



MELCOR Build Notes, and Build Troubleshooting Session

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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.

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Multiple Visual Studio Versions

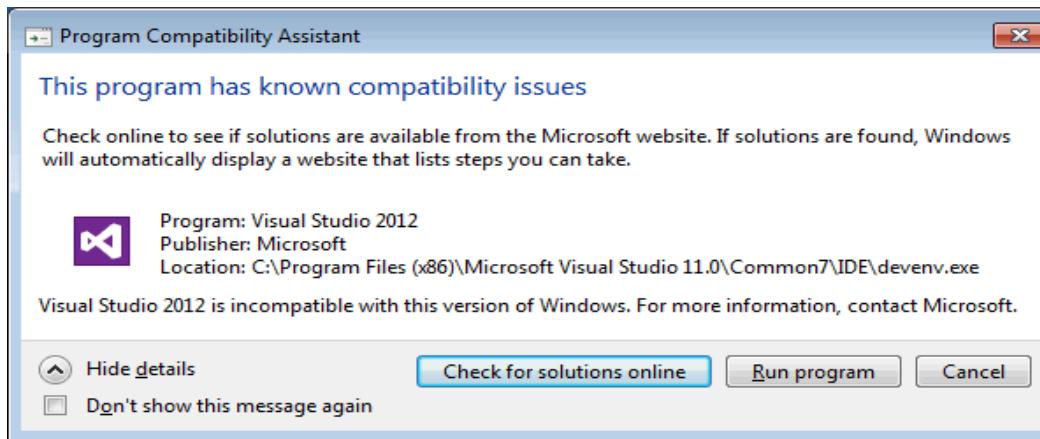
- Select the right version of Visual Studio with:
 - Visual Studio Version Selector
 - Should usually pick the right Visual Studio version
 - This is not the default option
 - Doesn't work with VS 2012 due to its new “backwards compatible projects” feature
 - Right-click, Open With
 - Automatic conversion
 - 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:

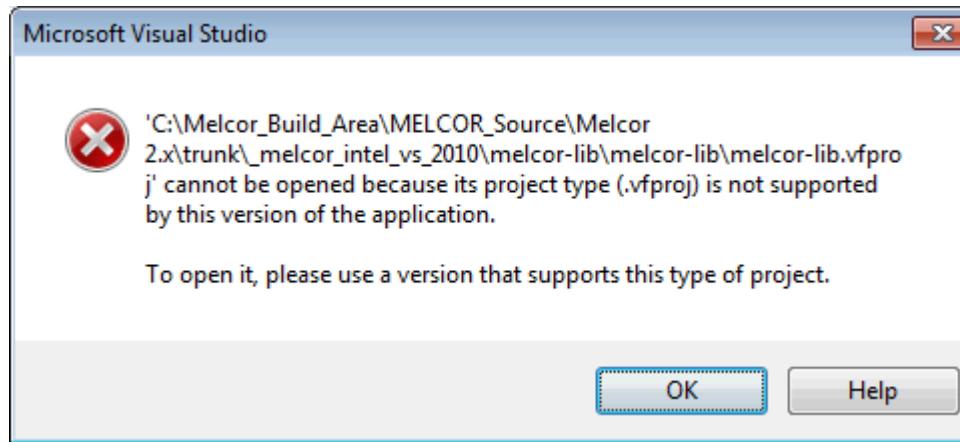


- Solution 2: [KB2781514](#).
 - This is a stability update that doesn't require turning your computer off and back on again
 - Probably an issue with the .NET framework related to the Intel Fortran/Composer add-ins
 - Click [Check for solutions online](#) (dialog, previous page)



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

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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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