

# Recompiling FieldTalk Modbus Master C++ Library with Visual Studio 2005

## Application Note 203

Revision 1.0, June 2008

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This Application Note describes how to recompile the FieldTalk *Modbus Master 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:

```

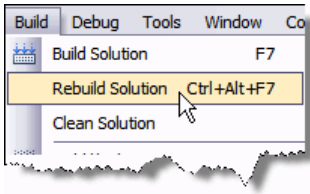
My Projects
  fieldtalk
    doc
    include
    src           ❶
    lib
    win
      win32
      release     ❷
    samples
    Visual C++ 6.0
    Visual Studio 2003
    Visual Studio 2005  ❸
  
```

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

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

Open Visual Studio and load the `mbsmaster_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:

```

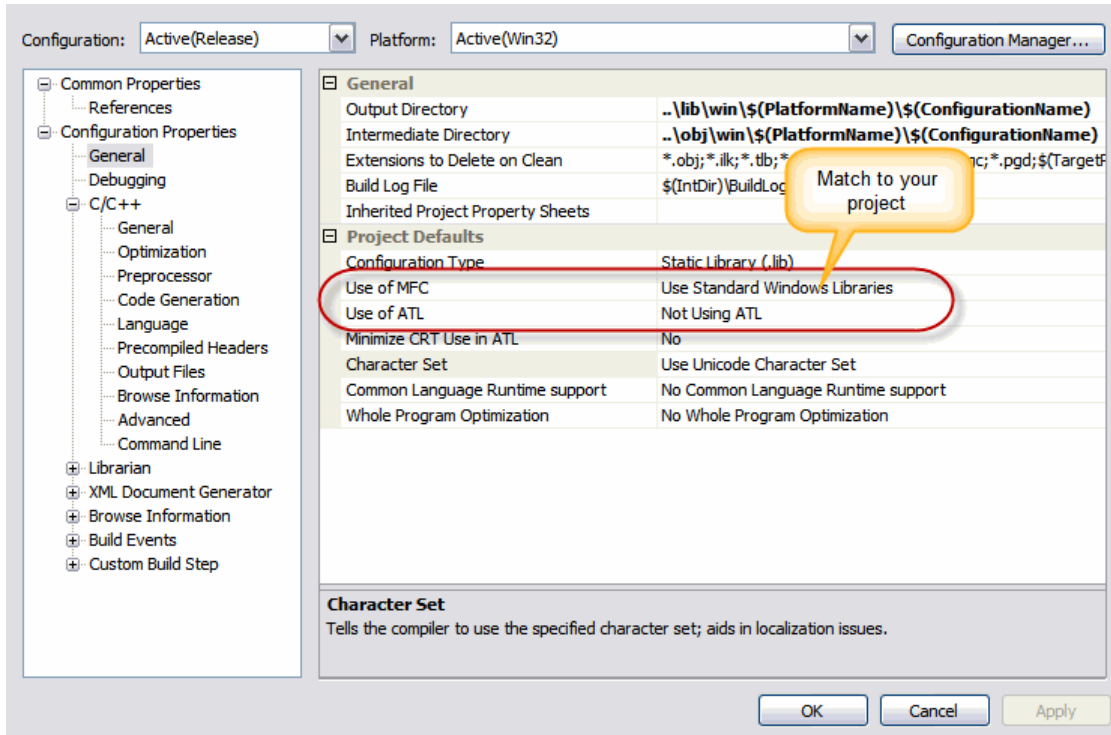
1>----- Rebuild All started: Project: libmbusmaster, Configuration: Release Win
1>Deleting intermediate and output files for project 'libmbusmaster', configurat
1>Compiling...
1>MbusTcpMasterProtocol.cpp
1>MbusSerialMasterProtocol.cpp
1>MbusRtuOverTcpMasterProtocol.cpp
1>MbusRtuMasterProtocol.cpp
1>MbusMasterFunctions.cpp
1>MbusMasterCexports.cpp
1>MbusAsciiMasterProtocol.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:\proconx\fieldtalk\obj\win\Win32\Release\Buil
1>libmbusmaster - 0 error(s), 0 warning(s)
===== Rebuild All: 1 succeeded, 0 failed, 0 skipped =====
    
```

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

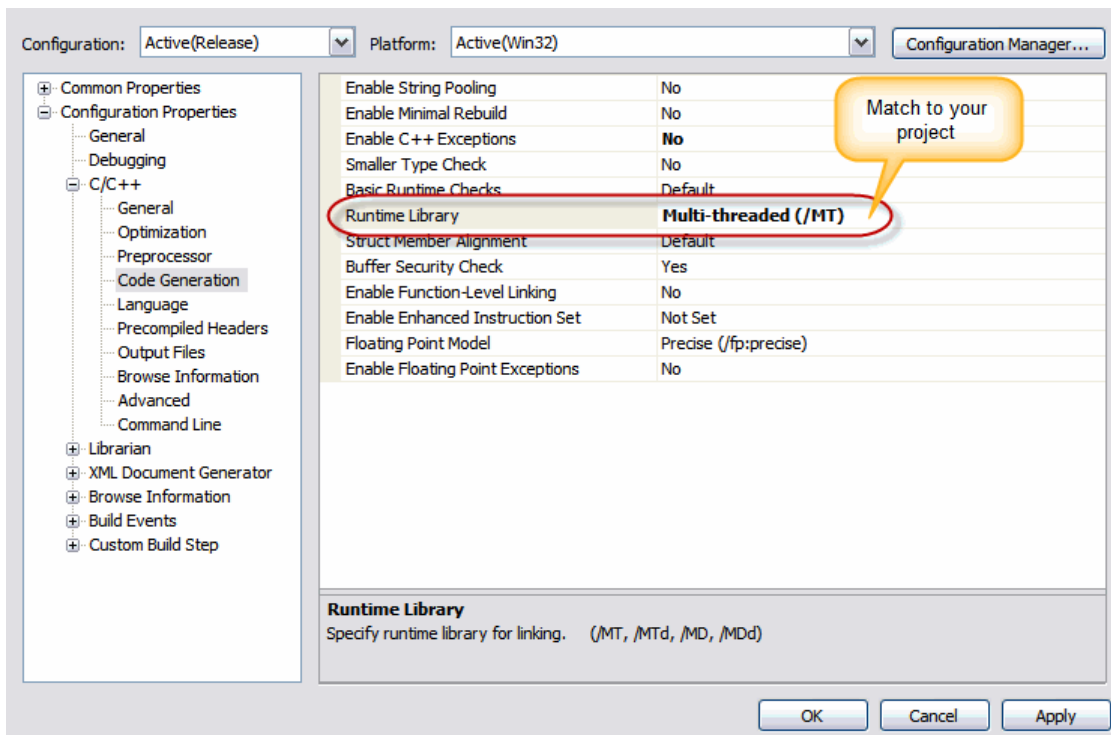
## Changing the compiler settings

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:

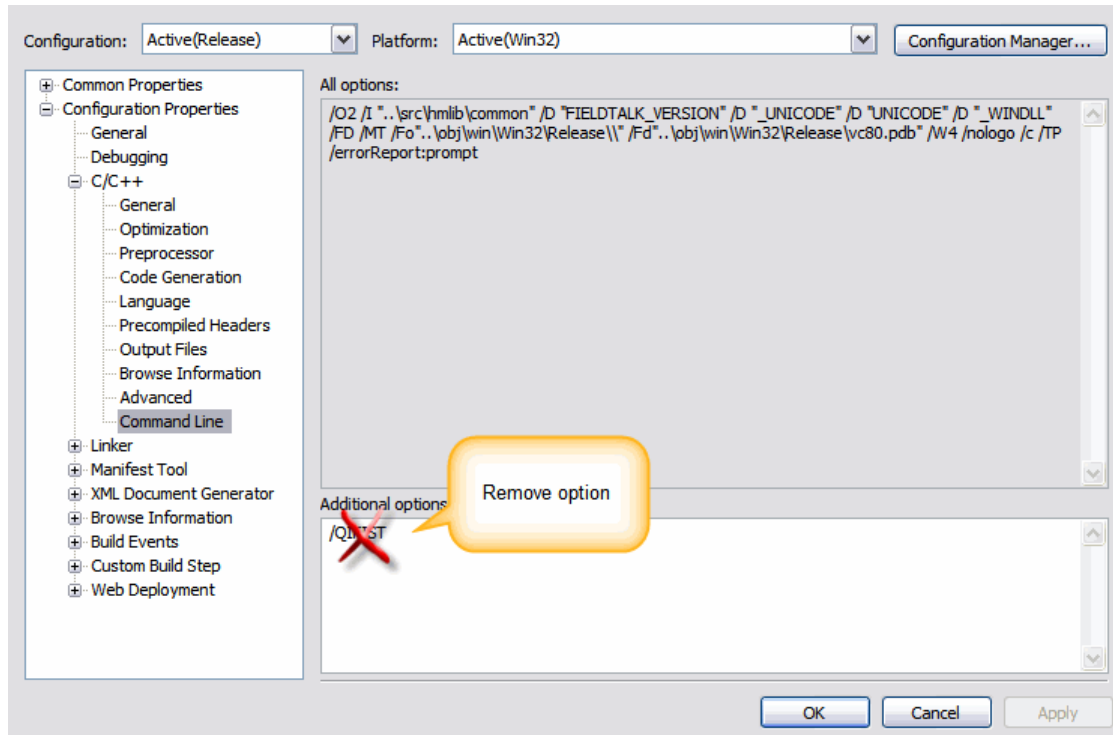


- It is recommended to use the same runtime library settings for *FieldTalk* as you use for your main project. Adjust as shown below:



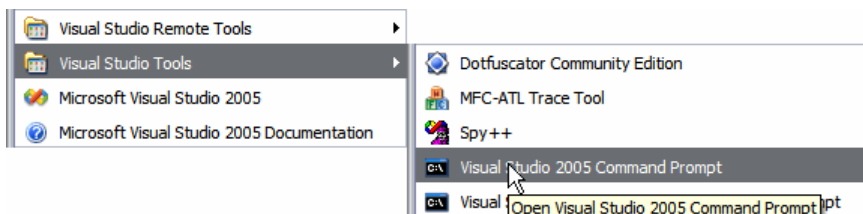
- For backward compatibility with Visual C++ 6.0 the library is compiled with the floating point option /QIFIST set. This setting should be removed with Visual Studio 2005, as it is now deprecated.

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
    cl -W4 -I..\src -Fo..\obj\win\win32\release\ -c ..\src\hmlib\common\hmcrc16.c ..\src\hmlib\common\hmxhex.c ..\src\BusProtocolErrors.c ..\src\hmlib\win32\hmtimer.cpp ..\src\hmlib\win32\hmserio.cpp ..\src\MbusMasterFunctions.cpp ..\
```

```
src\MbusTcpMasterProtocol.cpp ..\src\MbusSerialMasterProtocol.cpp ..\src\MbusAsciiMasterProtocol.cpp ..\src\MbusRtuMasterProtocol.cpp ..\src\MbusRtuOverTcpMasterProtocol.cpp ..\src\MbusMasterCexports.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
MbusMasterFunctions.cpp
MbusTcpMasterProtocol.cpp
MbusSerialMasterProtocol.cpp
MbusAsciiMasterProtocol.cpp
MbusRtuMasterProtocol.cpp
MbusRtuOverTcpMasterProtocol.cpp
MbusMasterCexports.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 MbusMasterCexports.h ..\include
    1 file(s) copied.
    copy MbusMasterFunctions.hpp ..\include
    1 file(s) copied.
    copy MbusSerialMasterProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusRtuMasterProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusAsciiMasterProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusTcpMasterProtocol.hpp ..\include
    1 file(s) copied.
    copy MbusRtuOverTcpMasterProtocol.hpp ..\include
    1 file(s) copied.
    del ..\lib\win\win32\release\libmbusmaster.lib
    md ..\lib\win\win32\release
A subdirectory or file ..\lib\win\win32\release already exists.
    lib.exe -out:..\lib\win\win32\release\libmbusmaster.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\BusProtocolErrors.obj ..\obj\win\win32\release\MbusMasterFunctions.obj ..\obj\win\wi
```

```
n32\release\MbusTcpMasterProtocol.obj ..\obj\win\win32\release\MbusSerialMasterP
rotocol.obj ..\obj\win\win32\release\MbusAsciiMasterProtocol.obj ..\obj\win\win3
2\release\MbusRtuMasterProtocol.obj ..\obj\win\win32\release\MbusRtuOverTcpMaste
rProtocol.obj ..\obj\win\win32\release\MbusMasterCexports.obj
Microsoft (R) Library Manager Version 8.00.50727.42
Copyright (C) Microsoft Corporation. All rights reserved.
```

Library successfully compiled.

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

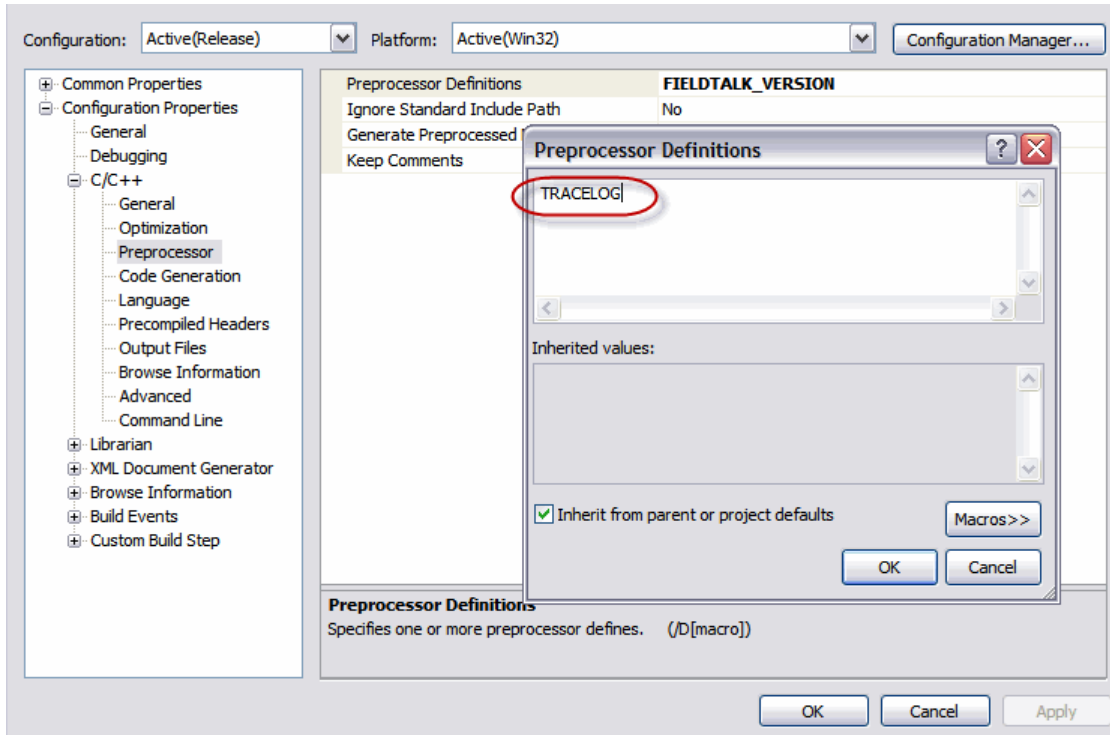
## Trouble shooting the Modbus communication using trace

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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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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