools are checking determines the amount of additional main memory and disk space needed.

Loading Leda

Leda is available via FTP and CD-ROM. In both cases, the Leda software is delivered in the form of a compressed tar file:

UNIX (Solaris/AIX):

```
leda_version_common.tar.Z
```

and for each platcorn:

```
leda_version_platform.tar.Z
```

where, *version* is a 6-digit number (concatenation of year and month, for example: 200612) for the tool version and *architecture* is *sparcOS5/ linux/ amd64/ rs6000/ suse32/suse64*.

Once you have located the correct tar.Z file for your platform, copy that file to the installation directory (\$LEDA_PATH).

**Attention**

Make sure that you install the Leda software in a clean directory that does not contain previous versions of the Leda software.

Global Installation (Required)

Before installing the software, set the `LEDA_PATH` environment variable to point to the root directory of the installation. You must have write permissions for the `$LEDA_PATH` directory. The Leda installation replaces all existing files in the target directory, so be sure to make copies of any customized data in the install tree before installing new versions of the software. Global installation involves the following tasks:

- “Extracting Files” on page 10
- “Installing and Updating the Licenses” on page 11
- “License File Variable Settings” on page 12
- “Configuring the Checker” on page 12

Extracting Files

To extract the Leda files:

1. Uncompress the file:

```
% uncompress leda_version_common.tar.Z
% uncompress leda_version_platform.tar.Z
```

2. Untar the file using the below command:

```
% gtar xvf leda_version_common.tar
% gtar xvf leda_version_platform.tar
```

UNIX Installation

After extraction, the global installation is complete and the following directories are present in `$LEDA_PATH`:

- `auxx/`—contains Tcl libraries.
- `bin/`—contains a leda wrapper script that identifies what supported platform you are running on, and invokes the corresponding Leda executable software. The functions that you can access from the leda executable are determined by the licenses you purchased from Synopsys:
 - `m leda`—Mixed-language VHDL and Verilog Specifier and Checker tool.
- `configurations/`—contains the built-in rule configurations.
- `doc/`—contains Leda documentation that you can access directly from the Help pulldown menus in the Specifier and Checker tools. For an overview of the Leda documentation, read the *Leda Document Navigator* first.

- **icons/**—contains predefined icons that are used in the GUI display. If you want to use your own additional icons, put them in this directory too.
- **rules/**—contains rule source files for the prepackaged policies.
- **test/**—contains small projects used for testing the installation.
- **<platform>**—contains utilities, flexlm, rule database and bin subdirectories for each platform. The bin directory contains platform-specific binaries for the Leda tools. The utilities and flexlm directories contain platform-specific utilities and licensing resources. The rule database is in `.leda_config.files`.
- **.leda_config/**—contains the compiled database files for the prepackaged rules.
- **encoding/**—contains resource files for encoding Leda's error messages in languages other than English.

Installing and Updating the Licenses

Leda is compatible with the Synopsys Common Licensing (SCL) program and uses the `snpslmd` daemon delivered with the SCL software. Before running the Leda software, you must install or update the license data file (`license.dat`) with the Leda licenses you purchased from Synopsys. Follow these steps:

1. If you maintain your Synopsys licenses on a common license server, you can update your `license.dat` file there to include your new Leda licenses and point your `LM_LICENSE_FILE` or `SNPSLMD_LICENSE_FILE` environment variable to the license server, as follows:

```
% setenv LM_LICENSE_FILE port@host
```

or

```
% setenv SNPSLMD_LICENSE_FILE port@host
```

where:

port is an available port on the license server, and

host is the host name

For example:

```
% setenv SNPSLMD_LICENSE_FILE 5300@cougar
```

License File Variable Settings

Synopsys tools ignore the license file environment variable `LM_LICENSE_FILE` if `SNPSLMD_LICENSE_FILE` is set. The logic is as follows:

```
If SNPSLMD_LICENSE_FILE is set, then
    LM_LICENSE_FILE is ignored,
else
    LM_LICENSE_FILE value is used
```

Configuring the Checker

The following environment variables are read by Leda:

LEDA_CONFIG

Set this environment variable to the configuration file that you want to use. Leda saves any subsequent changes that you make to the prepackaged rules in this same directory. Set this variable in the shell as follows:

```
% setenv LEDA_CONFIG configutaion_file.tcl
```

or, in the `leda.ini` initialization file:

```
set LEDA_CONFIG configuration_file.tcl
```

If `LEDA_CONFIG` is defined before you invoke the Checker, the tool loads that configuration for prepackaged rules. Otherwise, the Checker uses the default configuration located in `$LEDA_PATH/.leda_config`.



Caution

If you set `LEDA_CONFIG` to an empty directory before you invoke the tool, the Checker issues a warning message because it cannot find any policy configuration information. To solve this problem, exit the tool, unset the `LEDA_CONFIG` environment variable, and re-invoke the tool.

LEDA_RESOURCES (VHDL only)

The VHDL environment includes a directory called `$LEDA_PATH/resources` which contains standard VHDL resource libraries STD and IEEE (for VHDL 87 and VHDL 93), as well as the Synopsys resource library.

If you want to extend the IEEE library to include other vendor-specific packages or want to add other resource libraries to the global installation, you can edit or add resource libraries by following the steps described in the *Leda User Guide*. This affects all users of the software at your site.

If you want to create local resource libraries for your own use, set the LEDA_RESOURCES environment variable to point to your local resource directory as follows:

```
% setenv LEDA_RESOURCES local_resource_directory
```

or, in the `leda.ini` initialization file:

```
set LEDA_RESOURCES local_resource_directory
```

If this variable is not defined, Leda uses the environment specified by `$LEDA_PATH/resources`.

LEDA_HTML_DOC_PATH and LEDA_HTML_USR_PATH

When writing your own rules, you can add links to HTML-based help documents that you create so that other designers can access information explaining, for example, the rationale behind a certain rule. You can specify two different HTML documents for each rule you create, one for the original description of the rule and the other for revisions or application notes.

To indicate the location of these HTML documents, set the LEDA_HTML_DOC_PATH and LEDA_HTML_USR_PATH environment variables. The former points to the location of the original documentation and the latter points to the revision notes. Set these environment variables in the shell as follows:

```
% setenv LEDA_HTML_DOC_PATH "file:/standard_html_documentation_directory"  
% setenv LEDA_HTML_USR_PATH "file:/user_html_documentation_directory"
```

or, in the `leda.ini` initialization file:

```
set LEDA_HTML_DOC_PATH html_documentation_directory_1  
set LEDA_HTML_USR_PATH html_documentation_directory_2
```

If the LEDA_HTML_DOC_PATH and LEDA_HTML_USR_PATH variables are not defined, the directory used is `$LEDA_PATH/doc/html`.

HTML_NAVIGATOR

The Checker tool comes with HTML-based help files for the prepackaged rules that you can access from the Error Viewer in the Checker's main window. To indicate the location of the browser to be used to read the HTML documents, set the HTML_NAVIGATOR environment variable with the full path to your browser as follows:

```
% setenv HTML_NAVIGATOR full_path_to_browser
```

or, in the leda.ini initialization file:

```
set HTML_NAVIGATOR full_path_to_browser
```

Example:

```
setenv HTML_NAVIGATOR /usr/local/bin/netscape
```

LEDA_READER

To access the PDF-based online documentation available from the Help pulldown menus in the Specifier and Checker tools, set the LEDA_READER environment variable to point to the location of your PDF file reader. In most cases, the PDF file reader will be the Adobe Acrobat Reader tool, typically named acroread. Set this variable in the shell as follows:

```
% setenv LEDA_READER full_path_to_pdf_reader
```

or, in the leda.ini initialization file:

```
set LEDA_READER full_path_to_pdf_reader
```

Example:

```
% setenv LEDA_READER /usr/local/bin/acroread
```

Running the Post-Installation Test

After you install and configure the software, you can run the demo design to test the installation. If the `test/` directory was installed locally and `LEDA_CONFIG` is defined, this is the example tested. Otherwise, the example in `$LEDA_PATH/test/mixed` (for mixed-language) is used. Whatever example you are using, you must have write permission to the directories in the environment.

To run the post-installation test, follow these steps:

1. Invoke the Checker as follows:

```
% $LEDA_PATH/bin/leda &
```

This opens the Checker main window and a smaller Leda Project window that you can use to open an existing project or start a new one. Click on the Demo button to open the demo project. Then, click OK.

2. Leda runs the Checker automatically and displays results from the `demo.pro` project in the Error Viewer on the right side of the Checker's main window (see [Figure 1](#)). If the Checker runs without errors, your Leda installation is working.

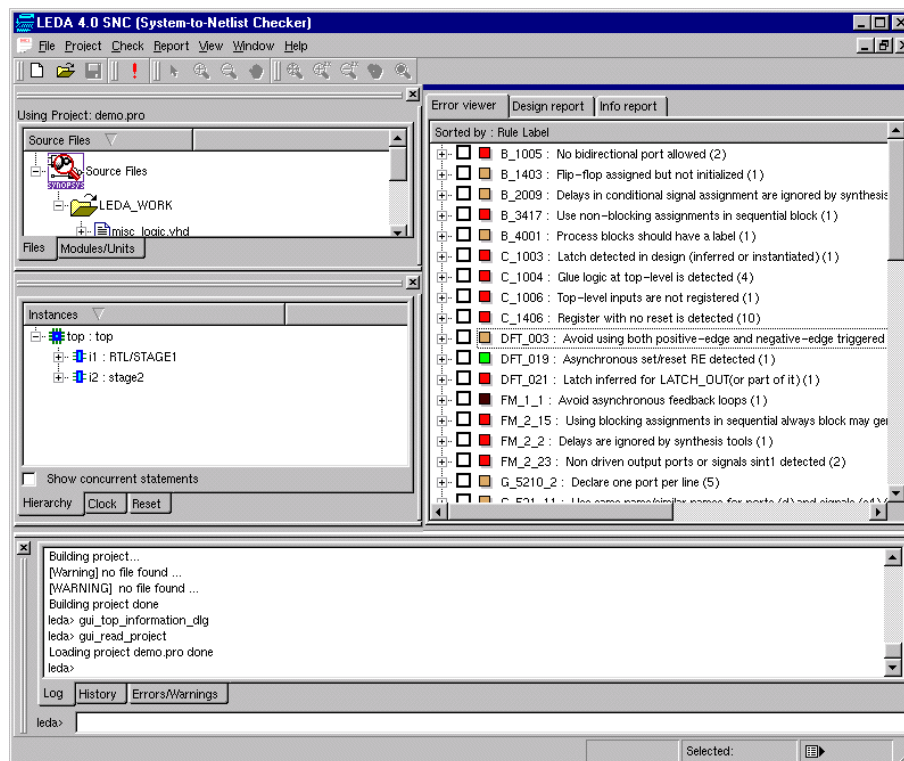


Figure 1: Checker Window after Demo Test

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