WITS Level 0 Active Driver Help

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WITS Level 0 Active Driver Help

Help version 1.003

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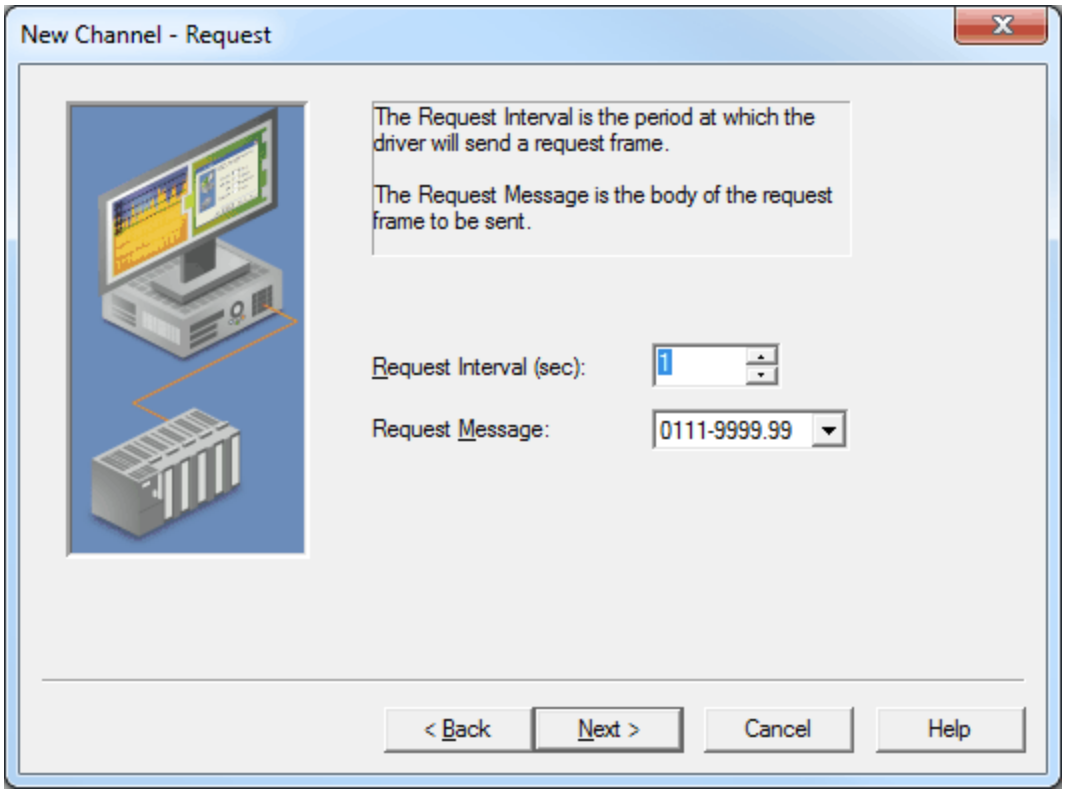
Overview

The WITS Level 0 Active Driver provides an easy and reliable way to connect WITS Level 0 devices to OPC client applications, including HMI, SCADA, Historian, MES, ERP and countless custom applications. It is intended for use with devices that support Level 0 of the WITS protocol and transmit solicited data.

Channel Setup

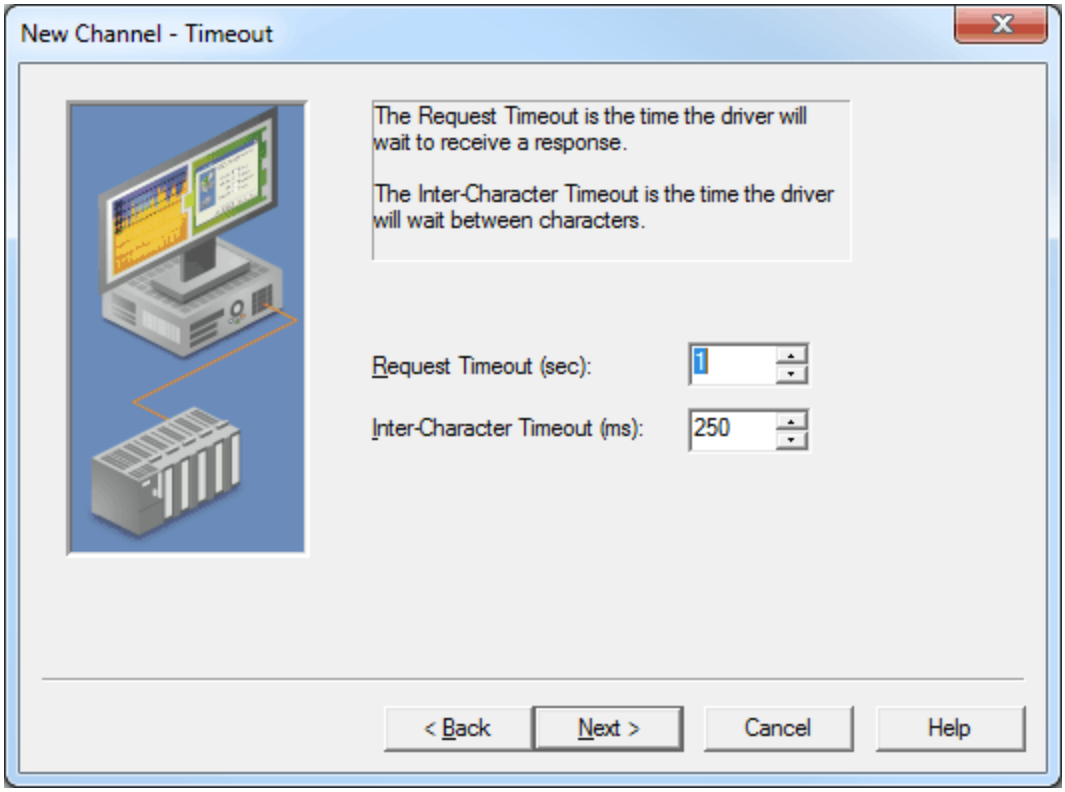
Request



Descriptions of the parameters are as follows:

- **Request Interval:** This parameter specifies the time in seconds that the driver will write a request frame to the configured COM Port. The valid range is 1 to 3600 seconds. The default setting is 1 second.
- **Request Message:** This parameter specifies the message portion of the frame that the driver will send to request solicited data. The default setting is "0111-9999.99".

Timeout



Descriptions of the parameters are as follows:

- **Request Timeout:** This parameter specifies the time in seconds that the driver will wait between sending a request for data and receiving the valid beginning of a response. When the timeout expires, the device's error state will be set and all tags owned by the associated device will be set to Bad quality. The valid range is 1 to 3600 seconds. The default setting is 1 second.
- **Inter-Character Timeout:** This parameter specifies the time in milliseconds that the driver will wait between receiving bytes within a message. When the timeout expires, the device's error state will be set, the current message will be abandoned, and the driver will interpret the next received byte as the beginning of a new message. The valid range is 50 to 1000 milliseconds. The default setting is 250 milliseconds.

Device Setup

Supported Devices
All devices that transmit solicited WITS Level 0 data.

Communication Protocol
WITS Level 0

Supported Communication Parameters
Baud Rate: All major Baud rates.
Parity: Odd, Even, and None.
Data Bits: 8.
Stop Bits: 1 and 2.

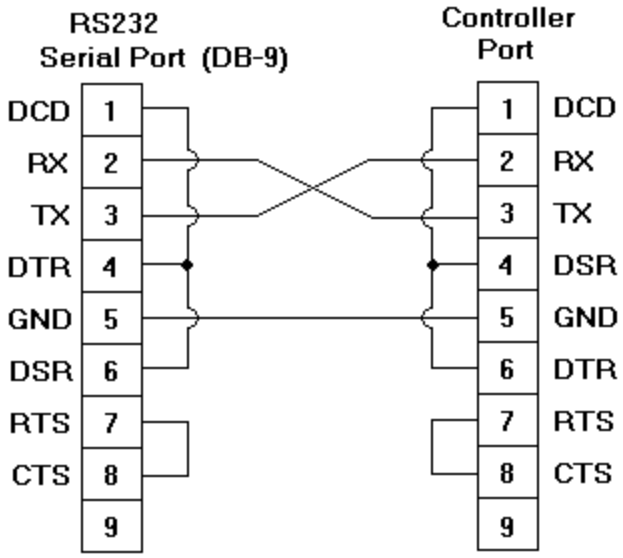
Note: Not all of the listed configurations may be supported in every device.

Maximum Number of Channels and Devices
The maximum number of channels supported by this driver is 256. The maximum number of devices supported is 256 (1 device per channel).

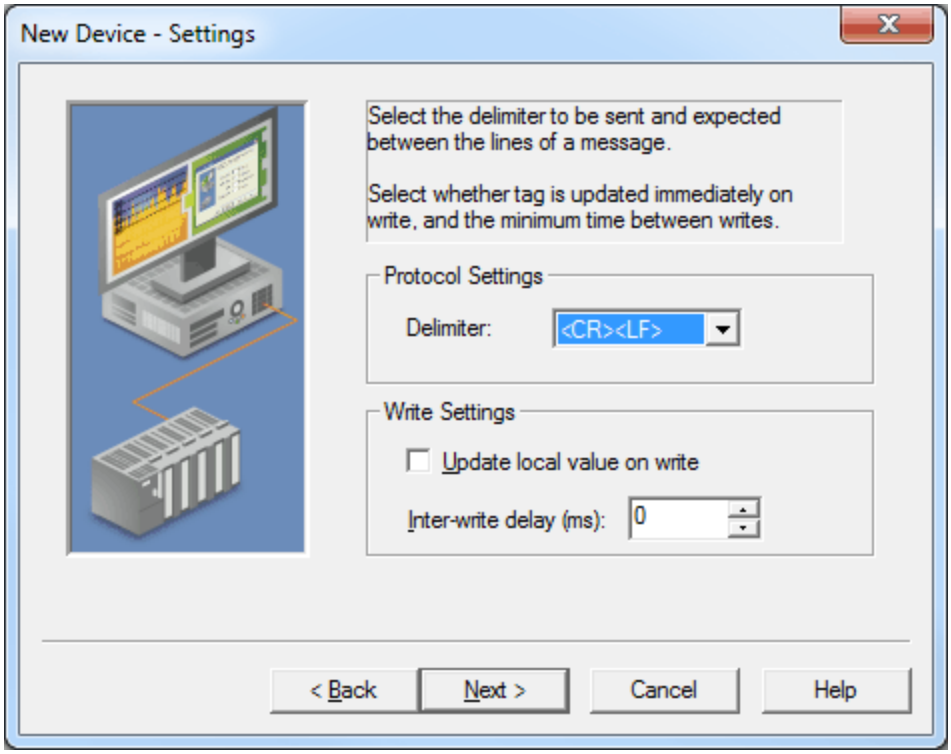
Ethernet Encapsulation
This driver supports Ethernet Encapsulation, which allows the driver to communicate with serial devices attached to an Ethernet network using a terminal server. It may be enabled for the channel through the Communications dialog in Channel Properties. For more information, refer to the server's help file.

Automatic Tag Database Generation
This driver supports the Automatic Tag Database Generation of all pre-defined WITS records. For more information on pre-defined WITS records, refer to **W.I.T.S. Wellsite Information Transfer Specification**.

Cable Diagram



Settings



Descriptions of the parameters are as follows:

- **Delimiter:** This parameter specifies the sequence of characters that the driver will expect between the lines of a WITS Level 0 message. Options include <CR><LF>, <LF><CR>, <CR>, and <LF>. The default setting is <CR><LF>. Descriptions of the options are as follows:
  - **<CR><LF>:** This option is a carriage return followed by a line feed.
  - **<LF><CR>:** This option is a line feed followed by a carriage return.
  - **<CR>:** This option is a carriage return.
  - **<LF>:** This option is a line feed.
- **Update local value on write:** When checked, this option will update the local value immediately when a tag is written. This option should be disabled when the WITS device is expected to echo the written item back to the driver. The default setting is unchecked.

  Note: If the device is in an error state, the tag's value will not be updated until the error state is cleared.
- **Inter-write delay:** This parameter specifies the minimum amount of time that the driver will wait in between sending requests to the target device. The default setting is 0 milliseconds.

Data Types Description

Data Type	Description
Short	Signed 16 bit value bit 0 is the low bit bit 14 is the high bit bit 15 is the sign bit
Long	Signed 32 bit value bit 0 is the low bit bit 30 is the high bit bit 31 is the sign bit
DWord	Unsigned 32 bit value bit 0 is the low bit bit 31 is the high bit
Float	32 bit floating point value bit 0 is the low bit bit 31 is the high bit
String	Null terminated ASCII string Strings up to a length of 4096 characters are supported.

Address Descriptions

The default data type is displayed in **bold**.

Address	Range	Data Type	Access
xxxx	0001-9999	Short, DWord, Long, Float, **String**	Read/Write

Note 1: The WITS Level 0 Active Driver supports the full range of addresses between 0001 and 9999. If the address is pre-defined in the WITS specification, the default data type will be equal to the pre-defined item's data type. If the address is not pre-defined, the default data type will be String.

Note 2: For more information on pre-defined WITS records, refer to **W.I.T.S. Wellsite Information Transfer Specification**.

Error Descriptions

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

Device '<device name>' item '<WITS ID>', Write value length exceeds maximum frame length. Truncating to 1024 bytes
Device '<device name>', Abandoning current message after <time in ms> ms of inactivity
Device '<device name>', Invalid delimiter. Expecting '<configured delimiter>'. Discarding remainder of message
Device '>device name<', Message parsing error. Discarding remainder of message
Device '<device name>', More than 4096 bytes in item '<WITS ID>' data. Discarding remainder of message
Device '<device name>', Non-numeric WITS ID found: '<WITS ID>'. Discarding remainder of message
Device '<device name>', Non-printable character '<hex byte>' found in WITS ID. Discarding remainder of message
Device '<device name>', Non-printable character '<hex byte>' in item '<WITS ID>' data. Discarding remainder of message
Device '<device name>', Received Null value '<Null value>' for item '<WITS ID>'. Setting tag to bad quality
Device '<device name>', Request has timed out after <time in seconds> seconds of inactivity
Device '<device name>', Value '<value>' is invalid for item '<WITS ID>' with data type '<data type>'. Setting tag to bad quality
Device '<device name>', Value '<value>' out of range for item '<WITS ID>' with data type '<data type>'. Setting tag to bad quality

Device '<device name>' item '<WITS ID>', Write value length exceeds maximum frame length. Truncating to 1024 bytes

Error Type:
Warning

Possible Cause:
The written value is greater than 1024 characters.

Solution:
If truncation is not acceptable, write values that are less than or equal to 1024 characters.

Device '<device name>', Abandoning current message after <time in ms> ms of inactivity

Error Type:
Warning

Possible Cause:
The connection with the device was lost partway through message reception.

Solution:
1. Ensure that the device is sending valid WITS Level 0 messages.
2. Ensure that the connection with the device is reliable.
3. Adjust the value of the Inter-Character Timeout parameter.

Device '<device name>', Invalid delimiter. Expecting '<configured delimiter>'. Discarding remainder of message

Error Type:
Warning

Possible Cause:
The delimiter sent by the device is not equal to the delimiter that was configured.

Solution:
Ensure that the delimiter sent by the device is equal to the delimiter that was configured.

Device '<device name>', Message parsing error. Discarding remainder of message

Error Type:
Warning

Possible Cause:
An incorrect character was received when a header (&&) or trailer (!!) was expected.

Solution
Verify that the data being sent follows the WITS Level 0 protocol.

Device '<device name>', More than 4096 bytes in item '<WITS ID>' data. Discarding remainder of message

Error Type:
Warning

Possible Cause:
A line of data is greater than 4096 bytes long.

Solution:
Reduce the data sent by WITS Level 0 devices to 4096 bytes or fewer.

Device '<device name>', Non-numeric WITS ID found: '<WITS ID>'. Discarding remainder of message

Error Type:
Warning

Possible Cause:
1. A non-numeric character was received as part of a WITS ID. This may be due to noise on the transmission medium or an invalid WITS ID being sent by the device.
2. The configured delimiter is part of, but not equal to, the delimiter sent by the device.

Solution:
1. Ensure that the WITS device only transmits numeric WITS IDs.
2. Ensure that the delimiter is correctly configured.

Device '<device name>', Non-printable character '<hex byte>' found in WITS ID. Discarding remainder of message

Error Type:
Warning

Possible Cause:
1. A non-printable character was received in a WITS ID. This may be due to noise on the transmission medium or an invalid WITS ID being sent by the device.
2. The configured delimiter is part of, but not equal to, the delimiter sent by the device.

Solution:
1. Ensure the WITS device transmits only printable ASCII characters.
2. Ensure that the delimiter is correctly configured.

Device '<device name>', Non-printable character '<hex byte>' in item '<WITS ID>' data. Discarding remainder of message

Error Type:
Warning

Possible Cause:
A non-printable character was received in the value of an item. This may be due to noise on the transmission medium or an invalid value being sent by the device.

Solution:
Ensure that the WITS device only transmits printable ASCII characters.

Device '<device name>', Received Null value '<Null value>' for item '<WITS ID>'. Setting tag to bad quality

Error Type:
Warning

Possible Cause:
Either -8888 or -9999 was received as the value of an item.

Solution:
Ensure that the Null value transmission was expected.

Device '<device name>', Request has timed out after <time in seconds> seconds of inactivity

Error Type:
Warning

Possible Cause:
The connection with the device has not been established or has been lost.

Solution:
1. Verify the connection with the device.
2. Adjust the value specified in the Request Timeout parameter.

Device '<device name>', Value '<value>' is invalid for item '<WITS ID>' with data type '<data type>'. Setting tag to bad quality

Error Type:
Warning

Possible Cause:
A tag with a numeric data type received a value from a device with a non-numeric character.

Solution:
Ensure that the data sent by the device is valid, and that the appropriate data type is configured.

Device '<device name>', Value '<value>' out of range for item '<WITS ID>' with data type '<data type>'. Setting tag to bad quality

Error Type:
Warning

Possible Cause:
The received data is outside the range of values allowed for the configured numeric data type.

Solution:
Ensure that the data sent by the device is valid, and that the appropriate data type is configured.

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