## Local Ignition connection to Rockwell Emulate

These are instructions for reliably getting device connections from Ignition to tags running in Rockwell Emulate in a local deployment (Ignition gateway and Emulate on the same machine). Compliments to those who contributed on the Ignition forum topic https://forum.inductiveautomation.com/t/opc-to-emulate-still-looking-for-answers/80088/49

1. In RSLinx classic, disable "Accept UDP Messages on UDP Port. This is under DDE/OPC - Options - General tab.
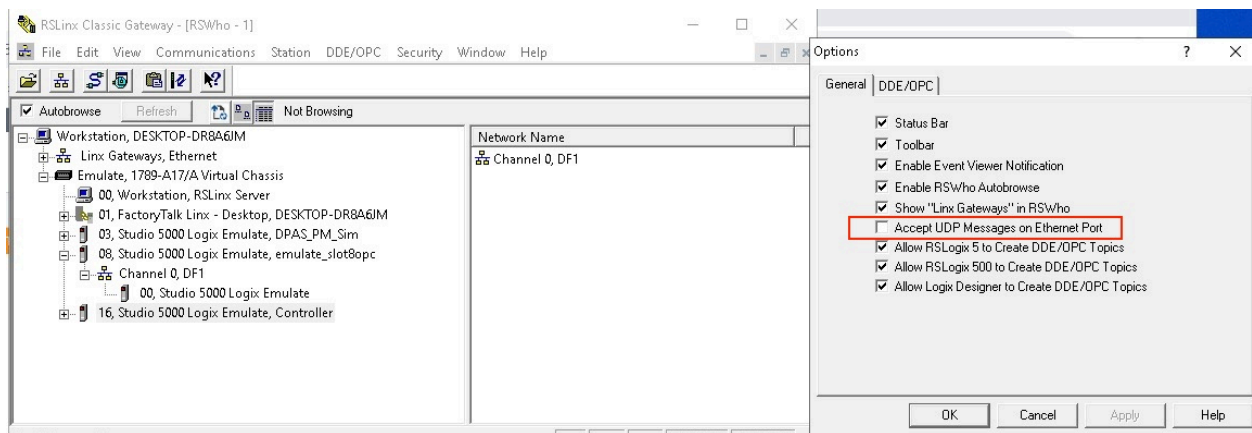
2. Open FactoryTalk Linx Network Browser. Enable FTLinx use of the Encapsulation Port. Select the "EtherNet, Ethernet" driver, then its options, then pick a network interface, then set the checkbox, and Apply. Remember the IP address of the network interface that you choose.
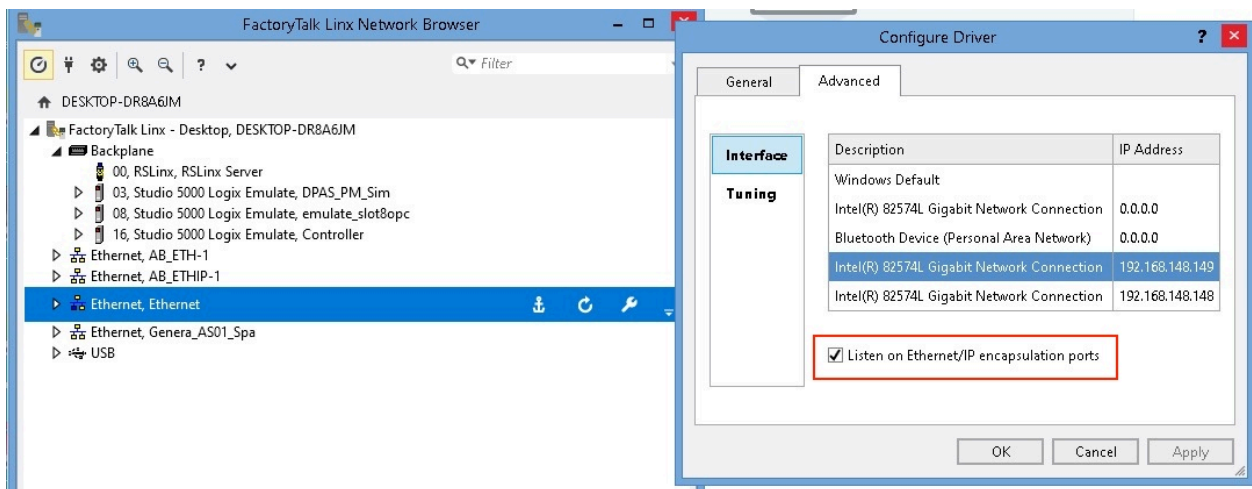
3. At this stage, a reboot may be required. However, I have been able to make this work without a reboot at this stage.
4. Rockwell Emulate is very fragile. There are times when a connection to Emulate will never successfully connect. You will see the connection status ReconnectWait or Idle. The usual fix is to remove all controller slots from Emulate and reboot until Emulate can be opened with no controller slots and no errors. Then create the controller slots again and download code to the desired slots and put it in Run mode.
5. The default OPC UA "loopback" server can be used, so a new OPC UA connection is not required.

   While there is not a configuration option in the OPCUA device connections, it is helpful to know for OPCDA that Emulate cannot handle asynchronous reads. This is the default checkbox in Ignition's OPCDA setting : "Use Async Operations". Ignition tries asynchronous reads when the checkbox is checked. This gives "not connected" errors even though browse works. By unchecking the option you get good values.

6. In the Ignition gateway, create an OPCUA Device Connection. Use the Allen Bradley Logix Driver.

○ 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 firmware v21+ but supports earlier firmware versions with significantly reduced performance.

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

7. Configure the driver with the IP address (hostname) used in FTLinx previously. Enter the slot number for the controller in Emulate. Use default settings for the rest.

General	
Name	RSLinx
Description	Cryosys Mexico
Enabled	☑ (default: true)

Connectivity	
Hostname	192.168.148.149 Hostname or IP address of the controller or ethernet module.
Port	44818 Port to connect to on the remote device. (default: 44,818)
Local Address	Address of network adapter to connect from. (default:)
Timeout	2000 Max amount of time to wait, in milliseconds, for responses from the processor. (default: 2,000)
Max Concurrent Requests	2 Controls both the max number of concurrent unconnected requests and the max number of concurrent connected requests (and therefore CIP connections) allowed. (default: 2)
Slot Number	16 The slot number in which the processor resides. If not in a rack, usually 0. (default: 0)
Connection Path	Optionally, the connection path to the processor. If specified, the slot number setting is ignored, so be sure to terminate the path with backplane and slot number. (default:)

☑ Show advanced properties

Advanced	
Automatic Rebrowse	☑ Monitor for tag additions and UDT changes and automatically initiate a re-browse when detected. If this is disabled tags will only be browsed when connecting and reconnecting. (default: true)
Identity Request Frequency	5000 Frequency, in milliseconds, that the request to read CIP Identity Object attributes occurs at. (default: 5,000)
CIP Connection Size	500 The CIP connection size to use during Forward Open requests. (default: 500)
CIP Connection Timeout	16000 Target timeout, in milliseconds, for CIP connections and RPI. (default: 16,000)

8. When you save the configuration, you should see the connection status remain Connected

Name	Type	Description	Enabled	Status		
New RS Logix for slot 8	Allen-Bradley Logix Driver		true	Connected	delete	edit

9. To test the connection, use OPC Quick Client. Confirm you can read and write tags in the controller.

⚙ Config > Opc > OPC Quick Client

Trial Mode 1:36:40 We're glad you're test driving our software. Have fun.

TYPE	ACTION	TITLE
Server	refresh	⊞ 📁 FactoryTalkLinxGateway slot 8 em…
Server	refresh	⊟ 📁 Ignition OPC UA Server
Object		⊟ 📁 Devices
Object		⊞ 📁 [New RS Logix for slot 8]
Object		⊞ 📁 [RS Linx device in slot 3]
Object		⊟ 📁 [RSLinx]
Object		⊟ 📁 Controller:Global
Object		⊟ 📁 AB_0000HF
Tag	[s][r][w]	⊞ 📁 Cfg_Desc
Tag	[s][r][w]	⊞ 📁 Cfg_Label
Tag	[s][r][w]	⊞ 📁 Cfg_ShDesc
Tag	[s][r][w]	⊞ 📁 Close
Tag	[s][r][w]	⊞ 📁 DO_Out
Tag	[s][r][w]	⊞ 📁 EnableIn

10. At this stage, you should be able to browse tags in Designer and create tags.