



Connectivity Demo

Using Kepware's OPC server & User-Configurable driver (U-CON)

to Acquire Data from a [Newport sensor]

6/1/09

Overview

This document is a step-by-step demonstration on how to utilize Kepware's U-CON Protocol Server for data acquisition. In this demonstration we will be connecting to a Newport Temperature & Humidity Sensor.

Required Resources

- U-CON Protocol Server or KEPServerEX with User-Configurable Driver plug-in
- Newport Temperature and Humidity Sensor, Model iTHX-W
- U-CON User Manual (Optional)

Step-by-Step

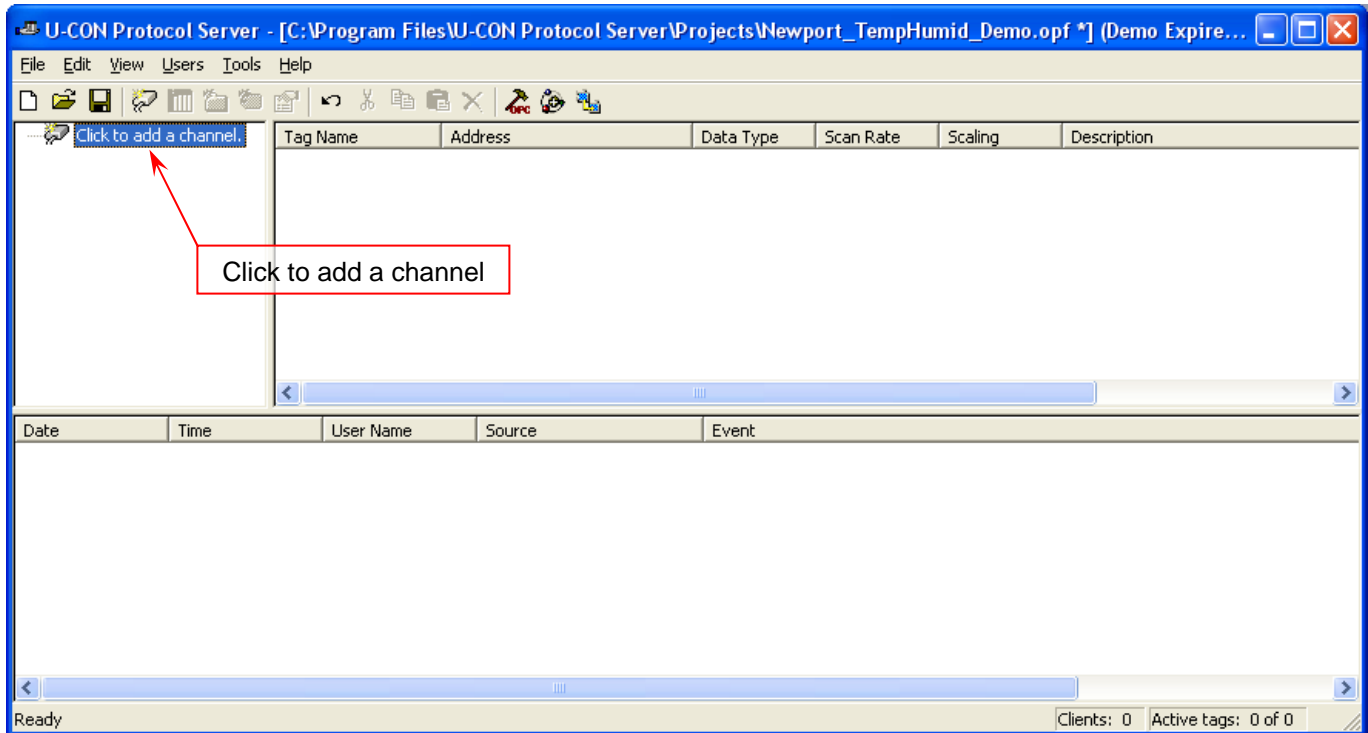
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Getting Started

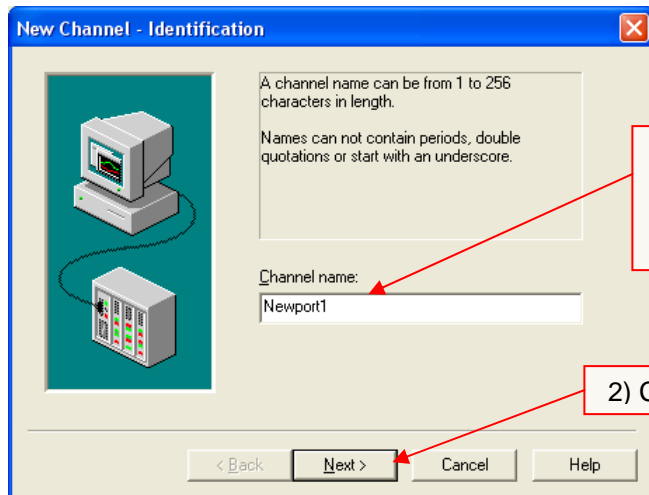
The following screenshots have been taken from the U-CON Protocol Server, but one could also complete this demonstration from within KEPServerEX utilizing the U-CON Device Driver.

Start by installing and running the server

Step 1 - Adding a Channel

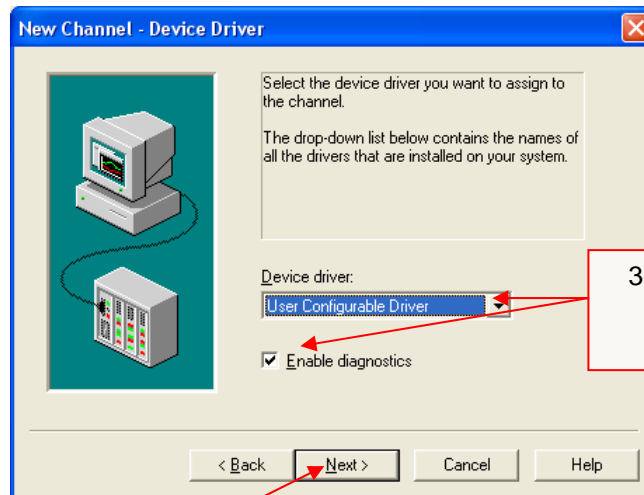


Step 1 - Adding a Channel (continued)



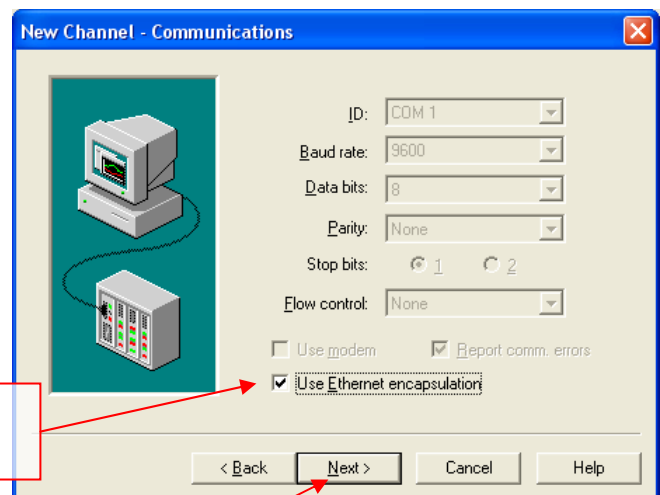
1) Enter a meaningful channel name. In this case we selected "Newport1"

2) Click "Next"



3) Select "User Configurable Driver" & Enable diagnostics

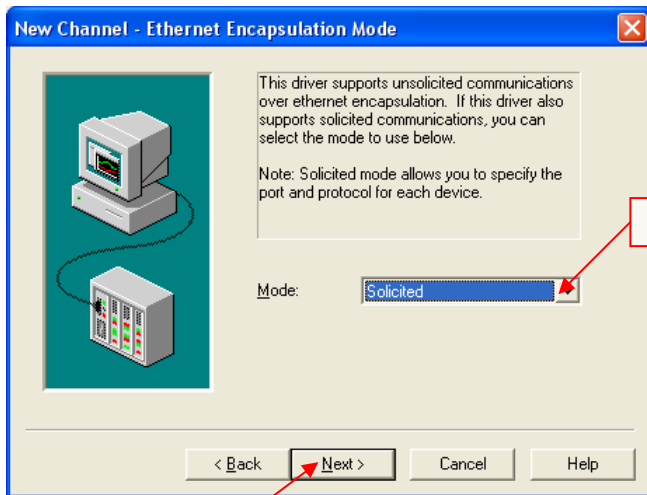
4) Click "Next"



5) Select "Use Ethernet encapsulation"

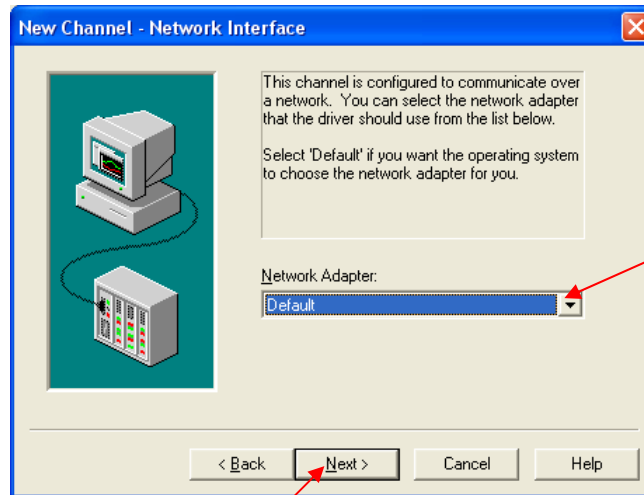
6) Click "Next"

Step 1 - Adding a Channel (continued)



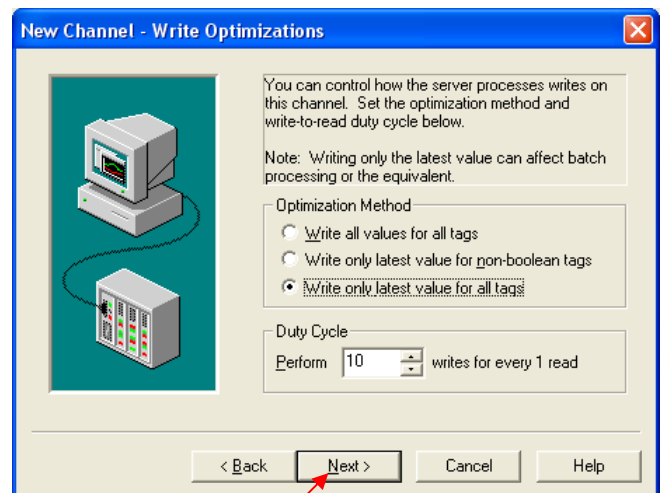
7) Select "Solicited"

8) Click "Next"



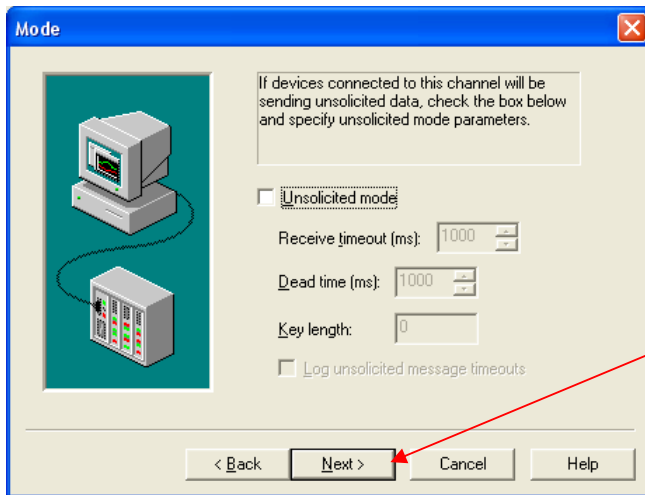
9) Leave this setting at "Default"

10) Click "Next"

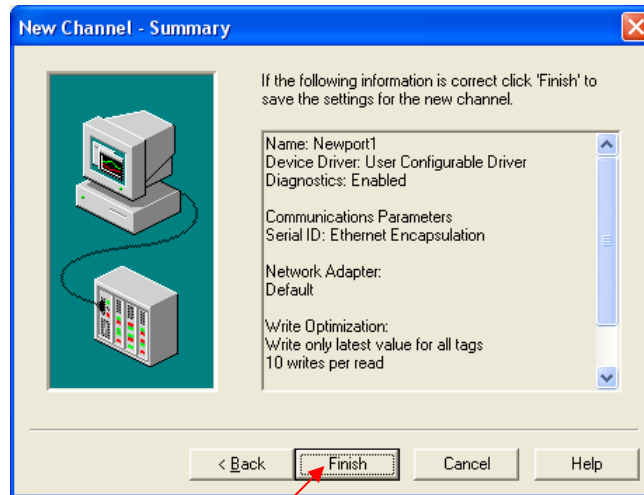


11) These settings can remain at their default values.
Click "Next"

Step 1 - Adding a Channel (continued)

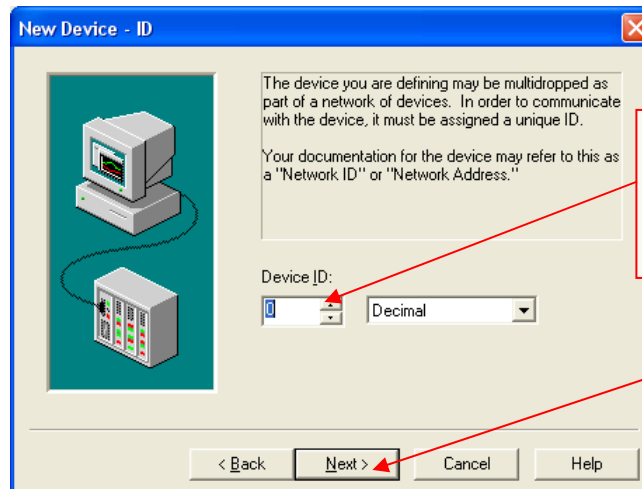
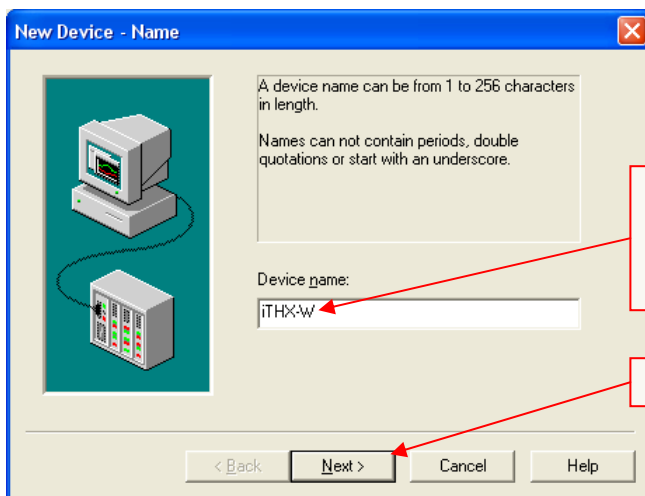
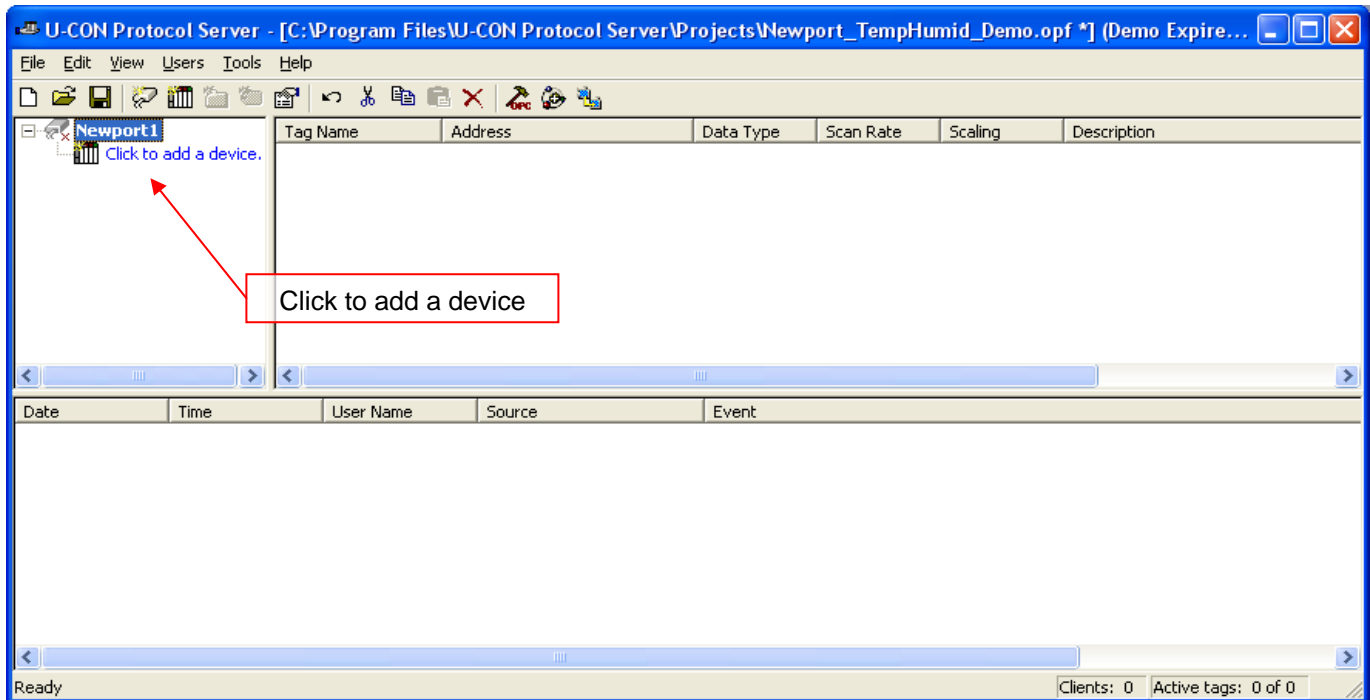


12) These settings can also remain at their default values. Click "Next"

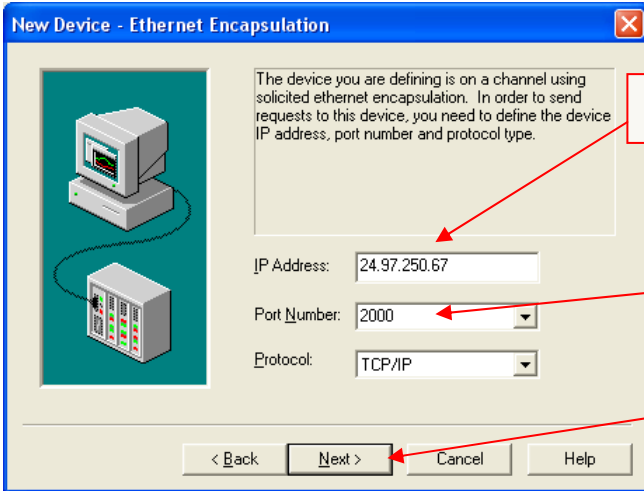


13) This window allows you to review/confirm your channel settings. Click "Finish"

Step 2 - Adding a Device



Step 2 - Adding a Device (continued)



The device you are defining is on a channel using solicited ethernet encapsulation. In order to send requests to this device, you need to define the device IP address, port number and protocol type.

IP Address: 24.97.250.67

Port Number: 2000

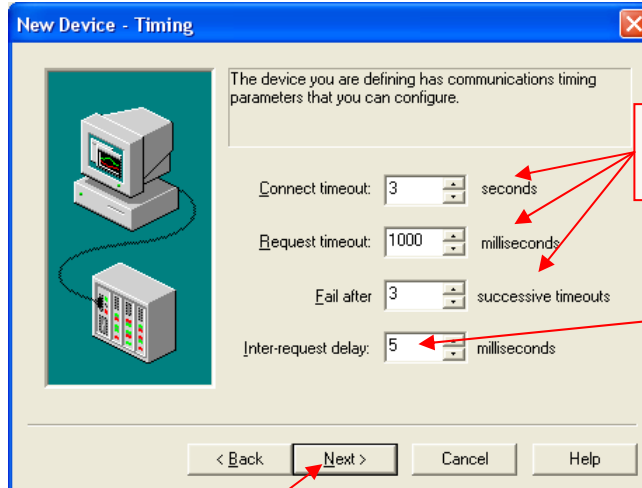
Protocol: TCP/IP

< Back Next > Cancel Help

5) Enter the devices IP address

6) Set the Port Number to "2000"

7) Click "Next"



The device you are defining has communications timing parameters that you can configure.

Connect timeout: 3 seconds

Request timeout: 1000 milliseconds

Fail after: 3 successive timeouts

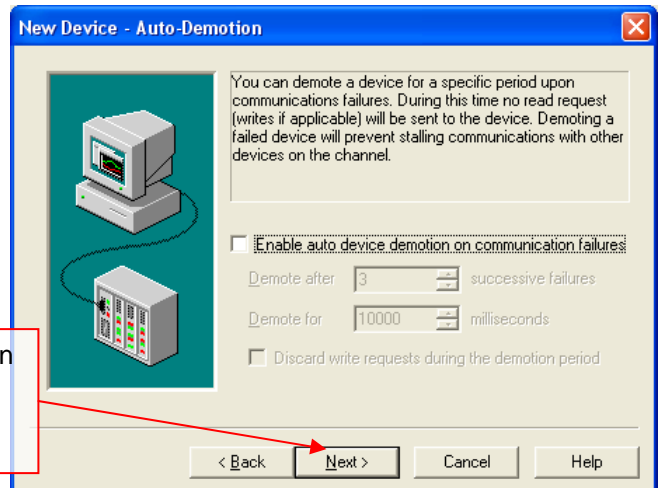
Inter-request delay: 5 milliseconds

< Back Next > Cancel Help

8) These settings can remain at their default values.

9) Set Inter-request delay to 5 ms

10) Click "Next"



You can demote a device for a specific period upon communications failures. During this time no read request (writes if applicable) will be sent to the device. Demoting a failed device will prevent stalling communications with other devices on the channel.

☐ Enable auto device demotion on communication failures

Demote after: 3 successive failures

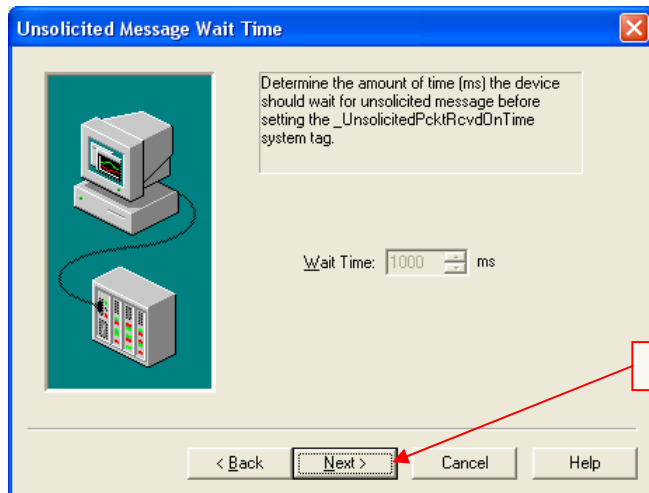
Demote for: 10000 milliseconds

☐ Discard write requests during the demotion period

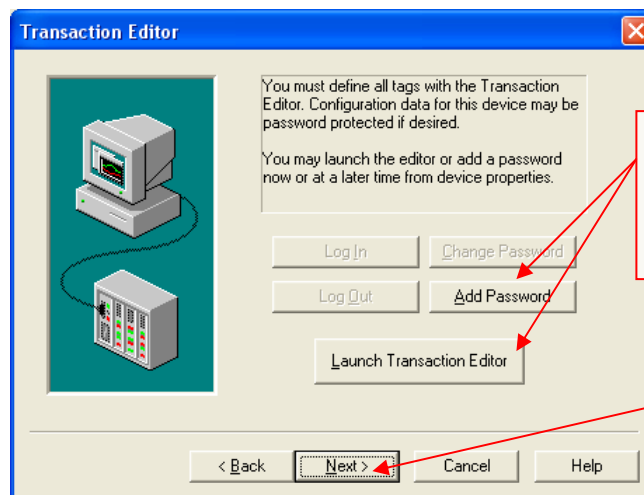
< Back Next > Cancel Help

11) These settings can remain at their default values.
No auto demotion needed
Click "Next"

Step 2 - Adding a Device (continued)

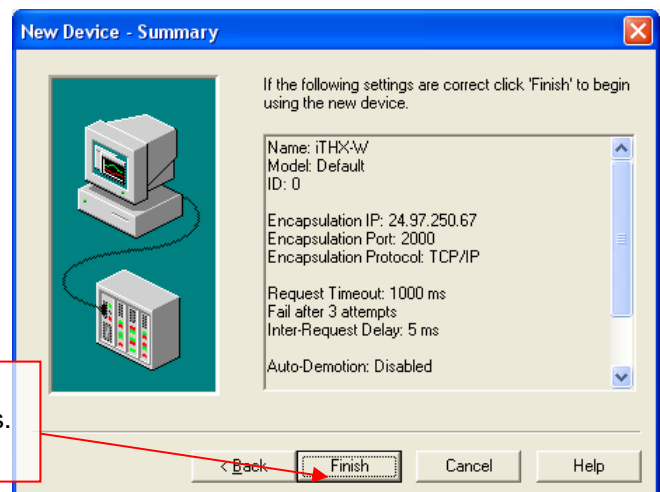


12) Click "Next"



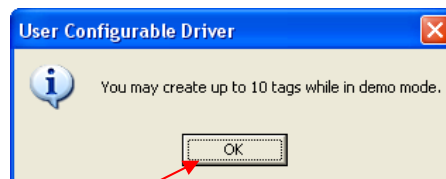
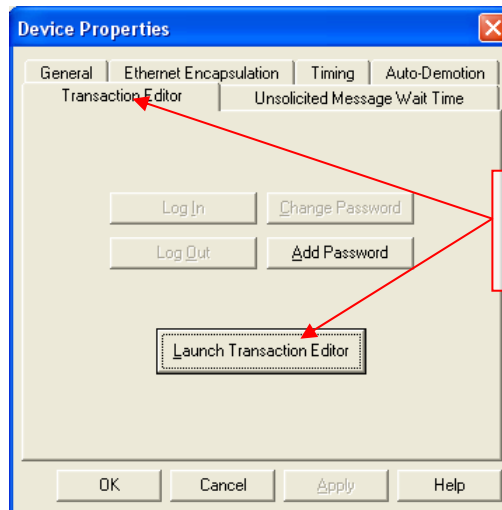
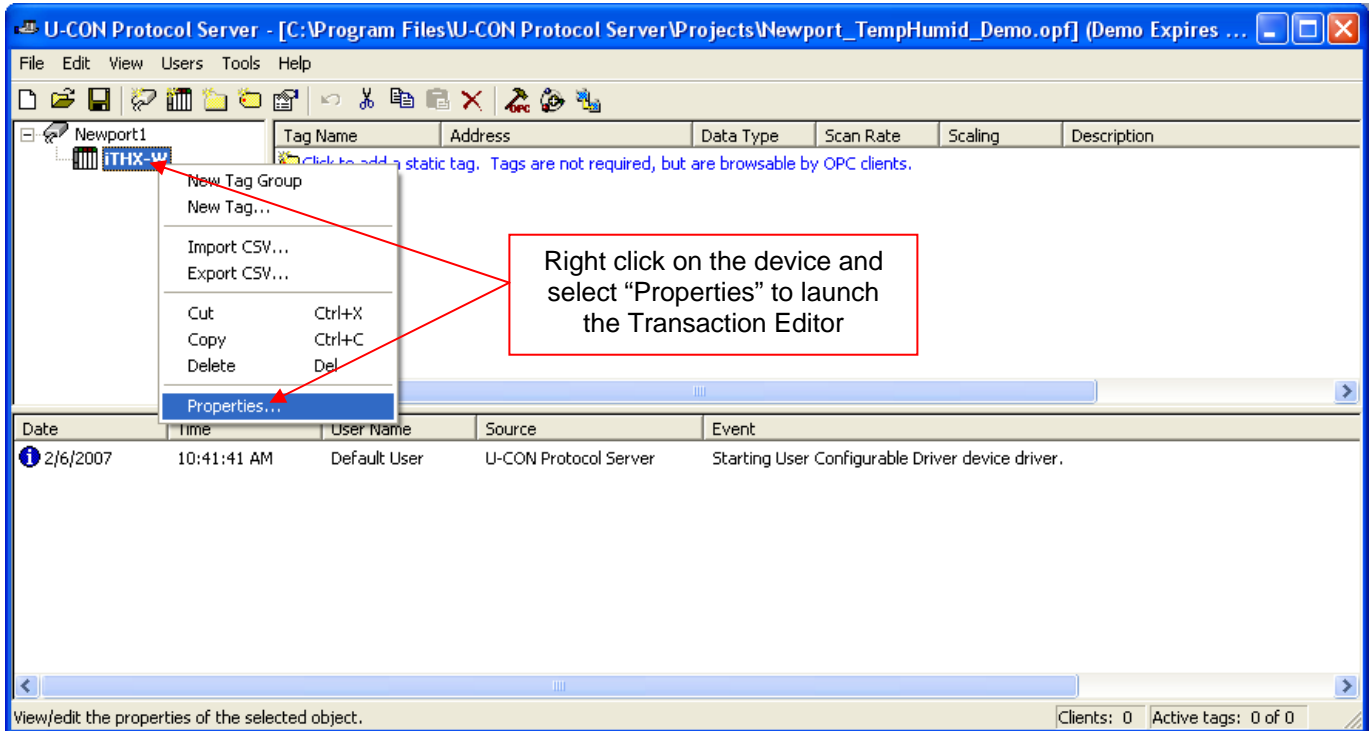
13) Passwords or Tags could be added at this point, but it is recommended to complete the device set up and add these items at a later time.

14) Click "Next"



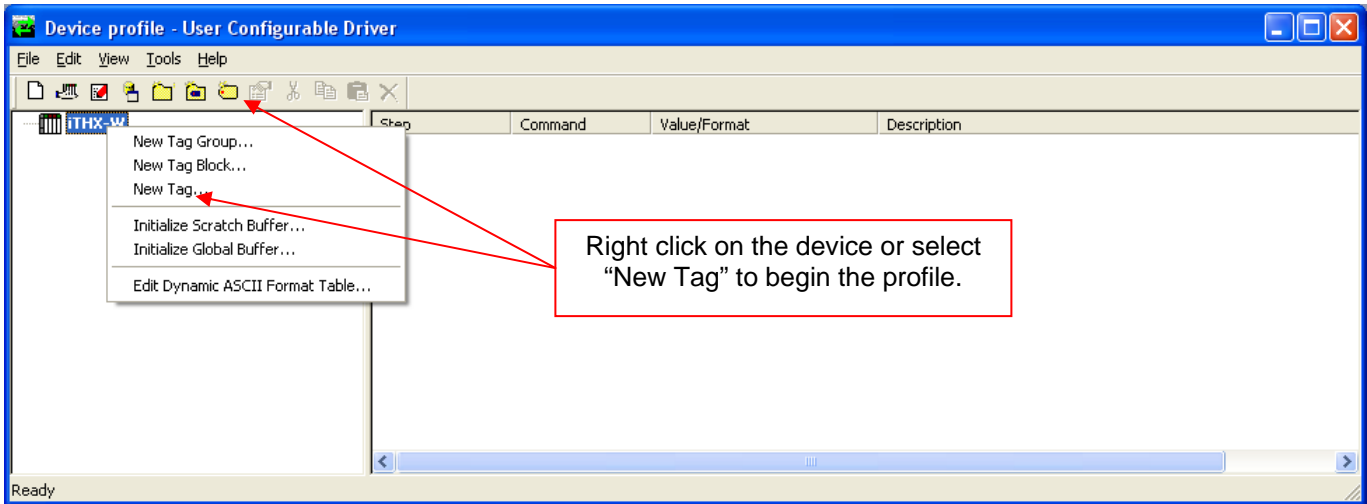
15) This window allows you to review/confirm your device settings. Click "Finish"

Step 3 - Creating a Device Profile (Tags) using the Transaction Editor



Click "OK"

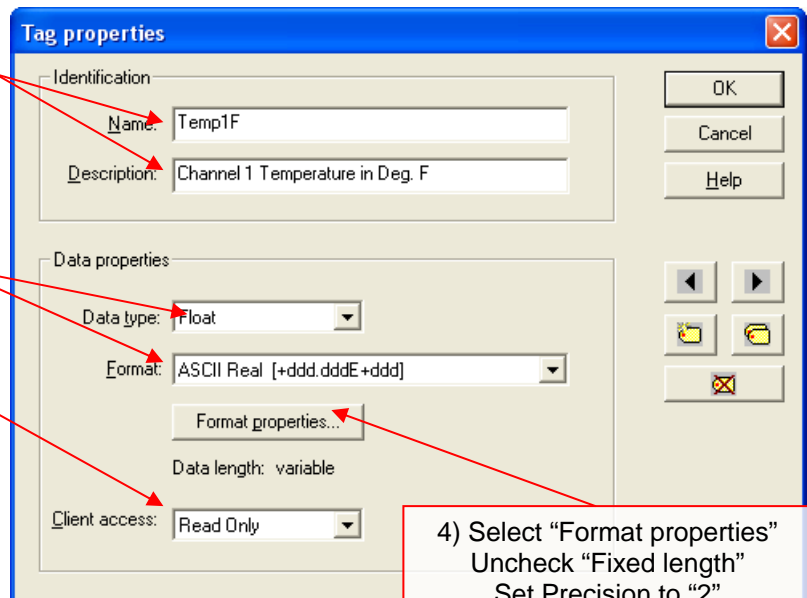
Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



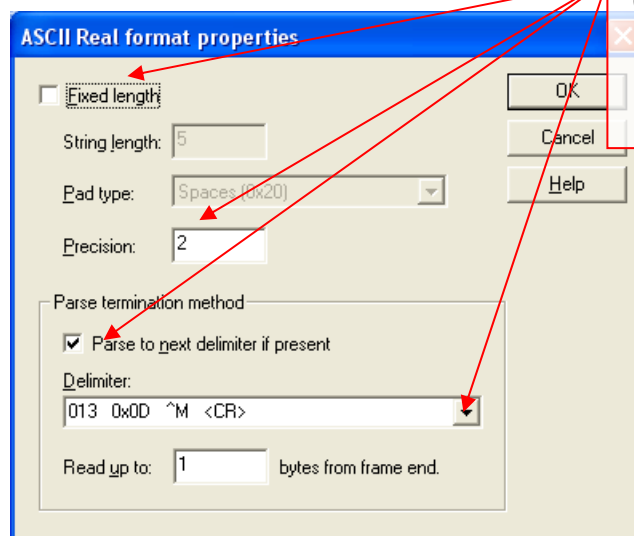
1) Again, select a meaningful Tag name. In this case we selected the "Temp1F" for "Channel 1 Temperature in Deg F". We also enter this as the tag description

2) Set the data type to a "Float" and the format is set to "ASCII Real".

3) The client access is "Read Only"



4) Select "Format properties"
Uncheck "Fixed length"
Set Precision to "2"
Check "Parse to next delimiter"
&
Set Delimiter to "CR"
Click "OK" in both windows when finish



Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)

Note: The figure below has been taken from the Newport iTHX-W manual. We will be using this information (**the device's protocol**) to develop the read requests that are associated with each tag for the Device's Profile.

The Newport device that Kepware has made available only has a single channel, so for this demonstration we are only concerned with Channel 1 below. Most of this information from the manual shown below is not applicable.

The Httpget.exe program is installed to the windows directory (usually c:\winnt or c:\windows) when installing the Mail Notifier software.

- Open up a command window (or have a DOS window)
 - Click on start menu
 - Click on "Run"
 - In the dialog box that appears, type "cmd" or "command" and click on "OK" button.
 - A command window should now appear.
- If you now type "httpget" and press the "enter" key, the program options should be displayed.
- Next run httpget with the options displayed below
httpget -r -S "*"SRTF\r" 192.168.1.200:1000

where:

-r -S are parameters needed for the the command string

"*"SRTF" is the reading command of Channel 1:

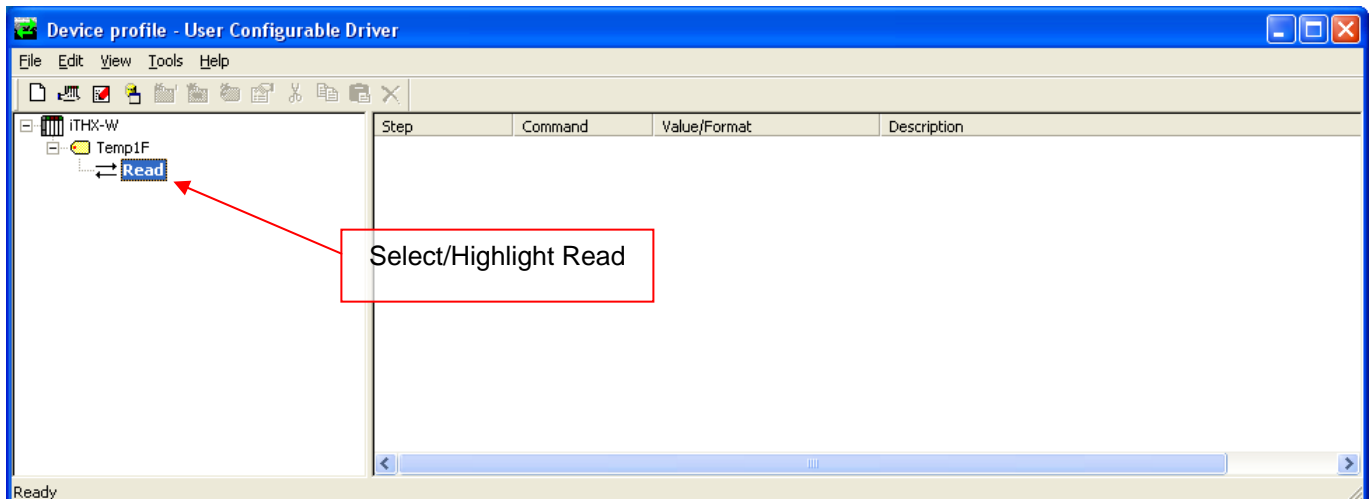
<u>Channel 1 Commands</u>	<u>Channel 2 Commands</u>
*SRTC Read the temperature in °C.	*SRTC2 Read the temperature in °C.
*SRTF Read the temperature in °F.	*SRTF2 Read the temperature in °F.
*SRH Read humidity.	*SRH2 Read humidity.
*SRDC Read dewpoint in °C.	*SRDC2 Read dewpoint in °C.
*SRDF Read dewpoint in °F.	*SRDF2 Read dewpoint in °F.

\r is the carriage return termination character
 192.168.1.200 is an IP address
 1000 is a socket port number

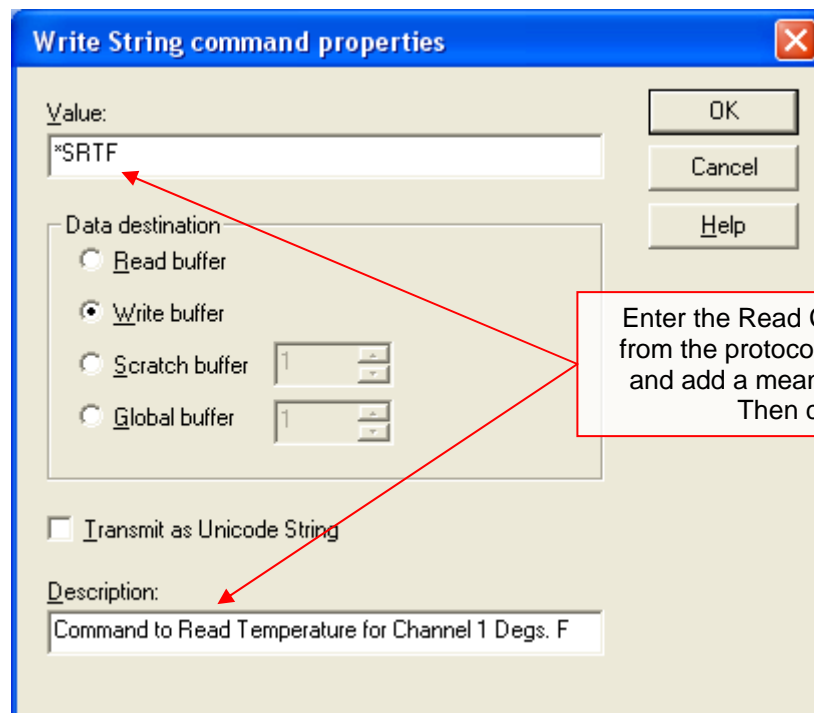
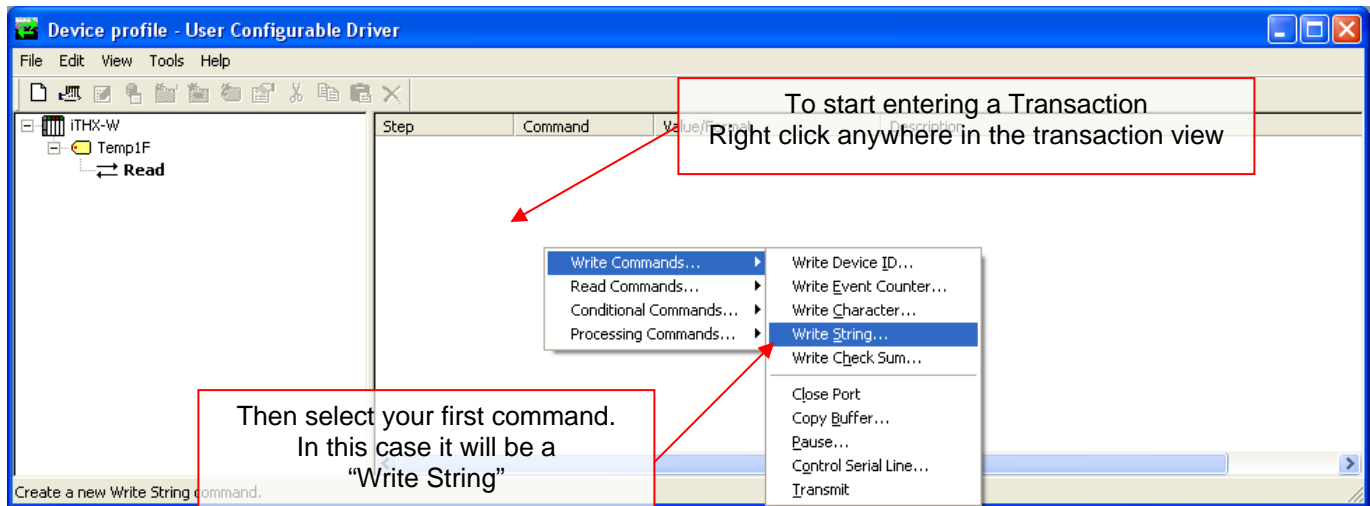
Response:
 076.6 (in Deg.F format)

Important Protocol Information

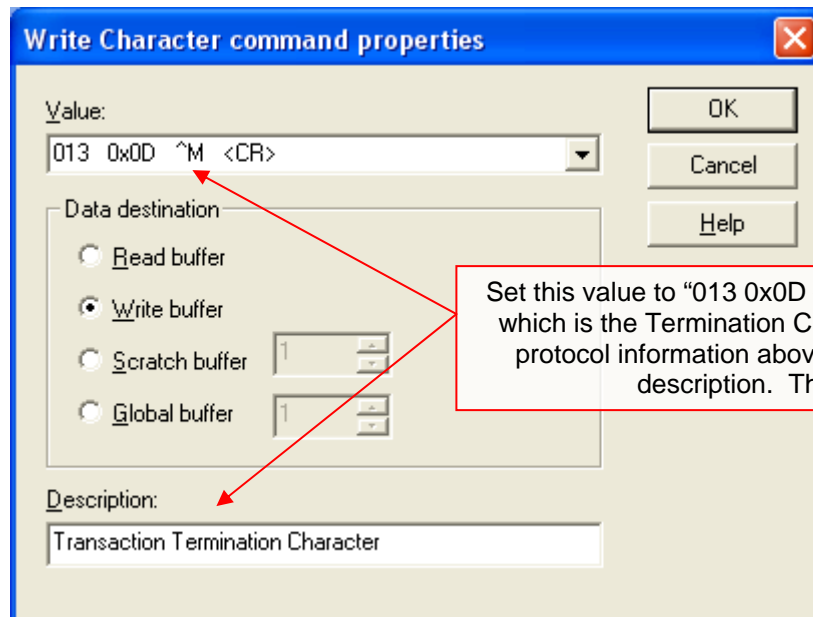
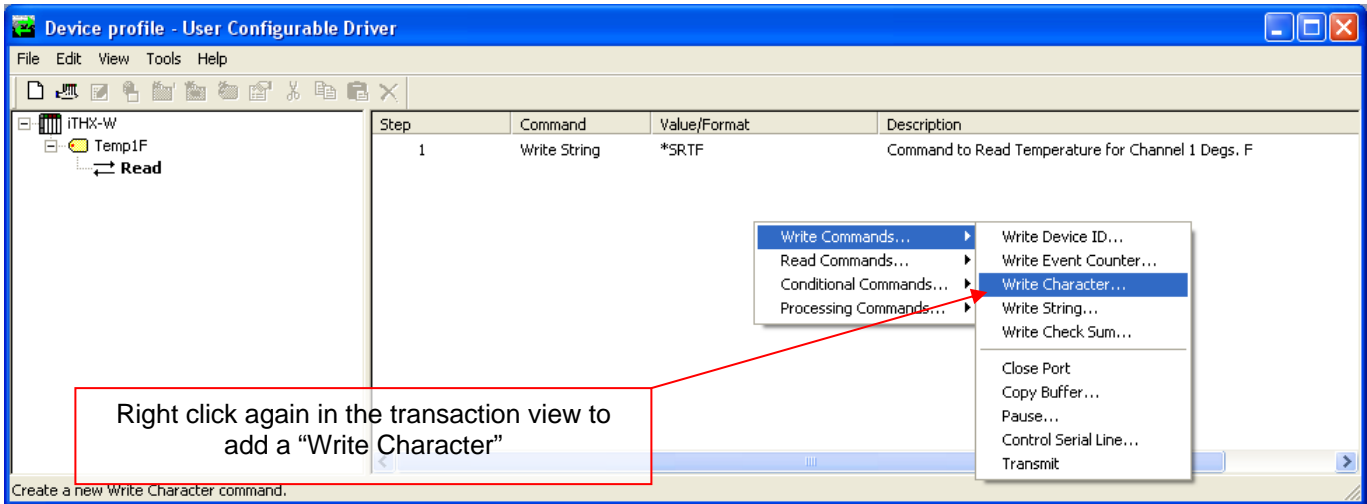
- Read commands
- Termination character



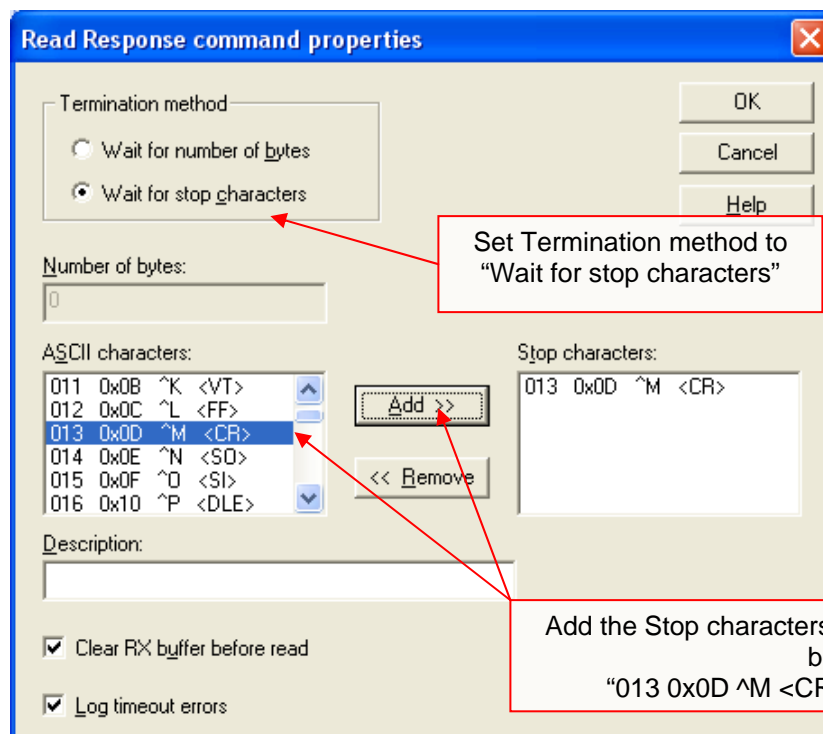
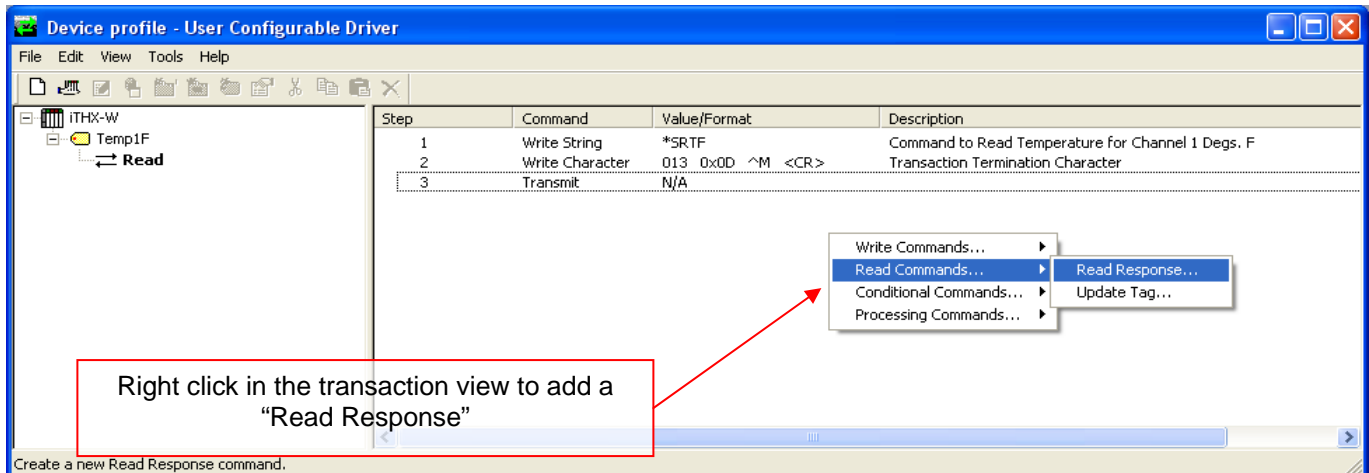
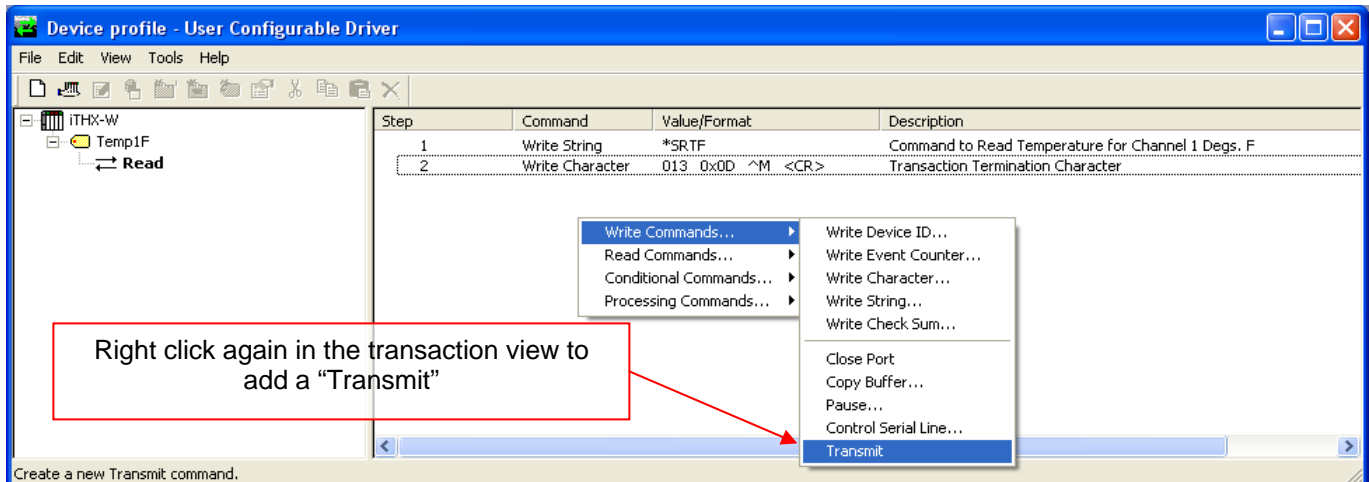
Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



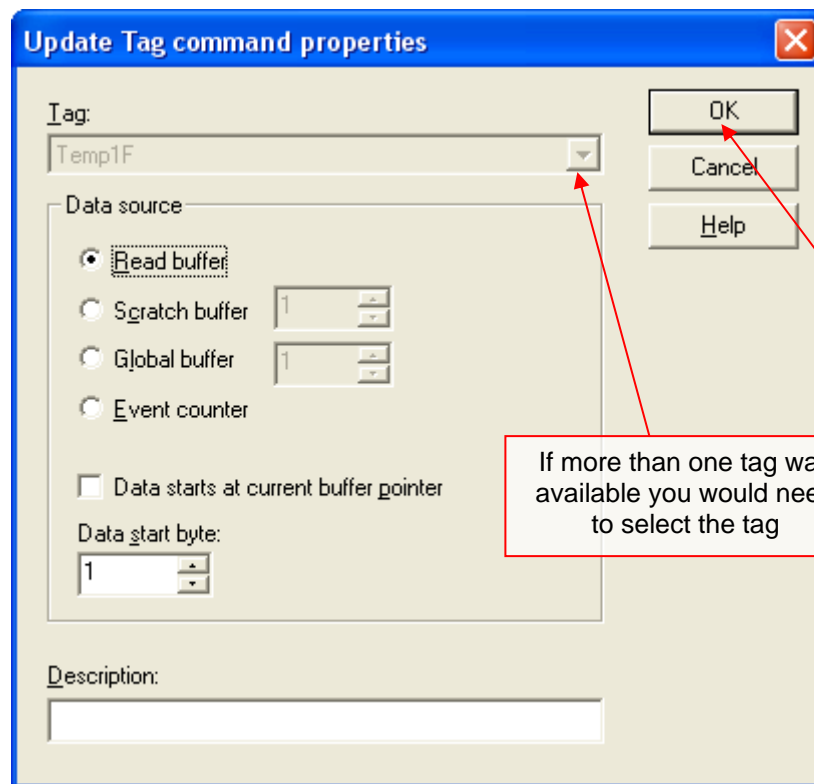
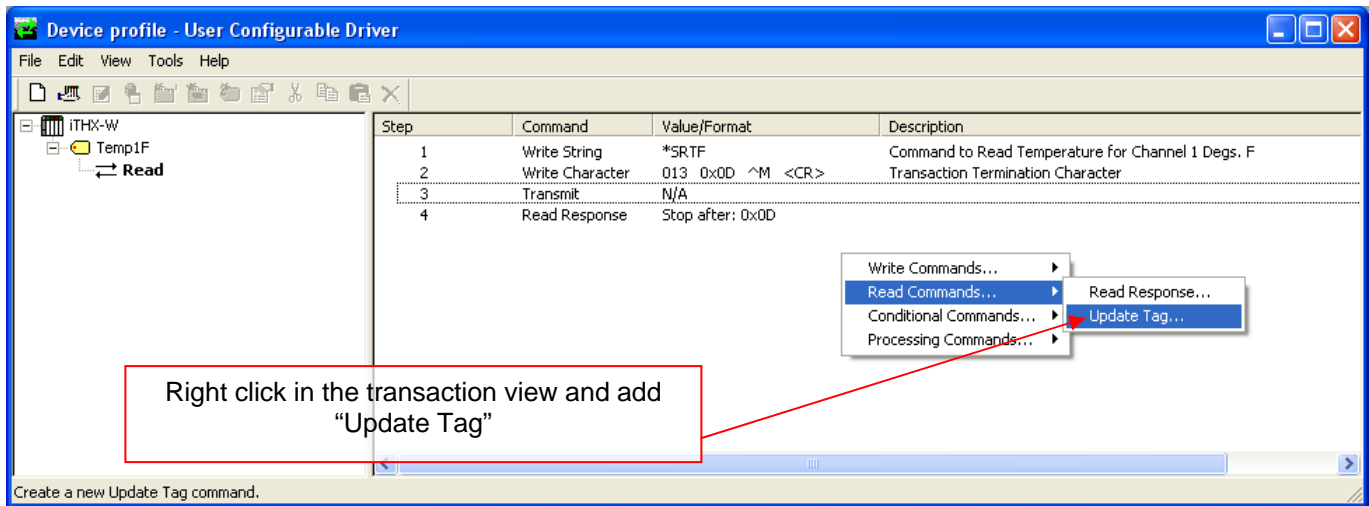
Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



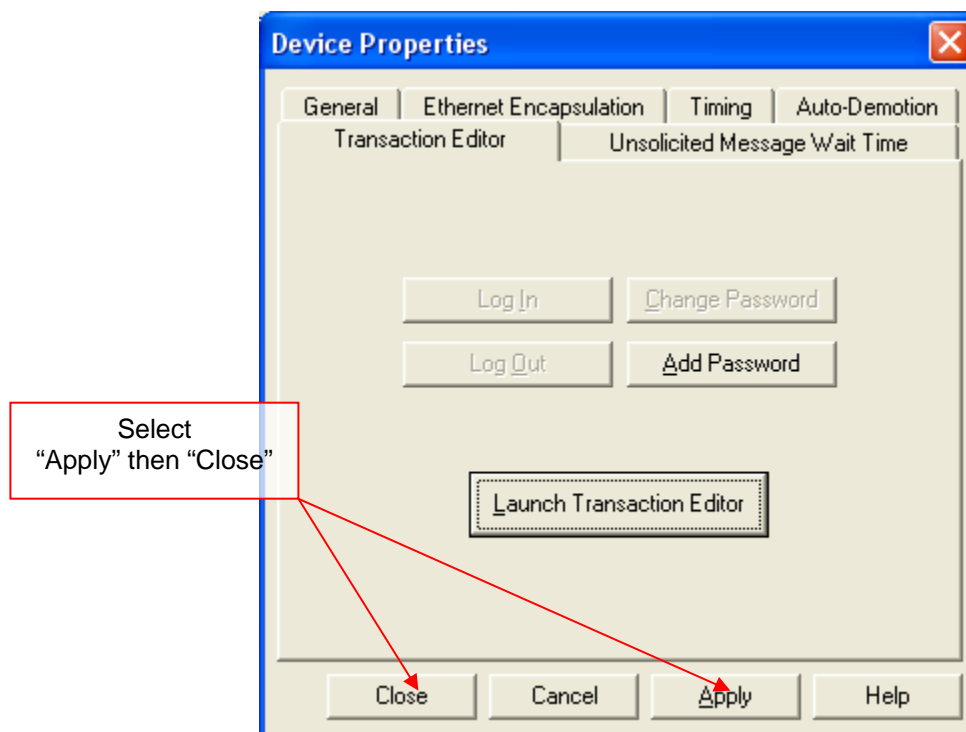
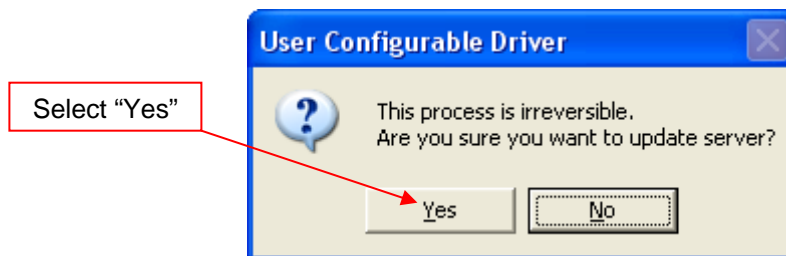
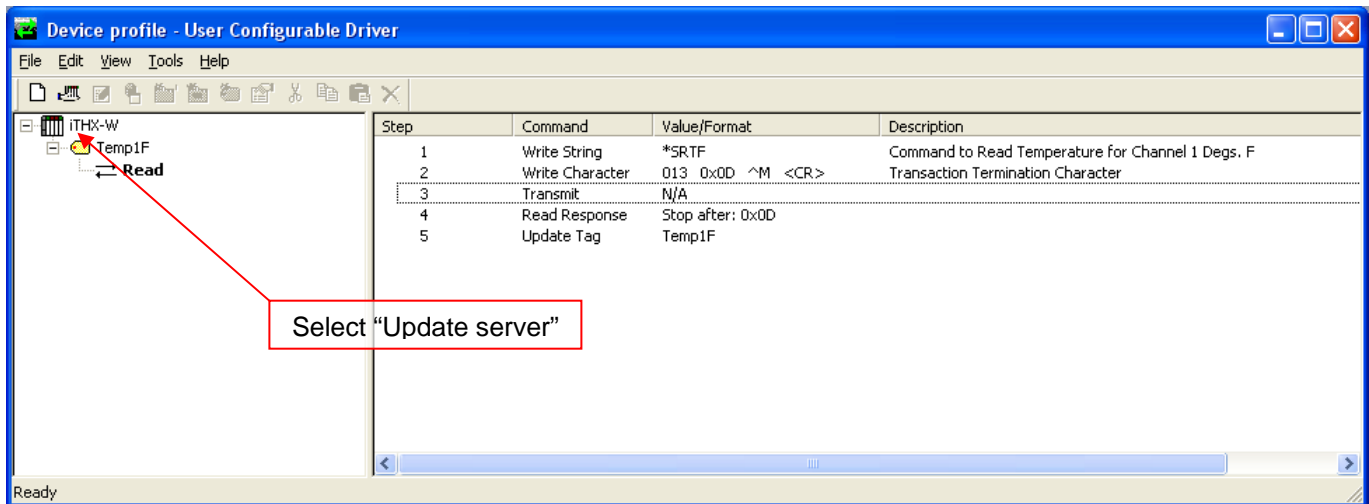
Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



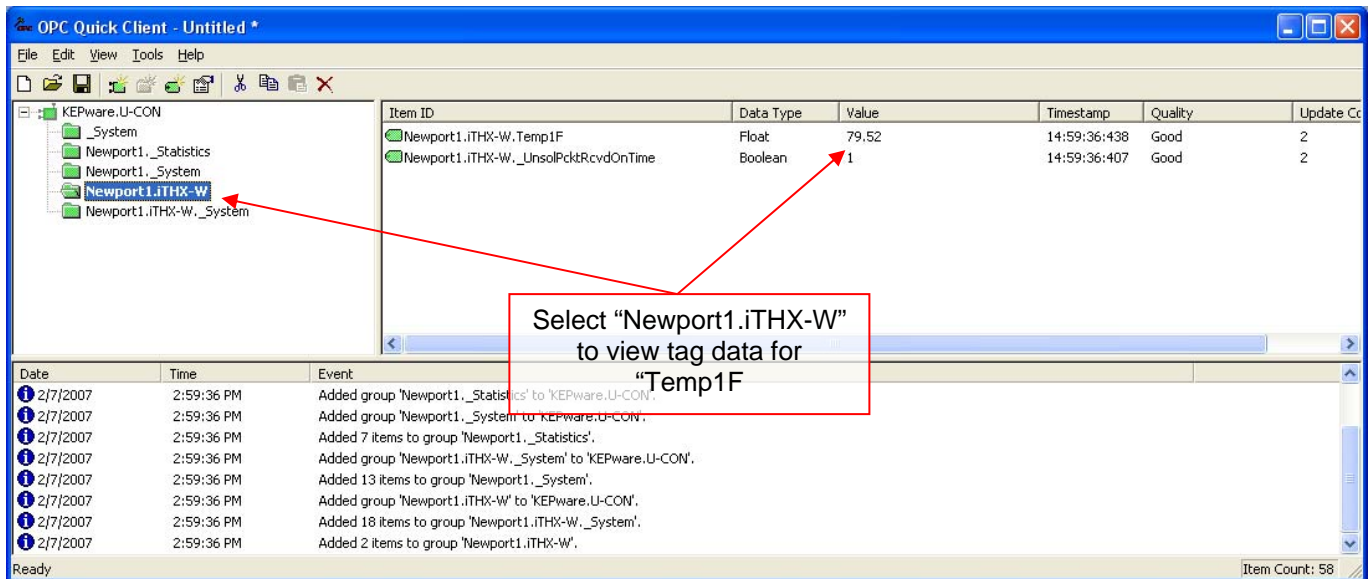
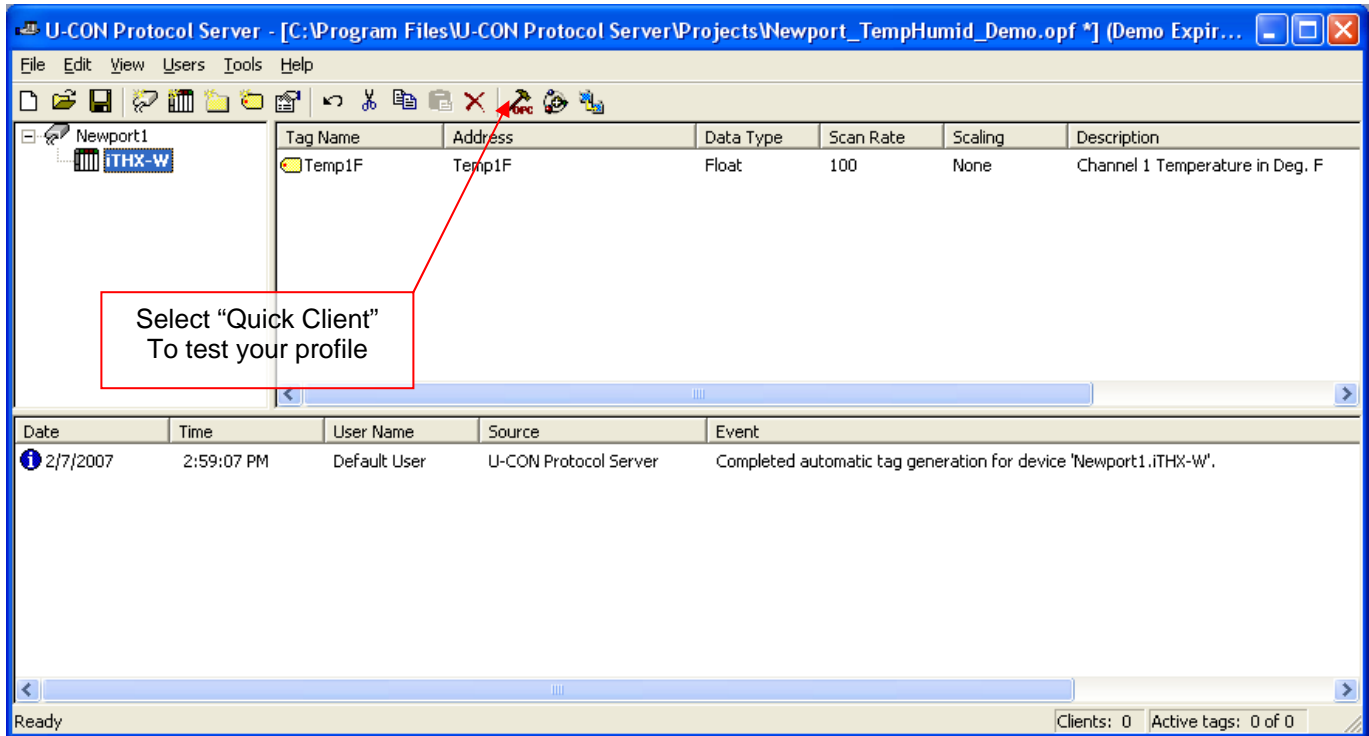
Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



Step 3 - Creating a Device Profile (Tags) using the Transaction Editor (continued)



Step 4 - Testing the profile using the Quick Client supplied with the server



Step 5 - Add additional Tags to the Device Profile

You should now have the basic idea of how to create read requests for a device. Now try adding additional tags to this profile to Read the following:

- Temperature in degrees C
- Humidity
- Dewpoint in degrees F
- Dewpoint in degrees C