# Using the DeviceMaster UP with Ethernet/IP to Load and Test the Loopback Plug Sample Code

This document will walk you through the complete process of setting up and testing the DeviceMaster UP running Ethernet/IP firwmare version 4.10. This guide is written using a ComtrolLogix 5550 PLC running version 15 with a DeviceMaster UP 1 port running Ethernet/IP version 4.10 firmware.

This guide is designed to set up a very basic configuration and test data written from the PLC to the DeviceMaster, from the DeviceMaster to the Loopback Plug, from the Loopback Plug back into the DeviceMaster, from the DeviceMaster back to the tag file in the PLC.

Section 1 Using the sample code for Serial Port Testing

- Chapter 1 (page 2): Import the loopbackExampleTagWrite.L5K
- Chapter 2 (page 6): <u>Configure I/O Controller</u>
- Chapter 3 (page 10): Configure the ladder of the loopbackExampleTagWrite
- Chapter 4 (page 20): Load the Project to the PLC
- Chapter 5 (page 22): Configure the DeviceMaster
- Chapter 6 (page 34): Data Confimration
- Chapter 7 (page 38): Determination of STX and ETX

Section 2 Using the sample cde for Ethernet Socket Testing

- Chapter 1 (page 40): Configure the DeviceMaster for an Ethernet Device
- Chapter 2 (page 48): Setting up PuTTY
- Chapter 3 (page 50): Change the Project's MainRoutine for an Ethernet Device
- Chapter 4 (page 56): Confirmation of Socket Data Transfer

Section 3 Trouble Shooting and Support Assistance

The IP addresses used in this document will start by showing a default IP address which will then be modified to show the IP address of my devices. My PLC is 192.168.2.40. My DeviceMaster UP is 192.168.2.11

Use the loopbackExampleTagWrite.L5K file imported into the PLC.

See pages 16 and 17 of the Quick Start Guide to configure the write aspects at

ftp://ftp.comtrol.com/dev mstr/up/software/ethernetip/docs/ethernet ip quickstart.pdf

If you are not doing writes, these pages can be ignored.

In this document we will not be changing the data that is written, but will allow the program to continuously write the same data to the DeviceMaster which will resend the same data back to the PLC.

# Import Sample File

Start by importing the loopbackExampleTagWrite.L5K at: C:\comtrol\EtherNetIP\Examples\loopbackExampleTagWrite.L5K

👪 RSLogix 5000		
<u> Eile E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunications <u>T</u> o	ols <u>W</u> indow <u>H</u> elp	
	- SSB F VV QQ	
No Forces CK	Path:       AB_ETHIP-1\192.168.2.40\Backplane\0       Image: Compare of the second sec	
Ready		

Open RSLogix5000

<b>8</b> I	SLogix 5000	
File	Edit View Search Logic Communications Tools W	ndow Help
e	New Ctrl+N	
Ê	Open Ctrl+O	
	Close	h: AB_ETHIP-1/192.168.2.40/Backplane/U
	Save Ctrl+5	
-	Save As	Favorites & Bit & Timer/Counter & Input/Output & Compare
	New Component	
	Compact	
	Generate Report	
	Print •	
	- Print Op <u>t</u> ions	
	2 a Mar barrode scapper with loopback ACD	
	3 a Mac barcode scapper ACD	
	4 a Mar JoonbackExampleTagWrite ACD	
	EleophackExampleTagWrite ACD	
	5 Comm. Tort 15 ACD	
	<u>o comminescito.acc</u> 7 a Mar barrode scapper ACD	
	Zaliaciparcodelscamer.Acb	
	E <u>x</u> it	
Open	or import a project file	
Click	the "File" drop down menu and select Op	en

Open/Import	t Project	$\mathbf{X}$
Look jn: 🗀	Projects 💽 🔶 📸 📰 -	
My PLC Set	up for My Scanner	
File <u>n</u> ame:	<u>O</u> pen	
Files of type:	All RSLogix 5000 Files (*.ACD,*.L5K)	
	Help	

Click the drop down arrow to browse. Path to C:\comtrol\EtherNetIP\Examples\loopbackExampleTagWrite.L5K



Open/Impor	rt Project		
Look jn: 🥯	Local Disk (C:)	수 🗈 💣 📰	•
comtrol	🛅 RSLogix	< 5000	
	s and Settings 💦 🦳 System 1	بلملي Molyme Information	n
Mod Size:	156 MB		
My Folde	ers: devcon, EtherNetIP, ins_pv_fw_msi9.0 : setup-sor msi	D6	
Prog.	lios — rosmoa		
RECYCLER	. 🛅 WINDO'	WS	
<			>
File name:			ien
· · · · <u>-</u> - · · · ·	1	F	
Files of type:	All RSLogix 5000 Files (*.ACD,*.L5K)	✓ Car	ncel

Highlight Comtrol and press Open.

Once Comtrol has been selected, select the EtherNetIP folder

Open/Impor	t Project				×
Look <u>i</u> n: 🗀	EtherNetIP	•	(÷ 🔁	-111 *	
EDS Files					
Cons					
File <u>n</u> ame:	<u></u>			<u>O</u> pen	]
Files of type:	All RSLogix 5000 Files (*.ACD,*.L5K)		-	Cancel	
				Help	
				_	_//

In the EtherNetIP folder select Examples and click Open

Select the loopbackExampleTagWrite.L5K file

Open/Impor	t Project				×
Look in: ଢ	Examples	•	<del>(</del>	<b>è</b> 💣	<b>.</b>
<ul> <li>loopbackEx</li> <li>loopbackEx</li> <li>loopbackEx</li> </ul>	amplePolling.L5K ampleTagWrite.L5K ampleTagWriteSynced.L5K				
File <u>n</u> ame:	loopbackExampleTagWrite.L5K				<u>O</u> pen
Files of <u>type</u> :	All RSLogix 5000 Files (*.ACD, *.L5K)	)	-	]	Cancel
					Help

### Click on <u>O</u>pen

Save Imported Project As	X
Enter the name, location and revision of the project file to create.	
Look in: C Projects	* 🎟 🕶
i My PLC Setup for My Scanner i Samples	
File name: loopbackExampleTagWrite.ACD	I <u>m</u> port
Files of type: RSLogix 5000 Project Files (*.ACD)	Cancel
	Help
Revision From: 13.1 To: 13 💌 1	

Click on Import



Wait for the process to complete.

# Configure I/O Controller

Back to top



It should show the IP address of your PLC in place of 192.168.2.40 in the example above as that is my PLC IP address.



Go to the I/O Configuration and select your Ethernet controller. Right click on it and select Properties.

🕷 RSLogix 5000 - ComtrolClx in loopb	ackExampleTagWrite.ACD [1756-L1]	
<u> Eile E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicati	ions <u>I</u> ools <u>W</u> indow <u>H</u> elp	
No Edits	Path:     AB_E I HIP-11(192.168.2.4U/\Backplane\U*       Image: Amount of the state of	
Controller ComtrolClx  Controller Tags Controller Fault Handler  Power-Up Handler  Tasks  MainTask  MainTask  MainTask  MainRoutine Unscheduled Program Ungrouped Axes Trends Data Types  Controller Fault  Controller Fault  Controller Tags  Data Types  Data Ty	Module Properties       - Local:3 (1756-ENBT/A 1.1)         General       Connection       RSNetWorx       Module Info       Port Configuration       Port Diagnostics       Backplane         Type:       1756-ENBT/A 1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media         Vendor:       Allen-Bradley         Parent:       Local         Name:       EnetBridge         Description:       ID         Sigt:       3         Sigt:       1         Sigt:       1	
Description	Status: Offline OK Cancel Apply Help	
Ready		

This object will need modifications from the defaults which are shown here.

🔞 RSLogix 5000 - ComtrolClx in loopba	ackExampleTagWrite.ACD [1756-L1]*	
<u>File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicatio	ons <u>T</u> ools <u>W</u> indow <u>H</u> elp	
	- <u>Kaa te ve</u> qq	
Offline I RUN No Forces C BAT No Edits A I/O	Path:       AB_ETHIP-1\192.168.2.40\Backplane\0*         Image: Compare to the state of the sta	
Controller ComtrolClx Controller Tags Controller Fault Handler Power-Up Handler Power-Up Handler Tasks MainProgram Program Tags MainRoutine Unscheduled Programs Motion Groups Ungrouped Axes Trends Data Types User-Defined Strings Predefined Module-Defined [3] 1756-ENBT/A EnetBridge	Module Properties       - Local:3 (1756-ENBT/A 1.1)         General*       Connection       RSNetWorx       Module Info       Port Configuration       Port Diagnostics       Backplane         Type:       1756-ENBT/A 1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media         Vendor:       Allen-Bradley         Parent:       Local         Name:       EnetBridge         Description:       IP Address:       192 . 168 . 2 . 40         Image:       EnetBridge       Image:       Image:         Slgt:       Image:       Image:       Image:       Image:         Slgt:       Image:       Image:       Image:       Image:         Slgt:       Image:       Image:       Image:       Image:         Status:       Offline       Image:       Image:       Image:	
Ready		

Change the IP address to be the IP Address of your PLC. Change the Slot and Revision number to match your equipment Click on Apply Click on OK

# Configure the Ladder of the loopbackExampleTagWrite

Back to top



Open the Main Routine in Tasks/MainTask/MainProgram/MainRoutine

Please Note: We will not be using the MainRoutine to configure the DeviceMaster, so we will be deleting some of the rungs of the MainRoutine. We will use the web pages of the DeviceMaster in order to configure the DeviceMaster itself in a later section.



This rung would be used to configure the DeviceMaster instead of using the web page. Configuration of the DeviceMaster via the web page is much simpler and straightforward to complete. We will delete this rung of the ladder. Right click and select "Cut Rung" from the pop-up menu.

The rungs will then auto-renumber themselves.



This newly renumbered rung 1 is used to reset the serial port after the changes have been implemented from the rung we just cut. This rung is only used in conjunction with the previous rung which was cut. The auto-renumbering has numbered this rung as rung1. We will cut this rung also

Right click and select "Cut Rung" from the pop-up menu.

The rungs will again auto-renumber themselves.



The new Rung 1 will compare sequence counters to determine if new data is received and copy the data from the Com1\_RxData (where the DeviceMaster will write the data to) to the Com1\_RxDataStr where the data may be copied from to manipulate in whatever manner is required.

This rung requires no modification.



Rung 2 will transmit data to the serial port of the DeviceMaster. Scroll down to the bottom of rung 2 until you see a SendDataMSG.



Click the SendDataMsg box to open the View Tag Configuration Dialog

Message Configuration - SendDataMsg	X
Configuration Communication Tag Message <u>Type: CIP Generic</u>	<b>•</b>
Service Type:       Set Attribute Single         Service Code:       10       (Hex)       Class:       71       (Hex)         Instance:       1       Attribute:       1       (Hex)	Source Element: Com1_TxDataStr Source Length: 260 (Bytes) Destination New Tag
🔘 Enable 🔘 Enable Waiting 🕥 Start	Done Done Length: 0
Error Code: Extended Error Code: Error Path: Error Text:	🥅 Timed Out 🕿
ОК	Cancel Apply Help

There will be no modification to the "Configuration" tab in this example. If the data was being sent to an Ethernet device instead of a serial device the class would be changed from 71 to 74. The 'Instance' value points to the serial port on multiport DeviceMaster units such as the 4 port model. Data going to the 4<sup>th</sup> port would require changing the instance to a 4. We are using a 1 port DeviceMaster so the instance value will not be changed.

Message Configuration - SendDataMsg	
Configuration Communication Tag	1
Path:  1, 3, 2, 10.0.0.101 1, 3, 2, 10.0.0.101	Browse
Communication Method         © CIP       © DH+         CIP With	0
Connected Connections	
🔘 Enable 🔘 Enable Waiting 🔍 Start 🔍 Done Don	e Length: 0
Error Code: Extended Error Code:      Error Path: Error Text:	limed Out 🗲
OK Cancel	Apply Help

Click on the "Communication" tab.

The Path will be modified. This path will be dependent on you PLC. Click the Browse button

Message Path Browser	×
Path: EnetBridge	
EnetBridge	
I/O Configuration III 1756-ENBT/A EnetBridge	
OK Cancel Help	

Select your controller and click ok

Message Configuration - SendDataMsg	
Configuration Communication* Tag	
Path: EnetBridge EnetBridge	Browse
Communication Method         © CIP       DH+         CIP With       Source Link:         Source ID       Source Link:	0 🗾
Connected Connections	
Enable  Enable Waiting  Start  Done Done	Length: 0
Error Code: Extended Error Code:	med Out 🥌
Error Path: Error Text:	
OK Cancel A	pply Help

The <u>P</u>ath: will still need additional information. For my system it is to add the information as seen in the next screen.

Message Configuration - SendDataMsg	
Configuration Communication* Tag	
Path: EnetBridge, 2, 192.168.2.11	Browse
Communication Method         © CIP       © DH+         CIP       © DH+         CIP       O         Destination Link:         Source ID	0 * 0 * (Octal)
Cache Connections	
🔘 Enable 🔘 Enable Waiting 🔘 Start 💿 Done Done	Length: 0
Error Code: Extended Error Code:      T  Error Path: Error Text:	imed Out 🗲
OK Cancel g	Apply Help

I have added a comma and the 2 and a comma and the IP address of my DeviceMaster. It now reads EnetBridge, 2, 192.168.2.11 and yes, I did put spaces after the commas. Click <u>Apply</u> and OK



That finishes the modifications to the MainRoutine

Click on "File" drop down menu and select "Save..." or "Save as..." to save your changes to the file.

# Load the Project to the PLC

Back to top



Click on the "Communications" drop down menu. Select "Download"







Confirm Yes

👪 RSLogix 5000 - ComtrolClx in loopbackExampleTagWrite.ACD [1756-L1]				
<u>File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicatio	ns <u>T</u> ools <u>W</u> indow Help			
	<u> </u>			
Rem Run       Run Mode         No Forces       Controller OK         Battery Fault       Path:         AB_ETHIP-1\192.168.2.40\Backplane\0*         Battery Fault         I/O OK             I/O OK             I/O OK             I/O OK             I/O OK				
Controller ComtrolClx Controller Tags Controller Tags Controller Fault Handler Controller Fault				
Ender Power-up Handler	Tag Name 🛆 Value 🔶 Force Mask Style	Type 🔺		
🖻 🐨 MainTask	E Com1 ProdBySeq     Decimal			
MainProgram     Program Tags     Pr				
MainRoutine ± Com1_ResetPrtCmd 13 Decimal DINT				
Unscheduled Programs	E -Com1_RxData {} {} Decimal	SINT[		
Motion Groups		RxDal		
Trends		SerPrt		
		TxDat		

Once the Controller is in "Run Mode" open the "Controller Tags" in the "Controller ComtrolCLX" menu.

Note the Com1\_ProdTxSeq value incrementing from the above screen at 23 to the next screen showing 64

👸 RSLogix 5000 - ComtrolClx in loopbackExampleTagWrite.ACD [1756-L1]					
<u>Fi</u> le <u>E</u> dit ⊻iew <u>S</u> earch Logic <u>C</u> ommunicatio	Eile Edit <u>V</u> iew <u>S</u> earch Logic <u>Communications T</u> ools <u>W</u> indow Help				
	- <u>&amp;&amp;</u> <u>&amp;</u> <u>Q</u>				
Rem Run       Run Mode         No Forces       Controller OK         Battery Fault       Path:         AB_ETHIP-1\192.168.2.40\Backplane\0*         Battery Fault         I/O OK             Favorites (Bit (Timer/Counter (Input/Output (Compare)))					
Controller ComtrolClx Controller Tags Controll					
Power-Up Handler	Tag Name △ Value ← Force Mask ← Style	Type 🔺			
i≘ 🔄 Tasks i → 📾 MainTack	▶ +-Com1_ConRxSeq 0 Decimal	INT			
		INT			
Program Tags	+ Com1_ProdTxSeq 64 Decimal	INT			
MainRoutine II Com1_ResetPrtCmd II Decimal DINT					
Unscheduled Programs		SINT[			
⊡     Motion Groups     Image: Backgroupsd Avec     ()     ()     RxDat					
Ungrouped Axes					
🗇 📥 Data Types		TxDat			

This value increasing indicates the PLC is sending data.

Now we will configure the DeviceMaster UP itself.

# Configure the DeviceMaster

#### Open the web page of the DeviceMaster.

Comtrol Corporation - De	viceMaster UP EtherN	et/IP 4.10 - Windows Internet Explorer	
💽 🗢 🙋 http://192.166	8.2.11/home.asp	🔽 🗟 🗲 🗙	Google
File Edit View Favorites	Tools Help		
			· • • • • •
🍟 Favorites 🛛 😤 💽 Suggesti	ed Sites 🔻 🏉 SwitchMana	ager 🏉 EthIP.11 🏉 FTP 因 Google 🏉 20	1 🏉 ss .13 🏉 2.5
Comtrol Corporation - DeviceM	laster UP EtherNet/IP	🐴 🔹 🔝 🔹 🖶 🔹 Page 🔹 Sa	afety + T <u>o</u> ols + 🔞 + '
			-
	imtra		
Netwo	rk Enabling Devi	Ces	
Netwo	IK Enabling Devi		
· ·			
	Server Confi	iguration	
s s	oftware: Et	herNet/IP 4.10	
· · · s	erial Number: 90	)13 - 280	
	P Config: St	atic	
DEV/CE•MASTER <sup>®</sup> I	P Address: 19	2.168.2.11	
UP II	P Netmask: 25	55.255.0.0	
I	P Gateway: 19	92.168.0.254	
s	erial Device Config	juration	
E	thernet Device Co	nfiguration	
c	ommunication Sta	tistics	
D	isplay Serial Logs		
		😜 Internet	👍 🔹 🍳 100% 🔹

If your DeviceMaster UP does not have Ethernet/IP 4.10 shown as the "Software:" type, you will need to load in the correct firmware. Firmware is included in the same file that provided the loopbackExampleTagWrite.L5K from the proceeding steps. Use PortVision Plus to install the ethernetip-4.10.bin file to the DeviceMaster.

**Click on Serial Device Configuration** 

Comtrol Corporation - DeviceMaster UP EtherNet/	IP 4.10 - Windows Internet Explorer	<
	💌 🖄 👉 🗙 🚰 Google 🖉 🔎	•
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🚖 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🔊 SwitchManager	🙋 EthIP .11 🤌 FTP <mark> S</mark> Google 🤌 201 🤌 ss .13 🌽 2.5	»
Comtrol Corporation - DeviceMaster UP EtherNet/IP	🛐 🔹 🗟 🝸 🖃 🖶 🍷 Page 🔹 Safety 👻 Tools 👻 🕢	»
		~
	®	=
Network Enabling Devices		
Serial Device Configuration	1	
Common Configuration Upma		
Ethernet Device Configuration		
Communication Statistics		
PLC Interface Diagnostics		
Display Serial Logs		
	Port 1	
Serial Port Settings		
Mode:	RS-232	
Baud:	9600	~
Done	😜 Internet 🦓 🔹 🍕 100% 👻	

Click on Port 1

🖉 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inte	ernet Explorer	
	🗟 🗲 🗙 🚼 Google	<b>P</b> -
<u>Eile E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🖕 Favorites 🛛 👍 🔁 Suggested Sites 👻 🔊 SwitchManager 🤌 EthIP .11 🖉 FTP 🚦	🞖 Google 🥫 201 🥭 ss .13	🤌 2.5 🎽
🌈 Comtrol Corporation - DeviceMaster UP EtherNet/IP 👘 🔹 🗟 🔹 🖃 🖷	¶ ▼ <u>P</u> age ▼ <u>S</u> afety ▼ T <u>o</u> ols	• @• »
		^
Comtrol		=
Edit Serial Port 1 Configuration		
Edit Serial Port 1 Configuration Serial Configuration Mode:	RS-232 💌	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud:	RS-232 ¥ 9600 ¥	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud: Parity:	RS-232 ¥ 9600 ¥ none ¥	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud: Parity: Data Bits:	RS-232 V 9600 V none V	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud: Parity: Data Bits: Stop Bits:	RS-232 V 9600 V none V 8 V 1 V	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud: Parity: Data Bits: Stop Bits: Flow:	RS-232 V 9600 V none V 8 V 1 V	
Edit Serial Port 1 Configuration Serial Configuration Mode: Baud: Parity: Data Bits: Stop Bits: Flow: DTR:	RS-232 V 9600 V none V 8 V 1 V none V	~

We will make no changes to the Serial Port settings as we are simply suing the Comtrol supplied Loopback Plug for testing. You may need to modify these settings once you attach your serial device. Scroll down to the Serial Packet Identification section

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inte	rnet Explorer	×
	💌 🗟 🐓 🗙 🚰 Google 🖉	•
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>I</u> ools <u>H</u> elp		
🚖 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🖉 SwitchManager 🖉 EthIP .11 🖉 FTP 🔱	Google 🙋 201 🙋 ss .13 🙋 2.5 🥭 Live view 🙋 FreeWire	
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🏠 🔹 🔝 🕤 🖃 🖶 🍷 Page 🔹 Safety 🔹 Tools 🔹 🕢	»
		^
Carial Daskat Identification		
STX (Start of Transmission) Rx Detect:	one byte V Byte 1:2 Byte 2: (dec)	
ETX (End of Transmission) Rx Detect:	one byte V Byte 1:3 Byte 2: (dec)	
Discard Rx Packets With Errors:		
PLC Specific Settings		
STX (Start of Transmission) Tx Append:	none 🛛 Byte 1: Byte 2: (dec)	
ETX (End of Transmission) Tx Append:	none 🕑 Byte 1: Byte 2: (dec)	
Strip Rx STX/ETX:		
Application Specific Settings STX (Start of Transmission) Tx Append:	none V Byte 1: Byte 2: (dec)	
ETX (End of Transmission) Tx Append:	none V Byte 1: Byte 2: (dec)	
Strip Rx STX/ETX:		
· · · · · · · · · · · · · · · · · · ·		-
EtherNet/IP Settings		
Rx (To PLC) Ethernet Transfer Method:	Polling V	~
Done	😜 Internet 🦓 🔹 🔍 100% 💌	

Default values are shown here which we will not want to use.

(You may click here to be returned to the STX ETX Determination procedure which is the last chapter of this document.)

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Wind	lows Internet Explorer	
	💌 🗟 🗲 🗙 Google	<b>P</b> -
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🚖 Favorites 🛛 🚔 🔁 Suggested Sites 👻 🔊 SwitchManager 🖉 EthIP .11 🌡	🖻 FTP 🙁 Google 🕖 201 🙋 ss .13 🙋 2.5 💋 Live view 🙋 FreeWir	e
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🟠 🔹 🔝 🕤 🖃 🖶 💌 Page 🖌 Safety 🕶 Tool	s 🕶 🔞 🕶 👋
		^
Carial Dacket Identification		
STX (Start of Transmission) Rx Detect:	none V Byte 1: Byte 2: (dec	
ETX (End of Transmission) Rx Detect:	none V Byte 1: Byte 2: (dec	
Discard Rx Packets With Errors:		
PLC Specific Settings		
STX (Start of Transmission) Tx Append:	none 💙 Byte 1: Byte 2: (dec	)
ETX (End of Transmission) Tx Append:	none 🕑 Byte 1: Byte 2: (dec	)
Strip Rx STX/ETX:		
Application Specific Settings		
STA (Start of Transmission) Tx Append.	none Byte 1: Byte 2: (dec	)
etrin by STV / ETV:	none Y Byte 1: Byte 2: (dec	)
EtherNet/IP Settings		
Rx (To PLC) Ethernet Transfer Method:	Polling	~
		>
Done	😜 Internet 🛛 🖓 🕶 🔍	100% 🔹 🔡

Set the values as shown.

Set the STX (Start of Transmission) Rx Detect: to None with Byte 1: and 2: as blank. Set the ETX (End of Transmission) Rx Detect: to None with Byte 1: and 2: as blank.

Scroll down to the EtherNet/IP Settings

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inte	rnet Explorer 📃 🗖 🔀
	💌 🗟 😽 🗙 🚼 Google 🛛 🔎 🔹
Eile Edit View Favorites Iools Help	
🖕 Favorites 🛛 🚔 💽 Suggested Sites 👻 🔊 SwitchManager 🖉 EthIP .11 🏿 FTP 🙎	Google 🥫 201 🥏 ss .13 🙋 2.5 🥫 Live view 🙋 FreeWire
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🟠 🔹 🔝 🔹 🖶 👻 Page 🔹 Safety 🔹 Tools 🔹 🔞 🔹 🂙
Strip Rx STX/ETX:	
EtherNet/IP Settings	
Rx (To PLC) Ethernet Transfer Method:	Polling 🗸
PLC IP Address:	0.0.0.0
PLC Controller Slot Number (ControlLogix Family):	0
Maximum PLC Update Rate (Write-To-Tag/File):	40 (msec)
Maximum Rx Data Packet Size:	1518 (bytes)
Oversized Rx Packet Handling:	Truncate 💌
Rx (To PLC) Produced Data Tag/File Name:	
Note: File names for SLC/PLC-5 must begin with a "\$" (i.e. \$N10:0) Note: File names for MicroLogix must begin with a "#" (i.e. #N10:0)	).
Tx Sequence Number Checking:	
Disable Non-Filtered To PLC Rx Queue:	
(PLC-5/SLC) Rx MS Byte First:	
(PLC-5/SLC) Tx MS Byte First:	
Done	Toternet
Dono	

These are the defaults. Change these as shown in the next graphic.

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inte	rnet Explorer 📃 🗖 🔀
	💌 🗟 😽 🗙 🚼 Google 🛛 🔎 🔹
<u>Eile E</u> dit <u>V</u> iew F <u>a</u> vorites <u>I</u> ools <u>H</u> elp	
🖕 Favorites 🛛 👍 🔁 Suggested Sites 👻 🔊 SwitchManager 🤌 EthIP .11 🧶 FTP 🔱	Google 🙋 201 🥏 ss .13 🥭 2.5 🥭 Live view 🏉 FreeWire
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🐴 🔹 🔝 🕤 🖃 🖶 🍷 Page 🔹 Safety 🖛 Tools 🛛 🕢 🎽
בוא (בווע טו וועוושווששוטון וא אפרטועו	none byte 1. byte 2. (uec)
Strip Rx STX/ETX:	
EtherNet/IP Settings	
Rx (To PLC) Ethernet Transfer Method:	Write-to-Tag/File
PLC IP Address:	102.168.2.40
PLC Controller Slot Number (ControlLogix Family):	0
Maximum PLC Update Rate (Write-To-Tag/File):	40 (msec)
Maximum Rx Data Packet Size:	1518 (bytes)
Oversized Rx Packet Handling:	Truncate 💌
Rx (To PLC) Produced Data Tag/File Name:	Com1_RxData
Note: File names for SLC/PLC-5 must begin with a "\$" (i.e. \$N10:0)	
Note: File names for MicroLogix must begin with a "#" (i.e. #N10:0	).
Tx Sequence Number Checking:	
Disable Non-Filtered To PLC Rx Queue:	
(PLC-5/SLC) Rx MS Byte First:	
(PLC-5/SLC) Tx MS Byte First:	
Done	🌍 Internet 🦓 👻 🔍 100% 👻 🦼

Change the Rx (To PLC) Ethernet Transfer Method to "Write-to-Tag/File" Enter the IP address of your PLC. (Mine is 192.168.2.40) Change the Rx (To PLC) Produced Data Tag/File Name : to Com1\_RxData NOTE. The tag file must match EXACTLY. Case DOES matter. Spaces are NOT allowed. Any error on this field and data will NOT transmit properly!

Scroll to the bottom of the page.

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inte	ernet Explorer 📃 🗖 🗙
	💌 🗟 🐓 🗙 🚼 Google 🖉 🔎
Eile Edit View Favorites Iools Help	
🖕 Favorites 🛛 🚔 🔁 Suggested Sites 👻 🖉 SwitchManager 🖉 EthIP .11 🖉 FTP 💈	Google 🙋 201 🙋 ss .13 🙋 2.5 🥭 Live view 🙋 FreeWire
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🏠 • 🔊 · 🖃 🖶 • Page • Safety • Tools • 🕖 • 🎽
Barcode UPC/EAN Standard 12-14 Digit Format:	None 💌
Barcode UPC/EAN Eight Digit Format:	None 💌
Filter Age Time (Time filtered after last read):	0 (min) 0 (sec) 100 (msec)
Discard Unrecognized Data (RFID/Barcode):	Off 🗸
Application TCP Connection Configuration Enable: Listen: Listen Port: Connect To Mode: Connect Port: Connect IP Address:	□ 8200 Never ♥ 8210 0.0.0
Disconnect Mode:	Never 💙
	0 (msec)
Reset Statistics Reset Port Save in Flash	Undo Changes Submit
	😜 Internet 🦓 👻 🍕 100% 👻 🤧

Click the Submit Button.

Comtrol Corporation - DeviceMaster UP EtherNet/IP	4.10 - Windows Interne	et Explorer				×
💽 💽 🗢 🖻 http://192.168.2.11/homeSerial.asp			<u>×</u> 🗟 🗲 × [	Google	P	•
Eile Edit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp						
🖕 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🖉 SwitchManager 💈	🔋 EthIP .11 🥫 FTP 🙁 G	oogle 🧧 201	🧀 ss .13 🙋 2.5 🍃 Live view	v 🙋 FreeWir	re	
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4		🏠 •	🔊 - 🖃 🖶 - Page - S	afety <del>+</del> T <u>o</u> ol	ls • 🔞 •	»
<b>Serial Device Configuration</b> Server Configuration Home Ethernet Device Configuration Communication Statistics						
PLC Interface Diagnostics						
Display Serial Logs						
	Port 1					
Serial Port Settings						
Mode:	RS-232					
Baud:	9600					~
Done			😜 Internet	- A	100% -	

You will be returned to the Serial Device Configuration page. Click on Display Serial Logs

Scroll down on the Serial log page until you see the data coming from the PLC.

🖉 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Internet Explorer 📃 🗖 🔀
🚱 🗢 🖻 http://192.168.2.11/displaySerialLogs.asp?
Eile Edit View Favorites Tools Help
🖕 Favorites 🛛 🚖 💽 Suggested Sites 🝷 🖉 SwitchManager 🥖 EthIP .11 🦉 FTP 🔱 Google 🥖 201 🦉 ss .13 🦉 2.5 🦉 Live view 🦉 FreeWire
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4
Reset Serial Log
Port1 Rx/Tx Packets (first 128 packets, max of 128 bytes):
Pkt(1): 000 00:43:33.960:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(2): 000 00:43:33.970:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(3): 000 00:43:34.480:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(4): 000 00:43:34.480:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(5): 000 00:43:35.000:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(6): 000 00:43:35.000:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(7): 000 00:43:35.520:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(8): 000 00:43:35.520:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(9): 000 00:43:36.040:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(10): 000 00:43:36.040:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(11): 000 00:43:36.560:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(12): 000 00:43:36.580:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(13): 000 00:43:37.090:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(14): 000 00:43:37.090:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(15): 000 00:43:37.610:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(16): 000 00:43:37.610:Tx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Pkt(17): 000 00:43:38.130:Rx:ComPort1 Tes(09h)(00h)(00h)(00h)(00h)(00h)(00h)(00h)
Done 😜 Internet 🦓 👻 🔩 100% 👻 🧋
The data will look lie this.

No error messages are displayed.

Rx is from the serial port. Tx is to the serial port.

Scroll up to the top of the page and select PLC Interface Diagnostics

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	1.10 - Windows Inte	rnet Explorer			
🚱 🗢 🙋 http://192.168.2.11/ethernetIPDiag.asp?			✓ 🗟 4 ×	😽 Google	<b>P</b> -
Eile Edit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp					
🖕 Favorites 🛛 👍 🔁 Suggested Sites 🝷 🥭 SwitchManager 🧧	EthIP .11 🦻 FTP 🔱	Google 🙋 201	🥖 ss .13 🥫 2.5 🥫 Live vie	w 🙋 FreeWire	
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4		🖄 •	🔊 - 🖃 🖶 - Page - S	<u>5</u> afety → T <u>o</u> ols →	<b>?</b> • <sup>≫</sup>
PLC Interface Diagnostics					
Server Configuration Home Serial Device Configuration Ethernet Device Configuration Communication Statistics Display Serial Logs		_			
EtherNet/IP Interface Statistics	Reset Statistics				
Messages/Responses Received From PLC:	458				
Broadcasts Received From PLC:	0				
Messages/Responses Sent To PLC:	458				~
Done			😝 Internet	🖓 👻 🔍 100°	% ▼ ";

Once you scroll down to show the statistics you will see:

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	.10 - Windows Internet 🔳 🗖 🔀	
🚱 💿 🗢 🙋 http://192.168.2.11/ethernetIPDiag.asp	🗟 🗲 🗙 🚼 Google 🛛 🔎 🔹	
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🚖 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🖉 SwitchManager 🍃	EthIP .11 🖉 FTP <u>8</u> Google 🍃 201	
General Corporation - Device	Page + Safety + Tools + 🕢 + **	
Communication Statistics		
Display Serial Logs		
EtherNet/IP Interface Statistics	Reset Statistics	
Messages/Responses Received From PLC:	536	
Broadcasts Received From PLC:	0	
Messages/Responses Sent To PLC:	536	
Request Messages From PLC:	268	
Bad Responses to Msgs Sent To PLC:	0	
Invalid Network Path Errors: 0		
No Response From PLC Errors:	0	
Pending Request Limit Errors:	0	
Unexpected Event Errors:	0	
Unsupported CIP Request Instance Errors:	0	
Unsupported CIP Request Service Errors:	0	
Unsupported CIP Request Class Errors:	0	
Unsupported CIP Request Attribute Errors:	0	
Improper Configuration Errors:	0	
Invalid Message Data Errors:	0	
System Resource Errors:	0	
Oversized Received Data Packet Errors:	0	
Writes To Offline Ethernet Device on Socket1	: 0	
First Error Description:	No Error Detected	
Last Error Description:		
	✓	
Done 😜 Internet	: 🖓 🕶 🏨 100% 👻 💥	

In this case, there are no error messages as seen by the "First Error Description" and "Last Error Description"

We will now return to the PLC to confirm all is working as anticipated.

# **Data Confirmation**

Back to top

#### Return to the "Controller Tags"

🕷 RSLogix 5000 - ComtrolClx in loopbackExampleTagWrite.ACD [1756-L1]					
<u>File Edit View S</u> earch Logic <u>C</u> ommunication	<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunications <u>T</u> ools <u>W</u> indow Help				
Rem Run 🗓 🗖 Run Mode	Path: AB_ETHIP-1\192.168.2.40\Backpl	ane\O*			
No Forces		1 1			
No Edits		-(L)-			
	Favorites KBit K Timer/Counter K	Input/Output 🖌 Compare			
	Controller Tags - ComtrolCix(controller				
Controller Fault Handler	Scope: ComtrolCix(controller - Show: Show All	Sort: Tag Name	•		
Power-Up Handler	Tag Name 🛆	Value 🗧 🗧 Force Maske	Style Type 🔺		
E	+-Com1_ConRxSeq	4471	Decimal INT		
⊢~~ MainTask		4471	Decimal INT		
Program Tags		5894	Decimal INT		
🔂 MainRoutine		13	Decimal DINT		
Unscheduled Programs	▶Com1_RxData	{}	ASCII SINT[		
Motion Groups		'w'	ASCII SINT		
Trends		'\$11'	ASCII SINT		
🖃 🚖 Data Types		'\$OO'	ASCII SINT		
🕀 🙀 User-Defined	+ Com1_RxData[3]	'\$01'	ASCII SINT		
🕀 🖳 Strings	+ Com1_RxData[4]	'C'	ASCII SINT		
Hedefined     Module-Defined	+ Com1_RxData[5]	'o'	ASCII SINT		
I/O Configuration	+ Com1_RxData[6]	'm'	ASCII SINT		
[1] 1756-ENBT/A EnetBridge	+ Com1_RxData[7]	'P'	ASCII SINT		
	+ Com1_RxData[8]	'o'	ASCII SINT		
	+ Com1_RxData[9]	'r'	ASCII SINT		
	+ Com1_RxData[10]	't'	ASCII SINT		
	+ Com1_RxData[11]	'1'	ASCII SINT		
		1 1	ASCII SINT		
	+ Com1_RxData[13]	'T'	ASCII SINT		
	+ Com1_RxData[14]	'e'	ASCII SINT		
	+ Com1_RxData[15]	'8'	ASCII SINT		
	+ Com1_RxData[16]	'\$t'	ASCII SINT		
	+ Com1_RxData[17]	'\$00'	ASCII SINT 🖵		
	Monitor Tags / Edit Tags /	•	• //		
			A //		

Note the Com1\_RxData(0) tag byte 1 is now filled in. These values are actually Decimal, but ACSII is displayed in these examples.

The first 2 bytes Com1\_RxData(0) and Com1\_RxData(1) are the 2 bytes of the sequence counter.

The next 2 bytes Com1\_RxData(2) and Com1\_RxData(3) are the 2 bytes of the length field.

The rest of the values are the DATA being transmitted and received.

The only values you will see changing are the first 2 bytes (Com1\_RxData(0) and Com1\_RxData(1)) as the length field does not change and the data does not change.

Compare the above screen shot with a screen shot taken moments later below.

👹 RSLogix 5000 - ComtrolClx in loopb	ackExampleTagWrite.ACD [1756-L1]			
<u> File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicatio	ons <u>T</u> ools <u>W</u> indow Help			
Rem Run 📜 🗖 Run Mode Path: AB_ETHIP-1\192.168.2.40\Backplane\0* 🚽 🚠				
Battery Fault				
No Edits 📑 I/O OK				
	Controller Tags - ComtrolClx(controller	)		
Controller Tags	a Control Chantanita - Shara Shara All			
Controller Fault Handler	Scope:  ComtrolLix[controller Show:  Show All	So <u>r</u> t:   Lag Name		
	Tag Name $\Delta$	Value 🗲 Force Mask	Style	
🖻 🐨 MainTask		4503	Decimal INI	
🖻 🕞 MainProgram		4503	Decimal INT	
Program Tags		13	Decimal INT	
	Com1_Reset Itenia			
🗐 🖂 Motion Groups	+-Com1_BxData[0]	1 (, (	ASCIL SINT	
Ungrouped Axes	+ Com1 RxData[1]	'\$11'	ASCII SINT	
Trends		'\$00'	ASCII SINT	
🗄 🛄 User-Defined	+-Com1_RxData[3]	'\$01'	ASCII SINT	
🛨 📲 Strings	+-Com1_RxData[4]	101	ASCII SINT	
		101	ASCII SINT	
		'm'	ASCII SINT	
1 [1] 1756-ENBT/A EnetBridge	E-Com1_RxData[7]     E-Com1_RxData[7]	'P'	ASCII SINT	
	+ Com1_RxData[8]	101	ASCII SINT	
		'r'	ASCII SINT	
		't'	ASCII SINT	
		'1'	ASCII SINT	
	E-Com1_RxData[12]	1.1	ASCII SINT	
	+-Com1_RxData[13]	'T'	ASCII SINT	
	+-Com1_RxData[14]	'e'	ASUI SINT	
	+-comI_RxData[15]	'3'	ASUI SINT	
		·\\C\		
		1		

Com1\_RxData(0) has changed from a "(without quotes) to "97" You can now see the data that has been sent to the PLC and written to the tag.

The PLC and the DeviceMaster are fully functional at this point.

You may now modify the write options if you so desire, or you may entirely eliminate the write functions in the ladder and only use the read functions.

🕅 RSLogix 5000 - ComtrolClx in loopb	ackExampleTagWrite.ACD [1756-L1]			
<u> File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicati	ons <u>T</u> ools <u>W</u> indow Help			
	▼ #6 #			
Rem Run U Run Mode	Path: AB_ETHIP-11192.168.2.401	Backplane\U*		
No Forces		E -(0)(0)-		
		rer (InputiOutput (Con	inare	
			ipuro	
	Controller Tags - ComtrolClx(cont	roller)		
Controller Tags	Scope: ComtrolClx(controller - Show: Sh	now All 🔻 Sort	Tag Name 🔻	
Power-Up Handler	Tag Name	∧ Value ♦	Force Mask  Stule	Tupe 🔺
E Tasks	+-Com1 ConRxSeq	4556	Decimal	INT
🖃 🧐 MainTask		4556	Decimal	INT
Program Tags	+-Com1_ProdTxSeq	5979	Decimal	INT
MainRoutine		13	Decimal	DINT
Unscheduled Programs	▶ -Com1_RxData	{}	{} ASCII	SINT[
Motion Groups	⊡-Com1_RxData[0]	'\$CC'	D ASCII	SINT
		'\$11'	ASCII	SINT
🖻 🗁 Data Types		'\$00'	ASCII	SINT
🕀 🖳 User-Defined		'\$01'	ASCII	SINT
⊕		'C'	ASCII	SINT
Horiza Predenned Module-Defined	+-Com1_RxData[5]	'0'	ASCII	SINT
□ → → I/O Configuration	+-Com1_RxData[6]	'm'	ASCII	SINT
🗐 [1] 1756-ENBT/A EnetBridge		'P'	ASCII	SINT
		'0'	ASCII	SINT
		'r'	ASCII	SINT
	E-Com1_RxData[10]	't'	ASCII	SINT
		'1'	ASCII	SINT
		1 1	ASCII	SINT
	E-Com1_RxData[13]	ידי	ASCII	SINT
		'e'	ASCII	SINT
		'3'	ASCII	SINT
		'\$t'	ASCII	SINT
	+ Com1_RxData[17]	'\$00'	ASCI	SINT -
	Monitor Tags AEdit Tags /			
				<b>a</b> //

Here is another screen shot taken a few moments later again showing the change of the Com1\_RxData(0) from "97" to "CC". The data is unchanged.

The next and last step of the project is to copy the data from the Com1\_RxData and place the data into Com1\_RxDataSTR.data. The data will then be seen in the next graphic.

👹 RSLogix 5000 - ComtrolClx in loopba	ackExampleTagWrite.ACD [1756-L1]*			
<u> Eile E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicatio	ns <u>T</u> ools <u>W</u> indow Help			
	- <b>A</b> AA		Q	
Hem Run     Image: Controller OK				
Battery Fault		405		
No Edits 🛋 I/O OK				
	Controller Tags - ComtrolClx(controller)			
Controller Tags	Sector ConstralCiv(constraller - Show: Show All	- Sort	Tag Name	<b>,</b>
Power-Lip Handler		<u> </u>	Fares Maské   Ch	
	Tag Name △	22005	Force Mask - St	yie Type -
🖻 👦 MainTask	E-Com1_ProdBxSeq	22995	De	acimal INT
E- 🕞 MainProgram		24418	De	ecimal INT
MainRoutine		13	De	ecimal DINT
Unscheduled Programs		{}	{} AS	
Motion Groups		{}	{}	RxDal
Ungrouped Axes		22995	De	ecimal INT
🖃 🔄 Data Types		256	De	ecimal INT
🛨 🚂 User-Defined	▶ ⊖-Com1_RxDataStr.data	{}	{} AS	CII SINT[
🕀 🔤 Strings		'C'	AS	CII SINT
		'0'	AS	CII SINT
E G I/O Configuration		'm'	AS	CII SINT
🛄 [1] 1756-ENBT/A EnetBridge		'P'	AS	CII SINT
		'0'	AS	CII SINT
	Com1_RxDataStr.data[5]	'r'	AS	CII SINT
	+-Com1_RxDataStr.data[6]	't'	AS	CII SINT
	Com1_HxDataStr.data[7]	.1.	AS	CII SINT
	Com1_RvDataStr.data[9]	171	Ac	CII SINT
	+-Com1_BxDataStr.data[10]	 اوا	۸۵ ۵۹	SCIL SINT
	+-Com1 BxDataStr.data[11]		ас А.9	
	+ Com1_RxDataStr.data[12]	'\$t'	AS	SCII SINT
	+ Com1_RxDataStr.data[13]	'\$00'	AS	SCII SINT 🖵
	Monitor Tags (Edit Tags /			
				2

The sequence number and length field are now displayed in the decimal format.

From this point you may modify the project to copy the data in this structure to a location where you may manipulate the data or manage the data in whatever manner you desire.

# **Determination of STX and ETX**

Back to top

Once you have modified the MainRoutine for your requirements such as removing write commands for a read-only configuration, you will remove the Loopback Plug and replace it with your own device. In this example we will be connecting a hand held bar code scanner.

My bar code scanner adds an ETX (End of Transmission) value. This value is used to specify that the data is finished. The DeviceMaster will use this information to send the data as a single packet to the PLC. Some devices will use both an STX (Start of Transmission) and an ETX (End of Transmission) value. The DeviceMaster can show what these values are so that they can be added to the serial port configuration to improve performance, reduce delays in getting data to the PLC and reduce PLC overhead. Improper values will cause data to be (Dropped) in the serial logs, meaning that the data was not sent to the PLC at all. To determine your STX and ETX values use this quick tutorial. The procedure here is the same for both the Serial Device Logs and the Ethernet Device Logs. Just be sure to go to the appropriate log file.

These procedures are to be used after the DeviceMaster is sending data to the PLC.

Open the web page to your DeviceMaster UP. From the Home Page, click "Display Serial Logs" Here is a sample of the Serial Interface Log file in Ethernet/IP (The Ethernet Device Logs are the same format)

Serial Receive/Transmit Logs (Reset Serial Log) Port1 Rx/Tx Packets (first 128 packets, max of 128 bytes): Pkt(1): 000 04:43:06.630:Rx:test(0Dh)(0Ah) Pkt(2): 000 05:41:04.390:Rx:17162(0Dh)(0Ah) Pkt(3): 000 05:41:11.470:Rx:12345670(0Dh)(0Ah)

Pkt This is the descriptor for Packet (1): This is the ID number of the packet 000 04:43:06.630 breaks down as this:

- 000 = day number
- 04: = hour number
- 43: = minute number
- 06. = second number
- 630 = milliseconds

The day and time values highlighted in blue are NOT the date and time of day. The DeviceMaster UP does not have a Date/Time clock. This is the period of time that the DeviceMaster UP has been running. Rebooting the DeviceMaster UP will reset all of these values back to 0.

Rx: This is the indication of a receive packet from the serial port's bar code scanner.

Tx: This is the indication of a transmit to the serial port from the PLC (There are none in this sample)

These are all the actual data from the bar code scanner.



(0Dh)(0Ah) = The ETX (End of Text) value provided by the scanner. These values must be converted to DECIMAL to be entered into the "Serial Device Configuration>Port#>Serial Packet Identification".

(0Dh) Indicates that a HEX value of 0D is used. This corresponds to CR (Carriage Return) in ASCII and 13 in DECIMAL. (0Ah) Indicates that a HEX value of 0A is used. This corresponds to LF (LineFeed) in ASCII and 10 in DECIMAL. (You may use any ASCII chart from the web to determine your translations.)

After converting to DECIMAL we now know that we use a Carriage Return and a LineFeed to define our ETX. Open the web page to "Serial Device Configuration"

Click on the serial port # to configure.

Scroll down to the "Serial Packet Identification" section of the page. (Click to see graphic)

In the ETX (End of Transmission) Rx Detect set the number of bytes to use. In this sample we will use 2 bytes

In the Byte 1: field enter the number 13

In the Byte 2: field enter the number 10

Scroll to the bottom of the page and click on the "Submit" button.

#### Section 2 Change the configuration from SERIAL mode to SOCKET mode Back to top

Here we will demonstrate the configuration for a Socket device instead of the Serial device used with the Loopback Plug. Completing the Serial mode testing prior to doing the Socket mode testing is recommended. Much of this section is based on the knowledge gained from the previous section.

We will use a telnet application included in PortVision Plus called PuTTY for our socket device simulator.

We will configure the DeviceMaster, then setup PuTTy and then modify the MainRoutine in the PLC project

- Chapter 1 (page 40): Configure the DeviceMaster for an Ethernet Device
- Chapter 2 (page 48): Setting up PuTTY
- Chapter 3 (page 50): Change the Project's MainRoutine for an Ethernet Device
- Chapter 4 (page 56): Confirmation of Socket Data Transfer

# Configure the DeviceMaster for Ethernet Device

Back to top (Back to Serial to Socket Mode Section Header)

#### Open the web page of the DeviceMaster.



If your DeviceMaster UP does not have Ethernet/IP 4.10 shown as the "Software:" type, you will need to load in the correct firmware. Firmware is included in the same file that provided the loopbackExampleTagWrite.L5K from the proceeding steps. Use PortVision Plus to install the ethernetip-4.10.bin file to the DeviceMaster. Click on Ethernet Device Configuration

	💌 🗟 👉 🗙 🚼 Google	<b>P</b> -
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🖕 Favorites 🛛 🚖 🔁 Suggested Sites 🝷 🦻 SwitchManager 🤌	EthIP .11 🙋 FTP <u>8</u> Google 🙋 201 🙋 ss .13	**
Comtrol Corporation - DeviceMaster UP EtherNe	r 🔊 ፣ 🖃 🖶 ፣ Page ፣ Safety ፣ Tools ፣ (	<b>?</b> - <sup>≫</sup>
•		^
		≡
Network Enabling Devices		
Ethernet Device Configuratio	n	
Ethernet Device Configuratio	n	
Ethernet Device Configuratio Server Configuration Home Serial Device Configuration	n	
Ethernet Device Configuratio Server Configuration Home Serial Device Configuration Communication Statistics	n	
Ethernet Device Configuratio Server Configuration Home Serial Device Configuration Communication Statistics PLC Interface Diagnostics Display Ethernet Device Logs	n	
Ethernet Device Configuratio Server Configuration Home Serial Device Configuration Communication Statistics PLC Interface Diagnostics Display Ethernet Device Logs	n Socket 1	
Ethernet Device Configuration Server Configuration Home Serial Device Configuration Communication Statistics PLC Interface Diagnostics Display Ethernet Device Logs	N Socket 1	~
Ethernet Device Configuration Server Configuration Home Serial Device Configuration Communication Statistics PLC Interface Diagnostics Display Ethernet Device Logs	n Socket 1	6

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Window	vs Internet Explorer	$\mathbf{X}$
COO V Image: http://192.168.2.11/editSocket.asp?socketNum=0	🖌 🖂 🔧 🗙 Google 🛛 🖌	•
Eile Edit View Favorites Tools Help		
🚖 Favorites 🛛 🚔 🔁 Suggested Sites 👻 🔊 SwitchManager 🖉 EthIP .11 🖉	FTP <mark>8</mark> Google 🙋 201 🙋 ss .13 🙋 2.5	»
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🔊 🕆 🖃 🖶 🔻 Page 🕶 Safety 🕶 Tools 🕶 🔞 🕶	»
		^
Enkiteni <sup>®</sup>		
Network Enabling Devices		
Edit Socket Port 1 Configuration		
		-
Device TCP Connection Configuration		
Liston:		
Listen Port:	8000	
Connect To Mode:	Never	
Connect Port:	8010	
Connect IP Address:	0000	
Disconnect Mode:	Never 💙	
Idle Timer:	0 (msec)	
		~
Done	😌 Internet 🥢 🔹 🔍 100%	

The default options for the Device TCP Connection are shown here.

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Inter	net Explorer 📃 🗖 🔀
COO V Image: http://192.168.2.11/editSocket.asp?socketNum=0	💌 🗟 👉 🗙 🚼 Google 🛛 🔎 🔹
Eile Edit View Favorites Tools Help	
🚖 Favorites 🛛 🚔 🔁 Suggested Sites 🔻 🙋 SwitchManager 🙋 EthIP .11 🙋 FTP 🔱	Google 🙋 201 🥭 ss .13 🙋 2.5 🂙
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🖶 🔹 Page 🔹 Safety 👻 Tools 👻 😵 💙
Network Enabling Devices	
Network Enabling Devices	
Edit Socket Port 1 Configuration	
Device TOD Composition Configuration	
Enable:	
Listen:	
Listen Port:	8000
Connect To Mode:	Never
Connect Port:	8010
Connect IP Address:	0.0.0.0
Disconnect Mode:	Never 💌
Idle Timer:	0 (msec)
	~

Place check marks in the "Enable:" and "Listen:" fields The other setting may remain at default.

We are setting this up to work with PuTTY, a telnet application in a Windows system. Normally this would be configured to talk to a device of some kind and would initiate the connection. Once we have finished our testing, and you are ready to start using your device, make the following changes:

Remove the checkmark in the Listen box

Change the "Connect To Mode:" to be "Connect-Always"

Change the "Connect Port:" to be the listening port on your device which will be device specific. You will find this information in the user guide included with your specific device such as your scanner or printer.

Scroll to the bottom of the page and click the "Submit" button.

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Wi	indows Internet Explorer 📃 🗖 🔀
COO V Image: Ima	🖌 🐼 🏞 🗙 🚰 Google 🛛 🔎 🗸
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp	
🚖 Favorites 🛛 👍 🔁 Suggested Sites 👻 🖉 SwitchManager 🖉 EthIP .11	) 🖉 FTP 🐰 Google 🤌 201 🥔 ss .13 🍃 2.5
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	▼ 🗟 ፣ 🖃 🖶 ▼ Page ▼ Safety ▼ Tools ▼ 🕡 ▼ 🎽
CONNECT IF AUGUESS.	0.0.0.0
Disconnect Mode:	Never 💌
Idle Timer:	0 (msec)
Socket Packet ID Settings	
Rx Timeout Between Packets:	0 (ms)
STV (Start of Transmission) By Dotoct:	
	none 🔮 Byte 1: Byte 2
ETX (End of Transmission) Rx Detect:	none 💌 Byte 1: Byte 2
PLC Specific Settings	
STX (Start of Transmission) Tx Append:	none 💙 Byte 1: Byte 2
ETX (End of Transmission) Tx Append:	none 💌 Byte 1: Byte 2
Strip Rx STX/ETX:	
Application Specific Settings	
STX (Start of Transmission) Tx Append:	none 🛛 Byte 1: Byte 2
ETX (End of Transmission) Tx Append:	none V Byte 1: Byte 2
Strip Rx STX/ETX:	
EtherNet /ID Settings	
Px (To DI C) Ethernet Transfer Method:	Polling
Done	😜 Internet 🛛 🖓 👻 🍕 100% 💌 🦼

Scroll down to the "Socket Packet ID Settings.

Defaults are shown here. Nothing will be changed here until later.

Once you have completed the testing procedure, you will want to use the <u>Determination of STX and ETX</u> values to find what the values are to be placed in these STX and ETX fields. You will find these values in the <u>Display Ethernet Device Logs</u> instead of the Serial Device Logs. Once your mew values are input, scroll to the bottom of the page and click on the "Submit" button.

🖉 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Internet Explorer 📃 🗖 🛃				
COO V III http://192.168.2.11/editSocket.asp?socketNum=0	💌 🗟 👉 🗙 🚼 Google 🛛 🔎 🔹			
<u> E</u> ile <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp				
🚖 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🔊 SwitchManager 🖉 EthIP .11 🖉 FTP <u>8</u>	Google 🙋 201 🙋 ss .13 🙋 2.5 🏾 🎽			
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🛛 🖶 🔻 Page 🕶 Safety 🕶 Tools 🕶 🔞 🖝 🎽			
ETX (End of Transmission) Tx Append:	none 💌 Byte 1: Byte 2			
Strip Rx STX/ETX:				
EtherNet/IP Settings Rx (To PLC) Ethernet Transfer Method:	Polling			
PLC IP Address:				
DLC Controller Slot Number (Controll agiv Esmily):	0.0.0.0			
	0			
Maximum PLC Update Rate (Write-To-Tag/File):	40 (msec)			
Maximum Rx Data Packet Size:	2048 (bytes)			
Oversized Rx Packet Handling:	Truncate 💌			
Rx (To PLC) Produced Data Tag/File Name:				
Note: File names for SLC/PLC-5 must begin with a "\$" (i.e. \$N10:0).				
Note: File names for MicroLogix must begin with a "#" (i.e. #N10:0).				
Tx Sequence Number Checking:				
Disable Non-Filtered To PLC Rx Queue:				
(PLC-5/SLC) Rx MS Byte First:				
(PLC-5/SLC) Tx MS Byte First:				
	×			
Done	rnet 🦙 🔹 100% 🔻 🦼			

Scroll down to the Ethernet/IP Settings: Defaults are shown here.

🖉 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Internet Explorer	
🚱 🗢 🖉 http://192.168.2.11/editSocket.asp?socketNum=0 🛛 🖌 🔀 Google	<b>P</b> -
Eile Edit View Favorites Tools Help	
🚖 Favorites 🛛 🚖 🔁 Suggested Sites 👻 🙋 SwitchManager 🙋 EthIP .11 🙋 FTP 🙁 Google 🙋 201 💋 ss .13 🙋 2.5	*
🌈 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4 🏠 🔨 🖾 🝸 🖾 🝸 🖶 🝷 Page 👻 Safety 👻 Tools	• 💽 • »
Application Specific Settings	^
STX (Start of Transmission) Tx Append: none 💙 Byte 1:	Byte 2
ETX (End of Transmission) Tx Append: none 💙 Byte 1:	Byte 2
Strip Rx STX/ETX:	
EtherNet/IP Settings	
Rx (To PLC) Ethernet Transfer Method: Write-to-Tag/File	
PLC IP Address: 192.168.2.40	
PLC Controller Slot Number (ControlLogix Family):	_
Maximum PLC Update Rate (Write-To-Tag/File): 40 (msec)	=
Maximum Rx Data Packet Size: 2048 (bytes)	
Oversized Rx Packet Handling: Truncate V	_
Rx (To PLC) Produced Data Tag/File Name: Com1_RxData	
Note: File names for SLC/PLC-5 must begin with a "\$" (i.e. \$N10:0).	
Note: File names for MicroLogix must begin with a "#" (i.e. #N10:0).	
Disable Non-Eiltered To PLC By Queue:	
(PLC-5/SLC) Rx MS Byte First:	
	~
Done	100% -

Modify these settings as shown. RX (To PLC) Ethernet Transfer Method: Write-to-Tag/File PLC IP Address: The IP address of your PLC. My PLC is 192.168.2.40 RX (To PLC) Produced Data Tag/File Name: in the Sample Code we use Com1\_RxData.

Comtrol Corporation - DeviceMaster UP EtherNet/IP 4.10 - Windows Interr	net Explorer 📃 🗖 🔀
CCC The http://192.168.2.11/editSocket.asp?socketNum=0	💌 🗟 👉 🗙 🚼 Google 🛛 🔎 🔹
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp	
🚖 Favorites 🛛 🚖 💽 Suggested Sites 👻 🔊 SwitchManager 🖉 EthIP .11 🖉 FTP <u>8</u> (	Google 🙋 201 🙋 ss .13 🙋 2.5 🏾 🎽
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🖶 🔻 Page 🕶 Safety 🕶 Tools 🕶 🔞 🖝 🎽
RFID Antenna Grouping:	None 🔽
RFID Reader Interface Type:	Unspecified 💌
Barcode UPC/EAN Standard 12-14 Digit Format:	None 💌
Barcode UPC/EAN Eight Digit Format:	None
Filter Age Time (Time filtered after last read):	0 (min) 0 (sec) 100
Discard Unrecognized Data (RFID/Barcode):	Off 💌
Application TCP Connection Configuration Enable: Listen: Listen Port: Connect To Mode: Connect Port: Connect IP Address: Disconnect Mode: Idle Timeout:	□ 8100 Never ♥ 8110 0.0.00 Never ♥ 0 (msec)
Reset Statistics Reset Port Save in Flash	Undo Changes Submit
Done	rnet 🦙 🔩 100% 👻 🛒

Scroll to the bottom of the page and click on Submit.

Setting up PuTTY
Back to top (Back to Serial to Socket Mode Section Header)
Please note: In this testing procedure we will be using PuTTY to connect to the DeviceMaster. In most cases, the DeviceMaster will connect to the Ethernet device instead of the Ethernet device connecting to the DeviceMaster. Once this testing has completed you will probably be reconfiguring the information displayed on page 42 of this guide.

Open PuTTY which is included in PortVision Plus. C:\Program Files\Comtrol\PortVision Plus\PUTTY.EXE

🕵 PuTTY Configuration	? 🔀
Category: Session Logging Terminal Keyboard Bell Features	Basic options for your PuTTY session  Specify the destination you want to connect to  Host Name (or IP address)  Connection type:
Window  Appearance Behaviour  Translation Colours  Connection Data Proxy Telnet Rlogin	○ <u>R</u> aw       ○ <u>I</u> elnet       Rlogin <u>S</u> SH       Serial         Load, save or delete a stored session         Saved Sessions         □       □       □         □       □       □ </td
ia SSH Serial About <u>H</u> elp	Close window on exit: Always Never Only on clean exit

Default Settings are shown here

🔀 PuTTY Configuration	. ? 🛛
Category:	
<ul> <li>Session         <ul> <li>Logging</li> <li>Terminal</li> <li>Keyboard</li> <li>Bell</li> <li>Features</li> </ul> </li> <li>Window         <ul> <li>Appearance</li> <li>Behaviour</li> <li>Translation</li> <li>Selection</li> <li>Colours</li> </ul> </li> <li>Connection         <ul> <li>Data</li> <li>Proxy</li> <li>Tenet</li> <li>Rlogin</li> <li>SSH</li> <li>Serial</li> </ul> </li> </ul>	Basic options for your PuTTY session         Specify the deatise time or month         Host Name (or IP address)         Port         192.168.2.11         Connection type:         Baw         Image: Basic options         Image: Basic options
<u>A</u> bout <u>H</u> elp	<u>Open</u>

Enter the IP address of your DeviceMaster in the "Host Name (or IP address)" field Set the "Port" value to 8000 Click on Open

Return	to	the	web	pages	
--------	----	-----	-----	-------	--

Comtrol Corporation - DeviceMaster UP EtherNet/I	P 4.10 - Windows Internet Explorer	
C 🖉 🗢 🙋 http://192.168.2.11/homeSocket.asp	💌 🗟 🗲 🔀 Google	<b>P</b> -
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp		
🖕 Favorites 🛛 👍 🔁 Suggested Sites 👻 🔊 SwitchManager	🦻 EthIP .11 🙋 FTP 🔱 Google 🤌 201 🍺 ss .13 🥏 2.5	»
Comtrol Corporation - DeviceMaster UP EtherNet/IP 4	🟠 🔹 🔝 🔹 🖶 👻 Page 🚽 Safety 🚽 Tool:	5 <b>• 🔞 •</b> »
Ethernet Device Configurat	ion	^
g		_
Server Configuration Home		
Serial Device Configuration		
Communication Statistics		
PLC Interface Diagnostics		
Display Ethernet Device Logs		
	Socket 1	
Device TCP Connection Configuration		
Enabled:	Yes	
Listen:	Yes	
Listen Port:	8000	
Connect To Mode:	Never	
Connect Port:	8010	
Connect IP Address:	0.0.0.0	
Disconnect Mode:	Never	
Idle Timeout:	0	
Device TCP Connection Status		
Remote Connection:	192.168.2.30:3678	
Socket Packet ID Settings		~
Done	😜 Internet 🦓 🔹 🎕	100% 🔹 🔐

If PuTTY successfully connected you will see in the Remote Connection: The IP address of the PC that you are running PuTTY on. In this case 192.168.2.30:3678. The value to the right of the colon is the source socket value of PuTTY which may change from connection to connection.

# Change the MainRoutine in the Project for an Ethernet Device connected to the DeviceMaster

Back to top (Back to Serial to Socket Mode Section Header)

Return to the PLC							
👪 RSLogix 5000 - ComtrolClx in loopb	ackExampleTagWrite.ACD [17	56-L1]					
<u> File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicati	ions <u>T</u> ools <u>W</u> indow Help						
	L .	<u>&amp;&amp;&amp;</u>		Q			
Rem Run 📑 🗖 Run Mode 🔤	AB_ETHIP-1\19	2.168.2.40\Backpla	ne\0* 🗸	18			
No Forces				<u> </u>			
No Edits Battery Fault		-+/( )(U)-	-(L)-	Þ			
	Favorites Bit	Timer/Counter 🔏 I	nput/Output 🔏 Com	pare			
	Controller Tage Comtro	(Cly(controllor)			6		
	Controller Tags - Contro	icix(controller)		-			
Controller Fault Handler	Scope: ComtrolClx(controller	Show: Show All	▼ So <u>r</u> t:	Tag Name	•		
Power-Up Handler	Tag Name	Δ	Value 🗧	Force Mask 🗲 S	tyle	Туре 🔺	
E-G Tasks			240	D	ecimal	INT	
			240	D	ecimal	INT	
🖉 Program Tags			400	D	ecimal	INT	
🔜 🛅 MainRoutine	E-Com1_ResetPrtCmd		13	D	ecimal	DINT	
Unscheduled Programs	▶ E-Com1_RxData		{}	{} D	ecimal	SINT[	
	E Com1_RxData[0]		-16	D	ecimal	SINT	
	⊡-Com1_RxData[1]		0	D	ecimal	SINT	
🖃 🔄 Data Types	⊡-Com1_RxData[2]		0	D	ecimal	SINT	
🗄 🗔 User-Defined	⊡-Com1_RxData[3]		1	D	ecimal	SINT	
⊕ 🕞 🙀 Strings			67	D	ecimal	SINT	
	⊕-Com1_RxData[5]		111	D	ecimal	SINT	
Module-Defined	⊕-Com1_RxData[6]		109	D	ecimal	SINT	
II 111756-ENBT/A EpetBridge	⊕-Com1_RxData[7]		80	D	ecimal	SINT	
	⊕-Com1_RxData[8]		111	D	ecimal	SINT	
	⊕-Com1_RxData[9]		114	D	ecimal	SINT	
	⊕-Com1_RxData[10]		116	D	ecimal	SINT	
	⊕-Com1_RxData[11]		49	D	ecimal	SINT	
	⊕-Com1_RxData[12]		32	D	ecimal	SINT	
	⊕-Com1_RxData[13]		84	D	ecimal	SINT	
	⊕-Com1_RxData[14]		101	D	ecimal	SINT	
	⊕-Com1_RxData[15]		115	D	ecimal	SINT	
	+-Com1_RxData[16]		9	D	ecimal	SINT	
	+-Com1_RxData[17]		0	D	ecimal	SINT 🖵	
Monitor Tags / Edit Tags /							
Ready							
						11.	

Take the PL	_C Offline s	o we car	n confiaure	the pro	biect

🕷 RSLogix 5000 - ComtrolClx in loopbackExampleTagWrite.ACD [1756-L1]								
File Edit View Search Logic Commun	File Edit View Search Logic Communications Tools Window Help							
Image: Second Path Active         Second Path Active								
No Forces Controller ( Go No Edits A Up I/O OK	o Offline pload pwnload	avorites (Bit ( Ti	-1/1(_)(U)- mer/Counter <b>X</b> _Li	-(L)- nput/Output 🔏 Cor	npare			
Controller ComtrolClx	ogram Mode	r Tags - Comtrol(	Clx(controller)					×
Controller Tags	un Mode	trolClx(controller 💌	Show: Show All	▼ So <u>r</u>	t Tag Name	-		
Power-Up Handler			Δ	Value 🗧	Force Mask 🗲	Style	Туре	
Lov	ck Controller	lonRxSeq		313	1	Decimal	INT	
	eer Faults	ProdRxSeq		313	i la	Decimal	INT	
Program Tags	an Louis	rodTxSeq		473		Decimal	INT	
📃 🔤 🎦 MainRoutine		lesetPrtCmd		13	1	Decimal	DINT	1
Making Groups	Com1_F	1xData		{}	{}	Decimal	SINT	]]
E Motion Groups	+-Com1	_RxData[0]		57		Decimal	SINT	·
	+-Com1	_RxData[1]		1		Decimal	SINT	
📄 🔄 Data Types	+-Com1	_RxData[2]		C	ł	Decimal	SINT	
🕀 🙀 User-Defined	+-Com1	_RxData[3]		1		Decimal	SINT	
🕀 🛄 Strings	+-Com1	_RxData[4]		67	1	Decimal	SINT	·
	+-Com1	_RxData[5]		111		Decimal	SINT	•
	+-Com1	_RxData[6]		109	(	Decimal	SINT	•
I [1] 1756-ENBT/A EpetBridge	+-Com1	_RxData[7]		80	r i i i i i i i i i i i i i i i i i i i	Decimal	SINT	•
g [e]	+-Com1	_RxData[8]		111		Decimal	SINT	•
		_RxData[9]		114	£	Decimal	SINT	·
		[_RxData[10]		116		Decimal	SINT	
	+-Com1	_RxData[11]		49	1	Decimal	SINT	
	+ Com1_RxData[12] 32			:	Decimal	SINT		
	⊕ Com1_RxData[13]			84	í l	Decimal	SINT	
	⊕ Com1_RxData[14]			101		Decimal	SINT	1
	+ Com1_RxData[15] 115 Decimal				SINT			
+ Com1_RxData[16] 9 Decimal					SINT	: I		
	+-Com1	[_RxData[17]		C		Decimal	SINT	
	Monit	or Tags 🖌 Edit Tag:	s /	•			•	
Go offline from the controller								

Click on the "Communications" drop down menu and select "Go Offline"



Go to the MainRoutine

Note the Offline indicator in the upper right corner.

Click on the SendDataMsg to open the configuration dialog.

We can now make the one change to the Project that is required.

Message Configuration - SendDataMsg	
Configuration Communication Tag	
Message <u>Type:</u> CIP Generic	•
Service Set Attribute Single	Source Element: Com1_TxDataStr 💌
Type:	Source Length: 260 + (Bytes)
Service 10 (Hex) <u>C</u> lass: 71 (Hex)	Destination
Instance: 1 Attribute: 1 (Hex)	Ne <u>w</u> Tag
🔘 Enable 🔍 Enable Waiting 🔍 Start	😟 Done 🛛 Done Length: 0
Error Code: Extended Error Code: Error Path: Error Text:	🥅 Timed Out 🗲
OK	Cancel Apply Help

The only option we need to modify is the "<u>C</u>lass:" attribute.

Message Configuration - SendDataMsg	
Configuration <sup>*</sup> Communication Tag	
Message <u>Type:</u> CIP Generic	-
Service Set Attribute Single <u>S</u> ource Eleme	nt: Com1_TxDataStr 🗨
Type: Source Length	n: 260 ÷ (Bytes)
Service 10 (Hex, Class: 74 (Hex) Destination	<b></b>
Instance: 1 Attribute: 1 (Hex)	Ne <u>w</u> Tag
	David andly 0
🔾 Enable 🔾 Enable Waiting 🔾 Start 🛛 🥥 Done	Done Length: U
Error Code: Extended Error Code:	Timed Out 🗲
Error Text:	
OK Cancel	Apply Help

Change the "Class: from 71 to 74 as shown here.

A class of 71 indicates a serial port device is connected. A class of 74 indicates an Ethernet device will be used. Socket 1 is the socket in use in the DeviceMaster, so the instance will remain a value of 1.

Click "Apply" and "OK"



Now we can download the project to the PLC and let it change back to Run mode. Click the "Communications" drop down menu and select "Download"



Click the Download button



Respond Yes to the confirmation dialog

## **Confirmation of Socket Data Transfer**

Back to top (Back to Serial to Socket Mode Section Header)

PuTTY should look something like this:

🗳 192.1	168.2.11	- PuTTY							
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1 T 🔼
es	abcdef	iComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	iComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdefCo
mPort1	Tes	abcdef(	ComPort1	Tes	abcdef	ComPort1	Tes	abcdef(	ComPort1 T
es	abcdef	ComPort1	Tes	abcdef(	ComPort1	Tes	abcdef(	ComPort1	Tes a
bcdefCo	omPort1	Tes	abcdef(	ComPort1	Tes	abcdef			~

You will see received data in PuTTY. This is the data that the PLC is sending to the DeviceMaster, which is then forwarded on to the PuTTY application. The data from the PLC is being sent without the use of either an STX or ETX so it is simply displayed over and over instead of having each packet on a separate line.

You can send data at the same time, but the data will not display here.

Let's send some data. I will press and hold the letter 'a' for a moment to let it repeat a few times. Again, it will not be see in the PuTTY display.

We should see both the received data and the string of 'a' values that we sent in the Display Ethernet Device Logs in a following graphic.

Back to the web pages of the DeviceMaster.

Comtrol Corporation - DeviceMaster UP Eth	nerNet/IP 4.10 - Windows Internet Explorer 📃 🗖 🔀						
	🖌 🐼 🏕 🗙 🚱 Google 🛛 🔎 🗸						
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp							
🚖 Favorites   🚖 🔁 Suggested Sites 👻 🔊 Switch	Manager 🤌 EthIP .11 🤌 FTP 🔱 Google 🤌 201 🍃 ss .13 🂙						
Comtrol Corporation - DeviceMaster UP EtherNe	🐴 🔹 🔝 🔹 🖶 👻 Page 🔹 Safety 🗸 Tools 🖉 🖓 🐣						
Server Co	nfiguration						
Software:	EtherNet/IP 4.10						
Serial Number:	9013 - 280						
IP Config:	Static						
DEV/CE•MASTER <sup>®</sup> IP Address:	192.168.2.11						
UP IP Netmask:	255.255.0.0						
IP Gateway:	192.168.0.254						
Serial Device Co	nfiguration						
Ethernet Device Configuration							
Communication Statistics							
Display Serial Lo	ogs						
Display Etherne	t Device Logs						
PLC Interface Di	agnostics						
Configure Network							
Configure Secur	ity 🗕						
Reboot	×						
Done	😜 Internet 🦓 👻 🍕 100% 💌 🛒						

Click on Display Ethernet Device Logs

#### Scroll down into the log looking for the string a values we sent from PuTTY 🖉 Comtrol Corporation - DeviceMaster UP EtherNet/IP 4,10 - Windows Internet Explorer 🗸 🐼 🔶 🛃 Google Q e http://192.168.2.11/displaySocketLogs.asp? × Edit View Favorites Tools File Help » 🕞 Suggested Sites 🔻 🏉 SwitchManager 🤌 EthIP .11 🏉 FTP 🔱 Google 🏉 201 🥭 ss .13 🖕 Favorites ÷ » 🟠 🔹 🔝 🔹 🚍 🗰 👻 Page 👻 Safety 👻 Tools 👻 🔞 🕇 🚝 Comtrol Corporation - DeviceMaster UP EtherNe... Pkt(21): 000 00:41: 0.630:Rx:aaaaaaaaaaaaaaaaaaaaaa(0Dh)(0Ab> < > 😜 Internet 🕄 100% ÷ Done - @

You should see something like this.

Note the Pkt(21) 000 00:41:20.630:Rx:aaaaaaaaaaaaaaaaaaaaaaaa(0Dh)(0Ah)

The Rx packet is what was sent from PuTTY. I held the 'a' key down for a moment and then pressed the Enter key. The line breaks down as this:

Pkt This is the descriptor for Packet

(21): This is the ID number of the packet

- 000 00:41:20.630 breaks down as this:
  - 000 = day number
  - 00: = hour number
  - 41: = minute number
  - 20. = second number
  - 630 = milliseconds

The day and time values are NOT the date and time of day. The DeviceMaster UP does not have a Date/Time clock. This is the period of time that the DeviceMaster UP has been running. Rebooting the DeviceMaster UP will reset all of these values back to 0.

Rx This is the indication of a receive from the socket port.

aaaaaaaaaaaaaaaaaa This is the actual data from PuTTY.

(0Dh)(0Ah) The Enter key provided the (0Dh)(0Ah) as the carriage return, line feed. These values converted to Decimal (13 and 10) would be used in the ETX fields.

Now back to the PLC.									
RSLogix 5000 - ComtrolClx in loopbackExampleTagWrite.ACD [1756-L1]*									
<u>File E</u> dit <u>V</u> iew <u>S</u> earch Logic <u>C</u> ommunicatio	<u>File Edit Yiew S</u> earch Logic <u>C</u> ommunications <u>T</u> ools <u>W</u> indow Help								
Rem Run 🚺 🗖 Run Mode	Path: AB_ETHIP-1\192.168.2.40\Backplane\0* 🚽 🖁								
No Forces									
No Edits									
	Favorites (Bit ( Timer/Counter ( Input/Output ( Compare								
	Controller Taes - ComtrolClx(controller)								
Controller Tags									
Controller Fault Handler									
	Lag Name     △     Value     €     Force Mask €     Style	lype 🔺							
🖻 🚭 MainTask	El Cont_ConfixSeq     O     Decimal								
🖻 🚔 MainProgram									
Program Tags	H-Lom1_ProdixSeq 24 Decimal	INT							
	E-comi_ResetTrumo	CINT							
E Grisenedalog Programs	E-Comi_hxData {} Comi_hxData								
Ungrouped Axes	+ Comi_HxData[0] 0 Decimal	CINT							
Trends	+ Comi_RxData[1] U Decimal	SINT							
🖻 📹 Data Types	Ecomi_HxData[2]     Decimal	SINT							
	Econi_RxData[3]     Decimal	SINT							
	+ Comi_RxData[4] U Decimal	SINT							
Module-Defined	+ Comi_HxData[5] U Decimal	SINT							
🗄 😁 T/O Configuration	+ Com1_RxData[6] U Decimal	SINT							
🛄 🗐 [1] 1756-ENBT/A EnetBridge	+ Com1_RxData[7] 0 Decimal	SINT							
	+ Com1_HxData[8] 0 Decimal	SINT							
	+ Com1_RxData[9] 0 Decimal	SINT							
	+ Com1_RxData[10] 0 Decimal	SINT							
	+ Com1_RxData[11] 0 Decimal	SINT							
	+ Com1_HxData[12] 0 Decimal	SINT							
	+ Com1_HxData[13] 0 Decimal	SINT							
	+ Com1_RxData[14] 0 Decimal	SINT							
	+ Com1_RxData[15] 0 Decimal	SINT							
	+ Com1_RxData[16] 0 Decimal	SINT							
	+ Com1_RxData[17] 0 Decimal								
	▲ ▶ \Monitor Tags (Edit Tags /	<u> </u>							
		<b>a</b> //							

Now we should see the Com1\_ProdTxSeq value incrementing.

#### A little later you can see the Com1\_ProdTxSeq value continue incrementing

Image later you can cool in cool in cool in a contract reaction of an a contract in contract in a co										
Eile Edit View Search Logic Communications Tools Window Help										
■ # # # # # # # # # # # # # # # # # # #										
Rem Run  □ Run Mode Rem R										
No Forces		–								
No Edits		(L)-	<u> </u>							
	Favorites (Bit / Timer/Counter /	Input/Output 🔏 Com	pare							
	Controller Tags - ComtrolClx(controller	)								
Controller Tags	Country Country Children - Show All	/ 	TanNana							
Controller Fault Handler										
	I ag Name △	Value 🗧	Force Mask Style	lype 🔺						
🖻 😽 MainTask	Cont_ContXSeq	2	Decimal							
🖻 🖼 MainProgram		2	Decimal							
Program Tags	E.Com1_ResetPrtCmd	13	Decimal	DINT						
	-Com1_BxData	10 {}	() ASCII							
🚍 🔄 Motion Groups	+ Com1 BxData[0]	'\$02'	ASCI	SINT						
Ungrouped Axes	T - Com1 RxData[1]	'\$00'	ASCII	SINT						
Data Types	+ Com1_RxData[2]	'\$14'	ASCII	SINT						
🗄 🛄 User-Defined	+ Com1_RxData[3]	'snn'	ASCII	SINT						
🕀 🙀 Strings		'a'	ASCII	SINT						
	+-Com1_RxData[5]	'a'	ASCII	SINT						
		'a'	ASCII	SINT						
[1] 1756-ENBT/A EnetBridge		'a'	ASCII	SINT						
		'a'	ASCII	SINT						
	Com1_RxData[9]	'a'	ASCII	SINT						
		'a'	ASCII	SINT						
		'a'	ASCII	SINT						
		'a'	ASCII	SINT						
		'a'	ASCII	SINT						
		'a'	ASCII	SINT						
	Com1_RxData[15]	'a'	ASCII	SINT						
	E-Com1_RxData[16]	'a'	ASCI	SINT						
	Lomi_HxData[17]	'a'	ASUI	SINT 🚽						
	Monitor rags VEor Lags /			//						
Enter display style for the value										

If we expand and look at the Com1\_rxData in the PLC we see the sequence counter, the length field and data displayed.

Socket mode is operational.

You may now need to return to the DeviceMaster to configure the socket settings to match to your equipment.

## **Trouble Shooting and Support Assistance**

Back to top

Please complete the following procedure and have this ready to send via email to your Comtrol Support Representative This will provide the most comprehensive data for the support person to work with, allowing the quickest and most comprehensive reply possible. In extremely rare case, additional information may be required.

These files will probably tell us everything we need to know as to what is causing the failure. If you use some web browser other than Microsoft Internet Explorer, I do not know if the files will create and display as expected once the support person receives them, so if possible, please use Windows Internet Explorer as the web browser.

You may contact Comtrol Technical Support at 763-957-6000

#### **Serial Port Connected Device:**

Using PortVision Plus save the DeviceMaster configuration to a file: Open PortVision Plus Highlight the DeviceMaster in question Click the 'Save' icon on the launch bar Give a name to the file to save such as your case number or your name. Save the file to a path that you are comfortable using.

Set the DeviceMaster for "Write to Tag/File" mode using whatever method you prefer. Ether through plc commands to the DeviceMaster or via the web page of the DeviceMaster. Once it is set to "Write to Tag/File" mode we want to reset the statistics. Open the web page of the DeviceMaster. (These instructions assume Windows IE) Click on Display Serial Logs Click on "Reset Serial Log" Once reset, click on Server Configuration Home Click on PLC Interface Diagnostics Click on "Reset Statistics" Once reset, click on Server Configuration Home

Do some scans (or whatever you do that causes the error). Capturing just 2 or 3 error instances should be more than enough.

We then want to capture some web pages to have you send to Comtrol. Click on Serial Device Configuration Click on Port 1 Click on the "File" drop down menu and select "Save As..." Give the name as port1 Make sure the page saves as type (\*.mht) Click the 'Back' button Click on PLC Interface Diagnostics Click on the "File" drop down menu and select "Save As..." Give the name as plc-diag Make sure the page saves as type (\*.mht) Click on Display Serial Logs Click on the "File" drop down menu and select "Save As..." Give the name as serial-log Make sure the page saves as type (\*.mht)

Capture screen shots or details of everything that you have modified in the loopbackExampleTagWrite.L5K file

Gather the configuration file from PortVision Plus and the web pages saved files and zip these files together with the details of the changes made to the loopbackExampleTagWrite.L5K and zip into a single archive file.

#### **Ethernet Connected Device:**

Using PortVision Plus save the DeviceMaster configuration to a file. Open PortVision Plus Highlight the DeviceMaster in question Click the 'Save' icon on the launch bar Give a name to the file to save such as your case number or your name. Save the file to a path that you are comfortable using.

Set the DeviceMaster for "Write to Tag/File" mode using whatever method you prefer. Ether through plc commands to the DeviceMaster or via the web page of the DeviceMaster. Once it is set to "Write to Tag/File" mode we want to reset the statistics. Open the web page of the DeviceMaster. (These instructions assume Windows IE) Click on Display Ethernet Device Logs Click on "Reset Ethernet Log" Once reset, click on Server Configuration Home Click on PLC Interface Diagnostics Click on "Reset Statistics" Once reset, click on Server Configuration Home

Do some scans (or whatever you do that causes the error). Capturing just 2 or 3 error instances should be more than enough.

We then want to capture some web pages to have you send to Comtrol. Click on Ethernet Device Configuration Click on Socket 1 Click on the "File" drop down menu and select "Save As..." Give the name as socket1 Make sure the page saves as type (\*.mht) Click the 'Back' button Click on PLC Interface Diagnostics Click on the "File" drop down menu and select "Save As..." Give the name as plc-diag Make sure the page saves as type (\*.mht) Click on Display Ethernet Device Logs Click on the "File" drop down menu and select "Save As..." Give the name as socket-log Make sure the page saves as type (\*.mht)

Capture screen shots or details of everything that you have modified in the loopbackExampleTagWrite.L5K file

Gather the configuration file from PortVision Plus and the web pages saved files and zip these files together with the details of the changes made to the loopbackExampleTagWrite.L5K and zip into a single archive file.

Version history Document created by Mac Harned

1.1 Initial release February 20, 2013