

## Leveraging MSBuild 4.0

### Course Summary

#### Description

This one-day, instructor-led course provides students with the knowledge and skills to understand, utilize, customize, and troubleshoot Microsoft MSBuild 4.0.

#### Topics

- MSBUILD 4.0 Basics
- Visual C++ Support
- Customization
- Troubleshooting

#### Audience

This course is intended for software developers, configuration managers, and build engineers who are responsible for building managed .NET or native Visual C++ 2010 applications.

#### Prerequisites

Before attending this course, students should have:

- Familiarity with developing and building software
- Familiarity with Visual Studio 2005, 2008, or 2010
- Familiarity with their organization's development process
- Be able to read and understand C# and C++ code (all source code will be provided)

#### Duration

One day

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### Course Outline

#### I. MSBUILD 4.0 BASICS

This module introduces MSBuild, including what it does, how it works, and how to use it.

- A. What is MSBuild
- B. Sample project files
- C. Solutions vs. projects
- D. Targets and Tasks
- E. Properties and Items
- F. Editing projects with Visual Studio 2010

##### Lab

- Setup the learning environment
- Explore MSBuild
- Use MSBuild to build an application
- Use Visual Studio to edit an MSBuild file

#### II. VISUAL C++ SUPPORT

This module focuses on how MSBuild supports the Visual C++ 2010 build process.

- A. Anatomy of the .vcxproj file
- B. Migrating from earlier versions
- C. The Visual C++ build process
- D. Tasks specific to Visual C++
- E. Project-level build parallelism
- F. File-level build parallelism
- G. Incremental Builds
- H. Property Sheets and Pages
- I. Directories

##### Lab

- Explore a Visual C++ project file
- Convert a Visual C++ 2008 project
- Configure and run an incremental build
- Configure and run a project-level parallel build\* (optional)
- Configure and run a file-level parallel build\* (optional)

#### III. CUSTOMIZATION

This module introduces the many ways you can customize and extend MSBuild.

- A. Build Events
- B. Custom build steps
- C. Custom build tools
- D. Custom build targets
- E. Custom build tasks
- F. MSBuild extension pack

##### Lab

- Explore build events
- Create a custom build step
- Use a custom build tool
- Work with custom targets
- Install and use the MSBuild extension pack (optional)
- Create and use a custom target (optional)

#### IV. TROUBLESHOOTING

This module provides the student with many tools and tricks to be used when troubleshooting a slow or otherwise misbehaving build.

- A. Logging
- B. Logging verbosity
- C. Console logger
- D. File logger
- E. Custom loggers
- F. Handling errors
- G. Debugging MSBuild using Visual Studio
- H. Debugging MSBuild using MSBuild Sidekick by Attrice
- I. Debugging tasks and loggers
- J. Troubleshooting multiple import issues
- K. Troubleshooting performance issues
- L. Troubleshooting incremental build issues

##### Lab

- Use the console and file loggers
- Use the /preprocess switch
- Generate a performance summary
- Generate a detailed summary
- Explore MSBuild Sidekick (optional)

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