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# Consultant Ethernet/IP Howto

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Version 1

## *Ethernet/IP*

This document is a guide to connecting an Ethernet/IP device to a Mac running ConsultantX software from Control Plus.

ConsultantX is SCADA software for MACOSX from Apple Computer

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EtherNet/IP™ was introduced in 2001 and today is the most developed, proven and complete industrial Ethernet network solution available for manufacturing automation. EtherNet/IP is a member of a family of networks that implements the Common Industrial Protocol (CIP™) at its upper layers. CIP encompasses a comprehensive suite of messages and services for a variety of manufacturing automation applications, including control, safety, synchronization, motion, configuration and information. As a truly media-independent protocol that is supported by hundreds of vendors around the world, CIP provides users with a unified communication architecture throughout the manufacturing enterprise.

EtherNet/IP provides users with the network tools to deploy standard Ethernet technology for manufacturing applications while enabling Internet and enterprise connectivity. The result: data anytime, anywhere

For more information on Ethernet/IP visit :-

[www.odva.org](http://www.odva.org)

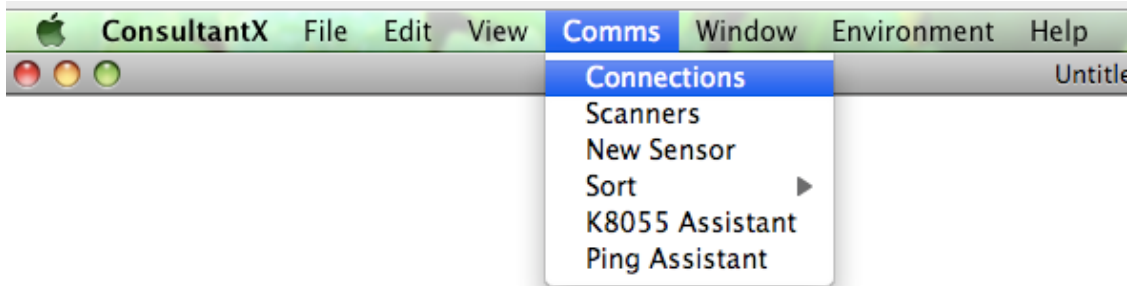
In this document you will learn :-

- How to create a connection to an Ethernet/IP device.
- How to create a scanner that reads a block of data in the device.
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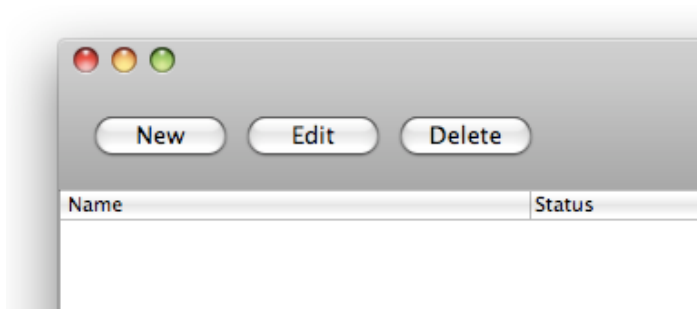
**Create a Connection.**

A connection is the software object that handles all communications with the Ethernet/IP device. You must create one connection for each Ethernet/IP device.

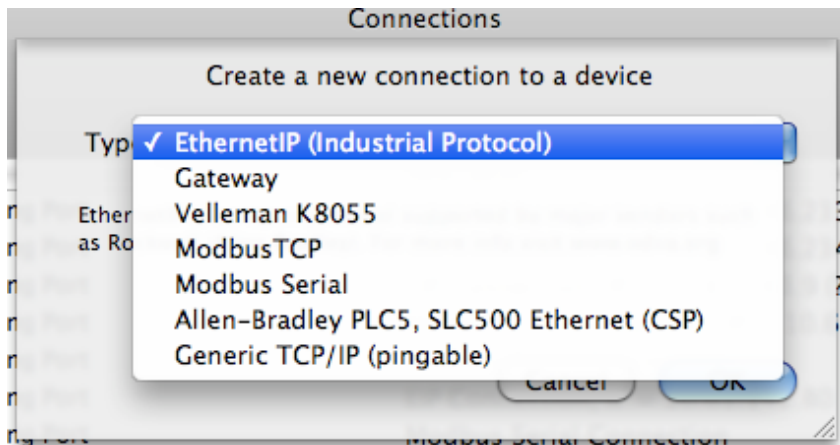
select *Connections* from the *Comms* menu.



Click the *New* button on the Connections window.



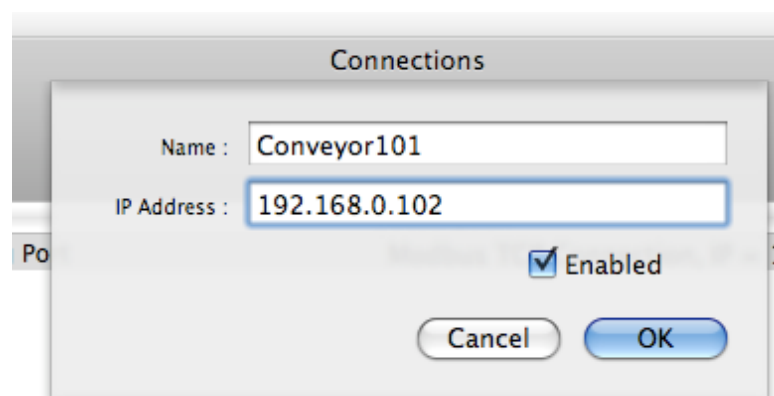
Select *Ethernet/IP (Industrial Protocol)* from the menu.



You must now enter the IP address of the Ethernet/IP device, in this example 192.168.0.102 is used.

You must give your connection a unique name. The name of the connection is used for identification by the scanners. This is very important when you have more than one Ethernet/IP device and hence must have more than one Ethernet/IP connection.

In this example we will call the connection *Conveyor101*.



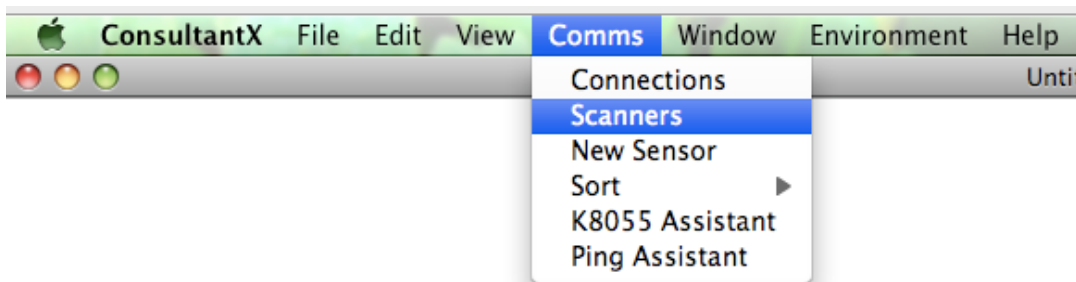
You have now created an Ethernet/IP connection. If your Ethernet/IP device is online and working the Connections window will show *Connected* in the *Status* column. The identity of the device is also displayed when communications is healthy

If ConsultantX cannot connect to the Ethernet/IP device you have specified then the *Status* Column will show *Opening Port*

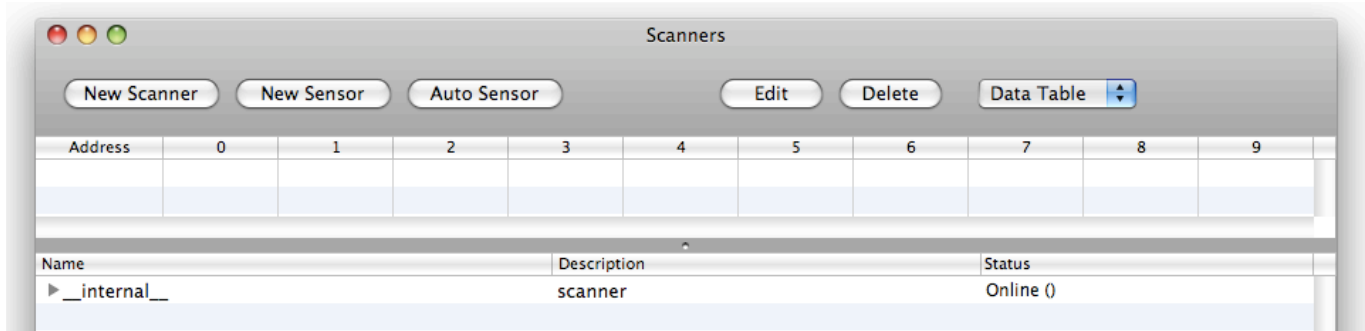
### Creating a Scanner

Now that you have connected to the Ethernet/IP device you can create a scanner that will read a block of data from the device.

Select *Scanners* from the *Comms* Menu.



Click the *New Scanner* button in the Scanners window.



In this example we have called this scanner *Analogs* and this scanner is going to use the connection *Conveyor101*.

This first scanner will access a Control Logix PLC from Rockwell Automation.

A Control Logix system is a very powerful platform that can be configured in many different ways.

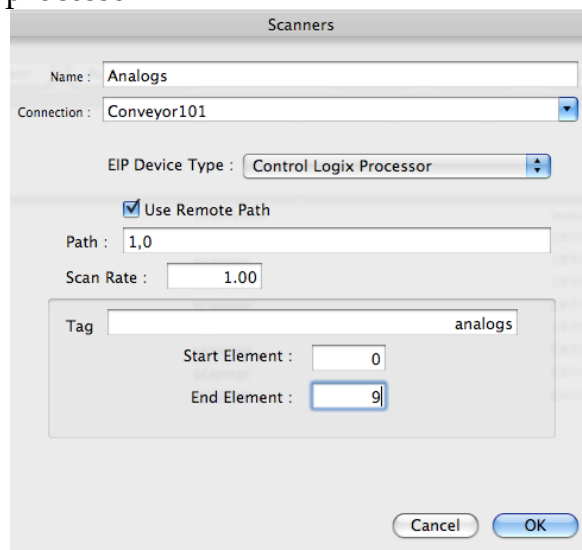
In this example the rack contains a control Logix processor in slot 0 of the rack, this is defined in the Path parameter. 1,0 tells the

Ethernet card in the rack to route this message to the backplane (1) and then to whatever is in slot 0. If the processor was in another slot such as slot 3 the path parameter needs to be set to 1,3

The Path parameter can be quite complex, for example the following path routes messages to another remote rack on another Ethernet segment.

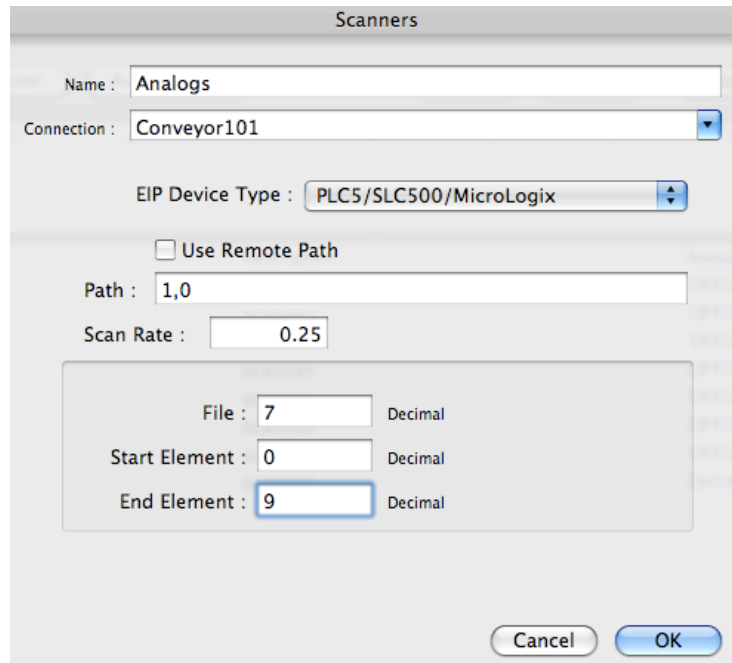
1,4,2,"192.168.40.8",1,5

The rest of the parameters are simple. In this example it will read the first 10 elements from an array called "analog" in the controllogix processor.

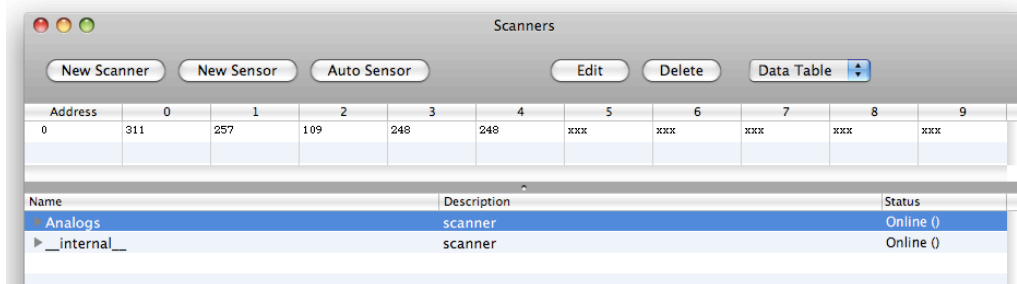


### PLC5/ SLC500 / Micrologix

Consultant also supports the older and smaller PLC's. The example below shows a scanner that connects to a micrologix PLC and reads N7:0 to N7:9 every 0.25 seconds. Note that the older PLC's do not support the remote path option.



In the Scanner window select the new scanner you just created by clicking on its name in the list. The actual data read by this scanner will now be displayed in the table at the top of the window. This is a quick way to see that you are reading the correct data registers.



You are now ready to create sensors for this scanner. Please refer to the Howto document for creating sensors.

To access other data blocks in the same Ethernet/IP device just create another scanner that uses the same connection.



**Howto's**

To learn more about ConsultantX refer to the other ConsultantX howto's