

To: National Bioenergy Center

Title: Installing Aspen Plus 12.1 & Associated Tools on Non-NREL Computers

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Platform: Sugar Platform

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Abstract: The steps to install Aspen Plus 12.1 and associated tools on a computer for use with NREL's bioethanol conversion Aspen Plus model and associated spreadsheet are presented.

Keywords: ASPEN 12.1, Installation, in-house database, ASPEN Toolkit, USRAN4

The following are the steps to install and use Aspen Plus 12.1 on a new computer for use with NREL's bioethanol conversion Aspen Plus model and associated spreadsheet:

1. Install a Fortran compiler

- This must be Compaq Visual Fortran 6.5 or later. However, note that the latest version of this compiler is Compaq Visual Fortran 6.6. A technical memo on the Aspen Tech web site:

http://support.aspentech.com/webteamcqj/SolutionDisplay_view.cgi?key=107864

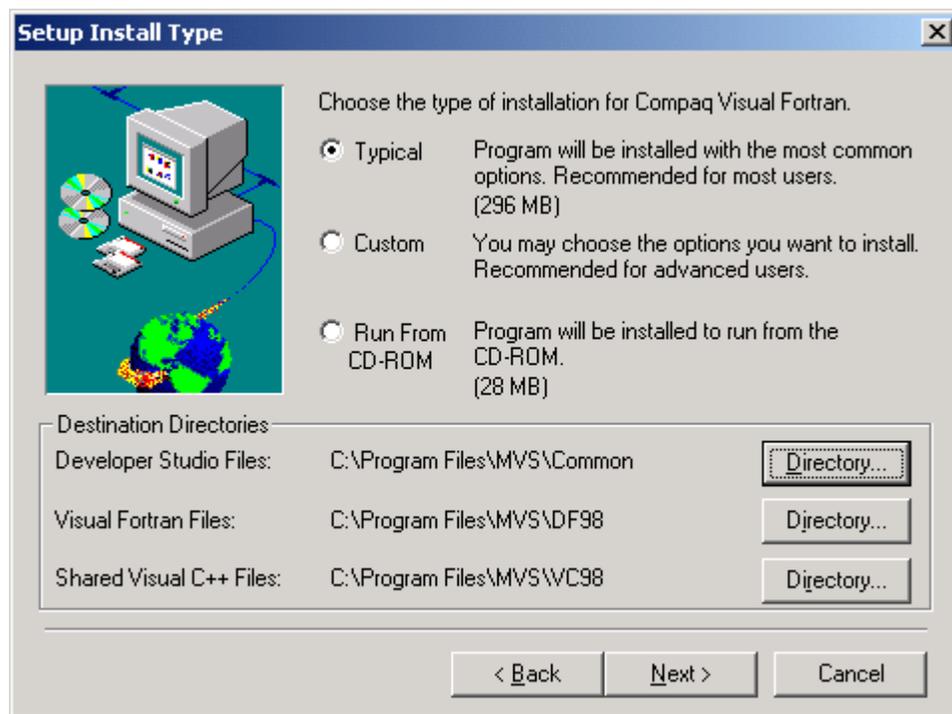
states:

AES 10.2 and 11.1, including Aspen Plus 10.2, 11.0 and 11.1 have not been tested for compatibility with Visual Fortran 6.6, which has recently become available on the market. Currently, we do not have plans to fully test Visual Fortran 6.6 with AES 10.2 or 11.1, or even with AES 11.1 SP1; however, we do not know of any problems.

Fortran is used in many AspenTech products, it is classified as a "core component" across all the AspenTech product suites, not just AES. In order to make a change to the version of a core component, all products must upgrade at the same time. The AspenTech core components will upgrade to VF 6.6 before the AES 12.1 delivery.

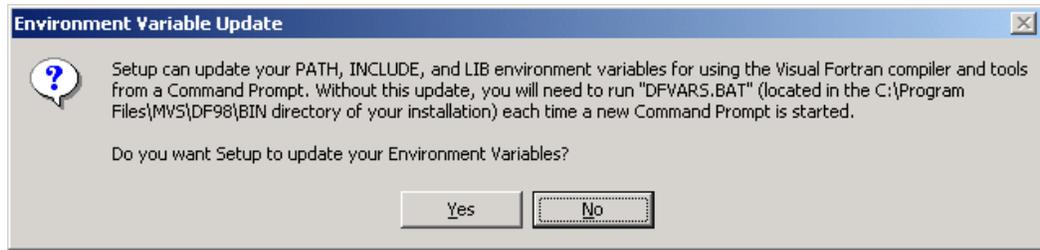
- Visual Fortran is a commercial product for which each computer must have a distinct license.
- There are two changes that should be made to the way the compiler is typically installed: the naming of the sub-directories and updating environment variables:
 - a. Do not use the default name for the directory to contain the compiler's files. There are so many characters that the resulting DOS PATH statement may become longer than what is allowed. This could be a problem even when running Aspen under Windows NT or 2000. Consider changing "Microsoft Visual Studio" to "MVS".

For Compaq Visual Fortran 6.5, this is done when the *Setup Install Type* dialog box comes up. (See below.) In the part of the dialogue box for *Destination Directories*, press the *Directory...* button for the name of the directory for the *Developer Studio Files* and change the middle portion of the path name. Changing it for this one item will change it for all three items.



- b. Let the set up program update your PATH, INCLUDE, and LIB variables for using the compiler from a Command Prompt. This option is not the default.

For Compaq Visual Fortan 6.5, this is done when the *Environment Variable Update* dialog box comes up. (See below.) Do not accept the default *No*, but rather press the *Yes* button.



2. **Install a text file editor.** A text file editing program is used for editing Aspen input files. This editor should be able to handle very large files (in excess of 10,000 lines of text) and wide lines (132 columns). Note that the Developer Studio editor associated with Compaq Visual Fortran can also be used to edit Aspen input files and view output files.
3. **Install Aspen Plus 12.1.** Follow the instructions as given by Aspen Tech. When done, Check for, download, and install any service packs and patches for 12.1. These can be found at the web site:

<http://support.aspentech.com/>.

There are other programs that must be installed on a new computer to be able to use the in-house properties database with Aspen and to allow Excel to retrieve data from the Aspen summary file.

1. **Install the files for the in-house properties database.** The instructions for installing the in-house database are based upon those given in the document “APLUS 121 System Management.pdf”, Chapter 4, “Configuring Physical Property Databanks.”
 - Save the file “biodfms3.inp” from the file “biodfms3.zip” in any Aspen-related directory on your computer.
 - Open the Aspen Plus Simulation Engine (i.e., the DOS window). Do this by choosing the *Start* button, *Programs, Aspen Tech, Aspen Engineering Suite, Aspen Plus 12.1, and Aspen Plus Simulation Engine*. Change the directory to the one containing “biodfms3.inp”. Enter “dfms biodfms3”. This will create the object file for the physical properties.
 - Save the file “inhspcd.dat” from the file “biodfms3.zip” in the Aspen GUI/custom directory on your computer (usually “C:\Program Files\AspenTech\Aprsystem 12.1\GUI\custom”).
 - Go to this Aspen GUI/custom directory and open the file “tbprop.dat” in a text editor (such as Notepad). After the line:

```
INCLUDE pure856.dat
```

add the line:

```
INCLUDE inhspcd.dat
```

Save the file and exit the text editor.

- Change the directory for the Aspen Plus Simulation Engine to that of the Aspen GUI/custom directory. Enter "mmcustom mmtbs". This will rebuild the record definition files. Be patient, this will usually take several minutes.

You will probably get an error messages when doing this that can be ignored. At the very end:

```
Unable to retrieve value of MMTOP from Aspen Properties Registry
```

```
\xeq does not contain Aspen Properties user interface files  
Aspen Properties customization skipped
```

- Enter "custinst". This copies the customized user interface record definition files.

Again, you may get an error message that looks like the following:

```
Unable to retrieve value of MMTOP from Aspen Properties Registry
```

```
.  
. \xeq does not contain Aspen Properties user interface system files  
. Skipping installation of Aspen Properties customized files
```

This message, too, can be ignored.

3. Install the User Unit Operation Model for an Anaerobic Digester (USRAN4).

- This is a user model for the Anaerobic Digester. The Fortran code is stored in the *AspenModel DB* and must be compiled to an OBJ file. The OBJ file must reside in any subdirectory in which an Aspen input file will be run.
- Save the file "USRAN4.FOR" in any directory on your computer. Open the Aspen Plus Simulation Engine (i.e., the DOS window). Do this by choosing the *Start* button, *Programs, Aspen Tech, Aspen Engineering Suite, Aspen Plus 10.2, and Aspen Plus Simulation Engine*. Change the directory to the one containing "USRAN4.FOR". Enter "aspcomp usran4". This will create the object file for the User Unit Operation Model.
- Copy USRAN4.OBJ to any and every directory in which an Aspen input file will be run.

4. Install the Aspen Toolkit.

- This set of files allows the user to bring results in from the Aspen sensitivity block to Excel in a form that the Excel economic spreadsheet uses.
- Extract the contents of the file "Aspen Toolkit.zip" to a directory "C:\aspen toolkit".