

## Technical Note

# Sample Message Instructions for Processor to Processor Communications using the AN-X2-AB-DHRIO DH Plus Bridge

**Document Code:** TN130628-001

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**Date:** September 2017



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## Document Information

Author	Tom Lenigan
Description	Sample Message instructions for Processor to Processor communications
Date	September 2017
Revision	1.02
Product Name	AN-X2-AB-DHRIO
Document Code	TN130628-001

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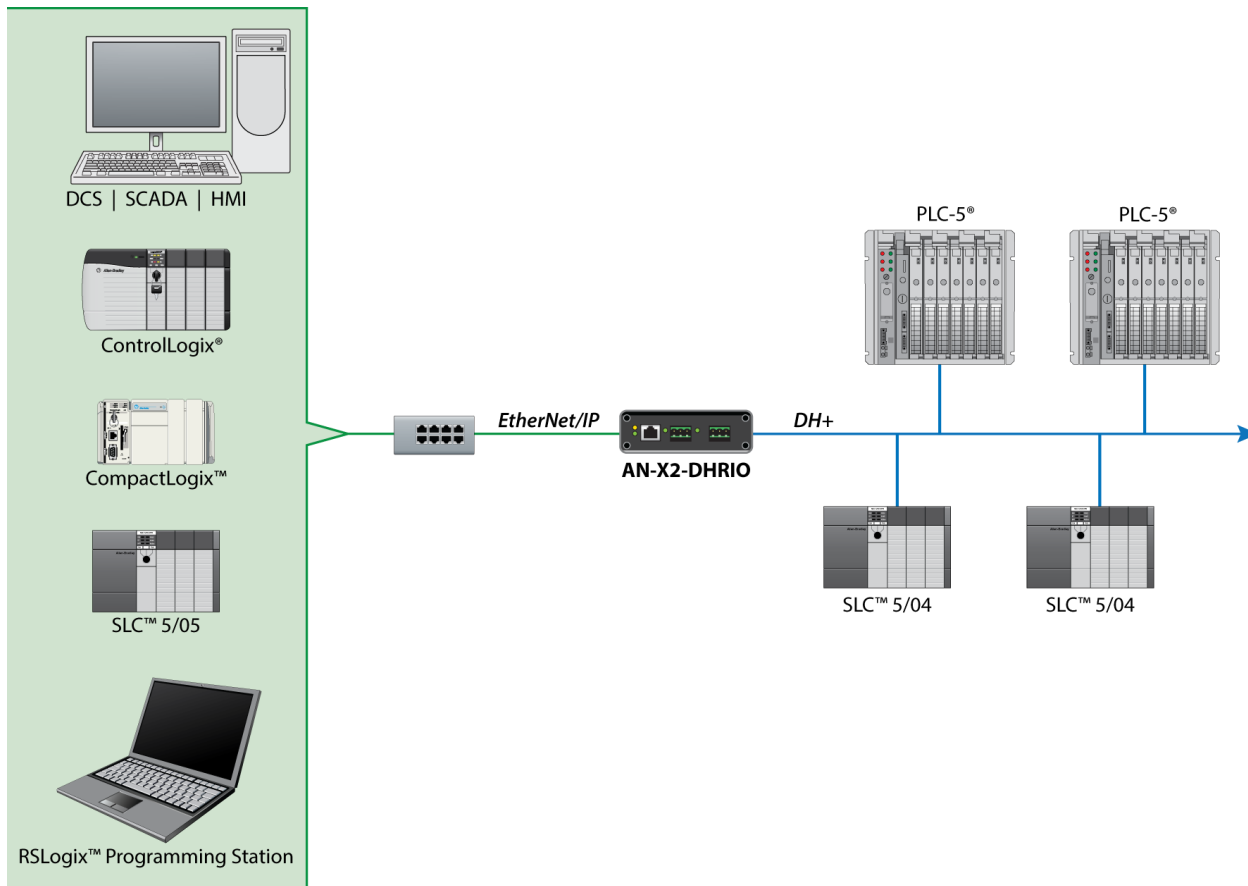
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July 15, 2013

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The AN-X2-AB-DHRIO gateway when operating with the AN-X2-DHP firmware selected emulates a ControlLogix Hardware Gateway. This gateway enables Programming Terminals, SCADA, DCS, HMIs, and processors to communicate through the gateway to various legacy processors on the DH+ network.

This TechNote will show samples of Processor to Processor communications via Message instructions, and how to configure the path to the devices on the DH+ network. The DH+ bridge firmware has been designed to take communications from the Ethernet interface and pass them to the devices on the DH+ network. Communications that originate from the DH+ network cannot be routed to devices on the Ethernet network.

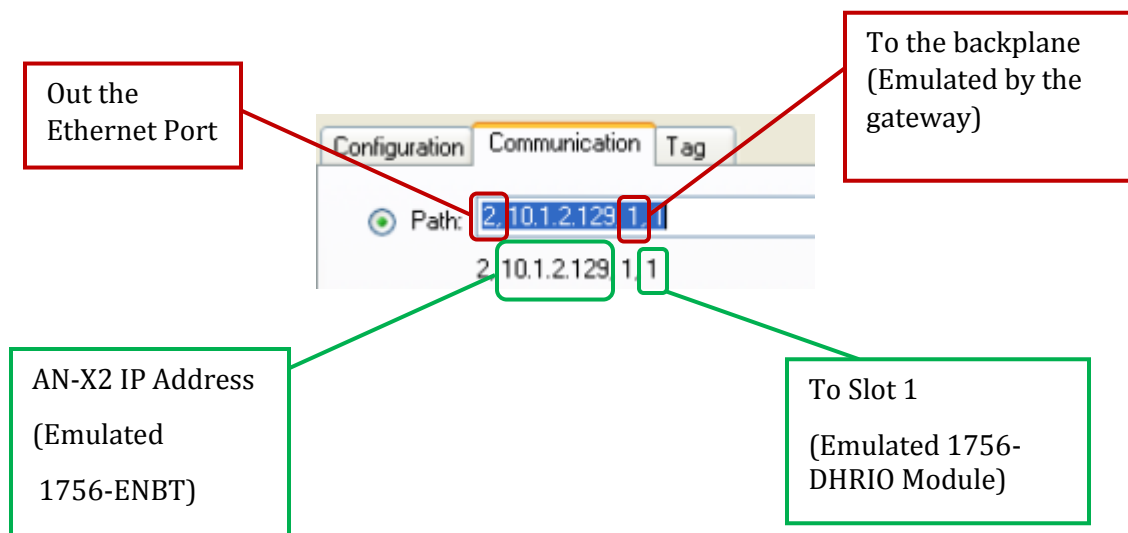


## General Message Instruction Information:

- 1) When using CompactLogix™ or ControlLogix® processors:
  - a. It is not possible to configure MSG instructions with binary data types
  - b. It is not necessary to add in the AN-X2 gateway into the I/O tree when using MSG instructions
- 2) The Source and destination tags or data files data types must match
- 3) Cannot be continuously enabled, but must be enabled based upon some trigger condition

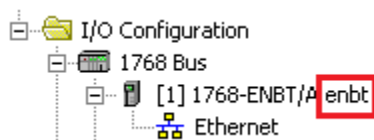
## CIP Path Information:

Since the AN-X2 Gateway emulates a 4 slot ControlLogix® Hardware Gateway here is the breakdown of the CIP portion of a CompactLogix™ sample path:



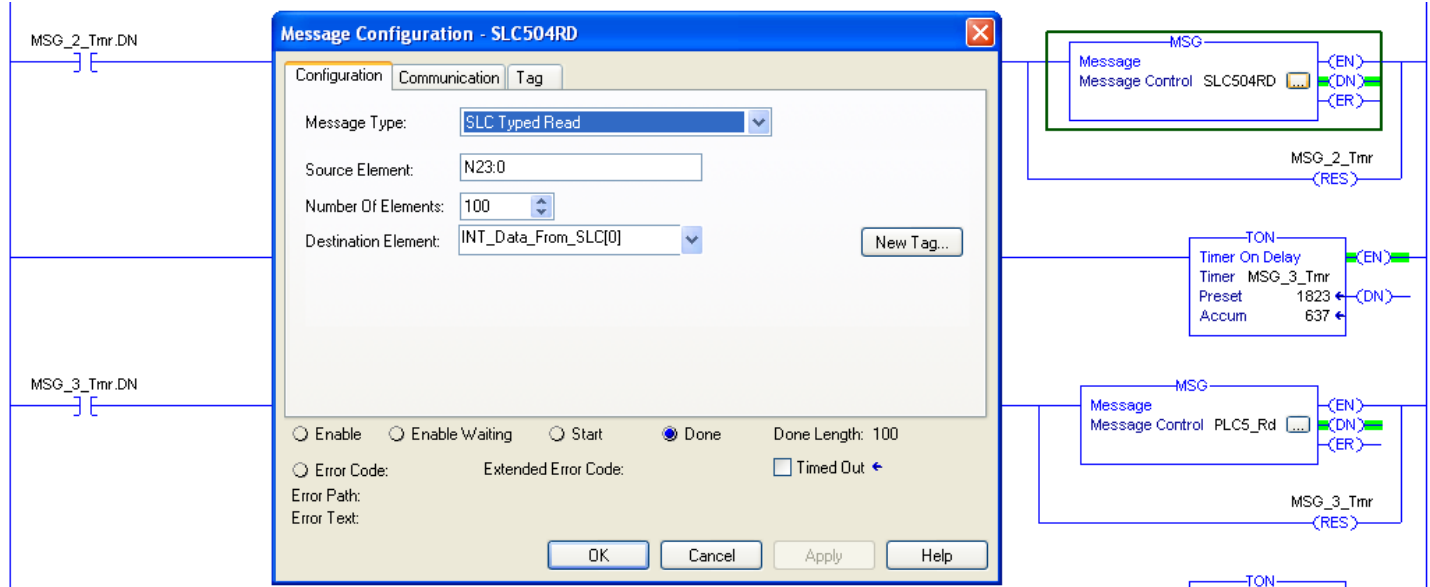
For some processors, the path may also require the name of the Ethernet device from the I/O Configuration, like "enbt" or "LocalENB".

**enbt**, 2, ip.ip.ip.ip, 1, 1

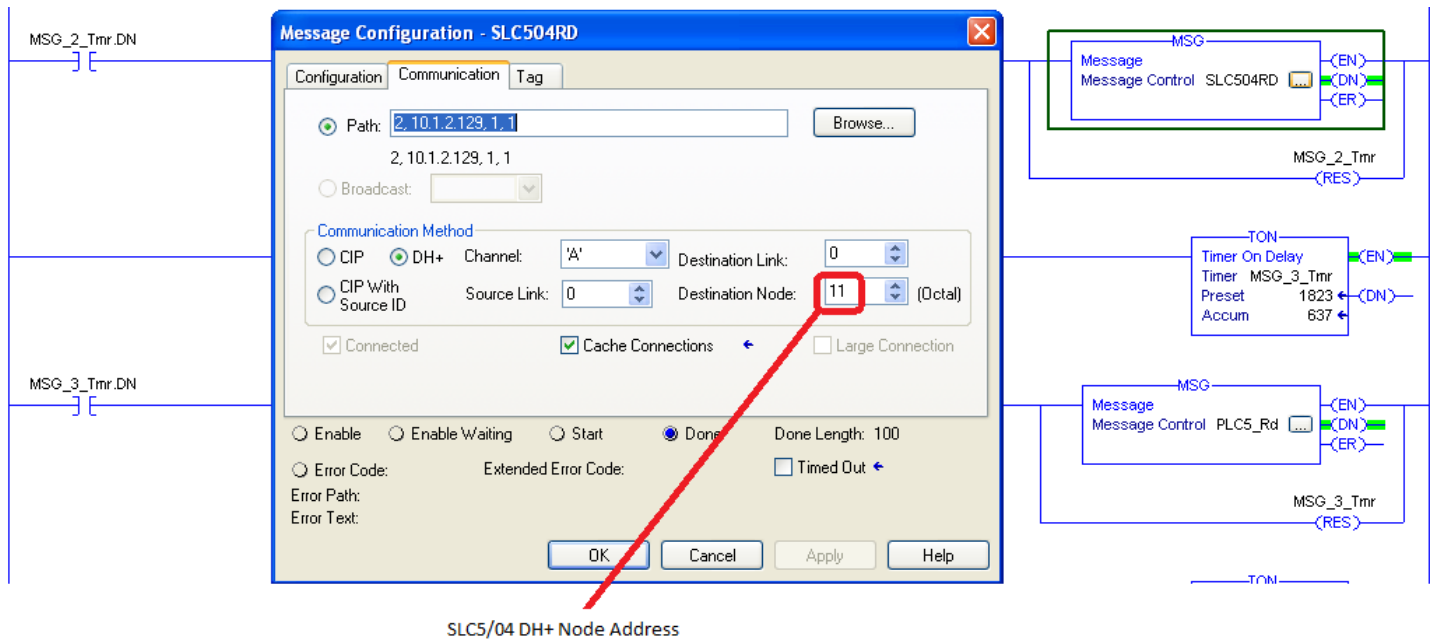


## CompactLogix MSG samples to a SLC5/04

### Read



The IP Address listed in the path below is the IP address of the AN-X2 Gateway



Message Configuration - SLC504WR

Configuration Communication Tag

Path: 2, 10.1.2.129, 1, 1

Broadcast:

Communication Method

☐ CIP ☒ DH+ Channel: A Destination Link: 0

☐ CIP With Source ID Source Link: 0 Destination Node: 11 (Octal)

☒ Connected ☒ Cache Connections ☐ Large Connection

☐ Enable ☐ Enable Waiting ☐ Start ☒ Done Done Length: 100

☐ Error Code: Extended Error Code: ☐ Timed Out

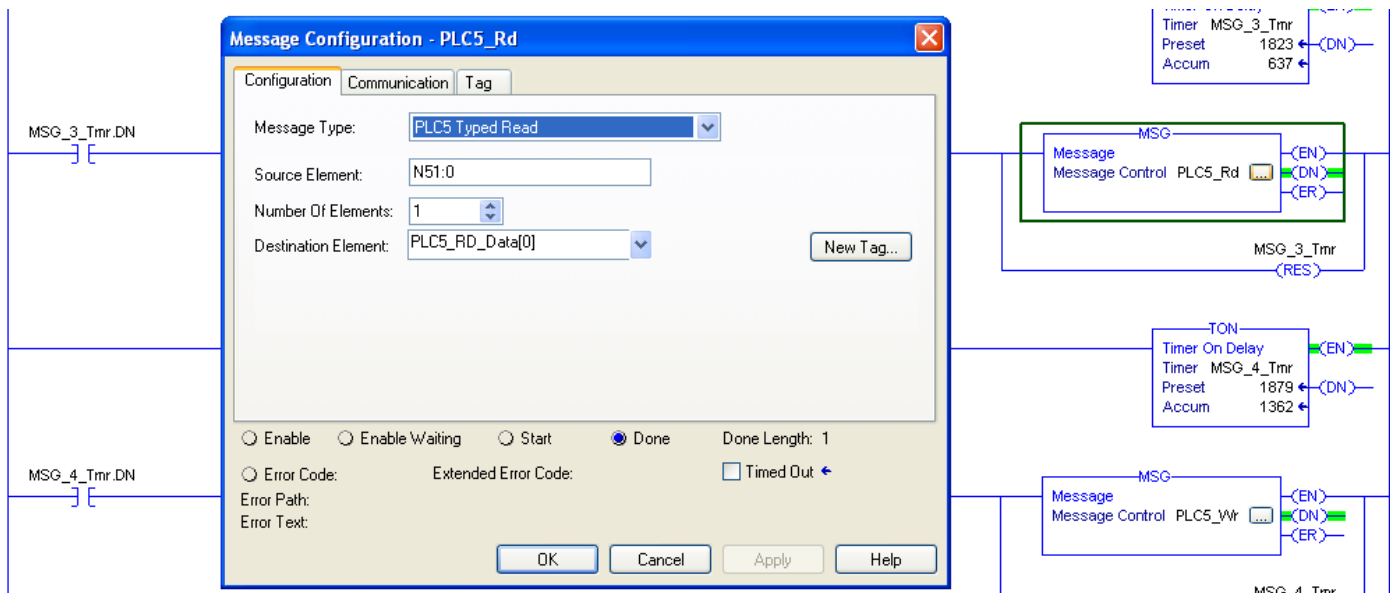
Error Path: Error Text:

OK Cancel Apply Help

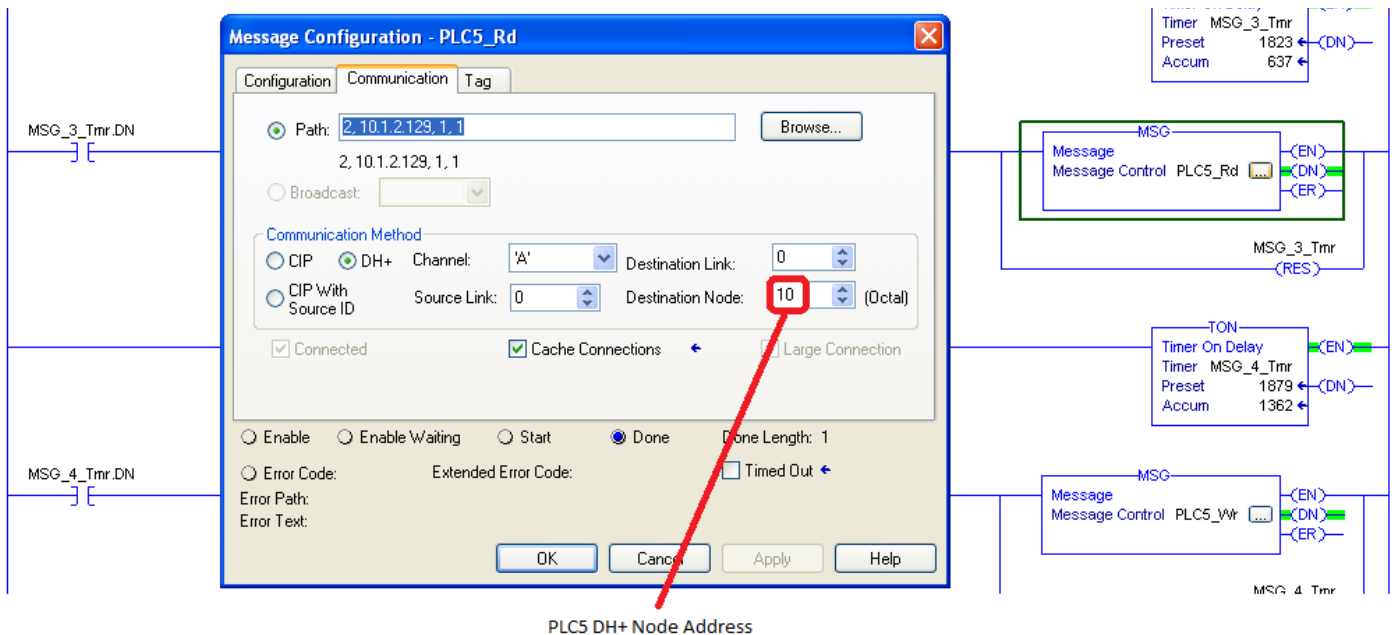
SLC5/04 DH+ Node Address

## CompactLogix MSG samples to a PLC-5®

### Read

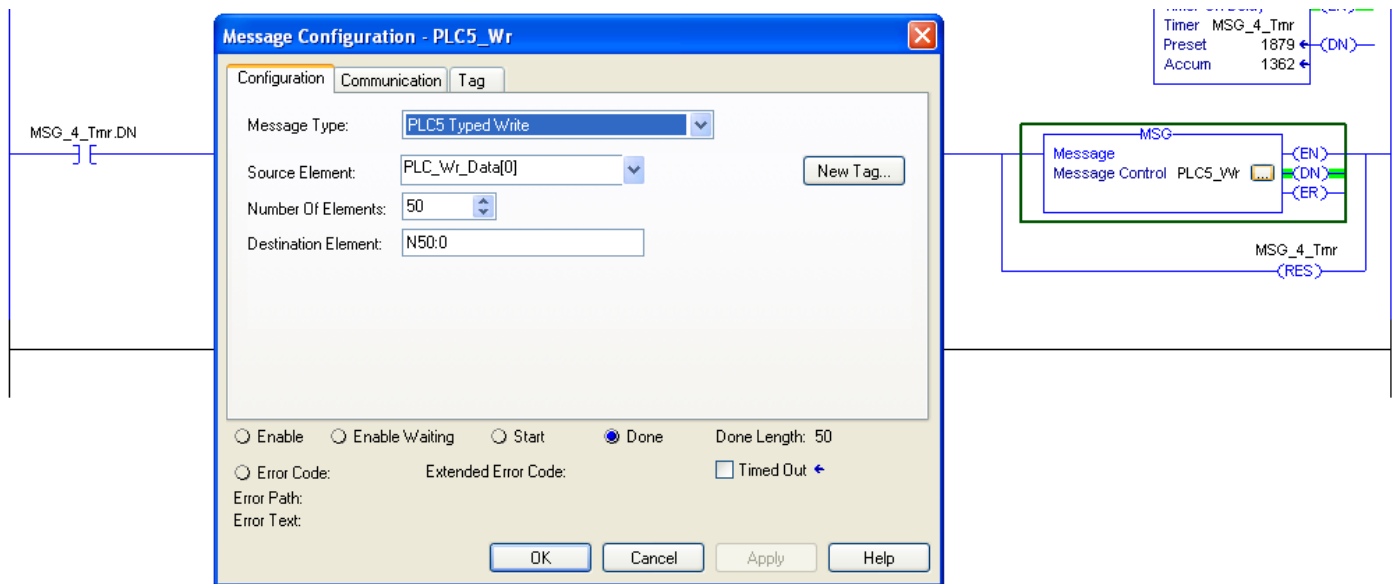


The IP Address shown in the Path statement is the IP Address of the AN-X2 Gateway

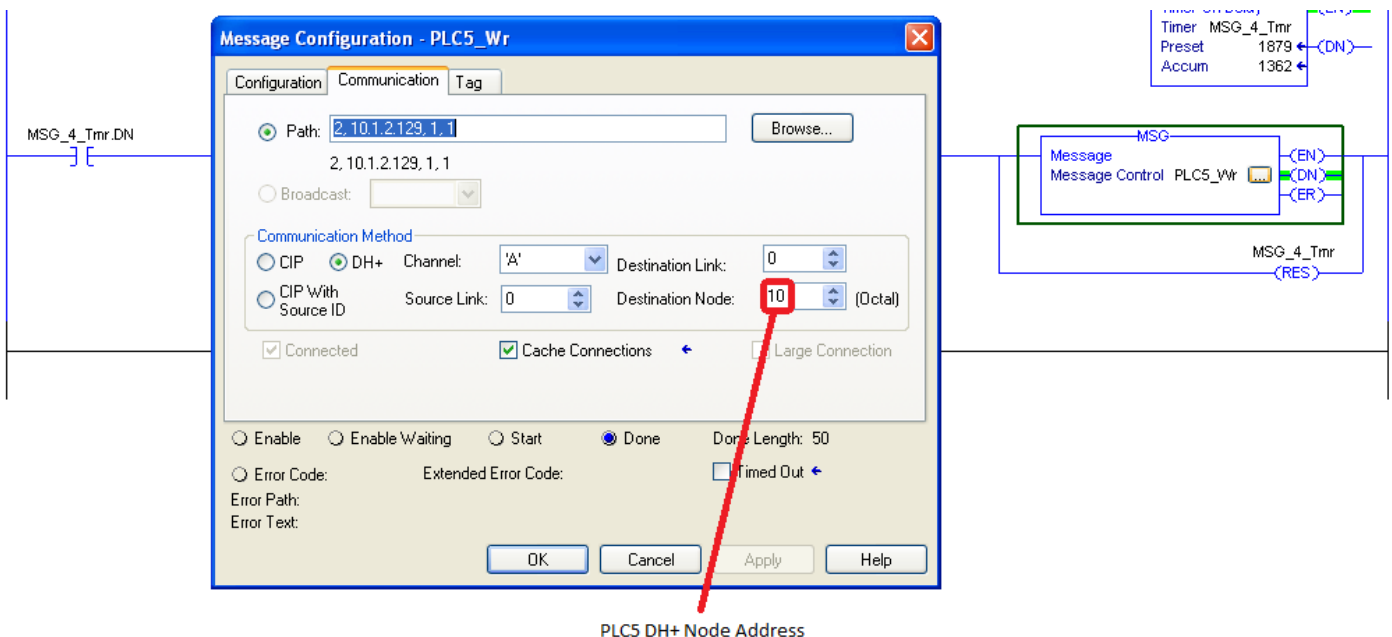




Write



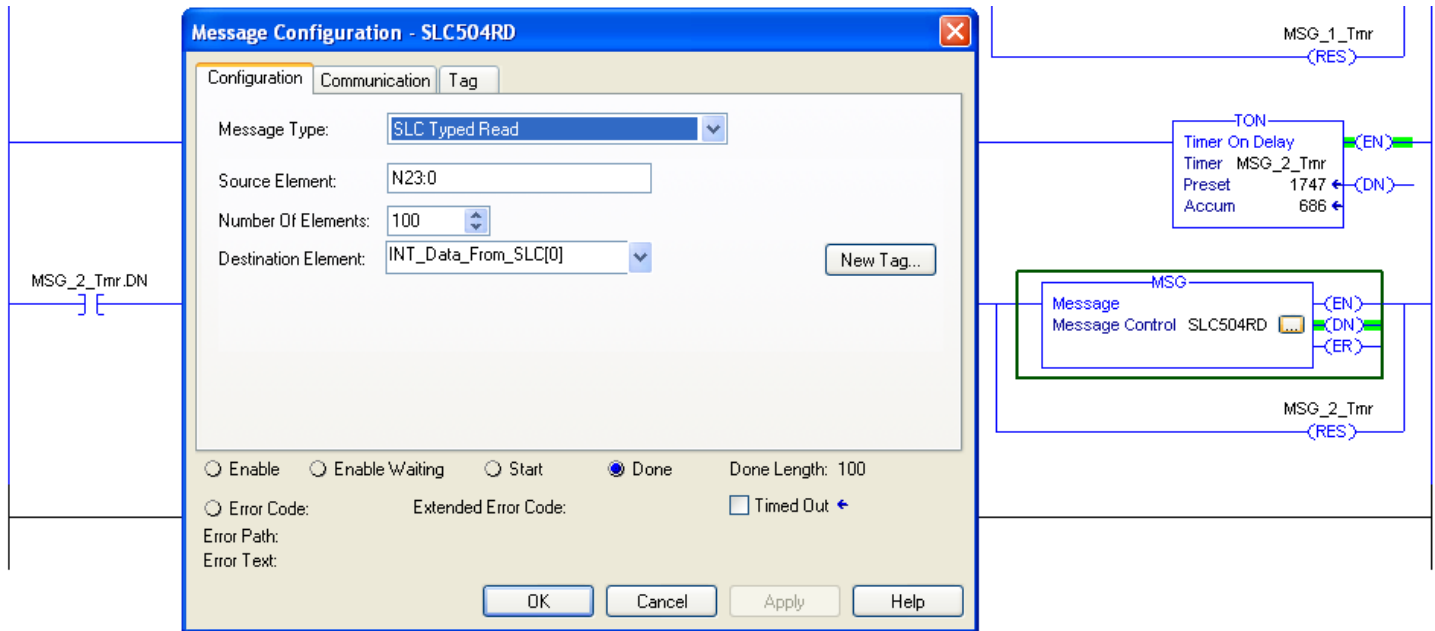
The IP Address shown in the Path statement is the IP Address of the AN-X2 Gateway



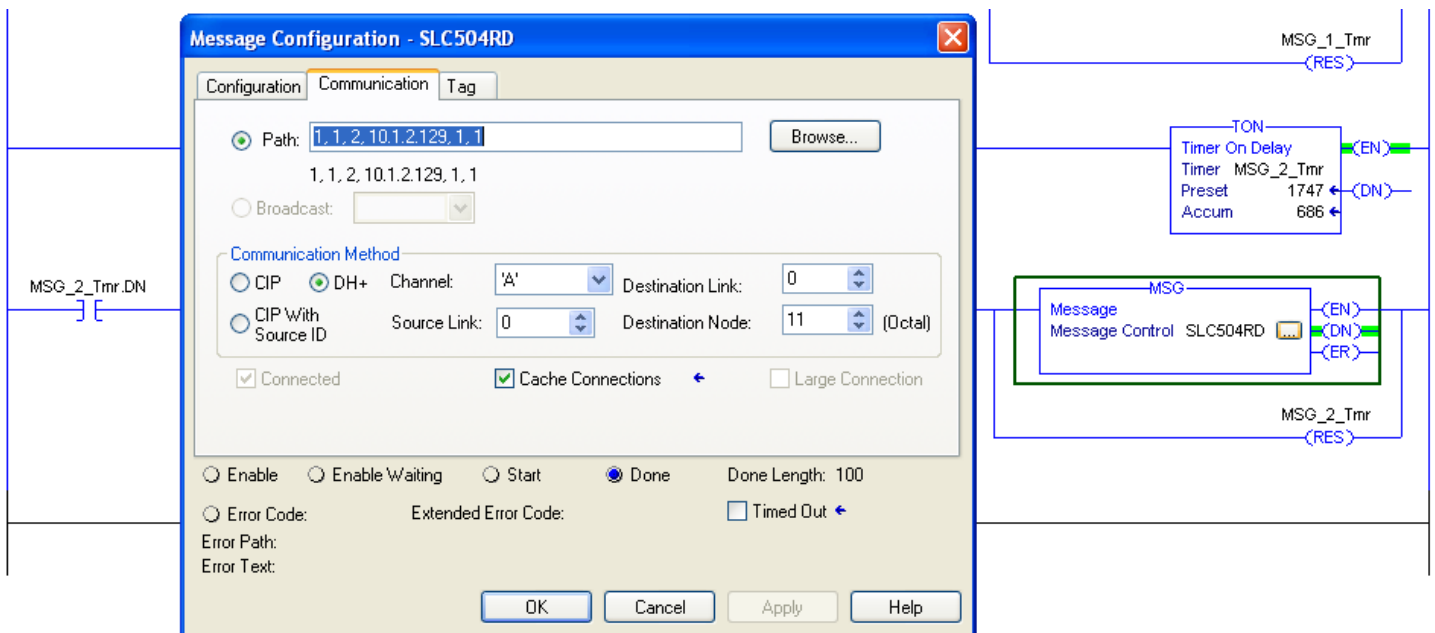


## ControlLogix MSG Samples to a SLC5/04

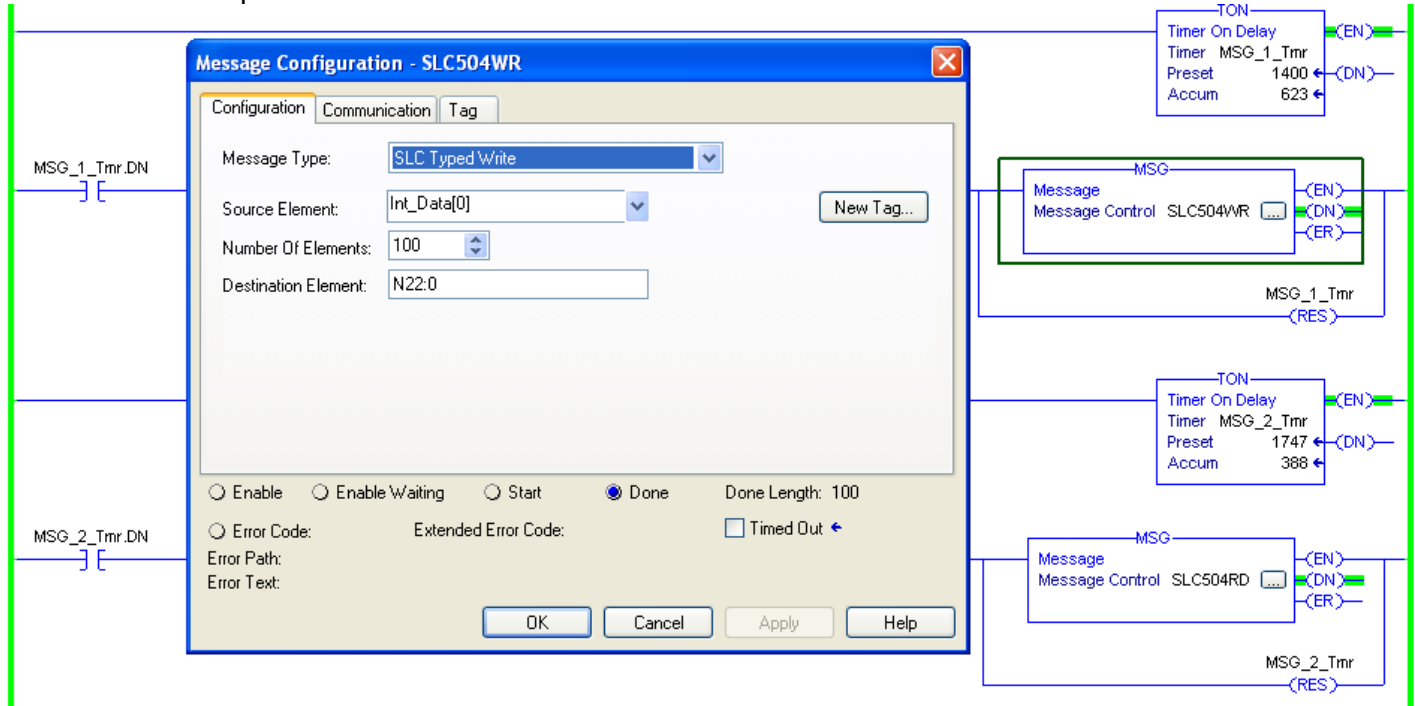
### Read



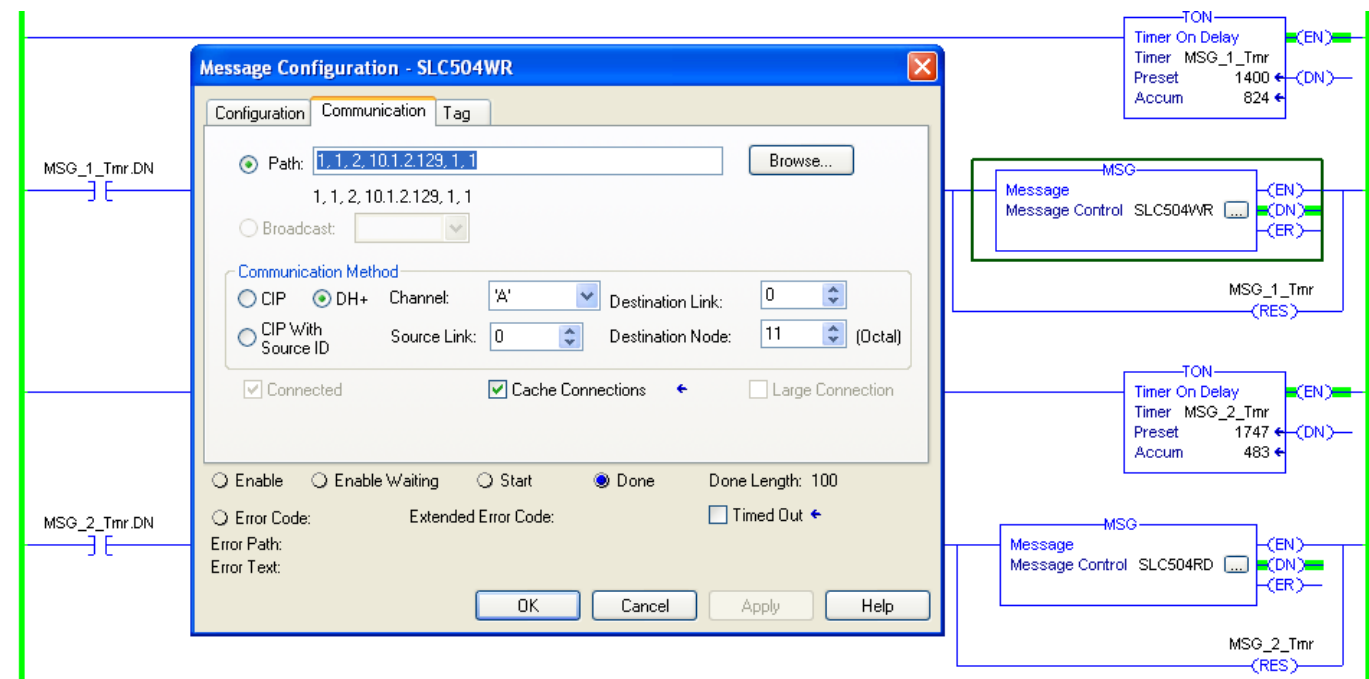
This sample assumes that a 1756-ENBT/ EN2T/EN3T module is in Slot 1 which is the second parameter listed in the path below. The IP Address is the IP Address of the AN-X2 Gateway.



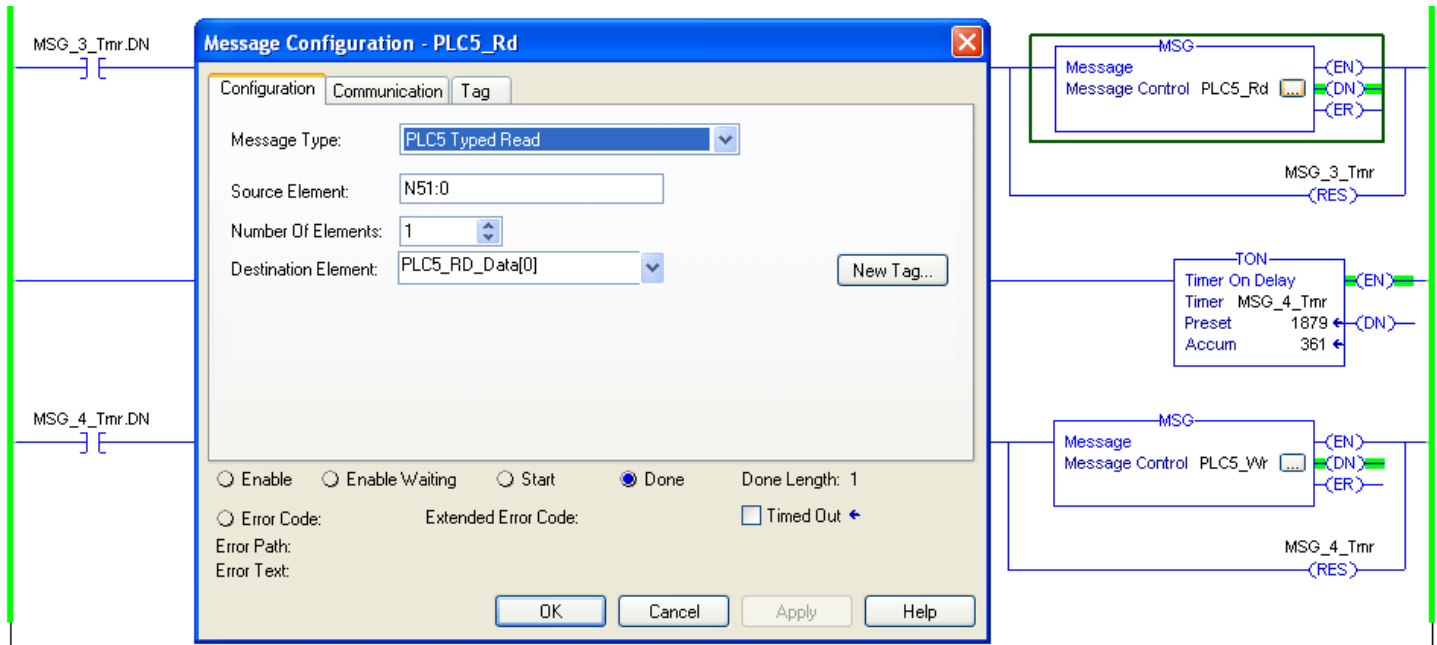
## Write Example



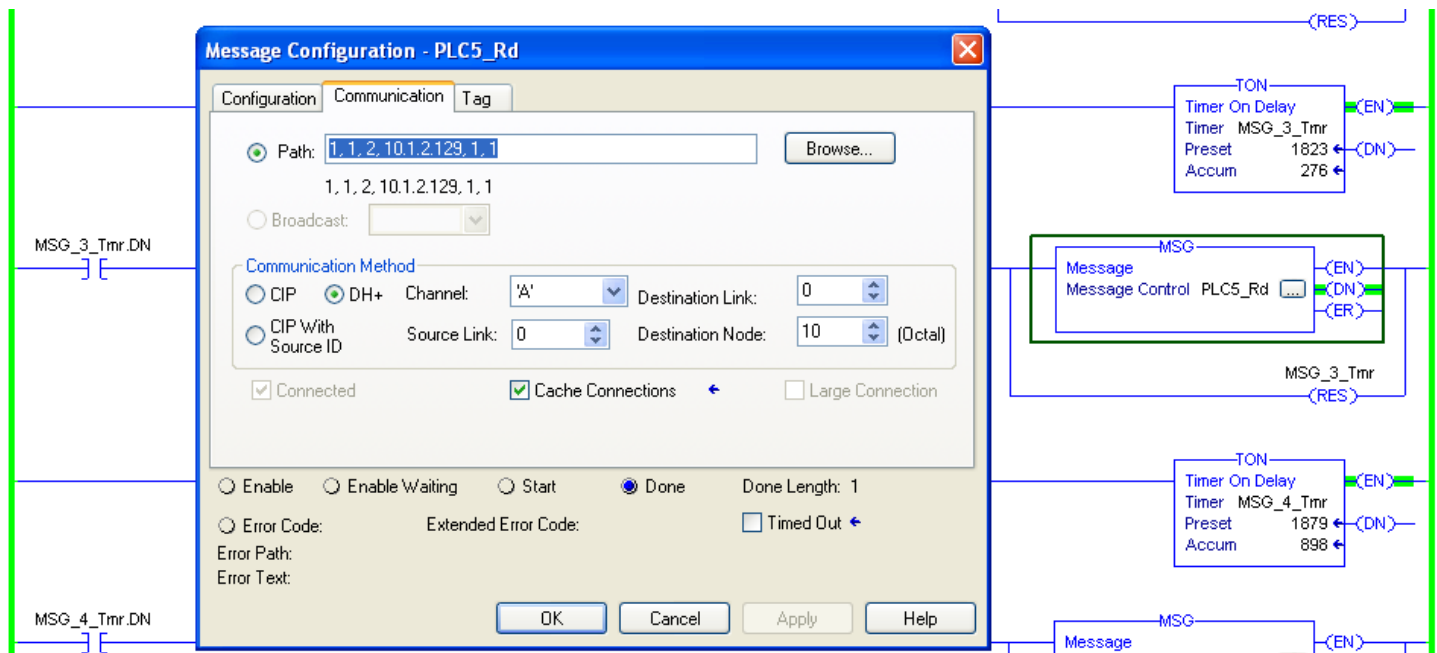
This sample assumes that a 1756-ENBT/ EN2T/EN3T module is in Slot 1 which is the second parameter listed in the path below. The IP Address is the IP Address of the AN-X2 Gateway.



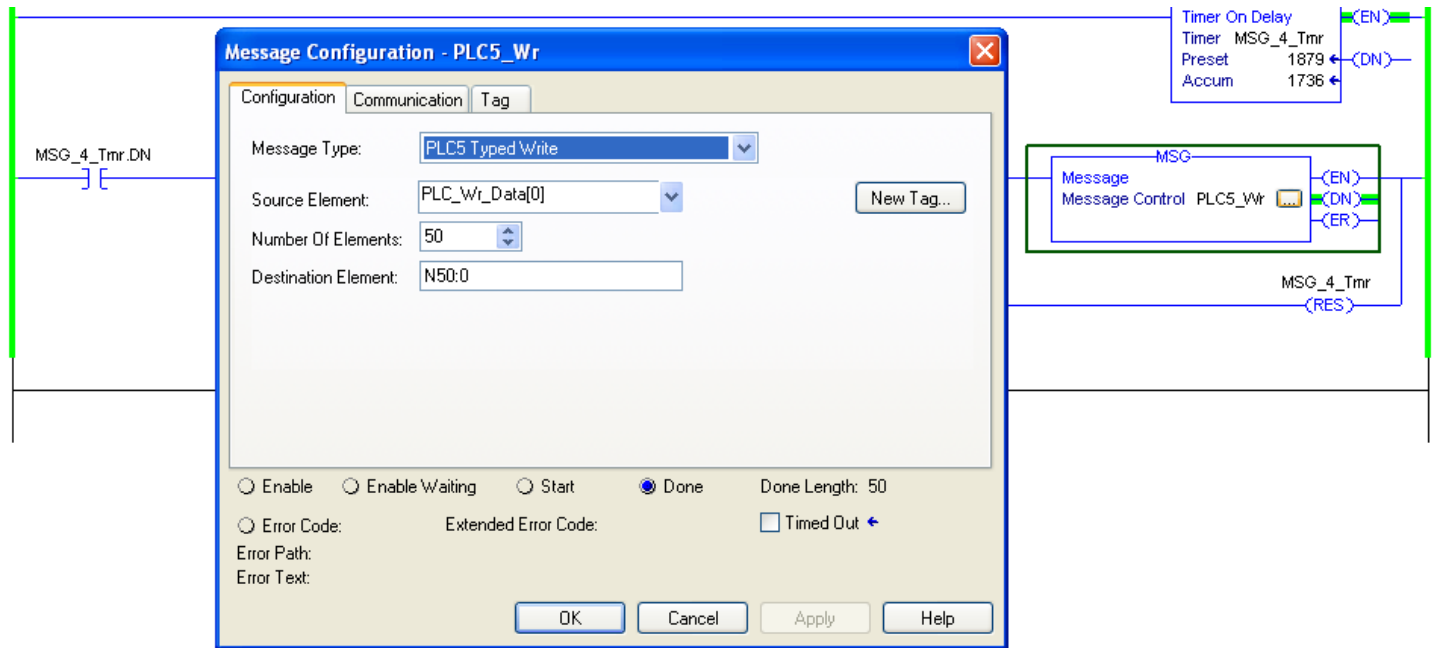
## ControlLogix® MSG Samples to a PLC-5® Read



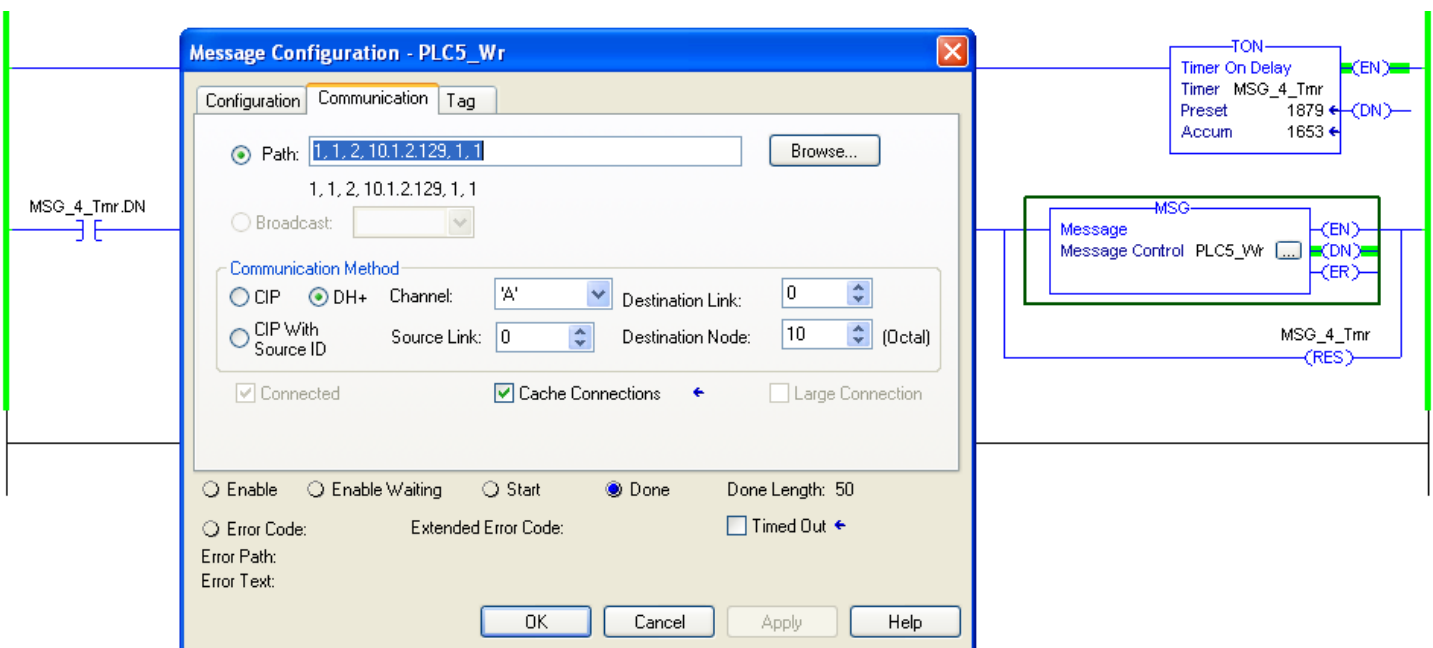
This sample assumes that a 1756-ENBT/ EN2T/EN3T module is in Slot 1 which is the second parameter listed in the path below. The IP Address is the IP Address of the AN-X2 Gateway.



Write

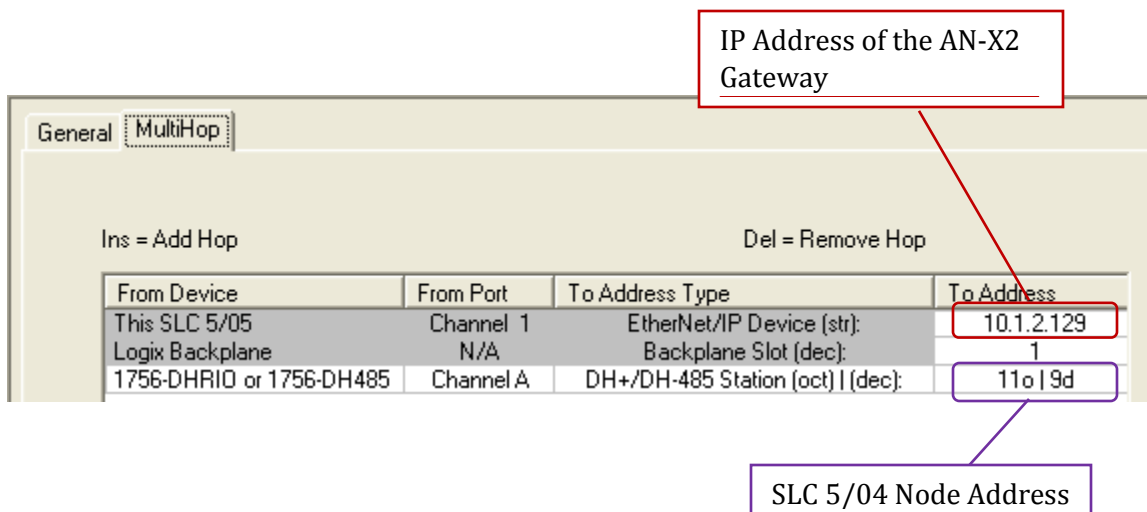
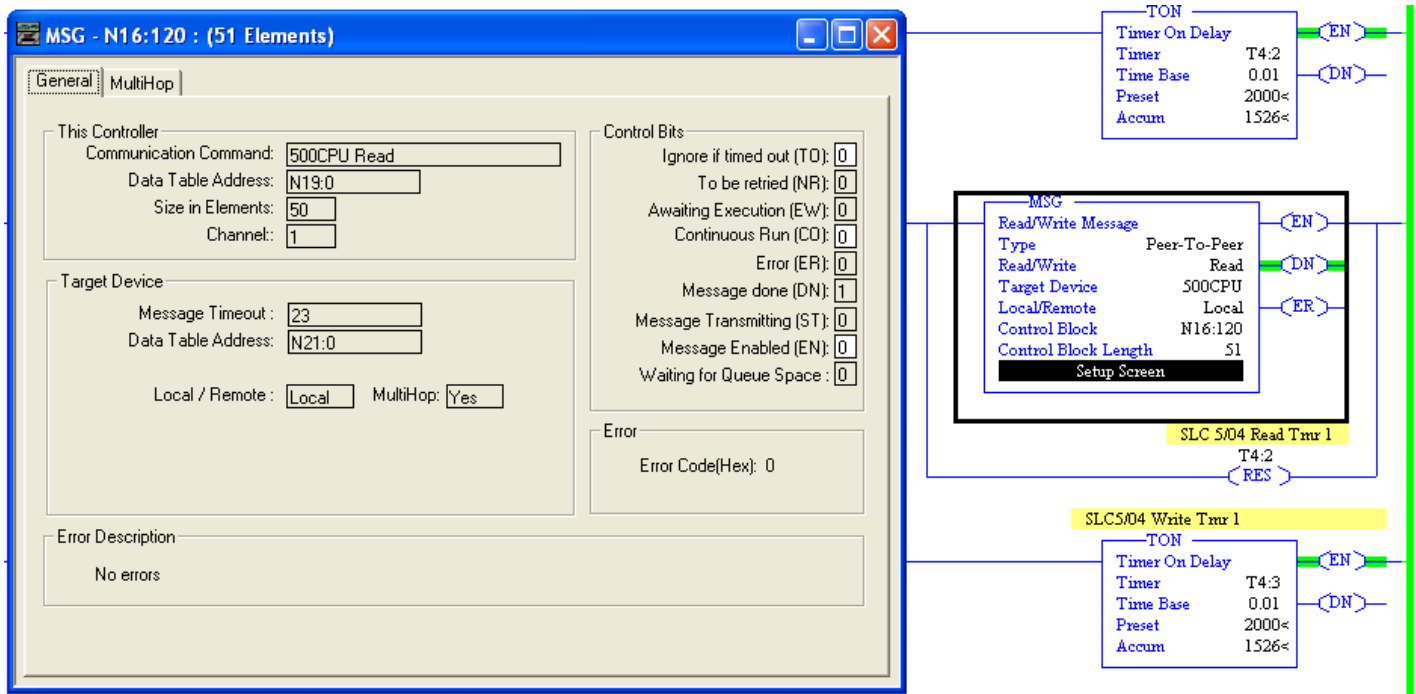


This sample assumes that a 1756-ENBT/ EN2T/EN3T module is in Slot 1 which is the second parameter listed in the path below. The IP Address is the IP Address of the AN-X2 Gateway.

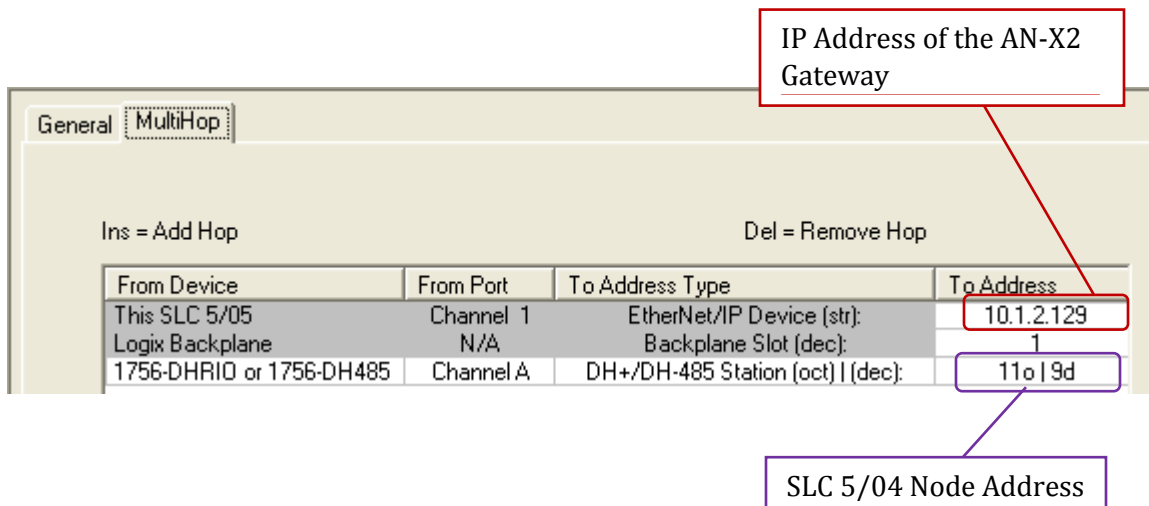
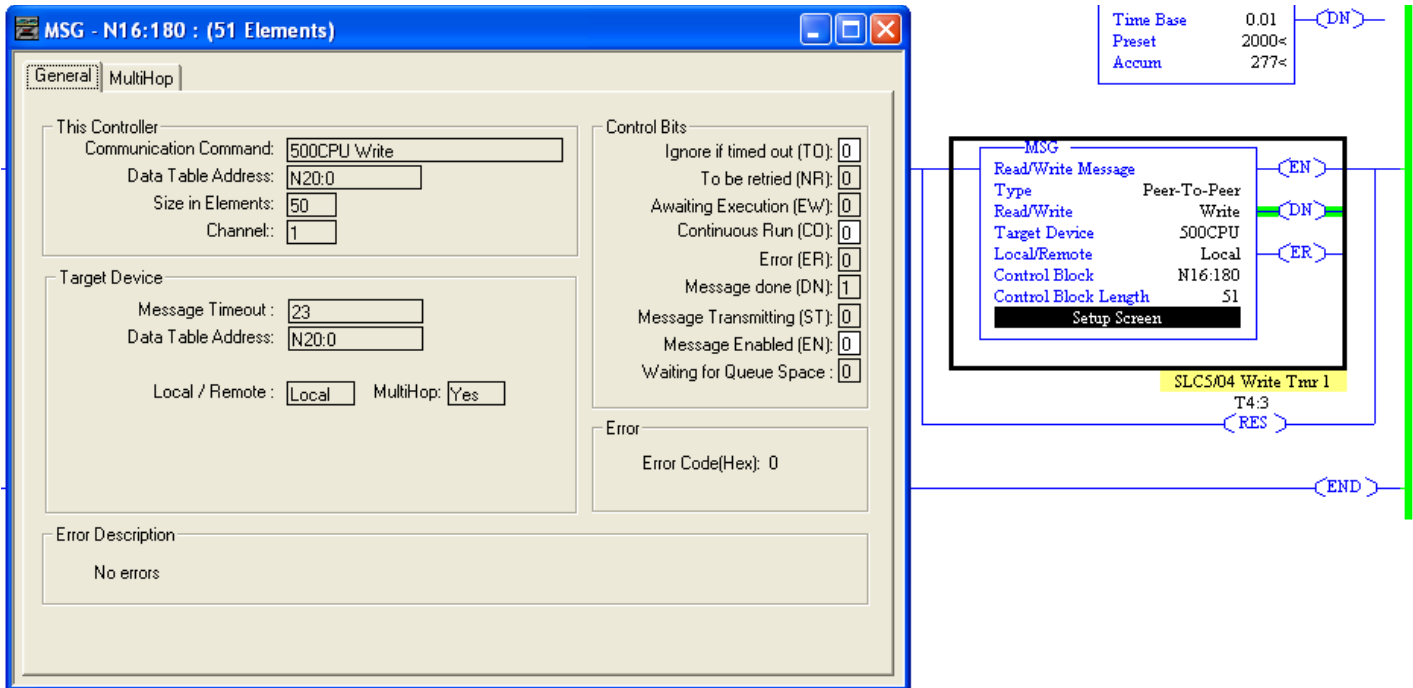


## Message Instruction Samples from a SLC5/05 to a SLC5/04

### Read Sample



## Write Sample



## SLC5/05 PLC to a PLC-5®

Here is a sample Read MSG instruction in RSLogix 500

The screenshot shows the RSLogix 500 software interface. On the left, the 'MSG - N16:0 : (51 Elements)' configuration window is open, displaying the 'General' tab. The 'This Controller' section shows 'Communication Command: PLC5 Read', 'Data Table Address: N17:0', 'Size in Elements: 25', and 'Channel: 1'. The 'Target Device' section shows 'Message Timeout: 23', 'Data Table Address: N16:0', 'Local / Remote: Local', and 'MultiHop: Yes'. The 'Control Bits' section shows various status bits like 'Ignore if timed out (TO): 0', 'To be retried (NR): 0', etc. The 'Error' section shows 'Error Code(Hex): 0' and 'Error Description: No errors'.

On the right, a ladder logic diagram shows a 'Read MSG' instruction. The instruction is configured with 'Type: Peer-To-Peer', 'Read/Write: Read', 'Target Device: PLC5', 'Local/Remote: Local', 'Control Block: N16:0', and 'Control Block Length: 51'. The instruction is connected to a 'PLCS Rd 1 Tmr' timer block, which is configured with 'Timer On Delay', 'Timer: T4:0', 'Time Base: 0.01', 'Preset: 600<', and 'Accum: 383<'. The instruction is also connected to a 'PLCS Wr 1 Tmr' timer block, which is configured with 'Timer On Delay', 'Timer: T4:1', 'Time Base: 0.01', 'Preset: 843<', and 'Accum: 834<'.

The screenshot shows the 'MultiHop' configuration window. It contains a table with the following data:

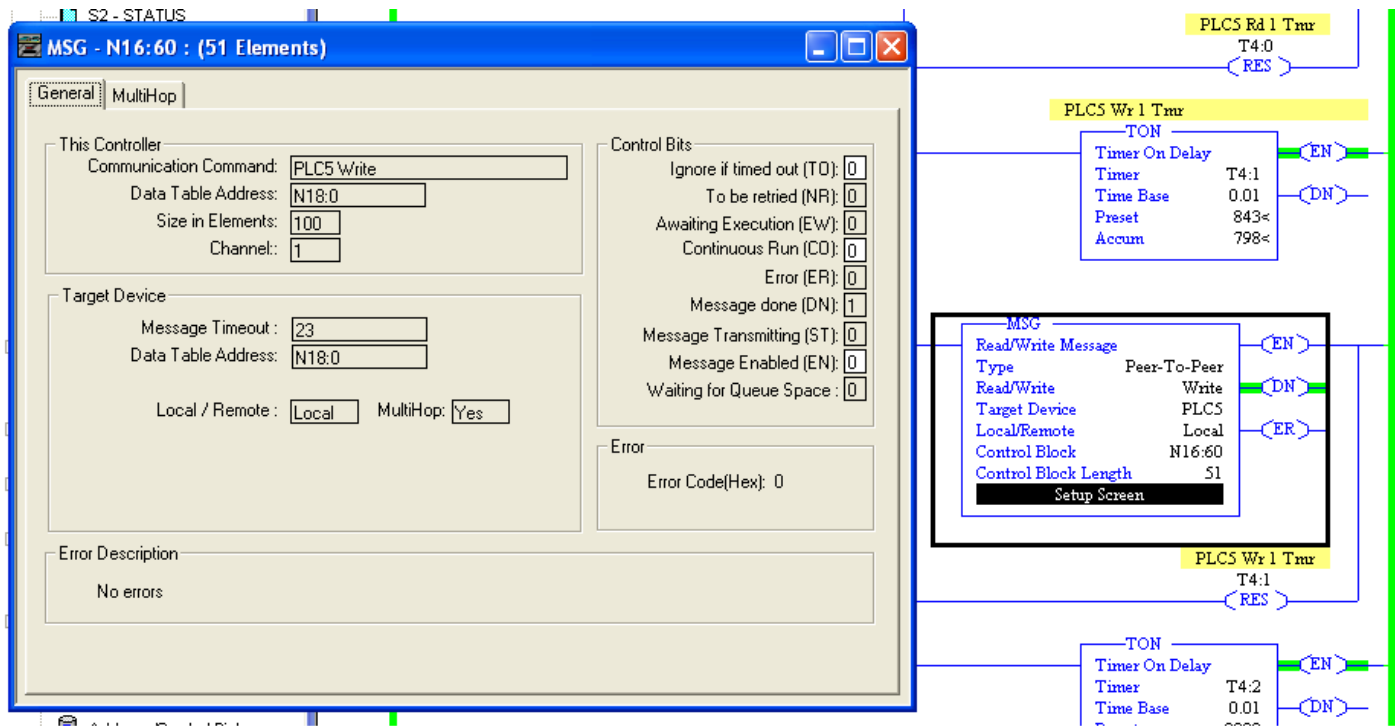
From Device	From Port	To Address Type	To Address
This SLC 5/05	Channel 1	EtherNet/IP Device (str):	10.1.2.129
Logix Backplane	N/A	Backplane Slot (dec):	1
1756-DHRIO or 1756-DH485	Channel A	DH+ / DH-485 Station (oct)   (dec):	100   8d

Annotations in the image point to specific fields:

- A red box highlights the '10.1.2.129' field, with a label 'IP Address of the AN-X2 Gateway' pointing to it.
- A purple box highlights the '100 | 8d' field, with a label 'PLC5 Node Address' pointing to it.



## Sample Write MSG instruction in RSLogix 500



IP Address of the AN-X2 Gateway

General		MultiHop	
Ins = Add Hop		Del = Remove Hop	
From Device	From Port	To Address Type	To Address
This SLC 5/05	Channel 1	EtherNet/IP Device (str):	10.1.2.129
Logix Backplane	N/A	Backplane Slot (dec):	1
1756-DHRI0 or 1756-DH485	Channel A	DH+/DH-485 Station (oct)   (dec):	100   8d

PLC5 Node Address

## *Conclusion*

This document has shown samples of various Processor to Processor Message instructions for use with the AN-X2-Ab-DHRIO gateway when running the Data Highway Plus firmware. If you have any additional questions please contact your regional support center listed below.

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