

# Visual Studio + Intel Fortran

Instructions provided by Brian Esp ([www.espcomposites.com](http://www.espcomposites.com) and [www.structruafea.com](http://www.structruafea.com))

This document describes how to compile MYSTRAN with the Code::Blocks IDE and gFortran.

## Microsoft Visual Studio (Community 2019)

<https://visualstudio.microsoft.com/>

Install this first, before the Intel Fortran compiler. It may also require the C++ compiler to be installed (I forget what it said, but the Intel installation barked at me, so I had to go back and make a modification to the Visual Studio Installation).

## Intel Parallel Studio XE for Windows (30 Day Trial)

Note: The email does not need to be validated so you can enter whatever information you want and it will allow the download.

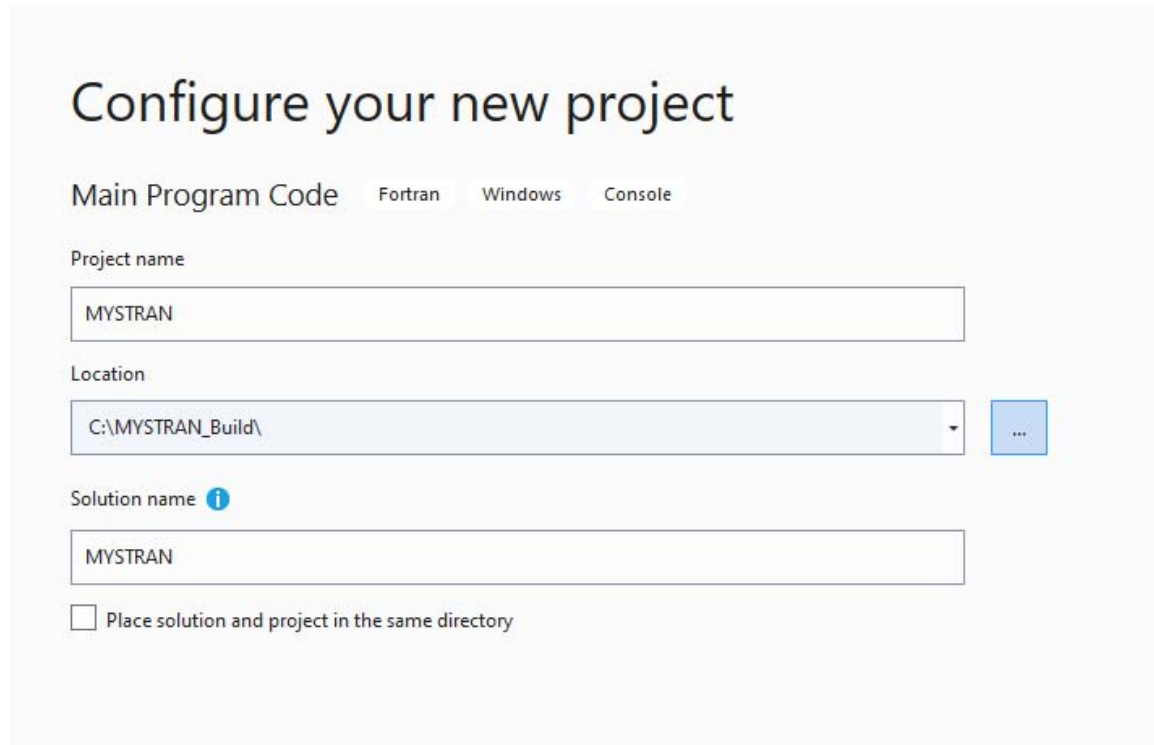
Note: Just be sure to copy/save the serial code.

<https://software.intel.com/content/www/us/en/develop/tools/parallel-studio-xe/choose-download/free-trial-cluster-windows.html>

Be sure to install MS Visual Studio first. Make sure it does not give any warnings about Visual Studio or it will not work.

## Process

In Visual Studio (which hosts the Intel compiler), start up a new Fortran empty project. Call it MYSTRAN. Use the “Main Program Code” option (first option). Configure the new project similar to the following.

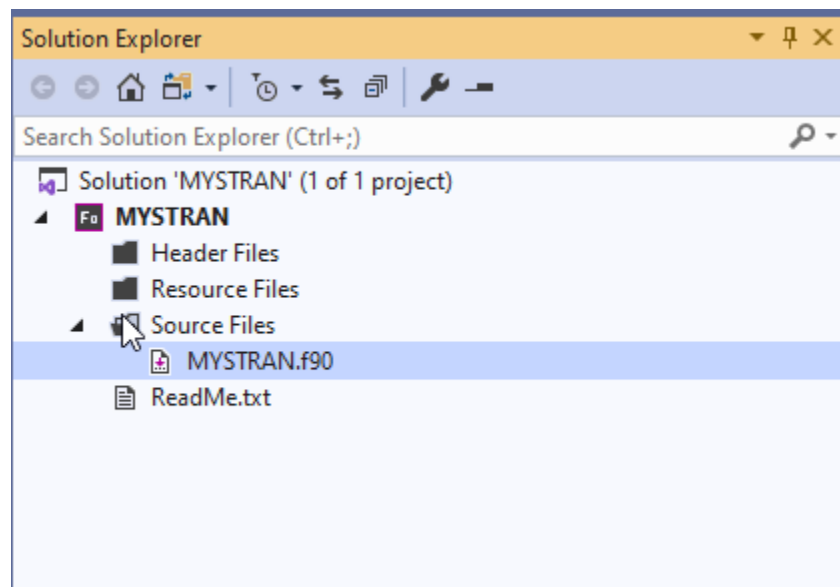


The screenshot shows the 'Configure your new project' dialog in Visual Studio. The title is 'Configure your new project'. Below the title, there are three tabs: 'Main Program Code' (selected), 'Fortran', and 'Console'. The 'Main Program Code' tab is active. The dialog contains the following fields and options:

- Project name:** A text box containing 'MYSTRAN'.
- Location:** A dropdown menu showing 'C:\MYSTRAN\_Build\' with a blue ellipsis button to its right.
- Solution name:** A text box containing 'MYSTRAN' with an information icon (i) to its left.
- Place solution and project in the same directory:** An unchecked checkbox.

Select a Release configuration such as 32bit or 64 bit.

On the right hand side, the Solution Explorer exists. Remove the default MYSTRAN.f90 file.

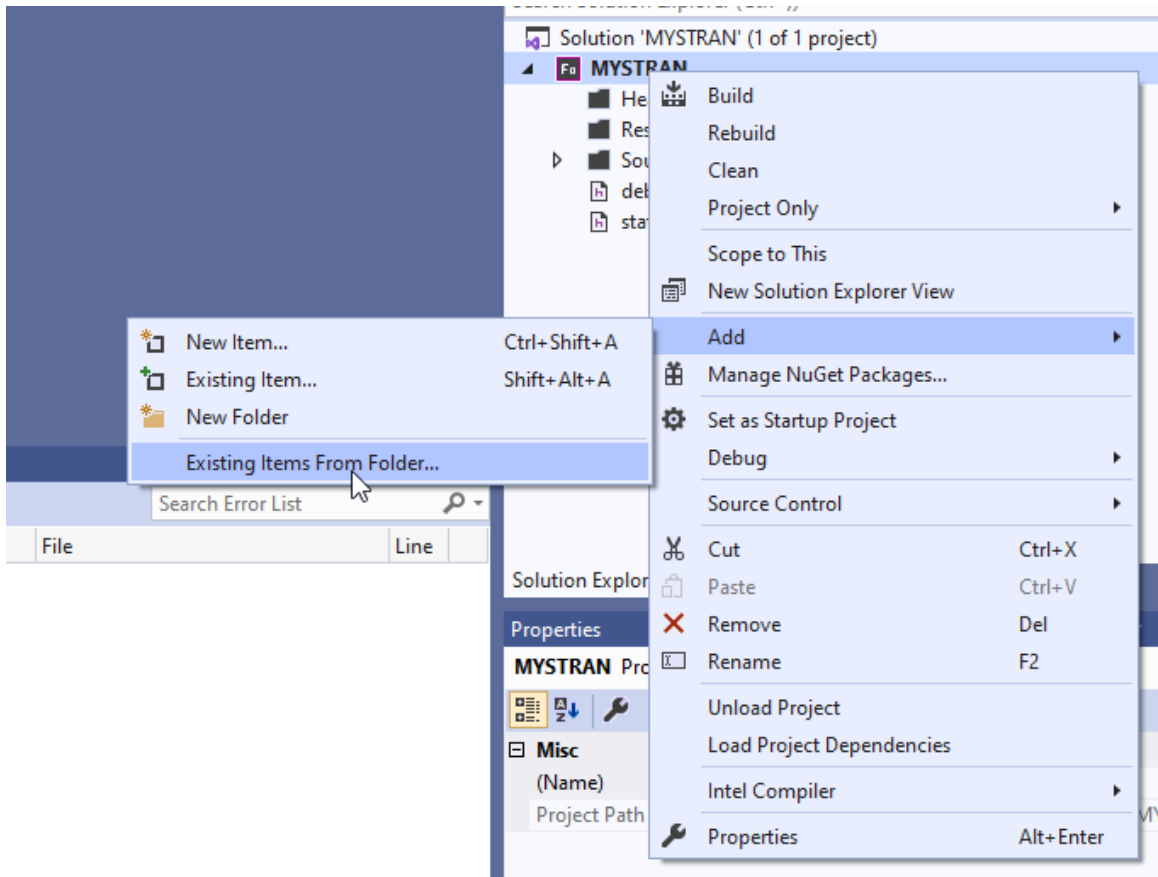


In Solution Explorer, under the 'Source Files', there are two options.

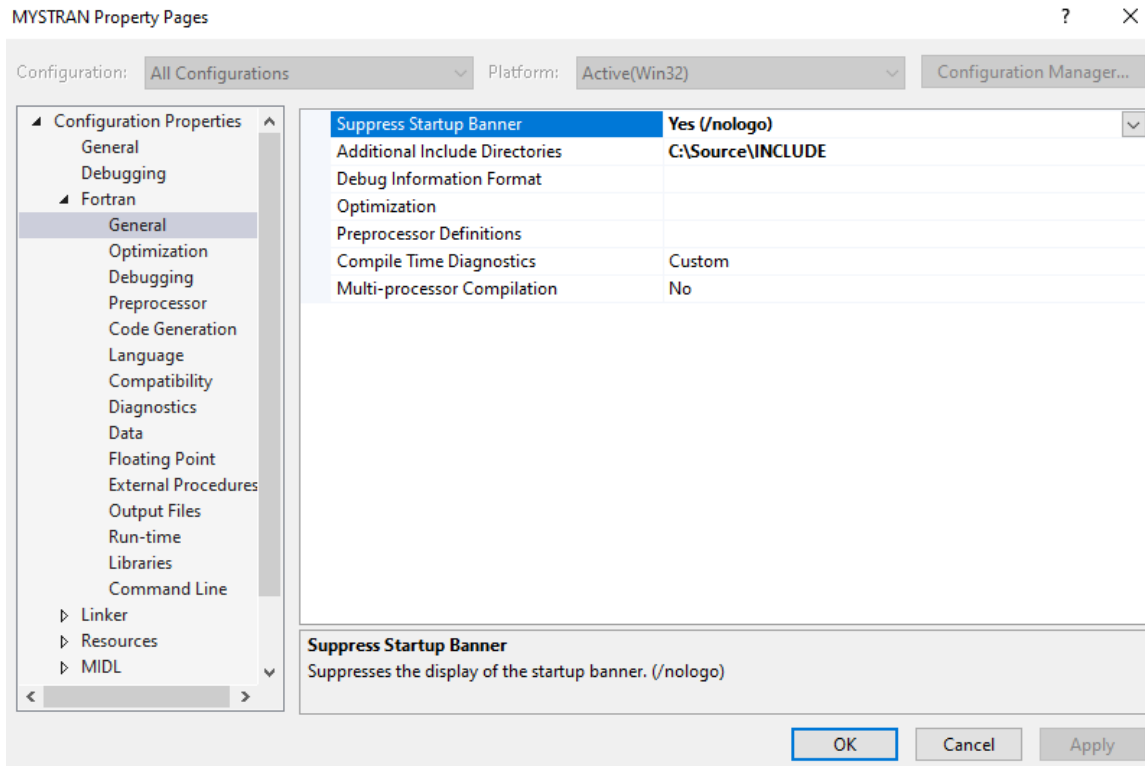
Option 1: Recreate the directory structure to be the same as the source files. Right click on the project name MYSTRAN. After creating a directory, you can drag and drop the directory. This process is relatively time consuming.

Option 2: Right click, Add/Existing Items from Folder...

Then select the source folder. This will “flatten” the directory structure and all files will be present in the same virtual folder in Solution Explorer. Fortran will still compile in this manner (a directory structure is not needed).



In the Solution Explorer, right click MYSTRAN (the project). In Configuration Properties/Fortran/General, add the INCLUDE folder to “Additional Include Directories”. The compiler needs to know where to find debug.h and stat.h.








Use the 'Rebuild Solution' command to compile and link the program.

NOTE: There may be errors because the GitHub version is designed to be compatible with gFortran. These errors should be easy to resolve. For example, there may be a string with “GETENV”. This line can be commented out and then use Rebuild.

MYSTRAN.exe will then be present in the project's appropriate directory.

You may need to have 4 DLL files present in the MYSTRAN.EXE directory (shown below). If you run MYSTRAN.EXE and do not have these DLL files present, it will let you know which ones are missing. These can be found in the Intel installation directory.

 libifcoremd.dll	3/6/2020 6:42 PM	Application exten...	1,722 KB
 libifportmd.dll	3/6/2020 6:42 PM	Application exten...	359 KB
 libmmd.dll	3/6/2020 6:42 PM	Application exten...	4,362 KB
 MYSTRAN.exe	5/7/2020 11:32 PM	Application	16,983 KB
 svml_dispm.dll	3/6/2020 6:42 PM	Application exten...	18,479 KB

Alternatively, you can static link the DLL files. That was not further investigated because the default approach for developers is Code::Blocks + gFortran.

## OLD REFERENCE NOTES - MKL Libraries

For an older version of MYSTRAN, the Intel MKL libraries were used. This dependency has been removed, but the documentation remains for reference.

Depending on the installation, the libraries are located in a folder like: C:\Program Files (x86)\IntelSWTools\compilers\_and\_libraries\_2020.1.216\windows\mkl\lib\intel64\_win

In the MYSTRAN properties dialog, expand the Linker and General trees. In 'Additional Library Directories' add the path to the libraries.

In the Linker->Input tree in 'Additional Dependencies' add: "mkl\_core.lib mkl\_intel\_lp64.lib mkl\_sequential.lib". Use a **space** to separate the filenames.

These will be different if building a 32-bit application or working on Linux.