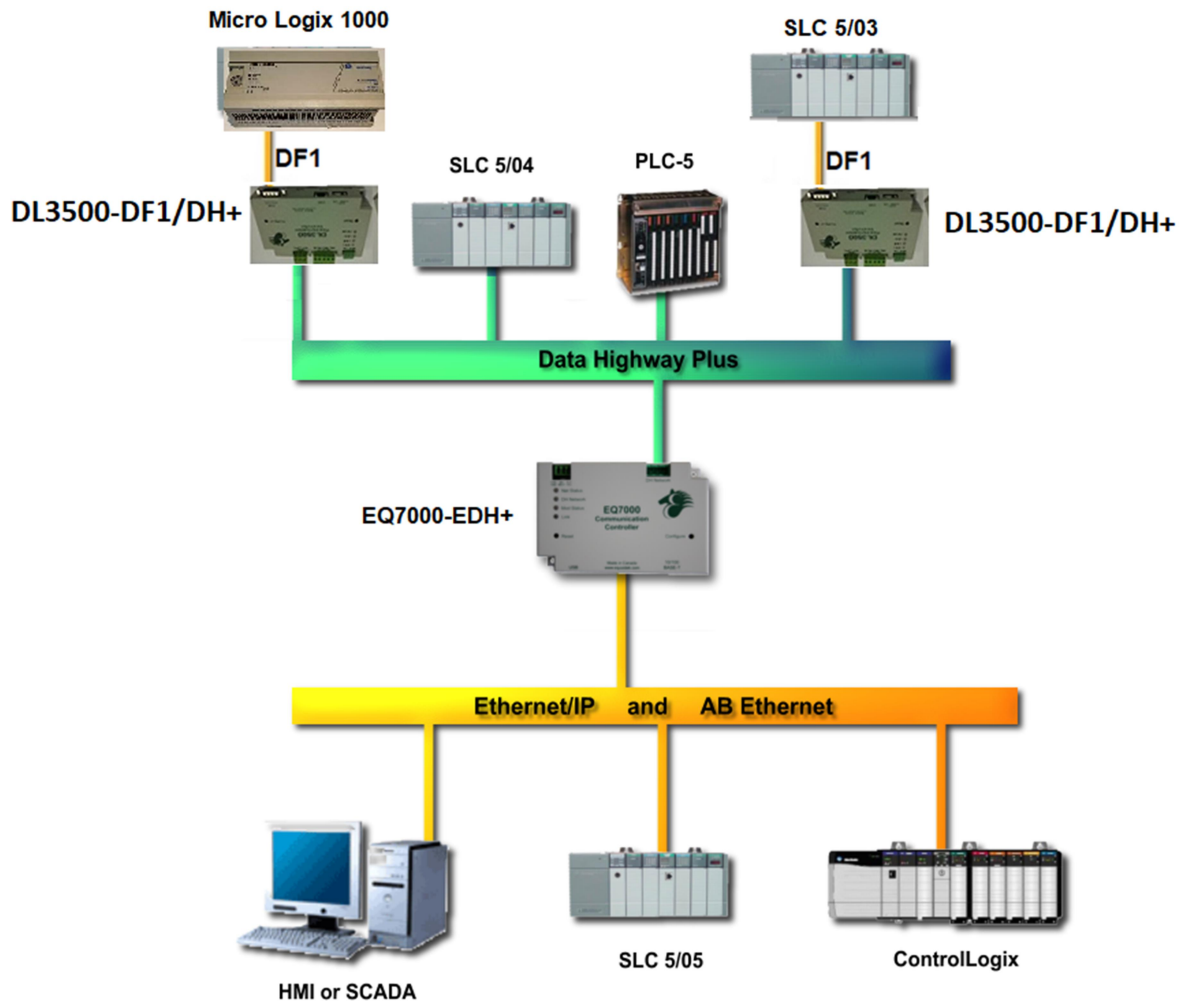
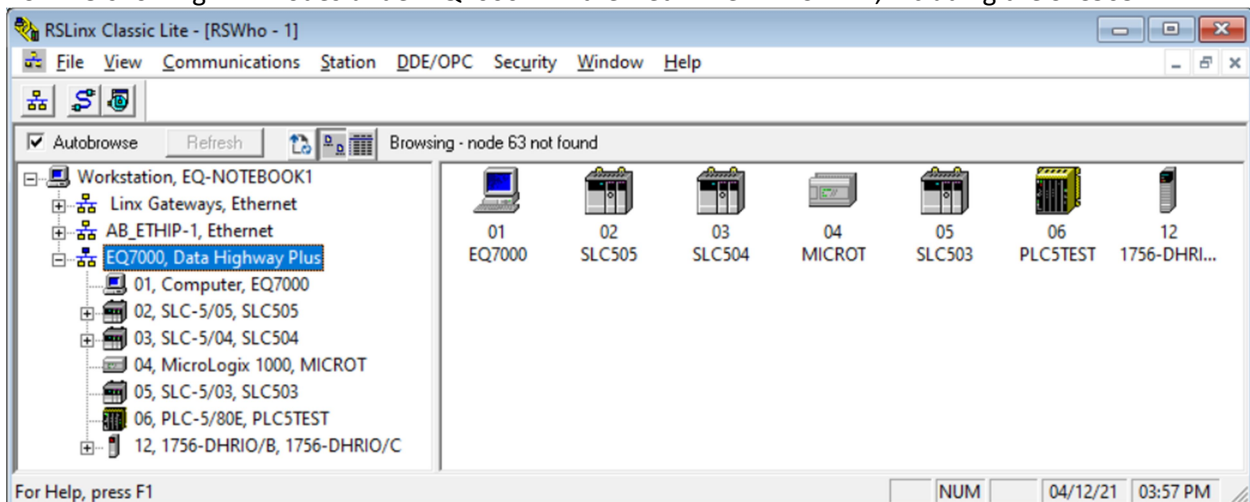


Getting Data from Allen Bradley DH+ PLCs with KEPServerEX AB Ethernet Driver PCCC (ABTCP) using EQ7000-EDH+

Our test setup was as shown below, also note that the SLC505 DF1 side was also connected to another DL3500-DF1/DH+ so that other DH+ PLCs can have access to the SLC-505 on DH+ network.



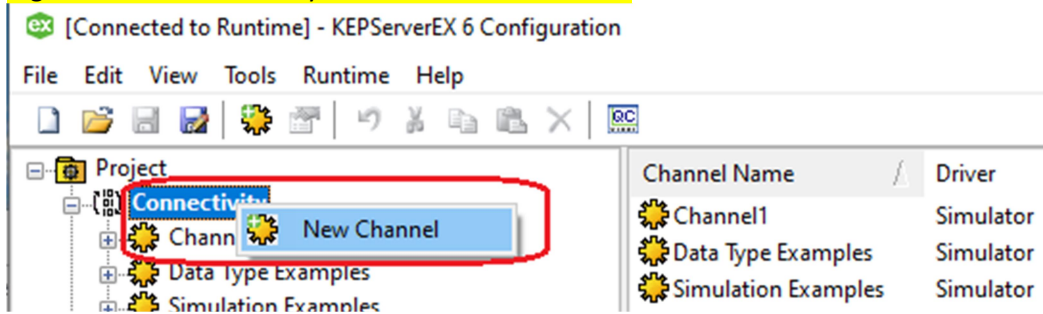
RSWHO showing DH+ nodes under EQ7000 AB Ethernet Driver in RSLINX , including the SLC505



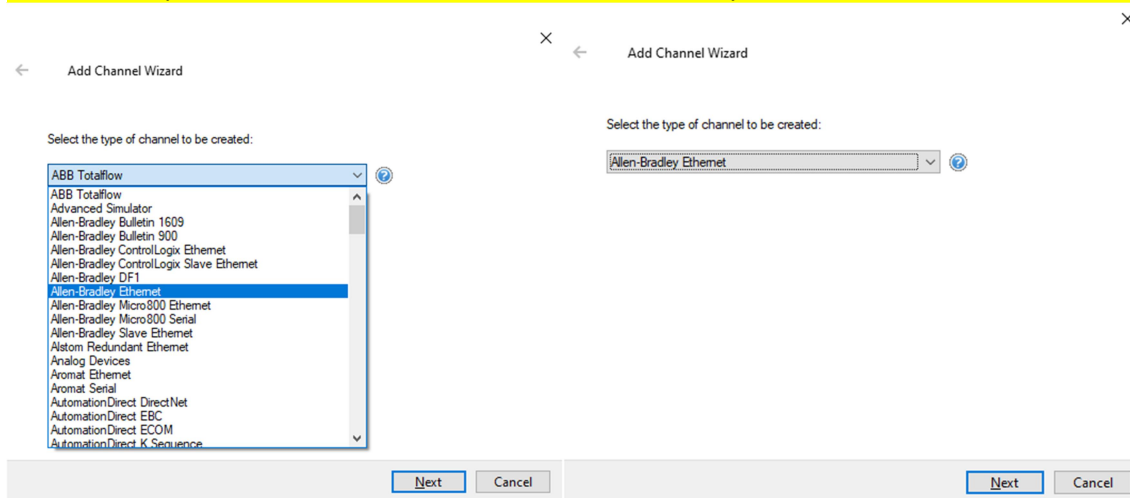
Start KEServerEX



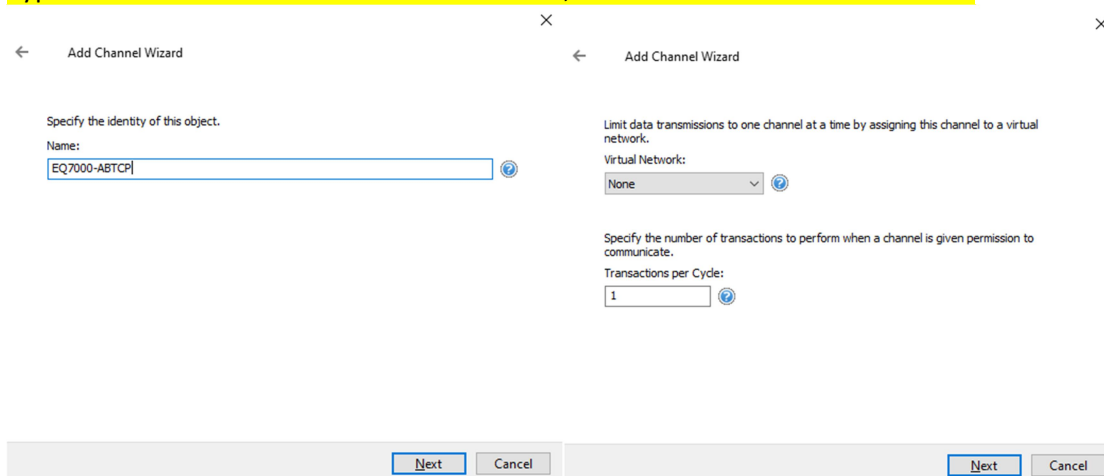
Right click on Connectivity and click on New Channel



From the drop menu to select a channel choose Allen-Bradley Ethernet driver then click on Next



Type a name for the channel and click on Next , here we named it EQ7000-ABTCP



Specify Network adapter and optimization Method then Click on Next

← Add Channel Wizard

Specify the name of a network adapter to bind or allow the OS to select the default.

Network Adapter:

Choose how write data is passed to the underlying communications driver when more than one write exists in the write queue.

Optimization Method:

Specify the ratio of write operations to read operations, based on one read per configurable number of writes.

Duty Cycle:

Next Cancel

Choose how to send invalid floating point numbers and Double check you channel setting then click on Finish.

← Add Channel Wizard

Choose how to send invalid floating-point numbers to the client.

Floating-Point Values:

Identification	
Name	EQ7000-ABTCP
Description	
Driver	Allen-Bradley Ethernet

Diagnostics	
Diagnostics Capture	Disable

Tag Counts	
Static Tags	0

Ethernet Settings	
Network Adapter	Default

Write Optimizations	
Optimization Method	Write All Values for All Tags
Duty Cycle	10

Next Cancel Finish Cancel

Click on (Click to add a device).

ex [Connected to Runtime] - KEServerEX 6 Configuration

File Edit View Tools Runtime Help

Project

- Connectivity
 - Channel1
 - Data Type Examples
 - EQ7000-ABTCP
 - Click to add a device.
 - Simulation Examples

Device Name / Model

Click to add a device.

Type the name of the device here we added a PLC5 then click on Next.

×

← Add Device Wizard

Specify the identity of this object.

Name:

Device1

Next

Cancel

×

← Add Device Wizard

Specify the identity of this object.

Name:

PLC5

Next

Cancel

From the Model drop menu select the PLC-5 Family for PLC5, then click on Next.

×

← Add Device Wizard

Select the specific type of device associated with this ID. Options depend on the type of communications in use.

Model:

SLC 5/05 Open

SLC 5/05 Open

PLC-5 Family

SoftPLC

Next

Cancel

×

← Add Device Wizard

Select the specific type of device associated with this ID. Options depend on the type of communications in use.

Model:

PLC-5 Family

Next

Cancel

Type the IP address of the EQ7000-EDH+ then click on Next.

×

← Add Device Wizard

Specify the device's driver-specific station or node.

ID:

255.255.255.255

Next

Cancel

×

← Add Device Wizard

Specify the device's driver-specific station or node.

ID:

192.168.2.55

Next

Cancel

Select scan mode, Connect timeout, request timeout and attempts before timeout then click on next.

Add Device Wizard	
<p>Specify the method for determining how often tags in the device are scanned.</p> <p>Scan Mode:</p> <p>Respect Client-Specified Scan Rate</p>	<p>Define the maximum amount of time, in seconds, allowed to establish a connection to a remote device. Connection time is often longer than communication request time for a</p> <p>Connect Timeout (s):</p> <p>3</p>
<p>Provide the first updates for new tag references from stored (cached) data rather than polling devices immediately.</p> <p>Initial Updates from Cache:</p> <p>Disable</p>	<p>Specify an interval, in milliseconds, to determine how long the driver waits for a response from the target device to indicate completion.</p> <p>Request Timeout (ms):</p> <p>1000</p>
	<p>Indicate how many times the driver sends a communications request before considering the request to have failed and the device to be in error.</p> <p>Attempts Before Timeout:</p> <p>3</p>
<p>Next Cancel</p>	<p>Next Cancel</p>

Choose your selection on Demote on failure, port number for ABTCP is 2222 and select the request size.

Add Device Wizard	
<p>Automatically remove the device from the scan due to communication failures.</p> <p>Demote on Failure:</p> <p>Disable</p>	<p>Set the TCP/IP port number the device is configured to use.</p> <p>Port:</p> <p>2222</p>
	<p>Select the maximum number of bytes the driver can request in a single transaction.</p> <p>Request Size (bytes):</p> <p>512</p>
<p>Next Cancel</p>	<p>Next Cancel</p>

Type the node address number of the PLC which you are trying to access on DH+ network in decimal, which is here our PLC5 node address number 6.

Add Device Wizard	
<p>Specify the network location number of the target device (e.g. DH+ or DH-485 node) for DF1 gateway applications. For non-DF1 gateway applications, enter 0.</p> <p>Destination Node Address (DST):</p> <p>0</p>	<p>Specify the network location number of the target device (e.g. DH+ or DH-485 node) for DF1 gateway applications. For non-DF1 gateway applications, enter 0.</p> <p>Destination Node Address (DST):</p> <p>6</p>
<p>Next Cancel</p>	<p>Next Cancel</p>

Double check your device (PLC settings) and click on finish.



← Add Device Wizard

Identification	
Name	PLC5
Description	
Driver	Allen-Bradley Ethernet
Model	PLC-5 Family
Channel Assignment	EQ7000-ABTCP
ID	192.168.2.55
Operating Mode	
Data Collection	Enable
Simulated	No
Tag Counts	
Static Tags	0
Scan Mode	
Scan Mode	Respect Client-Specified Scan Rate
Initial Updates from Cache	Disable
Communication Timeouts	
Connect Timeout (s)	3
Request Timeout (ms)	1000
Attempts Before Timeout	3
Auto-Demotion	
Demote on Failure	Disable
Communication Parameters	
Port	2222
Request Size (bytes)	512
Protocol Parameters	
Destination Node Address (DST)	6

Finish

Cancel

Click to add the tags.

[Connected to Runtime] - KEPServerEX 6 Configuration

File Edit View Tools Runtime Help

Project

- Connectivity
- Channel1
- Data Type Examples
- EQ7000-ABTCP
- PLC5
- Simulation Examples

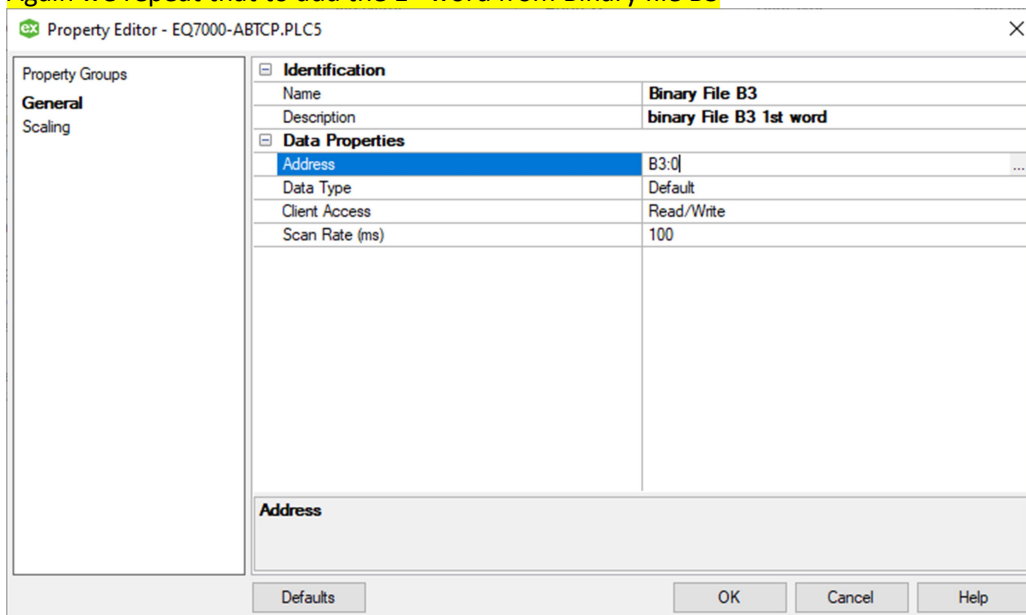
Tag Name	Address	Data Type	Scan Rate
Click to add a static tag. Tags are not required, but are browsable by OPC clients.			

We added word 0 from integer file 7 & repeated it for the 1st floating number in floating file number F8

Property Editor - EQ7000-ABTCP.PLC5	
Identification	
Name	Integer N7
Description	Integer File N7 1st word
Data Properties	
Address	N7:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100
Address	
Defaults OK Cancel Help	

Property Editor - EQ7000-ABTCP.PLC5	
Identification	
Name	Floating F8
Description	Floating file F8 1st number
Data Properties	
Address	F8:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100
Address	
Defaults OK Cancel Help	

Again we repeat that to add the 1st word from Binary file B3

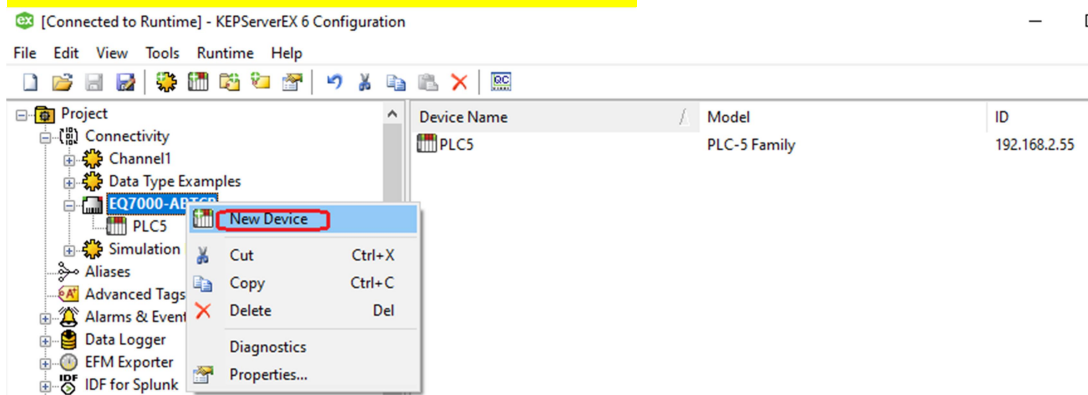


The Property Editor dialog box for EQ7000-ABTCP.PLC5 is shown. The 'General' tab is selected. The 'Identification' section shows 'Name' as 'Binary File B3' and 'Description' as 'binary File B3 1st word'. The 'Data Properties' section shows 'Address' as 'B3:0', 'Data Type' as 'Default', 'Client Access' as 'Read/Write', and 'Scan Rate (ms)' as '100'. There is an 'Address' text box at the bottom and buttons for 'Defaults', 'OK', 'Cancel', and 'Help'.

Identification	
Name	Binary File B3
Description	binary File B3 1st word

Data Properties	
Address	B3:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

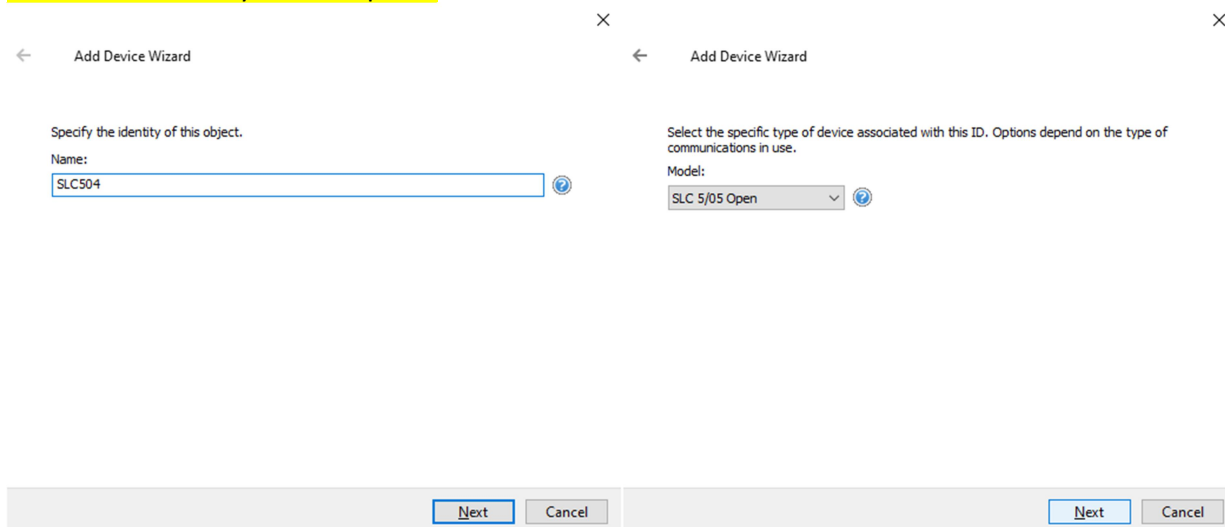
Add another device a SLC504 from the DH+ network.



The KEPServerEX 6 Configuration window is shown. The 'Project' tree on the left has 'EQ7000-ABTCP.PLC5' selected. A context menu is open over it with 'New Device' highlighted. The main table shows one device: 'PLC5' with model 'PLC-5 Family' and ID '192.168.2.55'.

Device Name	Model	ID
PLC5	PLC-5 Family	192.168.2.55

Type the name of the device and select the (SLC 5/05 Open) as a Model from the Model drop menu since that is the only SLC500 option.



The 'Add Device Wizard' dialog box is shown. The 'Name' field contains 'SLC504'. The 'Model' dropdown menu is set to 'SLC 5/05 Open'. There are 'Next' and 'Cancel' buttons at the bottom.

Specify the identity of this object.

Name: SLC504

Select the specific type of device associated with this ID. Options depend on the type of communications in use.

Model: SLC 5/05 Open

Type the IP address of the EQ7000, and continue with the rest similar to previous setup for the PLC5

Add Device Wizard	
<p>Specify the device's driver-specific station or node.</p> <p>ID:</p> <input type="text" value="192.168.2.55"/>	<p>Specify the method for determining how often tags in the device are scanned.</p> <p>Scan Mode:</p> <p>Respect Client-Specified Scan Rate</p> <p>Provide the first updates for new tag references from stored (cached) data rather than polling devices immediately.</p> <p>Initial Updates from Cache:</p> <p>Disable</p>
<p>Next</p> <p>Cancel</p>	<p>Next</p> <p>Cancel</p>
<p>Define the maximum amount of time, in seconds, allowed to establish a connection to a remote device. Connection time is often longer than communication request time for a</p> <p>Connect Timeout (s):</p> <input type="text" value="5"/>	<p>Automatically remove the device from the scan due to communication failures.</p> <p>Demote on Failure:</p> <p>Disable</p>
<p>Specify an interval, in milliseconds, to determine how long the driver waits for a response from the target device to indicate completion.</p> <p>Request Timeout (ms):</p> <input type="text" value="1000"/>	
<p>Indicate how many times the driver sends a communications request before considering the request to have failed and the device to be in error.</p> <p>Attempts Before Timeout:</p> <input type="text" value="3"/>	
<p>Next</p> <p>Cancel</p>	<p>Next</p> <p>Cancel</p>

Leave the port as 2222 and enter the node address of the SLC5/04 which is 3 in our DH+ network.

Add Device Wizard	
<p>Set the TCP/IP port number the device is configured to use.</p> <p>Port:</p> <input type="text" value="2222"/>	<p>Specify the network location number of the target device (e.g. DH+ or DH-485 node) for DF1 gateway applications. For non-DF1 gateway applications, enter 0.</p> <p>Destination Node Address (DST):</p> <input type="text" value="3"/>
<p>Select the maximum number of bytes the driver can request in a single transaction.</p> <p>Request Size (bytes):</p> <p>512</p>	
<p>Next</p> <p>Cancel</p>	<p>Next</p> <p>Cancel</p>

Double check the SLC504 settings and similarly add tags for the SLC-504.

← Add Device Wizard

Identification

Name	SLC504
Description	
Driver	Allen-Bradley Ethernet
Model	SLC 5/05 Open
Channel Assignment	EQ7000-ABTCP
ID	192.168.2.55

Operating Mode

Data Collection	Enable
Simulated	No

Tag Counts

Static Tags	0
-------------	---

Scan Mode

Scan Mode	Respect Client-Specified Scan Rate
Initial Updates from Cache	Disable

Communication Timeouts

Connect Timeout (s)	3
Request Timeout (ms)	1000
Attempts Before Timeout	3

Auto-Demotion

Demote on Failure	Disable
-------------------	---------

Communication Parameters

Port	2222
Request Size (bytes)	512

Protocol Parameters

Destination Node Address (DST)	3
--------------------------------	---

Property Editor - EQ7000-ABTCP.SLC504

Property Groups

General

Scaling

Identification

Name	Integer file N7
Description	Integer file N7 word 0

Data Properties

Address	N7:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Property Editor - EQ7000-ABTCP.SLC504

Property Groups

General

Scaling

Identification

Name	Floating file F8
Description	1st number in Floating file F8

Data Properties

Address	F8:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Property Editor - EQ7000-ABTCP.SLC504

Property Groups

General

Scaling

Identification

Name	Binary file B3
Description	1st word in binary file B3

Data Properties

Address	B3:0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Similarly add the SLC505 and add it's tags.

← Add Device Wizard

Specify the identity of this object.

Name:

SLC500

Specify the network location number of the target device (e.g. DH+ or DH-485 node) for DF1 gateway applications. For non-DF1 gateway applications, enter 0.

Destination Node Address (DST):

2

Next Cancel

Next Cancel

← Add Device Wizard

Identification	
Name	SLC500
Description	
Driver	Allen-Bradley Ethernet
Model	SLC 5/05 Open
Channel Assignment	EQ7000-ABTCP
ID	192.168.2.55
Operating Mode	
Data Collection	Enable
Simulated	No
Tag Counts	
Static Tags	0
Scan Mode	
Scan Mode	Respect Client-Specified Scan Rate
Initial Updates from Cache	Disable
Communication Timeouts	
Connect Timeout (s)	3
Request Timeout (ms)	1000
Attempts Before Timeout	3
Auto-Demotion	
Demote on Failure	Disable
Communication Parameters	
Port	2222
Request Size (bytes)	512
Protocol Parameters	
Destination Node Address (DST)	2

Finish Cancel

Property Editor - EQ7000-ABTCP.SLC500

Identification	
Name	Floating file F8
Description	Floating File F8 1st number
Data Properties	
Address	F8.0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Property Editor - EQ7000-ABTCP.SLC500

Identification	
Name	Integer File N7
Description	Integer file N7 Word 0
Data Properties	
Address	N7.0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Property Editor - EQ7000-ABTCP.SLC500

Identification	
Name	Binary File B3
Description	Binary file B3 word 0
Data Properties	
Address	B3.0
Data Type	Default
Client Access	Read/Write
Scan Rate (ms)	100

Address

Defaults OK Cancel Help

Add the Micro Logix and the SLC 5/03 as well as their tags

← Add Device Wizard

Identification	
Name	SLC503
Description	
Driver	Allen-Bradley Ethernet
Model	SLC 5/05 Open
Channel Assignment	EQ7000-ABTCP
ID	192.168.2.55
Operating Mode	
Data Collection	Enable
Simulated	No
Tag Counts	
Static Tags	0
Scan Mode	
Scan Mode	Respect Client-Specified Scan Rate
Initial Updates from Cache	Disable
Communication Timeouts	
Connect Timeout (s)	3
Request Timeout (ms)	1000
Attempts Before Timeout	3
Auto-Demotion	
Demote on Failure	Disable
Communication Parameters	
Port	2222
Request Size (bytes)	512
Protocol Parameters	
Destination Node Address (DST)	5

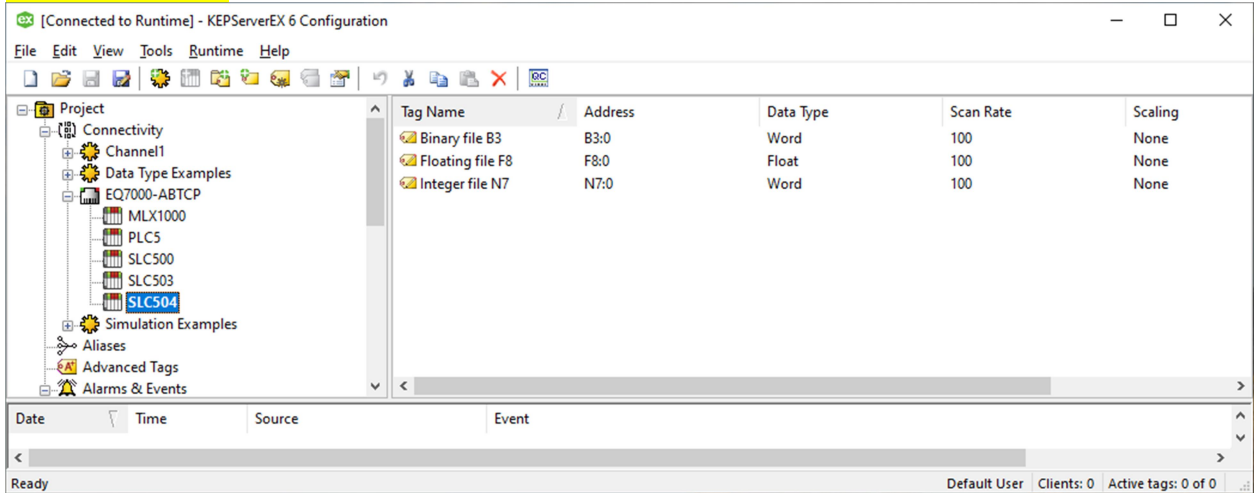
Finish Cancel

← Add Device Wizard

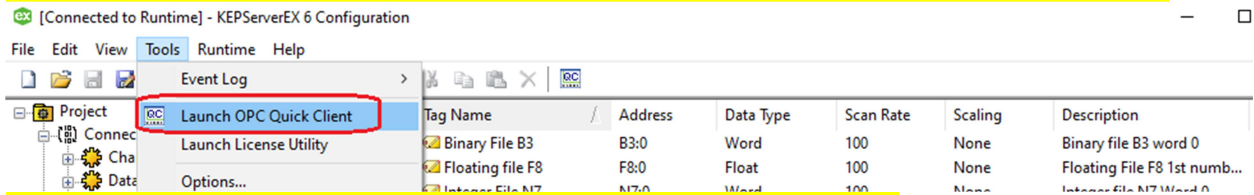
Identification	
Name	MLX1000
Description	
Driver	Allen-Bradley Ethernet
Model	SLC 5/05 Open
Channel Assignment	EQ7000-ABTCP
ID	192.168.2.55
Operating Mode	
Data Collection	Enable
Simulated	No
Tag Counts	
Static Tags	0
Scan Mode	
Scan Mode	Respect Client-Specified Scan Rate
Initial Updates from Cache	Disable
Communication Timeouts	
Connect Timeout (s)	3
Request Timeout (ms)	1000
Attempts Before Timeout	3
Auto-Demotion	
Demote on Failure	Disable
Communication Parameters	
Port	2222
Request Size (bytes)	512
Protocol Parameters	
Destination Node Address (DST)	4

Finish Cancel

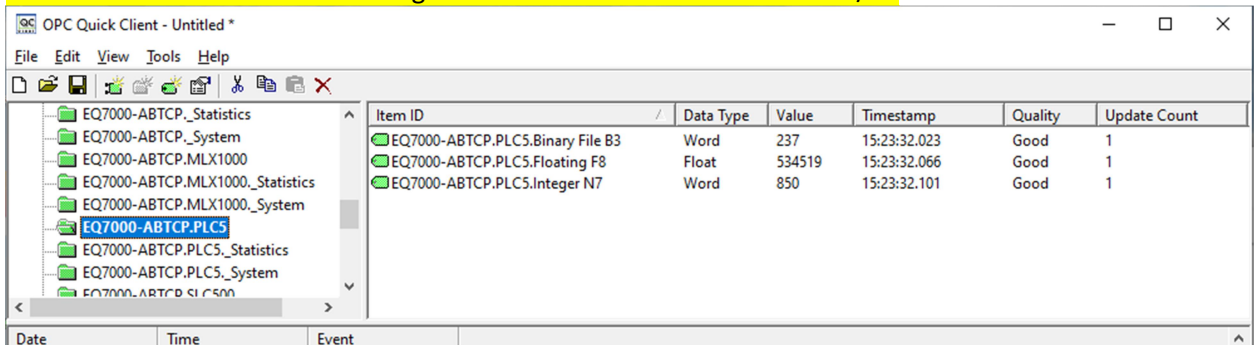
After adding all our devices, they will show under the ABTCP driver, Micrologix1000, PLC5, SLC 5/05, SLC5/03, SLC 5/04.



To confirm that we can read tag values, click on Tools tab then click on (Launch OPC Quick Client).



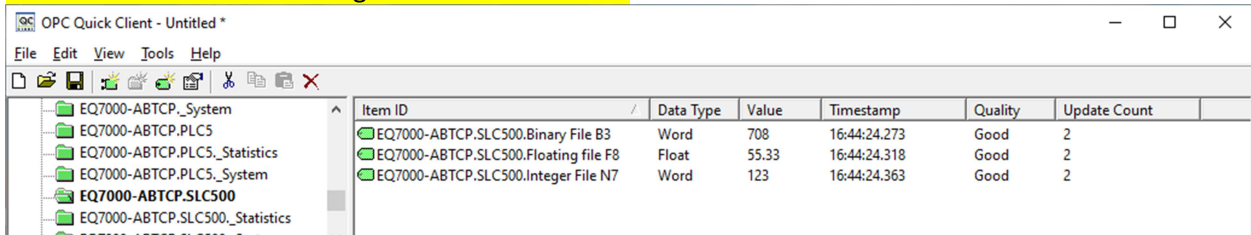
Click on each device to view it's tag values as shown below for the PLC5/80



Here we can see that our tag values are the same as those shown from RSLINX data monitor

[illegible]

Same here we can confirm tag values for the SLC505

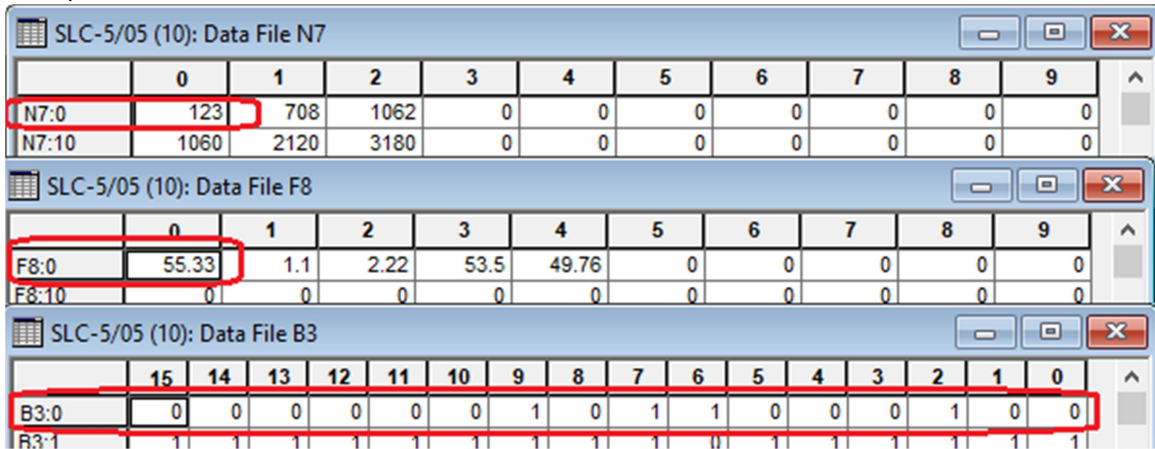


OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Data Type	Value	Timestamp	Quality	Update Count
EQ7000-ABTCP.SLC500.Binary File B3	Word	708	16:44:24.273	Good	2
EQ7000-ABTCP.SLC500.Floating file F8	Float	55.33	16:44:24.318	Good	2
EQ7000-ABTCP.SLC500.Integer File N7	Word	123	16:44:24.363	Good	2

SLC 5/05 data values from RSLINX data monitor.



SLC-5/05 (10): Data File N7

	0	1	2	3	4	5	6	7	8	9
N7:0	123	708	1062	0	0	0	0	0	0	0
N7:10	1060	2120	3180	0	0	0	0	0	0	0

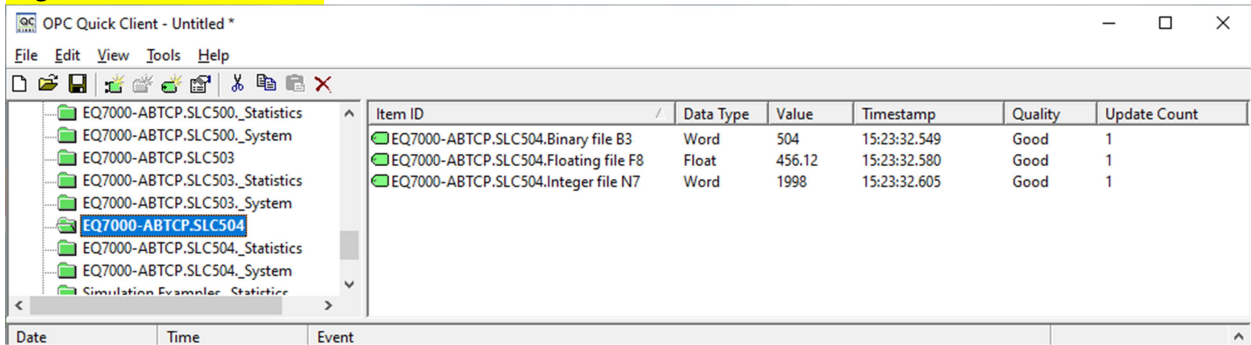
SLC-5/05 (10): Data File F8

	0	1	2	3	4	5	6	7	8	9
F8:0	55.33	1.1	2.22	53.5	49.76	0	0	0	0	0
F8:10	0	0	0	0	0	0	0	0	0	0

SLC-5/05 (10): Data File B3

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
B3:0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0
B3:1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1

Tag Values for the SLC-504

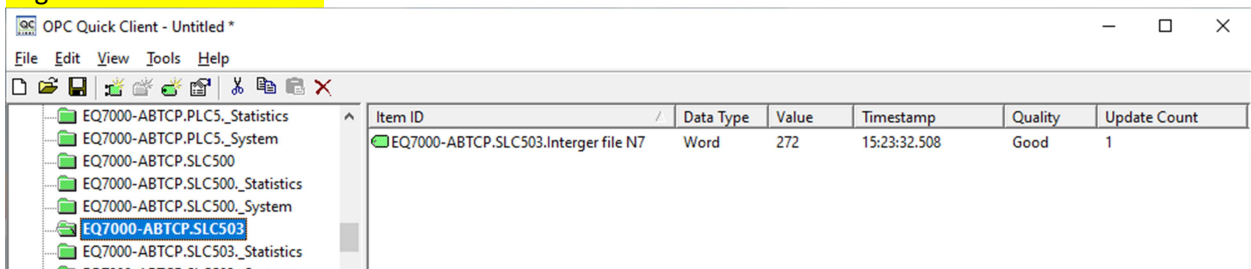


OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Data Type	Value	Timestamp	Quality	Update Count
EQ7000-ABTCP.SLC504.Binary file B3	Word	504	15:23:32.549	Good	1
EQ7000-ABTCP.SLC504.Floating file F8	Float	456.12	15:23:32.580	Good	1
EQ7000-ABTCP.SLC504.Integer file N7	Word	1998	15:23:32.605	Good	1

Tag Values for the SLC-503

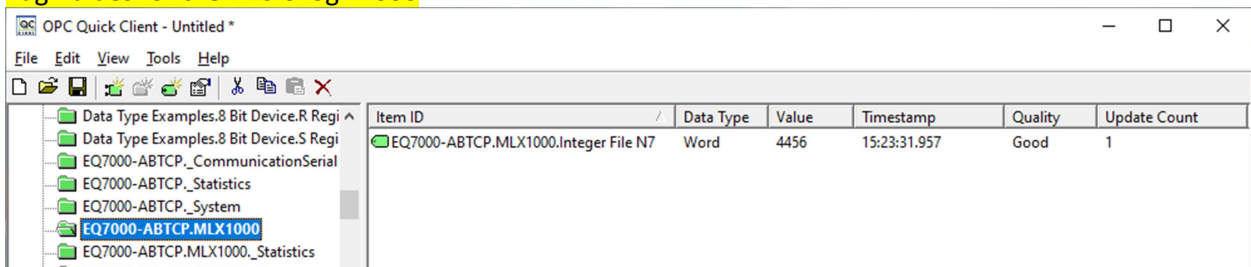


OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Data Type	Value	Timestamp	Quality	Update Count
EQ7000-ABTCP.SLC503.Integer file N7	Word	272	15:23:32.508	Good	1

Tag Values for the MicroLogix1000



OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Data Type	Value	Timestamp	Quality	Update Count
EQ7000-ABTCP.MLX1000.Integer File N7	Word	4456	15:23:31.957	Good	1