



MELCOR Build Notes, and Build Troubleshooting Session

Larry Humphries and John Reynolds

MELCOR Software Quality Assurance Training

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



MELCOR Build Troubleshooting

- **This presentation is a tool for discussion!**
 - Please feel free to interrupt at any point.
 - Our goal is to answer your questions

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Visual Studio Integration

- **Visual Fortran/Composer is not as well integrated with Visual Studio as Microsoft languages**
- **Errors about Compatible Project/Solution files**
 - **Meet prerequisites**
 - VF 10 supported by VS 2003, 2005
 - VF 11.1 supported by VS 2003-2008
 - Composer 2011 (12.0, 12.1) supported by VS 2005-2010
 - Composer XE 2013 (13.0) not supported by VS 2005
 - **Stay away from “Express” editions.**
 - **In any “Studio” except Intel’s “free” version, make sure VC++ is installed.**



Multiple Visual Studio Versions

- **Select the right version of Visual Studio with:**
 - **Visual Studio Version Selector**
 - Should usually pick the right Visual Studio version
 - This is not the default option
 - Doesn't work with VS 2012 due to its new “backwards compatible projects” feature
 - **Right-click, Open With**
 - **Automatic conversion**
 - VS no longer writes project files
 - Just don't save
- **Project Files and Subversion Corruption**
 - Copy and Save
 - One person checks in
 - Excruciatingly long build/link times a red flag.

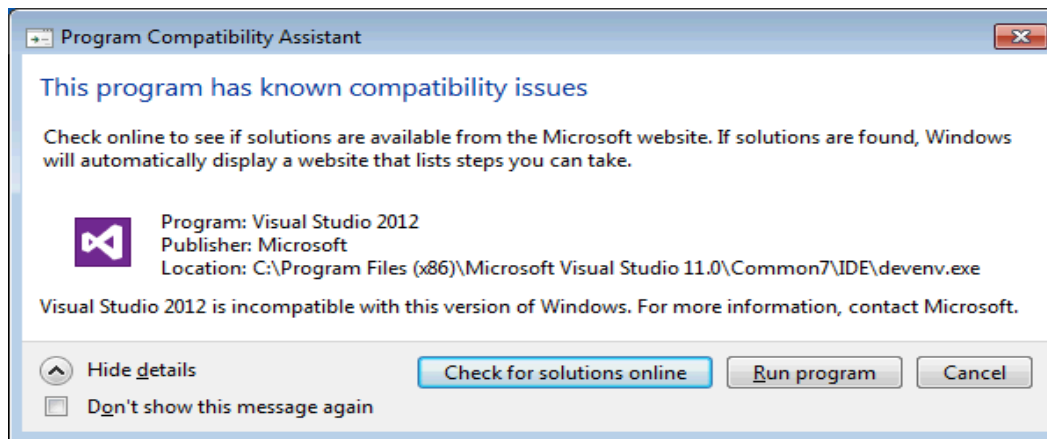
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Visual Studio Integration

- **Visual Studio 2012**
 - You *might* see this dialog when opening a project file:



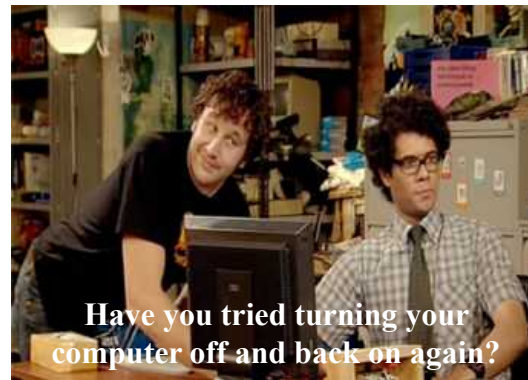
- 2 solutions: 



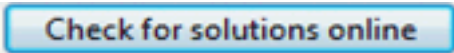
Visual Studio Integration

- **Visual Studio 2012 Program Incompatible With Windows**

- **Solution 1:**



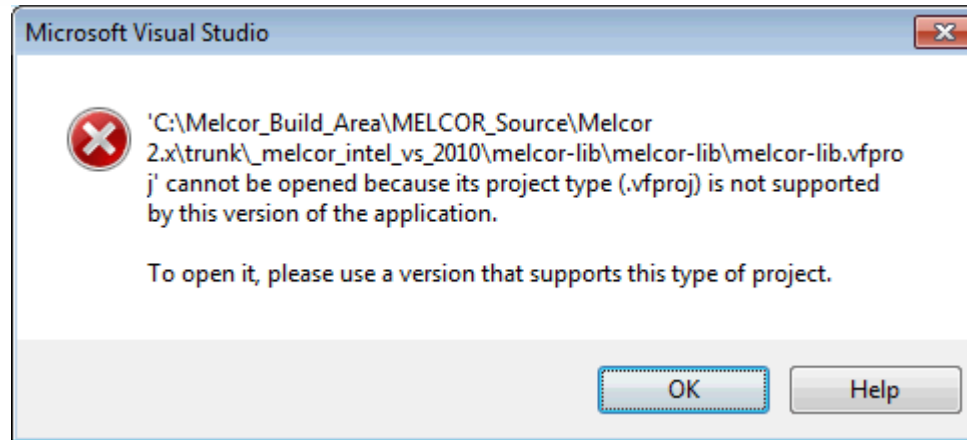
- **Solution 2: [KB2781514](#).**

- This is a stability update that doesn't require turning your computer off and back on again
 - Probably an issue with the .NET framework related to the Intel Fortran/Composer add-ins
 - Click  (dialog, previous page)



Visual Studio Integration

- **VS 2010 Cannot open unsupported solution file**



- **Solution: Visual Studio 2008, then reinstall VF 11.1**



Overview

- **Project Files**

- **Folders:**

- **_melcor_intel_vs_2012**
 - **Compatible with Visual Studio 2010 and later**
 - **New**
 - **_melcor_intel_vs_2010**
 - **Legacy**
 - **_melcor_vs_2005**
 - **Not updated as frequently**
 - **Interest?**
 - **No /MP switch**



Compiler Definitions

- **ARCH**
 - **Only architecture for old systems**
 - **ARCH_VMS, ARCH_PVM, ARCH_SUN, ARCH_PGI, others**
 - **Legacy**
 - **ARCH_DV5**
 - **Windows only**
 - **ARCH_INT**
 - **Linux and Windows**
- **OS Definitions**
 - **LINUX**
 - **WINDOWS**

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Compiler Definitions – Cont.

- **Extensions/Features**
 - **INTEROP**
 - **SNAP**
 - **PARDISO_SOLVER, UMFPACK_SOLVER**
 - **NIGHTLY_TESTING**
- **Miscellaneous**
 - **NON_SNL_BUILD**
 - **GET_CPU_INFO**
 - **MELCOR_186**
 - **ADS**



Compiler Definitions – Cont.

- **Common Builds**
 - **Linux**
 - **ARCH_INT, LINUX, GETCPUINFO**
 - **Windows**
 - **ARCH_INT, WINDOWS, WIN32, GETCPUINFO**
 - **ARCH_DV5, WINDOWS, WIN32, GETCPUINFO**
- **Recommended**
 - **NON_SNL_BUILD**



Changes to M_DisplayConfiguration

- Added `src_licensee_config.fin`
 - Allows configuration information in [M_DisplayConfiguration](#) to remain unchanged
 - Allows code contributors and users to put configuration data in a [separate file](#).
 - Notes
 - `NON_SNL_BUILD` must be defined
 - Variables defined in `M_DisplayConfiguration` overwritten in `src_licensee_config.fin`
 - `CVERSION`: Compiler version
 - `RegressionTestingNumProcs`: Number of processors in build
 - `RegressionTestingLinkArgs`: Number of arguments passed to linker
 - `ProcessorID`: Name of processor
 - `Unoptimized1-Unoptimized3`: Names of routines not optimized

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Build Troubleshooting Problem

- **Realtime build troubleshooting session**
 - **Real problem we have not solved**
 - **Optimized build in Visual Studio**

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