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Triangle MicroWorks, Inc.  
Modbus Master Source Code Library

What's New?

*a description of the changes included in all versions of the library*

Version 3.13.00  
November 17, 2011

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This document describes features or corrections that have been added to the Modbus Master Source Code Library.




The symbols to the left of each revision are used to help define the following kinds of revisions:


- MB** Additional or enhanced Modbus features.
-  Additional or enhanced source-code features, allowing implementers to more efficiently install the Source Code Library.
-  Corrections to problems, with indications for when the problems were introduced.


### **Version 3.13.00 (November 17, 2011)**

-  Corrected a warning caused by an uninitialized structure in LinIOTarg RS232 implementation.
-  Implemented performance improvement by modifying locking calls in `tmwdb_storeEntry`. This change applies only when processing data asynchronously.
-  Provided big endian get and put functions.
-  *Description:* LinIOTarg could access channel structure members after marking a channel for deletion.  
*Introduced:* v3.07  
*Resolution:* Fixed in v3.13

### **Version 3.12.00 (July 7, 2011)**

-  *Description:* The timer callback may continue to loop if a very short timer is added in the timer callback.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.12
-  *Description:* `tmwtime_addOffset` did not follow 0 -599999 rule.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.12
-  *Description:* Some compilers issued warnings when a break followed a return (e.g., in `tmwphysd.c`).  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.12

 *Description:* In function `tmwmem_lowlnit()`, a failure to allocate memory resulted in a return with no indication to the caller that a failure occurred.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.12

 *Description:* LinIOTarg computed date incorrectly when converting a “struct tm” to TMWDTIME.  
*Introduced:* v3.07  
*Resolution:* Fixed in v3.12

### **Version 3.11.00 (October 1, 2010)**

No updates to Modbus Master Source Code Library in this release.


### **Version 3.10.00 (August 25, 2010)**


No updates to Modbus Master Source Code Library in this release.


### **Version 3.09.00 (March 15, 2010)**


 Added support for broadcast.


 Added user data pointers to `TMWCHNL`, `TMWSCTR`, and `TMWSESN`.

 *Description:* When multiple application contexts are used, closing one deleted the memory pool lock, which could cause problems if another application context was open.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.09


 *Description:* WinIOTarg could fail to process all available characters, causing timeouts when running at high baud rates.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.09

 *Description:* When configured to use system time, WinIOTarg System time not setting the `dstlnEffect` flag correctly.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.09



 *Description:* Data types in `mbdefs.h` switched Holding and Input Registers.  
*Introduced:* v3.00.24  
*Resolution:* Fixed in v3.09

 *Description:* LinIOTarg could cause high levels of processor utilization when multiple channels were opened.  
*Introduced:* v3.07  
*Resolution:* Fixed in v3.09




### **Version 3.08.00 (September 25, 2009)**

-  *Description:* The rs232Reader thread in WinIOTarg was missing a stop event.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.08

### **Version 3.07.00 (July 17, 2009)**

-  Added LinIOTarg (low-level target for Linux) and new command line-based examples (that can be used with Linux).
-  Integrated WinIOTarg (low-level target for Windows) into the standard release package.

### **Version 3.06.00 (April 14, 2009)**

-  Added TMWCNFG\_MAX\_APPLRCVS to “break out” of loop in tmwappl\_checkForInput() after the specified number of iterations.
-  Modified timer values in tmwlink\_channelCallback to speed up retries.
-  Added Incremental Timeout Timer, which starts when the message is sent. This timer is helpful in mult-drop applications if one device is timing out, so that others can still get a chance to be polled.


### **Version 3.05.00 (December 4, 2008)**

No updates to Modbus Master Source Code Library in this release.

### **Version 3.04.01 (September 30, 2008)**

-  Improved comments on compiler options such as TMWCONFIG\_USE\_MANAGED\_SCL.

### **Version 3.04 (September 12, 2008)**

-  *Description:* tmwdb\_lockQueue and tmwdb\_unlockQueue were described in the header comments for tmwdb\_storeEntry in tmwdb.h, but they were not defined in tmwdb.c.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.04


### **Version 3.03.00 (April 1, 2008)**

-  Added ability to include session indicator in channel statistics.




### **Version 3.02.00 (December 7, 2007)**

No updates to Modbus Master Source Code Library in this release.


### **Version 3.01.01 (August 8, 2007)**

-  Added ability to keep time on a per-session basis. Added pSession to tmwdtime structure; target layer can use this parameter to return a time specific to the session.



### **Version 3.01.00 (May 23, 2007)**

-  Modified online notification algorithm to facilitate notification of sessions that never go online.
-  *Description:* The Source Code Library did not properly handle CRC errors.  
*Introduced:* v3.00.24  
*Resolution:* Fixed in v3.01.01
-  *Description:* The Source Code Library would count received frames twice.  
*Introduced:* v3.00.00  
*Resolution:* Fixed in v3.00.51


### **Version 3.00.49 (November 1, 2006)**

-  Renamed TMWCHNL\_STAT\_CALLBACK and TMWSESN\_STAT\_CALLBACK macros to TMWCHNL\_STAT\_CALLBACK\_FUNC and TMWSESN\_STAT\_CALLBACK\_FUNC. This change avoids having a macro and a typedef with the same name.



### **Version 3.00.46 (April 27, 2006)**



-  Modified release to include WinIoTarg.dll built with Visual Studio 6. This DLL is used when using Visual Studio to build the sample applications.
-  Updated sample Makefiles to correctly build Source Code Library.

### **Version 3.00.45 (March 17, 2006)**

-  Improved documentation in protocol-specific section of the manual. Provided additional text, reorganized layers, and included all header files that comprise the API.

### **Version 3.00.44 (February 2, 2006)**




-  Added a sample application to provide an example of a multi-threaded, event-driven application.
-  Set receive indication in diagnostic information to indicate the direction of the message.

-  Enhanced statistics to include additional values such as CRC errors, number of invalid start bytes, frame length errors, etc.
-  Split into tmwtarg.h/c into tmwtarg.h/c and tmwtargp.c/c. This change moves all Triangle MicroWorks, Inc. specific code into a separate file. Customers only need to modify tmwtarg.c.

### **Version 3.00.43 (December 2, 2005)**

No updates to Modbus Master Source Code Library in this release.





### **Version 3.00.42 (September 9, 2005)**

-  Improved documentation by updating *Modbus Master.doc* to improve readability and include all user-modifiable files.
-  Added subversion to SCL filename (e.g., mmbv30042.exe). This allows the version number to be determined from the file name. The version number continues to be defined in tmwvrsn.h.
-  *Description:* The Source Code Library could potentially reference a Null pointer in tmwdlist\_removeEntry  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.00.42


### **Version 3.00.41 (July 20, 2005)**

No updates to Modbus Master Source Code Library in this release.

### **Version 3.00.40 (June 3, 2005)**



-  Added MBMaster sample application executables and required DLLs to allow running this application without having to build it.
-  Improved documentation of memory type configuration.
-  Fixed compiler warning for TMWTYPES\_BOOL type.
-  *Description:* TMWMEM\_FREE\_FUNC was doubly defined.  
*Introduced:* v3.00.39  
*Resolution:* Fixed in v3.00.40

### **Version 3.00.39 (March 29, 2005)**


-  Improved memory management within Source Code Library. Added new #define (TMWCNFG\_ALLOC\_ONLY\_AT\_STARTUP) to tmwcnfg.h. Also added new functions that the target to set the maximum number of each buffer in each pool at runtime. Both

“only at startup” and static allocations use a linked list of free and allocated buffers instead of just an array that was accessed sequentially.

### **Version 3.00.38 (January 18, 2005)**

-  Modified the API for the channel, session, sector modify functions to initialize a structure with the current settings. Any of these settings may then be modified by the target code.
-  Added support for Modbus Function Codes 7 (Read Exception Status) and 8 (Diagnostics)





### **Version 3.00.37 (December 15, 2004)**

-  Simplified simulated database (mmbstim.c/.h). The simulated database now always uses a linked list for all data types.


### **Version 3.00.36 (November 2, 2004)**

No updates to Modbus Master Source Code Library in this release.

### **Version 3.00.35 (September 22, 2004)**


-  Added #define TMWCNFG\_MEMORY\_ALIGN\_NEEDED to tmwcnfg.h to support processors requiring long word (4 byte) alignment and compilers that create unpacked structures.
-  Added tmwapp\_startTimer and tmwapp\_cancelTimer to tmwtarg.c.  
NOTE: These functions must be defined in the target in order for the Source Code Library to link.
-  *Description:* The Source Code Library could mistakenly interpret two different read commands as duplicate commands.  
*Introduced:* v3.00.25  
*Resolution:* Fixed in v3.00.35
-  *Description:* The parameter list was inconsistent in TMWLINK\_OPEN\_SESSION\_FUNC and \_openSession in mblink.c.  
*Introduced:* v3.00.00  
*Resolution:* Fixed in v3.00.35

### **Version 3.00.34 (July 30, 2004)**

 *Description:* The Source Code Library could call `tmwtarg_startTimer` with a negative value. For some operating systems, this causes timers to stop running.

*Introduced:* v3.00.32


*Resolution:* Fixed in v3.00.34

 *Description:* The algorithm for sorting timers did not work properly if the two times being compared were more than 17 days apart.


*Introduced:* v3.00

*Resolution:* Fixed in v3.00.34

### **Version 3.00.33 (June 17, 2004)**


 Modified queuing of requests with duplicate types. If the request is a duplicate, the previously queued request is canceled.


### **Version 3.00.32 (June 4, 2004)**

 Enhanced support for multiple threads. Added support for one timer queue per channel. Also improved locking/unlocking to prevent threads from being interrupted or deadlocked. This enhancement required two changes to the API:

- Added new `#define(TMWCNFG_MULTIPLE_TIMER_QS)` to allow support of multiple timer queues (default is `TMWDEFS_FALSE`)
- Added new parameter to `tmwdb_storeEntry()` to indicate whether the queue should be locked (default is not to lock the queue).

*Any implementation using multiple threads should upgrade to this release*

 Added a session-level statistic to indicate that an application layer response timed out.

 *Description:* The `_timerCallback` function in `tmwtimer.c` did not always lock the proper channel.


*Introduced:* v3.00

*Resolution:* Fixed in v3.00.31


 *Description:* `tmwappl_initApplication()` could not be called more than once.


*Introduced:* v3.00.29

*Resolution:* Fixed in v3.00.31


 *Description:* A 31-day timer would expire immediately.  
*Introduced:* v3.00  
*Resolution:* Fixed in v3.00.32

### **Version 3.00.29 (March 31, 2004)**

 *Description:* A timeout error could cause events to become stuck in the queue.  
*Introduced:* v3.00.25  
*Resolution:* Fixed in v2.00.29

 *Description:* When configured for Static memory support, the Source Code Library could fail to allocate buffers if they contained non-zero data on startup.  
*Introduced:* v3.00.24  
*Resolution:* Fixed in v3.00.29

### **Version 3.00.28 (March 2, 2004)**

 *Description:* Queued Modbus commands were not removed when a Master session was closed.  
*Introduced:* v3.00.25  
*Resolution:* Fixed in v3.00.28

### **Version 3.00.27 (February 3, 2004)**

No updates to Modbus Master Source Code Library in this release.

### **Version 3.00.26 (January 15, 2004)**

No updates to Modbus Master Source Code Library in this release.

### **Version 3.00.25 (December 12, 2003)**



Added the ability to queue commands. If a prior command is in process when a new command is issued, the Source Code Library will queue the command instead of returning a failure code.



Added Transaction ID to Modbus Plus link layer.

### **Version 3.00.24 (November 10, 2003)**

Initial Release of Modbus Master Source Code Library.