

Mettler Toledo Driver

© 2024 PTC Inc. All Rights Reserved.

Table of Contents

Mettler Toledo Driver	1
Table of Contents	2
Mettler Toledo Driver	3
Overview	3
Setup	4
Channel Properties — General	5
Tag Counts	6
Channel Properties — Serial Communications	6
Channel Properties — Write Optimizations	9
Channel Properties — Advanced	10
Device Properties — General	10
Operating Mode	11
Tag Counts	12
Device Properties — Scan Mode	12
Device Properties — Tag Generation	13
Device Properties — Options	15
Data Types Description	16
Address Descriptions	17
Error Descriptions	18
Device address '<address>' contains a syntax error	18
Address '<address>' is out of range for the specified device or register	18
Data Type '<type>' is not valid for device address '<address>'	19
Device address <address> is read only	19
Communications error on '<channel name>' [<error mask>]	19
COMn does not exist	20
COMn is in use by another application	20
Error opening COMn	20
Unable to set comm parameters on COMn	20
Device '<device name>' has not sent any unsolicited updates within the currently configured data freshness tolerance period. Data associated with this device will be considered invalid	21
Index	22

Mettler Toledo Driver

Help version 1.040

CONTENTS

Overview

What is the Mettler Toledo Driver?

Setup

How do I configure a device for use with this driver?

Data Types Description

What data types does this driver support?

Address Descriptions

How do I reference a data location in a Mettler Toledo serial device?

Error Descriptions

What error messages does the Mettler Toledo Driver produce?

Overview

The Mettler Toledo Driver provides a reliable way to connect Mettler Toledo Serial devices to OPC client applications; including HMI, SCADA, Historian, MES, ERP and countless custom applications. It can be used with all Mettler Toledo scales that support Continuous Output and Continuous Extended Output.

Setup

Supported Devices

Supported Devices	Standard Continuous	Extended Continuous
IND780	X	X
IND560	X	
IND560x	X	
IND131/331	X	X
IND310	X	
IND690	X	
IND226	X	
IND135	X	X
Panther	X	
Lynx	X	
Jaguar / JagXtreme	X	

Communication Protocol

Continuous Output Mode Protocol.

Supported Communication Parameters

Baud Rate: 1200, 2400, 9600, 19200

Parity: Odd, Even, None

Data Bits: 8

Stop Bits: 1, 2

● **Note:** The configuration parameters listed above may not be supported in every device.

Channel and Device Limits

The maximum number of channels supported by this driver is 100. The maximum number of devices supported by this driver is 10 per channel.

Device IDs

The Mettler Toledo Driver supported Device ID range is 0 to 9. An ID of 0 places the driver in Standard Continuous Mode, whereas an ID in the range of 1 to 9 places the driver in Extended Continuous Mode. Descriptions of the modes are as follows:

- **Standard Continuous Mode:** In this mode, the scale terminal sends data from one scale to a single device per channel in the OPC Server. The Device ID in the server project must be set to 0. The Communications Mode in the terminal must be set to Continuous Output Mode.
- **Extended Continuous Mode:** In this mode, the scale terminal sends data from multiple scales to multiple devices per channel in the OPC Server. The Device ID for each device in the server project must match the address set in the Communications Connection settings for each corresponding scale connected to the terminal. The Device ID in the server project must be set within the range of 1 to 9. The Communications Mode in the terminal must be set to Continuous Extended Output Mode.

● **Note:** More than one device may be assigned the same Device ID, although it is not recommended. When doing so, however, the Checksum and Data Freshness options must be set the same.

Ethernet Encapsulation Mode

The Mettler Toledo Driver supports Ethernet Encapsulation, which allows the driver to communicate with serial devices attached to an Ethernet network through the use of a terminal server or device server. It may be enabled through the Communications dialog in Channel Properties. Descriptions of the parameters are as follows:

- **Mode:** This parameter specifies whether the driver will act as a client or server device. Solicited is client mode. Unsolicited is server mode. The default setting is Unsolicited.
 - **Note:** This parameter will be disabled if Ethernet Encapsulation is enabled.
- **Port Number:** This parameter specifies the port number that the devices on the local Ethernet network will use. Options include 10001 or 2101. The default setting is 2101.
- **Protocol:** This parameter specifies the protocol that the driver will use when listening for unsolicited requests. Options include User Datagram Protocol (UDP) or Transfer Control Protocol (TCP/IP). The default setting is TCP/IP.

Channel Properties — General

This server supports the use of multiple simultaneous communications drivers. Each protocol or driver used in a server project is called a channel. A server project may consist of many channels with the same communications driver or with unique communications drivers. A channel acts as the basic building block of an OPC link. This group is used to specify general channel properties, such as the identification attributes and operating mode.

Property Groups General Write Optimizations Advanced	<table border="1"> <tr> <td colspan="2">[-] Identification</td> </tr> <tr> <td>Name</td> <td></td> </tr> <tr> <td>Description</td> <td></td> </tr> <tr> <td>Driver</td> <td></td> </tr> <tr> <td colspan="2">[-] Diagnostics</td> </tr> <tr> <td>Diagnostics Capture</td> <td>Disable</td> </tr> <tr> <td colspan="2">[-] Tag Counts</td> </tr> <tr> <td>Static Tags</td> <td>10</td> </tr> </table>	[-] Identification		Name		Description		Driver		[-] Diagnostics		Diagnostics Capture	Disable	[-] Tag Counts		Static Tags	10
[-] Identification																	
Name																	
Description																	
Driver																	
[-] Diagnostics																	
Diagnostics Capture	Disable																
[-] Tag Counts																	
Static Tags	10																

Identification

Name: Specify the user-defined identity of this channel. In each server project, each channel name must be unique. Although names can be up to 256 characters, some client applications have a limited display window when browsing the OPC server's tag space. The channel name is part of the OPC browser information. The property is required for creating a channel.

• For information on reserved characters, refer to "How To... Properly Name a Channel, Device, Tag, and Tag Group" in the server help.

Description: Specify user-defined information about this channel.

• Many of these properties, including Description, have an associated system tag.

Driver: Specify the protocol / driver for this channel. Specify the device driver that was selected during channel creation. It is a disabled setting in the channel properties. The property is required for creating a channel.

• **Note:** With the server's online full-time operation, these properties can be changed at any time. This includes changing the channel name to prevent clients from registering data with the server. If a client has already acquired an item from the server before the channel name is changed, the items are unaffected. If, after the channel name has been changed, the client application releases the item and attempts to re-

acquire using the old channel name, the item is not accepted. Changes to the properties should not be made once a large client application has been developed. Utilize proper user role and privilege management to prevent operators from changing properties or accessing server features.

Diagnostics

Diagnostics Capture: When enabled, this option makes the channel's diagnostic information available to OPC applications allows the usage of statistics tags that provide feedback to client applications regarding the operation of the channel. Because the server's diagnostic features require a minimal amount of overhead processing, it is recommended that they be utilized when needed and disabled when not. The default is disabled.

● **Note:** This property is not available if the driver does not support diagnostics.

● For more information, refer to "Communication Diagnostics" and "Statistics Tags" in the server help.

Tag Counts

Static Tags: Provides the total number of defined static tags at this level (device or channel). This information can be helpful in troubleshooting and load balancing.

Channel Properties — Serial Communications

Serial communication properties are available to serial drivers and vary depending on the driver, connection type, and options selected. Below is a superset of the possible properties.

Click to jump to one of the sections: [Connection Type](#), [Serial Port Settings](#) or [Ethernet Settings](#), and [Operational Behavior](#).

● Notes:

- With the server's online full-time operation, these properties can be changed at any time. Utilize proper user role and privilege management to prevent operators from changing properties or accessing server features.
- Users must define the specific communication parameters to be used. Depending on the driver, channels may or may not be able to share identical communication parameters. Only one shared serial connection can be configured for a Virtual Network (see [Channel Properties — Serial Communications](#)).

Property Groups		
General		
Serial Communications		
Write Optimizations		
Advanced		
	<input type="checkbox"/> Connection Type	
	Physical Medium	COM Port
	<input type="checkbox"/> Serial Port Settings	
	COM ID	39
	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
	Flow Control	RTS Always
	<input type="checkbox"/> Operational Behavior	
	Report Communication Errors	Enable
	Close Idle Connection	Enable
	Idle Time to Close (s)	15

Connection Type

Physical Medium: Choose the type of hardware device for data communications. Options include Modem, Ethernet Encapsulation, COM Port, and None. The default is COM Port.

1. **None:** Select None to indicate there is no physical connection, which displays the [Operation with no Communications](#) section.
2. **COM Port:** Select Com Port to display and configure the [Serial Port Settings](#) section.
3. **Modem:** Select Modem if phone lines are used for communications, which are configured in the [Modem Settings](#) section.
4. **Ethernet Encap.:** Select if Ethernet Encapsulation is used for communications, which displays the [Ethernet Settings](#) section.
5. **Shared:** Verify the connection is correctly identified as sharing the current configuration with another channel. This is a read-only property.

Serial Port Settings

COM ID: Specify the Communications ID to be used when communicating with devices assigned to the channel. The valid range is 1 to 9991 to 16. The default is 1.

Baud Rate: Specify the baud rate to be used to configure the selected communications port.

Data Bits: Specify the number of data bits per data word. Options include 5, 6, 7, or 8.

Parity: Specify the type of parity for the data. Options include Odd, Even, or None.

Stop Bits: Specify the number of stop bits per data word. Options include 1 or 2.

Flow Control: Select how the RTS and DTR control lines are utilized. Flow control is required to communicate with some serial devices. Options are:

- **None:** This option does not toggle or assert control lines.
- **DTR:** This option asserts the DTR line when the communications port is opened and remains on.
- **RTS:** This option specifies that the RTS line is high if bytes are available for transmission. After all buffered bytes have been sent, the RTS line is low. This is normally used with RS232/RS485 converter hardware.
- **RTS, DTR:** This option is a combination of DTR and RTS.
- **RTS Always:** This option asserts the RTS line when the communication port is opened and remains on.
- **RTS Manual:** This option asserts the RTS line based on the timing properties entered for RTS Line Control. It is only available when the driver supports manual RTS line control (or when the properties are shared and at least one of the channels belongs to a driver that provides this support).
RTS Manual adds an **RTS Line Control** property with options as follows:
 - **Raise:** Specify the amount of time that the RTS line is raised prior to data transmission. The valid range is 0 to 9999 milliseconds. The default is 10 milliseconds.
 - **Drop:** Specify the amount of time that the RTS line remains high after data transmission. The valid range is 0 to 9999 milliseconds. The default is 10 milliseconds.
 - **Poll Delay:** Specify the amount of time that polling for communications is delayed. The valid range is 0 to 9999. The default is 10 milliseconds.

Tip: When using two-wire RS-485, "echoes" may occur on the communication lines. Since this communication does not support echo suppression, it is recommended that echoes be disabled or a RS-485 converter be used.

Operational Behavior

- **Report Communication Errors:** Enable or disable reporting of low-level communications errors. When enabled, low-level errors are posted to the Event Log as they occur. When disabled, these same errors are not posted even though normal request failures are. The default is Enable.
- **Close Idle Connection:** Choose to close the connection when there are no longer any tags being referenced by a client on the channel. The default is Enable.
- **Idle Time to Close:** Specify the amount of time that the server waits once all tags have been removed before closing the COM port. The default is 15 seconds.

Ethernet Settings

Note: Not all serial drivers support Ethernet Encapsulation. If this group does not appear, the functionality is not supported.

Ethernet Encapsulation provides communication with serial devices connected to terminal servers on the Ethernet network. A terminal server is essentially a virtual serial port that converts TCP/IP messages on the Ethernet network to serial data. Once the message has been converted, users can connect standard devices that support serial communications to the terminal server. The terminal server's serial port must be properly configured to match the requirements of the serial device to which it is attached. *For more information, refer to "Using Ethernet Encapsulation" in the server help.*

- **Network Adapter:** Indicate a network adapter to bind for Ethernet devices in this channel. Choose a network adapter to bind to or allow the OS to select the default.
 - *Specific drivers may display additional Ethernet Encapsulation properties. For more information, refer to [Channel Properties — Ethernet Encapsulation](#).*

Modem Settings

- **Modem:** Specify the installed modem to be used for communications.
- **Connect Timeout:** Specify the amount of time to wait for connections to be established before failing a read or write. The default is 60 seconds.
- **Modem Properties:** Configure the modem hardware. When clicked, it opens vendor-specific modem properties.
- **Auto-Dial:** Enables the automatic dialing of entries in the Phonebook. The default is Disable. *For more information, refer to "Modem Auto-Dial" in the server help.*
- **Report Communication Errors:** Enable or disable reporting of low-level communications errors. When enabled, low-level errors are posted to the Event Log as they occur. When disabled, these same errors are not posted even though normal request failures are. The default is Enable.
- **Close Idle Connection:** Choose to close the modem connection when there are no longer any tags being referenced by a client on the channel. The default is Enable.
- **Idle Time to Close:** Specify the amount of time that the server waits once all tags have been removed before closing the modem connection. The default is 15 seconds.

Operation with no Communications

- **Read Processing:** Select the action to be taken when an explicit device read is requested. Options include Ignore and Fail. Ignore does nothing; Fail provides the client with an update that indicates

failure. The default setting is Ignore.

Channel Properties — Write Optimizations

The server must ensure that the data written from the client application gets to the device on time. Given this goal, the server provides optimization properties to meet specific needs or improve application responsiveness.

Property Groups	[-] Write Optimizations	
General	Optimization Method	Write Only Latest Value for All Tags
Write Optimizations	Duty Cycle	10

Write Optimizations

Optimization Method: Controls how write data is passed to the underlying communications driver. The options are:

- **Write All Values for All Tags:** This option forces the server to attempt to write every value to the controller. In this mode, the server continues to gather write requests and add them to the server's internal write queue. The server processes the write queue and attempts to empty it by writing data to the device as quickly as possible. This mode ensures that everything written from the client applications is sent to the target device. This mode should be selected if the write operation order or the write item's content must uniquely be seen at the target device.
- **Write Only Latest Value for Non-Boolean Tags:** Many consecutive writes to the same value can accumulate in the write queue due to the time required to actually send the data to the device. If the server updates a write value that has already been placed in the write queue, far fewer writes are needed to reach the same final output value. In this way, no extra writes accumulate in the server's queue. When the user stops moving the slide switch, the value in the device is at the correct value at virtually the same time. As the mode states, any value that is not a Boolean value is updated in the server's internal write queue and sent to the device at the next possible opportunity. This can greatly improve the application performance.
 - **Note:** This option does not attempt to optimize writes to Boolean values. It allows users to optimize the operation of HMI data without causing problems with Boolean operations, such as a momentary push button.
- **Write Only Latest Value for All Tags:** This option takes the theory behind the second optimization mode and applies it to all tags. It is especially useful if the application only needs to send the latest value to the device. This mode optimizes all writes by updating the tags currently in the write queue before they are sent. This is the default mode.

Duty Cycle: is used to control the ratio of write to read operations. The ratio is always based on one read for every one to ten writes. The duty cycle is set to ten by default, meaning that ten writes occur for each read operation. Although the application is performing a large number of continuous writes, it must be ensured that read data is still given time to process. A setting of one results in one read operation for every write operation. If there are no write operations to perform, reads are processed continuously. This allows optimization for applications with continuous writes versus a more balanced back and forth data flow.

● **Note:** It is recommended that the application be characterized for compatibility with the write optimization enhancements before being used in a production environment.

Channel Properties — Advanced

This group is used to specify advanced channel properties. Not all drivers support all properties; so the Advanced group does not appear for those devices.

Property Groups	<input type="checkbox"/> Non-Normalized Float Handling	
General	Floating-Point Values	Replace with Zero
Write Optimizations	<input type="checkbox"/> Inter-Device Delay	
Advanced	Inter-Device Delay (ms)	0

Non-Normalized Float Handling: A non-normalized value is defined as Infinity, Not-a-Number (NaN), or as a Denormalized Number. The default is Replace with Zero. Drivers that have native float handling may default to Unmodified. Non-normalized float handling allows users to specify how a driver handles non-normalized IEEE-754 floating point data. Descriptions of the options are as follows:

- **Replace with Zero:** This option allows a driver to replace non-normalized IEEE-754 floating point values with zero before being transferred to clients.
- **Unmodified:** This option allows a driver to transfer IEEE-754 denormalized, normalized, non-number, and infinity values to clients without any conversion or changes.

● **Note:** This property is disabled if the driver does not support floating-point values or if it only supports the option that is displayed. According to the channel's float normalization setting, only real-time driver tags (such as values and arrays) are subject to float normalization. For example, EFM data is not affected by this setting.

● *For more information on the floating-point values, refer to "How To ... Work with Non-Normalized Floating-Point Values" in the server help.*

Inter-Device Delay: Specify the amount of time the communications channel waits to send new requests to the next device after data is received from the current device on the same channel. Zero (0) disables the delay.

● **Note:** This property is not available for all drivers, models, and dependent settings.

Device Properties — General

A device represents a single target on a communications channel. If the driver supports multiple controllers, users must enter a device ID for each controller.

Property Groups	<input type="checkbox"/> Identification	
General	Name	
Scan Mode	Description	
	Channel Assignment	
	Driver	
	Model	
	ID Format	Decimal
	ID	2

Identification

Name: Specify the name of the device. It is a logical user-defined name that can be up to 256 characters long and may be used on multiple channels.

● **Note:** Although descriptive names are generally a good idea, some OPC client applications may have a limited display window when browsing the OPC server's tag space. The device name and channel name become part of the browse tree information as well. Within an OPC client, the combination of channel name and device name would appear as "ChannelName.DeviceName".

● *For more information, refer to "How To... Properly Name a Channel, Device, Tag, and Tag Group" in server help.*

Description: Specify the user-defined information about this device.

● Many of these properties, including Description, have an associated system tag.

Channel Assignment: Specify the user-defined name of the channel to which this device currently belongs.

Driver: Selected protocol driver for this device.

Model: Specify the type of device that is associated with this ID. The contents of the drop-down menu depend on the type of communications driver being used. Models that are not supported by a driver are disabled. If the communications driver supports multiple device models, the model selection can only be changed when there are no client applications connected to the device.

● **Note:** If the communication driver supports multiple models, users should try to match the model selection to the physical device. If the device is not represented in the drop-down menu, select a model that conforms closest to the target device. Some drivers support a model selection called "Open," which allows users to communicate without knowing the specific details of the target device. *For more information, refer to the driver documentation.*

ID: Specify the device's driver-specific station or node. The type of ID entered depends on the communications driver being used. For many communication drivers, the ID is a numeric value. Drivers that support a Numeric ID provide users with the option to enter a numeric value whose format can be changed to suit the needs of the application or the characteristics of the selected communications driver. The format is set by the driver by default. Options include Decimal, Octal, and Hexadecimal.

● **Note:** If the driver is Ethernet-based or supports an unconventional station or node name, the device's TCP/IP address may be used as the device ID. TCP/IP addresses consist of four values that are separated by periods, with each value in the range of 0 to 255. Some device IDs are string based. There may be additional properties to configure within the ID field, depending on the driver.

Operating Mode

Property Groups	+ Identification	
General	- Operating Mode	
Scan Mode	Data Collection	Enable
	Simulated	No

Data Collection: This property controls the device's active state. Although device communications are enabled by default, this property can be used to disable a physical device. Communications are not attempted when a device is disabled. From a client standpoint, the data is marked as invalid and write operations are not accepted. This property can be changed at any time through this property or the device system tags.

Simulated: Place the device into or out of Simulation Mode. In this mode, the driver does not attempt to communicate with the physical device, but the server continues to return valid OPC data. Simulated stops physical communications with the device, but allows OPC data to be returned to the OPC client as valid data. While in Simulation Mode, the server treats all device data as reflective: whatever is written to the simulated

device is read back and each OPC item is treated individually. The data is not saved if the server removes the item (such as when the server is reinitialized). The default is No.

● **Notes:**

1. This System tag (_Simulated) is read only and cannot be written to for runtime protection. The System tag allows this property to be monitored from the client.
2. When a device is simulated, updates may not appear faster than one (1) second in the client.

● Simulation Mode is for test and simulation purposes only. It should never be used in a production environment.

Tag Counts

Property Groups	[-] Identification	
General	[-] Operating Mode	
	[-] Tag Counts	
	Static Tags	130

Static Tags: Provides the total number of defined static tags at this level (device or channel). This information can be helpful in troubleshooting and load balancing.

Device Properties — Scan Mode

The Scan Mode specifies the subscribed-client requested scan rate for tags that require device communications. Synchronous and asynchronous device reads and writes are processed as soon as possible; unaffected by the Scan Mode properties.

Property Groups	[-] Scan Mode	
General	Scan Mode	Respect Client-Specified Scan Rate ▼
Scan Mode	Initial Updates from Cache	Disable

Scan Mode: Specify how tags in the device are scanned for updates sent to subscribing clients. Descriptions of the options are:

- **Respect Client-Specified Scan Rate:** This mode uses the scan rate requested by the client.
- **Request Data No Faster than Scan Rate:** This mode specifies the value set as the maximum scan rate. The valid range is 10 to 99999990 milliseconds. The default is 1000 milliseconds.
 - **Note:** When the server has an active client and items for the device and the scan rate value is increased, the changes take effect immediately. When the scan rate value is decreased, the changes do not take effect until all client applications have been disconnected.
- **Request All Data at Scan Rate:** This mode forces tags to be scanned at the specified rate for subscribed clients. The valid range is 10 to 99999990 milliseconds. The default is 1000 milliseconds.
- **Do Not Scan, Demand Poll Only:** This mode does not periodically poll tags that belong to the device nor perform a read to get an item's initial value once it becomes active. It is the OPC client's responsibility to poll for updates, either by writing to the _DemandPoll tag or by issuing explicit device reads for individual items. *For more information, refer to "Device Demand Poll" in server help.*

- **Respect Tag-Specified Scan Rate:** This mode forces static tags to be scanned at the rate specified in their static configuration tag properties. Dynamic tags are scanned at the client-specified scan rate.

Initial Updates from Cache: When enabled, this option allows the server to provide the first updates for newly activated tag references from stored (cached) data. Cache updates can only be provided when the new item reference shares the same address, scan rate, data type, client access, and scaling properties. A device read is used for the initial update for the first client reference only. The default is disabled; any time a client activates a tag reference the server attempts to read the initial value from the device.

Device Properties — Tag Generation

The automatic tag database generation features make setting up an application a plug-and-play operation. Select communications drivers can be configured to automatically build a list of tags that correspond to device-specific data. These automatically generated tags (which depend on the nature of the supporting driver) can be browsed from the clients.

⚠ *Not all devices and drivers support full automatic tag database generation and not all support the same data types. Consult the data types descriptions or the supported data type lists for each driver for specifics.*

If the target device supports its own local tag database, the driver reads the device's tag information and uses the data to generate tags within the server. If the device does not natively support named tags, the driver creates a list of tags based on driver-specific information. An example of these two conditions is as follows:

1. If a data acquisition system supports its own local tag database, the communications driver uses the tag names found in the device to build the server's tags.
2. If an Ethernet I/O system supports detection of its own available I/O module types, the communications driver automatically generates tags in the server that are based on the types of I/O modules plugged into the Ethernet I/O rack.

⚠ **Note:** Automatic tag database generation's mode of operation is completely configurable. *For more information, refer to the property descriptions below.*

Property Groups	Tag Generation	
General	On Device Startup	Do Not Generate on Startup
Scan Mode	On Duplicate Tag	Delete on Create
Timing	Parent Group	
Auto-Demotion	Allow Automatically Generated Subgroups	Enable
Tag Generation	Create	Create tags
Communications		
Redundancy		

On Property Change: If the device supports automatic tag generation when certain properties change, the **On Property Change** option is shown. It is set to **Yes** by default, but it can be set to **No** to control over when tag generation is performed. In this case, the **Create tags** action must be manually invoked to perform tag generation. To invoke via the Configuration API service, access `/config/v1/project/channels/{name}/devices/{name}/services/TagGeneration`.

On Device Startup: Specify when OPC tags are automatically generated. Descriptions of the options are as follows:

- **Do Not Generate on Startup:** This option prevents the driver from adding any OPC tags to the tag space of the server. This is the default setting.
- **Always Generate on Startup:** This option causes the driver to evaluate the device for tag information. It also adds tags to the tag space of the server every time the server is launched.
- **Generate on First Startup:** This option causes the driver to evaluate the target device for tag information the first time the project is run. It also adds any OPC tags to the server tag space as needed.

● **Note:** When the option to automatically generate OPC tags is selected, any tags that are added to the server's tag space must be saved with the project. Users can configure the project to automatically save from the **Tools | Options** menu.

On Duplicate Tag: When automatic tag database generation is enabled, the server needs to know what to do with the tags that it may have previously added or with tags that have been added or modified after the communications driver since their original creation. This setting controls how the server handles OPC tags that were automatically generated and currently exist in the project. It also prevents automatically generated tags from accumulating in the server.

For example, if a user changes the I/O modules in the rack with the server configured to **Always Generate on Startup**, new tags would be added to the server every time the communications driver detected a new I/O module. If the old tags were not removed, many unused tags could accumulate in the server's tag space. The options are:

- **Delete on Create:** This option deletes any tags that were previously added to the tag space before any new tags are added. This is the default setting.
- **Overwrite as Necessary:** This option instructs the server to only remove the tags that the communications driver is replacing with new tags. Any tags that are not being overwritten remain in the server's tag space.
- **Do not Overwrite:** This option prevents the server from removing any tags that were previously generated or already existed in the server. The communications driver can only add tags that are completely new.
- **Do not Overwrite, Log Error:** This option has the same effect as the prior option, and also posts an error message to the server's Event Log when a tag overwrite would have occurred.

● **Note:** Removing OPC tags affects tags that have been automatically generated by the communications driver as well as any tags that have been added using names that match generated tags. Users should avoid adding tags to the server using names that may match tags that are automatically generated by the driver.

Parent Group: This property keeps automatically generated tags from mixing with tags that have been entered manually by specifying a group to be used for automatically generated tags. The name of the group can be up to 256 characters. This parent group provides a root branch to which all automatically generated tags are added.

Allow Automatically Generated Subgroups: This property controls whether the server automatically creates subgroups for the automatically generated tags. This is the default setting. If disabled, the server generates the device's tags in a flat list without any grouping. In the server project, the resulting tags are named with the address value. For example, the tag names are not retained during the generation process.

● **Note:** If, as the server is generating tags, a tag is assigned the same name as an existing tag, the system automatically increments to the next highest number so that the tag name is not duplicated. For example, if the generation process creates a tag named "AI22" that already exists, it creates the tag as "AI23" instead.

Create: Initiates the creation of automatically generated OPC tags. If the device's configuration has been modified, **Create tags** forces the driver to reevaluate the device for possible tag changes. Its ability to be accessed from the System tags allows a client application to initiate tag database creation.

● **Note:** **Create tags** is disabled if the Configuration edits a project offline.

Device Properties — Options

Property Groups	[-] Checksum	
General	Checksum Enabled	Enable
Scan Mode	[-] Data Freshness	
Options	Tolerance (s)	0

Checksum Enabled: When enabled, this option enables checksums when the hardware is configured to send a checksum with its message packets. This should match the configuration of the terminal.

Tolerance: This parameter specifies the amount of time in seconds that the driver waits between data packets from the device before setting the tag quality to Bad. Setting the value to zero disables the parameter. The default setting is 0.

Data Types Description

The following data types are supported by the Mettler Toledo Driver.

Data Type	Description
Boolean	Single bit
String	ASCII text string
Float	32-bit floating point value

● **Note:** Each tag used in the driver has a fixed data type. It is recommended that the driver be allowed to use the default data type for each tag defined.

Address Descriptions

The Mettler Toledo Driver addresses are specified by the name of the item to be addressed. The available addresses are described below.

Item	Data Type	Access	Description
Clear	Boolean	Write Only	Clears the scale to gross weight.
Expand	Boolean	Read Only	Expanded data flag.
GrossWeight	Float	Read Only	The gross weight.
Motion	Boolean	Read Only	Scale in motion flag.
NetWeight	Float	Read Only	The net weight.
OutOfRange	Boolean	Read Only	Out of range flag.
Print	Boolean	Write Only	Initiates a print command.
PrintRequested	Boolean	Read Only	Print request flag.
Tare	Float	Write Only	Tares the scale/causes a push-button tare. Writing a value to this tag will tare the scale to that value.*
TareWeight	Float	Read Only	The tare weight.
Units	String	Read Only	The weight units.
Zero	Boolean	Write Only	Sets the scale to zero.
ZeroNotCaptured	Boolean	Read Only	Zero not captured flag.

*A tare weight of zero will tare the scale to the current gross weight.

Error Descriptions

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation Error Messages

[Device address '<address>' contains a syntax error](#)

[Address '<address>' is out of range for the specified device or register](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

Serial Communications

[Communications error on '<channel name>' \[<error mask>\]](#)

[COMn does not exist](#)

[COMn is in use by another application](#)

[Error opening COMn](#)

[Unable to set comm parameters on COMn](#)

Device Specific Messages

[Device '<device name>' has not sent any unsolicited updates within the currently configured data freshness tolerance period. Data associated with this device will be considered invalid](#)

Device address '<address>' contains a syntax error

Error Type:

Warning

Possible Cause:

An invalid tag address has been specified in a dynamic request.

Solution:

Re-enter the address in the client application.

Address '<address>' is out of range for the specified device or register

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically references a location that is beyond the device's range of supported locations.

Solution:

Verify the address is correct; if it is not, re-enter it in the client application.

Data Type '<type>' is not valid for device address '<address>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically has been assigned an invalid data type.

Solution:

Modify the requested data type in the client application.

Device address <address> is read only

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically has a requested access mode that is not compatible with what the device supports for that address.

Solution:

Change the access mode in the client application.

Communications error on '<channel name>' [<error mask>]

Error Type:

Serious

Error Mask Definitions:

B = Hardware break detected.

F = Framing error.

E = I/O error.

O = Character buffer overrun.

R = RX buffer overrun.

P = Received byte parity error.

T = TX buffer full.

Possible Cause:

1. The serial connection between the device and the Host PC is bad.
2. The communications parameters for the serial connection are incorrect.

Solution:

1. Verify the cabling between the PC and the device.
2. Verify that the specified communications parameters match those of the device.

COMn does not exist

Error Type:

Fatal

Possible Cause:

The specified COM port is not present on the target computer.

Solution:

Verify that the proper COM port has been selected.

COMn is in use by another application

Error Type:

Fatal

Possible Cause:

The serial port assigned to a device is being used by another application.

Solution:

Verify that the correct port has been assigned to the channel.

Error opening COMn

Error Type:

Fatal

Possible Cause:

The specified COM port could not be opened due to an internal hardware or software problem on the target computer.

Solution:

Verify that the COM port is functional and may be accessed by other Windows applications.

Unable to set comm parameters on COMn

Error Type:

Fatal

Possible Cause:

The serial parameters for the specified COM port are not valid.

Solution:

Verify the serial parameters and make any necessary changes.

Device '<device name>' has not sent any unsolicited updates within the currently configured data freshness tolerance period. Data associated with this device will be considered invalid

Error Type:

Warning

Possible Cause:

The driver has not received any unsolicited updates from the device in the currently configured data freshness tolerance period. The device may be powered off, disconnected or not configured to send updates.

Solution:

Check the device, device communication settings and communication cable.

Index

A

Address '<address>' is out of range for the specified device or register 18

Address Descriptions 17

Allow Sub Groups 14

Auto-Dial 8

B

Baud Rate 7

C

Channel Assignment 11

Channel Properties — Advanced 10

Channel Properties — General 5

Channel Properties — Serial Communications 6

Channel Properties — Write Optimizations 9

Close Idle Connection 8

COM ID 7

COM Port 7

Communications error on '<channel name>' [<error mask>] 19

COMn does not exist 20

COMn is in use by another application 20

Connect Timeout 8

Connection Type 6

Create 15

D

Data Bits 7

Data Collection 11

Data Type '<type>' is not valid for device address '<address>' 19

Data Types Description 16

Delete 14

Device '<device name>' has not sent any unsolicited updates within the currently configured data fresh-

ness tolerance period. Data associated with this device will be considered invalid 21

Device address '<address>' contains a syntax error 18

Device address <address> is read only 19

Device Properties — General 10

Device Properties — Tag Generation 13

Diagnostics 6

Do Not Scan, Demand Poll Only 12

Driver 11

Drop 7

DTR 7

Duty Cycle 9

E

Error Descriptions 18

Error opening COMn 20

Ethernet Encap. 7

Ethernet Settings 8

F

Flow Control 7

G

General 10

Generate 14

H

Help Contents 3

I

ID 11

Identification 5, 10

Idle Time to Close 8

Initial Updates from Cache 13

Inter-Device Delay 10

M

Model 11

Modem 7-8

Modem Settings 8

N

Name 10

Network Adapter 8

Non-Normalized Float Handling 10

None 7

O

On Device Startup 13

On Duplicate Tag 14

On Property Change 13

Operating Mode 11

Operation with no Communications 8

Operational Behavior 8

Optimization Method 9

Options 15

Overview 3

Overwrite 14

P

Parent Group 14

Parity 7

Physical Medium 7

Poll Delay 7

R

Raise 7

Read Processing 8
Replace with Zero 10
Report Communication Errors 8
Respect Tag-Specified Scan Rate 13
RS-485 8
RTS 7

S

Scan Mode 12
Serial Communications 6
Serial Port Settings 7
Setup 4
Shared 7
Simulated 12
Stop Bits 7

T

Tag Counts 6, 12
Tag Generation 13

U

Unable to set comm parameters on COMn 20
Unmodified 10

W

Write All Values for All Tags 9
Write Only Latest Value for All Tags 9
Write Only Latest Value for Non-Boolean Tags 9