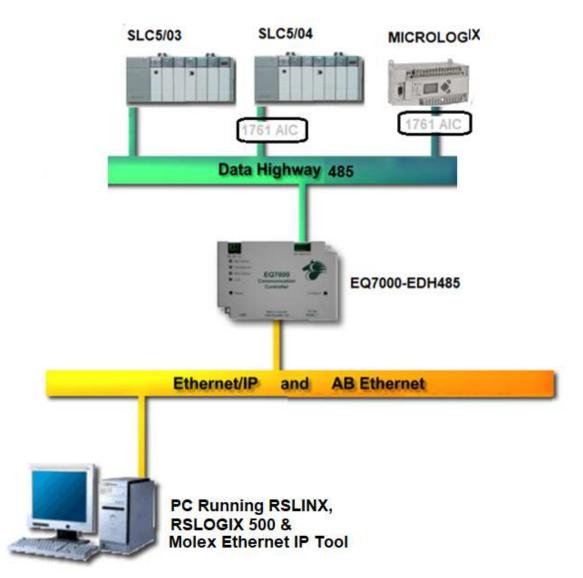
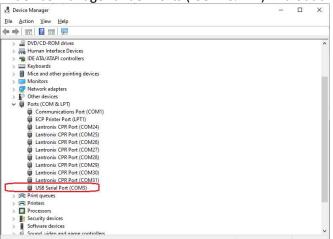
# Molex Ethernet/IP Tool getting data from SLC503, SLC504 and Micro Logix Using EQ7000-EDH485 on DH485 network

Setup for this application note, we used a SLC/503, SLC/504 through 1761-AIC, and a Micrologix also through 1761-AIC all on a DH485 network with the EQ7000-EDH485 and a PC with RSLINX and RSLOGIX 500 as well as Molex Ethernet IP Tool on Allen Bradley Ethernet and Ethernet IP side of the EQ7000.



This application note also includes configuring the EQ7000-EDH485 and going online using Allen Bradley RSLINX and RSLOGIX 500 to show that data read in both the RSLINX and the Molex Ethernet IP are same. Power on the EQ7000 and connect it to the PC using the USB cable then open device manager.

In device manager under Ports (COM & LPT) find out the USB Serial Port in our case her is COM3.



Press the **configure push button switch** on the right-hand side of the EQ7000 to put it in offline configuration mode (Make sure the **STATUS LED** is flashing green).

Start EQ32 software, Under products select EQ7000.



From the drop Menu of the COM Port Selection, select the USB comport previously found under the Device Manager.

Click on Offline Manager to confirm that you can communicate with the unit.



Seeing the offline manager menu confirms that your USB connection is OK, click on Close. Click on Configure then click on Next



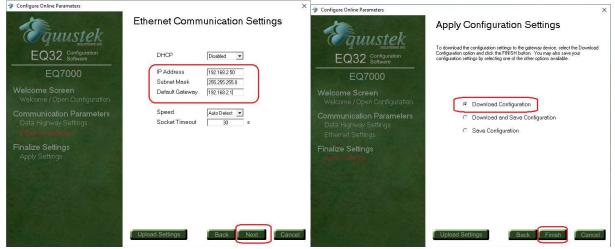
## From the Drop menu of Network Type select DH485, then select a unique Node Address for the EQ7000



## Select the DH485 Baud rate ( Network Speed), then click on Next

Configure Online Parameters	×	Configure Online Parameters	×
Equustek	Data Highway Communication Settings	Equustek Routed Back	Data Highway Communication Settings
EQ32 Configuration Software EQ7000	Network Type DH-405 💌	EQ32 Configuration Software EQ7000	Network Type DH-485 🔽
Welcome Screen Welcome / Open Configuration Communication Parameters Une Trajector Sommun Ethernet Settings	Node Address 1 Decimal Network Speed 19200 Beud 4800 9500	Welcome Screen Welcome / Open Configuration Communication Parameters United Information Configuration Ethernet Settings	Node Address 1  Decimal Network Speed
Finalize Settings Apply Settings		Finalize Settings Apply Settings	
	Upload Settings Back Next Cancel	The second second	Upload Settings Back Next Cancel

Type the IP address for the EQ7000 then the Subnet Mask and the Default Gateway and click on Next.



Select Download Configuration and click on Finish

Warning message will ask to press the configure push button, you don't need to, since it was done earlier, just click on OK

Once you see the Success message click on OK.

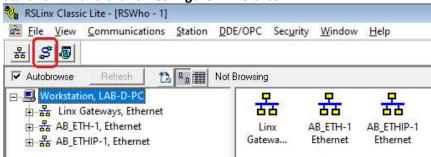


In case you encounter any error message, press the **RESET push button switch** on left hand side of the EQ7000 then press the **Configure push button switch** on the right hand side of EQ7000 and click on Finish again in EQ32.

After Success configuring the unit, click on Exit to close the EQ32 software and press the Reset push button switch on the EQ7000 to put it in online operating mode.

🍲 EQ7000 Main Menu	×
Equustek solutione mc	EQ32 Configuration Software
EQ7000 Main Menu	COM Port Selection
Configure	
Device Information	Select the COM Port that will be used to communicate with the
Offline Manager	EQ7000.
R	eturn to Product Selection

#### Start RSLINX and click on Configure Drivers icon



## Select Ethernet Devices Driver from the drop menu of Available Driver Types. And click on Add New.

Configure Drivers	? ×	Configure Drivers		? ×
Available Driver Types: 1784-U2DHP for DH+ devices PR 2920 DF1 devices CEliverent devices	New	Available Driver Types: Ethernet devices  Configured Drivers:	Add New	<u>C</u> lose <u>H</u> elp
Lettinated bolts         Status           T784 PCN(D) /PCMK for DH+/DH-485 devices         Status           D716 PCN(S) for ControlNet devices         Running           D718 VAD UPCMK for DH+/DH-485 devices         Running           DF1 Steve Driver         Status           DeviceNet Driver         Status           SmartGuard US9 Driver         Remote Devices via Linx Gateway	Configure Startup Start Stop Delete	Name and Description AB_ETH-1 A-B Ethernet RUNNING AB_ETHIP-1 A-B Ethernet RUNNING	Status Running Running	Configure Stattup Statt Stop Delete

## Type a name for the driver and click Ok.

ОК	
Cancel	
	OK Cancel

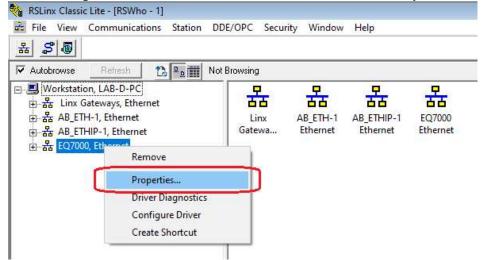
To map all the PLCs that you need to communicate with, type the Node address numbers of the SLC500s & Micrologix under **Station** in decimal and the IP address of the EQ7000 under the **Host name**, as for Driver enter the node address number of the EQ7000 under **Station**. Click on Apply, please map only the PLCs that you want to communicate with, and then click on OK.

onfigure driv Station <mark>Mapp</mark> i			? ×	Configure driv Station Mapp		? >
Station	Host Name	Y	Add New	Station	Host Name	Add <u>N</u> ew
05	192.168.2.50		Delete	0	Driver	Delete
04	192.168.2.50 192.168.2.50			3	192.168.2.50	
1	Driver			4	192.168.2.50	
				5	192.168.2.50	
1	ОК	Cancel	Apply Help		OK Cance	el Apply Help

#### Click on close

nfigure Drivers		?
Available Driver Types:		Close
Ethernet devices	▼ Add New	
Configured Drivers:		
Name and Description	Status	
AB_ETH-1 A-B Ethernet RUNNING	Running	Configure
AB_ETHIP-1 A-B Ethernet RUNNING EQ7000 A-B Ethernet RUNNING	Running	
EQ7000 A-B Ethemet RUNNING	Running	Startup
		Start
		Stop
		<u>D</u> elete

## In RSWHO right click on the driver that was created and click on Properties.



Click on **Advanced Browse settings tab** and check mark **Force network type to**, and then select **DH485** from the drop menu

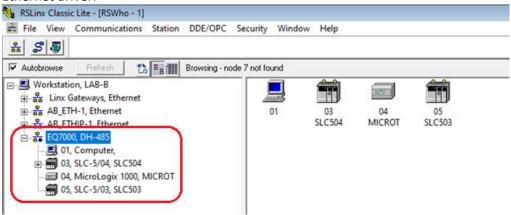
Force network type to:     Direct serial connection to device     Direct serial connection to device     Data Highway Plus     DH-485     ControlNet     DF1 (master or slave)
ControlNet
Tuning ControlLogix backplane Poll timeout (msec): 3000
Poll rate for known stations (msec): 2000 Maximum concurrent packets to this network: 32
Reset

## Click on Apply then on Ok

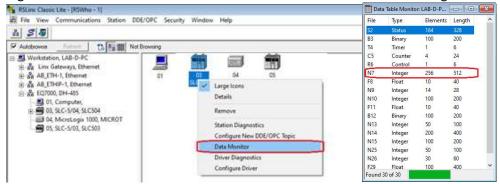
EQ7000 Properties	?	×	EQ7000 Properties		?	×
Browse Addresses Advanced Browse Settings			Browse Addresses Advanced Browse Settings			
Force network type to: DH-485		]	☑ Force network type to: DH-485		-	]
- Tuning		]	Tuning-			]
Poll timeout (msec):	3000		Poll timeout (msec):	3000	_	
Poll rate for known stations (msec):	2000		Poll rate for known stations (msec):	2000		
Maximum concurrent packets to this network:	32		Maximum concurrent packets to this network:	32		
	Reset			Reset		
OK Cancel	Apply He	lp	OK Cancel	Apply	He	lp

In RSlinx RSWHO click on the driver that was created to browse the DH485 network.

Here you can see SLC503, SLC504, and the Micrologix, all those that were mapped when we created the Ethernet driver.



## Right click on SLC503 and click on Data Monitor then double click on integer file N7



## N7 from the SLC504 node 3 is shown here

	0	1	2	3	4	5	6	7	8	9
N7:0	1998	3996	5994	0	0	0	0	0	0	0
N7:10	1060	2120	3180	0	0	0	0	0	0	0
N7:20	0	0	0	0	0	0	0	0	0	0
N7:30	0	0	0	3333	0	0	6654	0	0	0
N7:40	0	0	0	0	0	0	0	0	0	0
N7:50	0	0	0	0	0	0	0	0	0	0

Doing the same for SLC503 and Micrologix integer file 7 are shown here.

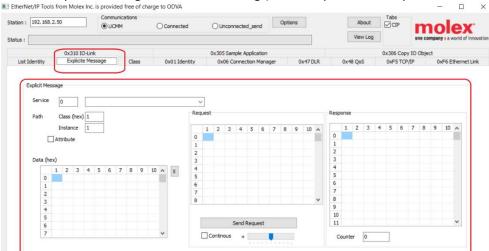
	0	1	2	3	4	5	6	7	8	9	
N7:0	899	8	14	40	137	1	3322	224	5	i ii	0
N7:10	1234	28	3072	2222	1.						
Status: Act			117				Sele	ection: N7			
	.ogix 1000 (2	-									
MicroL	.ogix 1000 (2	1	2	3	4	5	6	7	8	9	
MicroL	.ogix 1000 (2	-		3 22 0	<b>4</b> 33 0	5 44 0					
MicroL N7:0 N7:10	ogix 1000 (2 0 4456	1	<b>2</b> 11	22	33	44	<b>6</b>	7 66	8 77	<b>9</b> 88	
MicroL N7:0 N7:10 N7:20	ogix 1000 (2 0 4456 0	<b>1</b> 0	<b>2</b> 11 0	22 0	33 0	44 0	<b>6</b> 55	7 66 0	8 77 0	<b>9</b> 88 0	
	ogix 1000 (2 0 4456 0 0	1 0 0	<b>2</b> 11 0 0	22 0 0	33 0 0	44 0 0	6 55 0	7 66 0	8 77 0 0	9 88 0 0	

Now to show that we can request same data files from those PLCs using Molex Ethernet IP Tool we need to open Molex Ethernet/IP Tool and enter EQ7000 IP address, select UCMM under Communications.

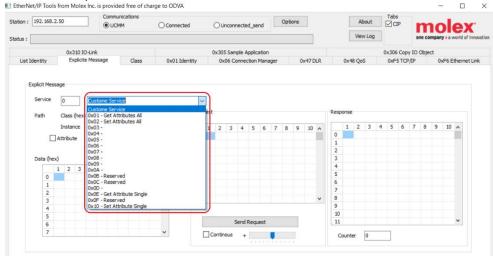
I EtherNet/IP Tools from Molex Inc. is provided free of charge to ODVA
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ition: 192.168.2	50	Communications		O Unconnected_send	Options	About	Tabs	molex
itus :						View Log		one company > a world of innovation
	0x310 IO-Link			0x305 Sample Application			0x306 Copy IO	Object
List Identity	Explicite Messa	ge Class	0x01 Identity	0x06 Connection Manag	er 0x47 DLR	0x48 QoS	0xF5 TCP/IP	0xF6 Ethernet Link

Click on Explicit Message tab, that will bring (Data, Request and Response windows) to show.



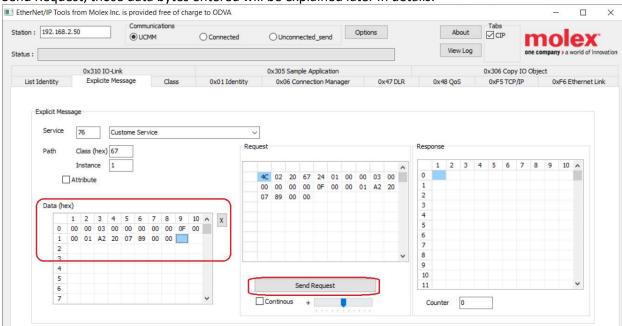
From the Drop Menu select Custome Service.



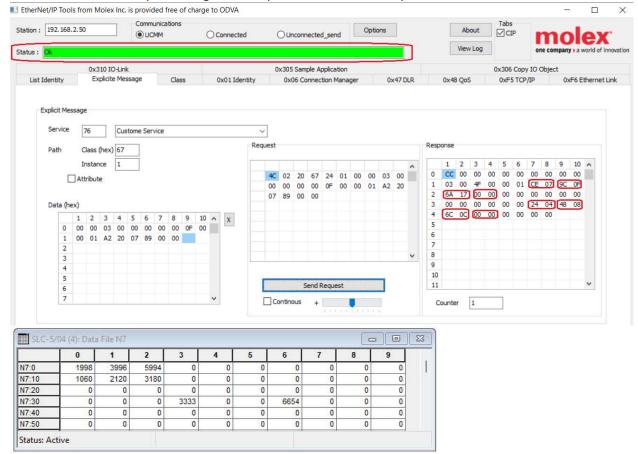
Entere Service 76 which is 4C in Hex and Class 67 Instance 1 then the HEX value for the main request will show in Request window.

on : [	192.16	8.2.50			]		omm UC	unica MM	tions		(	00	onnecti	ed		Our	nconn	ected	_sen	d	Opt	ions	1			Ab	out		Tabs	,	r	n	0	le	ex
ıs :																										Viev	v Log								orid of i
			0x3	10 IC	)-Link								0x305 Sample Application											0x306 Copy IO Object											
List Ide	entity		Exp	plicite	Mes	isag	ê		Clas	s		0	0x01 Identity 0x06 Connection Manager 0x47 DLR								0x48	Qos	5		0xF5	TCP/	/IP		0xF	F6 Et	hernet				
L	Data (1	At	nstan		1	_	J								40	02	20	67	24	01			^	0 1 2 3	1	2	3	4	5	6	7	8	9	10	^
		1	2	3	4	5	6	7	8	9	10	^	х											4											
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Here we need to enter the data in Hex in Data windows, to read data from the SLC504, then click on Send Request, those data bytes entered will be explained later in details.



After we click Send Request, we get the response as shown in Response window below.



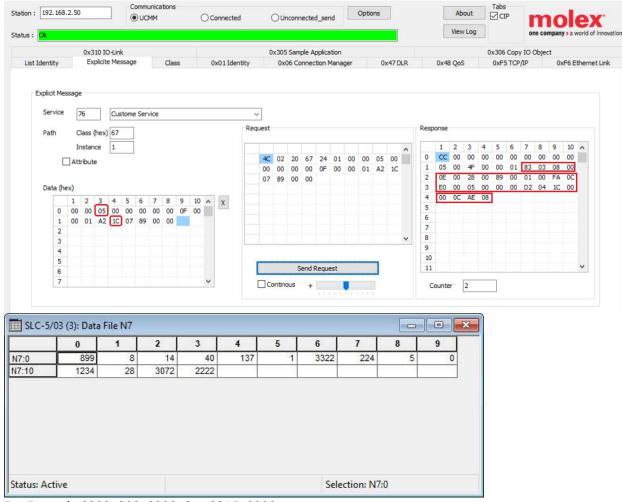
Comparing the response data with those read from RSLINX we can see that they are exact same, for eample 07CE= 1998, 0F9C=3996,176A=5994 and so on.

Now to explain the data sent in the request

Destination Link(Lower)=00, Destination Link (upper)=00 Destination Node= 03 which is our SLC504 node address number, 0=00, Source Link (lower)=00, Source Link (upper)=00, Source Node=00, 0=00,Command= 0F, Status=00, Transaction Code (upper)=00, Transaction Code ( Lower)=01, Function Code=A2, Data Size = 20, File number=07, File Type=89 for Integer file, Element Number=00, Sub Element Number=00, for more details on all these bytes, please refer to Ethernet IP Protocol and Allen Bradley DF1 protocol ( DF1 Command 0F Function A2 is Protected Typed Logical read) The reason we had the Destination link 0 and the Source link 0 as well is that the EQ7000 does not have the back plane and DH485 module that the Control Logix does.

To read from integer file 7 of the SLC503 all what we need is to change the node address number to 05 and change the size of the data we request to 1C, here we get the same data seen in RSLINX as well.

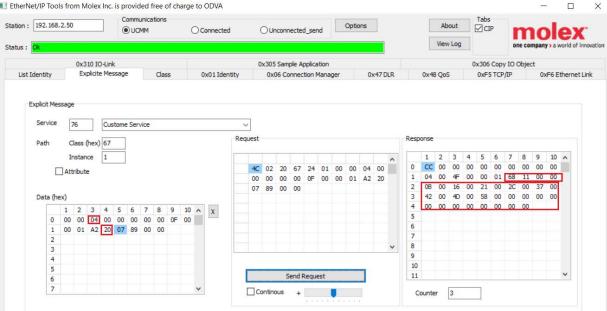
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For Example 0383=899, 0008=8,....08AE=2222.

## Then for Micrologix we will change the node address to 04 and data to 20.

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Here also we can see that we are getting exact same data.

	0	1	2	3	4	5	6	7	8	9
N7:0	4456	0	11	22	33	44	55	66	77	88
N7:10	0	0	0	0	0	0	0	0	0	0
N7:20	0	0	0	0	0	0	0	0	0	0
N7:30	0	0	0	0	0	0	0	0	0	0
N7:40	0	0	0	0	0	0	0	0	0	0
N7:50	0	0	0	0	0	0	0	0	0	0
	1 1		1.1	1.	1			1	1	

To go online with any of the three PLCs for example the SLC503 start RSlogix500 and under Comms tab click on System Comms...

0 📽 🖬	Comms Tools Window Help System Comms	- 2.2		
DFFLINE No Edits Driver: AB_E	Who Active Go Online Go Online Upload			

## Click on the EQ7000 DH485 driver and click on SLC503, then click on Online

Communications	Communications					
Autobrowse Refresh 🚺 📲 🎹 Browsing - node 25	not found OK	P Autobrossen Hafmah D. 12	Droviding - r	ode 22 not found		04
E - Workstation, LAB-D-PC Address	De Cancel	B S Workstation, LAB-D-PC	Address	Device Type	Online Nam	Cancel
As_ETH-1, Ethernet	Col Help	🛞 💑 Linx Gateways, Ethernet 🛞 🍰 AB_ETH-1, Ethernet	01 03	Computer SLC-5/04	91,0304	Heb
E - THIP-1, Ethernet	SLC Qnine	8 4 AB_ETHIP 1, Ethernet		MicroLogix 1000 SLC-5/03	MCROT SLC503	Qnine
(	SLC Upload	B 4 80,7000, DH-485 3 01, Computer,		ALC: 2'03	ACM	Uphoad
	Download	8 🗃 03, 51C-5/04, 51C504				Question
< > <		Ct Stick Stat (SLCS)	<		,	
- Current Selection Driver: EQ7000 Server: RSLinx API Driver: EQ7000 Type: Not a PL		Current Selection Server: RSLexAPt Node: 5 Decenal (+5 Octal)	Driver E Type S			Raphy Timeout [10 (Sec.)

## Click on create new file.

ancel
e New File
d Use File
rowse
2 N

Uploading Processor Image	×
Cancel	
Reading in Channel Configuration	

In a similar way you can go online with any of the other PLCs, SLC504, SLC505 or MicroLogix.

RSLogix 500 - SLC503	
<u>File Edit View Search Comms To</u>	ools <u>W</u> indow <u>H</u> elp
] D 🖻 🖬   🚭   🖓 🖪 💼 👘 🗠 🗠	· · · · · · · · · · · · · · · · · · ·
PROGRAM         ★         No Forces         ★           No Edits         ★         Forces Disabled         ★           Driver: EQ7000         M         M         M	Find Instruction/Address/Symbol     Image: Abs       Image: Abs     Image: Abs       Image: Abs     Image: Abs       Image: Abs     Image: Abs
🙀 SLC503 🗖 🔲 🖾	🌾 LAD 2 📃 📼 💌
E Content ▲	
Controller Controller Properties Processor Status U Configuration Channel Configuration	T4:0     TON       DN     Timer On Delay       Timer T4:0       Timer T4:0       Time Base       1.0       Preset       1       Accom
< >	Image: File 2         Image: File 2
Find Instruction, address or symbol in prog	ram file 2:0000 APP READ

If you have any questions in regard this application or for more details please contact

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