

Running and Configuring MSC.ADAMS 2005 r2

Online Help Printable Version



Corporate

MSC.Software Corporation
2 MacArthur Place
Santa Ana, CA 92707
Telephone: (800) 345-2078
FAX: (714) 784-4056

Europe

MSC.Software GmbH
Am Moosfeld 13
81829 Munich
GERMANY
Telephone: (49) (89) 43 19 87 0
Fax: (49) (89) 43 61 71 6

Asia Pacific

MSC.Software Japan Ltd.
Shinjuku First West 8F
23-7 Nishi Shinjuku
1-Chome, Shinjuku-Ku
Tokyo 160-0023, JAPAN
Telephone: (81) (3)-6911-1200
Fax: (81) (3)-6911-1201

Worldwide Web

www.mscsoftware.com

Disclaimer

The information in this document is furnished for informational use only, may be revised from time to time, and should not be construed as a commitment by MSC.Software Corporation. MSC.Software Corporation assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Copyright Information

This document contains proprietary and copyrighted information. MSC.Software Corporation permits licensees of MSC.ADAMS[®] software products to print out or copy this document or portions thereof solely for internal use in connection with the licensed software. No part of this document may be copied for any other purpose or distributed or translated into any other language without the prior written permission of MSC.Software Corporation.
Copyright © 2005 MSC.Software Corporation. All rights reserved. Printed in the United States of America.

Trademarks

ADAMS, EASY5, MSC, MSC., MSC.ADAMS, MSC.EASY5, and all product names in the MSC.ADAMS Product Line are trademarks or registered trademarks of MSC.Software Corporation and/or its subsidiaries.

NASTRAN is a registered trademark of the National Aeronautics Space Administration. MSC.Nastran is an enhanced proprietary version developed and maintained by MSC.Software Corporation. All other trademarks are the property of their respective owners.

Government Use

Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in FAR 12.212 (Commercial Computer Software) and DFARS 227.7202 (Commercial Computer Software and Commercial Computer Software Documentation), as applicable.

Table Of Contents

Learning the Basics 1

Running and Configuring MSC.ADAMS	2
Installing MSC.ADAMS	2
MSC.ADAMS Interfaces	2
MSC.ADAMS Program Folder on Windows	3
MSC.ADAMS Toolbar on UNIX	4
Viewing Licensing Information	6
Selection Menu	6
Command-Line Parameters	9
UNIX Example	9
Windows Example	9
Registry Editor	10
Troubleshooting	11
Windows Problem Reports	11
UNIX Problem Reports	12
Log Information on UNIX	13
Technical Support	13

Running MSCADAMS Products 15

Running MSC.ADAMS	16
On UNIX	16
Modes in Which You Can Run Products	16
Standard Products	16
Template-Based Products	17
Running User Libraries	18
On Windows	19
Running MSC.ADAMS on Windows	19
Running ADAMS/Solver	19
Running ADAMS/View	20
Running Template-Based Products	22

Creating User Libraries 27

User Library Overview	28
Creating User Libraries	29
Directory Structure for Template-Based Products	30
UNIX	30
Windows	30
Debugging User Libraries	31
Debugging on UNIX	31
Debugging on Windows	31
UNIX	32

User Libraries on UNIX	32
Deleting User Libraries	33
Importing Existing User Libraries	34
Windows	34
User Libraries on Windows	34
Custom ADAMS/View Libraries	34
Creating Libraries for Template-Based Products	35
User Libraries for Analysis Products	37

Managing Files 39

Binary Files	40
Language and Compiling	41
UNIX	41
Windows	41
Sample Source Files	42
MSC.ADAMS Files	42

Using Memory Models 47

Memory Models	48
Memory Model Sizes	48
Viewing Memory Model Size from ADAMS/View	49
Setting Custom Memory Model Size	49
Custom Memory Models	49
Maintaining Custom Memory Models on UNIX	50
Creating a custom memory model	50
Deleting a memory model	51
Rebuilding a memory model	51
Changing a memory model	51
Setting Custom Memory Model Size on Windows	52

Setting Environment Variables 53

Environment Variables	54
ADAMS/Aircraft Environment Variables	54
ADAMS/Controls Environment Variables	54
ADAMS/Durability Environment Variables	55
ADAMS/Flex Environment Variables	56
ADAMS/Rail Environment Variables	57
ADAMS/Solver Environment Variables	58
ADAMS/Vibration Environment Variables	59
ADAMS/View Environment Variables	60
Template-Based Environment Variables	62

Setting Preferences 67**UNIX Preferences 68**

UNIX Preferences 68

ADAMS/Solver License Sharing 68

ADAMS/Solver Preferences 69

MSC.ADAMS Product License Checkout 71

Temporary File Location 71

In the MSCADAMS Toolbar 72

Windows Preferences 80

ADAMS/Solver Pausing 80

MSC.ADAMS Environment 80

Search Paths 82

Learning the Basics

Running and Configuring MSC.ADAMS

This section of the online help provides you with instructions for running and setting up the MSC.ADAMS® suite of products. It describes:

- Running MSC.ADAMS products.
- Creating user dynamic-link libraries that extend the functionality of MSC.ADAMS and run them with the associated MSC.ADAMS products.
- Configuring MSC.ADAMS products so they work the way you want them to.

Installing MSC.ADAMS

The install guides for UNIX and Windows were provided to you in print at the time of purchase. View an electronic version (PDF) of the guides.

MSC.ADAMS Interfaces

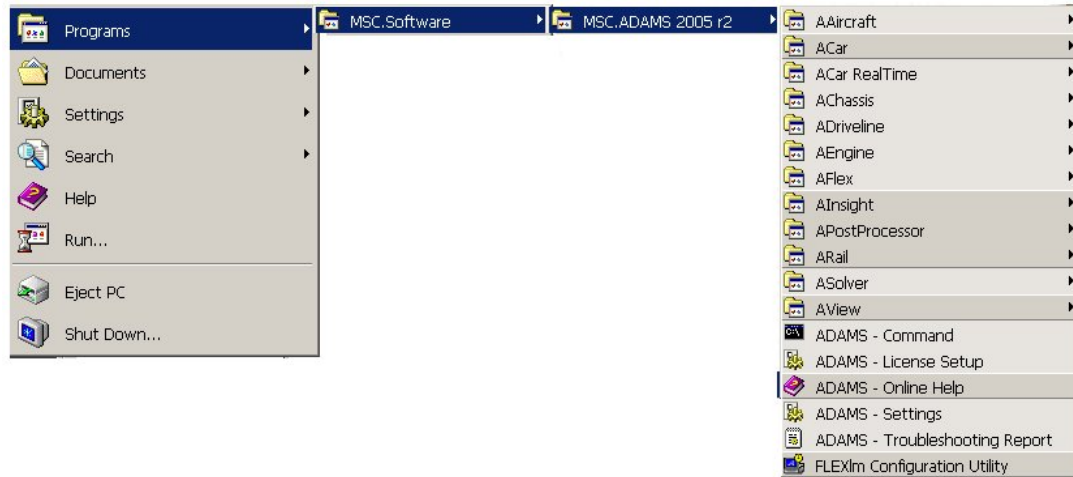
There are three types of interfaces that you can use to access MSC.ADAMS products and create libraries of custom operations for the products:

- MSC.ADAMS Toolbar (on UNIX only)- The MSC.ADAMS Toolbar is your starting point to using MSC.ADAMS products. The Toolbar gives you access to the major products you installed. It uses a registry service that maintains values and settings that you need when running MSC.ADAMS.
- MSC.ADAMS Program Folder (on Windows only) - The MSC.ADAMS program folder is your main starting point for running and customizing MSC.ADAMS products.
- MSC.ADAMS Selection Menu - The Selection Menu is a menu- and text-based interface that allows you to enter information on the command line. You can enter all of the commands on one line to quickly start the product. Note that you cannot access all products nor change all settings from the Selection Menu.
- Command-Line Parameters - You can enter command-line parameters at the command prompt to run MSC.ADAMS.

Although you can use the MSC.ADAMS Selection Menu, we recommend that you use the MSC.ADAMS Toolbar because it provides an easy-to-use interface and lets you run all products. Because of its advantages, this online help focuses on how to run and configure MSC.ADAMS products using the MSC.ADAMS Toolbar. For information on how to use the MSC.ADAMS Selection Menu, see Selection Menu.

MSC.ADAMS Program Folder on Windows

The MSC.ADAMS program folder on the Start menu is your starting point for running and customizing MSC.ADAMS products. It provides you with access to all the MSC.ADAMS products which you installed. Note that if you are not licensed to run a product, it will not run even though it is in the program folder.



Each of the MSC.ADAMS products is listed in the MSC.ADAMS program folder. You may have fewer items than shown in the figure above, depending on which products you installed. The program folder also contains options for creating and running user libraries, for setting ADAMS/View defaults, and for generating problem reports. The following table groups the options by their function. For example, it groups all options that run products.

The option:	Does the following:
Product group: AAircraft ACar ADriveline AChassis AEngine AFlex AInsight APostProcessor ARail ACarRealTime ASolver AView	<ul style="list-style-type: none"> Runs MSC.ADAMS products. The run options are described in Running MSC.ADAMS Products on Windows and Running MSC.ADAMS Products on UNIX. Creates user libraries of user-written subroutines to customize MSC.ADAMS products. For more information, see Creating User Libraries.
ADAMS - Command	Opens the MSC.ADAMS Selection Window in a Windows command shell.
ADAMS - License Setup	Sets up passwords and a license server to manage access to MSC.ADAMS products. See the <i>MSC.ADAMS Installation and</i>

	<i>Operations Guide</i> for more information.
ADAMS-Online Help	Starts the MSC.ADAMS online help.
ADAMS-Release Notes	Opens the MSC.ADAMS release notes in your default browser.
ADAMS-Settings	Allows you to control the look of your screen through the graphics drivers and select the amount of memory you need for your model. For more information, see <i>Setting Preferences for MSC.ADAMS on Windows or on UNIX</i> .
ADAMS - Troubleshooting Report	Creates a troubleshooting report that examines your system configuration and places important debugging information in the file <code>adams_problem_report.txt</code> . For more information, see <i>Troubleshooting</i> .
FLEXlm Configuration Utility	Opens Flexlm where you can configure your license. Refer to the <i>MSC.ADAMS Installation and Operations Guide</i> for more information.

MSC.ADAMS Toolbar on UNIX

The MSC.ADAMS Toolbar provides access to many of the MSC.ADAMS major products, which all have tools on the Toolbar as shown in the figure below. MSC.ADAMS also has add-on modules or plugins, which expand the functionality of the major products, such as ADAMS/AutoFlex, ADAMS/Controls, ADAMS/Durability, and ADAMS/Vibration. You run these products from within the major products. For example, to run ADAMS/Vibration, you first run ADAMS/Car or ADAMS/View and then select the command to run ADAMS/Vibration.

- Displaying the toolbar
- Setting up the toolbar
- Exiting the toolbar
- Viewing licensing information

Displaying the Toolbar

Your system administrator typically sets the command required to run the MSC.ADAMS Toolbar. Therefore, before you begin, you need to know the command to display the MSC.ADAMS Toolbar. It is also helpful to know where the software is installed so you can troubleshoot and access examples, demonstrations, and templates that come with MSC.ADAMS products. See your system administrator for assistance.

To start the MSC.ADAMS Toolbar:

- Enter the command to display the MSC.ADAMS Toolbar (the standard command that MSC.Software provides is **adamsx** where *x* is the version number, for example adams05r2).

The MSC.ADAMS Toolbar appears as shown next:

MSC.ADAMS Toolbar tool - Right-click to set up Toolbar, manage memory models, access online help and Technical Support resources, and more.



Product tools - Click to run product or right-click to configure products and create user libraries.

Hold the cursor over a tool to see the name of the associated product.

Setting Up the Toolbar

You can change the orientation of the MSC.ADAMS Toolbar and remove tools representing products that you do not use frequently. Deleting a tool does not remove it permanently; you can still restore it.

To change the orientation of the Toolbar:

- Right-click the MSC.ADAMS Toolbar tool, and select Horizontal or Vertical depending on the current orientation of the Toolbar.

To remove a product tool from the Toolbar:

- Right-click the tool you want to remove, and then select Remove from Toolbar. For example, to remove the ADAMS/Insight tool, right-click the tool, and then select Remove ADAMS/Insight from Toolbar.

Note: If you would like to remove a product tool from the Toolbar, you must first be sure that the tool is not set to run the product with a user library. If it is, you can only select to remove the library. To check what a product tool is set to run, see About ADAMS/View Preferences.

To restore all tools to the Toolbar:

- Right-click the MSC.ADAMS Toolbar tool, and then select Reset Icons.

Exiting the MSC.ADAMS Toolbar

To exit the MSC.ADAMS Toolbar:

- Right-click the MSC.ADAMS Toolbar tool, and then select **Exit**.

Note: Do not exit from the Toolbar using Ctrl-C. Ctrl-C prevents the Toolbar from properly closing the Registry and leaves a lock file in your \$HOME/.msca directory.

If you exit and a lock file remains, simply remove the lock file before starting the MSC.ADAMS Toolbar.

Viewing Licensing Information

Using the MSC.ADAMS Toolbar, you can generate a listing of the software for which you are licensed. The listing includes the major version of the products you are running, the number of licenses you have purchased, and the date when the licenses expire.

To view licensing information:

1. Right-click the MSC.ADAMS Toolbar tool, point to **Support**, and then select **License Information**.

The MSC.ADAMS License Information dialog box appears.

2. After viewing the information, select **Close**.

Selection Menu

The MSC.ADAMS Selection Menu is a command-line interface for building and running MSC.ADAMS products. It provides you with access to all the MSC.ADAMS products for which you are licensed.

- Displaying the Selection Menu
- Entering Selection Codes
- Getting Help
- Exiting the Selection Menu

Displaying the Selection Menu

Your system administrator can change the command to run the MSC.ADAMS Selection Menu to access MSC.ADAMS products. Before you begin, therefore, you need to know:

- The command to run the software.
- Where the software is installed.

To start the Selection Menu:

- **On Windows:**
 - From the **Start** menu, point to **Programs**, point to **MSC.Software**, point to **MSC.ADAMS x** (where x is the release number), and then select **ADAMS - Command**.
 - Enter the command to run the MSC.ADAMS Selection menu.
- **On UNIX:** Enter the command to run the MSC.ADAMS Selection Menu.

The standard command that MSC.Software provides is **adamsx -c** where x is the version number, for example adams05r2.

The MSC.ADAMS Selection Menu appears. It contains a list of options, or selection codes, for the products for which you are licensed. A Windows example is shown next.

MSC.ADAMS 2005_r2 Selection Menu	
Action	Selection Code
Create ADAMS/Solver with ADAMS User-DLL	cr-user
Run ADAMS/Solver with Standard ADAMS executable User executable	ru-standard ru-user
Pre- or Post-process with	
ADAMS/View	aview
ADAMS/Car	acar
ADAMS/Engine	aengine
ADAMS/Aircraft	aircraft
ADAMS/Rail	arail
ADAMS/Driveline	adriveline
ADAMS/Car RealTime	acrealtime
ADAMS/PostProcessor	appt
ADAMS/Insight	ainsight
MSC Flex Toolkit	flextk
MSC Durability Toolkit	durtk
MSC Registry Editor	redit
MSC Registry Shell Tool	rtool
Custom Memory Model (uconfig_user)	cmm

Enter your selection code or EXIT:

- The following table explains all the possible selection codes available from the MSC.ADAMS Selection Menu:

The code:	Does the following:
cr-user	Leads you through the creation of an MSC.ADAMS analysis product user library. Creates a library for the MSC.ADAMS analysis products: ADAMS/Solver and ADAMS/Tire.
ru-standard	Runs standard ADAMS/Solver (includes password-enabled ADAMS/Linear).
ru-user	Runs ADAMS/Solver with a user library. A user library is one or more user-written subroutines.
aircraft, acar, acrealtime, adriveline, aengine, arail, appt, aview, ainsight	Runs MSC.ADAMS products with and without user libraries, and for certain products, leads you through the creation of the user libraries.
flextk	Runs the ADAMS/Flex toolkit, which lets you view and work with a modal neutral file (MNF), which describes a flexible body. For more information on the ADAMS/Flex toolkit and MNF files, refer to the ADAMS/Flex online help.
redit	Runs the MSC.Software registry in stand-alone mode.
rtool	Runs the MSC.Software registry shell tool.
cmm	<i>Windows only</i> Runs a Python tool prompting you to enter various uconfg parameter sizes. A new uconfg_user.dll is created.
exit	Returns to the system level; exiting at any of the other prompts returns you to this menu.
help	Displays information about each of the other choices.

Entering Selection Codes

To perform operations through the MSC.ADAMS Selection Menu, you enter a selection code, after the prompt at the bottom of the screen. You can use either upper- or lower-case letters, and you can abbreviate to the shortest unique abbreviation (except when entering file names). For example, you can use e to indicate exit, h to indicate help, ru-s to indicate ru-standard, and av to indicate aview. If you use an incorrect abbreviation and get an error message, press Enter to continue. Whenever you complete or interrupt a program, the MSC.ADAMS Selection Menu returns.

Getting Help

Anytime that you are using the MSC.ADAMS Selection Menu, you can enter help or h to get help. Help text appears in the window. To exit from the help, press Enter.

Exiting the Selection Menu

You can enter exit or its abbreviation (e) at any prompt to exit from the prompt and return to the Selection Menu. If you enter exit at the Selection Menu, it returns to the operating system prompt.

Command-Line Parameters

In addition to using the MSC.ADAMS Selection Menu and entering selection codes and responding to prompts, you can enter command-line parameters. You enter command-line parameters at the operating system prompt.

To enter command line parameters, you enter the command to run MSC.ADAMS Selection Menu, followed by a series of strings representing prompt selections. You can enter the complete selection codes or abbreviations. To indicate pressing Enter, use -none or its abbreviation (-n). Use spaces to separate the various parameters. As the command executes, menus or prompts do not appear.

If you make an error in a command-line parameter, an error message appears and prompts you to enter exit. If you enter exit, the command aborts and displays the MSC.ADAMS Selection Menu.

UNIX Example

For example, the following command-line parameters create a user library named library cam.so:

```
% adams05r2 -c cr-u n sub.o -n cam.so e
```

In this example, the -n indicates pressing **Enter** in response to the second subroutine file prompt and e represents exit. Because the last e is a response to the menu, the operating system prompt returns after creating the library file.

Windows Example

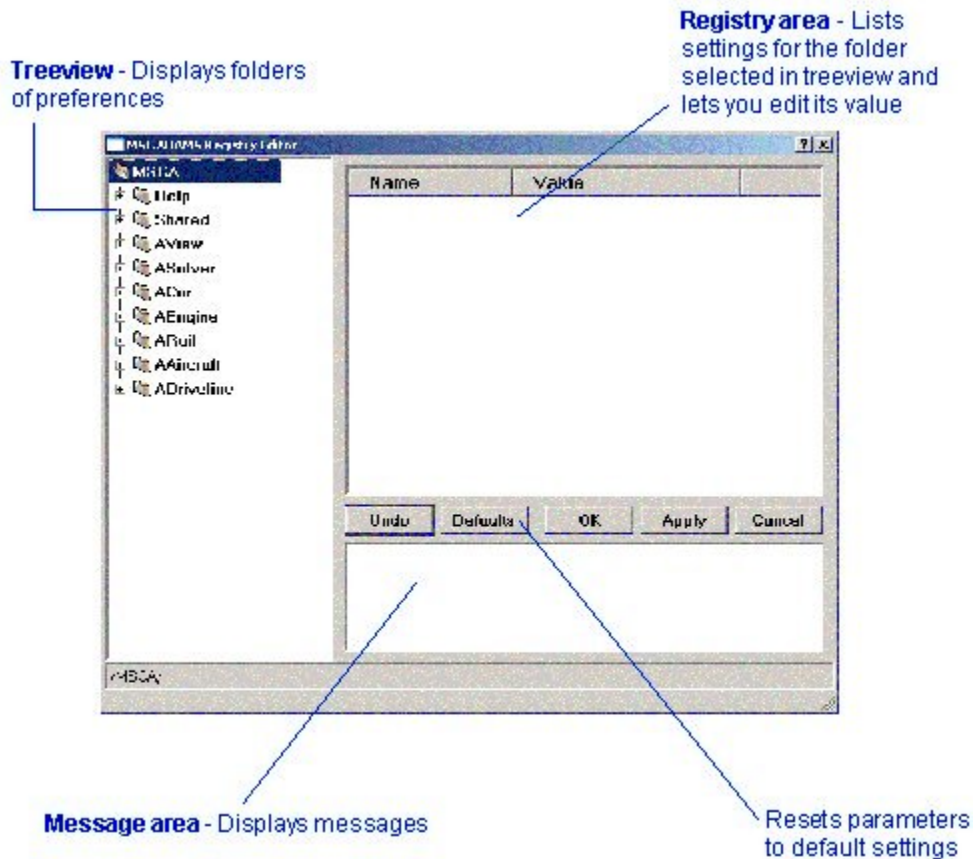
For example, the following command-line parameters compile and link the ADAMS/Solver code to the object version of a subroutine (sub.f), build a user library in interactive mode, and name the library cam.dll:

```
c:> adams05r2 cr-u y sub.f -n cam.dll
```

In this example, the y answers the question about working in debug mode and the -n indicates a return in response to the second subroutine file prompt. The system level returns after linking the library file. You must use spaces to separate the various parameters. When entering source files, be sure the .f or .c extension is lowercase.

Registry Editor

The Registry Editor lets you edit the settings that the MSC.ADAMS Toolbar stores for the different MSC.ADAMS products. It appears whenever you create a user library or set preferences. The elements of the Registry Editor are shown in the figure below, as they appear when you select to view all elements in the Registry Editor. To help you find files, the Registry Editor provides a file browser where you can enter a specific file name or browse for a file or directory.



To make a choice in the Registry Editor:

1. In the treeview, click a folder that you want to change or view.

The Registry area displays the contents of the folder you selected.

2. Click an item listed in the Registry area.

The value of the item appears as a text box, option menu, or check box to let you change or set the value. If the registry item that you selected cannot be changed, nothing changes.

3. Select another item, select **OK**, or select a different folder in the treeview.

Note: If you modify a registry item, and then select a new folder to browse in the treeview, the Editor prompts you to save your modifications.

4. Select **No** and then **OK** to save your changes or select **Yes** to exit without saving the changes. You can also select **Always throw away changes and switch directories** so you no longer receive this message.

To browse for a file or files:

1. Right-click a text box that requires a file, and then select **Select A File** or **Select Files**.

A file browser appears.

To help narrow your search, you can browse for a specific file type using a file extension. For example, list files have the extension *.lst. Therefore, to search for only list files, set File Type in the browser to *.lst. You can select multiple files by clicking each file name you want.

2. Select **OK**.

The dialog box closes and the current text box displays the files you selected.

To browse for a directory:

1. Right-click a text box that requires a directory to be specified, and then select **Select A Directory**.

A directory browser appears.

2. Browse through the directories and click the one you want.
3. Select **OK**.

The dialog box closes and the current text box displays the directory you selected.

Troubleshooting

If you have questions or problems with any of the MSC.ADAMS products, get help by viewing the Technical Support Web page at http://www.mssoftware.com/support/prod_support/adams/. Our Knowledge Base articles <http://support.adams.com/kb/> and Frequently Asked Questions (FAQs) are especially useful. If the problems persist, contact Technical Support. Before contacting Technical Support, read the topics described next.

- Windows problem reports
- UNIX problem reports
- Log information on UNIX
- Technical Support

Windows Problem Reports

The troubleshooting report examines your system configuration and places important debugging information in the file `adams_problem_report.txt`. If you have problems running MSC.ADAMS products, you can generate this report and send it to MSC.Software.

After you generate the report, you may want to save it under a different name because MSC.ADAMS overwrites the file each time you generate a report.

Note: For correct results, you must run the problem report from the license server, not the client machine.

To generate a troubleshooting report on Windows:

1. From the **Start** menu, point to **Programs**, point to **MSC.Software**, point to **MSC.ADAMS x** (where x is the release number), and then select **ADAMS - Troubleshooting Report**.

A message appears informing you that the report is being created and providing the name of the report.

2. Open the **adams_problem_report.txt** file using a text editor and edit the first page of the report to include your name and phone and fax numbers. Add any comments in the comments section.

If you are an experienced MSC.ADAMS user, you may want to look over the report for error messages before sending it to MSC.Software.

3. Send the file using e-mail or print the file and fax it to the technical support for your area.
4. To close the window, press **Enter**.

UNIX Problem Reports

Using the MSC.ADAMS Toolbar, you can examine your system configuration and place important debugging information in the file PROBLEM.RPT. If you have problems running MSC.ADAMS products, you can generate this report and send it to MSC.Software.

Before sending the report, open it into a text editor and edit the first page of the report to include your name and telephone and fax numbers. You can also add any comments in the comments section. You should save the file under a different name since MSC.ADAMS overwrites the file each time.

Either send the file using e-mail or print the file and fax it to Technical Support for your area.

Note: For correct results, you must run the hotline (problem) report from the license server, not the client machine.

To generate a troubleshooting report on UNIX:

1. Right-click the MSC.ADAMS Toolbar tool, point to **Support**, and then select **Technical Support**.
2. Select **Generate Hotline Report**.

An Alert dialog box informs you that the report has been created and gives you the name of the report. This file uses the default file name of PROBLEM.RPT and places the file in the directory \$HOME, where \$HOME is your home directory.

3. Select **Close**.

Log Information on UNIX

To help you determine any problems with the MSC.ADAMS Toolbar and display information about the last operations executed, you can display the Log window. The Log window displays messages, errors, and warnings. The information is helpful to have when you contact your local Technical Support office.

To view the Log window:

- Right-click the MSC.ADAMS Toolbar tool, and then select **Show Log Window**.

Technical Support

To obtain technical support, contact your local support center, which can be found at <http://www.mscsoftware.com/support/contacts/index.cfm>.

Before contacting Technical Support, have the following information available:

- Version of FORTRAN, if any.
- Copy of all error messages (you can send it by fax or through e-mail).
- Copy of the ADAMS/View log file (aview.log) and ADAMS/Solver message file (.msg).
- Hardware type.
- Version of the UNIX operating system, if applicable (for example, 11 on the HP 9000/700).
- Troubleshooting report.

To find out more about contacting Technical Support on UNIX:

1. Right-click the MSC.ADAMS Toolbar tool, point to **Support**, and then select **Technical Support**.

Information about the various ways in which you can obtain technical support appears.

2. After viewing the information, select **Close**.

Running MSCADAMS Products

Running MSC.ADAMS

On UNIX, use the MSC.ADAMS Toolbar to run MSC.ADAMS products and libraries of user-written subroutines. On Windows, use the MSC.ADAMS program folder and Selection Menu.

On UNIX

Modes in Which You Can Run Products

You can run MSC.ADAMS products in the following modes:

- **Interactive mode** - The product starts and waits for you to enter commands. When you select interactive mode, you can enter a command file that runs when the product starts.
- **Scripted** - The product runs with a command file that you specify. A command file is either a set of ADAMS/View commands (.cmd) or ADAMS/Solver (.acf) commands, depending on the product that you are running. The command file helps you automate the creation of a model, perform a simulation, or investigate simulation results.
- **Batch mode** - The product runs with a command file at a specified time. It also collects information on the batch run in a batch log file that you specify. Batch mode only applies to MSC.ADAMS analysis products.

You can set the same modes when you run a product with a user library.

In addition, you can set debug mode (also referred to as interactive debug mode) when you run a user library. Debug mode runs a debug utility, a system-level program, usually dbx, that steps you through, or isolates parts of, the subroutines in the user library. The debug utility helps you detect and locate any problems in the user libraries. You must have created the library in debug mode. To learn how to create a user library in debug mode, see [Creating User Libraries](#).

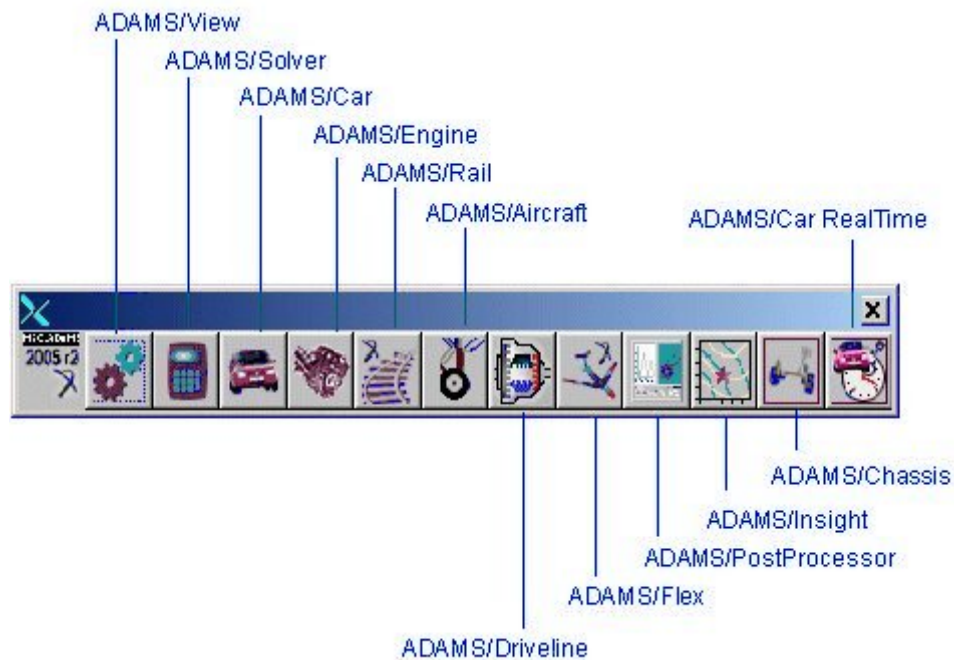
Standard Products

You can use the MSC.ADAMS Toolbar to run standard products by clicking the associated tool. Each MSC.ADAMS product runs using its default preferences.

Note: To run add-on modules or plugins, such as ADAMS/Durability, ADAMS/Flex, or ADAMS/Vibration, you must first run the product in which the plugin runs. For example, to run ADAMS/Vibration, first run ADAMS/Car or ADAMS/View, and then select the command to run ADAMS/Vibration. For more information on running plugins, see their online help.

To run a standard product:

- Click the product tool.



The product starts. If the product default is to run in scripted mode, the product runs the specified command file.

For more information on running MSC.ADAMS products, refer to the online help for your product.

Template-Based Products

MSC.Software provides several products built on ADAMS/View, referred to as MSC.ADAMS template-based products. The products are:

- ADAMS/Aircraft lets you create, catalogue, and analyze wheel, landing-gear, and full-aircraft assemblies.
- ADAMS/Car lets you create, catalogue, and analyze suspension and full-vehicle assemblies.
- ADAMS/Driveline lets you model drivelines to create and analyze virtual prototypes of driveline subsystems.
- ADAMS/Engine lets you build valve trains, and then analyze them to understand their elasto-kinematic and dynamic behavior.
- ADAMS/Rail lets you build complete, parameterized railway models.

The template-based products let you select to run their user interface or their version of ADAMS/Solver. In addition, you can select a binary file that the product reads at startup to change the look of menus, dialog boxes, and commands.

When you run a template-based product, the Toolbar searches the product's private, site, and standard location, in that order, for a user library to run. It runs the first library that it finds. If you want to run just the standard version of these products, be sure that there are no libraries in your private or site location.

The template-based product then reads the binary file that you have specified. You can specify that it read the binary file that is in either the private, site, or standard locations. You can also specify that it search the private, site, and standard location and read the first binary it finds.

To run template-based products with their interface and a particular binary:



- Right-click the product tool, point to Run, point to [Product] - Interface, and then select a binary. For example, for ADAMS/Engine, right-click the ADAMS/Engine tool, point to Run, point to AEngine - Interface, and then select a binary.

To run template-based products with ADAMS/Solver:

- Right-click the product tool, point to Run, and then select [Product] - Solver. For example, for ADAMS/Engine, right-click the ADAMS/Engine tool, point to Run, and then select AEngine - Solver.

Running User Libraries


User libraries are subroutines that extend the functionality of MSC.ADAMS products to meet individual needs. For example, you can use a library of subroutines that define functions for motion or force magnitudes. You run a user library by selecting it from MSC.ADAMS Toolbar and then running it with its associated product. For more on user libraries, see User Library Overview.


When you select to run a user library with ADAMS/View and ADAMS/Solver, the associated product tool on the Toolbar changes to indicate that you are working with a user library. For example, for ADAMS/View, the tool changes from  to . You can then select to run the product with the user library as the default by clicking the tool.

You can also run ADAMS/View with an ADAMS/Solver user library by setting it as a default preference, as explained in ADAMS/View Preferences.

For ADAMS/Aircraft, ADAMS/Car, ADAMS/Engine, and ADAMS/Rail, you cannot specifically select a user library. Instead, the MSC.ADAMS Toolbar searches your private, site, and standard locations, in that order, for a user library to run.

To run ADAMS/View or ADAMS/Solver with a user library:

1. Right-click the product tool, point to Select Library, and then select a user library. For example, for ADAMS/Solver, right-click the ADAMS/Solver tool , point to Select Library, and select a library, such as Asolver1.

The tool changes to indicate that the default is to run the product with the selected user library. For example, ADAMS/Solver tool changes to .

2. Click the product tool again.

On Windows

Running MSC.ADAMS on Windows

The MSC.ADAMS program folder and Selection Menu provide access to many of the MSC.ADAMS major products. MSC.ADAMS also has add-on modules or plugins, which expand the functionality of the major products, such as ADAMS/AutoFlex, ADAMS/Controls, ADAMS/Durability, and ADAMS/Vibration. You run these products from within the major products. For example, to run ADAMS/Vibration, you first run ADAMS/Car or ADAMS/View and then select the command to run ADAMS/Vibration.

For instructions on running MSC.ADAMS products, refer to the online help for your product.

Running ADAMS/Solver

You can run either standard ADAMS/Solver or ADAMS/Solver with a user library, as explained below.

Standard ADAMS/Solver

You can select to run ADAMS/Solver without the ADAMS/View graphical interface. ADAMS/Linear and ADAMS/Tire are analysis modules of ADAMS/Solver. You access them by selecting the ADAMS/Solver option, if you are licensed to do so.

To run ADAMS/Solver:

1. Do one of the following:
 - From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), point to ASolver, and then select ADAMS - Solver.
 - From the MSC.ADAMS Selection Menu, enter ru-standard.

A window appears prompting you for information.

2. Enter the name of the MSC.ADAMS command file (.acf), if you have created one, or press Enter.

ADAMS/Solver starts running.

For more information on the commands and execution of ADAMS/Solver, see the ADAMS/Solver online help.

User Libraries with Analysis Products

You can run user ADAMS/Solver libraries from either the Program Folder or the Selection Menu, as well as run user libraries with ADAMS/Tire, or ADAMS/Linear.

To run a user library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Command.

2. Enter ru-user.
3. Enter the name of the custom library that you want to run.
4. Enter the name of the MSC.ADAMS command file (.acf), if you have one, or press Enter.

ADAMS/Solver starts running.

For more information on the commands and execution of ADAMS/Solver, see the ADAMS/Solver online help.

Running ADAMS/View

ADAMS/View is a powerful modeling and simulating environment, which helps you solve your design problems. You can use ADAMS/View to build, simulate, and refine virtual models of any mechanical system. You can run ADAMS/View from the program folder or the selection menu, as well as run it with user libraries. Running ADAMS/View from the Selection Menu lets you select the mode in which to run ADAMS/View.

For information about working with ADAMS/View, refer to its online help.

- ADAMS/View from the Program Folder
- Standard ADAMS/View from the Selection Menu
- User Libraries with ADAMS/View

ADAMS/View from the Program Folder

To run ADAMS/View from the program folder:

- From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), point to AView, and then select ADAMS - View.

The ADAMS/View main window appears.

Standard ADAMS/View from the Selection Menu

You use the ADAMS/View Selection Menu that appears when you select aview from the main Selection Menu to run and create ADAMS/View user libraries.

```
┌──────────────────────────┐ ADAMS/View Selection Menu ───────────────────────────┐
├──────────────────────────┤──────────────────────────┤
| Action                    | Selection_Code |
├──────────────────────────┤──────────────────────────┤
| Create                    |                |
|   User ADAMS/View executable | cr-user       |
├──────────────────────────┤──────────────────────────┤
| Run ADAMS/View with     |                |
|   Standard ADAMS/View executable | ru-standard   |
|   User executable       | ru-user       |
├──────────────────────────┤──────────────────────────┤
| Enter your selection code or exit: |                |
```

This selection code:	Provides this action:
cr-user	Leads you through the creation of an ADAMS/View library.
ru-standard	Selects standard ADAMS/View.
ru-user	Runs ADAMS/View with a user library.

When you run a ADAMS/View, you can select the following modes:

- **Interactive mode** - The product starts and waits for you to enter commands. When you select interactive mode through the Selection Menu, you can often enter a command file that runs when the product starts.
- **Batch mode** - The product runs with a command file that you specify at a specified time. It also collects information on the batch run in a batch log file that you specify.

To run standard ADAMS/View through the Selection Menu:

1. In the MSC.ADAMS Selection Menu, enter aview.
2. Enter ru-standard.
3. Select the mode in which you want to run the executable.
 - To run in interactive mode, select i or press Enter.
 - To run in batch mode, select b.
4. If you selected batch mode, enter the name of a file containing ADAMS/View commands.

The ADAMS/View main window appears.

User Libraries with ADAMS/View

You can run ADAMS/View with user libraries that you created, including ADAMS/Solver user libraries. For more information on user libraries, see Creating Custom ADAMS/View Libraries.

Note You can also set the ADAMS/Solver user library after you've started ADAMS/View. For information on setting the ADAMS/Solver user library after starting ADAMS/View, select Settings -> Solver -> Executable, and then press F1 for help.

To run ADAMS/View with a user library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Command.

The Selection Menu displays.

2. Enter aview.

3. Enter ru-user.
4. Enter the name of the ADAMS/View user library.
5. Enter the name of an ADAMS/Solver user library.

ADAMS/View begins running.

Running Template-Based Products

MSC.Software provides many products built on ADAMS/View, referred to as MSC.ADAMS template-based products. The products are:

- ADAMS/Aircraft lets you create, catalogue, and analyze wheel, landing-gear, and full-aircraft assemblies.
- ADAMS/Car lets you create, catalogue, and analyze suspension and full-vehicle assemblies.
- ADAMS/Driveline lets you model drivelines to create and analyze virtual prototypes of driveline subsystems.
- ADAMS/Engine lets you build valve trains, and then analyze them to understand their elasto-kinematic and dynamic behavior.
- ADAMS/Rail lets you build complete, parameterized railway models.

You can run the template-based products alone or with different user libraries in your private, site, and standard locations. ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail runs the first user library that it finds as it searches your private, site, and, finally, the standard location. If you use the Selection Menu to run a product, you can also choose the binary (for example, acar.bin or aengine.bin) you want to use. A binary contains the database information for a customized interface.

For information on the different products, see the online help for that product. For information on creating user libraries, see *Creating Template-Based Product Libraries*.

Template-Based Products from the Program Folder

The MSC.ADAMS program folder lets you run the template-based products through ADAMS/View or ADAMS/Solver. When you enter a command to run a template-based product, the product searches the private, site, and standard locations for a user library to run. It runs the first library it finds.

Tip: If you want to run the standard version of the product without a user library, be sure that there are no user libraries in your private or site location.

To run template-based products from the program folder:

- Depending on whether you want to run the product through ADAMS/Solver or ADAMS/View, do one of the following:

- From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where *x* is the release number), point to AAircraft, ACar, ADriveline, AEngine, or ARail, and then select the appropriate command. For example, select ADAMS - Car (solver) or ADAMS - Engine (solver).

The ADAMS/ Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail (Solver) main command window appears.

- From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where *x* is the release number), point to AAircraft, ACar, ADriveline, AEngine, or ARail, and then select the appropriate command. For example, select ADAMS - Car (view) or ADAMS - Engine (view).

The ADAMS/ Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail (View) main window appears.

Template-Based Products from the Selection Menu

The Selection Menu lets you run the template-based products and choose the binary that you'd like to use. The following sections explain how to use the Selection Menu to choose the version for the product to run:

Displaying the Selection Menu

To display the template-based product's selection menu:

- At the MSC.ADAMS Selection Menu, enter aircraft, acar, adriveline, aengine, or arail.

A Selection Menu appears. The following figure applies to ADAMS/Car. The ADAMS/Aircraft, ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail Selection menus contain the same type of options.

```

      ADAMS/Car Selection Menu
-----
Action                               Selection Code
-----
Create
  ADAMS/Car private library           cr-acarprivate
  ADAMS/Car site library              cr-acarsite
  ADAMS/Car Solver private library    cr-solverprivate
  ADAMS/Car Solver site library       cr-solversite
  Private acar.bin                    cr-privatebin
  Site acar.bin                       cr-sitebin

Run ADAMS/Car Private, Site or Standard library with
  Either the Private, Site or Std acar.bin  ru-acar
  Private acar.bin                          ru-private
  Site acar.bin                             ru-site
  Standard acar.bin                         ru-standard

Run ADAMS/Car Private, Site or Std Solver      ru-solver

Enter your selection code or EXIT:

```

The code(s):	Do(es) the following:
cr-acarprivate, cr-acarsite, cr-solverprivate, cr-solversite	Creates a user ADAMS/Car library and places it in your home (private) or site directory. The string after the cr- identifies where ADAMS/Car places the library and whether the version runs with ADAMS/View or ADAMS/Solver.
cr-privatebin, cr-sitebin	Creates a custom ADAMS/Car binary file that ADAMS/Car runs when it starts up. The string after the cr- identifies where ADAMS/Car places the binary. Note: We strongly encourage you to review your product's log file (acar.log, aride.log, and so on) for any warnings or error messages that may have occurred during the building of the binary file.
ru-acar	Runs the first private, site, or standard library of ADAMS/Car that it finds. It also uses the first version of the ADAMS/Car binary that it finds as it searches the private, site, and standard locations.
ru-private, ru-site, ru-standard	Runs the first private, site, or standard library of ADAMS/Car that it finds and then uses the specified private, site, or standard binary. The string after the ru- identifies which binary to use.
ru-solver	Runs the ADAMS/Car version of ADAMS/Solver that it finds as it searches your private, site, and standard locations.

Running Template-Based Products with ADAMS/View

When you enter a selection code to run a template-based product, the product searches the private, site, and standard locations for a library to run. It runs the first library that it finds.

Tip: If you want to run the standard version of the product without a user library, be sure that there are no user libraries in your private or site location.

The template-based product then reads the binary file that you have specified. You can specify a binary file in the private, site, or standard locations. You can also specify to search the private, site, and standard locations and read the first binary found.

To run template-based products with ADAMS/View:

1. At the MSC.ADAMS Selection Menu, enter aircraft, acar, adriveline, aengine, or arail.
2. At the Selection Menu, enter one of the selection codes depending on the binary file that you want to read. For more information on the selection codes, refer to the table above.

Running Template-Based Products with ADAMS/Solver

You can run the standard version of a template-based product with ADAMS/Solver or run user libraries that are in the private or site locations. The Selection Menu searches the private, site, and standard locations and runs the first user library that it finds.

Tip: If you want to run the standard version of the product without a user library, be sure that there are no user libraries in your private or site location.

To run template-based products with ADAMS/Solver:

1. At the MSC.ADAMS Selection Menu, enter aircraft, acar, adriveline, aengine, or arail.
2. Enter ru-solver.
3. At the command file prompt, do one of the following:

- Press Enter.

A main command window appears.

- To launch the product with a command file, type the name of the command file and press Enter.

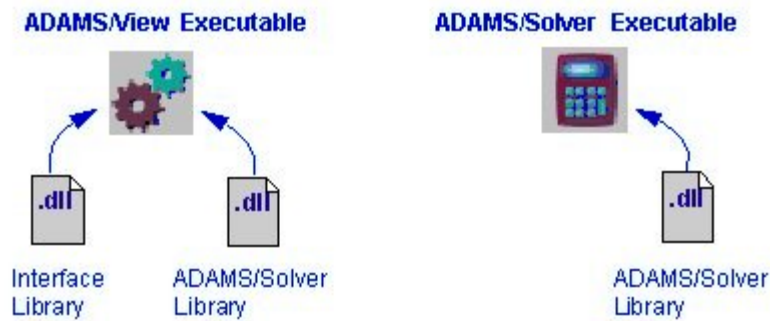
The product reads in your command file and its main command window appears.

Creating User Libraries

User Library Overview

You can create user libraries and run them with your MSC.ADAMS products. There are two types of user libraries:

- MSC.ADAMS Interface or ADAMS/View libraries - These libraries let you change the definition of your model by adding compiled design-time functions for use in ADAMS/View expressions. You can also change post-processing by adding or changing functions that determine how simulation results are computed. You can use these functions in the same way you would use the built-in design-time functions. For more information, see the ADAMS/View Function Builder online help.
- ADAMS/Solver libraries - These libraries let you add run-time functions for motion or force magnitudes to directly define the behavior of your model and change the way the simulation is performed. They let you take advantage of existing software to define complex modeling relationships, such as hydraulic actuators or tire forces. For more information on writing user-written subroutines, refer to the ADAMS/Solver online help.



Many products, such as ADAMS/View, ADAMS/Aircraft, ADAMS/Car, ADAMS/Engine, and ADAMS/Rail, can run both an interface library and an ADAMS/Solver library because they run ADAMS/Solver internally. To set the ADAMS/Solver user library to run internally with these products, set the preference solverUserLibrary as explained in ADAMS/View Preferences.

Once you create a library, you need to set up your modeling entities, such as motions or forces, to reference these subroutines and use the library whenever you perform a simulation on models referencing these subroutines. For information on using the subroutines in your model definition, refer to the ADAMS/Solver and ADAMS/View online help.

When you run an ADAMS/Solver library, the associated MSC.ADAMS product only loads the library when a user triggers it, such as when a user selects a command that executes the subroutines in the library. This is because ADAMS/Solver libraries are demand-loaded. When you run an interface library, the associated MSC.ADAMS product loads the library at startup so that design-time functions can be registered and available for immediate use.

Creating User Libraries

You can create user libraries for the products listed in the table shown next. The table also lists the type of user library you can create (interface or ADAMS/Solver) for that product and where you can place the user library.

For the product:	You can create the user library:	Its location:
ADAMS/Aircraft	Interface and ADAMS/Solver	Private or site
ADAMS/Car	Interface and ADAMS/Solver	Private or site
ADAMS/Driveline	Interface and ADAMS/Solver	Private or site
ADAMS/Engine	Interface and ADAMS/Solver	Private or site
ADAMS/Rail	Interface and ADAMS/Solver	Private or site
ADAMS/Car RealTime*	ADAMS/Solver	Any directory
ADAMS/Solver	ADAMS/Solver	Any directory
ADAMS/View	Interface and ADAMS/Solver	Any directory

*For information on creating solver user libraries for ADAMS/Car RealTime, see Customizing Standard-Mode Solver.

Learn how to:

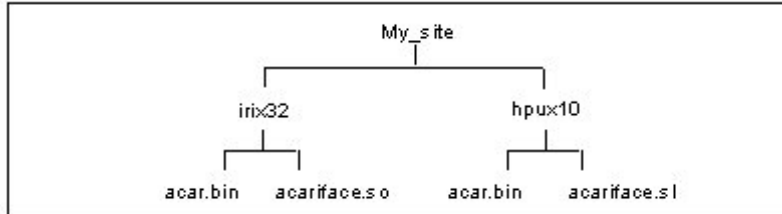
- Create user libraries on UNIX
- Create user libraries on Windows

Windows will compile C code for ADAMS/Solver, but UNIX does not. Currently, the scripts on UNIX do not support the compiling of C code. Once the C code is compiled for UNIX, it can be included in an ADAMS/Solver user library.

For ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail, you can only specify either your home (private) directory or the site location, to which all users have access. On UNIX, the MSC.ADAMS Toolbar automatically creates a directory structure to help manage the different libraries. If you are creating a site library, be sure that you set up the site directory as explained in Directory Structure for Template-Based Products.

Directory Structure for Template-Based Products

To create libraries and binaries for template-based products, you need to have the proper directory structure. An example of the structure of a site location for ADAMS/Car with two different platform libraries (SGI and HP) is shown next.



The process for creating the directory structure varies by platform.

- UNIX
- Windows

UNIX

To help you create binaries and libraries for the template-based products, ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail, the MSC.ADAMS Toolbar creates a directory structure for you as you create libraries and binaries. For each platform for which you create a library or binary, the Toolbar creates a different subdirectory in which to store the library or binary.

- For the private location, by default, MSC.ADAMS Toolbar uses the directory that it creates when you first run a template-based product. You can also specify its location as explained in Template-Based Product Preferences. You must have permission to write to the directories. If you do not have write permission, the product returns an error.
- For a site location, you must create the base site directory and specify its location as explained in Template-Based Product Preferences.

Windows

Before creating a site library, you need to create a site directory and specify its location, as explained in the online help for your template-based product. If you are creating a private library, ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail uses the private directory that it creates when you first run the product. You must have permission to write to the directories. If you do not have write permission, the product returns an error.

The product stores the binaries and libraries in the directory at the same level.

Debugging User Libraries

Debugging on UNIX

You can choose to create the user library in debug mode. Running a user library in debug mode invokes the *debug* utility, a system-level program, that steps you through the subroutines or isolates parts of them. The debug utility helps you detect and locate any problems in the user-written subroutines.

Debugging on Windows

To debug an ADAMS/Solver user library:

1. Create a library file with debugging information as explained in User Libraries on Windows. From the command window, you would enter:

```
adams05r2 cr-user y user.f -n mysolver.dll
```

Make sure the .f extension is lowercase.

2. Run the library file in debug mode as explained in Running ADAMS/Solver. From the command window, you would enter:

```
adams05r2 ru-user mysolver.dll user.acf
```

Microsoft Visual Studio.Net automatically starts up.

3. In MS Visual Studio, from **Solution Explorer**, right-click on **mysolver.dll**, and then select **Properties**.
4. From the **Command** pull-down menu, select **Browse**. Browse for:


```
install_dir/solver/win32/solver.exe
```
5. Set the working directory to the location where the **.acf**, **.dll**, and **.adm** files are located.
6. Set the command argument to **user.acf** and then select **Apply**.
7. Open **user.f** and set a breakpoint on a line in your user subroutine.
8. Run the project, using:

```
Debug -> Start
```

Note: If this is your first time debugging, you will have to create a solutions file by pressing **Save**.

A command window appears, showing ADAMS/Solver initialization commands. The program execution then halts in the debugger at the breakpoint that you've specified.

To debug an ADAMS/View interface library:

- Follow the instructions above for ADAMS/Solver libraries, except:

- The command to create the library is:

```
adams05r2 aview cr-user y user.c -n myview.dll
```

- The command to run in debug mode is:

```
adams05r2 aview ru-u i myview.dll -n
```

- You browse for:

```
install_dir/aview/win32/aview.exe
```

UNIX

User Libraries on UNIX

Note: For information on creating solver user libraries for ADAMS/Car RealTime, see Customizing Standard-Mode Solver.

To create a user library on UNIX:

1. Do one of the following:
 - For a product for which you can only create one type of user library, right-click the product tool, point to **New**, and then select **[Product] User Library**.
 - For a product for which you can create either an interface or ADAMS/Solver library, right-click the product tool, point to **New**, point to **[Product] - Interface** or **[Product]-Solver**, and, if required, select the location for the library you want to create.

The Enter Parameters for User Library list appears in the Registry area with several parameters that you can modify.

2. Click the parameters you want to change and enter their values as needed.

Parameter:	Meaning:
name	A project name identifies the user library, such as AView1. It also determines the file name of the library, such as AView1.so. The project name must be unique. You cannot create two libraries with the same name. Not available for ADAMS/ Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail because you cannot run the resulting library directly from the MSC.ADAMS Toolbar.
description	Text that describes the library, such as what it does or how it was created.

	Not available for ADAMS/Aircraft, ADAMS/Car,ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail because you cannot run the resulting library directly from the MSC.ADAMS Toolbar.
libPath	A directory indicating where to store the resulting library. Not available for ADAMS/Aircraft, ADAMS/Car,ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail because you specify the library location when you first create it as either your private or site location.
sourceFiles	One or more individual C or FORTRAN files, source or object files, or a list file (*.lst) that contains a list of C or FORTRAN files. You can mix C and FORTRAN source files. The list file must contain one file per line.
debug	Selects whether or not to build the library in debug mode.

3. The parameters, name and libPath, have default values based on a simple counting scheme and the name of the product for which the user library is being created, such as AView1, AView2, ASolver1, and so on. You can use other values that have more significance.

Note: You must enter one or more source files for the parameter sourceFiles. If you do not enter source files, the MSC.ADAMS Toolbar does not create a library.

4. Select **OK**.

A window appears, showing the compilation and linking process that builds your custom library. When the creation is complete, the following occurs:

- A new entry appears on the Select Library menu from the product icon on the Toolbar. The name of the file is the name of the menu.
- If the directory you specified for libPath does not exist, MSC.ADAMS Toolbar creates it. It places the new library and a log file about the creation in the directory.
- MSC.ADAMS Toolbar creates or changes the appropriate registry entries to reflect the new entity.

Deleting User Libraries

You can delete any library registered in the MSC.ADAMS Toolbar. When you delete the library, MSC.ADAMS Toolbar asks you if you want to just remove the library from the Toolbar or delete the actual library file from its directory. If you select to just remove the library from the Toolbar, you can add it back into the Toolbar as explained in Importing Existing User Libraries.

To delete a library:

- Right-click the tool for the product whose library you want to import, and then select Remove Custom: [customName]. For example, right-click the ADAMS/View tool, and then select Remove Custom: Aview1.

Importing Existing User Libraries

You can import user libraries that have been created by others so you can run them from your MSC.ADAMS Toolbar.

To import user libraries:

1. Right-click the tool for the product whose library you want to import, and then select **Import Existing Custom Library**. For example, if you are importing an ADAMS/View library, right-click the **ADAMS/View** tool, and then select **Import Existing Custom Library**.
2. Click name and enter the name of the library file.
3. Click description and enter text describing the library.
4. Select **OK**.

MSC.ADAMS Toolbar adds the library to the list of libraries available to run with that product.

Windows

User Libraries on Windows

On Windows, you can create user libraries for the following:

- ADAMS/View
- Template-based products
- Analysis products

Custom ADAMS/View Libraries

You can add your own C routines to create a user ADAMS/View library. Sample C functions are in the file `vc_init_usr.c` in the directory `/install_dir/aview/usersubs/`, where `install_dir` is the directory in which you installed MSC.ADAMS software.

Note: You can also use a list file (.lst) to enter the names of several object files at once. You must place an @ sign before the name of the list file (for example, @names.lst).

To create an ADAMS/View library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Command.
2. Enter aview.
3. Enter cr-user.
4. At the debug prompt, enter one of the following options:
 - To run in debug mode, enter y .
 - To run in standard mode, enter n or press Enter.
5. Enter the name of the first object, source, or list file containing your subroutines.

You can enter an object file (for example, `mysubs.obj`), a source file (`.f` or `.c`), or a `.lst` file (for example, `@sub_list.lst`). If entering a source file, be sure the `.f` or `.c` extension is lowercase.

6. Repeat Step 2 as many times as necessary by either:
 - Entering an object file containing one or more user-written subroutines.
 - Pressing Enter to end the list of subroutines linked to ADAMS/View.
7. Enter a name for the ADAMS/View user library that you want to create.

You've now created a user library that ADAMS/View can run.

Custom Template-Based Product Libraries

For ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, and ADAMS/Rail, you can create user interface or ADAMS/Solver libraries.

You can create the libraries in your private (home) directory where only you can access them or place them in the site location for all users to access. Learn about the Directory Structure for Template-Based Products.

For information on running the libraries, see Running Template-Based Products. For more information on customizing these products, see their online help.

Creating Libraries for Template-Based Products

The following steps explain how to create interface or ADAMS/Solver user libraries that run with ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail.

You can choose to place any of the libraries in your private or site location. If you are creating a library in your site location, be sure to set up the directory, as explained in Directory Structure for Template-Based Products.

To create an interface user library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Command.
2. Enter aircraft, acar, adriveline, aengine, or arail.
3. Enter the code to create a private or site library (for example, cr-acarprivate or cr-acarsite).
4. At the debug prompt, enter one of the following options:
 - To run in debug mode, enter y.
 - To run in standard mode, enter n or press Enter.
5. Enter the name of the first object, source, or list file containing your subroutines.

You can enter an object file (for example, mysubs.obj), a source file (.f or .c), or a .lst file (for example, @sub_list.lst). If entering a source file, be sure the .f or .c extension is lowercase.

6. Repeat Step 4 as many times as necessary by either:
 - Entering an object file containing one or more user-written subroutines.
 - Pressing Enter to end the list of subroutines linked to ADAMS/View.

To create an ADAMS/Solver library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Command.
2. Enter aircraft, acar, adriveline, aengine, or arail.
3. Enter the code to create a private or site library (for example, enter cr-solverprivate or cr-solversite).
4. At the debug prompt, enter one of the following options:
 - To run in debug mode, enter y.
 - To run in standard mode, enter n or press Enter.
5. Enter the name of the first object, source, or list file containing your subroutines.

You can enter an object file (for example, mysubs.obj), a source file (.f or .c), or a .lst file (for example, @sub_list.lst). If entering a source file, be sure the .f or .c extension is lowercase.

6. Repeat Step 4 as many times as necessary, by either:
 - Entering an object file containing one or more user-written subroutines.
 - Pressing Enter to end the list of subroutines.

User Libraries for Analysis Products

You can create user libraries for the MSC.ADAMS analysis products, which include ADAMS/Solver, ADAMS/Controls, ADAMS/Car RealTime, and ADAMS/Tire. (For information on creating solver user libraries for ADAMS/Car RealTime, see Customizing Standard-Mode Solver.) You can also run the user libraries from within ADAMS/View when running ADAMS/View with an integrated ADAMS/Solver.

Sample user FORTRAN subroutines are in the **tire.f** file in the directory `c:/install_dir/solver/samples/`, where *install_dir* is the directory in which you installed MSC.ADAMS software.

Note: You can also use a list file (.lst) to enter the names of several object files at once. You must place an @ sign before the name of the list file (for example, @names.lst).

To create a user library:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS *x*** (where *x* is the release number), and then select ADAMS - Command.
2. Enter cr-user.
3. At the debug prompt, enter one of the following options:
 - To run in debug mode, enter y.
 - To run in standard mode, enter n or press Enter.
4. Enter the name of the first object, source, or list file containing your subroutines.

You can enter an object file (for example, mysubs.obj), a source file (.f or .c), or a .lst file (for example, @sub_list.lst). If entering a source file, be sure the .f or .c extension is lowercase.

5. Repeat Step 2 as many times as necessary, by either:
 - Entering an object file containing one or more user-written subroutines.
 - Pressing Enter to end the list of subroutines linked to ADAMS/Solver.
6. Enter a name for the ADAMS/Solver library you want to create and press Enter to begin the linking process.

Managing Files

Binary Files

You can create a binary file, `aircraft.bin`, `acar.bin`, `adriveline.bin`, `aengine.bin`, or `arail.bin`, that contains database information for the customized menus, dialog boxes, and buttons that appear in template-based products (ADAMS/Aircraft, ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, or ADAMS/Rail). When you start a template-based product with your binary file, the product reads in your customized interface instead of the standard binary file.

You can create the binary files in your private (home) directory where only you can access them or place them in the site location for all users to access.

To specify the interface changes that you want in the binary file, you create a command file containing ADAMS/View commands for modifying the interface. For example, the following commands create a new menu named New Menu and a button named DO IT under the menu:

```
interface menu create &  
  menu_name=.gui.main.aca_sta_mbar.new_menu &  
  enabled=yes &  
  label = "New Menu"
```

```
interface push_button create &  
  push_button_name = .gui_man.aca_sta_mbar_new_menu.do_it &  
  enabled = yes &  
  label = "DO IT" &  
  command = "list_info entity=.ACAR"
```

The name of the command file must be `aircraft_build.cmd`, `acar_build.cmd`, `adriveline_build.cmd`, `aengine_build.cmd`, or `arail_build.cmd` (depending on your product) and must be in your private or site directory.

For information on directory structure for storing binary files, see Directory Structure for Template-Based Products. For more on creating `acar_build.cmd`, see the Customize tab in your template-based product's online help. For more on command files, see the ADAMS/View online help.

To create a binary file on Windows:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS *x*** (where *x* is the release number), and then select ADAMS - Command.
2. Enter `aircraft`, `acar`, `adriveline`, `aengine`, or `arail`.
3. Enter the code to create the binary (for example, enter `cr-privatebin` or `cr-sitebin`).

To create a binary file on UNIX:

1. Right-click the **ADAMS/Aircraft**, **ADAMS/Car**, **ADAMS/Driveline**, **ADAMS/Engine**, or **ADAMS/Rail** tool, point to **New**, point to **[Product] Binary**, and then select the location for the binary file. For example, for ADAMS/Car, point to **ADAMS/Car**, point to **New**, point to **A/Car Binary**, and then select the location for the binary file.
2. Select **OK**.

Note: We strongly encourage you to review your product's log file (acar.log, aride.log, and so on) for any warning or error messages that may have occurred during the building of the binary file.

Language and Compiling

You can submit your subroutines as any of the following types of files:

- FORTRAN and/or C source files.
- Object file containing one or more user-written subroutines.
- File containing a list of source files, with one name per line.

To find out what type of compiler you need, read the hardware and software specifications that come with your MSC.ADAMS product (you can also see them at http://www.mscsoftware.com/support/prod_support/adams/). Also, for further instructions, refer to your compiler documentation and the hardware and software specifications.

UNIX

You can either let MSC.ADAMS Toolbar run your compiler by supplying source files, or you can compile and link your subroutines on your own and create object files. We recommend, however, that you let MSC.ADAMS Toolbar run your compiler since there is less chance for errors. It also ensures that the correct compile flags are set so that your files are compiled and linked using the same options that were used for MSC.ADAMS product code. We also recommend that you purchase a debugger.

To view the list of compiler options valid on your platform, use the following command:

```
adams05r2 -c cr-user n
```

Windows

You can input C or FORTRAN source files to create ADAMS/Solver user libraries and only C source files to create ADAMS/View user libraries. You must use the following C and FORTRAN compiler command and options for your user subroutines. The options are explained in the table shown below.

For FORTRAN, the command and options are:

```
df /c /architecture:pn4 /MD /Ob2 /automatic /Z7 /Gm
```

Note: */Gm* should only be used for the Intel FORTRAN compiler.
/Z7 should only be used for debug mode.

For C, the command and options are:

```
cl /c /G7 /Ox /MD /Z7
```

This variable:	Provides the following:
/c	No linking
/G7	Pentium 4 or Athlon optimization (C compiler)
/architecture:pn4	Pentium 4 optimization (FORTRAN compiler)
/MD	Multi-threaded applications (MSC.ADAMS is a multi-threaded application)
/Ob2 or /Ox	Automatic inlining
/automatic	Puts local variables on the run-time stack
/Z7	Adds debugging information
/Gm	Compatibility switch for the Intel Fortran compiler

The linking procedure allows you to supply FORTRAN or C files (depending on the MSC.ADAMS product).

Sample Source Files

For ADAMS/Car, ADAMS/Solver, and ADAMS/View, we've provided sample source files for creating user libraries in the directory `/install_dir/adams_product/usersubs/`, where `/install_dir/` is the directory in which you installed MSC.ADAMS software and `adams_product` is the name of the product.

MSC.ADAMS Files

You can set up the following files to change the way in which the interface products, including ADAMS/Car, ADAMS/Engine, ADAMS/Rail, and ADAMS/View, work:

- Path files
- Startup files
- Log files
- Binary files

Path Files (*UNIX Only*)

An MSC.ADAMS interface product creates an MSC.ADAMS default `aview.pth` file at installation time. It is in the `aview` product subdirectory, underneath the installation directory, `install_dir`, on your machine.

The `aview.pth` file allows you to specify search paths for the different types of files that can be loaded into MSC.ADAMS. This is useful for files that are shared with other users, and are not in your current working directory. Below is an example of an `aview.pth` file:

```
.bin    /install_dir/aview/
.idb    $workdir/idbfiles/
.adm    ~jsmith/adams/datasets/
.cmd    /usr/aview/cmd_files/
.dat    /usr/adams/test_data/
.gra    /staff/my_home_dir/adams/output/
.req    /staff/my_home_dir/adams/output/
.res    /staff/my_home_dir/adams/output/
.igs    /staff/my_home_dir/iges_files/
.dct    /install_dir/aview/
```


Each line in the file specifies a search path for a specific file extension. The first line in the example file above specifies a search path for files with an extension of `.bin`. You can have multiple paths for each extension by adding another line with the same file extensions and an alternate path. Remember each line must begin with a file extension.

Any file extension can be put in the MSC.ADAMS path file. Therefore, you do not have to name your files with the standard ADAMS/Solver and ADAMS/View extensions. Use the following conventions to add a file extension to the path file:

- Begin each line in column one with the desired file extension.
- Begin each file extension with a `.` (period).
- Use the correct case for file extensions in the Path file. MSC.ADAMS is case sensitive with regard to file extensions. All UNIX systems are case sensitive for the path.
- Separate the extension and search path for the extension with a space. You can use a single space and tab or combine spaces and tabs to create separation between the extension and search path.
- Complete each search path, starting from the root (`/`) of the file system. You can begin a search path with the `~` character to indicate a UNIX home directory, or with a `$` character to indicate a UNIX environment variable.
- End each search path with a trailing `/`.
- Ensure that each line is less than 255 characters in length.

If you want to make the changes to the path file affect all MSC.ADAMS users, edit the default `aview.pth` file mentioned above.

To make the changes only affect you:

1. Copy the default MSC.ADAMS path file to your current working directory.
2. Add, delete, or modify the file to specify your file search paths.
3. From the MSC.ADAMS Toolbar, right-click the ADAMS/View tool , and then select Change A/View Settings.

The `searchPath` is visible in the treeview.

4. Click `searchPath` and specify the full path to your local `aview.pth` file, including the file name. You can type in the path or use the browser to select it.

Startup Files

The three files that interface products read when they start up, where product is the name of the product, are:

- product.cmd
- productBS.cmd
- productAS.cmd

In the file names, BS stands for Before Startup, meaning that MSC.ADAMS reads it before it reads other setup files, and AS stands for After Startup, meaning that MSC.ADAMS reads it after it reads other setup files.

The startup files contain ADAMS/View commands that MSC.ADAMS executes on startup. You can edit any of the files to execute MSC.ADAMS as desired when it starts up. Note that many products overwrite the BS and AS files when you select to save options, so you may lose the edits you make. For more information on the content of command files and how to create them, refer to the ADAMS/View online help.

MSC.ADAMS first searches for the command files in the current working directory. If a command file does not exist locally, MSC.ADAMS searches for it in the directories specified for .cmd files in the aview.pth file.

The command file names are hard-coded, and you cannot change them.

Log Files

The aview.log file is a text file containing a log of your commands for an MSC.ADAMS session. MSC.ADAMS creates this file in your local directory.

While running MSC.ADAMS, you can change the name of the log file for that session with the command:

FILE LOG_FILE FILE_NAME = "filename"

MSC.ADAMS overwrites any existing aview.log file each time it starts.

For more information on the content of log files and how to create them, refer to the ADAMS/View online help.

Binary Files

Note: When changing binary files for ADAMS/Car, ADAMS/Engine, and ADAMS/Rail, we recommend that you follow the instructions in Creating Binaries.

The aview.bin file is a binary file containing the ADAMS/View database. ADAMS/View reads it on startup. ADAMS/View first searches for aview.bin in the current working directory. If aview.bin does not exist locally, ADAMS/View searches for it in directories specified for .bin files in the aview.pth file.

The `aview.bin` provided with ADAMS/View contains database information for the standard menus, panels, and buttons. You can create your own copy of `aview.bin` to save a customized interface (menus, panels, and buttons you have modified). When you start ADAMS/View again in the directory containing your version of `aview.bin`, ADAMS/View reads in your customized interface and ignores the standard `aview.bin` file.

You can also create an `aview.bin` to save the state of your modeling session. If you use the name `aview.bin` for the file, the next time you start ADAMS/View in that directory, ADAMS/View automatically reads the `aview.bin` file and restores your modeling session. Alternatively, you can use a different name for the binary file you save. To restore the state of your modeling session, issue the ADAMS/View command:

FILE BINARY READ FILE_NAME = "filename"

The name `aview.bin` is hard-coded in ADAMS/View as the default binary file it reads upon startup. You cannot change it.

ADAMS/View converts versions 6.0 through 12.0 binary files to MSC.ADAMS 2003.

Using Memory Models

Memory Models

If you have a large model, you may need to change your memory allocation to avoid program faults during simulations.

Remember that creating or using a large memory model size uses significant system resources and can potentially impact other processes running on the system. Consult with the other users before changing the allocated size.

Note: Memory size changes do not take effect until you restart the MSC.ADAMS product.

Memory Model Sizes

The following table shows the variable and array sizes for the memory options.

Variable	MDSIZE	OSSIZ	CDSIZ	LDSIZE	LCEXP	FPSIZE	NINSIZ	MXSTAK
Array	MD	OPRM	CD	LDSIZE	CEXP	FPVARS	NINSTR	MSTAK1
Standard	1100000	100000	4000	2000	100	250	1000	50
Large	3000000	100000	4000	2000	200	250	1000	100
Extra Large	20000000	100000	8000	5000	300	1000	5000	300
Huge	60000000	200000	16000	50000	1000	3000	15000	300

The following table explains each variable and array.

This array or variable:	Is:
MD array	Main storage array for ADAMS/Solver analysis.
OPRM array	The memory section for interactive modification of function expressions, user-written subroutines, arrays, splines, and more.
CD array	Used to store column titles and spline types.
LD array	Used to store character strings, request comments, function expressions, and more.
LCEXP	The maximum number of lines in any function expression.
FPSIZE	The maximum number of constant values in all functions.
NINSIZ	The maximum number of RPN instructions in all function expressions.

MXSTAK	The maximum size of the RPN stack.
--------	------------------------------------

Viewing Memory Model Size from ADAMS/View

From within ADAMS/View, you can use a system command to determine what your environment settings are used for memory model size.

To display the memory model size:

1. Open ADAMS/View.
2. From the Tools menu, select System Command.
3. Perform one of the following:
 - On UNIX: In the Command Text box, enter the following UNIX command. See your operating system documentation for more information.

printenv | grep MEM
 - On Windows: In the Command Text box, enter **set**.
4. Select to write the output to the information window.
5. Select **OK**.

ADAMS/View displays your environment settings in the information window. For example, you may see the following:

```
MDI_AVIEW_MEMSIZE=LARGE
MDI_SOLVER_MEMSIZE=HUGE
```

Setting Custom Memory Model Size

Custom Memory Models

Note: You must have a FORTRAN compiler to create a custom memory model.

MSC.Software provides several standard memory models for you to use as explained in Memory Model Sizes. Often, when you are simulating very large models, however, you receive the following message:

```
! ERROR: ***** ADAMS MEMORY OVERFLOW *****
! A larger MD array is required.
! The error occurred in subroutine "OPMAIN" while allocating "DOUB"
space
! from "TEMP" for the "IZ".
! Space Available: 348496 Space Requested: 7651872
```

In the message, **Space Available** is the amount of space that is left to run with the current memory model. **Space Requested** is the space that is needed for the simulation to continue. Therefore, the space needed to run the simulation is:

Space Requested - Space Available + Current Memory Model

For example, if you are running with the memory model set to HUGE and you get the following error message:

```
! ERROR: ***** ADAMS MEMORY OVERFLOW *****  
! A larger MD array is required.  
! The error occurred in subroutine "OPMAIN" while allocating "DOUB"  
space  
! from "TEMP" for the "IZ".  
! Space Available: 348496 Space Requested: 7651872
```

The amount of memory necessary to run the simulation is:

$$7651872 - 348496 + 20000000 = 27.4e6$$

If you already have your memory model set to HUGE, you need to create a custom memory model to accommodate the large memory requirements.

Remember that selecting a memory size affects the machine and every user. Consult with other users before decreasing the allocated size.

On Windows, by default, MSC.ADAMS places the custom memory model in the directory `install_dir/win32/uconfig_user`. When MSC.ADAMS starts, it searches the following locations in the following order for a custom memory model:

- The location where the user executable is found, if used.
- `install_dir/win32/uconfig_user` directory.

On UNIX, when you create a custom memory model, the MSC.ADAMS Toolbar saves the parameters in the MSC.Software registry, and creates a FORTRAN subroutine for the platform on which you are currently running the MSC.ADAMS Toolbar. The MSC.ADAMS Toolbar uses a directory structure under `$HOME/.msca/cmm` to store the FORTRAN subroutines and corresponding libraries. Do not change the contents or structure of the memory model directory.

Maintaining Custom Memory Models on UNIX

This topic explains how to maintain your custom memory models. Select one of the following topics:

- Creating a custom memory model
- Deleting a custom memory model
- Rebuilding a custom memory model
- Changing a custom memory model

Creating a custom memory model

To create a memory model:

1. Right-click the MSC.ADAMS Toolbar tool, point to Manage Custom Memory, and then select Create Memory Model.

2. Click name, and enter a name for the memory model.
3. Adjust the array values in the options. Refer to the tables in Custom Memory Models for explanations of each of the array values.
4. Select OK to build the necessary directories, source file, and library.

A window displays a list of build parameters as the library creation takes place.

Deleting a memory model

To delete a memory model:

1. Right-click the MSC.ADAMS Toolbar tool, point to Manage Custom Memory, and then select Delete Memory Model.
2. In the treeview, click the name of the memory model that you want to delete.
3. Select OK.

Note: This deletes the model parameters in the registry, the model directory, and all libraries.

Rebuilding a memory model

Occasionally, you have to rebuild your custom memory models. For example, you may have to rebuild if you switch to a new architecture or if something goes wrong with your current model directory.

To rebuild a memory model:

- Right-click the MSC.ADAMS Toolbar tool, point to Manage Custom Memory, and then select Rebuild Memory Models.

A shell window displays each custom memory model being rebuilt as needed.

Changing a memory model

To change a memory model:

1. Right-click the MSC.ADAMS Toolbar tool, point to Manage Custom Memory, and then select either View/Change Memory Model.
2. In the treeview, click the name of the memory model that you want to change.
3. Adjust the array values in the options. Refer to the tables in Memory Model Sizes for explanations of each of the array values.
4. Select OK.

A shell window displays each custom memory model being rebuilt as needed.

Setting Custom Memory Model Size on Windows

To set a custom memory size on Windows:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS x** (where x is the release number), and then select ADAMS - Settings.

The MSC.ADAMS registry editor appears.

2. Set the memory model size for both ADAMS/View and ADAMS/Solver to Custom.
3. Select OK.
4. Run adams05r2 cmm and select your uconfg parameter sizes.

A new uconfg_user.dll is created in the install_dir/win32/uconfg_user directory.

Your memory model size is set.

Set the custom memory setting as the default as explained in Setting the MSC.ADAMS Environment.

Setting Environment Variables

Environment Variables

MSC.ADAMS contains many environment variables. Some are common to all MSC.ADAMS products, and others apply specifically to one product. Using the system registry, you can change these variables to further customize your use of MSC.ADAMS.

ADAMS/Aircraft Environment Variables

The following are ADAMS/Aircraft environment variables. Also see Template-Based Environment Variables for those applicable to all template-based products.

Variable name:	Variable value:	What it does:
MDI_AIR_PRIVATE_DIR		Defines the path to the private repository. Learn more.
MDI_AIRCRAFT_SITE		Defines the path to the site repository. Learn more.

ADAMS/Controls Environment Variables

The following are ADAMS/Controls environment variables:

Variable name:	Variable value:	What it does:
ADAMS_CONTROLS_WTIME	An integer number such as 5 or 10.	Changes the delay in start-up of function evaluation mode when using ADAMS/Controls with MSC.EASY5.
MSC_ACONTROLS_SUPPRESS_INIT_DUPS	on/off	Currently, it is possible for duplicate zero-value entries to appear in ADAMS/Controls results. Set this environment variable to on to suppress the initial duplicates.

ADAMS/Durability Environment Variables

The following are ADAMS/Durability environment variables:

Variable name:	Variable value:	What it does:
DUR_HOTSPOT_LIMIT	Integer	Sets an upper limit on the number of hot spots to report. Default is 200.
DUR_MSR_MB_LIMIT	Real	Sets the maximum swap space (in megabytes) when performing a modal stress recovery (MSR). Default is 400 MB.
MDI_ADAMS_EQUALTIMES	<ul style="list-style-type: none"> • keep (default) - Keep all time steps • first - Take the value of the first equal time step • last - Take the value of the last equal time step 	<p>Writing of DAC files can be problematic if multiple solutions exist at the same time. These extra (sometimes unwanted) time blocks are created when processing certain simulation commands.</p> <p>This environment variable removes equal time steps.</p>
MDI_DUR_DEFNODE		Recovers data for all nodes in the flexible body if no nodes or hot spots are specified in the FEMDATA statement.
MDI_DUR_LOADHEADER		Prints header information to the loadmap file.
MDI_DUR_LOADMAP		Generates an ASCII file that maps the loads from MBD to FE for DAC output only. The name of this file is <i><job_name>.map</i> , where <i><job_name></i> is the name given on the FILE argument of the first FEMDATA statement.
MDI_DUR_LOADOFFSET	Integer	Creates a gap in the sequential naming of DAC channel numbers. For example. without an offset set.

		<p>DAC files start with the names:</p> <p>job_name_001.dac job_name_002.dac</p> <p>If MDI_DUR_LOADOFFSET is set to 300, the DAC file names start with:</p> <p>job_name_301.dac job_name_302.dac</p>
--	--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ADAMS/Flex Environment Variables

The following are ADAMS/Flex environment variables:

Variable name:	Variable value:	What it does:
MDI_FLEX_BODY_TESTING_OPTIONS	<ul style="list-style-type: none"> gamma: Scale factor; useful range is 0 to 1.0 max: When step size changes, cratio changes by max 1% cratio: Initial value of cratio across all modes debug: Only applicable when using ADAMS/Solver (C++) 	<p>The variable for auto_damping overrides the traditional flex-body default damping.</p> <p>Variable: MDI_FLEX_BODY_TESTING_OPTIONS Value: auto_damping(gamma, max_increase, cratio_initial) debug</p> <p>UNIX example:</p> <pre>setenv MDI_FLEX_BODY_TESTING_OPTIONS "auto_damping(1.0, 0.01, 1.0)"</pre>

ADAMS/Rail Environment Variables

The following are ADAMS/Rail environment variables. Also see Template-Based Environment Variables for those applicable to all template-based products.

Variable name:	Variable value:	What it does:
MDI_ARAIL_CTC_REF	<p>side_dependent - Is the default value. Contact requests are expressed in the right/left rail reference system, according to the standard used in the railway industry.</p> <p>track - Contact requests are expressed in the track reference system, regardless of the rail side to which they refer.</p>	Specifies the output reference system for wheel/rail contact requests.
MDI_ARAIL_NORES	yes/no	<p>Allows users to disable the automatic writing of the result file when a model includes a flexible bodies.</p> <p>Note: It does not overwrite MDI_ACAR_WRITE_RES.</p>

ADAMS/Solver Environment Variables

The following are ADAMS/Solver environment variables:

Variable name:	Variable value:	What it does:
MDI_ADAMS_CPU_COLUMN		Displays elapsed CPU time for each simulation. Valid for ADAMS/Solver (C++) only.
MDI_SOLVER_SELECT	CXX or F77	Specifies the ADAMS/Solver type to use. <ul style="list-style-type: none"> • CXX - Use ADAMS/Solver (C++) • F77 - Use ADAMS/Solver (FORTRAN)
MDI_ADAMS_CONTACT_OUT	on/off	Controls the export of intermediate contact events in data for a contact model. <ul style="list-style-type: none"> • On: Enables intermittent contact output • Off: Disables intermittent contact output
MDI_ADAMS_SHELL_FILE_PATTERN		Exports, as shell files, tessellated geometry representations used during contact. It creates a shell file at the start of the simulation with the naming prefix you specify. Note: This variable must be set before the simulation begins. For example: <pre>var set var=test string=(PUTENV("MDI_ADAMS_SHELL_FILE_PATTERN","msc"))</pre> Will result in files named as follows: msc1.shl msc2.shl msc3.shl

ADAMS/Vibration Environment Variables

The following are ADAMS/Vibration environment variables:

Variable name:	Variable value:	What it does:
ADAMS_VIBRATION_MIN_PARTICIPATION		<p>Currently, during a vibration animation of flexible bodies, ADAMS/Vibration finds the largest modal coordinate and ignores any other coordinates that are less than 10% of that value. This environment variable changes the percentage that is ignored.</p> <p>Use this variable for system modes. (Use ADAMS_VIBRATION_MIN_FLEX_PARTICIPATION for flex modes.)</p> <p>To include all system modes in the animation, set this environment variable to 0.0.</p> <p>For example, to ignore all modal coordinates that are less than 5% of the largest coordinate, on UNIX enter:</p> <pre>setenv ADAMS_VIBRATION_MIN_PARTICIPATION 0.05</pre>
ADAMS_VIBRATION_MIN_FLEX_PARTICIPATION		<p>Same as ADAMS_VIBRATION_MIN_PARTICIPATION, except valid for flex modes.</p>

ADAMS/View Environment Variables

The following are ADAMS/View environment variables:

Variable name:	Variable value:	What it does:
MDI_AVIEW_BITMAPS MDI_AUX_BITMAPS		Search path(s) for bitmap files. Entries are separated with a colon (:) on UNIX and semicolon (;) on Windows.
MDI_AVIEW_DDE		<i>Windows only</i> When set, makes available several language functions used for DDE.
MDI_AVIEW_EXPERIMENTAL		When set, experimental code becomes functional. Contact Technical Support for more information.
MDI_COURIERFONT_SIZE		<i>X11 only</i> Size of text in multi-line fields and selection lists, specified in pixels.
MDI_GUI_FONT_FAMILY	Any font available on your system.	Changes the default font used in MSC.ADAMS products. Examples include Rockwell, Arial, and Bookman.
MDI_GUI_FONT_SIZE	An integer number such as 11 or 12.	Changes the default font size used in MSC.ADAMS products. Setting this may cause text on certain dialog boxes not to be displayed, so it is recommended to use values such as 10, 11, or 12.
MDI_MOTIF_STYLE		<i>X11 only</i> If set, runs the interface in native look and feel (usually Motif on SGI, the native SGI style).
MDI_MENUBAR_FONTSIZE		Size of text in menubar, specified in pixels.

MDI_MENUITEM_FONTSIZE		Size of text in menus, specified in pixels.
MDI_NO_SHELL_OPT		Turn off the internal shell optimization code by setting to any value.
MDI_ONLINE_BROWSER		Specifies the path to the browser to use for online help on UNIX platforms.
MDI_ONLINE_DIR		Specifies the path for the top level directory for help documents.
MDI_P_SCHEMA		Specifies the path for the Parasolid Schema files.
MDI_PROGRESS_METER		If set, enables the progress meter dialog box when needed. If not set, the dialog will always be hidden.
MDI_STEREO	0 or 1	If set, enables stereo viewing.
MDI_USE_DESKTOP_SETTINGS		If set to 0 or disabled , the desktop color scheme is not used.
MDI_SHOW_NOWARN		Set to any value other than null to stop displaying warning messages.
MDI_WARN_RECURSIVE		Turns on dump of expressions in which recursion has been detected. This is a debug aid for very advanced users.
MDI_X11_FONT_PATTERN		<i>X11 only</i> Allows you to specify the general interface font with an X11 font pattern.
MSC_FLATTEN_ADM	0 or 1	Specifies the level of hierarchy in the adams_view_name tag. Currently, all datasets are written with full hierarchical names in the

		<p>adams_view_name tags. This allows XML results files created with an external solver to be read in while retaining the same hierarchy as the model. This benefits applications that use model hierarchy (UDEs, submodels, and so on) and simulate with the external solver.</p> <p>To restore the previous behavior, set the environment variable to 1.</p>
MSC_HELP_WIN_OPEN		<p>Opens a new browser window on UNIX. Set to new (for Netscape) or newtab (for Mozilla).</p>

Note: Some environment variables (MDI_PROGRESS_METER, for example) are only considered set if their value is either **1** or **enabled** (without quotes, case insensitive).

Template-Based Environment Variables

The following environment variables are used in various MSC.ADAMS template-based products.

Variable name:	Variable value:	What it does:
MDI_ACAR_USERMODE	expert/standard	Sets the user mode.
MDI_ACAR_PLUS_AVIEW	yes/no	Gives you access to ADAMS/View.
MDI_ACAR_USE_EDITOR	Path to your text editor. For example: C:/Program Files/Windows NT/Accessories/wordpad.exe.	Launches a text editor where you can edit property files.
MDI_ACAR_WRITE_RES	yes/no	<p>Outputs an analysis results file. If the model includes a flexible body, your template-based product automatically outputs an analysis results file.</p> <p>Note: For ADAMS/Rail, you can use MDI_ARAIL_NORES to</p>

		<p>disable the automatic writing of the results file when the model includes a flexible body.</p> <p>Note: For ADAMS/ Aircraft, you can set MDI_ACAR_WRITE_RES to no to disable the automatic writing of full results when the model includes a flexible body. This will prevent improper post-analysis animations for assemblies with flexible bodies, while making output request data available.</p>
MDI_ACAR_LOGO_BMP	Path to the image you want to use.	Replaces the image on the Welcome and Exit dialog boxes. Image size should be 192x192 pixels.
MDI_ACAR_SIDE_PREF	right/left	Defines the preferred side for creating/modifying symmetric components. The default is left.
MDI_ACAR_INITMODE	template_builder/standard_interface	If you have expert-user access, sets the default selection in the Welcome dialog box.
MDI_ACAR_MODEPROMPT	yes/no	Sets your template-based product so that it does not display the Welcome dialog box at start up.
MDI_ACAR_VEHICLE_REAR	Direction cosines. For example: 1,0,0.	Sets the orientation of the global reference frame using direction cosines.
MDI_ACAR_VEHICLE_LEFT	Direction cosines. For example: 0,-1,0.	Sets the orientation of the global reference frame using direction cosines.
MDI_CDB_SEARCH	yes/no	Restores version 12.0 CDB search algorithm. Use is discouraged.

MDI_CDB_EXPAND_PATH	yes/no	Writes the expanded file names to the adm deck.
MDI_ACAR_XRF	on/off	Toggles results file being written in xrf format. The default is off.
MDI_ACAR_ANL_LOG1	Component name. For example: hardpoints and parts. See a list of valid variable values.	Writes additional information, about the components you specify, to the analysis log file. You can select up to three components to correspond to log1, log2, and log3.
MDI_ACAR_ANL_LOG2		
MDI_ACAR_ANL_LOG3		
MDI_<product name>_PRIVATE*		
MDI_<product name>_SITE*		Defines the path to the site repository. Learn more.
MDI_<product name>_PRIVATE_DIR*		Defines the path to the private repository. Learn more.
MDI_<product name>_PRIVATE_CFG*		Defines the path to your private configuration file. Learn more.
MDI_ACAR_SOLVER_PREF	F77/CXX/none	Defines the type of solver you are using (FORTRAN, C++, or use product default). Note: ADAMS/Aircraft only supports the FORTRAN solver.
MDI_AENG_HHT_ERROR	Any positive number	Sets the HHT integrator as the default integrator, with a default error tolerance of the value specified.

*Where product name can be ACAR, AENG, or RAIL.

Setting Preferences

UNIX Preferences

UNIX Preferences

Some infrequently used configuration options for ADAMS/View and ADAMS/Solver require that you set environment variables by modifying startup scripts, such as your .cshrc file. These options include as setting license sharing, setting default colors for plotting in ADAMS/Solver, and others.

You can also use the MSC.ADAMS toolbar to set preferences for MSC.ADAMS products.

Note: Memory size changes do not take effect until you restart the MSC.ADAMS product.

ADAMS/Solver License Sharing

When you use ADAMS/View to perform a simulation, it uses an ADAMS/Solver license. Once the simulation is complete, by default, it does not check the license back in for another user. You must exit ADAMS/View before other users can use the ADAMS/Solver license. You can, however, set a simulation preference, hold_solver_license. You can change the simulation preference using the command:

simulation set hold_solver_license=yes/no

- If you set hold_solver_license to yes, then ADAMS/View checks out the necessary licenses when you perform a model verify operation (because of the degrees of freedom calculation, which uses ADAMS/Solver) or any type of simulation using the internal, or integrated, ADAMS/Solver. It only releases the licenses when you exit ADAMS/View or when you run a simulation using the external ADAMS/Solver.
- If you set hold_solver_license to no, ADAMS/View releases all ADAMS/Solver licenses (static, kinematic, and dynamic), and all module licenses (ADAMS/Tire, ADAMS/Linear, and ADAMS/Rail) in these cases:
 - - You run a simulation using the external ADAMS/Solver (as before).
 - After a model verify operation.
 - When you reset after a single simulation (transient, static, and so on) using the integrated ADAMS/Solver.
 - After a design study, design of experiment, or optimization analysis (licenses are held throughout the parametric analysis).

To change the default for only one ADAMS/View session, use the Command Navigator to enter the commands simulation set. A dialog box appears in which you can temporarily set the default.

ADAMS/Solver Preferences

You can use environment variables to do the following for ADAMS/Solver:

- Modifying the Default Colors in ADAMS/Solver
- Setting Remote X11 Access to MSC.Software Software

Default Colors in ADAMS/Solver

You can modify the default colors for interactive graphics in ADAMS/Solver by setting the values of the environment variables, shown below, in a startup script, such as .cshrc. You can set the screen so that it is monochrome or you can set the colors of background, line, text, and plots.

The following is an example of the ADAMS/Solver color settings:

```
# Modify these variables to change the default colors for ADAMS/Solver
#
setenv ADAMSPP_SCREEN_RENDITION      "TYPE"
setenv ADAMSPP_BACKGROUND_COLOR      "BLACK"
setenv ADAMSPP_LINE_COLOR             "GREEN"
setenv ADAMSPP_TEXT_COLOR             "WHITE"
setenv ADAMSPP_PLOT_GRID_COLOR        "ORANGE YELLOW"
setenv ADAMSPP_PLOT_CURVE1_COLOR     "CYAN"
setenv ADAMSPP_PLOT_CURVE2_COLOR     "GREEN"
setenv ADAMSPP_PLOT_CURVE3_COLOR     "BLUE"
setenv ADAMSPP_PLOT_CURVE4_COLOR     "YELLOW"
```

Each command includes the instruction, the name of a variable, and the name of the color or type for the preceding variable.

Setting Monochrome Display

If you have a monochrome screen or if you want the screen image to appear in monochrome, you can set the following environment variable:

```
setenv ADAMSPP_SCREEN_RENDITION      TYPE
```

In the environment variable, you can replace *TYPE* (in uppercase letters) with *COLOR* for color or *MONOCHROME* for a black and white.

Setting this variable to monochrome overrides any settings for color even if you set one or more environment variables for colors in the same ADAMS/Solver session.

Setting Color Display

You can modify default colors for displays and plots by setting environment variables. To change the colors for some or all of the variables, set one or more of the following variables:

```
setenv ADAMSPP_BACKGROUND_COLOR      "COLOR NAME"
setenv ADAMSPP_LINE_COLOR             "COLOR NAME"
setenv ADAMSPP_TEXT_COLOR             "COLOR NAME"
setenv ADAMSPP_PLOT_GRID_COLOR        "COLOR NAME"
setenv ADAMSPP_PLOT_CURVE1_COLOR     "COLOR NAME"
setenv ADAMSPP_PLOT_CURVE2_COLOR     "COLOR NAME"
setenv ADAMSPP_PLOT_CURVE3_COLOR     "COLOR NAME"
setenv ADAMSPP_PLOT_CURVE4_COLOR     "COLOR NAME"
```

You can replace *COLOR NAME* (in uppercase letters) with any of the available 65 colors. You must use double quotation (") marks to enclose a type name with embedded spaces, such as "BURNT ORANGE". You do not need to use the double quotation marks to enclose a type name if it is a single word, such as GOLD.

Available colors are:

APRICOT	GREEN/YELLOW	PLUM
AQUAMARINE	INDIAN/RED	RAW SIENNA
BITTERSWEET	LAVENDER	RAW UMBER
BLACK	LEMON/YELLOW	RED
BLUE	MAGENTA	RED ORANGE
BLUE GREEN	MAHOGANY	RED VIOLET
BLUE GREY	MAIZE	SALMON
BLUE VIOLET	MAROON	SEA GREEN
BRICK RED	MELON	SEPIA
BROWN	MIDNITE/BLUE	SILVER
BURNT ORANGE	MULBERRY	SKY BLUE
BURNT SIENNA	NAVY BLUE	SPRING GREEN
CADET BLUE	OLIVE GREEN	TAN
COPPER	ORANGE	THISTLE
CORNFLOWER	ORANGE RED	TURQUOISE BLUE
CYAN	ORANGE YELLOW	VIOLET/PURPLE
FOREST GREEN	ORCHID	VIOLET/BLUE
GOLD	PEACH	VIOLET/RED
GOLDENROD	PERIWINKLE	WHITE
GREY (GRAY)	PINE GREEN	YELLOW
GREEN	PINK (CARNATION PINK)	SPRING GREEN
GREEN/BLUE		

The color names in parentheses are alternative names for the preceding color. If you misspell a variable, ADAMS/Solver uses the default color for that variable; it does not display an error message. If you misspell a COLOR NAME, however, ADAMS/Solver displays an error message.

If you do not set a color for a given variable, ADAMS/Solver uses the default color.

Remote X11 Access to MSC.Software Software

You can use a remote X11 device to display the MSC.Software software graphics by setting the DISPLAY environment variable. For example, if you are using an X terminal to log onto a workstation licensed to run MSC.Software software, you can set the DISPLAY environment variable at the operating system prompt to include the name of the X terminal:

```
X terminal name is: xcitement
DISPLAY variable: setenv DISPLAY xcitement: 0.0
```

For more information on accessing ADAMS/View through remote X11 devices, see ADAMS/View Preferences.

MSC.ADAMS Product License Checkout

You can specify the number of times an MSC.ADAMS product attempts to check out a license. The default is 60 attempts and the time interval between each check, which you cannot change, is 60 seconds. MSC.ADAMS Toolbar checks the registry entry licenseRetry to determine how many times it should try to check out its license.

To set the number of times to check out a license:

1. Right-click the MSC.ADAMS Toolbar tool, and then select Start Registry Editor.
The Registry Editor appears with options for setting all products.
2. In the treeview, click MDI.
3. In the Registry area, click licenseRetry.
4. Set the number of times, and then select OK.

Temporary File Location

You can change where MSC.ADAMS places temporary files it generates during a simulation. By default, it places them in /var/tmp. You can use the environment variable TMPDIR in your .cshrc to set where MSC.ADAMS places the temporary files. You can direct MSC.ADAMS to place the temporary files in any directory, as long as you have the appropriate permissions to that directory.

For example, to direct MSC.ADAMS to place temporary files in the directory /usr/users/me/tmp, enter the following in your .cshrc:

```
setenv TMPDIR /usr/users/me/tmp
```

In the MSCADAMS Toolbar

Preferences in the MSC.ADAMS Toolbar

You can set preferences for all products at once or for a particular product. Not all products have preferences that you can set. In addition, many products share preferences with other products, and the Registry Editor displays any shared preferences for each product.

To set all product preferences at once:

- Right-click the Toolbar tool , and then select Start Registry Editor.

The Registry Editor appears with options for setting all products.

To set preferences for a particular product:

1. Right-click the product's tool, and then select the Change Settings command.
2. Change the preferences as listed in the next sections:
 - ADAMS/View Preferences
 - ADAMS/Solver Preferences
 - ADAMS/PostProcessor Preferences
 - Template-Based Product Preferences
 - ADAMS/Chassis Preferences
3. Select **OK**.

ADAMS/Chassis Preferences

ADAMS/Chassis shares preferences with ADAMS/Solver, and also has a private set of its own, shown in the table below. For your convenience, the preferences for ADAMS/Solver are included with the preferences for ADAMS/Chassis in the Registry Editor, as shown below. For information on preferences specific to ADAMS/Solver, see ADAMS/Solver Preferences.



Name	Value
workingDirectory	
guiMode	Standard

Note: Any defaults for ADAMS/Solver also apply to ADAMS/Chassis.

Parameter:	Description:
guiMode	Sets the mode in which ADAMS/Chassis runs: <ul style="list-style-type: none"> • Standard - Runs ADAMS/Chassis analysis environment. For more information, see the ADAMS/Chassis online help.
workingDirectory	Specifies a directory where ADAMS/Chassis writes output files and searches for input files. By default, workingDirectory is empty and does not affect the location in which the output files are generated, or change the location where ADAMS/Chassis looks for input files.

ADAMS/PostProcessor Preferences

ADAMS/PostProcessor shares graphical settings with ADAMS/View. For your convenience, the Graphics folder appears when you select Change ADAMS/PostProcessor Settings from the Toolbar. For more information, see ADAMS/View Preferences.

Note: When you change graphical preferences for ADAMS/Processor, you also affect the graphics preferences for ADAMS/Car, ADAMS/View, and ADAMS/Engine.

ADAMS/Solver Preferences

You can set preferences, listed in the table below, for standard ADAMS/Solver and for user libraries that you created to run with ADAMS/Solver. Each library has its own set of preferences. For more information about user libraries, see Creating User Libraries.

Before setting your preferences, be sure that you are setting the preferences for the desired library or standard ADAMS/Solver.

To verify ADAMS/Solver:

- On the MSC.ADAMS Toolbar, check the appearance of the ADAMS/Solver tool:



indicates that you are working with the standard ADAMS/Solver.



indicates that you are running ADAMS/Solver with a user library.

Note: You may have several user libraries. To verify which one is active, move your mouse over the tool until the tip text appears. The name you assigned to the library appears in the tip text. Alternatively, right-click on the tool, and select Info to see information about the library.

Parameter:	Description:
solverSelection	<p>You can select either:</p> <ul style="list-style-type: none"> • Fortran Solver - Our commercially available solver (F77). • C++ Solver - Our C++-based solver, which is faster, provides new linear analysis capabilities, and has an improved methodology for identifying and handling redundant constraints. Currently, it does not support all modeling elements that the FORTRAN Solver supports. <p>Note: This setting will not affect the solver preference for ADAMS/Engine. Learn how to set solver preference for ADAMS/Engine.</p> <p>For more information on the different solvers, see the online help for ADAMS/Solver.</p>
numCPUs	<p>You can set the number of CPUs on which you want to run ADAMS/Solver on SGI R10000- and 12000-based systems. The number also indicates the number of licenses ADAMS/Solver checks out during a simulation. If the corresponding number of licenses is not available at the time of the simulation, ADAMS/Solver issues an error message indicating that the number of licenses is not available and suggests that you reduce the number of CPUs requested.</p>
remoteHost	<p>Name of the remote host where you run ADAMS/Solver.</p> <p>Note: Network access and multi-task package licenses allow you to submit tasks to ADAMS/Solver while ADAMS/View runs on one of many desktop workstations. To see if you can submit multiple tasks to ADAMS/Solver, check the licensing information on the password certificate that is included in the Installer's Kit. If you do not know the type of license you have, check with the administrator who installed the MSC.ADAMS products.</p>
remoteHostWD	<p>Specifies a directory that ADAMS/Solver uses to write out its files and search for input files. The directory is optional. You need to specify it only if the user's file system is not automounted on the remote machine upon log in.</p>
remoteHostID	<p>The name of the ADAMS/Solver installation directory on the remote machine.</p>
memSize	<p>Sets the memory model ADAMS/Solver uses to simulate a model. You can select the standard memory models provided, as well as any custom models you created. For information on creating a memory model, see Creating a Custom Memory Model.</p>

custMemModel	Sets the name of a custom memory model that you have previously created. For this to take effect, memSize must be set to custom.
inputFile	Specifies that ADAMS/Solver use the command language file (.acf) when running in scripted or batch mode. You can enter the path name of your command file or right-click in the text box and select one using the File Browser.
workingDirectory	Specifies a directory where ADAMS/Solver writes output files and searches for input files. By default, the parameter is empty and does not affect the location in which the output files are generated, or change the location where ADAMS/Solver looks for input files.
runMode	<p>Sets the mode in which MSC.ADAMS runs:</p> <ul style="list-style-type: none"> • Interactive - MSC.ADAMS runs and waits for user input. • Scripted - MSC.ADAMS runs with the command file that you specify in the parameter inputFile. (If you have not specified a command file and you run in scripted mode, ADAMS/Solver launches in interactive mode.) • Batch - ADAMS/Solver runs with the command file specified in the inputFile. If you have not specified a command file, and run in batch mode, ADAMS/Solver launches interactively.

ADAMS/View Preferences

You can set two types of preferences in ADAMS/View:

- Preferences for ADAMS/View and any user library - The parameters can be different for each user library that you create to run with ADAMS/View and for standard ADAMS/View.
- Preferences for ADAMS/View only - The parameters are global graphics settings. They affect all MSC.ADAMS products that have a user interface, including ADAMS/Car, ADAMS/Engine, and ADAMS/Rail. You can view and change them only when you are working with standard ADAMS/View. They appear in the Registry area as a subfolder, Graphics.

For more information about user libraries, see [Creating User Libraries](#).

Before setting your preferences, be sure that you are setting the preferences for the desired library or standard ADAMS/View.

To verify ADAMS/View libraries:

- On the MSC.ADAMS Toolbar, check the appearance of the product tool:



indicates that you are working with standard ADAMS/View.



indicates that you are running ADAMS/View with a user library.

Note: If you have many user libraries, verify which one is active by moving your cursor over the tool until the tip text appears. The name you assigned to the user library appears in the tip text. Alternatively, right-click on the tool, and select Info to see information about the user library.

General Preference Settings in ADAMS/View	
Parameter:	Description:
workingDirectory	Specifies a directory where ADAMS/View writes output files and searches for input files. By default, the parameter is empty and does not affect the location in which the output files are generated, or change the location where ADAMS/View looks for input files.
runMode	Sets the mode in which ADAMS/View runs: <ul style="list-style-type: none"> • Interactive - ADAMS/View runs and waits for user input. • Scripted - ADAMS/View runs with the command file that you specify in the parameter inputFile. (If you have not specified a command file and you run in scripted mode, ADAMS/View launches in interactive mode.)
custMemModel	Sets the name of a custom memory model that you have previously created. For this to take effect, memSize must be set to custom.
solverUserLibrary	Sets the ADAMS/Solver user library to run from within ADAMS/View.
memSize	Sets the memory model ADAMS/View uses to simulate a model. You can select the standard memory models provided as well as any custom models you created. For information on creating a memory model, see Creating a Custom Memory Model.
inputFile	Specifies that ADAMS/View use a specified command language file (*.cmd) when running a product in scripted mode.
searchPath	Allows you to specify the path file that contains search paths for different types of files that can be loaded into ADAMS/View. For more information on path files, see Modifying the MSC.ADAMS Path File.

description	<p>Available for user libraries only.</p> <p>Text that describes the library, such as what it does or how it was created.</p>
shortName	<p>Available for user libraries only.</p> <p>A project name that appears on the MSC.ADAMS Toolbar and identifies the user library, such as AView1.</p>
fileCaching	<p>Available for standard ADAMS/View only.</p> <p>When performing animations that contain flexible bodies, ADAMS/View often produces a large cache of data before it can perform the animation. The cache can be as large as several hundred megabytes.</p> <p>The default is to produce these caches on disk if there is enough disk space available. If the disk space is not available, ADAMS/View places the cache in memory.</p> <p>Note that storing the cache on disk results in longer animation setup time (up to two times). You can disable file caching to increase animation setup speed but if there is not enough memory to produce a cache, ADAMS/View may exit with an Out of Memory message.</p>
textEditor	<p>Available for standard ADAMS/View only.</p> <p>Specifies the text editor to be used by default.</p>

Global Graphics Settings in ADAMS/View	
Parameter:	Description:
Graphics Driver	<p>On all platforms, ADAMS/View supports the X11 window driver as well as the one for the native graphics capabilities of the system. The X11 driver lets ADAMS/View run from remote X terminals, and the native driver lets ADAMS/View use any specialized or high-performance graphics hardware on the system. If the machine on which you are displaying ADAMS/View does not have the hardware to meet MSC.ADAMS specifications, a warning message appears. Select X11 to resolve this problem.</p>
OpenGL Software Assisted	<p>If you selected the option Native Open GL for Graphics Driver, it uses the hardware acceleration to render overlay planes. The overlay planes are used for the:</p> <ul style="list-style-type: none"> • Rubber band box drawn for selection or zoom. • Temporary geometry (arrows) displayed when creating joints. • Temporary geometry when sketching curves, extrusions, and revolutions.

	<ul style="list-style-type: none"> Object names when in selection mode. <p>Some graphics cards do not offer hardware acceleration for overlay planes. If you have one of these graphics cards, then you should use OpenGL Software Assisted. Software assistance simply means that ADAMS/View draws the overlay plane geometry instead of relying on the hardware.</p> <p>OpenGL Software Assisted is slower than Graphics Driver because the screen refresh rate for the overlay plane will be affected by the other geometry in the view.</p>
Double Buffering	Double buffering of screen updates in ADAMS/View provides fluid animation updates. If you are using the X11 Window driver in ADAMS/View, double-buffering uses more memory and generally runs slower than double-buffering with native graphics.
Hardcopy Resolution	Specifies the resolution for shaded images written to a postscript file. Hardcopy Resolution does not affect wireframe images, such as xy plots.
	<p>The default setting is 300 dots per inch (DPI). Note that earlier versions of ADAMS/View (10.1 and earlier) used a default resolution of 75 DPI. We do not recommend that you use a resolution lower than 75 or higher than 600 DPI.</p> <p>Note also that larger values produce larger postscript files, and will likely increase processing time for the printer.</p>
Overlay Backgrounds	Controls whether or not a background appears behind pop-up text, such as the names of modeling elements and position coordinates. Because some graphics cards do not fully support OpenGL with overlay planes, which the background is, you may not be able to see the text. If this occurs, disable this option to remove the background and leave the text.

Template-Based Product Preferences

The template-based products have a private set of preferences, shown in the table below, and a shared set with ADAMS/Solver and ADAMS/View.

Parameter:	Description:
siteDir	Specifies the location of the site repository in which you have created user libraries or binary files. For more information, see User Library Overview and Binary Files.
privateDir	Specifies the location of your private repository. For more information, see the online help for your template-based product.
privateCfg	Specifies the name and location of your private configuration file. For more information, see the online help for your template-based product.

runMode	<p>Sets the mode in which the product runs:</p> <ul style="list-style-type: none"> • Interactive - Runs and waits for user input. • Scripted - Runs with the command file that you specify in the parameter inputFile. (If you have not specified a command file and you run in scripted mode, the template-based product launches in interactive mode.) • Batch - Runs with the command file specified in the parameter inputFile. If you have not specified a command file, and run in batch mode, the template-based product launches in interactive mode.
workingDirectory	<p>Specifies a directory where the template-based product writes output files and searches for input files. By default, the parameter is empty and does not affect the location in which the output files are generated, or change the location where the product looks for input files.</p>
inputFile	<p>Specifies that the template-based product use a specified command language file (*.cmd) when running in scripted mode.</p> <ul style="list-style-type: none"> • For ADAMS/Solver: specifies the command file (.acf) when the ADAMS/Solver executable runs in scripted or batch mode. • For ADAMS/View: specifies the command file (.cmd) when the ADAMS/View executable runs in scripted mode.

For your convenience, the preferences for ADAMS/View and ADAMS/Solver are included with the preferences for the template-based product in the Registry Editor, as shown next:



For information on preferences specific to ADAMS/Solver and ADAMS/View, see [About ADAMS/Solver Preferences](#) and [About ADAMS/View Preferences](#).

Windows Preferences

ADAMS/Solver Pausing

You can set the variable MDI_PAUSE to set a pause after ADAMS/Solver starts running in interactive mode. The default setting is 0 for no pause.

To activate the pause:

1. From the Start menu, point to Settings, and then select Control Panel.
2. From the Control Panel folder, double-click System, and then select the tab Environment.
3. Enter the variable MDI_PAUSE and set it to 1.
4. Select OK.

MSC.ADAMS Environment

You can set the following options for the ADAMS/View and ADAMS/Solver environment:

- **Current Graphics settings** - The options are:
 - Native OpenGL either hardware or software-assisted - OpenGL with hardware assistance uses the hardware acceleration to render overlay planes. The overlay planes are used for the:
 - Rubber band box drawn for selection or zoom.
 - Temporary geometry (arrows) displayed when creating joints.
 - Temporary geometry when sketching curves, extrusions, and revolutions.
 - Object names when in selection mode.

Some graphics cards do not offer hardware acceleration for overlay planes. If you have one of these graphics cards, then you should use Native OpenGL with software assistance. Software assistance simply means that ADAMS/View draws the overlay plane geometry instead of relying on the hardware.

Native OpenGL with software assistance is slower because the screen refresh rate for the overlay plane will be affected by the other geometry in the view.

- HOOPS OpenGL and MSW driver
- **Miscellaneous graphics settings** - The options are:
 - **Double buffering** - Turns on/off double buffering.

- **Overlay backgrounds** - Controls whether or not a background appears behind pop-up text, such as the names of modeling elements and position coordinates. Because some graphics cards do not fully support OpenGL with overlay planes, which the background is, you may not be able to see the text. If this occurs, disable this option to remove the background and leave the text.
- **Memory model size** - You can set the memory model size for when ADAMS/View is loading a model or when ADAMS/Solver is solving the equations of motion. You can also define a custom memory model as explained in Setting a Custom Memory Model Size. The following tables show the variable and array size for the memory options and explain each variable and array. Learn more about memory model sizes.
- **Current product settings** - The option is:
 - **Hardcopy Resolution** - Specifies the resolution for shaded images written to a postscript file. Hardcopy Resolution does not affect wireframe images, such as xy plots.

The default setting is 300 dots per inch (DPI). Note that earlier versions of ADAMS/View (10.1 and earlier) used a default resolution of 75 DPI. We do not recommend that you use a resolution lower than 75 or higher than 600 DPI.

Note also that larger values produce larger postscript files, and will likely increase processing time for the printer.

- **MSC.ADAMS home directory** - Specify a default MSC.ADAMS working directory by entering it directly, or by browsing your file system.
- **MSC.ADAMS editor** - Specify a text editor. Select the standard Windows Notepad editor, or enter another editor in the Other text box (for example, vi.exe). Note that if you enter the name of another editor, it must be found by the PATH environment variable in Windows.

To set preferences:

1. From the Start menu, point to Programs, point to MSC.Software, point to **MSC.ADAMS *x*** (where *x* is the release number), and then select ADAMS - Settings.

The MSC.ADAMS registry editor appears.

2. Set the options, as necessary.
3. Select OK.

Search Paths

At installation, MSC.ADAMS products, including ADAMS/Car, ADAMS/Driveline, ADAMS/Engine, ADAMS/Rail, and ADAMS/View, create a default `aview.pth` file. It is in the `aview` subdirectory, beneath the installation directory, `install_dir`.

The `aview.pth` file allows you to specify search paths for the different types of files that can be opened in ADAMS/View. This is useful for files that are shared with other users, and are not in your current working directory. Below is an example of an `aview.pth` file:

```
.bin    c:/install_dir/aview/
.adm    c:/install_dir/datasets/
.cmd    c:/aview/cmd_files/
.dat    c:/adams/test_data/
.gra    c:/staff/my_home_dir/adams/output/
.req    c:/staff/my_home_dir/adams/output/
.res    c:/staff/my_home_dir/adams/output/
.igs    c:/staff/my_home_dir/adams/iges_files/
.dct    c:/usr/install_dir/aview/
```

Each line in the file specifies a search path for a specific file extension. The first line in the example file above specifies a search path for files with an extension of `.bin`. You can have multiple paths for each extension by adding another line with the same file extensions and an alternate path. Remember that each line must begin with a file extension.

Any file extension can be put in the ADAMS/View path file. Therefore, you do not have to name your files with the standard ADAMS/Solver and ADAMS/View extension. Use the following conventions to add a file extension to the path file:

- Begin each line in column one with the desired file extension.
- Begin each file extension with a `.` (period).
- Separate the extension and search path for the extension with space. You can use a single space, tab, or a combination of these.
- Complete each search path, starting from the root (`/`) of the file system.
- End each search path with a trailing `/` (forward slash).
- Ensure that each line is less than 255 characters in length.

If you want to make the changes to the ADAMS/View path file affect all ADAMS/View users, edit the default `aview.pth` file mentioned above.