



EVOM™ Auto (24/96 Systems) Configuring Ethernet Access

SYSTEM SET UP TO CONFIGURE ETHERNET ACCESS

1. Use an EVOM™ Auto Wired Connection Kit (WPI# EVA-AC-03-01) to configure the ethernet access for an EVOM™ Auto System with 24 and 96 well plate capabilities (Fig. 1).



Fig. 1—The EVA-AC-03-01 kit includes the cable, the adapter, and the thumbdrive with software.

2. From the kit, connect the ethernet cable (WPI# 803531) to the EVOM™ Auto Interface Unit's ethernet port and the other end to the ethernet adapter (WPI# 803530). Connect the ethernet adapter to the USB port of the computer.
3. Plug in the USB flash drive that contains the EVOM™ Auto Ethernet update (WPI# 97253) to another USB port of the computer.
4. Make sure that the computer is powered on. Turn on the EVOM™ Auto Interface Unit while the Wi-Fi adapter is not connected to the Interface Unit. The blue circular LED ring illuminates.
5. Allow enough time for the Interface Unit to boot up, approximately 3 minutes. The light on the electrode array should turn from red to blue, and the electrode array should move once on its own after initialization.
6. On the Windows computer, proceed to the search bar and type `cmd` and then press return. This will bring up a terminal window.
7. In the terminal window type `ipconfig -all` and press enter to access all the information about your network connections.

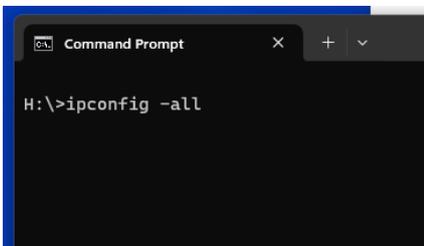


Fig. 2—At terminal window command prompt, enter `ipconfig -all`.

8. Locate the description block for the ethernet adapter connected to the EVOM™ Auto. It will look something like what is shown in Fig. 3. (There will be several blocks.)

```
Ethernet adapter Ethernet 4:
Connection-specific DNS Suffix . . . :
Description . . . . . : ASIX AX88179 USB 3.0 to Gigabit Ethernet Adapter
Physical Address. . . . . : A0-CE-C8-B5-D4-45
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-Local IPv6 Address . . . . . : fe80::d8fa:4bc2:7042:c39c%8(Preferred)
Autoconfiguration IPv4 Address. . . : 169.254.120.13(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 1168166600
DHCPv6 Client DUID. . . . . : 00-01-00-01-28-E3-B9-22-F4-EE-08-D9-2E-C7
DNS Servers . . . . . : fec0:0:0:ffff::1%1
                          fec0:0:0:ffff::2%1
                          fec0:0:0:ffff::3%1
NetBIOS over Tcpip. . . . . : Enabled
```

Fig. 3—This information displays when you run the command.

- NOTE:** The description should be helpful in identifying the adapter. In this case the description says **ASIX AX88179 USB 3.0 to Gigabit Ethernet Adapter** which is the brand name of the adapter used.
9. Look for the IPv4 address. In this case **169.254.120.13**. Based on this address we will choose an address for the Interface Unit a few counts higher than the last octet (last number separated by periods). In our example, we chose 169.254.120.115.
- NOTE:** Do not ever exceed 255.
10. On the Windows search bar type `notepad` and press `Enter` to open a text editor.
 11. Once Notepad opens, select `Open` from the `File` menu. (Make sure the `All files` search option is enabled. Then, navigate to the `rc.local` file in the USB drive. It will look like this:

```
rc.local
File Edit View
#!/bin/sh -e
#Turn Off HDMI for power consumption reduction (Lower Temp)
/usr/bin/tvservice -o &
#Synchronize System Clock to RTC
sudo hwclock -s &
sudo ip addr add xxx.xxx.xxx.xxx/24 dev eth0
exit 0
```

Fig. 4—This text file is stored on the USB drive.

NOTE: The `rc.local` file automatically gets deleted from the root (top) level if the USB flash drive was used previously to perform a wired connection set up. In this case, the required `rc.local` file must be copied from the subdirectory “`rc.localbackup`” and pasted onto the root (top) level (Fig. 5). Make sure the Fig. 4 actions are performed on the `rc.local` file in the root (top) level. Otherwise, the step 11 will not be executed properly.

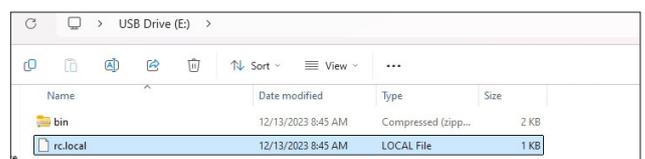


Fig. 5—The file is located in the root directory

12. Change the IP address on the next to last line to the IP chosen in step 9 (represented with x's). The line will change from `sudo ip addr add xxx.xxx.xxx.xxx/24 dev eth0 &` to `sudo ip addr add 169.254.120.115/24 dev eth0 &`.
13. Save the file by selecting **Save** from the **File** menu. Use the dialog box to save a copy of the file to another location on your computer (not the USB drive) in case you need to repeat the process in the future.
14. Select the **File** menu and choose **Close** or press the X in the upper right corner of the Notepad window to exit Notepad.
15. Eject the USB drive.
16. Turn off the Interface Unit.
17. Plug the USB flash drive into any available USB port in the Interface Unit.
18. Power on the Interface Unit and allow it to boot (about 3 minutes). The light on the electrode array should turn from red to blue, and the electrode array should move once on its own after initialization.
19. Turn off the Interface Unit and wait 10 seconds.
20. Power on the Interface Unit once more and allow it to boot. At this point you should have connectivity.
21. Remove the USB flash drive.
22. To verify that the connection has been established, on the terminal screen type `ping xxx.xxx.xxx.xxx` where the x's are replaced with your EVOM™ Auto IP address (Fig. 6).

The resulting screen indicates how many packets are sent and how many are lost. When the connection is established all packets sent are received and 0 packets are lost.

NOTE: If the terminal window was not already open, on the Windows computer, proceed to the search bar and type `cmd` and then press **Enter**. This will bring up a terminal window.

```

Command Prompt
Microsoft Windows [Version 10.0.19045.4170]
(c) Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>ping 169.254.120.115

Pinging 169.254.120.115 with 32 bytes of data:
Reply from 169.254.120.115: bytes=32 time=1ms TTL=64

Ping statistics for 169.254.120.115:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\WINDOWS\system32>

```

Fig. 6—In this example the IP address was 169.254.120.115.

23. At this point, to access the EVOM™ Auto software from the browser, open a browser on your computer and type `xxx.xxx.xxx:5000`. (Your chosen IP address replaces the `xxx.xxx.xxx`.)

NOTES

- Designate a specific computer for this ethernet connection set up. When a different computer is used, the procedure mentioned above needs to be repeated and paired with a different computer again.
- Plugging in the Wi-Fi adapter in the Interface Unit and connecting the Wi-Fi network to the EVOM™ Auto Wi-Fi, would allow both wired and wireless connectivity. Next, the Interface Unit needs to be restarted to allow both wired and wireless connections to work. When the unit is powered OFF and ON, EVOM™ Auto's self-initialization is run. To prevent any wireless connectivity, do not plug in the Wi-Fi adapter into the interface unit.

Ethernet adapter Ethernet 4:

```

Connection-specific DNS Suffix . :
Description . . . . . : ASIX AX88179 USB 3.0 to Gigabit Ethernet Adapter
Physical Address. . . . . : A0-CE-C8-B5-D4-45
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::d8fa:4bc2:7042:c39c%8(Preferred)
Autoconfiguration IPv4 Address. . : 169.254.120.13(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 1168166600
DHCPv6 Client DUID. . . . . : 00-01-00-01-28-E3-B9-22-F4-EE-08-D9-2E-C7
DNS Servers . . . . . : fec0:0:0:ffff::1%1
                       fec0:0:0:ffff::2%1
                       fec0:0:0:ffff::3%1
NetBIOS over Tcpi . . . . . : Enabled

```

This information displays when you run the `ipconfig -all` command in the terminal window. See Step 8.