
SOLVENT

Version 1.0

*Installation
Notes*

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SOLVENT Installation Notes

This chapter gives the procedure for installing SOLVENT on your PC running Windows 95 or later or Windows NT. It also provides information about other items included in the SOLVENT distribution package.

About the SOLVENT Package

The SOLVENT distribution package includes the SOLVENT CD-ROM and *SOLVENT Installation Notes* (a printed copy of this chapter).

The SOLVENT CD contains the following:

- SOLVENT software for Windows
- SOLVENT User's and Reference Manuals
- The Memorial Tunnel Fire Ventilation Test Program Phase IV Report
- Adobe Acrobat Reader 4.05 for Windows
- Gzip compression utility

System Requirements

For installing SOLVENT

- A Pentium processor-based personal computer.
- Microsoft Windows 95 or later or Windows NT 4.0 Service Pack 3 or later. Note that the SOLVENT_Large executable will not work with Windows 95 due to a limitation in this operating system.
- A hard drive with at least 25 MB of available space (for the installation only).
- A CD-ROM drive.

For running SOLVENT

- The RAM required to run SOLVENT varies with the size of the problem. The *minimum* recommended amounts are:
 - ◆ SOLVENT_Small – 128 MB of RAM
 - ◆ SOLVENT_Medium – 256 MB of RAM
 - ◆ SOLVENT_Large – 512 MB of RAM
- The hard disk space required to store the files created during a simulation varies with the size and type of the problem. Small steady-state simulations may require less than 100 MB of space while large, long transient simulations may require more than 1 GB.

Tips

When it comes to RAM, you can never have too much. The same is true of hard disk space. Therefore, for users who expect to use SOLVENT extensively, we recommend having at least 8 GB of hard disk space and 512 MB of RAM.

Access to a CD-Writer (or tape backup system) is beneficial for storing old simulations and maintaining a “clean” hard drive.

At times, depending on the size and type of the simulation, some of the ASCII output files generated during a simulation can be very large. In these cases, Notepad and WordPad (standard Windows programs) are not powerful enough to handle these files efficiently. We suggest obtaining a text editor that is robust enough to handle very large files. There are many very good, robust text editors available on the World Wide Web for little or no cost.

Installing SOLVENT

You install the SOLVENT program files from the CD-ROM. Note that you cannot run SOLVENT from the CD; you must install the components onto your PC and run the software from there.

SOLVENT Home Directory

The installation procedure creates a directory to which all the files associated with SOLVENT are copied. We refer to this directory as the *SOLVENT Home Directory*. The default SOLVENT Home Directory is **C:\SOLVENT**, but you may choose any other directory.

To install SOLVENT:

1. Insert the SOLVENT CD into your CD-ROM drive and wait for the application to load.
2. Click Install SOLVENT.
3. Follow the instructions in the installation program.
 - The product serial number can be found on the back of the SOLVENT CD.
 - **Special note:** SOLVENT simulations are performed in the Project subdirectory of the SOLVENT Home Directory. Therefore, if your PC contains a partitioned hard drive, you may want to install SOLVENT on the partition with the largest amount of free space.
4. At the end of the installation procedure, you will be asked to register SOLVENT. Please see the Registering SOLVENT section for help with the registration process.

Installed Files

After installation, the SOLVENT Home Directory should contain the following subdirectories and files.

bin	Directory that contains the SOLVENT executable files.
examples	Directory that contains the input files for sample problems. For details of these problems, please refer to Chapter 10 of the User's Manual.
gzip	Directory that contains the gzip compression utility.
manuals	Directory that contains the User's Manual, Reference Manual, and Phase IV Report.
project	Empty directory in which simulations are performed.

The bin directory contains three executables with different array sizes. Since the size of a number of files created by SOLVENT depends on the array size, to conserve disk space, it is recommended that you use an executable that accommodates your array sizes. The names of the executables and the corresponding control volume size limits are as follows:

SOLVENT_Small: $200 \times 35 \times 25$ (control volumes in x, y, and z directions)

SOLVENT_Medium: $400 \times 40 \times 27$ (control volumes in x, y, and z directions)

SOLVENT_Large: $600 \times 50 \times 30$ (control volumes in x, y, and z directions)

These three executables, the Graphical User Interface (GUI), and the SOLVENT License Manager are available as icons in the SOLVENT folder on your desktop. They can also be found in the Programs submenu on the Start Menu (click the Start Menu, choose Programs > SOLVENT).

To run SOLVENT:

To start the GUI, double-click the SOLVENT_GUI icon located in the SOLVENT folder on your desktop or click the Start Menu, choose Programs > SOLVENT and select SOLVENT_GUI. You can also double-click a SOLVENT input file icon to start the program with that file open. Input files created with the GUI have the extension .svg.

To run SOLVENT, you first create the problem input file using the GUI. After the problem specification is complete, save the input file in the directory **C:\SOLVENT\PROJECT** (this assumes that **C:\SOLVENT** is the SOLVENT Home Directory). For simulation of transverse ventilation systems, you also need to create a network input data file. This file should also be saved in the directory **C:\SOLVENT\PROJECT**. All simulations must be run in this directory.

To start the solver, double-click the SOLVENT executable icon that is appropriate for your problem (the SOLVENT executable icons are located in the SOLVENT folder on your desktop). You can also start the solver by selecting the executable from the Start Menu. An MSDOS window will appear on your desktop and the convergence history will be displayed in it. To stop a run in progress, press CTRL+C with the MSDOS window active. At the end of the run, the MSDOS window will automatically close. At this point, you will find a number of files in the directory **C:\SOLVENT\PROJECT**. For a description of the files, refer to Chapter 8 of the SOLVENT User's Manual.

We recommend that for each simulation (or project), you create a directory (e.g., Project1) elsewhere on your PC and move all the simulation input and output files to this directory. This will keep the SOLVENT run directory "clean" and will prevent any accidental overwriting of files.

Registering SOLVENT

In order to use SOLVENT, you will need to register it. Registration will also allow the SOLVENT product team to provide and offer you technical support and keep you informed of new developments.

Registration Part 1

The SOLVENT License Manager will assist you with registering your software. Launch the license manager by double-clicking the license manager icon located in the SOLVENT folder on your desktop or by selecting it from the Start Menu (click the Start Menu, choose Programs > SOLVENT). Click Configure License to begin the registration process.

After clicking the Configure License button in the license manager:

1. Note the Product ID given in the dialog box and then click Cancel.

2. Contact the SOLVENT team with your Product ID in order to receive, in return, the password that will allow you to complete the registration process.

The email address to be used for registering SOLVENT is support@tunnelfire.com. You may also fax (763-519-0239) or call (763-519-0105), but email is the preferred registration method. For emails (and faxes):

- Type SOLVENT REGISTRATION in the subject line of your message.

In the body of the message it is important that you include:

- The Product ID.
- The Disable ID *if* this is a re-registration (discussed later in this chapter).
- The product serial number (found on the back of the SOLVENT CD).
- Your name, email address, and other contact information.

3. Wait for your password from the SOLVENT team.

Please allow 24 hours (excluding weekends) for the SOLVENT team to respond with your password.

Registration Part 2

Once you have the password, you can complete the product registration process. To do this:

1. Launch the license manager by double-clicking the license manager icon located in the SOLVENT folder on your desktop.
2. Click Configure License.
3. Enter the password.
4. Click OK.

SOLVENT should now be fully operational.

Disabling the SOLVENT License

Clicking the Disable License button in the license manager will disable your SOLVENT license and you will no longer be able to run SOLVENT on your PC. Do this if you would like to move SOLVENT to another PC or if you simply want to uninstall SOLVENT. Remember to write down the Disable ID given in the dialog box (you will need this ID should you want to re-register SOLVENT).

Uninstalling SOLVENT

Before uninstalling SOLVENT, disable the SOLVENT license by clicking the Disable License button in the license manager. Remember to write down the Disable ID given in the dialog box (you will need this ID should you want to re-register SOLVENT).

Uninstall SOLVENT by double-clicking the Add/Remove Programs icon in the Windows Control Panel and then following the instructions on your screen.

Moving SOLVENT to Another PC

Your SOLVENT license permits you to run only one copy of SOLVENT at a time. In order to run SOLVENT from another PC, you must first disable the current SOLVENT license. To do this:

1. Launch the license manager by double-clicking the license manager icon located in the SOLVENT folder on your desktop.
2. Click Disable License.
3. Note the Disable ID given in the dialog box (you will need this ID to re-register SOLVENT).
4. Click OK.

Install and register SOLVENT on the new PC by following the instructions given earlier in this chapter.

Important: *When carrying out the first part of the registration process, make sure that you include the Disable ID in your email or fax.*

About the Documentation

Included on the SOLVENT CD is the User's and Reference Manuals. The User's Manual will be your primary guide to SOLVENT. It should answer many of your questions, help you use the program effectively, and help you resolve problems that you might encounter. The Reference Manual contains more in-depth information about SOLVENT. For example, it includes details regarding the implementation of the numerical method. This information is not essential to the successful use of the program but is made available for users who desire a deeper understanding of the mathematical method.

The Memorial Tunnel Fire Ventilation Test Program Phase IV Report is also included on the SOLVENT CD. This report documents the work performed during the development of SOLVENT and its validation against empirical data obtained from extensive full-scale fire testing in the Memorial Tunnel.

These three documents are stored as Portable Document Format (PDF) files. They can be viewed using the Adobe Acrobat Reader. For your convenience, Acrobat Reader is included on the SOLVENT CD. Please refer to the appropriate section of this chapter for help with installing this program.

The SOLVENT manuals and Phase IV Report are copied to the manuals folder in the SOLVENT Home Directory during the SOLVENT installation procedure. You can open these files by double-clicking the appropriate icons in the SOLVENT folder on your desktop. You can also view these files directly from the CD, an option that becomes available when navigating the CD-ROM.

Hints on Printing

Although the SOLVENT manuals and Phase IV Report work well with on-screen viewing, you may want to print these documents. Note that most printer drivers will only spool 255 pages at a time. When printing more than this amount, you will need to process the print job in parts.

You may encounter small problems when printing the Phase IV Report. For example, the grid lines on many of the xy graphs may not show up on the prints, although these grid lines are present on-screen. A few things to try to correct any print-related problems are:

- Make sure that you are using an up-to-date printer driver.
- Print to a PostScript printer, if available.
- Utilize the “Print as image” option that is available in the Print dialog box in Acrobat Reader. This option works well, but printing takes substantially longer with this setting.

Installing Acrobat Reader

Adobe Acrobat Reader 4.0 (and 4.05) is the free viewing companion to Adobe Acrobat 4.0. Acrobat Reader lets you view, navigate, and print Portable Document Format (PDF) files. Acrobat Reader 4.05 is provided on the SOLVENT CD in case you do not have Acrobat or Acrobat Reader on your system already or if you have an earlier version of these programs. *Version 4.0 or later is required to properly view the PDF documents included with the SOLVENT distribution package.* You can also obtain the latest release of the Reader software from the Adobe Web site (<http://www.adobe.com>).

Important: *If you have an earlier version of Acrobat Reader on your system, Adobe recommends uninstalling it before installing a newer version.*

System Requirements

- An i486 or Pentium processor-based personal computer.

- Microsoft Windows 95 or later or Windows NT 4.0 Service Pack 3 or later.
- 16 MB of RAM (24 MB recommended).
- 10 MB of available hard disk space.

To install Acrobat Reader:

1. Uninstall your earlier version of Acrobat Reader (if applicable).
2. Insert the SOLVENT CD into your CD-ROM drive and wait for the application to load.
3. Click Install Acrobat Reader.
4. Follow the instructions in the installation program.

To start Acrobat Reader:

Click the Start Menu, choose Programs > Adobe Acrobat 4.0, and select Acrobat Reader. You can also double-click the Acrobat Reader icon on your desktop to start the program, or double-click a PDF file icon to start the program with that file open.

Gzip Compression Utility

SOLVENT utilizes the compression utility “gzip” to compress certain output files after they are created. This is done to conserve disk space during a simulation. During the SOLVENT installation procedure, gzip, and all relevant documentation, is copied to the gzip folder in the SOLVENT Home Directory. In addition, **gzip.exe** is copied to the Windows system directory so that this utility may be invoked from any directory on your PC.

The gzip program is run from the MSDOS prompt. The command to compress a file using gzip is:

```
gzip [filename]            The compressed file will be given the extension .gz.
```

The command to decompress a file is:

```
gzip -d [filename]
```

Refer to the gzip documentation for more information about gzip or for more help with using this utility. Additional help is also available by typing **gzip -h** at the MSDOS prompt or by visiting <http://www.gzip.org> on the World Wide Web. The gzip source code is also available at this Web site.

Tecplot

SOLVENT creates plot files that are compatible with the data visualization package Tecplot. Tecplot allows you to manipulate, display, and animate complex data. To purchase Tecplot, contact the SOLVENT team at info@tunnelfire.com. When purchasing Tecplot, volume and educational discounts as well as floating and multi-user licenses are available.

Note that although SOLVENT uses Tecplot as the primary tool for data visualization, users who prefer to use an alternative plotting package can write a short program to read the data from the plot file created by SOLVENT and write it in a format that is compatible with the plotting package of their choice. Details are given in the User's Manual.

Getting Help

If you have any questions or problems with the *installation* of SOLVENT, please contact SOLVENT Installation Support at support@tunnelfire.com.

When you register your copy of SOLVENT, you receive technical support from specialists for 90 days from the date that you are sent your original licensing password. All technical support questions should be directed to SOLVENT Technical Support at support@tunnelfire.com. All problems will be handled in a timely manner.

When contacting SOLVENT Technical Support, be sure to include your product serial number, your name, email address, telephone and fax numbers, and the best time to call (if that becomes necessary). Please be sure to describe your problem in detail. If your question cannot be answered via email, a SOLVENT Technical Support specialist will contact you.