# Design Kit Installation and Setup

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# Contents

# 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 and Front to Back design flows. 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 to Back* design flow enters a design in the ADS schematic editor and uses the ADS simulator for analysis. The layout is created in ADS by automatically generating it from the schematic or by manually creating the layout, or a combination of the two processes. Export tools are provided to transfer the layout to third party manufacturing tools.

The *RF Design Environment* (RFDE) for Cadence provides a tightly integrated EDA solution that enables RF/mixed-signal IC designers to simulate their designs directly in the Cadence environment using the *ADSsim* RF simulator. This enables the RF/MS IC customer to take advantage of complementary features provided by both Agilent Technologies and Cadence Design Systems. For more information on RFDE, refer to the Agilent EEsof EDA Home Page at http://eesof.tm.agilent.com/

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, Design Kit Development for RFDE and 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.

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**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.

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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 process, as shown in Figure 1-1.
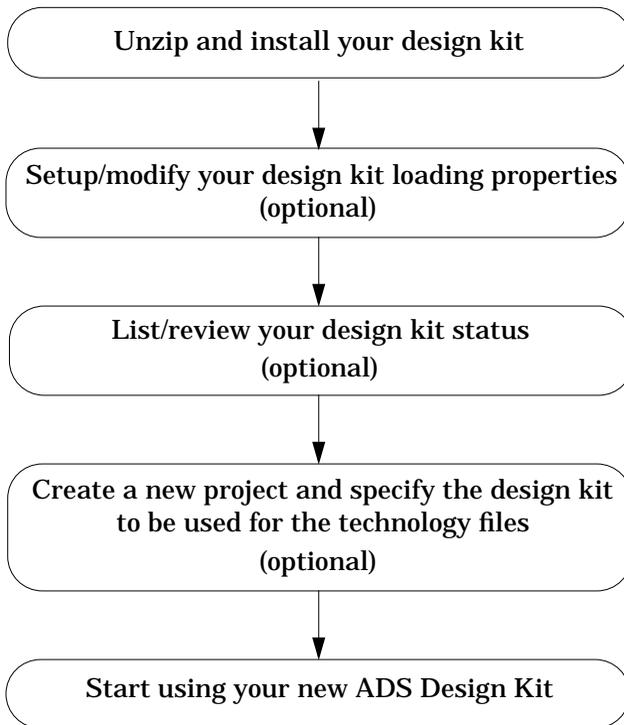


Figure 1-1. ADS Design Kit Process

While several steps shown in Figure 1-1 are listed as *optional*, it is recommended that you familiarize yourself with all of the capabilities of the tool 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.

Design Kit Menu



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 1-3.

## 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, some users, especially CAD managers, may find it helpful to understand the function of the ads.lib file. If you are not interested at this time, you can skip this section and proceed to "Install ADS Design Kit" on page 2-5.

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 | The absolute or relative path to the boot file. If the path is relative, it is relative to the second field, path to design kit. Not all design kits have a boot file, so this field is optional. |
| 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 (!). The design kit will not be loaded by ADS, but the design kit setup dialog will still recognize it.

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 ads.lib file in this location on a networked system lists all the design kits that are available for all users. Note that the SITE LEVEL directory can be changed by setting the configuration variable DESIGN_KIT_SITE_PATH in design_kit.cfg. For more information, refer to "SITE LEVEL" on page 2-19 and Table A-1. |
| USER LEVEL | $HOME/hpeesof/design_kit | An ads.lib file in this location lists design kits that only the user has access to. |
| STARTUP LEVEL | Startup directory | An ads.lib file in this location lists design kits that will only be available if ADS is started in this directory. |
| PROJECT LEVEL | 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. |

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.

The SITE LEVEL is disabled by default so that a user in a networked system that supports a large number of design kits will not get all of the available design kits loaded when he or she starts ADS. However, the user can see the available design kits even when the level is disabled. To selectively enable a smaller number of those kits, use the **Copy** and **Paste** buttons in the design kit setup dialog to enable only the design kits needed at the USER LEVEL.

If, however, all users on the network will only ever use one design kit at a time, the SITE LEVEL can be enabled by the CAD manager for all users by setting the DESIGN_KIT_LEVELS_ENABLED variable in $HPEESOF_DIR/custom/config/design_kit.cfg. Enter this line: DESIGN_KIT_LEVELS_ENABLED=SITE:USER:STARTUP:PROJECT or simply DESIGN_KIT_LEVELS_ENABLED=SITE if no user configurations are expected. The end user can always enable other levels without disabling the SITE level. A copy of design_kit.cfg in $HOME/hpeesof/config will be created and take precedence over those under $HPEESOF_DIR.

Note that if users have already been using the software and configuring design kits, they may have a local copy of design_kit.cfg with this variable defined already. In that case, adding the variable in $HPEESOF_DIR/custom/config/design_kit.cfg will have no effect. The variable must be modified at the user level, or removed from the user level in order for the site level to be used.

The SITE LEVEL by default is under *$HPEESOF_DIR*, the installation location of ADS. On a PC network, $HPEESOF_DIR might be on each individual machine. If this is the case, an alternate location can be specified as SITE LEVEL by setting DESIGN_KIT_SITE_PATH in *design_kit.cfg* in $HPEESOF_DIR/custom/config. For more information, refer to Table A-1.

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.

To fully disable a design kit, you need to close ADS. Some parts of a design kit cannot currently be disabled dynamically. Additionally, if design kit A is enabled in project Y and design kit B is enabled in project Z, closing project Y to open project Z will not disable design kit A. Since a design kit enabled at the project level of a closed project will not be visible in the setup dialog, open the list dialog to see a complete listing of all design kits that the system knows about.

# 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.

```
┌─────────────────────────────────────────────────┐
│ ─          Install ADS Design Kit                │
├─ 1. Unzip Design Kit ─────────────────────────── │
│                                                   │
│ This step may be skipped if the Design Kit is already unzipped. │
│              ┌──────────────────────┐             │
│              │ Unzip Design Kit Now...│            │
│              └──────────────────────┘             │
│                                                   │
├─ 2. Define Design Kit ──────────────────────────  │
│                                                   │
│ Enter full Path to the directory of the desired Design Kit. │
│ If available, the remaining info will be automatically filled in. │
│                                                   │
│ Path                                              │
│ ┌────────────────────────────────┐  ┌─────────┐  │
│ │I                               │  │ Browse...│  │
│ └────────────────────────────────┘  └─────────┘  │
│                                                   │
│ Name                                              │
│ ┌────────────────────────────────┐               │
│ │I                               │               │
│ └────────────────────────────────┘               │
│                                                   │
│ Boot File (optional)                              │
│ ┌────────────────────────────────┐  ┌─────────┐  │
│ │I                               │  │ Browse...│  │
│ └────────────────────────────────┘  └─────────┘  │
│                                                   │
│ Version                                           │
│ ┌────────────────────────────────┐               │
│ │I                               │               │
│ └────────────────────────────────┘               │
│ Warning: Design Kit warnings and information.     │
│                                                   │
├─ 3. Install Design Kit ──────────────────────────  │
│                                                   │
│ Select Installation Level :  ┌──USER LEVEL────▼┐  │
│                                                   │
│ PLEASE NOTE: Enabling a Design Kit will close all open schematic │
│ and layout windows.                               │
│                                                   │
│   ┌──────┐       ┌──────────┐      ┌──────┐       │
│   │  OK  │       │  Cancel  │      │ Help │       │
│   └──────┘       └──────────┘      └──────┘       │
└─────────────────────────────────────────────────┘
```

---

**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.
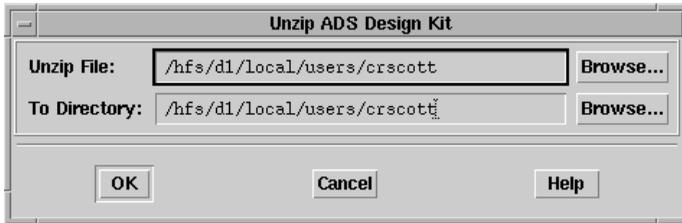


2. To specify the path and file name of the file you want to unzip, click **Browse** next to the *Unzip File* field. The *Unzip From File Browse* dialog box appears.
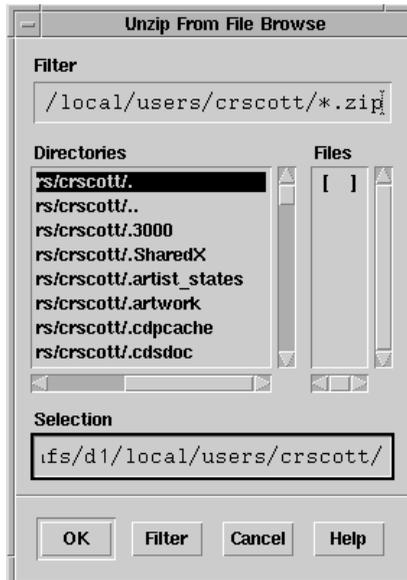


3. Double-click as needed to locate the directory containing your zipped file in the *Directories* field, then click the appropriate file in the *Files* field. Alternatively, you can enter the full path and file name in the *Selection* field.

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.
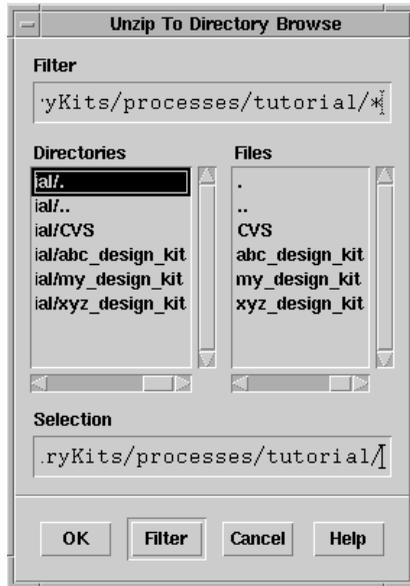


6. Double-click as needed to locate the directory where you want your unzipped files to be located in the *Directories* field. Alternatively, you can enter the full path in the *Selection* field. If you are unsure of where to unzip your design kit, refer to "Where to Install a Design Kit" on page 2-1.

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.
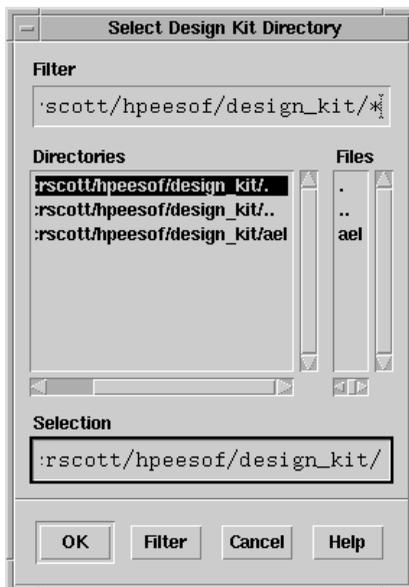


2. Double-click as needed to locate the directory containing your design kit in the *Directories* field. Alternatively, you can enter the full path in the *Selection* field.

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.
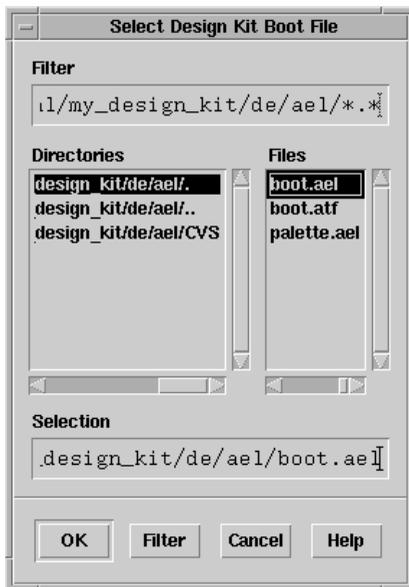


2. Double-click as needed to locate the directory containing the boot file for your design kit in the *Directories* field, then click the appropriate file in the *Files* field. Alternatively, you can enter the full path and file name in the *Selection* field. The boot file is typically located in the 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*.

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**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 2-20 - 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. Also review the section "Setup Current Project" on page 2-26 to learn how to configure a project to use technology files (layers, preference and Momentum substrate files) from an enabled design kit.

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

To get started using your design kit, refer to "Using an ADS Design Kit to Create a Schematic" on page 2-28.

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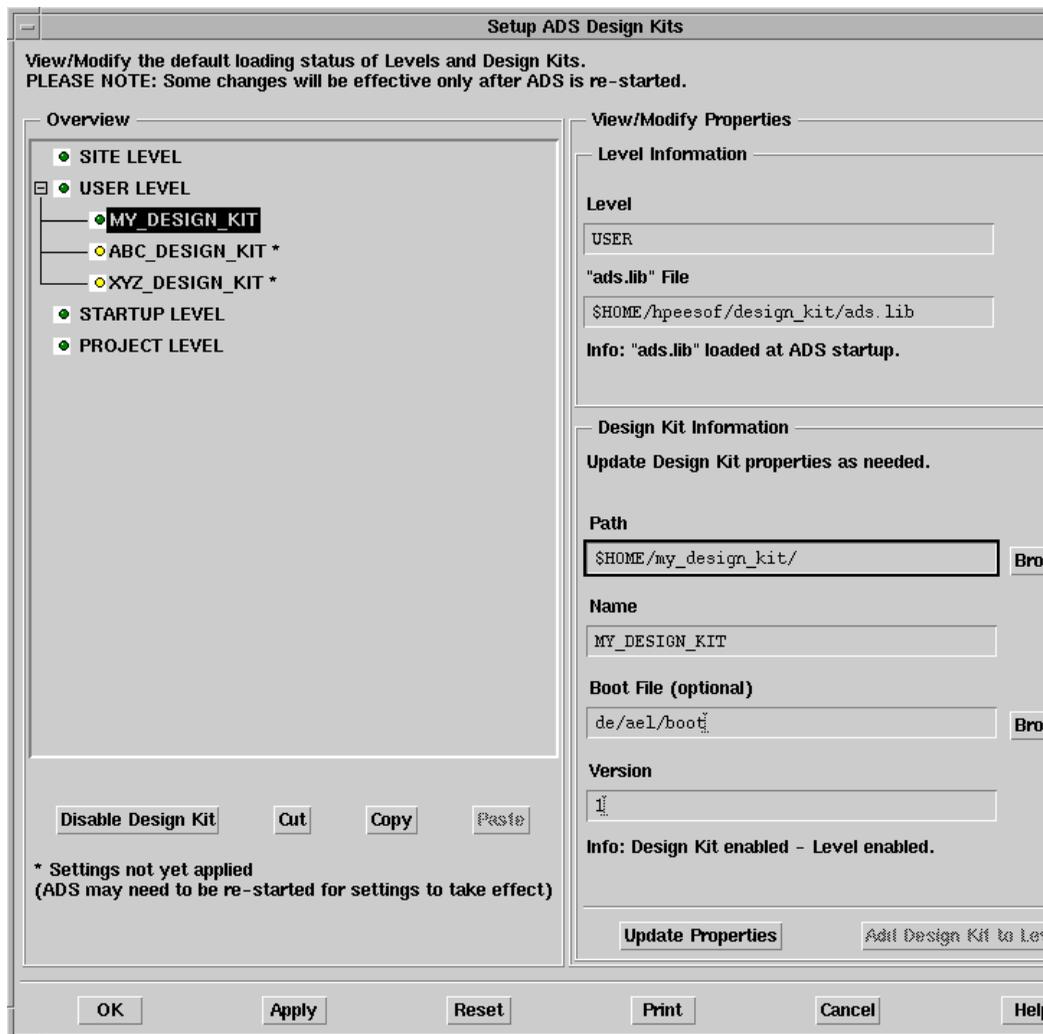
Design Kits can be installed at four different levels from this dialog. The levels available depends on your write permission for each of these levels. The available levels are:

- "SITE LEVEL" on page 2-19
- "USER LEVEL" on page 2-20
- "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. A disabled design kit will not be completely cleared until the ADS session is exited.

  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.
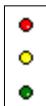
Table 2-3 describes the individual traffic light status indicators.

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.

- **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.

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. This is particularly true for disabling design kits since not all parts of a design kit can be dynamically disabled in ADS.

---

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.

By default, the SITE LEVEL is disabled so that if it contains a large number of design kits, they won't be all loaded when the end user starts ADS. The user should select only the design kits that he needs and use the copy and paste buttons in the design kit setup dialog to enable them at his USER LEVEL.

If all users at a site will only be using a single design kit, the SITE LEVEL can be enabled by the end user. It can be also be enabled by the CAD manager by setting DESIGN_KIT_LEVELS_ENABLED=SITE in $HPEESOF_DIR/custom/config/design_kit.cfg. Make sure this variable is not defined in $HOME/hpeesof/config/design_kit.cfg in this case.

By default, the SITE LEVEL *ads.lib* file is stored in $HPEESOF_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.

On a PC network, $HPEESOF_DIR might be on each individual machine. If this is the case, an alternate location for a master ads.lib file can be specified as SITE LEVEL by setting DESIGN_KIT_SITE_PATH in *design_kit.cfg*. For more information, refer to Table A-1.

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.
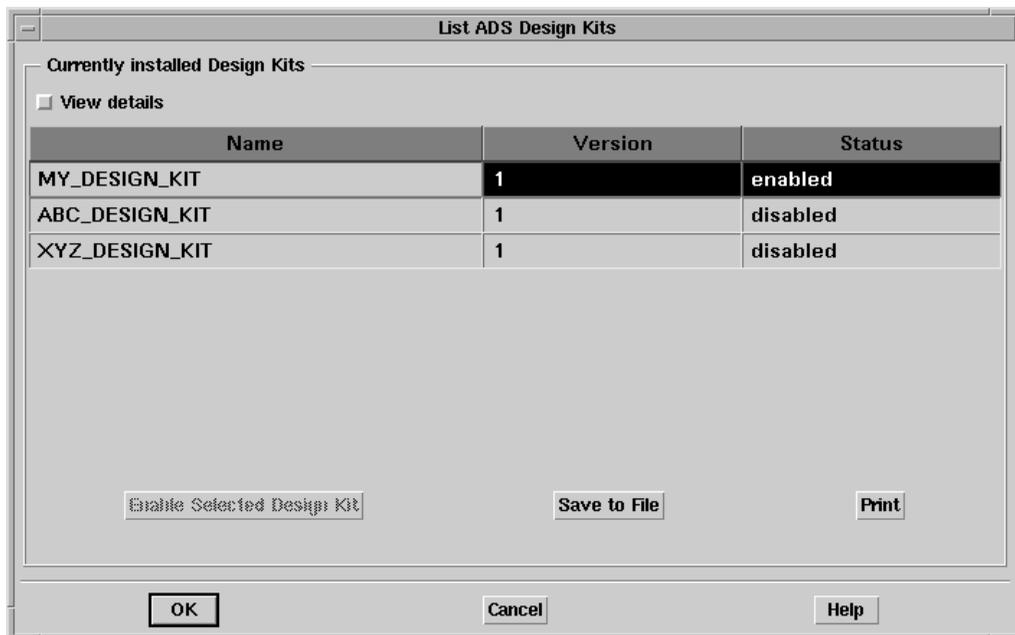


2. Click the **View Details** checkbox to view the details for each installed kit. A scroll bar appears enabling you to scroll through the items in the expanded list.

## Currently Installed Design Kits

The *Currently Installed Design Kits* section of the *List ADS Design Kit*s 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 EEsof 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. The field also includes the project name for design kits enables at the project level. |
| 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 it's 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 Kit*s 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.

# Setup Current Project

The Setup Current Project dialog enables you to configure a project to use the technology files from a specific design kit. The technology files which may be provided are layers files, preferences files and Momentum substrate files.

You can create a new project with the default technology as a design kit's technology, this can be set up from the ADS *New Project* dialog box and only needs to be done when the project is created and the design kit has already been installed. If you have a number of design kits enabled, you can only choose one default technology for your project at project creation. However, using the ADS *New Design* dialog box, you can set your design to use a different design kit's technology. This can be different from the one selected at project creation.

If your design kit's technology files, or any of your other technology sources, have been updated after you have created your new project (or design) with that technology, then you can select **DesignKit > Setup Project** from the ADS *Main* window to explicitly instruct the software to overwrite your existing project technology files with your updated technology source files. You can also use the *Setup Project* menu to set a different technology as your default for the current project or you can copy in a new set of technology files from a new source to your project that can be used by any new designs in that project.

Most files in a design kit are accessed directly from the design kit. However, these technology files include user editable attributes, so they are copied in the project. Appropriate path variables are modified so that they will always be read from the project directory.

Before continuing with this section, you must have already installed and enabled the design kit that will be used as the source for technology files for this project. It can be enabled at any level. Refer to "Install ADS Design Kit" on page 2-5 or"Setup ADS Design Kits" on page 2-15 for instructions.

To select the Design Kit technology files for a project:

1. Choose **DesignKit > Setup Project**. The Setup Project Technology Files dialog box appears. You must have a project open for this menu pick to be available.

2. From the list of available technologies, select the design kit from which to copy the technology files. If there are no design kit technologies enabled, the only options in the list will be ADS Standards and Custom technology directory sources. Click the **Cancel** button and enable a design kit before proceeding if you want to setup your project with a design kit's technology.



3. Once you have selected a design kit technology or other technology, click the **View Details** button. The *Technology File Integration Details* are updated accordingly to inform you of the action that will take place if you click **OK** in the *Setup Project Technology Files* dialog box. After you understand the details, click **OK** in the *Technology File Integration Details* dialog box to clear the dialog.

4. Use the *Set as default for all new designs in project* checkbox in the Setup Project Technology Files dialog box to set the selected technology as your new project's default technology for all new designs created. The check box is enabled by default.

   The layers file for layout is the most important file to get from the design kit. Preferences files are typically not as important as the layers file. Momentum substrate files are necessary only if you intend to use Momentum. Additionally, an advanced user may understand how to browse to find a Momentum substrate file from the design kit without copying it into the project. If a substrate file is opened from the design kit directory, be careful not to modify it.

   If there are no technology files supplied with the design kit, the view details will show the default layers and preferences files being used for the project instead. The default preference files will already have been copied into the project when it was created. Default layers files are opened from

$HPEESOF_DIR/de/defaults until a change has been made to any layer attributes. Then a copy is saved in the project directory and read from there.

---

**Note** If you have saved layers or preference files with a custom name in your project, this process will not touch those files. Any designs that reference those custom files will continue to reference them. If you wish to have those design files start to use the new files from the design kit, you must use the **Read** button from the layer dialog or preferences dialog to reset the file name to the default names.

---

5. After indicating which technology source will be used, click **OK** to initiate the copying procedure.

6. If the files do not currently exist in your project then they will be copied in. If files already exist, you are asked if you want to overwrite the existing files. In all cases, existing files by the same name will be renamed. No files will be deleted by this procedure.

# Using an ADS Design Kit to Create a Schematic

After successfully installing an ADS design kit and learning how to use the Design Kit Toolset to manage your design kits in ADS, you can use this section to help you get started designing a circuit with an installed design kit.

If the design kit that you installed came with directions, review these before starting to design. The design kit may contain special features not covered in this documentation that might require manual configuration. There may also be custom menus that you should be aware of.

A design kit from a foundry should also contain detailed information regarding each component in the design kit, as well as an example project demonstrating how the design kit may be used. This example can be opened and simulated to ensure that you have properly installed the design kit.

Components in a design kit may be presented in the component palette or in the library browser, or both. Both are accessed from the schematic window. The component palette is always visible on the left side of the drawing area. If your selected design kit is not visible in the palette, open the Component Palette List and scroll down until you find it. A single design kit may include more than one palette. For example, passive and active devices might be listed in separate palettes.

Likewise, components in the library browser can be presented in different sub-groups. The library browser can be opened by a button on the toolbar or from the **Insert > Component > Component Library** menu item.



One special component that will be in most design kits is a *process* or *include* component. In some cases, this is used so the simulator can find model files stored in the design kit. If this component is supplied, it is most likely required to be in your schematic for simulation to be successful. Find the *process* or *include* component on the palette or in the library and place this component in your schematic first. Place it at the top level of a hierarchical design.

Continue designing your circuit now by placing components out of the design kit or the standard palettes. Place the proper simulation components from a simulation palette, and simulate the circuit.

For an example project and example design kit to experiment with, browse to the examples directory and look for DesignKit/bjt_dc_prj. For best results, make a local copy of the project before attempting to simulate, since simulation requires write permission in the project directory, as do some design kit configuration steps. The design kit called *my_design_kit* is included in a sub-directory of the project. An *ads.lib* file in the project directory ensures that the design kit gets loaded when the project is opened.

For information on what to do if you have problems with a foundry-supplied design kit, refer to "Design Kit Customer Support" on page 1-5.

# 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.

**Setup Project...**

Configure a project to use the technology files from a specific design kit. For more information, refer to "Setup Current Project" on page 2-26.

# 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 Advanced Design System 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 ADS 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 ADS are read from four 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.
- ./   Current working directory, either the directory where ADS was started or the current project directory.

If a variable is defined in more than one location, the last value read is the one that will be recognized by the system.

---

**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 *design_kit.cfg* file is read in two different ways. It is read in conjunction with *de_sim.cfg* at ADS startup to add the design kit user interface to ADS. Then when specific design kits get loaded or when the Design Kit Setup dialog is used, the file is read directly to resolve other variables defined in the file.

The *de_sim.cfg* file is read from all four locations in the order listed above. 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 four locations described above. This single location is the same directory that contains the *de_sim.cfg* file currently being read.

This is the mechanism that is used to resolve the design kit variables that are used in other variables. First *de_sim.cfg* includes *design_kit.cfg* to get the value of variables such as DESIGN_KIT_UI_AEL. Then *de_sim.cfg* includes *de.cfg*, where a variable named PDE_AEL is set. PDE_AEL includes a reference to DESIGN_KIT_UI_AEL. This is how the user interface and internal AEL code for the design kit infrastructure gets added to ADS. The variables DK_AEL_PATH, DESIGN_KIT_UI_AEL, DESIGN_KIT_STARTUP_AEL and DESIGN_KIT_PROJECT_AEL are all used in this manner.

Additional design kit variables are used to manage the design kit setup or when individual design kits are enabled. When such a variable is needed, the system reads the *design_kit.cfg* file from the three locations defined above. Variables such as DESIGN_KIT_LEVELS_ENABLED, DESIGN_KIT_SITE_PATH and DESIGN_KIT_TECHNOLOGY_NAME are resolved in this manner. Descriptions of how these variables are used is given in the table below.

Additionally, some other design kit variables are set in files such as *hpeesofbrowser.cfg*, *hptolemy.cfg* and *hpeesofsim.cfg*. These variables extend certain paths so that the system can find files that are in a design kit. These variables are described below as well.

---

# 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. The last section, "Accessing Both Old and New Design Kit Menus Simultaneously" on page A-8, 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 $HPEESOF_DIR/config/design_kit.cfg file. The DK_AEL_PATH variable is set to the directory where the common design kit AEL code resides. This variable is used by the next few variables in the file. <br><br> DK_AEL_PATH={$HPEESOF_DIR}/design_kit/ael |
| **DKIT_ADSLIBCONFIG_PATH** |
| When a design kit with encoded models is enabled, the following steps are taken by the design kit infrastructure to ensure that the encoded models are automatically loaded when the simulator is run. <br> 1. The <design kit>/circuit/config directory is searched for a file named ADSlibconfig. <br> 2. The contents of the ADSlibconfig file are merged into the master file $HOME/hpeesof/design_kit/circuit/config/ADSlibconfig. <br> 3. In $HOME/hpeesof/config/hpeesofsim.cfg, DKIT_ADSLIBCONFIG_PATH is set to $HOME/hpeesof/design_kit/circuit/config. <br> 4. When the simulator is invoked, the variable ADSLIBCONFIG_PATH is read from $HPEESOF_DIR/config/hpeesofsim.cfg. This path contains a reference to DKIT_ADSLIBCONFIG_PATH, so any ADSlibconfig files in DKIT_ADSLIBCONFIG_PATH will be appended to ADSLIBCONFIG_PATH and used to find encoded models during simulation. <br><br> The file $HOME/hpeesof/design_kit/circuit/config/ADSlibconfig is managed by the design kit infrastructure and should never be edited manually. Also, DKIT_ADSLIBCONFIG_PATH cannot be removed from ADSLIBCONFIG_PATH. ADSLIBCONFIG_PATH can be defined in hpeesofsim.cfg in $HOME/hpeesof/config, $HOME/hpeesof/custom/config or $HPEESOF_DIR/config. <br><br> DKIT_ADSLIBCONFIG_PATH=$HOME/hpeesof/design_kit/circuit/config |
| **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. <br><br> 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. <br><br> 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. <br><br> DESIGN_KIT_PROJECT_AEL={%DK_AEL_PATH}/dk_project_attach |

### Table A-1. ADS Design Kit Variables

| |
|---|
| **DESIGN_KIT_PROJECT_OPEN_AEL**<br>This AEL file contains code that is invoked every time after a user opens a project.<br><br>DESIGN_KIT_PROJECT_OPEN_AEL=(%DK_AEL_PATH}/dk_open_project_attach |
| **DESIGN_KIT_LEVELS_ENABLED**<br>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.<br><br>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:<br><br>SITE: \$HPEESOF_DIR/custom/design_kit/ads.lib<br><br>USER: \$HOME/hpeesof/design_kit/ads.lib<br><br>STARTUP: The directory from which ADS is invoked on unix. This can be set as a short-cut property for PC systems.<br><br>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.<br><br>For more information on the ads.lib file, refer to the "Design Kit Development Guide".<br><br>DESIGN_KIT_LEVELS_ENABLED=USER:PROJECT |
| **DESIGN_KIT_SITE_PATH**<br>This variable is used to tell the system where to read the SITE LEVEL ads.lib file. The default value for this variable is \$HPEESOF_DIR/custom/design_kit/ads.lib. For a PC network, where ADS is installed directly on an end user's PC, \$HPEESOF_DIR is on that PC, not on the network like it is with a unix network installation. However, a CAD manager might still want to maintain the master list of installed design kits (ads.lib) on a networked site. In that case, set this variable to the network directory where the file is located. Define the variable in design_kit.cfg in \$HPEESOF_DIR/custom/config or \$HOME/hpeesof/config.<br><br>DESIGN_KIT_SITE_PATH=F:\ADS_FILES |

## Table A-1. ADS Design Kit Variables

| |
|---|
| **DESIGN_KIT_TECHNOLOGY_NAME** (valid for ADS2002C only)<br>This variable indicates which design kit is to be used as the source for process technology files. If specified, the user will be prompted to select layers and preferences and momentum substrate files to copy from this design kit. For more information, see "Set the default design kit for new projects" in **"Setup ADS Design Kits" on page 2-15**.<br><br>This variable is set in the design_kit.cfg file. It can be defined at any LEVEL. If it is defined at the STARTUP level, there may be multiple startup directories and each one can be set to a different process by naming a different design kit as the source for technology files. If it is not defined at the STARTUP level, it can be defined at the USER ($HOME/hpeesof/config/design_kit.cfg) or SITE ($HPEESOF_DIR/custom/config/design_kit.cfg) level. In this case, the value at the USER level will take precedence if defined.<br><br> DESIGN_KIT_TECHNOLOGY_NAME=\<kit name\> |
| **DESIGN_KIT_CIRCUIT_TEMPLATE_PATH**<br>This variable is used to extend the search path for the circuit schematic templates. If a design kit contains schematic templates, this variable is set to \<design_kit_path\>/circuit/templates in $HOME/hpeesof/config/de_sim.cfg when the design kit is enabled. This variable is referenced by CIRCUIT_TEMPLATE_PATH in de_sim.cfg.<br><br>DESIGN_KIT_CIRCUIT_TEMPLATE_PATH = \<design_kit_path\>/circuit/templates |
| **DESIGN_KIT_HPTOLEMY_TEMPLATE_PATH**<br>This variable is used to extend the search path for the adsptolemy schematic templates. If a design kit contains adsptolemy schematic templates, this variable is set to \<design_kit_path\>/adsptolemy/templates in $HOME/hpeesof/config/hptolemy.cfg when the design kit is enabled. This variable is referenced by HPTOLEMY_TEMPLATE_PATH in hptolemy.cfg.<br><br>DESIGN_KIT_HPTOLEMY_TEMPLATE_PATH = \<design_kit_path\>/adsptolemy/templates |
| **DESIGN_KIT_BROWSER_PATH**<br>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.<br><br>DESIGN_KIT_BROWSER_PATH = \<design_kit_path\>/circuit/records |

## 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_name>|<design_kit_path>/circuit/templates

---

**DESIGN_KIT_MODEL_PATH**
This variable is used by the simulator to locate user-compiled models saved as dynamically linked libraries. These are also known as shared libraries. The file extensions are .dll, .sl or .so depending on the platform. When a design kit with a user-compiled model is enabled, the variable DESIGN_KIT_MODEL_PATH is set to <design_kit_path>/bin/$ARCH, where $ARCH is determined by running $HPEESOF_DIR/bin/hpeesofarch. DESIGN_KIT_MODEL_PATH is set in hpeesofsim.cfg in the project directory and is referenced by the variable EESOF_MODEL_PATH.

DESIGN_KIT_MODEL_PATH = <design_kit_path>/bin/$ARCH

---

**DESIGN_KIT_SIM_FILE_PATH**
This variable is used by the simulator to locate data files listed on data file components such as SnP and MDIF components. When a design kit with files in the circuit/data directory is enabled, the variable DESIGN_KIT_SIM_FILE_PATH is set to <design_kit_path>/circuit/data.
DESIGN_KIT_SIM_FILE_PATH is set in hpeesofsim.cfg in the project directory and is referenced by the variable USER_SIM_FILE_PATH.

DESIGN_KIT_SIM_FILE_PATH = <design_kit_path>/circuit/data

---

**DESIGN_KIT_NO_MENU** (Obsolete)
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

---

**DESIGN_KIT_LOCAL_OVERRIDE** (Obsolete)
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

# 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={$HPEESOF_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-3.

    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 **Tools > 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=

   DESIGN_KIT_PROJECT_OPEN_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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