

Recompiling FieldTalk Modbus Slave C++ Library with Visual Studio 2005

Application Note 204

Revision 1.0, June 2008

Compilation using Visual Studio IDE	1
Changing the compiler settings	2
Compilation using nmake	4
Trouble shooting the Modbus communication using trace	6

This Application Note describes how to recompile the *FieldTalk Modbus Slave C++ Library / Windows Edition* with Visual Studio 2005.



The product is delivered with a precompiled static library which is ready to be used. Recompilation is only required if your project requires custom settings or modifications.

Prerequisites

- Visual Studio 2005 Standard or Professional
- The Windows Edition of the *FieldTalk* package must be installed and unzipped on your development computer.

Compilation using Visual Studio IDE

The *FieldTalk* package contains a folder structure similar to this:

```

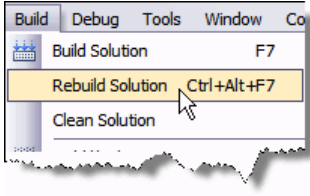
My Projects
  fieldtalk
    doc
    include
    src           ❶
    lib
    win
      win32
      release     ❷
    samples
    Visual C++ 6.0
    Visual Studio 2003
    Visual Studio 2005   ❸
  
```

- ❶ Directory containing the makefile
- ❷ Directory containing the library file `libmbusslave.lib`

- 3 Directory containing the Visual Studio 2005 project files to compile the library

Open Visual Studio and load the `mbusslave_win.sln` solution file from the Visual Studio 2005 directory of the *FieldTalk* package.

Select *Rebuild Solution* from the *Build* menu.



The compilation starts and the *Output* window will show a log similar to this:

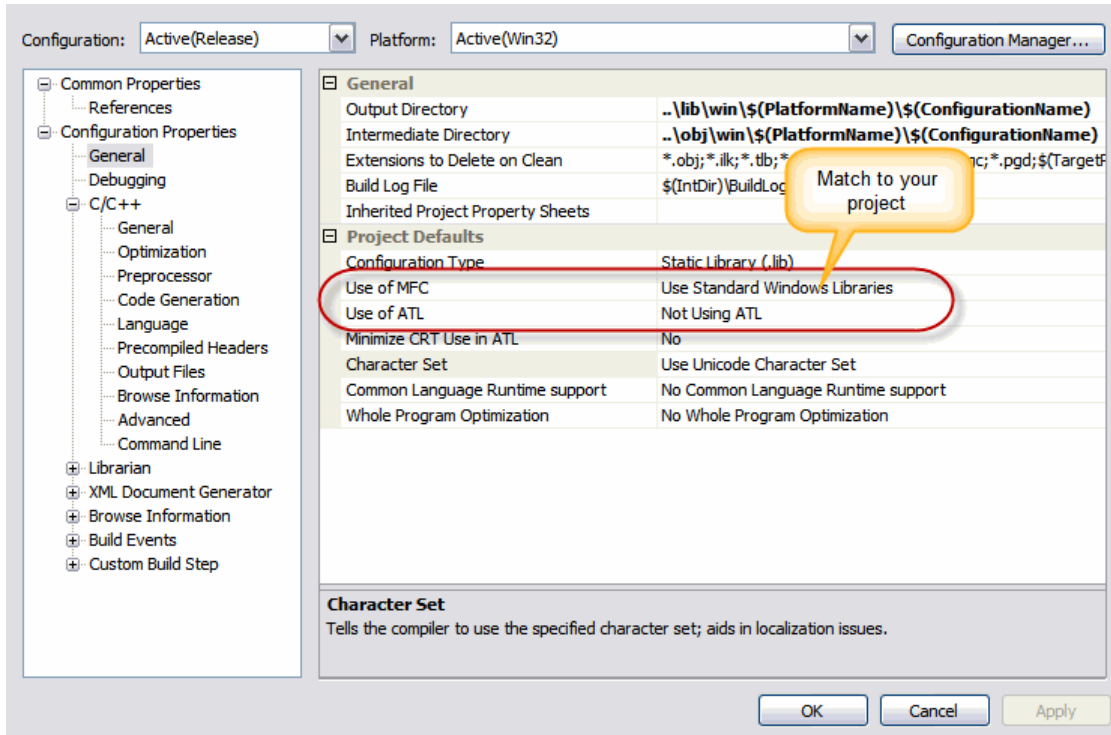
```
1>----- Rebuild All started: Project: libmbusslave, Configuration: Release Win32
1>Deleting intermediate and output files for project 'libmbusslave', configuration: Release Win32
1>Compiling...
1>MbusTcpSlaveProtocol.cpp
1>MbusSlaveServer.cpp
1>MbusSerialSlaveProtocol.cpp
1>MbusRtuSlaveProtocol.cpp
1>MbusAsciiSlaveProtocol.cpp
1>hmtimer.cpp
1>hmserio.cpp
1>Generating Code...
1>Compiling...
1>hmhex.c
1>hmcrc16.c
1>BusProtocolErrors.c
1>Generating Code...
1>Creating library...
1>Build log was saved at "file:///c:/prj/fieldtalk/cpp.backup/obj/win/Win32/Release/BuildLog.htm"
1>libmbusslave - 0 error(s), 0 warning(s)
===== Rebuild All: 1 succeeded, 0 failed, 0 skipped =====
```

The rebuilt library `libmbusslave.lib` has been placed in the directory `lib\win\win32\release`, the library include files can be found in the directory `include`.

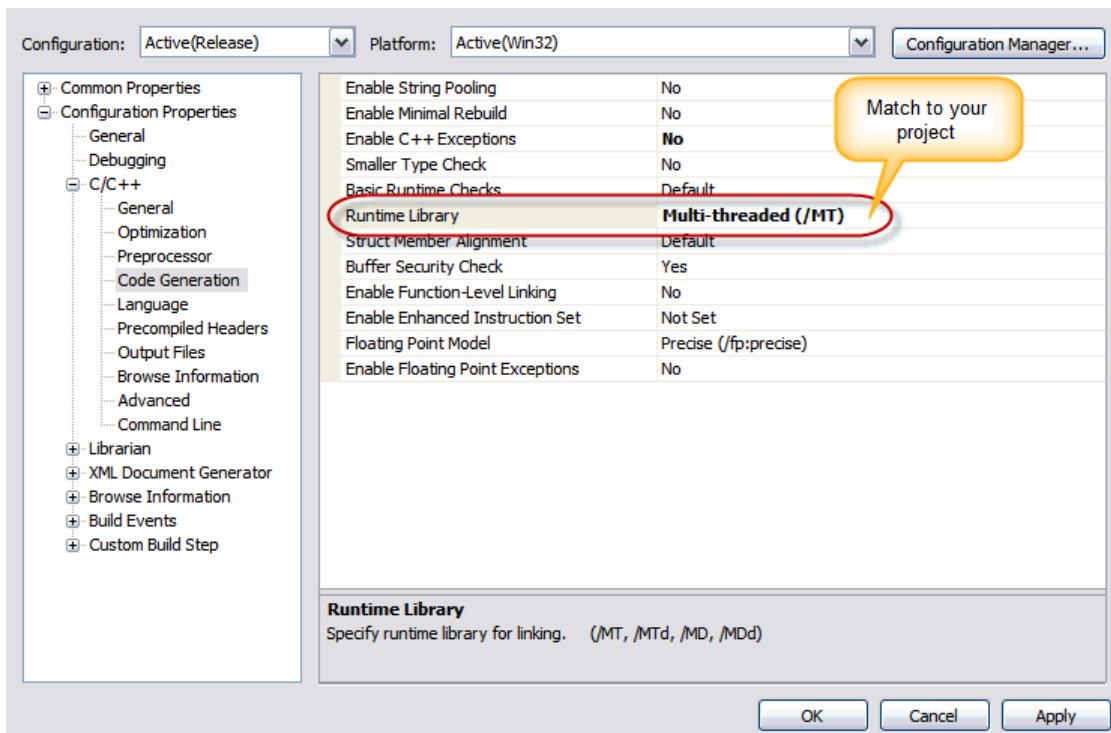
Changing the compiler settings

Typically some of the following compiler settings may be adjusted depending on your project needs. The following list shows the most common adjustments.

- The libraries' character set must match your project's character set. Unless you are targeting Windows 98, you should use Unicode as shown below:

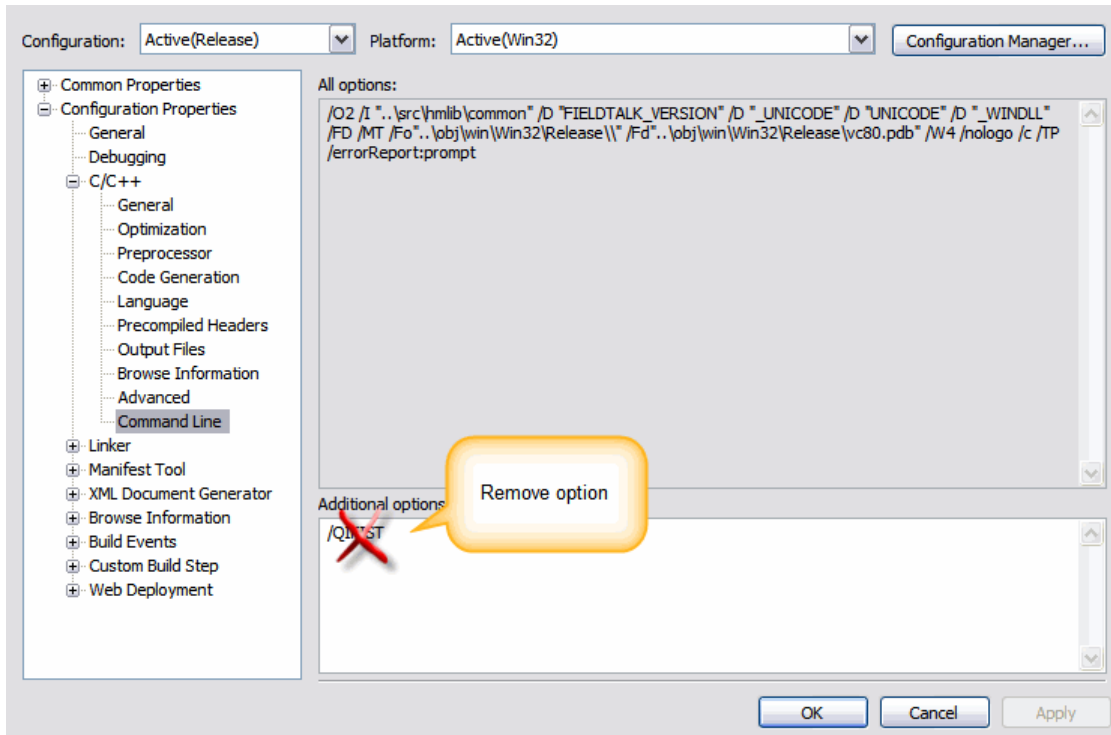


- It is recommended to use the same runtime library settings for *FieldTalk* as you use for your main project. Adjust as shown below:



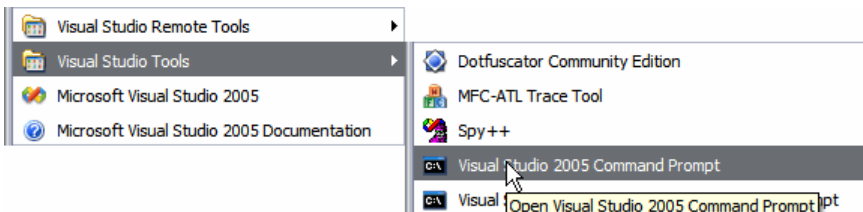
- For backward compatibility with Visual C++ 6.0 the library is compiled with the floating point option /QIFIST set. This setting should be removed with Visual Studio 2005, as it is now deprecated.

To remove, open the C/C++ *Command Line* property page and remove the /QIFIST entry as shown below.



Compilation using nmake

Open a Visual Studio Command Prompt window from the start menu as shown below.



Change into the src subdirectory of your *FieldTalk* installation directory:

```
cd c:\proconx\fieldtalk\src
```

Run nmake from the Visual Studio 2005 Command Prompt window:

```
nmake
```

The compilation starts and the output will show a log similar to this:

```
C:\proconx\fieldtalk\src>nmake
Microsoft (R) Program Maintenance Utility Version 8.00.50727.42
Copyright (C) Microsoft Corporation. All rights reserved.

    md ..\obj\win\win32\release
A subdirectory or file ..\obj\win\win32\release already exists.
    cl -W4 -I..\src -Fo..\obj\win\win32\release\ -c ..\src\hmlib\common\hmcrc16.c ..\src\hmlib\common\hmhex.c ..\src\BusProtocolErrors.c ..\src\hmlib\win
```

```
32\hmtimer.cpp ..\src\hmlib\win32\hmserio.cpp ..\src\MbusSlaveServer.cpp ..\src\
MbusTcpSlaveProtocol.cpp ..\src\MbusSerialSlaveProtocol.cpp ..\src\MbusRtuSlaveP
rotocol.cpp ..\src\MbusAsciiSlaveProtocol.cpp
Microsoft (R) 32-bit C/C++ Optimizing Compiler Version 14.00.50727.42 for 80x86
Copyright (C) Microsoft Corporation. All rights reserved.

hmcrc16.c
hmhex.c
BusProtocolErrors.c
Generating Code...
Compiling...
hmtimer.cpp
hmserio.cpp
MbusSlaveServer.cpp
MbusTcpSlaveProtocol.cpp
MbusSerialSlaveProtocol.cpp
MbusRtuSlaveProtocol.cpp
MbusAsciiSlaveProtocol.cpp
Generating Code...
    md ..\include
A subdirectory or file ..\include already exists.
    attrib -r ..\include\*.*
    copy hmlib\common\hmserio.hpp ..\include
    1 file(s) copied.
    copy hmlib\common\hmtimer.hpp ..\include
    1 file(s) copied.
    copy hmlib\common\hmplatf.h ..\include
    1 file(s) copied.
    copy hmlib\common\hmtcpip.h ..\include
    1 file(s) copied.
    copy BusProtocolErrors.h ..\include
    1 file(s) copied.
    copy MbusSlaveServer.hpp ..\include
    1 file(s) copied.
    copy MbusDataTableInterface.hpp ..\include
    1 file(s) copied.
    copy MbusSerialSlaveProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusAsciiSlaveProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusRtuSlaveProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusTcpSlaveProtocol.hpp ..\include
    1 file(s) copied.
    md ..\lib\win\win32\release
A subdirectory or file ..\lib\win\win32\release already exists.
    del ..\lib\win\win32\release\libmbusslave.lib
    lib.exe -out:..\lib\win\win32\release\libmbusslave.lib ..\obj\win\win32
\release\hmcrc16.obj ..\obj\win\win32\release\hmhex.obj ..\obj\win\win32\release
\hmtimer.obj ..\obj\win\win32\release\hmserio.obj ..\obj\win\win32\release\BusPr
otocolErrors.obj ..\obj\win\win32\release\MbusSlaveServer.obj ..\obj\win\win32\r
elease\MbusTcpSlaveProtocol.obj ..\obj\win\win32\release\MbusSerialSlaveProtocol
.obj ..\obj\win\win32\release\MbusRtuSlaveProtocol.obj ..\obj\win\win32\release\
MbusAsciiSlaveProtocol.obj
Microsoft (R) Library Manager Version 8.00.50727.42
```

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Library successfully compiled.

The rebuilt library `libbuslave.lib` has been placed in the directory `lib\win\win32\release`, the library include files can be found in the directory `include`.

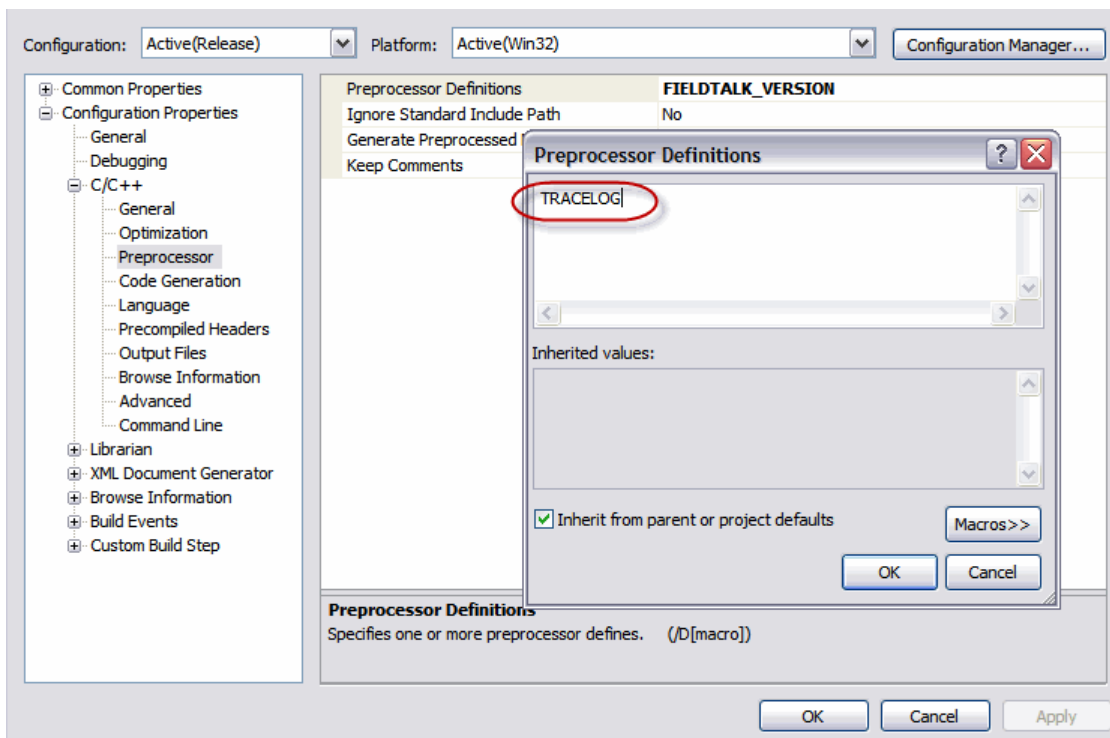
Trouble shooting the Modbus communication using trace

The library has a tracing feature which logs all communication events and raw data to standard output. To use this trace feature, the library needs to be recompiled with the `TRACELOG` definition defined.

```
TRACELOG: Open port: COM1
TRACELOG: Parameters: 9600, 8, 1, 0
TRACELOG: Configuration: 1000, 0, 0
TRACELOG: Frame silence: 5
TRACELOG: Read multiple registers 1 100
TRACELOG: Send(6): 01 03 00 63 00 0A ❶
TRACELOG: Recv(5): 01 83 01 80 F0 ❷
```

- ❶ Raw data sent on the serial port
- ❷ Raw data received on the serial port

In Visual Studio, trace can be enabled by defining the `TRACELOG` preprocessor definition from the *C/C++ Preprocessor* property pages as shown below:



Using `nmake`, `TRACELOG` can be defined by passing a `tracelog` parameter (all lower caps) to the makefile as follows:

nmake tracelog=1

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Support & product feedback

We provide an electronic support and feedback system for our *FieldTalk* products. It can be accessed through the following web link:

<http://www.modbusdriver.com/support>

Your feedback and comments are always welcome. It helps improving this product.

Contact

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