



Agilent Technologies

**Advanced Design System 2002
Design Kit Installation and Setup**

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Chapter 1: Introduction

Advanced Design System (ADS) from Agilent Technologies is a tool used by engineers for a variety of design applications, such as RFIC, System, MMIC, Hybrid or Board level design. In order to effectively use the design environment and to take advantage of its powerful simulation capabilities, designers must have a library of components that are linked to model files or simulation data.

For RFIC designers, the components and models are typically distributed by a foundry in the form of a *design kit*. A unique design kit is created for each process and each CAD tool. This kit is given to the foundry customer to use when designing their circuit.

To help RFIC designers become more successful with our electronic design automation (EDA) software, Agilent Technologies has been working with popular foundries to provide ADS components and translated model files for distribution by the foundry to the IC designer. Many customers are also creating design kits themselves.

Design kits in ADS are not only beneficial to RFIC designers. This library structure can be used for any technology or process to package and distribute a reusable set of components. With the information provided in this document, you can now easily install and manage all of your ADS Design Kits.

The intent of this manual is to provide instructions for unzipping, installing and setting up ADS Design Kits that will be used in your designs.

The ADS Design Kit Infrastructure has been developed and tested to provide you with a standard method for building, testing, installing and using ADS Design Kits within Advanced Design System. If you are interested in developing your own ADS Design Kit, refer to the ADS “*Design Kit Development*” documentation. You can also test your model file performance relative to other models using the ADS Design Kit Model Verification Toolkit. For more information on the verification toolkit, refer to the ADS “*Design Kit Model Verification*” documentation.

The content of this document addresses the installation and configuration of ADS Design Kits for *ADS Front End Design Flow*. For more information, refer to “[ADS Design Flows](#)” on page 1-2

ADS Design Flows

Advanced Design System is a flexible tool that can be used on its own or in conjunction with other CAE tools in a variety of *design flows*. An engineer using the *ADS Front End Design Flow* enters a design in the ADS schematic editor and uses the ADS simulator for analysis. The design is then re-entered in a separate layout tool. To validate the integrity of the layout, the ADS Netlist Exporter is used to create a netlist for layout vs. schematic comparison. For more information on Front End Design Flow, refer to the ADS “*Netlist Exporter*” documentation.

An engineer using the *RFIC Dynamic Link Flow* enters a design in Cadence Virtuoso Schematic Capture. The design is then dynamically linked via inter-process communication (IPC) for simulation in ADS. For more information on the RFIC Dynamic Link Flow, refer to “*Appendix A, ADS Design Kit Development for RFIC Dynamic Link*” in the ADS “*Design Kit Development*” documentation.

Minimum Requirements

The minimum requirement for using the design kit tools described in this document is Advanced Design System 2001 or later.

ADS Design Kit development has progressed to provide standards that enable ease of installation and use in Advanced Design System. If you have an old design kit that you would like to modify to function with the new ADS design kit tools, refer to the ADS “*Design Kit Development*” documentation. If you are not comfortable creating or modifying your own ADS Design Kits, contact Agilent EEsof EDA’s Solution Services department or consult your Agilent Technologies representative.

Previous Versions of Design Kit Tools

Prior to ADS 2001, the Solution Services organization at Agilent EEsof EDA supplied a preliminary version of design kit software. This preliminary version of software was intended for use with design kits that they had created. To enable this software, the user was required to modify some configuration variables. It is assumed that the majority of ADS design kit users do not have any previous versions of the ADS design kit tools. However, if you have two design kit menus in the ADS *Main* window, or only have an old design kit menu displayed, you will need to make some modifications to your existing configuration to use the new tools effectively. While you will not need to add anything to any of your local files, you will need to either delete or comment out any old design kit configuration information to avoid conflicts with the new software.

Caution All of the code shipped with Advanced Design System contains the files required for the new ADS design kit tools installed under \$HPEESOF_DIR. If your ADS installation still contains an older design kit configuration, there may be conflicts and your configuration information could be overwritten.

For more information on design kit configuration and menus, refer to [Appendix A, Setting Up Design Kit Software and Menus](#).

ADS Design Kit Tools Overview

Getting started is a simple four-step process, as shown in [Figure 1-1](#).

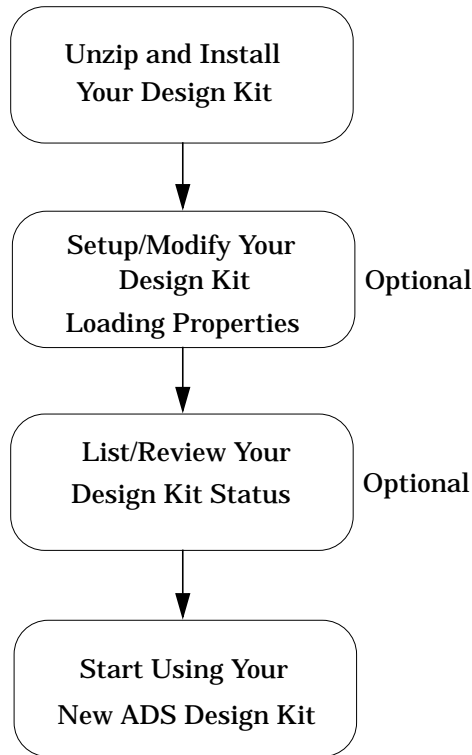


Figure 1-1. ADS Design Kit Process

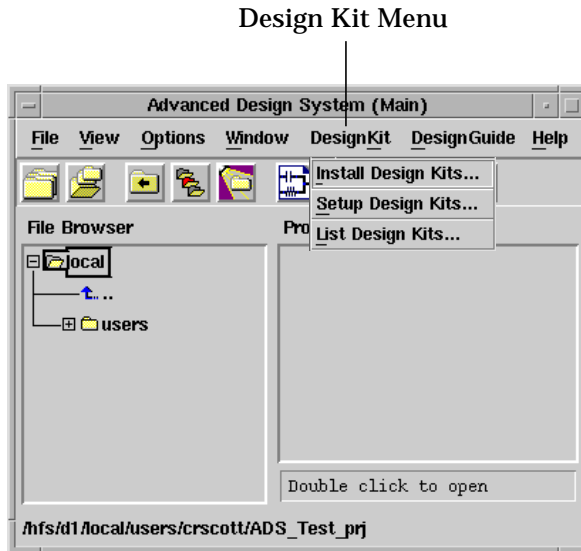
While two of the steps shown in [Figure 1-1](#) are listed as *Optional*, it is recommended that you familiarize yourself with all of the tool's capabilities to maximize your experience. For detailed information on using the ADS design kit tools, refer to [Chapter 2, Using the ADS Design Kit Tools](#).

Design Kit Customer Support

If you encounter problems installing or using a design kit that was obtained from a foundry or other distributor, you should first contact the design kit distributor. If the design kit developer determines that the problem is not with the design kit, they can forward the design kit to the Agilent EEsof EDA customer support department and work with Agilent Technologies to determine the problem. Please do not contact the Agilent EEsof EDA customer support department directly to report a problem with a design kit. This is because Agilent Technologies will not have access to the design kit unless it comes directly from the distributor.

Chapter 2: Using the ADS Design Kit Tools

This chapter describes how to use the various tools provided in the **DesignKit** pull-down menu. The ADS **DesignKit** menu appears in your ADS *Main* window when you launch Advanced Design System.



If you have a design kit menu item available, but it is different than the one shown above, refer to [“Previous Versions of Design Kit Tools” on page 1-2](#).

Where to Install a Design Kit

A design kit is a self contained library. It is a set of directories and files in a standard format. To support large companies with complex systems of CAD tools and design kits from many different vendors, as well as individual engineers on stand-alone systems, a design kit that is to be used in ADS can be installed anywhere on your system. It does not have to be connected to the ADS software installation. If your company does not already have a specified location to store design kits, it is recommended that a directory be created to hold all design kits in one location.

Understanding the 'ads.lib' File

Before using the design kit tools, you may find it helpful to understand the function of the *ads.lib* file. The *ads.lib* file is a design kit control file that tells Advanced Design System which design kits to install. A template of this file is included in the *design_kit* subdirectory of the design kit directory structure.

When a design kit is installed, a copy of the records line of the template file is made and stored outside of the design kit at a specific LEVEL. The location (LEVEL) of the file controls who has access to the design kit when ADS is started, as described below.

The format for the records line of the *ads.lib* template file is a single line with 4 fields, separated by vertical bars.

```
kitname | path to design kit | path to kit boot file | kit version
```

[Table 2-1](#) provides a description for each of the fields shown.

Table 2-1. The *ads.lib* Fields

kitname	The name of the design kit.
path to design kit	The installation path to the currently installed design kit.
path to boot file	This is an optional value. If specified, it is the absolute or relative path to the boot file.
kit version	This is a string used to identify the design kit version.

While it is not necessary for design kit use, you may find it helpful to understand certain characters used in the *ads.lib* file to specify comments and to disable a design kit.

- To insert a comment into the template *ads.lib* file, begin the line with a pound sign (#).
- To disable a design kit, begin the line with an exclamation point (!).

Ultimately, *ads.lib* files can exist in any of the locations listed in [Table 2-2](#). Note that each of these locations is referred to as a LEVEL in the ADS Design Kit user interface.

Table 2-2. The *ads.lib* File Locations

Level	Directory	Description
SITE LEVEL	\$HPEESOF_DIR/custom/design_kit	An <i>ads.lib</i> file in this location on a networked system lists all the design kits that are available for all users.
USER LEVEL	\$HOME/hpeesof/design_kit	An <i>ads.lib</i> file in this location lists design kits that only the user has access to.
STARTUP LEVEL	Startup directory	An <i>ads.lib</i> file in this location lists design kits that will only be available if ADS is started in this directory.
PROJECT LEVEL	Project directory	An <i>ads.lib</i> file in this location is read when the project is opened. Any design kits listed in it will be made available for designs in the project.

With this capability, a user in a networked environment can have access to a specific design kit without exposing all engineers to it or without requiring the assistance of an administrator with root permissions to install it. Another benefit is that a site librarian can manage a set of libraries that are accessible to all engineers without any effort from the engineers. These are some typical ways that a system is configured.

Another way to use this multi-layered functionality is for an end user to have a set of *ads.lib* files in different directories that refer to different processes. By starting ADS in the proper directory, the related design kits will be loaded for that session. An advanced CAD manager may even choose to set up a system of scripts that controls the *ads.lib* files for the end user to further tailor the environment on the fly for a specific manufacturing process.

Note To start ADS from a specific directory on unix, `cd` to that directory. On a PC, multiple shortcuts can be created and the shortcut property “**Start in**” can be set to different startup directories.

Even if a design kit is listed in the system *ads.lib* (SITE LEVEL) file for access by all engineers, the engineer can still disable that configuration by telling ADS to only load *ads.lib* files in the local area (USER LEVEL).

The priority at startup is PROJECT LEVEL, STARTUP LEVEL, USER LEVEL and finally SITE LEVEL. If a design kit is listed in more than one level, those specified in the USER LEVEL will have precedence over those under SITE LEVEL, and those specified at STARTUP LEVEL will take precedence over those in the USER LEVEL. Additionally, each project directory (PROJECT LEVEL) may have its own *ads.lib* file. This file will be read when a project is opened, and any design kits specified in that file will be loaded. If a design kit by the same name is already open, it will be overwritten with the new information. Closing a project to open a different project will not uninstall design kits opened in that project since design kits cannot currently be uninstalled without restarting ADS.

Even though all design kits are intended to be able to coexist in ADS, there may be cases where this is not possible. Some older design kits may not comply with the standard format. Additionally, ADS has a requirement that all components have unique names in ADS, so names cannot be reused between design kits. If these types of problems are encountered, they can usually be overcome by enabling and disabling design kits as needed through the user interface or by manually editing *ads.lib* files and the *design_kit.cfg* file. Additionally, some custom AEL in older, non-standard design kits may have problems co-existing with the current built-in design kit software.

Install ADS Design Kit

The *Install ADS Design Kit* dialog box enables you to unzip, define and install a new zipped ADS design kit.

To access the *Install ADS Design Kit* dialog box from the ADS Main window:

1. Choose **DesignKit > Install Design Kits**. The *Install ADS Design Kit* dialog box appears.



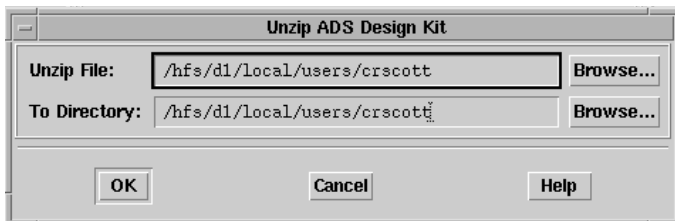
Note All paths displayed in the design kit user interface use the forward slashes (/).

Unzip ADS Design Kit

Step one of the *Install ADS Design Kit* dialog enables you to unzip a new design kit. If your new design kit is currently packaged in a .zip file, you will need to unzip the design kit in the appropriate location. If your design kit has already been unpackaged, skip to [“Define a Design Kit” on page 2-10](#). If your design kit has not been unpackaged and is not distributed as a .zip file, refer to the installation instructions provided with the kit.

To unzip your new design kit:

1. Click **Unzip Design Kit Now**. The *Unzip ADS Design Kit* dialog box appears.



2. To specify the path and file name of the file you want to unzip, click **Browse** next to the *Unzip File* field. The *Unzip From File Browse* dialog box appears.



3. Double-click as needed to locate the directory containing your zipped file in the *Directories* field, then click the appropriate file in the *Files* field. Alternatively, you can enter the full path and file name in the *Selection* field.
4. After selecting the file you want to unzip, click **OK**. You are returned to the *Unzip ADS Design Kit* dialog box.
5. To specify the new location for the files you want to unzip, click **Browse** next to the *To Directory* field. The *Unzip To Directory Browse* dialog box appears.



6. Double-click as needed to locate the directory where you want your unzipped files to be located in the *Directories* field. Alternatively, you can enter the full path in the *Selection* field. If you are unsure of where to unzip your design kit, refer to [“Where to Install a Design Kit” on page 2-1](#).
7. After selecting the directory in which to unzip your files, click **OK**. You are returned to the *Unzip ADS Design Kit* dialog box.
8. Click **OK** to unzip your design kit. An *Information Message* dialog reporting that the design kit was successfully unzipped appears after the unzip operation is complete.

A new directory containing your design kit is created in the location that was specified in the *To Directory* field of the *Unzip ADS Design Kit* dialog box. This new directory contains several subdirectories, typically including:

- circuit
- design_kit
- doc
- examples

Depending on your design kit, there may be additional subdirectories beyond those listed above. For detailed information on the contents of design kit directories, refer to the ADS *Design Kit Development* documentation.

Define a Design Kit

Step two of the *Install ADS Design Kit* dialog box enables you to view the design kit definition or define a new design kit. After the process in “Unzip ADS Design Kit” on page 2-6 is complete, the *Install ADS Design Kit* dialog box is automatically updated with the design kit definition information. Since this information is defined by the vendor as part of the design kit, it should not be changed by the user or a CAD manager handling a SITE installation. Modifying this information may cause the design kit to be non-functional.



If your design kit was not distributed as a .zip file or was already unzipped, proceed to the next section.

Path and Name

To specify the path and name of the design kit you want to install:

1. Click **Browse** next to the *Path* field in the *Install ADS Design Kit* dialog box. The *Select Design Kit Directory* dialog box appears.



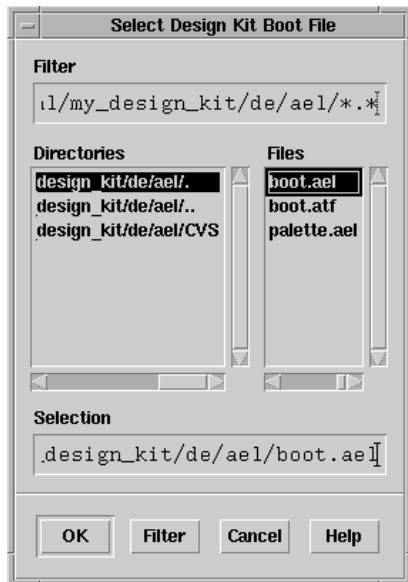
2. Double-click as needed to locate the directory containing your design kit in the *Directories* field. Alternatively, you can enter the full path in the *Selection* field.
3. After selecting the design kit directory, click **OK**. You are returned to the *Install ADS Design Kit* dialog box. The *Path*, *Name*, *Boot File* and *Versions* fields should now contain all data needed for the design kit to be installed.

Note If the design kit being installed conforms to the ADS standard, it should have a name in the *Name* field. For some design kits created before ADS 2001, the *Name* field may not be filled in automatically and must be manually entered. If this is the case, there should be a README or installation file that contains the design kit name. Specify that name in the *Name* field.

Boot File (optional)

The *Boot File* is an optional file defined by the design kit developer and may contain either the *absolute* path and file name or a *relative* path and file name of the boot file for the design kit to be installed. A *relative* path is relative to the top level of the design kit. To specify an alternative boot file:

1. Click **Browse** next to the *Boot File* field in the *Install ADS Design Kit* dialog box. The *Select Design Kit Boot File* dialog box appears.



2. Double-click as needed to locate the directory containing the boot file for your design kit in the *Directories* field, then click the appropriate file in the *Files* field. Alternatively, you can enter the full path and file name in the *Selection* field. The boot file is typically located in the *de/ael* subdirectory of the design kit.
3. After selecting the boot file you want to use, click **OK**. You are returned to the *Install ADS Design Kit* dialog box. The *Boot File* field should now contain the absolute path and file name or relative path and file name of the new boot file for the design kit to be installed.

Version

The *Version* field should contain the version number for the design kit to be installed. This number is typically defined by the design kit developer and is used for tracking the design kit version for support. This field should remain as the vendor has set it and should not be modified.

If the version number was not defined, you may see an N/A in this field. You could specify or change the version number by entering a new number in the *Version* field; however, *this is not recommended*.

Note The version data can be any string of characters with the exception of the vertical bar.

Install Design Kit

Since a design kit can reside anywhere on your file system, for ADS to find it, it must be registered in a recognized file (*ads.lib*) in a standard location. This file (*ads.lib*) can reside in one of four locations referred to as a LEVEL. Step three of the *Install ADS Design Kit* dialog box enables you to specify the LEVEL at which to register or install the design kit. For more information on the *ads.lib* file, refer to [“Understanding the 'ads.lib' File” on page 2-2](#).

The different levels displayed in the *Select Installation Level* drop-down menu depends on your write permissions at these levels. If you do not have write permission at the SITE LEVEL, you will not be able to select that option.

The levels can be:

- [“SITE LEVEL” on page 2-19](#) - Used to provide design kit capability for users in a networked environment.
- [“USER LEVEL” on page 2-19](#) - Used to provide design kit capability for an individual user so you can manage your own design kits.
- [“STARTUP LEVEL” on page 2-20](#) - Used to help you manage multiple design kits at different locations.
- [“PROJECT LEVEL” on page 2-21](#) - Used to manage design kits within an ADS project.

To select a level for your design kit:

1. Use the Select Installation Level drop-down menu to select an appropriate level for your design kit.
2. After selecting a level, click **OK** in the *Install ADS Design Kit* dialog to install and enable the design kit. An *Information Message* dialog stating that the design kit was successfully enabled appears.
3. Click **OK** to clear the *Information Message* dialog. Your design kit is now ready for use. However, it is recommended that you continue to [“Setup ADS Design Kits” on page 2-15](#) to learn how to use the setup tool for managing installed design kits.

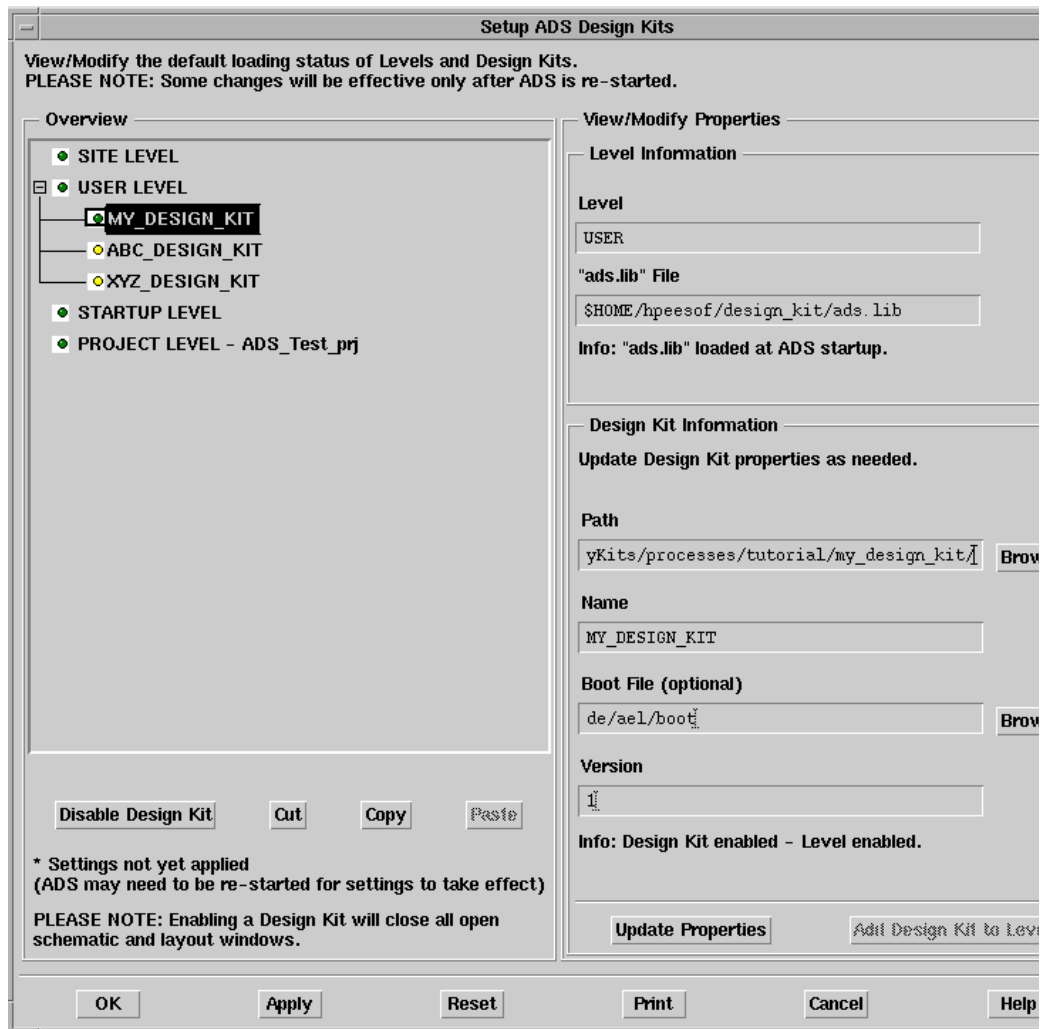
Note If an ADS Project is open, enabling a design kit will close all open designs and schematic and layout windows.

Setup ADS Design Kits

The *Setup ADS Design Kits* dialog box enables you to view or modify the installation status of each of the different levels and design kits available. Note that some changes made in this dialog may only be effective after ADS is re-started.

To access the *Setup ADS Design Kits* dialog box:

1. Choose **DesignKit > Setup Design Kits**. The *ADS Design Kit Setup* dialog box appears.



Design Kits can be installed at four different levels from this dialog. The levels available depends on your write permission for each of these levels. The available levels are:

- “SITE LEVEL” on page 2-19
- “USER LEVEL” on page 2-19
- “STARTUP LEVEL” on page 2-20
- “PROJECT LEVEL” on page 2-21

2. By selecting one of the levels in the *Setup ADS Design Kits* dialog box, you can:

- **View the properties of a selected level** - Note that as you click a level listed in the *Overview* section of the dialog, the *Level Information* in the *View/Modify Properties* section changes accordingly.
- **Enable or disable a selected level** - You can click a level listed in the *Overview* section of the dialog and then click the **Disable Level** button below the *Overview* section. Note that the traffic light bitmap next to the level you selected turns to yellow to indicate that the level is disabled. The **Disable Level** button toggles to **Enable Level** and can be clicked again to enable the level. When a level is disabled, the *ads.lib* file at that level will not be read the next time ADS is started, so design kits listed in that *ads.lib* file will not be enabled for that session.
- **Add a new design kit to the selected level** - If you have the appropriate write permissions, you can click a level listed in the *Overview* section of the dialog and then use the *Design Kit Information* section of the dialog box to define the design kit properties. For more information on setting up the design kit properties, refer to “[Define a Design Kit](#)” on page 2-10. Once the properties are set up, click **Add Design Kit to Level**.

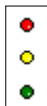
3. By selecting one of the design kit names under a level in the *Setup ADS Design Kits* dialog box, you can:

- **View the properties of the selected design kit** - Once you click a design kit in the *Overview* section of the dialog box, the design kit properties are displayed in the *Design Kit Information* section of the dialog.
- **Update the properties of the selected design kit** - If you have the appropriate write permissions, you can use the *Design Kit Information* section of the dialog box to update the properties of a selected design kit. For more

information on the design kit properties, refer to “[Define a Design Kit](#)” on [page 2-10](#).

- **Enable or disable the selected design kit** - After clicking a design kit in the *Overview* section of the dialog box, you can click the **Disable Design Kit** button just below the Overview section. Note that the traffic light bitmap next to the design kit you selected turns to yellow to indicate that the design kit is disabled. The **Disable Design Kit** button toggles to **Enable Design Kit** and can be clicked again to re-enable the design kit.
- **Copy or cut the selected design kit** - After clicking a design kit in the *Overview* section of the dialog box, you can click the **Cut** or **Copy** buttons to remove, move or copy a design kit to a different level. After cutting or copying a design kit, click another level and use the **Paste** button to place the design kit under a different level.

The traffic light bitmaps used in the *Overview* section of the *Setup ADS Design Kits* dialog box are used to show the status of levels and design kits.



[Table 2-3](#) describes the individual traffic light status indicators.

Table 2-3. Traffic Light Status Indicators

Traffic Light	Level or Design Kit Status
Red	Error: incorrect design kit properties.
Yellow	Disabled
Green	Enabled

Note A design kit will only be properly installed and available for use if *both* the level *and* the design kit are enabled.

4. Click **Apply** to apply the new settings or click the **Reset** button to undo all changes. You can also click **Print** to print a hardcopy of the design kit setup to your local printer.

Note If an asterisk (*) is displayed next to the level or design kit in the *Overview* section of the *Setup ADS Design Kits* dialog box, the settings in the current ADS session do not correspond with the display settings. ADS may need to be restarted for the settings to take effect.

5. Click **OK** to save all settings and exit the *Setup ADS Design Kits* dialog box.

SITE LEVEL

The SITE LEVEL setup option is used to provide design kit capability for users in a networked environment. This option enables a site librarian or CAD manager to manage a set of libraries that are accessible to all engineers without any effort from the individual engineers.

The *ads.lib* file is stored under `$HPPEESOF_DIR/custom/design_kit`. An *ads.lib* file in this location on a networked system lists all the design kits that are available for all users. For more information on the *ads.lib* file, refer to [“Understanding the 'ads.lib' File” on page 2-2](#).

To view the SITE LEVEL information including *ads.lib* file location:

1. Choose **DesignKit > Setup Design Kits**. The *ADS Design Kit Setup* dialog box appears.
2. Click **SITE LEVEL** in the *Overview* section in the left-hand side of the *Setup ADS Design Kits* dialog box. This activates the *Level Information* in the right-hand side of the dialog.

USER LEVEL

The USER LEVEL setup option is used to provide design kit capability for individuals working in a networked environment. This option enables you to easily manage your own design kits without the help of a CAD manager.

In a networked environment, a user will not be able to selectively enable individual design kits at the SITE LEVEL. To enable a subset of the design kits available at the SITE LEVEL, use the **Copy** and **Paste** buttons to copy each desired design kit entry from the SITE LEVEL to the USER LEVEL. Then disable the SITE LEVEL and enable the USER LEVEL.

The *ads.lib* file is stored under `$HOME/hpeesof/design_kit`. An *ads.lib* file in this location lists design kits that only the user has access to. For more information on the *ads.lib* file, refer to [“Understanding the 'ads.lib' File” on page 2-2](#).

To view the USER LEVEL information including *ads.lib* file location:

1. Choose **DesignKit > Setup Design Kits**. The *ADS Design Kit Setup dialog* box appears.
2. Click **USER LEVEL** in the *Overview* section in the left-hand side of the *Setup ADS Design Kits* dialog box. This activates the *Level Information* in the right-hand side of the dialog.

STARTUP LEVEL

The STARTUP LEVEL is used to help you manage multiple design kits at different locations. You can start Advanced Design System from a different directory, with a different shortcut on a PC, and by having a different *ads.lib* file in each possible startup directory, you can control which design kits are installed for each session of Advanced Design System.

The *ads.lib* file is stored under the designated startup directory. An *ads.lib* file in this location lists design kits that will only be available if ADS is started in this directory. For more information on the *ads.lib* file, refer to [“Understanding the 'ads.lib' File” on page 2-2](#).

To view the STARTUP LEVEL information including *ads.lib* file location:

1. Choose **DesignKit > Setup Design Kits**. The *ADS Design Kit Setup* dialog box appears.
2. Click **STARTUP LEVEL** in the *Overview* section in the left-hand side of the *ADS Design Kit Setup* dialog box. This activates the *Level Information* in the right-hand side of the dialog.

Note To configure a second STARTUP design kit configuration, restart ADS in that directory and then define the design kit configuration.

PROJECT LEVEL

The PROJECT LEVEL is used to manage design kits within an ADS project.

The *ads.lib* file is stored under a designated project directory. An *ads.lib* file in this location is read when the project is opened. Any design kits listed in it will be made available for designs in the project. For more information on the *ads.lib* file, refer to [“Understanding the 'ads.lib' File” on page 2-2](#). At this time, PROJECT LEVEL design kits are not disabled when the project is closed. ADS must be restarted to disable a design kit.

To view the PROJECT LEVEL information including ads.lib file location:

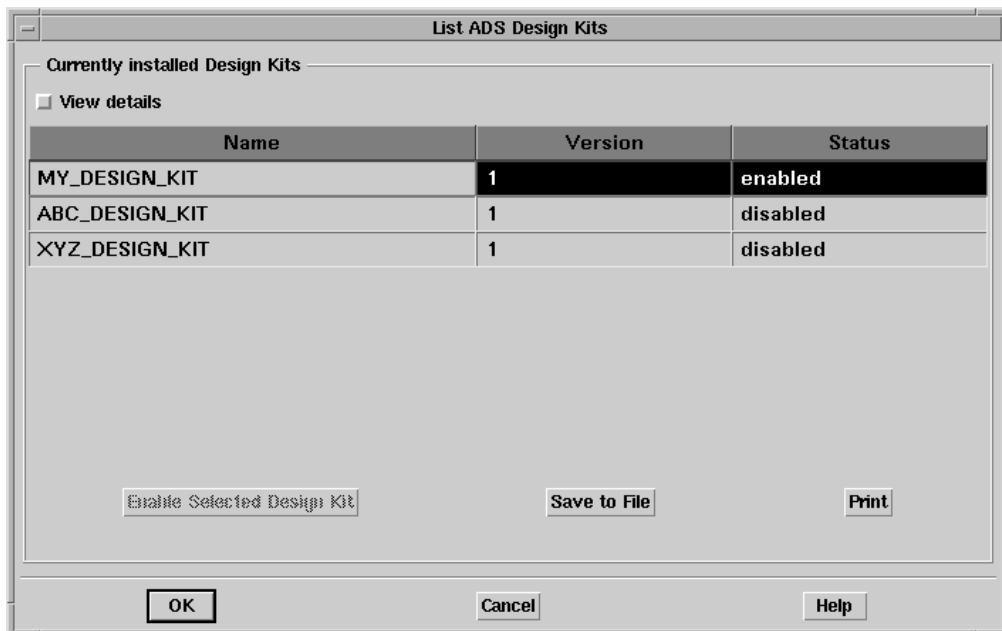
1. Choose **DesignKit > Setup Design Kit**. The *ADS Design Kit Setup* dialog box appears.
2. Click **PROJECT LEVEL** in the *Overview* section in the left-hand side of the *ADS Design Kit Setup* dialog box. This activates the *Level Information* in the right-hand side of the dialog.

List ADS Design Kits

The *List ADS Design Kits* dialog box enables you to view a list of all currently available design kits and their status.

To view your design kits from the ADS *Main* window:

1. Choose **DesignKit > List Design Kits**. The *List ADS Design Kits* dialog box appears. Note that the initial list is a brief list showing only the design kit name, version and status.



2. Click the **View Details** checkbox to view the details for each installed kit. A scroll bar appears enabling you to scroll through the items in the expanded list.

Currently Installed Design Kits

The *Currently Installed Design Kits* section of the *List ADS Design Kits* dialog box provides specific information related to each of your design kits. [Table 2-4](#) provides a description of each of the items listed in this section. You can use the slide-bar to view the details of each design kit.

Table 2-4. List ADS Design Kit Overview

Name	The design kit name is a unique identifier that enables you to load and use multiple design kits during a single session.
Version	The version number is very important for tracking and troubleshooting purposes. The version number enables Agilent EEs of EDA Customer Support to identify and install the same version to help solve technical problems.
Status	The load status field indicates the current state of a design kit.
Path	The path field indicates the current directory location of the specified design kit.
Boot File	The absolute path and file name or relative path and file name of the boot file.
Load Level	The Load Level field is used to display the installation LEVEL used to determine who will have access to the design kit.
Level File	The level file field displays the path and file name for the ads.lib file used.

Changing Dialog Box Dimensions

You can use your cursor to manipulate some of the physical characteristics of the *List ADS Design Kits* dialog box. Try changing the width of each column in the *Currently installed Design Kits* section of the *List ADS Design Kit* dialog box by dragging the borders between the titles at the top of each column.

You can also use your cursor to expand the over-all size of the dialog box to reduce the need for scrolling through the *Currently installed Design Kits* section. Try grabbing the edge of the dialog box to expand it now. If you later want to save space on your desktop, you can grab the edge of the dialog box again and return the dialog to its original size.

Enable Selected Design Kit

Design Kits that have been installed are kits that are recognized by Advanced Design System. A design kit that is recognized by ADS can be either *enabled* or *disabled*. If a design kit is enabled, it means that you can access and use the components. If a design kit is disabled, it is not available for use because:

- The Design Kit was not installed.
- The Design Kit was overloaded (more than one design kit with the same name is enabled, possibly at different levels).
- There was an error during the enabling process.

To enable a design kit that is currently disabled:

1. Click the disabled design kit that you want to enable in the *Currently installed Design Kits* section of the *List ADS Design Kits* dialog box. The **Enable Selected Design Kit** button is activated.
2. Click **Enable Selected Design Kit** in the *List ADS Design Kits* dialog box.

Note If an ADS Project is open, enabling a design kit will close all open schematic and layout windows.

3. An information message dialog stating that the design kit was enabled in the current ADS session appears. A second message in the dialog appears asking if you want to enable the design kit by default at ADS startup. Choose yes to enable the design kit.

Save to File

You can save a list of the currently installed design kits to an ASCII text file in a specified location from the *List ADS Design Kits* dialog box.

To save the list of design kits and their current status,

1. Click the **Save to File** button. The *Save Status As* dialog box appears.
2. Double-click as needed to locate the directory to store your list of design kits in the *Directories* field. Alternatively, you can enter the full path in the *Selection* field.
3. Add the name of the file to the path in the *Selection* field.
4. After selecting the directory path and file name, click **OK**. You are returned to the *List ADS Design Kit* dialog box. An ASCII text (.txt) file is created in the location specified. The file contains the information related to each specific design kit in the *Currently installed Design Kits* displayed in the *List ADS Design Kits* dialog box.

Example list of design kits

```
=====
  Design Kits Levels
=====
Level: SITE
  File location: $HPEESOF_DIR/custom/design_kit/ads.lib
  Default: enabled

Level: USER
  File location: $HOME/hpeesof/design_kit/ads.lib
  Default: enabled

Level: STARTUP
  File location: $HOME/ads.lib
  Default: enabled

Level: PROJECT
  File location: N/A
  Default: enabled

=====
  Design Kits
=====
Design Kit: MY_DESIGN_KIT
  Path: $HOME/dk/foundryKits/processes/tutorial/my_design_kit/
  Boot file: de/ael/boot
  Version: 1
  Load level: USER
  Default: enabled
  Status: enabled

Design Kit: ABC_DESIGN_KIT
  Path: $HOME/dk/foundryKits/processes/tutorial/abc_design_kit/
  Boot file: de/ael/boot
  Version: 1
  Load level: USER
  Default: disabled
  Status: disabled

Design Kit: XYZ_DESIGN_KIT
  Path: $HOME/dk/foundryKits/processes/tutorial/xyz_design_kit/
  Boot file: de/ael/boot
  Version: 1
  Load level: USER
  Default: disabled
  Status: disabled
```

Print

You can print a list of the currently installed design kits to a local printer from the *List ADS Design Kits* dialog box.

To print the list of design kits and their current status,

1. Click the **Print** button.

Command Reference

This section describes the function of each menu selection provided in Advanced Design System (Main) DesignKit Menu.

DesignKit Menu

ADS Main window

Install Design Kits...

Unzip, define and install a new zipped ADS Design Kit. For more information, refer to [“Install ADS Design Kit” on page 2-5](#).

Setup Design Kits...

View, modify or print the default installation status of each of the different levels and Design Kits available. For more information, refer to [“Setup ADS Design Kits” on page 2-15](#).

List Design Kits...

View, save to a file, or print a list of all currently available design kits and their status. For more information, refer to [“List ADS Design Kits” on page 2-22](#).

Appendix A: Setting Up Design Kit Software and Menus

This appendix describes the details of configuration files and variables which are used to enable and disable the common design kit software. This includes software for installing design kits, as well as the software to control the menus and dialog boxes that are shipped with ADS for use with all design kits. This information is included for advanced users or users of old design kits who experience problems between the new software and an old design kit.

Configuration Files

Each individual Advanced Design System tool has its own unique configuration file. These configuration files contain information required by the software to install and enable the tools.

If you are an advanced design kit user, there are two configuration files that you should be aware of:

- The *de_sim.cfg* file. This is the general ADS configuration file.
- The *design_kit.cfg* file. This is the specific design kit configuration file.

The configuration files in Advanced Design System are read from three locations:

- `$HPEESOF_DIR/config` This is the default location where configuration files are located when shipped with the software.
- `$HPEESOF_DIR/custom/config` This location is reserved for customization, typically by CAD managers.
- `$HOME/hpeesof/config` This location can be used for customization by the end user. Configuration files in this location may also be written to by the software.

Note Any customization set up in `$HPEESOF_DIR` (software installation directory) should be confined to the *custom* subdirectory. This is because anything outside of the *custom* subdirectory may be overwritten by a subsequent update to the software.

The *de_sim.cfg* file is read from all three locations in the order listed above. If a variable is defined in more than one location, the last value read is the one that will be recognized by the system.

The *design_kit.cfg* file is included by adding the following line to the *de_sim.cfg* file:

```
+ design_kit
```

When **+ design_kit** is encountered in a *de_sim.cfg* file, the *design_kit.cfg* file is only read from one location, as opposed to the three locations described above. This single location is the same directory that contains the *de_sim.cfg* file currently being read.

Current Configuration Variables

The information described in [Table A-1](#) is a list of configuration variables used by the current design kit infrastructure software beginning with ADS2001. This is the general code that installs and enables design kits, as well as the user interface code such as menus and dialog boxes common to all design kits. This code should be differentiated from any software or code that is specific to a particular design kit. Any code referred to in this section is application extension language (AEL) code. For more information on AEL code, refer to the Advanced Design System “*AEL*” manual.

If you are a general user of new ADS design kits, it is not important to understand the information provided in this section. This information is provided for CAD administrators, design kit developers or anyone who has worked with design kits in ADS prior to ADS2001, when the design kit infrastructure code had to be manually configured. These variables are now all set automatically in ADS.

Anyone who used design kits prior to ADS2001 should check their *de_sim.cfg* files in all user configurable locations and remove (or preferably comment out with a # sign in column one) any configuration variables used for general design kit configuration in the past. Refer to “[Accessing Old Design Kit Software](#)” on [page A-5](#) for a review of those variables. The last section, “[Accessing Both Old and New Design Kit Menus Simultaneously](#)” on [page A-6](#), will help you reset the necessary variables if you have an ongoing need for access to the old design kit software.

A description of each design kit variable required for current ADS design kit infrastructure software is provided in [Table A-1](#).

Table A-1. ADS Design Kit Variables

DK_AEL_PATH

This variable is set in the \$HPEESOF_DIR/config/design_kit.cfg file. The DK_AEL_PATH variable is set to the directory where the common design kit AEL code resides. This variable is used by the next few variables in the file.

DK_AEL_PATH={\$HPEESOF_DIR}/design_kit/ael

Note: The next three variables described in this table are referenced in \$HPEESOF_DIR/config/de.cfg when ADS boots up.

DESIGN_KIT_UI_AEL

This is the AEL code related to the Design Kit menu in the Main ADS window. It is read very early during boot-up.

DESIGN_KIT_UI_AEL= {%DK_AEL_PATH}/dk_menu

DESIGN_KIT_STARTUP_AEL

This is a list of AEL files read later during boot-up. dk_startup contains code to load the specific design kits which are currently configured. The other files contain code related to the common design kit menus and dialog boxes.

DESIGN_KIT_STARTUP_AEL={%DK_AEL_PATH}/dk_startup:{%DK_AEL_PATH}/dk_explorer

DESIGN_KIT_PROJECT_AEL

This AEL file contains code that is invoked every time a user opens a project.

DESIGN_KIT_PROJECT_AEL={%DK_AEL_PATH}/dk_project_attach

DESIGN_KIT_BROWSER_PATH

This variable is used to extend the search path for the library browser. The common design kit software automatically appends "<design_kit_path>/circuit/records" to this path whenever a design kit is loaded. All the control files and the .idf files in these directories are read by the library browser to create the Analog/RF related libraries/sub-libraries. The library browser is a separate executable program, which is closed and restarted to pick up the new path. This variable is referenced by HPANALOGRF_BROWSER_PATH in \$HPEESOF_DIR/config/hpeesofbrowser.cfg.

DESIGN_KIT_BROWSER_PATH=

Table A-1. ADS Design Kit Variables

DESIGN_KIT_TEMPLATE_BROWSER_PATH

This variable is used to extend the search path for the template browser. The common design kit software automatically appends "<design_kit_name>|<design_kit_path>/circuit/templates" to this path whenever a design kit is loaded. Each entry is in the form of <name>|<path> where <name> is the top level node displayed in the browser and <path> is the path to the directory containing the templates. The template browser is a separate executable program, which is closed and restarted to pick up the new path. This variable is referenced by HP_TEMPLATE_BROWSER_PATH in \$HPEESOF_DIR/config/hpeesofbrowser.cfg.

DESIGN_KIT_TEMPLATE_BROWSER_PATH=

DESIGN_KIT_NO_MENU

Obsolete variable used by design kit code prior to ADS 2001. Design kit menus are now available full-time for all users.

DESIGN_KIT_NO_MENU=TRUE

Table A-1. ADS Design Kit Variables

DESIGN_KIT_LOCAL_OVERRIDE

Obsolete variable used by design kit code prior to ADS 2001 to suppress reading of the design kit configuration file ads.lib from system-wide location. This functionality is now provided in a more flexible manner from the design kit software and the configuration variable DESIGN_KIT_LEVELS_ENABLED.

DESIGN_KIT_LOCAL_OVERRIDE=FALSE

DESIGN_KIT_LEVELS_ENABLED

This variable refers to the ads.lib files that will be read to load design kits. This is similar to the obsolete variable DESIGN_KIT_LOCAL_OVERRIDE, but is less ambiguous and gives the user more flexibility and control. There is a design kit menu pick that opens a dialog to control this variable.

To manually change it to suppress the reading of the ads.lib file at the specified level, remove the name of the level from the list. Order of the list is not important and colons do not need to be retained.

PROJECT:SITE is a valid value instructing the system to read ads.lib from the current project and the site locations only. Locations are as follows:

SITE: \$HPEESOF_DIR/custom/design_kit/ads.lib

USER: \$HOME/hpeesof/design_kit/ads.lib

STARTUP: The directory from which ADS is invoked on unix. This can be set as a short-cut property for PC systems.

PROJECT: If the project level is enabled, the ads.lib file will be read if available any time a project is opened, and design kits specified in that ads.lib file will be loaded. Note that leaving a project will not unload any design kits as the ADS system does not currently have the capability to remove the system components once they are loaded.

For more information on the ads.lib file, refer to the "Design Kit Development Guide".

DESIGN_KIT_LEVELS_ENABLED=USER:PROJECT

Accessing Old Design Kit Software

Prior to ADS 2001, to enable a design kit and the design kit menus, the following configuration variables had to be set manually in de_sim.cfg at the local (\$HOME/hpeesof) or custom (\$HPEESOF_DIR/custom/config) level.

To load the AEL code needed to load design kits and the menus:

DESIGN_KIT_DIRECTORY={\$HPEESOF_DIR}/design_kit

USER_AEL={%DESIGN_KIT_DIRECTORY}/design_kit_startup

LOCAL_AEL={%DESIGN_KIT_DIRECTORY}/design_kit_project_attach

To suppress reading the ads.lib design kit file from the system level:

`DESIGN_KIT_LOCAL_OVERRIDE=FALSE` Set it to `TRUE` to only read local ads.lib files.

To turn on the design kit menus in all ADS windows:

`DESIGN_KIT_NO_MENU=FALSE` By default this is set to `TRUE` so design kit menus are not visible unless needed.

To enable design kit menus in schematic and layout windows:

`USER_MENU_FUNCTION_LIST=app_add_design_kit_menus` This is only needed for the rare design kits which supply a custom schematic or layout menu. It works with the `DESIGN_KIT_NO_MENU` variable, which ultimately controls the menu visibility. Set `DESIGN_KIT_NO_MENU=FALSE` to see the menus in schematic or layout windows.

With the release of ADS 2001, the first three of these were moved into the system `design_kit.cfg` and automatically loaded. The next two were defaulted in the system `design_kit.cfg` and only needed to be set in a local or custom `de_sim.cfg` if values other than the default were desired. The last one was not defined in `design_kit.cfg`. It still needs to be set manually if required.

Accessing Both Old and New Design Kit Menus Simultaneously

In an Add-on release to ADS 2001, new design kit software was provided. The old functionality was retained where needed to support existing design kits, but completely new menus are provided and turned on automatically without user intervention.

With the new configuration variables, the old design kit menu in the ADS *Main* window is no longer readily accessible. All design kit related activities should be performed through the new menus. The only reason to access the old menu is for other utilities that were historically on the same menu. If access to the old menu is required, the following steps should be taken:

1. Remove or comment out general design kit configuration variables (listed in this chapter) from any user configurable location. These will interfere with the new software. If a design kit configuration variable is not discussed in this chapter but is in your system configuration, perhaps it applies to a specific design kit. These can remain as they are.

2. After removing old variables, restart ADS and verify that only the new design kit menu is visible. After this has been verified, close ADS. [need a link to a screen dump so user knows what new menu looks like]

To gain access to the old software without disabling the new software, perform the following steps:

3. Copy `$HPEESOF_DIR/config/design_kit_old.cfg.unix`
or
`$HPEESOF_DIR/config/design_kit_old.cfg.win32`
to
`$HOME/hpeesof/config/design_kit_old.cfg`
4. Add the following line to `$HOME/hpeesof/config/de_sim.cfg`
`+ design_kit_old.cfg`
5. Follow the directions in the `design_kit_old.cfg` file or read the information below and modify `design_kit_old.cfg` as needed.

Remember that the value of a variable in `$HOME/hpeesof/config` will take precedence over one set in `$HPEESOF_DIR/custom/config` or `$HPEESOF_DIR/config` (see [“Configuration Files” on page A-1](#)). Use the Configuration Explorer from the options menu in the ADS *Main* window to check for conflicts. Other tools may have set these variables to different values. Resetting them here may disable other tools. This can be fixed by combining all needed values together, separated by a colon (:).

Example:

```
USER_MENU_FUNCTION_LIST=app_add_user_menus:app_add_design_kit_menus
```

Note To enable better comparisons within the Configuration Explorer, set `CONFIG_EXPLORER_CMP_VARS` in `de_sim.cfg`, but beware that this makes the Explorer run very slow on networked systems. It works best on a stand-alone PC installation.

To make the old design kit menu visible in the main ADS window, change this value to `FALSE` and restart ADS. You may need to iconize and restore the window once if the menu pick isn't visible immediately.

```
DESIGN_KIT_NO_MENU=TRUE
```

These reset the USER_AEL and LOCAL_AEL path to load the software. Definitely check for conflicts with these AEL variables.

```
DESIGN_KIT_OLD_DIRECTORY=${SHPEESOF_DIR}/design_kit
```

```
USER_AEL={%DESIGN_KIT_OLD_DIRECTORY}/design_kit_startup
```

```
LOCAL_AEL={%DESIGN_KIT_OLD_DIRECTORY}/design_kit_project_attach
```

Uncomment this variable to turn on the old design kit menu in schematic or layout windows.

```
USER_MENU_FUNCTION_LIST=app_add_design_kit_menus
```

This is an obsolete variable that formerly controlled the scope of ads.lib files. For information on using the new method of controlling the scope of the ads.lib files, refer to DESIGN_KIT_LEVELS under “[Current Configuration Variables](#)” on page A-2.

```
DESIGN_KIT_LOCAL_OVERRIDE=TRUE
```

Viewing Configuration Files and Variables

A useful tool for viewing configuration files and variables within Advanced Design System is the *ADS Configuration Explorer*. To launch the Configuration Explorer:

From the ADS Main window, choose **Options > Configuration Explorer**.

The ADS Configuration Explorer dialog box appears.

For more information on the ADS Configuration Explorer, refer to “*Viewing Details of the Current Configuration*” in Chapter 1 of the ADS “*Customization and Configuration*” manual.

For more information on configuration files and configuration variables in ADS, refer to Chapter 1 of the ADS “*Customization and Configuration*” manual and Chapter 3 of the “*AEL*” manual.

Disabling the Design Kit Software

The new ADS design kit software is designed to be 100% compatible with the old design kit software as it was shipped from the factory. However, there are some extreme cases where an old design kit created outside of the factory may not operate with the new software loaded. This is apparently due to the fact that the old factory software was modified for a customer or by a customer, without making the names of the AEL functions unique. Since all AEL functions are global in scope, any custom

AEL code has the potential to overwrite an existing AEL function, if the custom code does not have a unique prefix on all functions and global variables.

Any design kits with the problem described above will also not be able to co-exist with other design kits which follow the design kit standard structure and use the standard method to enable the design kit. These design kits should be upgraded to follow the standard structure and use the standard software. Until they are upgraded, the following steps can be taken to disable the new design kit software. This can be done at the user or system level.

1. Copy `$HPEESOF_DIR/config/design_kit.cfg` to `$HPEESOF_DIR/custom/config` or `$HOME/hpeesof/config`.
2. Edit *design_kit.cfg* file as follows to undefine the variables that load the design kit AEL files.
`DESIGN_KIT_UI_AEL=`
`DESIGN_KIT_STARTUP_AEL=`
`DESIGN_KIT_PROJECT_AEL=`
3. Add **+design_kit** anywhere in the `de_sim.cfg` file which resides in the same directory where you edited `design_kit.cfg`. If the `de_sim.cfg` file doesn't exist, create a new file.

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