How to Configure the CompactLogix L32E to Communicate with the MGate EIP3270

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How to Configure the CompactLogix L32E to Communicate with the MGate EIP3270

1 Application Description

This document illustrates how to use PCCC message commands for a CompactLogix PLC to communicate with DF1 devices through the MGate EIP 3000 series gateway.

In this application, we configure the CompactLogix L32E to send an SLC Typed Read/Write command to the **MGate EIP3270**. The MGate EIP3270 sends this command to the **SLC 5/03**, which is a **DF1** device connected to port 1 on the MGate EIP3270. The SLC 5/03 then responds to the MGate EIP3270, which then routes this response to the CompactLogix L32E.

The system topology is shown in the following figure.



IP1: 192.168.32.153

IP: 192.168.32.151

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2 SLC 5/03 Settings

- 1. Create an SLC 5/03 project on the RSLogix 500.
- 2. Configure the SLC 5/03's channel 0 settings as shown in the following figure.

	han. 1 - Syst	tem Chan.	U - Systen	n Chan. () - User		
Driver	DF1 Full I	Duplex	•	Source I	D Zdanima N		
Baud	19200	-		11	(decimal)		
Parity	NONE	-					
Stop Bits	1	-					
-Protocol	Control —						
– Protocol Control	Control — No Har	ndshaking			• <i>I</i>	.CK Timeout ()	∠20 ms) 50
Protocol Control Error Dete	Control No Har	ndshaking CRC				.CK Timeout ()	(20 ms) 50
Protocol Control Error Dete Embeddeo	Control No Har ection I Responses	ndshaking CRC Enabled				.CK Timeout ()	20 ms) 50
Protocol Control Error Dete Embeddeo	Control — No Har ection I Responses	ndshaking CRC Enabled V Duplica	te Packet I	Detect	• # •	.CK Timeout () NAF	20 ms) 50

- 3. Download the program to the SLC 5/03.
- 4. Set the SLC 5/03 to Run mode.

3 MGate EIP3270 Settings

- 1. Start **MGate Manager** to configure the MGate EIP3270.
- 2. In the **Serial** tab, configure the fields under **Port 1** as shown in the following figure.

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3. In the **Routing** tab, select **All EIP Nodes (via IP1)** in the **Routing Information** table and configure PORT1 routing settings as shown in the following figure.

Net	work Se	erial Routing	Protocol 9	SNMP	Miscellane	ous				
R	outing Inf	ormation								
	Rule	Req. From		DST	of Req.	То		*	Course Turne	
	04	PORT3 (ProCOM)		002		PORT	PORT2		Source Type	
	05	PORT4 (Pro	COM)	ANY		PORT	2		Serial Port	
	06	PORT5 (Pro	COM)	ANY		PORT	1		Target Node I	No.
	07	PORT6 (Pro	COM)	ANY		PORT	2	Ξ	By DST	7
	08	All EIP Node	s (via IP1)	ANY		PORT	1		Dy D31	
	09	All EIP Node	s (via IP2)	ANY		PORT	2	-	Modify	
Ta	arget Nod	le Information								
	Target N	Node IP		No.	Type		Node Location		Node DST	*
	0	. 0 . 0	. 0	01	DF1		PORT1		001	
	TCD Dee	h Nede DCT		02	DF1		PORT2		002	=
	TCP Por	t Node DST	_	03	DF1		PORT3 (ProCOM)		003	
	44818	0	(1-127)	04	DF1		PORT4 (ProCOM)		004	
				05	DF1		PORT5 (ProCOM)		005	
	Add	Modify	Remove	06	DF1		PORT6 (ProCOM)		006	-

4. In the **Protocol** tab, select **Port1** and configure DF1 settings as shown in the following figure.

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Network Serial R	touting Protocol St	MP Miscellane	ous
-Response Time-c	nut		
Node Location	Port 1	Port 2	Ethernet
	() () () () () () () () () ()	010102	Calence
Response Time	-out 3000	(200 - 120000	ms) (Default: 3000 ms)
DE1 Settings			
DF1 Setungs			
ACK Timeout	500	(50 - 30000 ms	:) (Default: 500 ms)
Frame Errorr De	etection © CRC 16		value: Response filleout / 4)
EIP Settings			
CIP Communica	tions	d (Class 3)	Unconnected (UCMM)

4 CompactLogix L32E Settings

- 1. Create a CompactLogix L32E project on the RSLogix 5000.
- 2. Create a new controller tag. Right-click **Controller Tags** and select **New Tag**.

Controller PCCCL32E	^ F	Name 58 4	Value 🗲	Data Type	Description
Controller Fac	New Tag Ctrl+W	bRead	0	BOOL	Trigger Read command
Power-Up Har		1 bWrite	0	BOOL	Trigger Write command
Tasks	Monitor Tags	🛨 Data_Read	{}	INT[3]	Input data
A MainTask	Edit Tags	Data_Write	{}	INT[3]	Output data
🔲 🖨 MainProgr	Verify	+ MSG_Read	{}	MESSAGE	Read Message Controler
Progra	Export Tags	HSG_Write	{}	MESSAGE	Write Message Controler
MainR	Print		1 ****}	MESSAGE	white message controls

- 3. Click MainProgram > MainRoutine to edit a ladder program.
- 4. Add a message box to the program. Perform the following actions:
 - a. In the Add-On Instruction toolbar, click the Input/Output tab.
 - b. Click the **MSG** instruction.
 - c. Select a message tag from the Message Control drop-down list.

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- 5. In the message box, click the ... button. The Message Configuration dialog box appears.
- 6. Configure the following fields for a PCCC Read command:
 - Message Type: Select SLC Typed Read from the drop-down list.
 Source Element: Enter "N7:0" as the starting address of the registers to be read.
 - Number Of Elements: Set this field to 3 to read three addresses (in this example, N7:0, N7:1, and N7:2).
 - **Destination Element**: Select **Data_Read** from the drop-down list to store the data.

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Configuration Commu	nication Ta	ag		
Message Type:	SLC Type	ed Read		•
Source Element:	N7:0			
	3			
Number Or Elements:	122	Carlo C		
Number Of Elements: Destination Element:	Data_Rea	id	×	▼ New Tag

- 7. Click the **Communication** tab.
- 8. Select **Path** and enter "LocalENB,2,192.168.32.153" in the text box. The following describes the input value:
 - **LocalENB**: The name of the 1769-L32E in the local chassis.
 - **2:** The port number of the Ethernet port in the local chassis.
 - **192.168.32.153:** The IP address of the MGate EIP3270.

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Configuration Commun	R 2 192 168	22 152		Brown	
LocalENB	, 2, 192.168.3	2.153			30
🔘 Broadcast:					
Communication Meth	od				
OIP OH+	Channel:	'A'	Destination	n Link: 0	A. V
CIP With Source ID	Source Link:	0	Destination	n Node: 0	(Octal)
Connected		🗹 Cache (Connections	🖌 🗌 Large	e Connection
◯ Enable ◯ Enable	Waiting	⊖ Start	O Done	Done Length:	0
) Error Code: Error Path: Error Text:	Extended	Error Code:		Timed Out	٠
		OK	Cancel	Apply	Help

- 9. Insert an MSG Box on Rung 1 for the PCCC **Write** command. Configure the following fields in the **Configuration** tab:
 - Message Type: Select SLC Typed Write from the drop-down list.
 - Source Element: For an INT tag array, make sure that the number of array slots is equal to the number of elements written to.
 - **Destination Element**: Specify the starting element to be written to.
 - Number Of Elements: Set the number of addresses to be written to. In this example, the addresses are from N7:0 to N7:2.

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Configuration Commun	ication Tag		1000 (1)	
Message Type:	SLC Typed Write		•	
Source Element:	Data_Write	•	[New Tag
Number Of Elements:	3			
	Disease in the second s			
Destination Element:	N7:0			
Destination Element:	N7:0 Waiting O Start	O Done	Done Length:	0
Destination Element: Enable () Enable Error Code:	Waiting O Start Extended Error Code:) Done	Done Length:	0

Verify that the **bRead** bit is set to trigger a read command on Rung 0 and that the **bWrite** bit is set to trigger a write command on Rung 1 as shown in the following figure.



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5 Communication Test

- 1. After downloading the program to the CompactLogix, run **Go Online** to monitor the program and tags.
- Select Controller Tags to view all the tags that you have created. In the Monitor Tags tab, set Data_Write[0] through Data_Write[2] to 1, 2, and 3, respectively.



3. Set the **bWrite** tag value to '**1**' to trigger a write command.

4. Set the **bRead** tag value to '**1**' to trigger a read command.

Because the destination element of the Write command and the source element of the Read command are in the same block, the values of Data_Read[0] to Data_Read[2] are changed to 1, 2, and 3, as shown in the following figure.

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Nam	e <u>-8</u>	△ Value	+	F
ЬF	Read		0	
Ь١	Vrite		0	
E D.	ata_Read	{.	}	Ĩ
+	Data_Read[0]		1	
Ŧ	Data_Read[1]		2	
Ŧ	Data_Read[2]	-	3	
E-D.	ata_Write	{.	}	
Ŧ	Data_Write[0]		1	Ĩ
Ŧ	Data_Write[1]		2	
÷.	Data_Write[2]		3	
+ M	SG_Read	{.	•••}	
+-M	SG_Write	{.	}	

6 Other PLC Communication Path Settings

When you use **MSG Box** for PCCC communications, the communication path settings of the CompactLogix/ControlLogix PLC may be different. You can configure the **ControlLogix L71** to use the same PLC communication path as the CompactLogix L32:

- **EN2TR**: The name of the ControlLogix L71 Ethernet port in the local chassis.
- 2: The port number of the Ethernet port in the local chassis
- 192.168.32.153: The IP address of the MGate EIP3270.

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onfiguration Commun	ication Tag					
Path: EN2TR.	2, 192.168.32.	153			Browse	
EN2TR, 2	, 192.168.32.1	153				
🔘 Broadcast:	. *					
Communication Meth	od					
O CIP	Channel:	'A'	Destinatio	n Link: 🛛)	
CIP With Source ID	Source Link:	0	Destinatio	n Node: 🛛 🚺) 🗼 (Oc	tal)
Connected		Cache C	onnections	•	Large Connectio	on
Enable 🔾 Enable	Waiting	⊖ Start	O Done	Done Le	ngth: 0	
Error Code: ror Path: ror Text:	Extended	Error Code:		Timec	iOut 🗲	

However, you do not need to set the name of the Ethernet port on the CompactLogix L16ER. In this case, you can configure the path for the L16ER processor in the format 2,xxx.xxx.xxx where:

2: The port number of the Ethernet port in the local chassis.

192.168.32.153: The IP address of the MGate EIP3270.

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