

Replacing the AB 1761-NET-ENI with the MGate EIP3000 to perform an EIP-to-DF1 conversion

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Released on September 08, 2017

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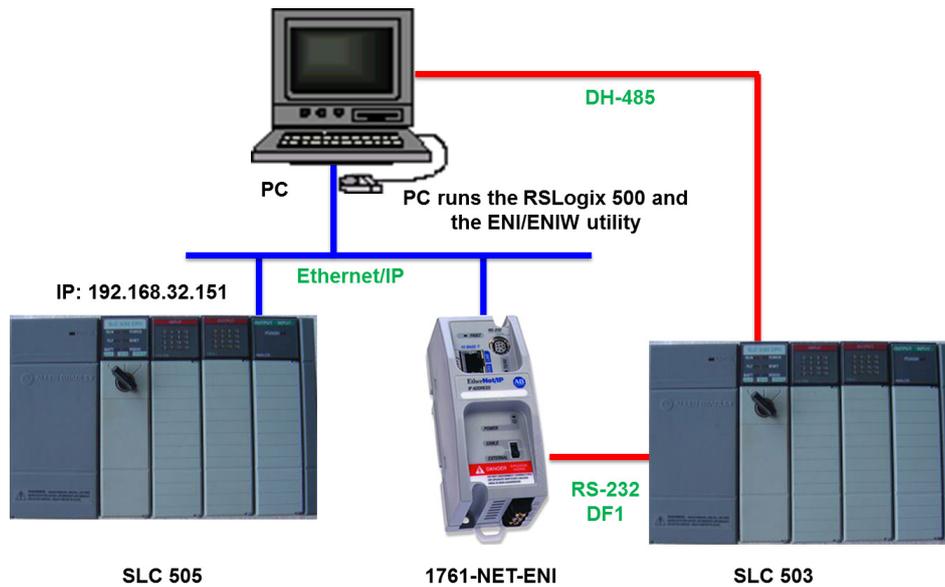
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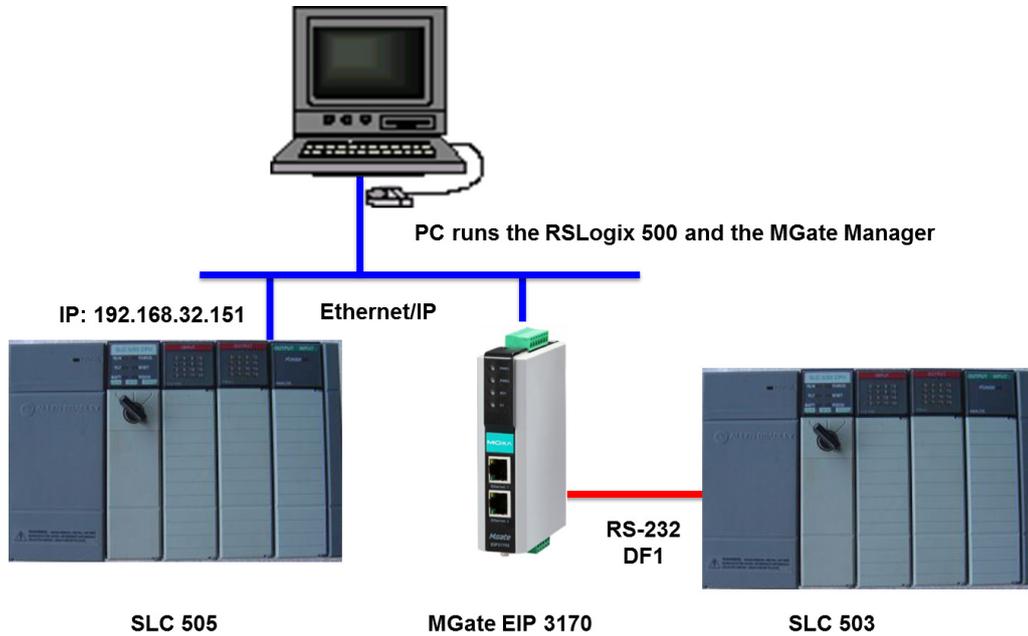
1 Application Description

This document illustrates how to replace the AB 1761-NET-ENI with the MGate EIP3000 to perform an EIP-to-DF1 conversion. This application routes DF1 messages to an EtherNet/IP destination or EtherNet/IP messages to a DF1 node. The DF1 device is an Allen-Bradley SLC 5/03 and the EtherNet/IP device is an Allen-Bradley SLC 5/05. We describe how to use an Allen-Bradley 1761-NET-ENI module to route messages and how to use the MGate EIP 3170 to replace it in the following chapters.



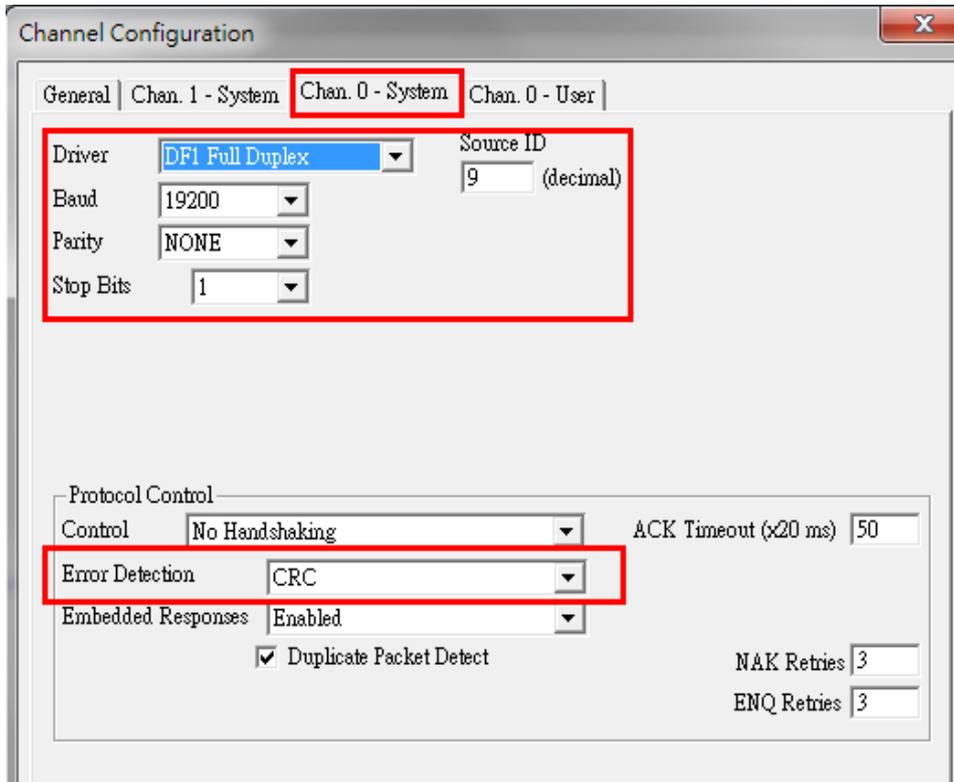
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A system that has been replaced with an MGate EIP 3170 topology is illustrated below:



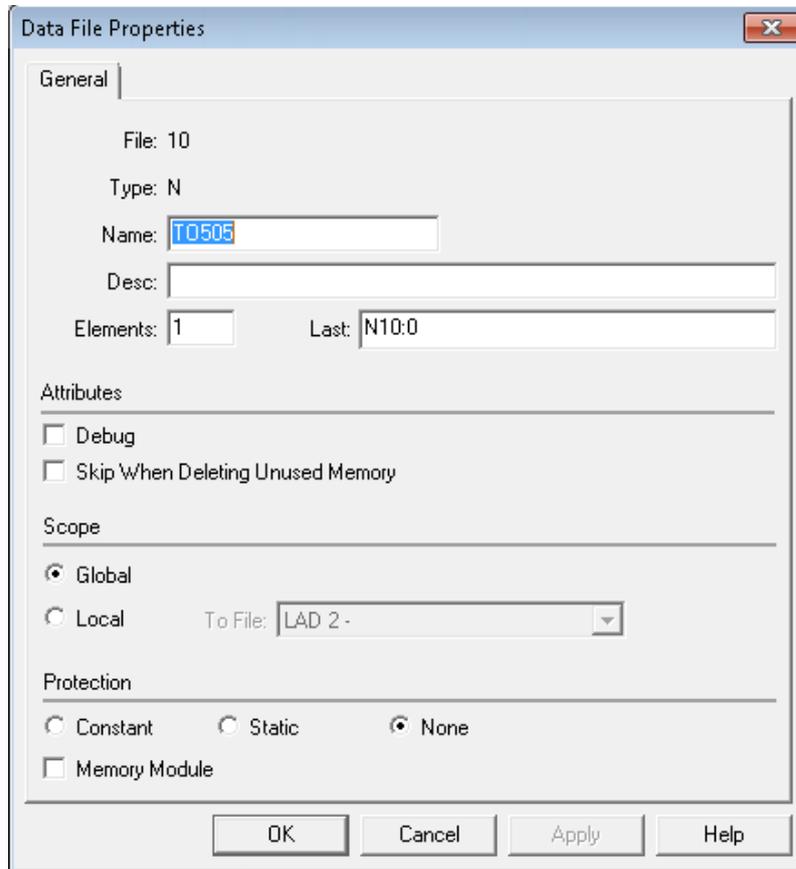
2 SLC 5/03 Settings

1. Create an SLC 5/03 project on **RSLogix 500**.
2. Set the SLC 5/03's **channel 0** setting as below:

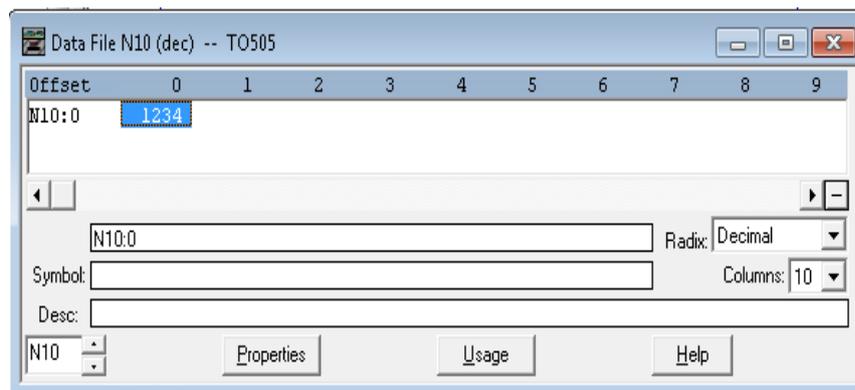


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3. Create an **Integer Data File** Name as "N10" and set **Elements** as 1. SLC 5/05 will poll this data file that we will discuss later.

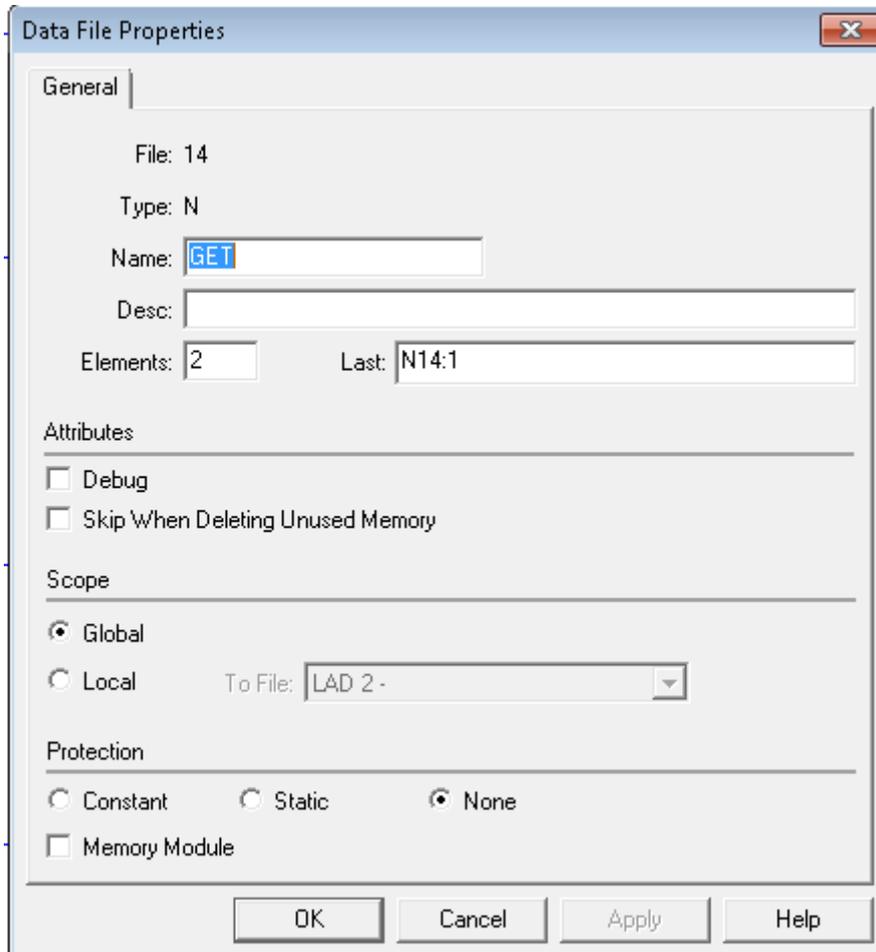


We set N10:0's initial value as "1234".



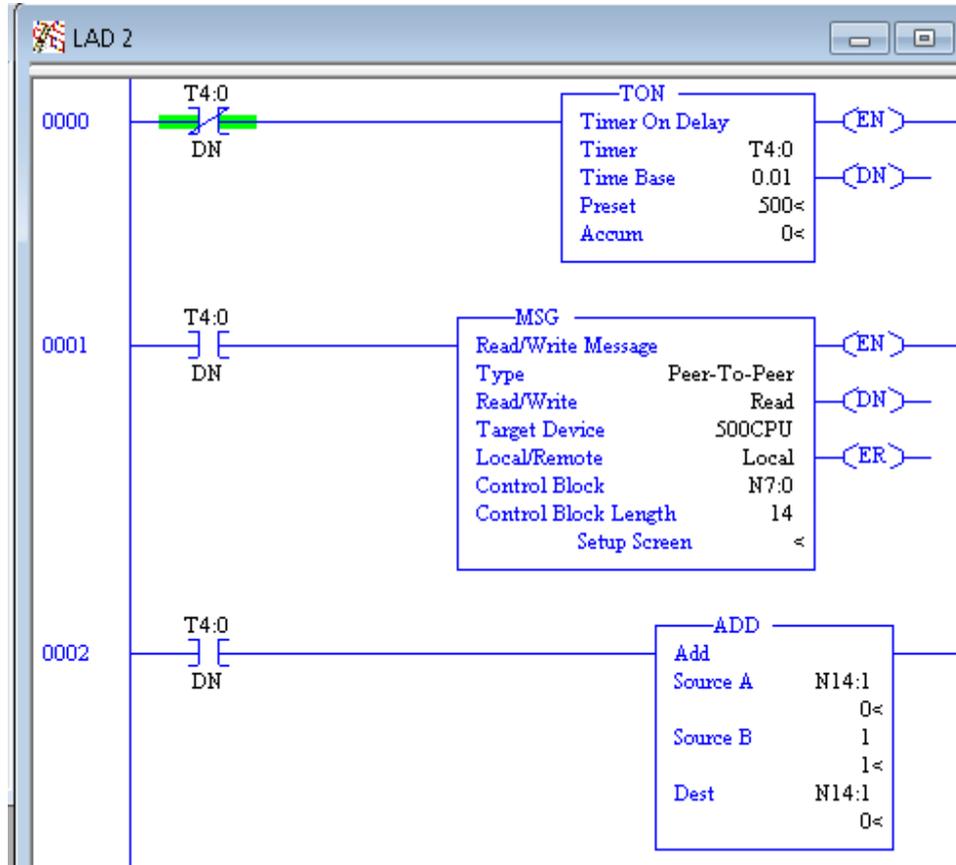
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4. Create an **Integer Data File** Name as "**N14**" and set **Elements** as 2. The N14:0 will store data responses from SLC 5/05. The N14:1 will store polling counts.



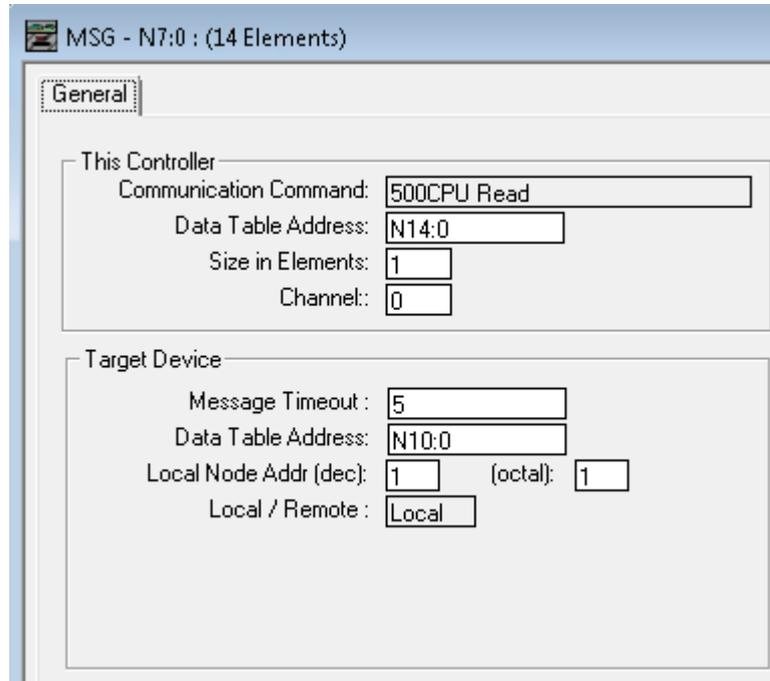
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5. Edit the **LAD 2** program as below. This program will send **500CPU Read** commands every 5 seconds.



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The **MSG** settings are as follows:

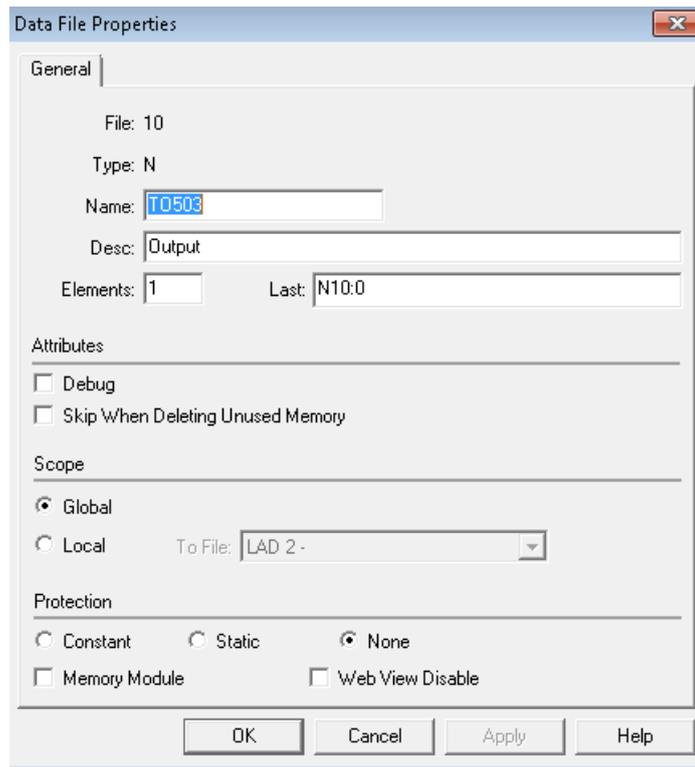


This message will use **500CPU Read** commands to read **Target Node 1** and **Data Address** as **N10:0**; size is **1**. **Target Node 1** will be routed by 1761-NET-ENI or the MGate EIP 3170 to SLC 5/05.

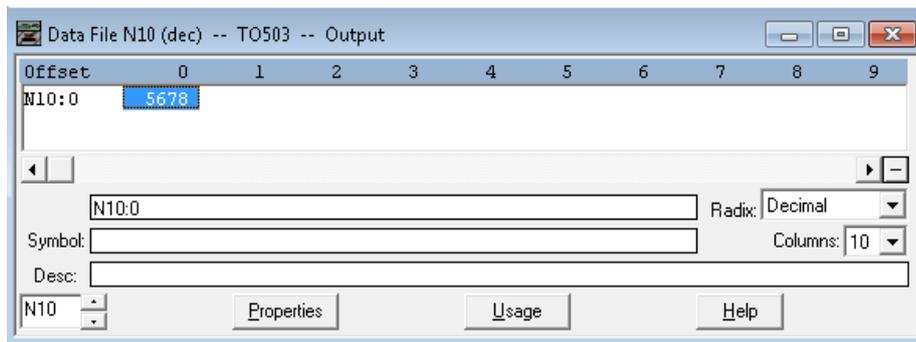
- When the settings have been completed, download this program to SLC 5/03.

3 SLC 5/05 Settings

1. Create an SLC 5/05 project on RSLogix 500.
2. Create an Integer Data File Name as "N10" and set Elements as 1. SLC 5/03 will poll this data file.

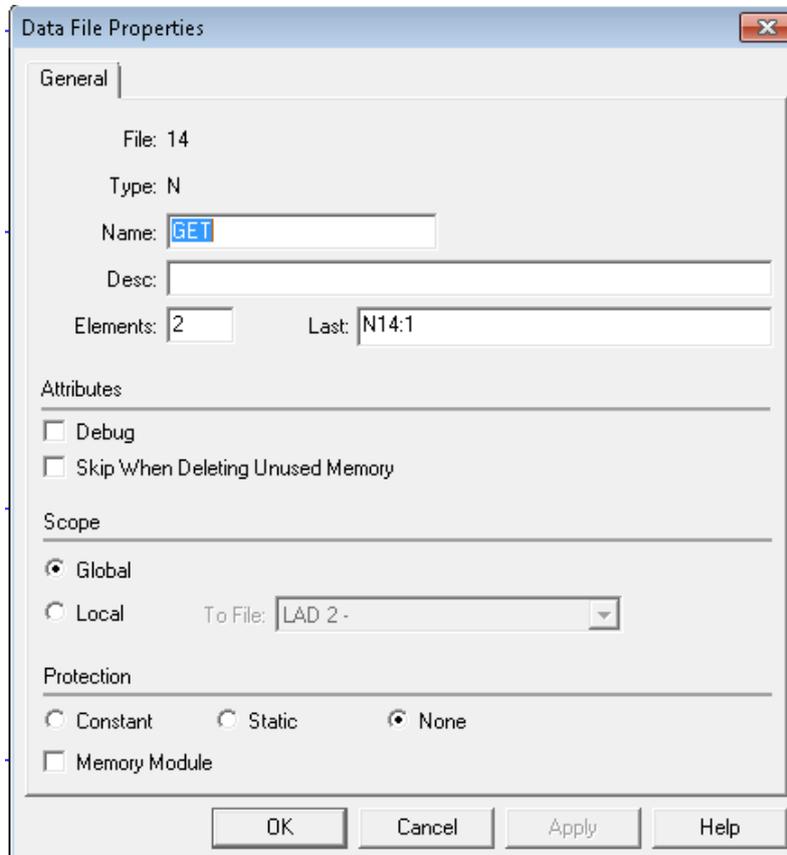


Set N10:0's initial value as "5678".



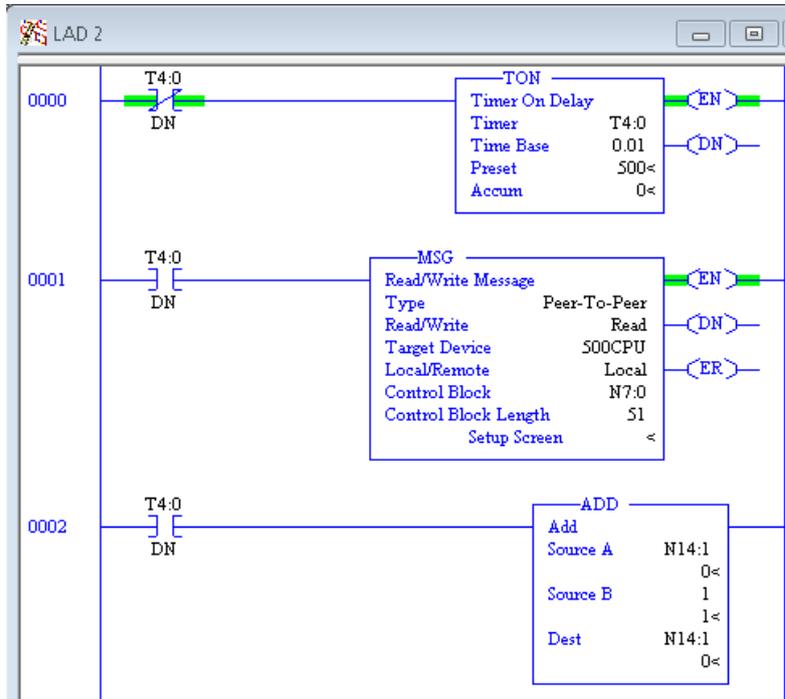
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3. Create an **Integer Data File** Name as "N14" and set **Elements** as 2. The N14:0 will store data responses from SLC 5/03. The N14:1 will store polling counts.



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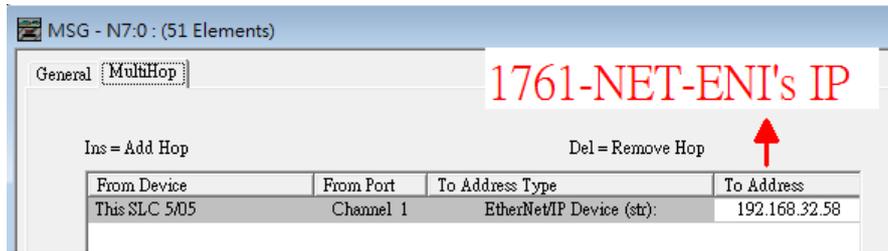
4. Edit the **LAD 2** program as below. This program will send **500CPU Read** commands every 5 seconds.



The MSG settings are as below. Enable **MultiHop**:

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In the **MultiHop** tab, add **Hop** as below:

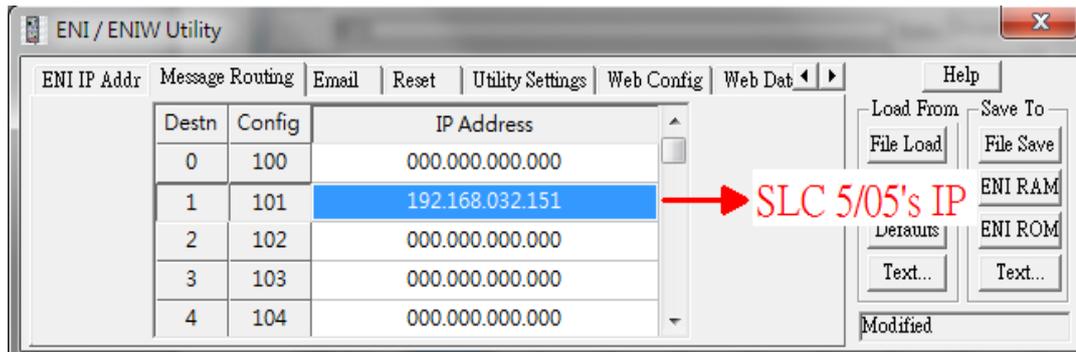


This message will be send to the 1761-NET-ENI module, command as **500CPU Read** to read **Data Address** as **N10:0**, and **size** is **1**.

5. When the settings have been completed, download this program to SLC 5/05.

4 1761-NET-ENI Settings

1. Use ENI/ENIW Utility to configure 1761-NET-ENI. In the **Message Routing** tab, set Destination Node 1 mapping to SLC 5/05's IP.

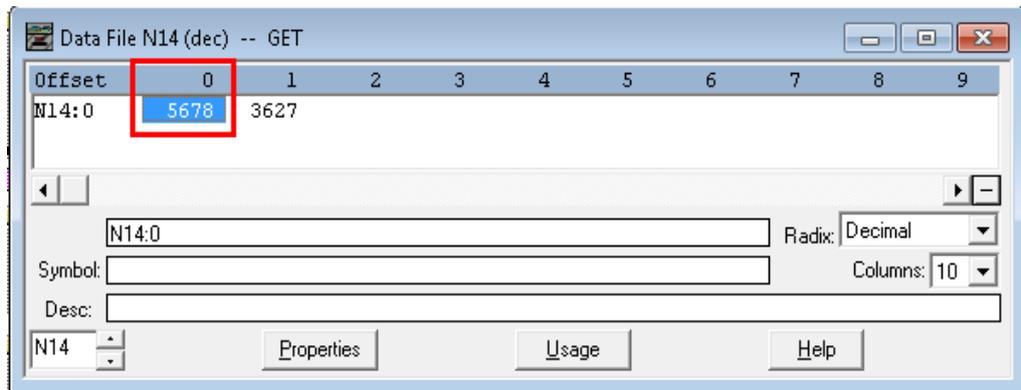


2. When the settings have been completed, save to **"ENI ROM"**.

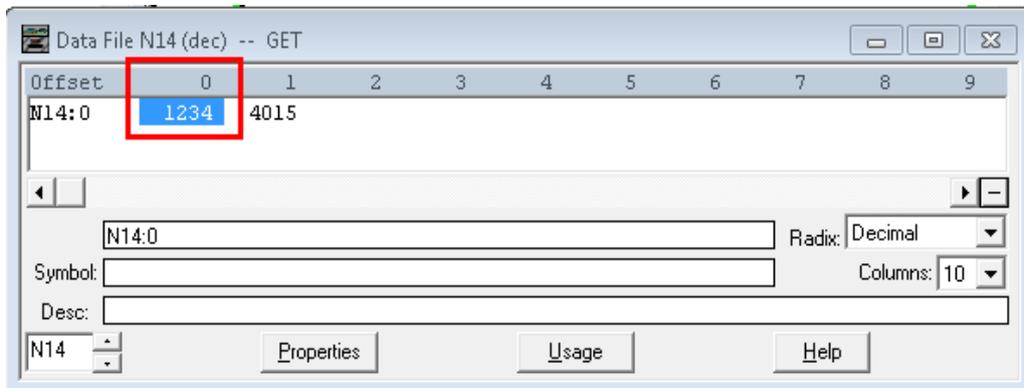
5 1761-NET-ENI Communication Test

If the settings on all devices are done, SLC 5/03 will send **500CPU Read** commands every 5 seconds. If they receive the correct responses, they will store data in Data File N14:0. We can use RSLogix 500's **Go Online** to monitor it. To perform a communication test for the 1761-NET_ENI, do the following:

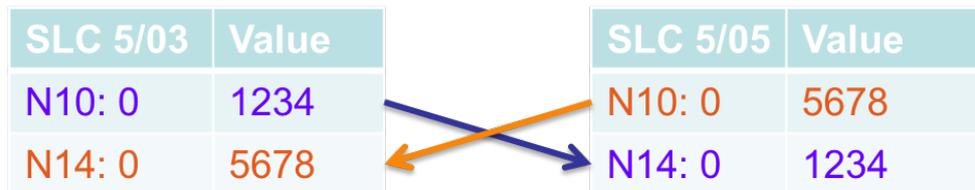
1. Use RSLogix 500's **Go Online** to monitor SLC 5/03. N14:0's value must be updated as "5678".



2. Use RSLogix 500's **Go Online** to monitor SLC 5/05. N14:0's value must be updated as "1234".



3. The figure below illustrates how data is transmitted:



6 MGate EIP 3000 Settings

We remove the 1761-NET-ENI module and then add the MGate EIP 3170 into the topology.

Use the **MGate Manager** to config the MGate EIP 3170 as follows:

1. In the **Network** tab, set IP1 Address as 1761-NET-ENI's IP Address, as below:

The screenshot shows the 'Network' configuration tab for a device named 'MG-EIP3170_7585'. The 'Network Configure' is set to 'Static'. The 'IP1 Address' field is highlighted with a red box and contains the value '192 . 168 . 32 . 58'. Other fields include 'IP2 Address' (254 . 7 . 0 . 0), 'Netmask' (255 . 255 . 255 . 0), and 'Gateway' (255 . 255 . 255 . 255).

2. In the **Serial** tab, set Port 1's serial port setting as below:

The screenshot shows the 'Serial' configuration tab for Port 1. The settings are: Baudrate: 19200, Flow Control: None, Parity: None, FIFO: Enable, Stop bit: 1, Interface: RS232, and Data bits: 8. Port 2 settings are also visible but not fully detailed.

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- In the Routing tab, add "Target Node DST" 1 as SLC 5/05's IP. In Routing Information, Req. From PORT1, which DST is 001, will route to SLC 5/05. All EIP Nodes Req. will route to PORT1.

Routing Information

Rule	Req. From	DST of Req.	To
01	PORT1	001	192.168.32.151:44818
02	PORT2 (ProCOM)	ANY	PORT1
03	PORT3 (ProCOM)	ANY	PORT1
04	PORT4 (ProCOM)	ANY	PORT1
05	PORT5 (ProCOM)	ANY	PORT1
06	All EIP Nodes (via IP1)	ANY	PORT1

Target Node Information

Target Node IP: 192 . 168 . 32 . 151

TCP Port: 44818, Node DST: 1, Slot No.: -1

No.	Type	Node Location	Node DST	Slot No.
03	DF1	PORT3 (ProCOM)	003	--
04	DF1	PORT4 (ProCOM)	004	--
05	DF1	PORT5 (ProCOM)	005	--
06	EIP	192.168.32.151:44818	001	-1

Set Port1 Node DST as "09".

Routing Information

Rule	Req. From	DST of Req.	To
01	PORT1	001	192.168.32.151:44818
02	PORT2 (ProCOM)	ANY	PORT1
03	PORT3 (ProCOM)	ANY	PORT1
04	PORT4 (ProCOM)	ANY	PORT1
05	PORT5 (ProCOM)	ANY	PORT1
06	All EIP Nodes (via IP1)	ANY	PORT1

Target Node Information

Target Node IP: 0 . 0 . 0 . 0

TCP Port: 44818, Node DST: 0, Slot No.: -1

No.	Type	Node Location	Node DST	Slot No.
01	DF1	PORT1	009	--
02	DF1	PORT2 (ProCOM)	002	--
03	DF1	PORT3 (ProCOM)	003	--
04	DF1	PORT4 (ProCOM)	004	--
05	DF1	PORT5 (ProCOM)	005	--

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4. In the **Protocol** tab, set the Port1's **DF1** setting as follows:

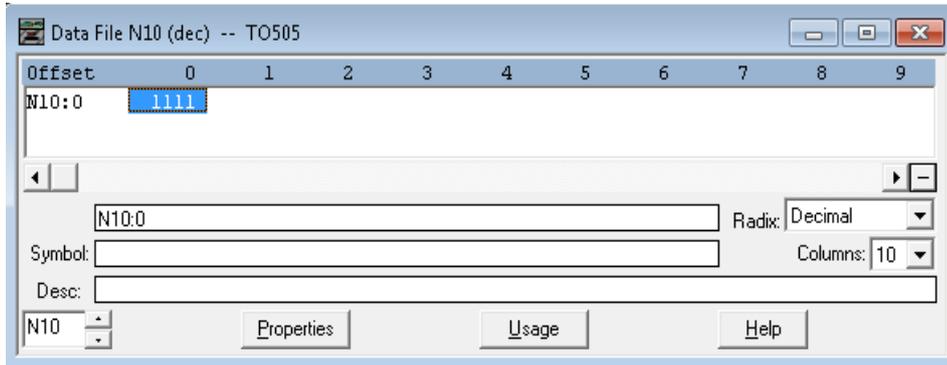
The screenshot displays the configuration interface for the Protocol tab, specifically for Port 1. The interface is organized into three main sections:

- Response Time-out:** Includes a 'Node Location' section with radio buttons for 'Port 1' (selected), 'Port 2', and 'Ethernet'. Below it is a 'Response Time-out' field set to '3000' ms, with a range of '(200 - 120000 ms)' and a default of '3000 ms'.
- DF1 Settings:** Includes an 'ACK Timeout' field set to '500' ms, with a range of '(50 - 30000 ms)' and a default of '500 ms'. Below it is a 'Frame Error Detection' section with radio buttons for 'CRC16' (selected and highlighted with a red box) and 'BCC'.
- EIP Settings:** Includes a 'CIP Communications' section with radio buttons for 'Connected (Class 3)' (selected and highlighted with a red box) and 'Unconnected (UCMM)'.

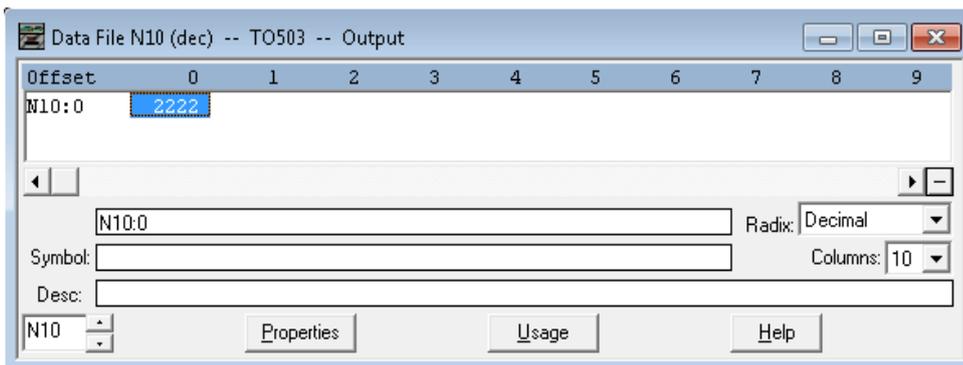
7 MGate EIP 3000 Communication Test

To perform a communication test with the MGate EIP 3000, do the following:

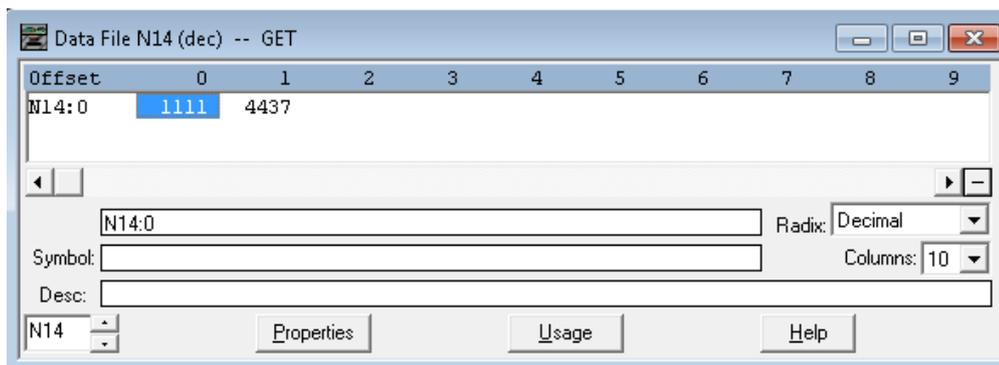
1. Use RSLogix 500's **Go Online** to monitor SLC 5/03. Edit N10:0's value as "1111".



2. Use RSLogix 500's **Go Online** to monitor SLC 5/05. Edit N10:0's value as "2222".

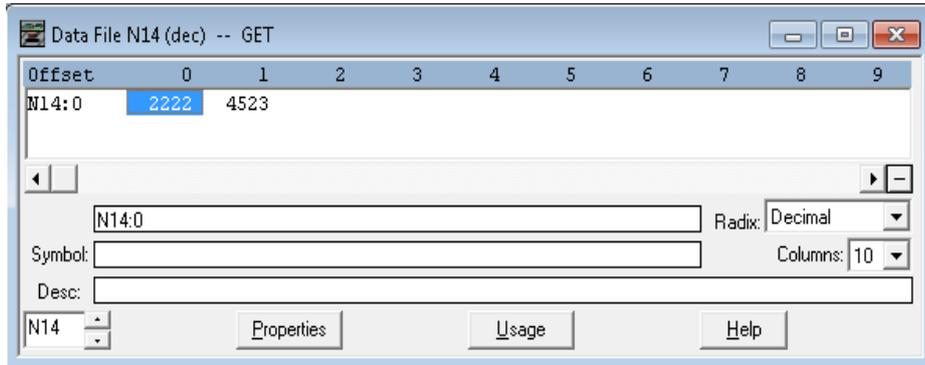


3. Check SLC 5/05; N14:0's value must be updated as "1111".

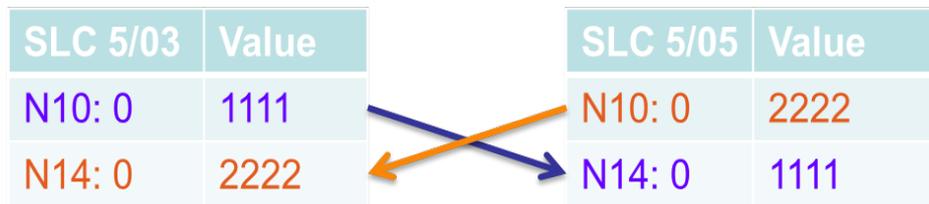


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- Check SLC 5/03; N14:0's value must be updated as "2222".

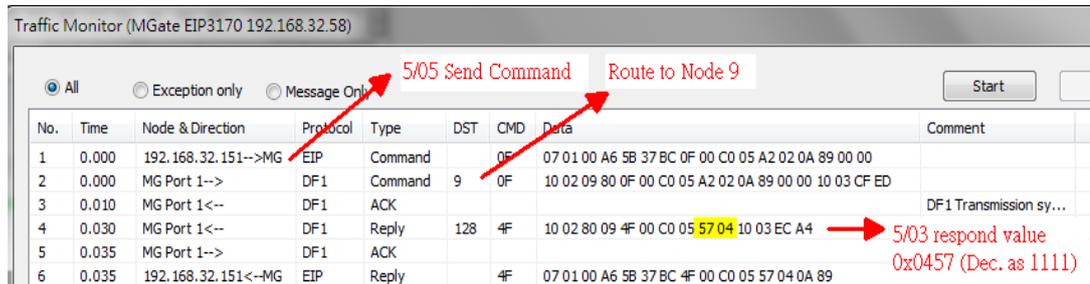


- The figure below illustrates how data is transmitted:



- Use MGate Manager to monitor traffic:

- Request from SLC 5/05



- Request from SLC 5/03

