Sinda 2017.1

Installation Guide

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SINDA 2017.1 Installation Guide
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SIND:V2017.1:Z:Z:Z:DC-OPS-PDF

SECTION

1

Installing MSC Sinda

- Introduction
- Pre-requisites
- Installing
- Troubleshooting
- Using the SGRT Utility
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0. Introduction

Sinda 2017.1 is a minor update to version 2017 and is functionally the same except for the addition of compatibility with IPv6 networks. Please ensure your FlexLM license server softare has been updated to version 11.13 or higher before installing this product. Older versions of the license server will not authorize this Sinda 2017.1 to run.

Welcome to the Sinda installation guide. This guide discusses the installation of MSC Sinda 2017.1 and 2017 and MSC Office Toolkit 2017 (for Microsoft Visio)

- MSC Sinda 2017.1
- MSC Office Toolkit 2017 (see additional installation considerations in section 2)

MSC Sinda installation includes these major components

- Sinda solver (for use with or without Fortran)
- Patran plug in
- Sinda Dashboard
- Thermal Studio
- Documentation
- Self-learning workshops

Note that the new functionality in Sinda 2017 also requires Patran 2017.

Some major changes since the 2016 release

- Sinda no longer installs on Windows XP systems
- Sinda no longer installs on 32 bit Windows systems
- Sinda no longer includes 32 bit versions of Sinda, the Patran plug in, SindaRad, or Thermal Studio

1. Pre-requisites

Sinda only runs on 64 bit versions of Microsoft Windows 7 and Windows 10. MSC does not certify Sinda to run on 64 bit Windows 8.x, though it should work.

Administrative privileges are required for installation. Please coordinate with your IT department.

The FlexLM license server software must be version 11.13 or higher for Sinda 2017.1 to run. Older versions of the license server will not authorize Sinda 2017.1 to run.

System requirements for MSC Sinda

- 64 bit Windows 7 or Windows 10
- Intel Visual Fortran and Microsoft Developer Studio if you intend to use Fortran in your Sinda models
- At least 4 GB RAM, though 8 GB is recommended. The maximum size model that can be analyzed is determined by RAM availability.
- 600 MB disk space is needed for the final Sinda installation, though up to 2 GB may be needed temporarily during the installation process.
- Sinda requires certain run time redistributables. These may already exist on your system. If not, they will be installed. This should take no more than an estimated additional 100 MB disk space.

System Requirements for MSC Office Toolkit

- 64 bit Windows 7 or Windows 10
- Microsoft Visio version 2010, 2013, or 2016. Visio may be 32 bit or 64 bit. Visio should already be installed before attempting Office Toolkit installation.
- 4 GB RAM
- Less than 10 MB disk space is needed to store the Office Toolkit files, though up to 300 MB may be required temporarily during installation.
- Office Toolkit requires certain run time redistributables. These may already exist on your system. If not, they will be installed. This should take no more than an estimated additional 100 MB disk space.

For the latest information on supported platforms for upcoming releases of MSC products, please visit the following web site: http://www.mscsoftware.com/Support/Platform-Support/Default.aspx

For Sinda 2017 to have Fortran programming capability, the Intel Visual Fortran compiler, version 10.1 or higher, must be installed, which also requires Microsoft Visual Studio, Professional Edition. The following table shows the supported combinations of Intel Visual Fortran and Microsoft Visual Studio.

	Visual Studio Version				
Intel Fortran version	2008	2010	2012	2013	2015
10.1	YES	NO	NO	NO	NO
11 or 11.1	YES	NO	NO	NO	NO
12 or 12.1 (Visual Fortran XE 2011)	YES	YES	NO	NO	NO
13 or 13.1 (Visual Fortran XE 2013)	YES	YES	YES	NO	NO
14 (Visual Fortran XE 2013 SP1)	YES	YES	YES	NO	NO
14 (Visual Fortran XE 2013 SP1 Update 1)	YES	YES	YES	YES	NO
15 (Parallel Studio XE 2015)	NO	YES	YES	YES	NO
15 (Parallel Studio XE 2015, Update 4)	NO	YES	YES	YES	YES
16 (Parallel Studio XE 2016)	NO	YES	YES	YES	YES
17 (Parallel Studio XE 2017)	NO	YES	YES	YES	YES

For best installation results, please try to install in the following order

1. Visual Studio
2. Intel Fortran
3. Sinda

To prevent certain link errors, please install the latest updates and service packs for your version of Visual Studio. If installing Visual Studio 2010 or 2012, note that custom installation is required. The default installation does not install 64 bit components which are needed to run Sinda. Be sure to perform custom installation with Visual Studio 2010 and 2012 and ensure the 64 bit C/C++ compiler components are installed.

Accessing Sinda online help and self-learning workshops requires a PDF reader; Adobe Acrobat Reader DC, Adobe Acrobat, or Adobe Reader X (or later) is recommended. Using the full feature set of online help also requires Adobe Flash. Without Flash, only the basic functionality of online help is enabled.

MSC Office Toolkit requires a valid copy of Microsoft Visio version 2010, 2013, or 2016.

- Older legacy models from the 2008 version can be updated with Office Toolkit and Visio 2010. With Visio 2013 and 2016, these older models cannot be read.

- Visio 2013 and 2016 can read models (VSD extension) written by Visio 2010, but Visio 2010 cannot read the VSDX files written by versions 2013 and 2016 by default. However, Version 2013 and 2016 can save to the VSD format which 2010 can read.

Sinda 2012 and later differs from previous (2008r1 and older) versions in a number of important ways.

1. New memory architecture for full 64 bit capability, allowing much larger models to be run.
2. Preprocessor bucket size settable at the command line or in the registry using the SGRT utility
3. No fluids library

Because of these many changes, older models, especially those with Fortran programming that use the standard Sinda COMMON blocks, cannot be run with the newer version. A legacy capability is provided to ensure backward compatibility.

1. If you want the legacy mode option, do not uninstall your existing Sinda 2008r1 prior installing Sinda 2012 or later.
2. Compaq Visual Fortran can no longer be used with legacy mode. Compaq Visual Fortran is too old to run under Windows 7 and Windows 10 operating systems, and Sinda no longer supports XP systems. Sinda 2008r1/legacy mode can be run with Intel Fortan, but will not work with Visual Studio 2015 (and later versions).

Sinda 2017.1 will co-install with existing versions of Sinda, it is not necessary to uninstall older versions.

2. Installing

Run the installation executable and follow the prompts to install the software. If the computer you are installing on does not have access to a MSC license server, you will need to install the MSC license server which is a separate installation and can be obtained from the MSC Solutions Download Site. The license server software should be installed before Sinda.

MSC SINDA

The Sinda setup will attempt to detect which version of Fortran is installed, but please ensure it is correct. It is recommended that Visual Studio be installed first, and then Fortran, followed by Sinda. However, if you install the Fortran compiler after installing MSC Sinda, please see Section 3.2 for instructions on how to set the compiler variables for Sinda.

After transferring the files, this setup can automatically associate Sinda files and place the installation directory in the PATH environment variable (a requirement for proper functionality). The installation directory is also stored in the MSCSINDA environment variable. After finishing, the computer may need to be restarted for the environment path variable to properly take effect (though this is not usually the case).

Installation of Sinda 2017.1 does not require the uninstallation of previous versions of Sinda. Further discussion of this can be found later in this document.

MSC Office Toolkit

MSC Office Tookit is a separate installer found under the Sinda 2017 software on the Solution Download Center. The 2017 version supports Visio 2010, 2013, and 2016, either the 32 bit or 64 bit version. Though 32 bit Visio is supported, it still requires the Windows 7 or Windows 10 operating system to be 64 bit.

Installation of Office Toolkit requires the uninstallation of previous versions of Office Toolkit. Only one version of Office Toolkit can be installed; multi-version installation is not supported.

Additional Office Toolkit installation considerations

- When installing Office Toolkit, do not do so as administrator (unless the administrator is also a user), otherwise Office Toolkit will only work correctly for the administrator account. The Office Toolkit installer works on a “per user” basis. It does not work for “all users”.

- Launch the Office Toolkit installer as a user and follow the prompts. Later in the installation process, you will be asked for administrator authorizations, which are needed for correct installation.

- Repeat this installation process for each user that may use this computer.

- At some future time when uninstalling Office Toolkit, run the uninstall process for each user. The files will be removed when this is done for the first user. When repeating the uninstall process for additional users, though the files have already been deleted, the uninstall process will run normally, cleaning up registry entries for each user.

3. Troubleshooting & Post-Install Setup

3.1 Testing your compiler for proper functionality

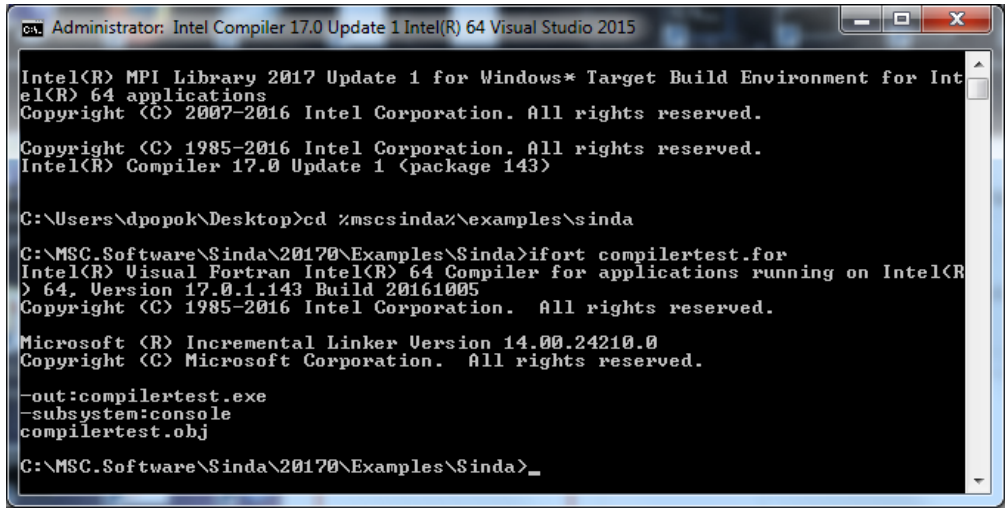
1. First, we need to open a command prompt in which the environment has been set to correctly compile and link. This can be found under:

   Start Menu > Intel Software Development > Intel Fortran Compiler x.x > Build Environment for Fortran Applications. The exact location on the start menu may vary according the specific Intel Fortran version, and there may be additional differences between Windows 7 and Windows 10.

   Once the correct command prompt is opened, Type

   "cd C:\MSC.Software\Sinda\20171\Examples\Sinda" to change directories to the Sinda examples folder. (This may vary, depending on the installation location)

2. Type "ifort compilertest.for". Messages similar to those below should appear. A file named compilertest.exe should be created.



3. Type "compilertest" to run the compilertest.exe file. The prompt should return the message "Compiler is working correctly".

If the compiler does not compile and link executables correctly, Fortran and/or Visual Studio may need to be reinstalled. Please see a system administrator about doing so.

3.2 Setting the Compile and Link environment for Sinda

Sinda stores its own version of the compile and link environment variables (PATH, LIB, & INCLUDE) in the registry. When Sinda runs, these variables are read from the registry and used to set the correct environment. These settings are initially stored in the registry by the installation process.

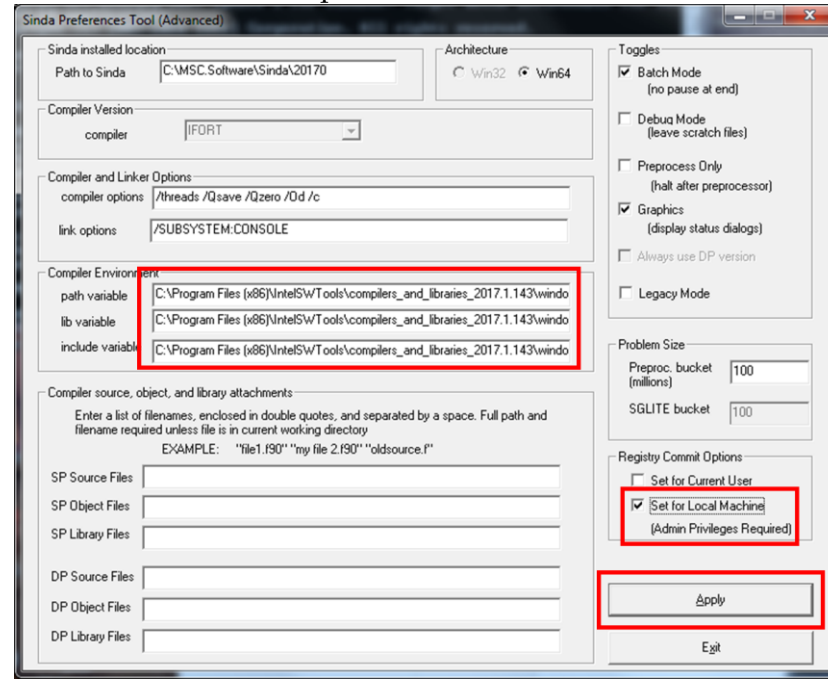
Normally, it should not be necessary to modify these registry settings. If it should be necessary, then the SGRT (Sinda/G Registry Tool) provides a means to do so. Situations that may require this include

- Resolving problems with compiling and linking
- Fortran and or Visual Studio were installed after Sinda was installed
- Fortran and/or Visual Studio were updated to newer versions.

The steps for setting, updating, or correcting the compile and link environment variables in the registry are as follows.

1. First, we need to open a command prompt in which the environment has been set to correctly compile and link. This can be found under:

   Start Menu > Intel Software Development > Intel Fortran Compiler x.x > Build Environment for Fortran Applications. The exact location on the start menu may vary according the specific Intel Fortran version, and there may be additional differences between Windows 7 and Windows 10. When opening the command prompt, right click on the shortcut and select "run as administrator".



2. Type the command "sgrt /adv" – you will see a window like this open. Note that the PATH, LIB, and INCLUDE variables have been inherited from the command prompt environment.

3. Now check "Set for Local Machine" (which requires administrator privileges), and then click Apply. It is OK to also check "Set for Current User", but not required.

4. Using the SGRT Utility

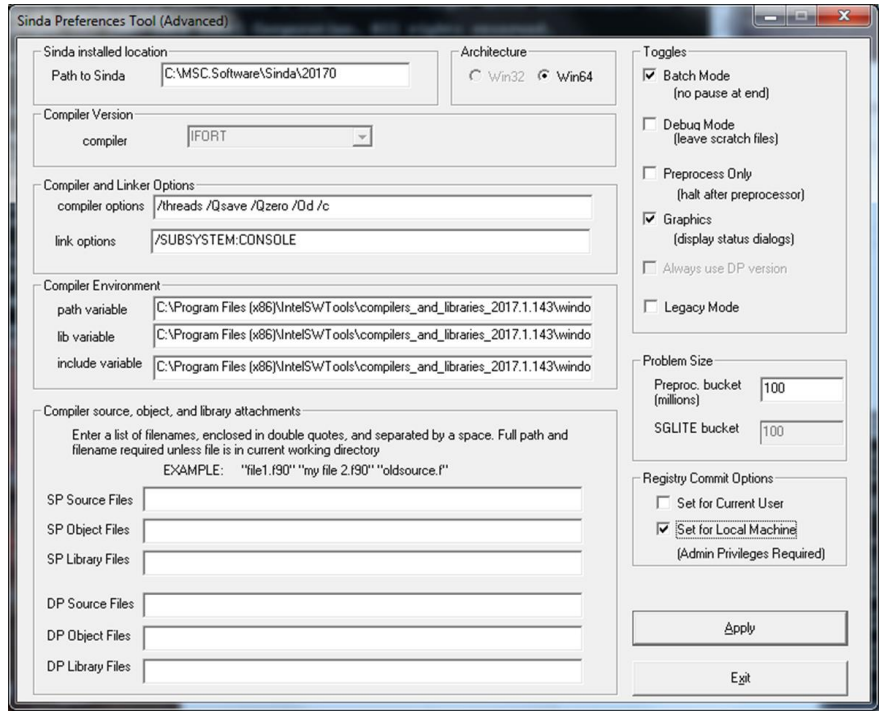
4.1 SGRT Basics

Previously we discussed using the SGRT to set or correct the compile and link environment variables and store the settings in the registry. Other settings that control how Sinda operates can also be set and stored in the registry.

Sinda can store registry settings in 2 places. Installation only sets HKEY_LOCAL_MACHINE.

- HKEY_LOCAL_MACHINE\Software\MSC.Software\MSC.Sinda 20171
- HKEY_CURRENT_USER\Software\MSC.Software\MSC.Sinda 20171

These 2 locations correspond to the Registry Commit Options in SGRT. Making changes to HKEY_LOCAL_MACHINE requires administrative privileges. Without administrative privileges, the Set for Local Machine checkbox will be disabled.



All the settings can be stored in HKEY_CURRENT_USER also. This location does not require administrative privileges. In the event settings in HKEY_CURRENT_USER differ from those in HKEY_LOCAL_MACHINE, the HKEY_CURRENT_USER settings take precedence. This allows the user to modify the settings without administrative privileges.

Here is a brief description of the various features of SGRT.

Architecture

For Sinda 2017, only the Win64 option is available. The Win32 option is disabled, but becomes available for Legacy Mode

Toggles

- Batch mode: (command line equivalent: "/b") this suppresses the PAUSE at the end of the solution. This only affects Sinda when using Fortran. This is useful when running multiple Sinda jobs in a batch file. The non-Fortran version of Sinda ignores this option.
- Debug mode: (command line equivalent: "/d") this suppresses automatic cleanup of extra files, such as .s02, .s04, .obj, and .exe. This generally applies to Sinda when using Fortran and is little or no use to the non-Fortran version. This allows the executable model to be run repeatedly without rerunning the preprocessor, compiler, and linker. This can be useful when adding Fortran to the model.
- Preprocess Only: (command line equivalent: "/x") this causes Sinda to stop execution upon completion of the preprocessor. This can be useful when running the Sinda process from a custom user-written batch file.
- Graphics: (command line equivalent: "/n") this suppresses the runtime dialogs usually seen during both the preprocessing and execution phases of Sinda solution.
- Legacy mode: this sets Sinda to run the legacy mode using Sinda 2008. This is discussed in more detail later.

Problem Size

- Preproc. bucket: this sets the preprocessor bucket array size (in millions). The default is 100 million. It may be necessary to increase the bucket size for larger models. The command line equivalent /bkt=375 would set the bucket size to 375 million. The 64 bit version of Sinda supports very large bucket sizes, limited only by the RAM resources of the machine.
- SGLITE bucket: this sets the working array sizes for the execution phase of the non-Fortran version, and applies only to Legacy Mode.

Compile and Linker Options:

- The options set by the installer are required for Sinda to operate correctly. you might add to these options, but you should not remove them.
- Do not change these options unless you understand what you are doing.
- Write down or otherwise back up the options originally set by the installation so they can be restored.

Compiler source, object, and library attachments

- Allows you to attach Fortran source, object, and/or library files to your Sinda model in a way that uses the files every time you run Sinda. For example, a custom library of convection subroutines might be attached to all your Sinda jobs. This is not a commonly used feature.
- There is no single or double precision (SP or DP) distinction in the 64 bit version of Sinda. However, if you specify "SP" source, object, or library, it will only be used with the "sindag" command. Likewise, "DP" source, object, and/or library only apply to the "sindagdp" command.

- Command line equivalents

    - /Fsourcefile.for compiles sourcefile.for with your Sinda model
    - /Oobjectfile.obj links objectfile.obj to your Sinda model
    - /Llibraryfile.lib links libraryfile.lib to your Sinda model

4.2 Using Sinda in Legacy Mode

Because of the many changes between Sinda 2008r1 and 2012 and later versions, a legacy capability is provided. Legacy Mode pertains to 2008r1 only. This is useful for running older models that contains significant user-added Fortran, especially if the Fortran references Sinda COMMON blocks, which have been replaced by User Modules since version 2012.

1. First, we need to open a command prompt in which the environment has been set to correctly compile and link. For Legacy Mode, the command prompt must correspond to a 32 bit version of Intel Fortran. Also note Legacy Mode will not work with Visual Studio version 2015 or later. The command prompt can be found under:

   Start Menu > Intel Software Development > Intel Fortran Compiler x.x > Build Environment for Fortran Applications. The exact location on the start menu may vary according the specific Intel Fortran version, and there may be additional differences between Windows 7 and Windows 10.

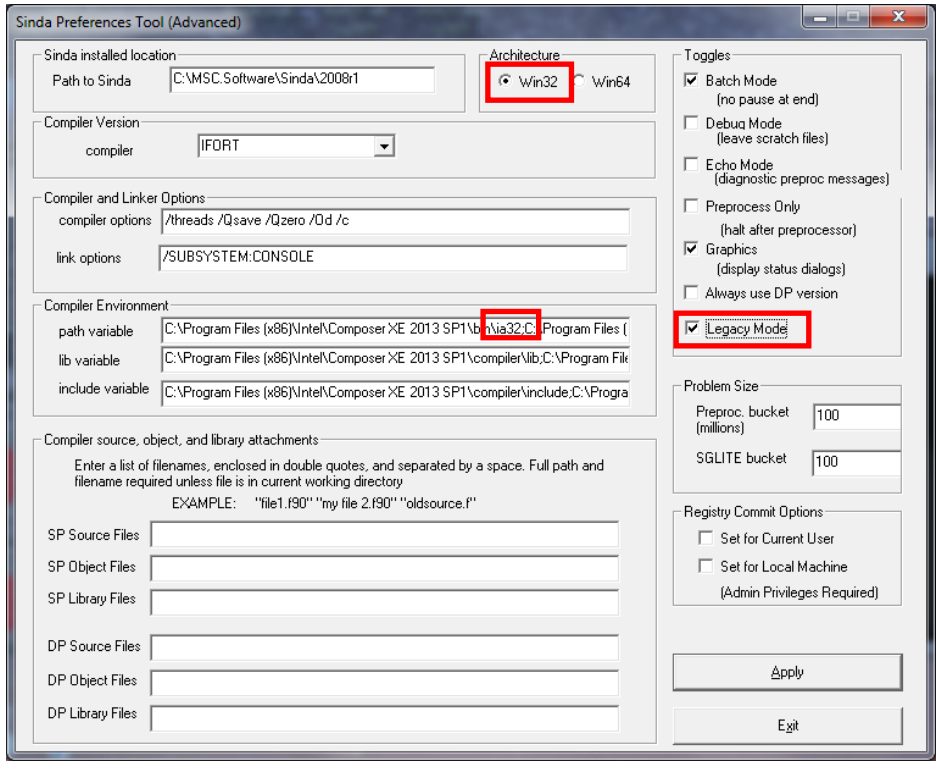
2. Type "sgrt /adv to open the SGRT window.

3. Clicking Legacy Mode will enable the compiler selection drop down. Only the IFORT option can be supported, even though it permits selection of DF – Compaq Visual Fortran is no longer supported in the newer Windows operating systems.

4. Set Path to Sinda to the previous version of Sinda (2008r1 for example).

5. If you have administrator privileges, check the “Set for Local Machine”. If no administrator privileges, check “Set for Current User”. It is OK to check both.

6. Click Apply.



Sinda should now function properly in legacy mode. Legacy mode can be verified by examining the version number displayed in the output file headers. Win64 is not supported by the Legacy Mode.

Standard mode can be restored by following the procedure in Section 3.2, being sure to launch SGRT from a 64 bit Intel Fortran command prompt, switching back to Win64, checking the Registry Commit checkbox(es), and clicking Apply. When relaunching SGRT, the Path to Sinda will automatically be reset back to 20170.

4.3 Running Older Versions that are post-2008r1

Sinda 2017.1 will co-install with older versions of Sinda. It is not necessary to uninstall version 2017.1 to run an older version.

The following procedure will allow you to run an older, post-2008r1 version of Sinda in 64 bit form only. Note that this procedure only applies to running the Sinda solver. Other components, such as the Patran Plug-In, SindaRad, and Thermal Studio will still run as version 2017.1.

1. Using the appropriate Intel Fortran command prompt (as previously discussed), type “sgrt /adv to open the SGRT window.

2. Modify the "Path to Sinda" to correspond to your desired version – 20160 or 20130 for example.

3. "Legacy Mode" should not checked.

4. Check the Registry Commit checkbox(es) , and click Apply.

To restore the 2017.1 version, simply relaunch SGRT from the appropriate Intel Fortran command prompt, check the Registry Commit checkbox(es), and click Apply. The Path to Sinda will automatically be set back to 20171 when SGRT is relaunched.

To run an earlier version of Sinda in its entirety, not just the solver, it is necessary to modify the System PATH and MSCSINDA environment variables. This requires administrative privileges, so you may need the help of your IT department. The procedure involves editing the variables to change the Sinda folder from 20171 to the desired folder (20121, 20130, 20160, etc.). This should be done for both the PATH and MSCSINDA variable. It may be convenient, in the PATH variable, to replace the Sinda installation location with %MSCSINDA%. If this is done, then editing the MSCSINDA variable automatically updates the PATH variable as well.

5. Defects

As defects in this product become known, they will be posted on MSC's SimCompanion web site. You will need to create a login to access this site.

https://simcompanion.mscsoftware.com/infocenter/index?page=content&channel=KNOWN_ISSUE