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Triangle MicroWorks, Inc.  
.NET Communication Protocol Components

**What's New?**

*a description of the changes included in all versions of the .NET Protocol  
Components*

Version 3.13.00  
November 17, 2011

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This document describes features or corrections that have been added to the .NET Protocol Components.

This section describes new features and/or bug fixes included with each new release of the .NET Protocol Components. The symbols to the left of each revision are used to help define the following kinds of revisions:



Additional .NET Protocol Components Features



Corrections to problems, with indications for when the problems were introduced.

Note: Please refer to the following documents for protocol-specific changes that also affect the .NET Components:

- [DNP3 Master Source Code Library What's New](#)
- [IEC 60870-5-101 Master Source Code Library What's New](#)
- [IEC 60870-5-102 Master Source Code Library What's New](#)
- [IEC 60870-5-103 Master Source Code Library What's New](#)
- [IEC 60870-5-104 Master Source Code Library What's New](#)
- [Modbus Master Source Code Library What's New](#)
- [DNP3 Slave Source Code Library What's New](#)
- [IEC 60870-5-101 Slave Source Code Library What's New](#)
- [IEC 60870-5-102 Slave Source Code Library What's New](#)
- [IEC 60870-5-103 Slave Source Code Library What's New](#)
- [IEC 60870-5-104 Slave Source Code Library What's new](#)
- [Modbus Slave Source Code Library What's New](#)

## Version 3.13.00 (November 17, 2011)



Added ability for applications using .NET Protocol Components to run as a service (e.g., providing hooks to log System Error messages instead of using dialog boxes).



Added ability to Master and Slave to support IEC 60870-5-101,-102,-103, and -104 private ASDU. Also included sample applications to demonstrate this feature.



Exposed Modbus Exception Codes in mmbresponseparser class.



When run in GUI mode, the .NET Protocol Components now automatically launch the license manager dialog screen after indicating there is no license in the .NET Component.
















*Description:* Some function codes were missing in MDNPRequest::DNP\_FUNCTION\_CODE.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.12














## **Description: mmbwriteholdingregisters Version 3.12.00 (July 7, 2011)**

-  Added ability to pass timestamps across the Sim database interface.
-  Added support for DNP3 XML Device Profile Schema v2.07.
-  Modified samples to use BeginInvoke instead of Invoke.
-  Modified Master and Slave databases to generate an event when a point is written to (i.e., the timestamp changes).
-  Created a UseSimDeviceAttrDatabase property.
-  Improved documentation of DNP3 IIN functions.
-  Cleaned up the interface to DNP3 Device Attributes.
-  Exposed CROBInfo::CROB\_CTRL in DNP3 Oustation .NET Protocol Components.
-  *Description:* The SDNP database interface incorrectly limited the quantity of most data types.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.12
-  *Description:* mmbwriteholdingregisters could write incorrect values due to one or more uninitialized octets.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.12
-  *Description:* The Modbus Master write holding registers allowed an incorrect quantity.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.12
-  *Description:* The MboAddEvent, MmenaAddEvent, and MmenbAddEvent methods did not tolerate Null timestamp pointers.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.12
-  *Description:* The .NET help included misleading references to TMWCNFG\_SUPPORT #defines.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.12

















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











No .NET Protocol Component-specific updates for this release. Please refer to individual protocols as listed above.

## Version 3.10.00 (August 25, 2010)










-  Added TLS and SSL support.
-  Modified SDNP .NET event *IsInClass0Event* return *True* when it is not registered.
-  Recompiled samples using x86 target so that they will run on 64 bit systems.
-  Added instructions for installation of required components to run a .NET Component based-application.
-  Modified MDNP3 file transfer functionality to store the file handle in the simple database so that it can be retrieved.
-  Improved DNP3 Outstation Database Events example.
-  Added protection against multiple channel/session/sector closes.
-  *Description:* DNP3 Frozen Counters did not get initialized properly in the simple database.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.10
-  *Description:* Modbus Master web service example was missing files upon installation.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.10
-  *Description:* ProtocolBuffer.Clear did not set *m\_bClearInProgress* to *False*.  
*Introduced:* v3.01.01 (Initial release)
-  *Resolution:* The *sdnpdata\_binOutCmdEventDefVariation* always returned "1".  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.10
-  *Resolution:* The .NET Protocol Components did not support the *mode* parameter to the *SaveAsText* method of the ProtocolBuffer object.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.10
-  *Resolution:* The .NET Protocol Components could crash upon receipt of *C\_CI\_NA Freeze* or *Reset* commands (e.g., *m104ccina sector 0 qualifier freeze* or "*m104ccina sector 0 qualifier reset*" commands from a Test Harness).  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.10

## Version 3.09.00 (March 15, 2009)

-  Added information to Session Statistics Event to indicate which event occurred. (NOTE: This enhancement required a change to the interface).
-  Modified Visual Studio Integration to integrate with VS2008 instead of VS2005.
-  Added SDNP File Transfer timeout parameter.
-  Added use of Windows file permissions in SDNP File Transfer.
-  Added locks around clear and reset database functions. (Lock was already present for MDNP; added it for all other protocols.)
-  Improved samples for Single Commands (CSC).
-  Added ability to register for sector or channel statistics.
-  Exposed WinTCPlocalIpAddress, which specifies what source address to use when Client (or UDP sender) is sending IP messages. This, in conjunction with the Destination IP address and Routing Tables allows control over whichrnet card is used to establish a connection. (At Windows command prompt, enter "route print" "route add xxx" can be used to add a route to cause a particular NIC to be used.)
-  Added S103SimDatabase::AddGnrlCmdPoint() and enhanced S103SimDatabase::AddPoint() in order to expose IEC 60870-5-103 General Command points.
-  Exported the sdnpdata\_binOutCancelSelect() call to the .NET database interface
-  Added MDNPSession::MaxFileBlockSize to allow file block sizes to be configurable.
-  Added TMWSession DayOfWeek property to support day of week for IEC 60870-5-101, -102, -103, and -104.
-  Added Source Code Library manual to contents of Source Code version releases.
-  *Description:* The Async database queue could overflow if there were more than 10,000 points in response to an Integrity poll or General Interrogation.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
-  *Description:* Re-initializing the TMW application object could cause locking issues.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
-  *Description:* The Control and Monitor databases for S101 and S104 were not separated properly..  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09

-  *Description:* The Sim database required a db.Clear before adding points.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* When UseSimDatabase=False, it was necessary to register the DtaReadyEvent in order to send a General Interrogation, Counter Interrogation, or Read Response.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* GnrlCmdSendChangeEvent did not use the time returned from the event.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* When using database events, TMWTime did not set dstInEffect properly.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* When stopped at a breakpoint and add a 31-day timer, the timer did not expire properly.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* MboGetValueFlagsTimeEvent returned the wrong data type (should return Uint32 instead of byte).  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* When writing Modbus coils, if fewer than 8 coils were written, the values were not properly initialized to 0.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* A DNP3 Dataset with a BSTR that is too large can cause an exception.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* If a Null username string was passed to fileCopyToRemote, an authentication request was sent (applies only to MDNP).  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09
  
-  *Description:* GetStringValue and GetVTermValue methods did not work properly.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.09

## Version 3.08.00 (September 25, 2009)

-  Added Session property to MDNPREquest and MMBRequest, and added Sector property to M101Request, M102Request, M103Request, and M104Request to facilitate determining the session/sector.
-  Added UseSimControlDatabase property to allow splitting controls away from rest of database.
-  Added MDNPDatabase::GetReadTime and MDNPDatabase::GetRestartTime methods.
-  *Description:* The MmencAddEvent() method for S101 & S104 did not process a Null timestamp correctly.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08
-  *Description:* The simple database did not properly handle IEC 60870-5-103 T3 Measurand and T9 Measurand II data.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08
-  *Description:* The MDNPSimDataset::SetDatasetElem method did not convert from a string to a time, preventing writing a time into a data set.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08
-  *Description:* The MmenbGetValueFlagsTimeDelegate incorrectly returned a Byte.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08
-  *Description:* When trying to expand a data set descriptor that had a prototype as the first element instead of the optional name, the .net code failed to find the prototype and expand it.  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08
-  *Description:* GetAssociatedPointIndexAttrElem returned one DNPDatasetPointIndexAttr object even if there were no Point Index Attributes for this data set..  
*Introduced:* v3.01.01 (Initial release)  
*Resolution:* Fixed in v3.08

## Version 3.07.00 (July 17, 2009)

-  Improved Help File documentation for TIME\_MODE enumeration.

## Version 3.06.00 (April 14, 2009)



.NET Protocol Components are now released for Visual Studio 2008.



Split Data Sets from the rest of the database functions, providing the ability to use the built-in Data Set database implementation, even if using the event interface to the rest of the database.



Added notification of when a connection is made. Added ChannelConnectStateEvent to TMWChannel class; SessionOnlineStateEvent to TMWSession class; and added example code in samples.



Added an interface to open a local file (for DNP3 file transfer).



*Description:* The .NET Protocol Components could leak handles on RS-232 connections.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.06



*Description:* Build errors occurred when building SDNP with secure authentication.

*Introduced:* v3.04

*Resolution:* Fixed in v3.06



*Description:* File transfer reads could result in leaking buffers.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.06



*Description:* MDNPDatabase::ProcessIIN would clear the IIN bits before passing them to the .NET event. This would hide the bits from the application.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.06



*Description:* The built-in database limited the number of elements in a Data Set to 30, which could result in writing past the end of an array if a larger number of elements was defined in a prototype.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.06



*Description:* An outstation could connect to the Master before it built its database.

*Introduced:* v3.01.01 (Initial release)

*Resolution:* Fixed in v3.06



*Description:* A DNP3 Outstation did not properly handle the Master rereading only the current block during file transfer.

*Introduced:* v3.01.01 (Initial Release)

*Resolution:* Fixed in v3.06

## Version 3.05.00 (December 4, 2008)



Added example of DNP3 File Transfer



Added low-level modem support. Once a channel has been opened, a new API (function call) provides the ability to send bytes directly to the channel (e.g., AT DT commands, etc.) at any time.



*Description:* An invalid command could be sent if two requests were sent “back to back” using the same MDNPrequest buffer.

*Introduced:* v3.01 (Initial Release)

*Resolution:* Fixed in v3.05

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



*Description:* Some IEC 60870-5-101 and -104 data types (e.g., M\_EP\_TA, M\_EP\_TB) were not included in the simple database

*Introduced:* v3.01.01

*Resolution:* Fixed in v3.04.01



*Description:* IEC 60870-5-101 and -104 Sector properties were incomplete (e.g., defaultResponseTimeout, maxEvents, EventMode, etc. were not configurable).

*Introduced:* v3.01.01

*Resolution:* Fixed in v3.04.00

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



Decreased frequency of evaluation reminder pop-up dialog (to facilitate building more functional applications with evaluation license).



Modified DisconnectNewSyn and NetworkRole default values on outstations so that the current connection is not disconnected when a new connection request is received.



Added target layer diagnostics to protocol analyzer output.



Modified sample applications to correct display issues.



*Description:* ProtocolBuffer did not work for a console application.

*Introduced:* v3.01.01

*Resolution:* Fixed in v3.04



*Description:* Some IEC 60870-5-101 and -104 data types (e.g., m\_ep\_ta, m\_ep\_tb, m\_ep\_tc) did not show up in the simple database.

*Introduced:* v3.01.01


*Resolution:* Fixed in v3.04




*Description:* IEC 60870-5-104 Slave channels incorrectly set isControlling to TRUE by default.

*Introduced:* v3.01.01


*Resolution:* Fixed in v3.04


 *Description:* MDNP .NET string store did not work properly.  
*Introduced:* v3.01.01  
*Resolution:* Fixed in v3.04


 *Description:* .NET Component START item said “i102database” (instead of “i102database”).  
*Introduced:* V3.01.01  
*Resolution:* Fixed in v3.04


### **Version 3.03 (March 31, 2008)**


 Added VB .NET samples.


 Enhanced IEC 60870-5-103 Slave example GUI to remove confusion of blocked points (checking the first DPI checkbox actually set DPI 20, which is Monitored Direction Blocked, so no spontaneous messages were sent with this value checked).

 Modified time keeping to facilitate using UTC; added ability to have different times and added MinutesOffset and UseUTC for each session. DNP3 sessions will default to UseUTC == true. The protocol analyzer and data window continue to use system (computer) time.

 Added Boolean bStored member to TMWSIM\_POINT to support calling a data update callback when a sim point is first updated, regardless of its initial value in the sim database.

 *Description:* Attempting to add IEC 60870-5-103 General Command points to the sample database would fail.  
*Introduced:* v3.01.01  
*Resolution:* Fixed in v3.03

 *Description:* The sample applications would not build without modifications to licensing and other environment conditions.  
*Introduced:* v3.01.01  
*Resolution:* Fixed in v3.03

 *Description:* The .NET licensing tool did not show up in the Start menu after installing the .NET components.  
*Introduced:* v3.02  
*Resolution:* Fixed in v3.03

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

No .NET Protocol Component-specific changes were made for this release. Please refer to the Source Code Library documents listed above for information on updates to the underlying Source Code Libraries.

## Version 3.01.01 (September 17, 2007)



Initial Release