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Sonnet's Agilent ADS Interface Release 13 Update

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Chapter 1 Introduction

This document contains additions and changes to Sonnet's Agilent ADS Interface documentation found after the Translators manual went to press for Release 13. The original documentation was created to support ADS 2009. Chapter 2 contains the differences when using ADS 2011 as compared to ADS 2009. Chapter 3 provides documentation on changes made to the Agilent ADS Interface for version 13.56; these changes apply for both ADS 2009 and ADS 2011. The contents of this document supersedes that found in Chapter 3, "Agilent ADS Interface," of the Translator's manual.

Chapter 2 Using the Interface with ADS 2011

Version 13.56 supports compatibility between Sonnet's Agilent ADS Interface and ADS 2011. Since the original documentation was written when the interface only supported ADS 2009, there are some differences not documented in the original release 13 documentation.

Changes in ADS Project Organization

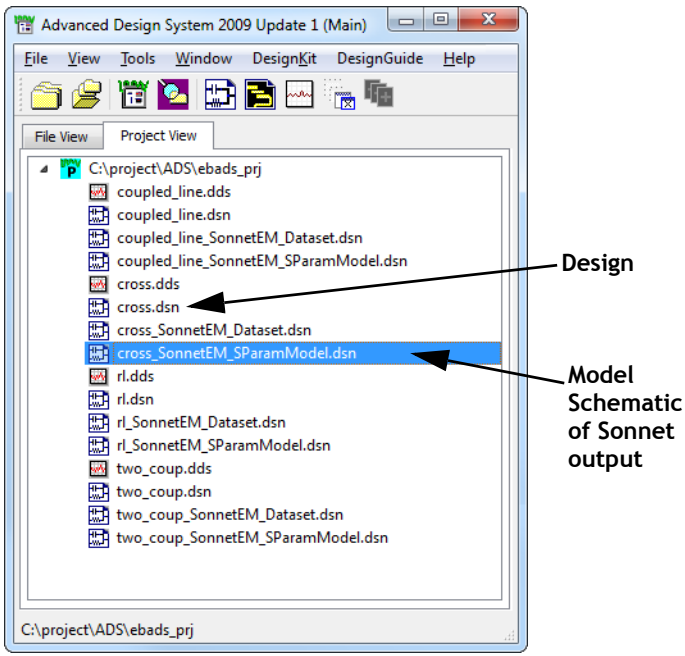
Agilent enacted major organizational changes in the upgrade from ADS 2009 to ADS 2011. In ADS 2009, a user worked with a project while in ADS 2011, the user has a workspace. The project contained various designs, while a workspace

is made up of cells that can have multiple views and are part of a library. Very little has changed in the Sonnet Agilent ADS Interface but there are several details of which you should be aware.

Projects versus Workspaces

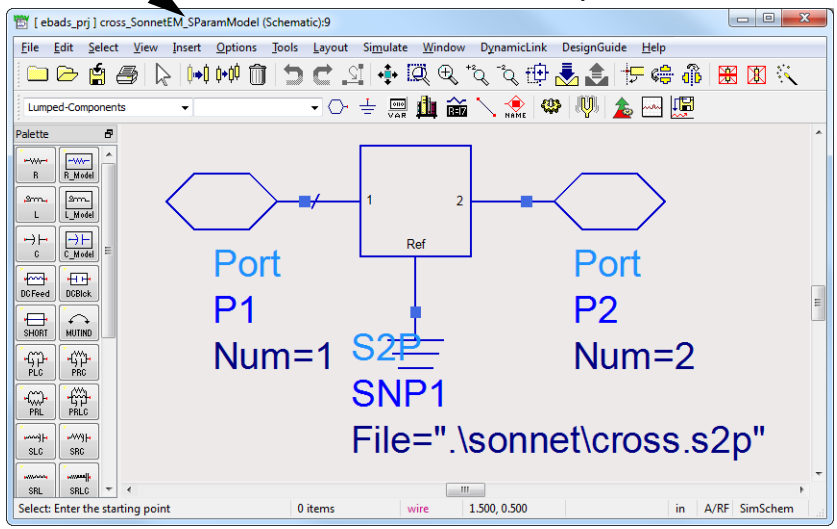
Shown below is a comparison of an ADS 2009 file directory for a project versus the file directory for a 2011 workspace along with a schematic of an output model from a Sonnet simulation. Projects contained designs and design representations while workspaces contain cells and cell views that are part of a library. When working with ADS 2009, the Sonnet Agilent ADS interface is used to create the types of design representations: layout, schematic and symbol. When ADS 2011 is used, the Sonnet interface creates a new cell with layout, schematic and symbol views.

ADS 2009 Project

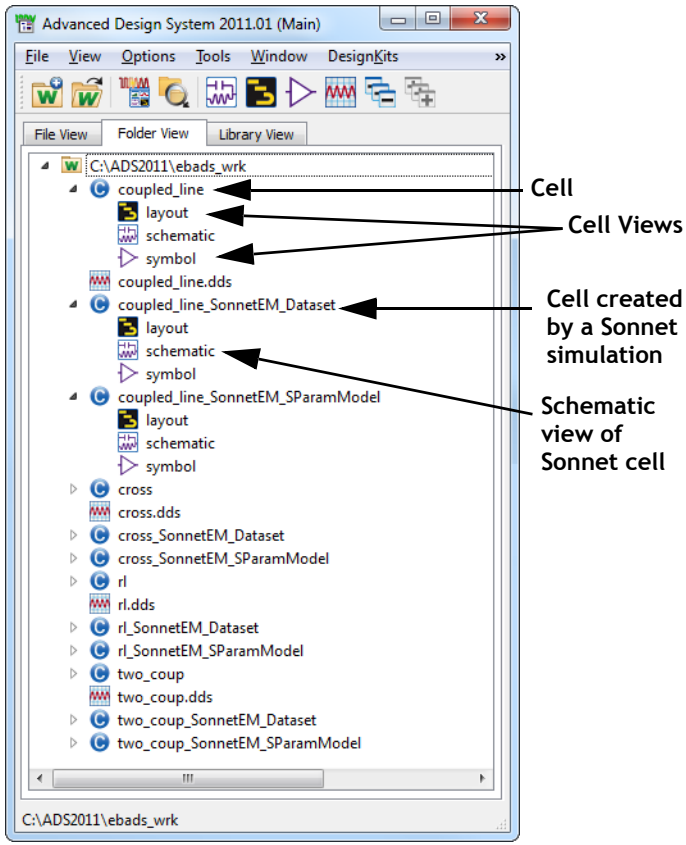


Filename

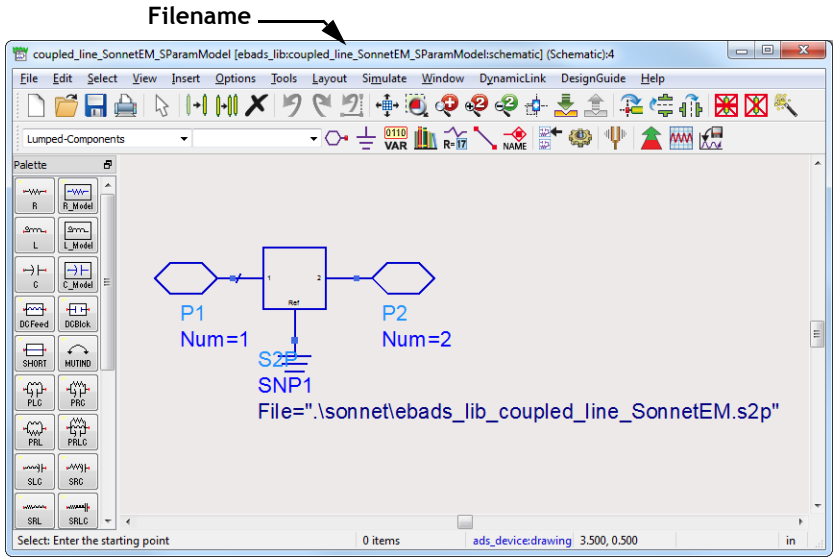
Model Schematic of Sonnet Output - ADS 2009



ADS 2011 Workspace



Schematic Cell View of Sonnet output - ADS 2011



Design Kits

When using ADS 2009, once you installed the Sonnet Agilent ADS Interface as a Design Kit, the interface was automatically available for any new project. In ADS 2011, the Sonnet Design Kit must be added to each desired workspace in order to use the Sonnet Agilent ADS Interface in that workspace. For detailed installation instructions, please see See “Interface Installation for ADS 2011” on page 15.

You may choose to add the Sonnet Design Kit to a workspace when creating the workspace or you may add it to the workspace later. Instructions for both methods are provided below.

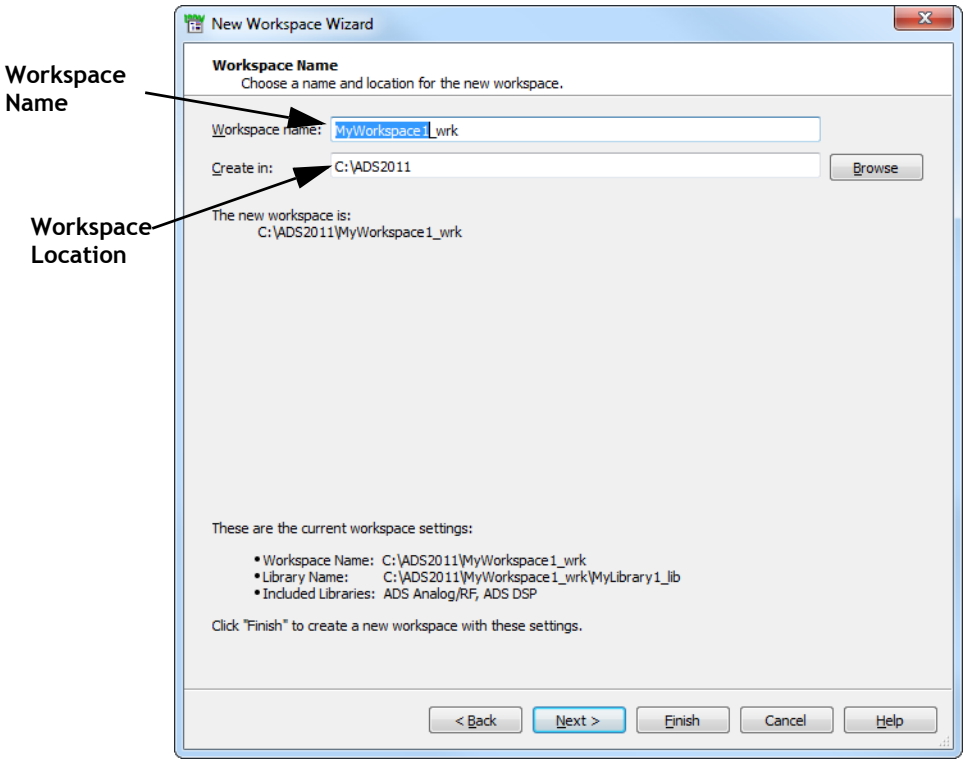
Adding the Sonnet Design Kit when Creating a Workspace

To add the Sonnet Design Kit to a workspace when you create the workspace, do the following:

1 In the main ADS 2011 window, select *File* ⇒ *New* ⇒ *Workspace* from the menu.

The New Workspace Wizard appears on your display. If it opens on the Introduction page, please click on the "Next" button.

2 In the Workspace Name page of the Wizard, enter the desired workspace name and location.

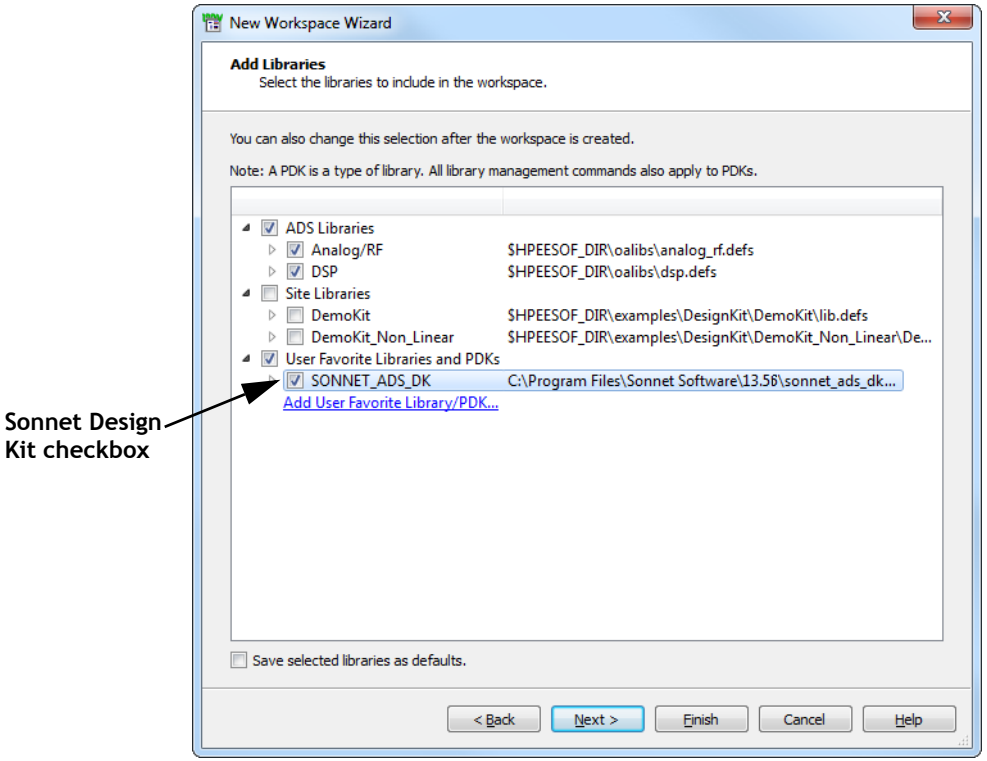


3 Once you have finished specifying these fields, click on the "Next" button.

The Add Libraries page of the wizard appears on your display.

4 Click on the SONNET_ADS_DK checkbox on the Add Libraries page.

Selecting the SONNET_ADS_DK checkbox automatically selects the "User Favorite Libraries and PDKs" checkbox. Selecting this checkbox installs the Sonnet Agilent ADS Interface in this workspace.



5 Click on the "Finish" button.

This closes the Wizard and creates the new workspace with the Sonnet Interface installed. Please note that you could have also chosen to click on the "Next" button to manage the libraries for the new workspace, but that step is not necessary to include the design kit, so it was not shown.

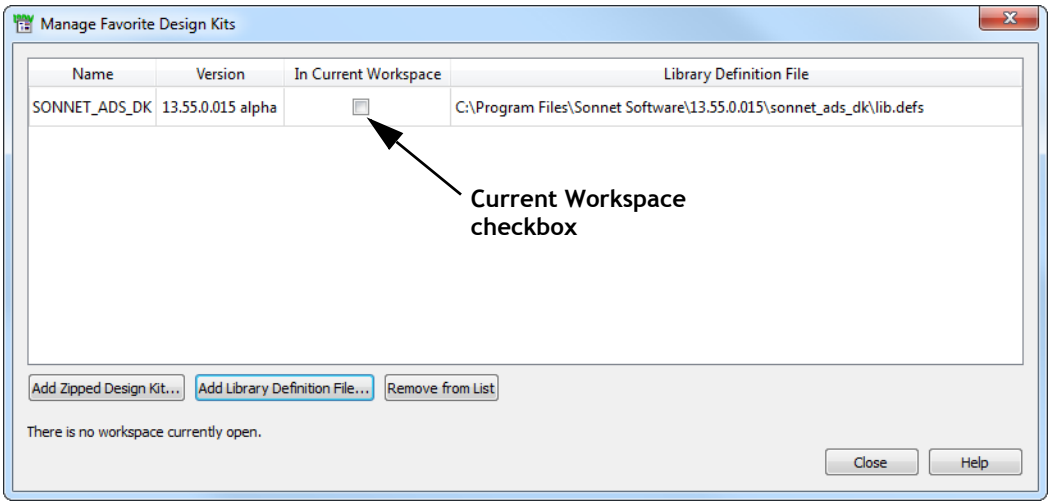
Adding the Sonnet Design Kit to an existing Workspace

To add the Sonnet Design Kit to an existing workspace, do the following:

1 **Select the workspace in the ADS 2011 main window.**

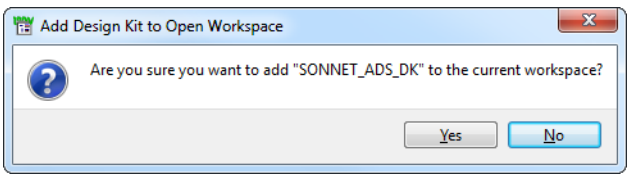
2 **Select *Design Kits* ⇒ *Manage Favorite Design Kits* from the menu of the main window.**

The Manage Favorite Design Kits dialog box appears on your display as shown below. Note that if you have multiple design kits installed, they will also be listed in this dialog box; our example shows only the Sonnet design kit.



3 **Click on the Current Workspace checkbox in the SONNET_ADS_DK entry line to select the Sonnet design kit.**

A query window appears on your display.



4 **Click on the "Yes" button in the query window.**

The window closes and this completes adding the design kit.

5 **Click on the "Close" button in the Manage Favorite Design Kits dialog box to close it.**

Interface Installation for ADS 2011

The manual installation of Sonnet's Agilent ADS Interface using ADS 2011 is different from the procedures when using the interface with ADS 2009. If you are using ADS 2009, please refer to the procedure in the "Installation" section starting on page 32 of the original release 13 **Translators** manual. If you are using ADS 2011, please refer to the Installation instructions below.

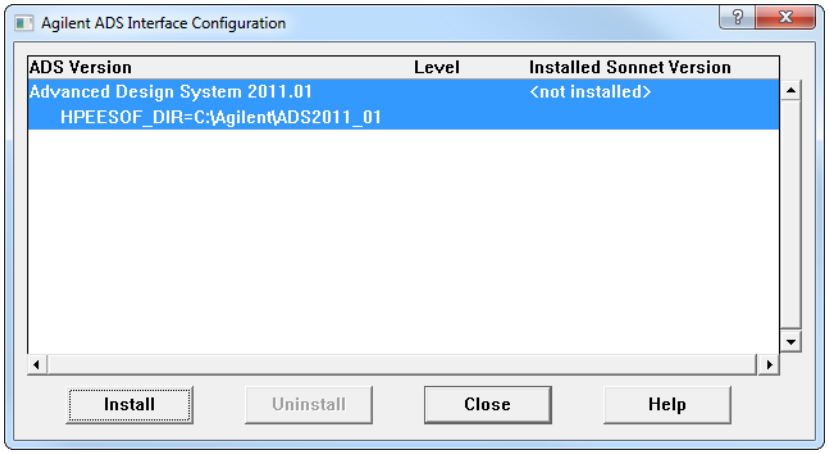
If Agilent's ADS is already installed on your system, then the Agilent ADS Interface is automatically installed when you install your Sonnet Software. If you need to install the Agilent ADS Interface at a later time, you may do so from the Sonnet environment. Directions are below.

Manual Installation Using Sonnet

To install the Agilent ADS Interface from the Sonnet environment, do the following:

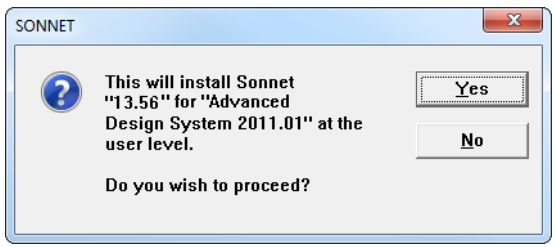
1 Select *Admin* ⇒ *Agilent ADS Interface Configuration* from the main menu on the Sonnet task bar after you have installed Agilent's ADS.

The Agilent ADS Interface Configuration window appears on your display and lists all the versions of ADS which are available. This example shows only one instance of ADS. If there is more than one version of ADS available, click on the desired version to enable the Install button.



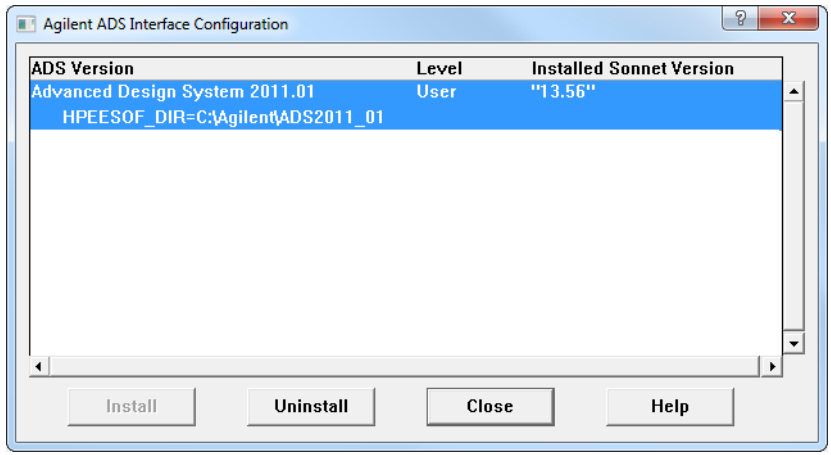
2 Click on the Install button at the bottom of the window.

A query appears on your display asking if you wish to proceed.



3 Click on the Yes button.

The Agilent ADS Interface is installed. A success message is displayed, and the window is updated to show that it is installed as shown below.



Manual Installation Using ADS

When manually installing a Design Kit in the ADS 2011 environment, there is an issue with pathnames that contain spaces that causes the installation of a Design Kit to fail. Since the default location for a Sonnet installation contains spaces in the pathname, installing the Sonnet Design Kit in the ADS environment normally fails. We strongly suggest installing Sonnet's Agilent ADS Interface in the Sonnet environment as documented in "Manual Installation Using Sonnet" on page 15 to ensure that the Sonnet Design Kit is properly installed.

Automatic Uninstall

The Agilent ADS Interface is not automatically uninstalled when you uninstall Sonnet Software. To uninstall only the Agilent ADS Interface you may do so manually from either the Sonnet environment or the ADS environment.

Manual Uninstall Using Sonnet

To uninstall the Agilent ADS Interface in the Sonnet environment, do the following:

1 **Select *Admin* ⇒ *Agilent ADS Interface Configuration* from the main menu on the Sonnet task bar.**

The Agilent ADS Interface Configuration window appears on your display.

2 **Click on the version of ADS in the list which you wish to uninstall.**

The entry is highlighted and the Uninstall button is enabled.

3 **Click on the Uninstall button.**

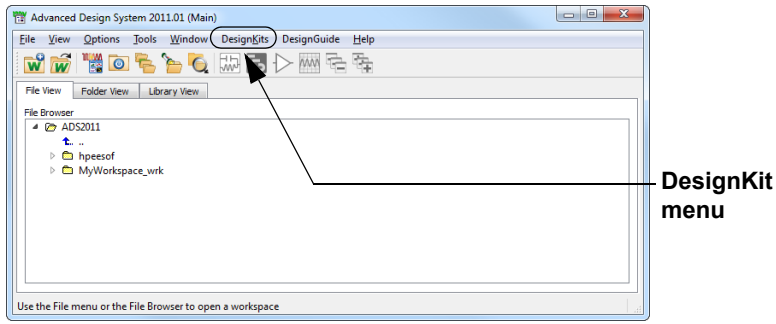
The installed column for that entry is updated to say "<not installed>."

Manual Uninstall Using ADS

If you need to uninstall the Agilent ADS Interface but do not have access to the Sonnet task bar, you may do so manually by following the instructions below.

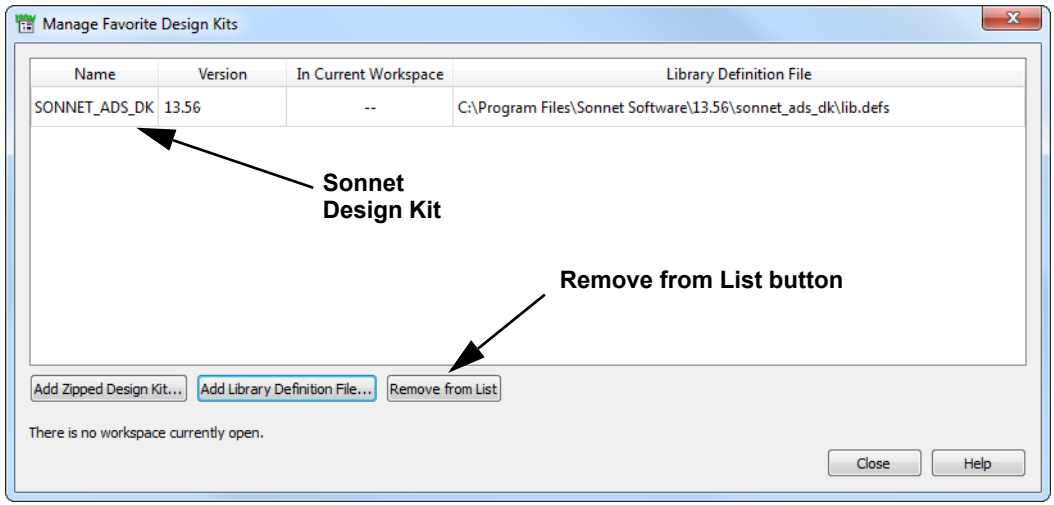
1 Invoke ADS.

The ADS main window appears on your display.



2 Select *DesignKits* ⇒ *Manage Favorite DesignKits* from the menu.

The Manage Favorite Design Kits dialog box appears on your display.



3 Click on the SONNET_ADS_DK entry in the Design Kits list.

The entry is highlighted to indicate that it is selected.

4 **Click on the Remove from List button to remove the Sonnet Design Kit.**

A window appears with the message "Are you sure you want to remove the selected kits?"

5 **Click on the "Yes" button in the query window.**

The Sonnet entry is removed from the Design Kit list.

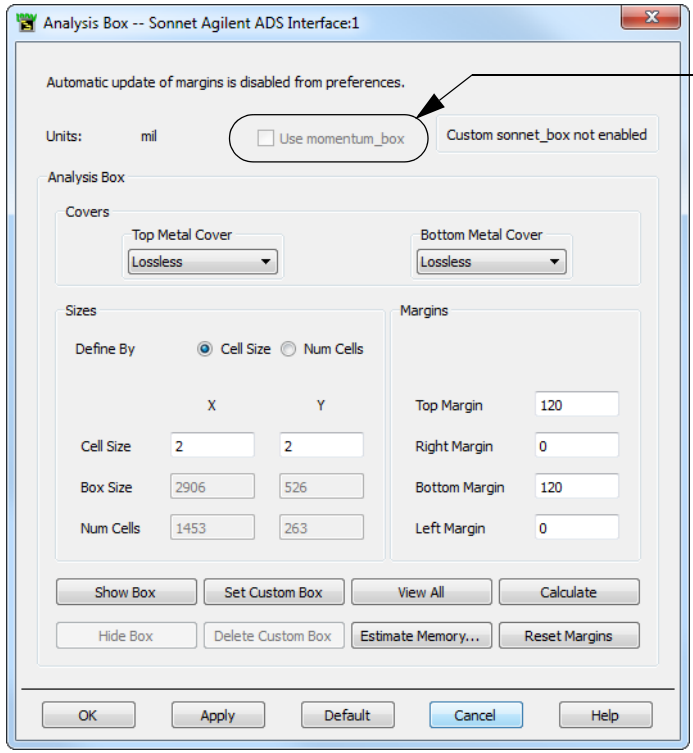
6 **Click on the Close button to close the Manage Favorite Design Kits dialog box.**

You should restart ADS to complete the installation.

Cannot Read Momentum Box Size

When using ADS 2009, there was an option in the Analysis Box dialog box in Sonnet's Agilent ADS Interface (*Sonnet* ⇒ *Setup* ⇒ *Analysis Box* ⇒ *Edit*) that allowed you to import the box size from Momentum. When using ADS 2011, it is not possible for the Sonnet interface to detect the Momentum box size in the layout, so when using the interface with ADS2011, this option is disabled.

If you wish to use the same box size, you should manually edit the Sonnet box size to match the Momentum box size. For more details on setting the box size, please see "Defining the Box" on page 54 of the Sonnet Translators manual.



Momentum Thick Metal Expansion

The Advanced Translation Options dialog box (*Sonnet* ⇒ *Setup* ⇒ *Options* ⇒ *Advanced Translation Options*) contains a Momentum Thick Metal Expansion option which adds an extra dielectric to the stackup. However, in ADS 2011, Momentum has settings which determine how the dielectric stackup is affected by thick metal; therefore, the Sonnet interface no longer requires this checkbox. For

ADS 2011, this checkbox has no effect; it is only applicable when using the interface with ADS 2009. All metal and dielectric thicknesses are translated directly.

Chapter 3 Changes in Version 13.56

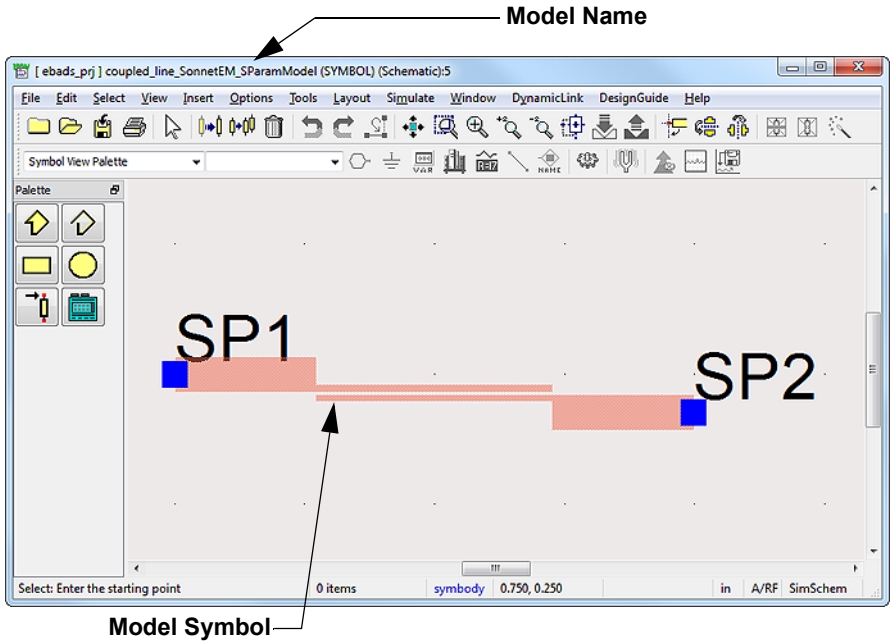
This chapter details changes made to Sonnet's Agilent ADS Interface for version 13.56. These changes apply when using the interface with ADS 2008, ADS 2009 or ADS 2011.

Viewing Model Symbol

Version 13.56 introduces a new command in the Agilent ADS Interface which allows you to view the Sonnet model symbol. This is in addition to viewing the model schematic or layout, which is discussed on "Viewing the Model," page 102 in the Sonnet Translators manual.

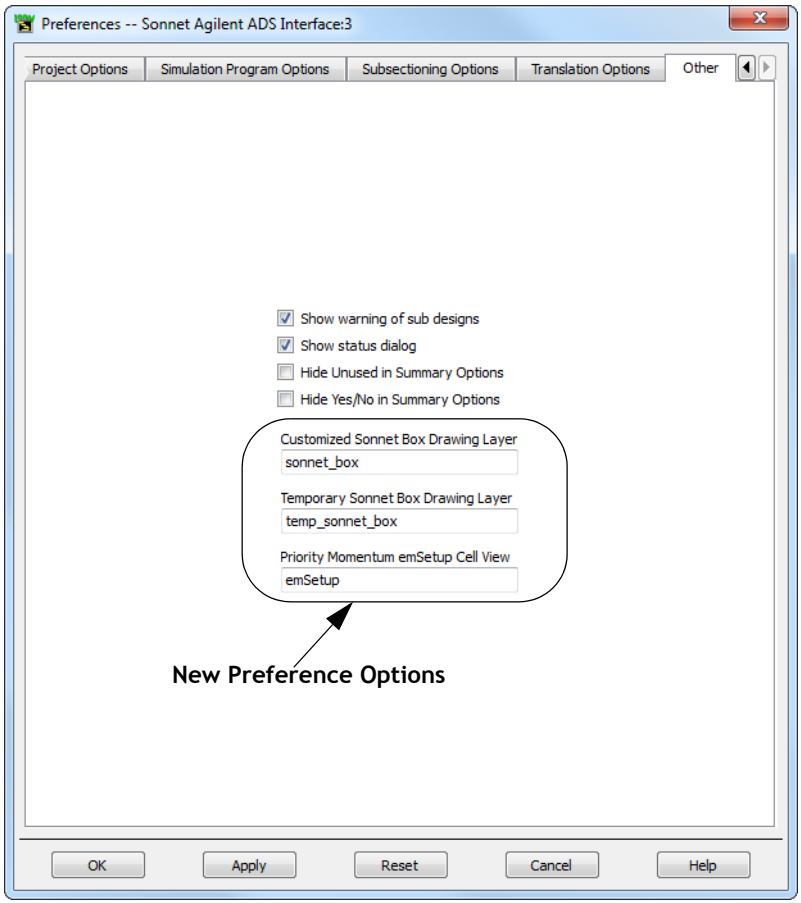
To view the model, you may open the schematic, layout or symbol view of the design from the main ADS window or from the Sonnet menu in the layout window from which you generated the model.

To view the symbol view of your model, select *Sonnet* ⇒ *Models* ⇒ *View S-Parameter Model* ⇒ *Symbol*. The schematic view of the model appears on your display and will resemble the schematic shown below.



New Preferences

There are three new preference options available on the Other tab of the preferences dialog box in Sonnet's Agilent ADS Interface (*Sonnet* ⇒ *Preferences*): Customized Sonnet Box Drawing Layer, Temporary Sonnet Box Drawing Layer, and Priority Momentum emSetup Cell View. All three options are explained below.



Customized Sonnet Box Drawing Layer

It is possible to create a custom sized box for your Sonnet analysis by drawing the box size in your layout view. See "Sonnet Custom Box" on page 59 of the Sonnet Translators manual for details on how to do this.

In order to input this box size, ADS requires a drawing layer upon which an object is drawn which represents the box size. This object is not translated into the Sonnet project, but the interface uses this object to set the Sonnet box size in the translated Sonnet project.

This option allows you to enter the name of the drawing layer that is used to define the custom Sonnet box. The default value is sonnet_box. If the default value is used, then a drawing layer named "sonnet_box" should be added to the design in ADS. You may also input another drawing layer name from your design that you wish to use.

WARNING

Do not place any additional objects on the Sonnet Box Drawing Layer as they are not translated. Also, if another option is used to define the box size, the Sonnet Box Drawing Layer is deleted from the layout which would include any additional objects placed on this layer.

Temporary Sonnet Box Drawing Layer

There is an option in the Analysis Box dialog box (*Sonnet* ⇒ *Setup* ⇒ *Analysis Box* ⇒ *Edit*) that when selected causes an outline to appear in the layout window which represents the box size defined in the Analysis Box dialog box. This outline only appears when the Analysis Box dialog box is opened.

A drawing layer is required on which this outline may be placed in order for it to appear in the layout. This option allows you to enter the name of the temporary drawing layer. The default name is temp_sonnet_box. If the default value is used,

then a drawing layer named “temp_sonnet_box” should be added to the design in ADS. You may also input another drawing layer name from your design that you wish to use.

NOTE: **The Sonnet Box is only displayed when the Analysis Box dialog box is opened in the interface and the “Show Box” option is selected in that dialog box as well. This means that the Sonnet Box Temporary Drawing Layer is not always visible so that any additional objects placed on this layer will not always appear in the layout window.**

Priority Momentum emSetup Cell View

Momentum can now have multiple states for a cell view which includes such information as the layout, substrate, ports, analysis freqs, etc. When a layout is translated into Sonnet, if Momentum has multiple states, then the Priority Momentum emSetup Cell View option defines which state is given priority and used for the translation into a Sonnet project. The default entry for this option is emSetup. Any name may be used for this cell view as long as the state using that name has been created in Momentum. That state should contain the information that you wish to use for your Sonnet simulation.