

SET UP DATA SOURCE USING ETHERNET/IP PROTOCOL



APPENDIX

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This manual covers the StrideLinx platform available from 2017 through 2021.

For details covering the StrideLinx Cloud 2.0 platform available after April 2021, please [click here](#) to link to that manual.

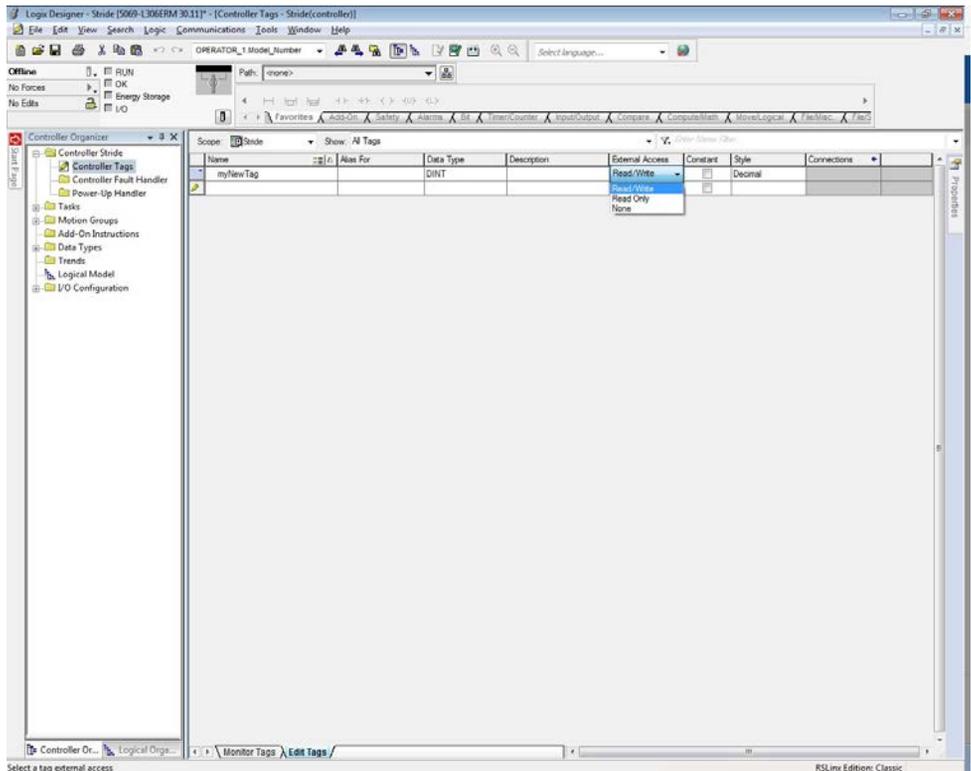
The StrideLinx Cloud 2.0 manual includes details describing the [Activation Code](#) model of Data Logging, Cloud Notify and other add-on features.

For information on the migration wizard from the original platform to StrideLinx Cloud 2.0, [click here](#).

Set up data source for a device using EtherNet/IP protocol

Considerations when defining tags to be read using EtherNet/IP

- The StrideLinx EtherNet/IP data source driver supports the MicroLogix, ControlLogix, CompactLogix and Micro800 families. Explicit and Implicit messaging are not supported.
- StrideLinx EtherNet/IP data sources can communicate to CompactLogix, ControlLogix and FlexLogix Ethernet modules and CPU Ethernet port back to version 15.
- StrideLinx MicroLogix EtherNet/IP driver will communicate to the onboard ethernet ports of the Micrologix 1100, 1200 and 1400. It will also communicate to the onboard ethernet port of the SLC 5/05 CPU (Series A, FW Rev OS501, FRN5 and Series B and C) as well as the ENI Adapter (Series B or newer).
- The file number must always be specified in the Address definition for the Micrologix driver.
- Each StrideLinx data source service consumes 1 TCP connection but no CIP connection (Unconnected Messaging is used).
- To access the tags in the Logix PLCs, the tag attribute “External Access” needs to be set to Read/Write or Read Only, as shown below.



Configure the address and protocol for the PLC from which data will be read

Click on the SERVICES tab (10). Click the +(Add) button (11).



Add a Name and the IP Address of the PLC where the data resides. Click NEXT.

×
Add service

🏠
FD 4G VPN Router

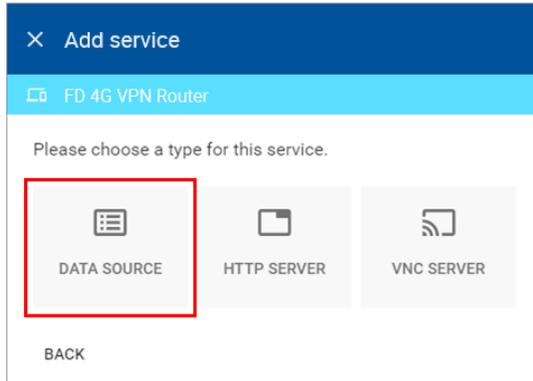
Please specify a target for this service.

Name

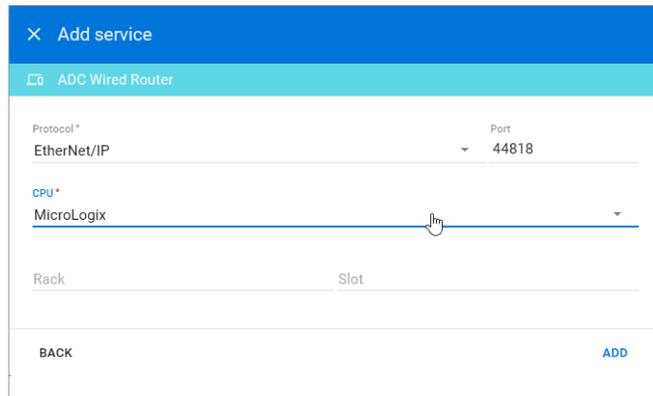
IP address
e.g. 192.168.140.100

[NEXT](#)

Select DATA SOURCE.

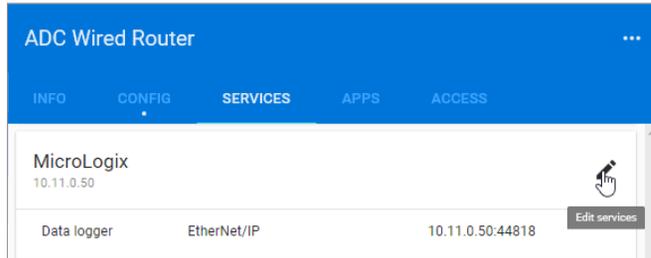


Select the EtherNet/IP protocol. The CPU type (MicroLogix, CompactLogix/ControlLogix/FlexLogix or Micro800) must be selected. If CompactLogix/ControlLogix/FlexLogix or Micro800 is selected, then the Rack number and Slot number must be entered. Click ADD to continue.

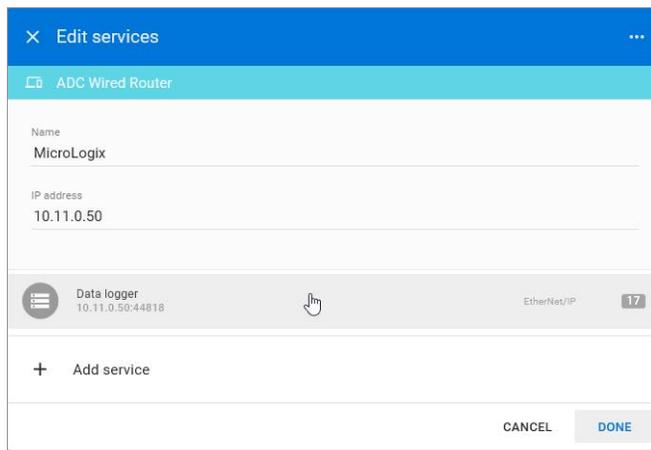


Configure the data tags

To add a data tag, go to the SERVICES tab for the router and click the Edit services (pencil) icon next to the device for which you want to add the data tag.

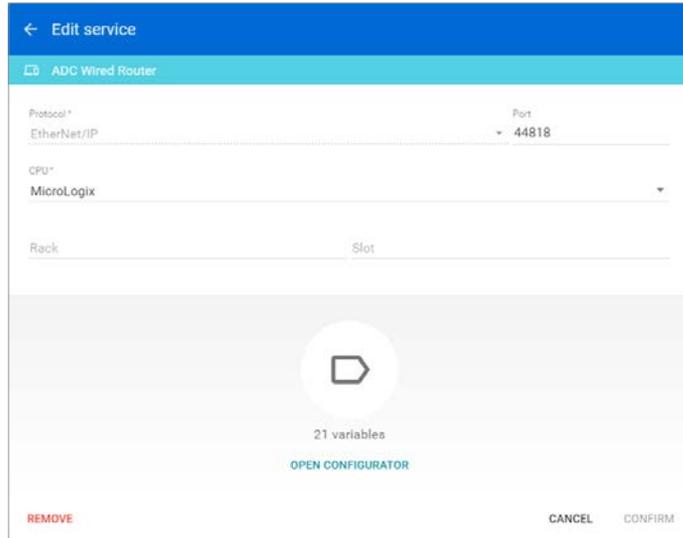


This opens the Edit services dialog. Click the name of the existing device for which you would like to add a data tag.

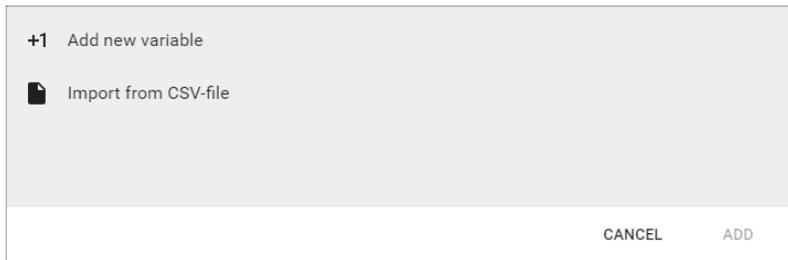


NOTE: It is advisable to enter data tags in small batches, and test the variables periodically to verify the entries. The entries can be tested by clicking "RUN TEST" in the Configurator, or from the Cloud Logging Web App as described in the [Data Logger Test Utility](#) section. Please refresh your browser if the information on screen appears to not be updated properly at any time. Possible EtherNet/IP errors and their potential resolutions are listed in the Error Messages subsection at the end of this appendix.

The resulting “Edit service” screen displays the parameters for the data source, plus a count of existing data tags. Click OPEN CONFIGURATOR to add or edit tags.



Data tags can be entered interactively, or a set of tags can be imported from a previously-exported CSV file. Export of sets of data tags is discussed later in the “Export Data Tags” subsection. For this example, select “Add new variable” to manually enter tags.



A data entry screen opens, with one new data tag ready to be entered. Set the relevant parameters for the new data tag. The data tag input fields are described in the next table. Details for data tag addressing with CompactLogix/ControlLogix/FlexLogix, MicroLogix and Micro800 are presented in the next subsections. Additional data tags can be entered in this round by clicking “+1” in the lower left corner of the screen. When all the desired tags have been entered click ADD.

Name *

Select a data type * Address *

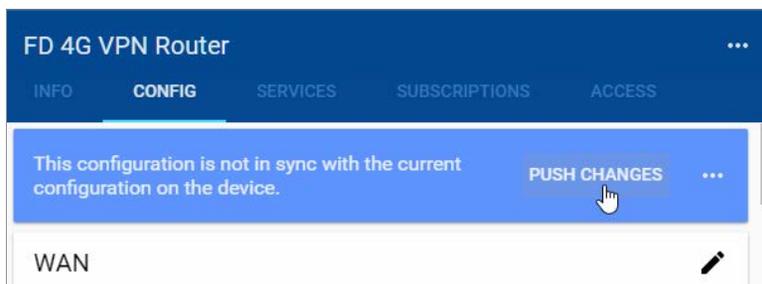
Factor Unit

+1
CANCEL
ADD

Data Tag Input Fields	
<i>Field</i>	<i>Description</i>
Name	Give the data tag a logical name.
Select a data type	See next two subsections for the available data types.
Address	Define at which address in the data block the tag is located. See next three subsections for specific addressing considerations for CompactLogix/ControlLogix/FlexLogix, MicroLogix and Micro800.
Unit (optional)	Here you can assign a value to a unit, for example, gallons or psi.
Factor (optional)	This allows you to multiply by a value. For example, factor 0.01 divides the data value by 100.

After all data is entered, click ADD to continue.

Once you have added all the data tags you want to log, you will be prompted to push the configuration to the router.



The data tag entries should now be verified using the procedure described in the “Test Utility” subsections of Chapter 4 and Chapter 5.



NOTE: Additional data tag parameters related specifically to data logging (i.e., sampling interval, data retention policy, and logging only when changed) can be set from the Cloud Logging web app discussed in Chapter 4.

The Cloud Logging web app can now be used to set up data dashboards and to adjust additional data tag parameters related specifically to data logging, and the Cloud Notify web app can be used to set up alarm notifications.

Export data tags

Data tag configurations can be exported in CSV format. The CSV file is downloaded to your local PC, and can later be imported to set up another StrideLinx router.

Select data tags to be exported by clicking the icon for each data tag, or select all data tags at once from the More Options (⋮) menu in the upper right corner of the screen. The selected data tags can then be deleted, duplicated, or exported from the pop up menu at the bottom of the screen.

CompactLogix/ControlLogix/FlexLogix addressing

This driver uses symbolic name addressing for access to the PLC tags. Enter the tag name (up to 60 characters) in the Address field. This needs to be the base Atomic address of the tag. StrideLinx CANNOT access the full structure, only the structure members and simple Atomic tags.

Data Types Supported		
StrideLinx	EtherNet/IP Data Type	EtherNet/IP Tag Types
Bool	BOOL	Atomic (Base) tags Pre-defined Structure tags* User-defined Structure tags* AOI tags* Program Scope tags**
Float32	REAL	
Int8	SINT	
Int16	INT	
Int32	DINT	
String	STRING	

* Only the base tag members of any of these type of tags. See next two screenshots.

** Program scope tags require the following prefix syntax: Program: AAAA.BBBB where AAAA is the Program name and BBBB is the tag name.

Name	Alias For	Data Type	Value	Force Mask	Style	Desc
myNewTag		DINT	0		Decimal	
Line 1		Fan_Motor	{...}	{...}		
Line 1.Speed		DINT	0		Decimal	
Line 1.Start		BOOL	0		Decimal	
Line 1.Stop		BOOL	0		Decimal	
Line 1.RunTime		TIMER	{...}	{...}		
Line 1.RunTime.PRE		DINT	0		Decimal	
Line 1.RunTime.ACC		DINT	0		Decimal	
Line 1.RunTime.EN		BOOL	0		Decimal	
Line 1.RunTime.TT		BOOL	0		Decimal	
Line 1.RunTime.DN		BOOL	0		Decimal	
Line 1.Temp		REAL	0.0		Float	

Name*
Line1 Motor Run Time

Type*
Int32

Address*
Line1.RunTime.ACC

Factor _____ Unit _____

+1 CANCEL ADD

MicroLogix addressing

There are a few different formats of addressing that StrideLinx supports when connecting to the MicroLogix and SLC 500 PLCs.

Addressing syntax is: **Mf:w/b**

Where M = Memory Type
 f = File Number
 w = Word Number
 b = Bit Number

Specific memory types supported for StrideLinx datalogging of MicroLogix and SLC 500 PLCs are listed in the following table.

Data Types Supported							
<i>Memory Type</i>	<i>File Number</i>	<i>Word Number</i>	<i>Bit Number</i>	<i>Description</i>	<i>Flag</i>	<i>Read/Write Type</i>	<i>StrideLinx Data Type</i>
S	2:	0-255		Status		R	Int16
S	2:	0-255	0-15	Status		R	Boolean
B	3, 9: TO 255:	0-255		Binary		R/W	Int16
B	3, 9: TO 255:	0-255	0-15	Binary		R/W	Boolean
T	4, 9: TO 255:	0-255		Timer	.ACC	R/W	Int16
C	5, 9: TO 255:	0-255		Counter	.ACC	R/W	Int16
N	7, 9: TO 255:	0-255		Integer		R/W	Int16
N	7, 9: TO 255:	0-255	0-15	Integer		R/W	Boolean
F	8: to 255:	0-255		Float		R/W	Float32
L	9: to 255:	0-255		Long		R/W	Int32
ST	9: to 255:	0-255		String		R/W	String

Micro800 addressing

This driver uses symbolic name addressing for access to the PLC tags. Enter the tag name (up to 60 characters) in the Address field. This needs to be the base Atomic address of the tag. StrideLinx can only access Global Variables, and only Atomic data types.

Data Types Supported		
<i>StrideLinx</i>	<i>Micro800 Data Type*</i>	<i>Description</i>
Boolean	BOOLEAN	Single discrete bit
Int8	SINT	Signed integer 8 bit
Int16	INT	Signed integer 16 bit
Uint16	UINT	Unsigned integer 16 bit
	WORD	
Int32	DINT	Signed integer 32 bit
Uint32	UDINT	Unsigned integer 32 bit
	DWORD	
Float32	REAL	Floating point 32 bit
String	STRING	String (up to 254 characters)
All of the above	Single Dimension Arrays	Single dimension arrays of the data types above

*** Global Variables only (No Program Local Variables or Function Block Local Variables), Atomic Data types and single dimension elements of Atomic Data types only**

Error Messages

The following error message may arise during testing of the data source configuration. Possible causes and remedies are shown for each error.

EtherNet/IP Error List	
<i>CompactLogix / ControlLogix / FlexLogix and Micro800</i>	
<i>Error Text</i>	<i>Cause / Remediation Steps</i>
PLC Timeout	No reply of any type from device. Device not existing, powered down or IP address incorrect.
TCP connection denied	Device exists but does not appear to be an EtherNet/IP device. Wrong IP address or EtherNet/IP not enabled on product.
Too much data received. Ensure Structure element is requested.	Full structure requested. Tagname should be ELEMENT of structure.
Error 0x01, EXT STS 0x0311: <Bad rack #>	Rack number does not exist for device. Default is typically 1.
Error 0x01, EXT STS 0x0312: <Bad slot #>	Slot number incorrect for device. Default is typically 0.
Error 0x04, EXT STS 0x00: <Bad tagname>	Tagname entered incorrectly or does not exist in device.
Error xxx, EXT STS xxx	Manufacturer's error code. Consult documentation of manufacturer for cause and resolution.
<i>MicroLogix</i>	
<i>Error Text</i>	<i>Cause / Remediation Steps</i>
PLC Timeout	No reply of any type from device. Device not existing, powered down or IP address incorrect.
TCP connection denied	Device exists but does not appear to be an EtherNet/IP device. Wrong IP address or EtherNet/IP not enabled on product.
Error 0x10, EXT STS 0x00: <Bad tagname>	Address entered incorrectly or not in project. Correct or add to project.
Error xxx, EXT STS xxx	Manufacturer's error code. Consult documentation of manufacturer for cause and resolution.