Communications Middleware/Network Browser

How to find an Omron Controller’s IP address
Overview

• Many Omron PLC’s have Ethernet ports or Ethernet port options
• The IP address for a PLC is usually changed by the programmer
• Most customers do not mark the controller with IP address (label etc.)
• Very difficult to communicate to the PLC over Ethernet if the IP address is unknown.
Simple Ethernet Network Basics

IP address is up to 12 digits (4 octets)
Ex: 192.168.1.1

For MOST PLC programming applications, the first 3 octets are the network address and the last is the node address. In above example 192.168.1 is network address, 1 is node address.

For devices to communicate on a simple network:
• Every device IP Network address must be the same.
• Every device node number must be different.

Laptop
192.168.1.1

Device
EX: Omron PLC
192.168.1.1

Laptop
127.27.250.5

Device
EX: Omron PLC
192.168.1.1

Laptop
192.168.1.3

Device
EX: Omron PLC
192.168.1.1
Omron Default IP Address

• Most Omron Ethernet devices use one of the following IP addresses by default.

Omron PLC
192.168.250.1
OR
192.168.1.1
PING Command

- PING is a way to check if the device is connected (both virtually and physically) to the network.
- Windows Command Prompt command.
- PC must use the same network number as device (See previous)
- Example: “ping 172.21.90.5” will test to see if a device with that IP address is connected to the PC.

Unsuccessful Ping: “Host unreachable” or “Request timed out”

Successful Ping: “Reply From...” and a time
How to know IP Address of PLC

- IMPORTANT: Connect an Ethernet cable DIRECTLY from your PC Ethernet port to the PLC Ethernet Port.
- Try Ping with default IP 192.168.250.1 or 192.168.1.1 (make sure there are no other devices on the network first).
- Use Omron Communication Middleware Network Browser (installed with Sysmac Studio and CX-One).
Network Browser

Start Menu/Omron/Communication Middleware/Network Browser.

It's easy:

1. Doesn’t matter what your PC IP address is.
2. Click on the “Direct Ethernet Connection” button.
3. Click “Browse”

If Network Browser is not available in the Communications Middleware directory, see next page
Alternate Method to Start Network Browser

- Sometimes there is no Network Browser in the Communications Middleware Directory.
- Instead start “DirectEthernetUtility” in the same directory (may need local admin privileges on your computer)

Then click on “Confirm the network connection status”
Now go back to the previous page in this presentation.
Network Browser

But what if it doesn’t work?
If it doesn’t work the first time

1. Make sure you are physically connected (Ethernet cable connected.)
2. Connect directly to PLC, no Ethernet switches or other network gear in between.
3. Try clicking on the “Ethernet Hub Connection” and try again.
4. Click on “Direct Ethernet Connection” and try again.

Now the PLC IP address is known. Use this info to set PC IP address.
Set the PC IP address correctly

Now you know the PLC IP address.
Set PC IP address to the same network and different node. (see next page)
Set PC IP Address

Navigate to your Ethernet settings
Double click on “Ethernet”

Click “Properties”

Double-Click “Internet Protocol V4”

Select “Use following IP”.
Enter an IP address (Same net, unique Node)
Enter a subnet mask (255.255.255.0 will work)

Click on “OK” and “Close” as required when done.
Use the IP address you found to connect to the PLC using programming software. (Sysmac Studio)
Use the IP address you found to connect to the PLC using programming software. (CX-Prog, CP1L-E)
Once you are done

- When you are done working with the PLC, you need to set your PC’s IP address so that you can get emails and browse the internet when connected to your company network.
- Usually set like this.