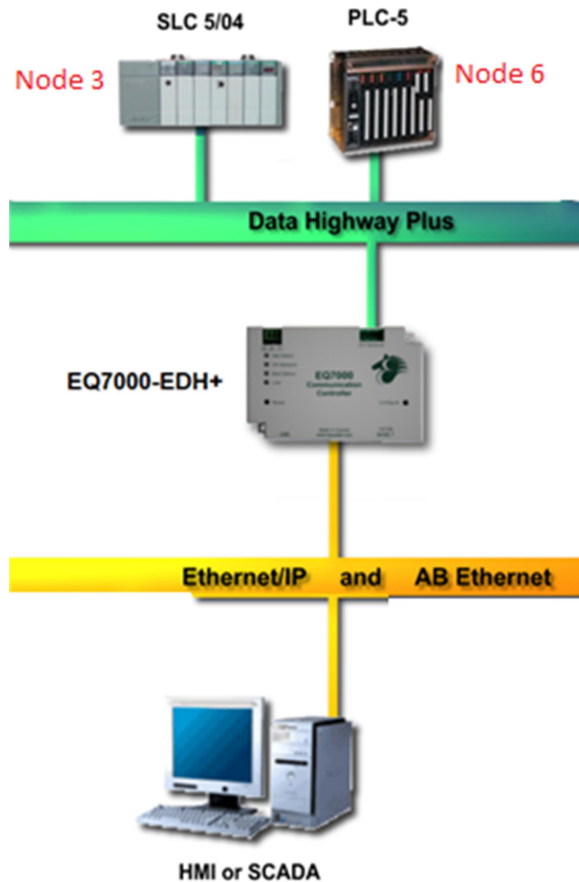
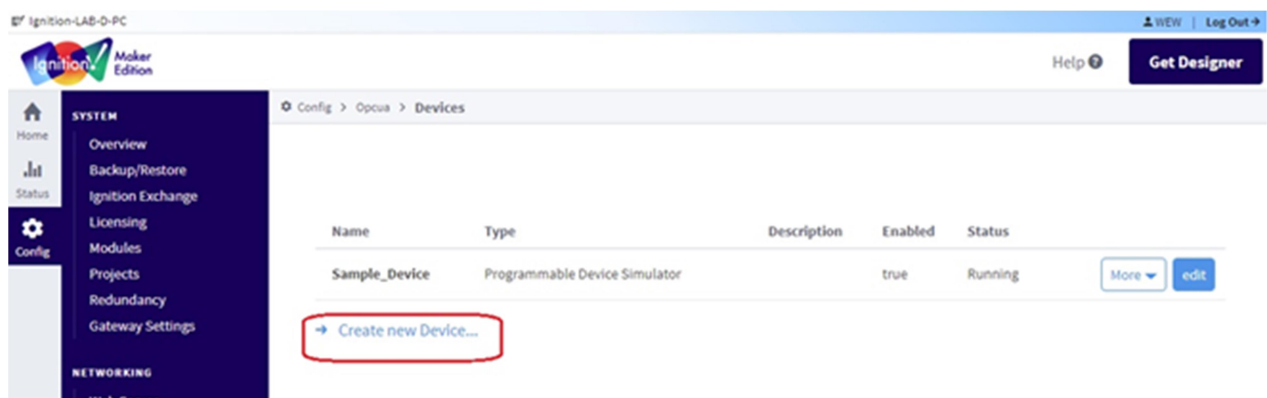


## Ignition Inductive Automation Ethernet IP Driver connecting to Allen Bradley PLC5 and SLC504 using EQ7000-EDH+

Figure shows our test setup



For Educational purpose in this application note we used Ignition maker Edition. Navigate to Devices under configure and click on Create new Device.



## Select Allen-Bradley PLC5 (Connect to PLC5s via Ethernet)

Ignition-LAB-D-PC

Ignition<sup>®</sup> Maker Edition

Config > Opcua > Devices

**SYSTEM**

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

**NETWORKING**

- Web Server
- Gateway Network
- Email Settings

**SECURITY**

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- Security Levels
- Security Zones

☐ **Allen-Bradley CompactLogix (Legacy)**  
Connect to CompactLogix PLCs up to firmware v20.18.

☐ **Allen-Bradley ControlLogix (Legacy)**  
Connect to ControlLogix PLCs up to firmware v20.18.

☐ **Allen-Bradley Logix Driver**  
Connect to Allen-Bradley Logix family devices. Optimized for devices with

☐ **Allen-Bradley MicroLogix**  
Connect to MicroLogix 1100 and 1400 series PLCs.

☒ **Allen-Bradley PLC5**  
Connect to PLC5s via Ethernet.

☐ **Allen-Bradley SLC**  
Connect to SLC 5/05s via Ethernet.

☐ **Modbus RTU**

Then scroll down and click on Next.

Ignition-LAB-D-PC - Ignition Gateway

http://localhost:8088/web/config/opcua/devices?14

Amazon eBay Facebook YouTube

**OPC CLIENT**

- OPC Connections
- OPC Quick Client

**OPC UA**

- Device Connections
- Security
- Server Settings

**SEQUENTIAL FUNCTION CHARTS**

- Settings

Config > Opcua > Devices

☐ **Programmable Device Simulator**  
A simulator device that can be configured with a user-defined hierarchy of static or function-driven values.

☐ **Siemens S7-1200**  
Connect to Siemens S7-1200 PLCs over Ethernet.

☐ **Siemens S7-1500**  
Connect to Siemens S7-1500 PLCs over Ethernet.

☐ **Siemens S7-300**  
Connect to Siemens S7-300 PLCs over Ethernet.

☐ **Siemens S7-400**  
Connect to Siemens S7-400 PLCs over Ethernet.

☐ **TCP Driver**

☐ **UDP Driver**

**Next >**

Ignition by Inductive Automation.  
Copyright © 2003-2021. All rights reserved. [View license](#)

inductive automation

Under General:

Type a name for the PLC here we typed PLC5 then type the Description, in ours here we typed PLC5-80.

Under Connectivity:

Hostname: is the IP address of our EQ7000-EDH+

Connection Path: Since here EQ7000 is emulating a Control Logix 1756 DHRIO, Details of the path according to **Ignition Inductive Automation manual**

The Connection Path format contains 4 numbers separated by commas. The first number is always 1 and tells the 1756-ENET module to route through the backplane. The second number is the slot number of the 1756-DHRIO module of the DH+ network the PLC-5 processor is connected to. The third number is the channel of the 1756-DHRIO module that the PLC-5 processor is connected to. Use 2 for channel A and 3 for channel B. The final and fourth number is the DH+ node number. This number is in octal and is the same as configured in the PLC-5 processor. See the **ControlLogix Ethernet Communication interface Module** User Manual for more information.

Connection Path Format: 1,<1756-DHRIO slot number>,<1756-DHRIO channel>,<DH+ node number>

The valid range for the 1756-DHRIO slot number is between 0 and 16 but depends on the chassis size. The 1756-DHRIO channel is either 2 for channel A or 3 for channel B. The DH+ node number range is from 00 to 77 octal. **Reference Inductive Automation manual** <https://docs.inductiveautomation.com/display/DOC80/Connecting+to+PLC5>

1 : for Backplane , 0 for the slot number, 2 is for Channel A, 6 is for our PLC5 octal node address number

The screenshot shows the Ignition Gateway configuration interface. The browser address bar indicates the URL is `http://localhost:8088/web/config/opcua.devices?19`. The interface has a dark blue sidebar on the left with navigation links for Home, Status, and Config. The main content area is titled 'Config > Opcua > Devices' and contains two sections: 'General' and 'Connectivity'.

**General Section:**

Name	PLC5
Description	PLC5-80
Enabled	<input checked="" type="checkbox"/> (default: true)

**Connectivity Section:**

Hostname	192.168.2.55
Timeout	2000 (default: 2,000)
Browse Cache Timeout	240000 (default: 240,000)
Connection Path	1,0,2,6

Below the Connectivity section, there is a checkbox labeled 'Show advanced properties' which is currently unchecked. At the bottom right of the configuration area, there is a blue button labeled 'Create New Device'.

Wait for the status to say connected.

Ignition-LAB-D-PC - Ignition Gateway

http://localhost:8088/web/config/opcua.devices?27

Amazon eBay Facebook YouTube

Ignition-LAB-D-PC

WEW Log Out

Help Get Designer

Config > Opcua > Devices

SYSTEM

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

NETWORKING

- Web Server
- Gateway Network
- Email Settings

SECURITY

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- Security Levels
- Security Zones

DATABASES

- Connections
- Drivers
- Store and Forward

Search...

Successfully created new Device "PLC5"

Name	Type	Description	Enabled	Status		
PLC5	Allen-Bradley PLC5	PLC5-80	true	Connecting: Browse pending...	More	edit
Sample_Device	Programmable Device Simulator		true	Running	More	edit

Create new Device...

Now the PLC5 is connected we can add the SLC504 by clicking again on Create new Device

Ignition-LAB-D-PC - Ignition Gateway

http://localhost:8088/web/config/opcua.devices?62

Amazon eBay Facebook YouTube

Ignition-LAB-D-PC

WEW Log Out

Help Get Designer

Config > Opcua > Devices

SYSTEM

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

NETWORKING

- Web Server
- Gateway Network
- Email Settings

SECURITY

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- Security Levels
- Security Zones

DATABASES

- Connections
- Drivers
- Store and Forward

ALARMING

- General

Search...

Name	Type	Description	Enabled	Status		
PLC5	Allen-Bradley PLC5	PLC5-80	true	Connected: Protocol: DHRIIO	More	edit
Sample_Device	Programmable Device Simulator		true	Running	More	edit

Create new Device...

Select Allen-Bradley SLC (Connect to SLC 5/05s via Ethernet) as shown and scroll down and click on Next

Ignition-LAB-D-PC

Ignition! Maker Edition

Home  
Status  
Config

**SYSTEM**

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

**NETWORKING**

- Web Server
- Gateway Network
- Email Settings

**SECURITY**

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- Security Levels
- Security Zones

Config > Opcua > Devices

- ☐ Allen-Bradley CompactLogix (Legacy)  
Connect to CompactLogix PLCs up to firmware v20.18.
- ☐ Allen-Bradley ControlLogix (Legacy)  
Connect to ControlLogix PLCs up to firmware v20.18.
- ☐ Allen-Bradley Logix Driver  
Connect to Allen-Bradley Logix family devices. Optimized for devices with firmv
- ☐ Allen-Bradley MicroLogix  
Connect to MicroLogix 1100 and 1400 series PLCs.
- ☒ Allen-Bradley SLC  
Connect to SLC 5/05s via Ethernet.
- ☐ Modbus RTU  
Connect to devices that implement the Modbus RTU protocol over a serial link.

Similarly type the name, description and also the hostname and connection path here for the SLC504 was node 3 so the path was 1,0,2,3

Ignition-LAB-D-PC

Ignition! Maker Edition

Home  
Status  
Config

**SYSTEM**

- Overview
- Backup/Restore
- Ignition Exchange
- Licensing
- Modules
- Projects
- Redundancy
- Gateway Settings

**NETWORKING**

- Web Server
- Gateway Network
- Email Settings

**SECURITY**

- General
- Auditing
- Users, Roles
- Service Security
- Identity Providers
- Security Levels
- Security Zones

**DATABASES**

- Connections
- Drivers
- Store and Forward

**ALARMING**

Config > Opcua > Devices

**General**

Name	SLC504
Description	SLC5/04
Enabled	<input checked="" type="checkbox"/> (default: true)

**Connectivity**

Hostname	192.168.2.55
Timeout	2000 (default: 2,000)
Browse Cache Timeout	240000 (default: 240,000)
Connection Path	1,0,2,3

☐ Show advanced properties

Create New Device

Here we have both the SLC 5/04 and the PLC5 both connected.

Now to confirm our connections we were able to read some tags form both the PLC5 and the SLC 504  
To do that click on OPC Quick client, then click on the plus sign beside the Ignition OPC UA Server

To see connected devices click on the plus sign of the Devices that will show both PLC5 & SLC-504 those we added before, now to open the folders and see the tags of each device, 1<sup>st</sup> to check the SLC 5/04 tags click on the plus sign of the SLC504

Here we can see SLC504 tags, open N7 then click on N7:0 then to read that word 0 of Integer file 7 just click on r

The screenshot shows the Ignition OPC Quick Client interface. The left sidebar contains a navigation menu with sections: SYSTEM (Overview, Backup/Restore, Ignition Exchange, Licensing, Modules, Projects, Redundancy, Gateway Settings), NETWORKING (Web Server, Gateway Network, Email Settings), SECURITY (General, Auditing, Users, Roles, Service Security, Identity Providers, Security Levels, Security Zones), and DATABASES (Connections, Drivers, Store and Forward). The main area displays a table of tags under the heading 'Config > Opc > OPC Quick Client'.

TYPE	ACTION	TITLE
Server	refresh	Ignition OPC UA Server
Object		Devices
Object		PLC5
Object		SLC504
Object		B3
Object		B12
Object		C5
Object		F8
Object		F11
Object		F29
Object		N7
Tag	[s][r][w]	N7:0
Tag	[s][r][w]	N7:1
Tag	[s][r][w]	N7:2

Below the table, there is a 'Subscription 1' section with a 'Set' button and a 'Rate (ms):' field set to 1000.

Here we can see the word 0 value of integer file N7 for SLC5/04

The screenshot shows the Ignition OPC Quick Client interface with a green status box at the top indicating a successful read operation. The status box contains the following information:

- ✓ Read completed. [Ignition OPC UA Server]ns=1;s=[SLC504]N7:0
- Value: 1998
- Quality: Good
- Timestamp: 4/20/21, 12:26:45 PM PDT

Below the status box, the same table of tags is displayed. The tag 'N7:0' is highlighted with a red box, and its 'ACTION' column shows '[s][r][w]'.

TYPE	ACTION	TITLE
Server	refresh	Ignition OPC UA Server
Object		Devices
Object		PLC5
Object		SLC504
Object		B3
Object		B12
Object		C5
Object		F8
Object		F11
Object		F29
Object		N7
Tag	[s][r][w]	N7:0
Tag	[s][r][w]	N7:1
Tag	[s][r][w]	N7:2



We can repeat for PLC5

The screenshot shows the Ignition OPC Quick Client configuration page. The left sidebar contains navigation links for SYSTEM, NETWORKING, and SECURITY. The main area displays a table of objects for the PLC5 server.

TYPE	ACTION	TITLE
Server	refresh	Ignition OPC UA Server
Object		Devices
Object		[PLC5]
Object		B3
Object		B12
Object		B15
Object		B47
Object		B52
Object		C5
Object		C16
Object		F8
Object		F11
Object		F29
Object		F46

Below the table, there is a section for "Subscription 1" with an "Add" button. At the bottom, a table header is visible with columns: Server, Address, Value, Quality, and Timestamp.

Here we can see the word 0 value of integer file N7 for PLC5

The screenshot shows the Ignition OPC Quick Client configuration page. The left sidebar contains navigation links for SYSTEM, NETWORKING, and SECURITY. The main area displays a table of objects for the PLC5 server. A red box highlights a message indicating a successful read operation for the N7:0 tag.

**Read completed.** [Ignition OPC UA Server]ns=1;s=[PLC5]N7:0  
Value: 850  
Quality: Good  
Timestamp: 4/20/21, 12:27:49 PM PDT

Object		F8
Object		F11
Object		F29
Object		F46
Object		F48
Object		F51
Object		I
Object		N7
Tag	[s][r][w]	N7:0