FAQ: How do I change the IP address of an AMCI Ethernet IP or Modbus TCP/IP Device?

All AMCI Ethernet IP and Modbus TCP/IP devices are shipped with an IP address of 192.168.000.050. This FAQ shows how to change the IP address from this default value to one that will work in your system.

NOTE ▷

The following FAQ was written assuming that Rockwell Automation's BOOTP server program was being used. The concepts and sequence will still be valid even if you are using a different program, but the names and images may be different.

Page 1	Using a BOOTP server to change the IP address of the SD17060E and SD3145E stepper drivers.
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Using a DHCP/BOOTP Server to change the IP Address of a SD17060E or SD31045E driver

NOTE ▷

The following procedure assumes that the following points are true.

1. It may be necessary to disable the PC's firewall.
2. The PC is on the 192.168.0 subnet at the start of the procedure.
3. The PC and driver address are not the same at the start of the procedure.
4. The subnet address does not change during the procedure.

Additional instructions are given on page 8 if the subnet changes during the procedure.

1. Remove power from the driver.
2. Connect your PC to the Ethernet network.
3. Start your BOOTP program. The following window will open.
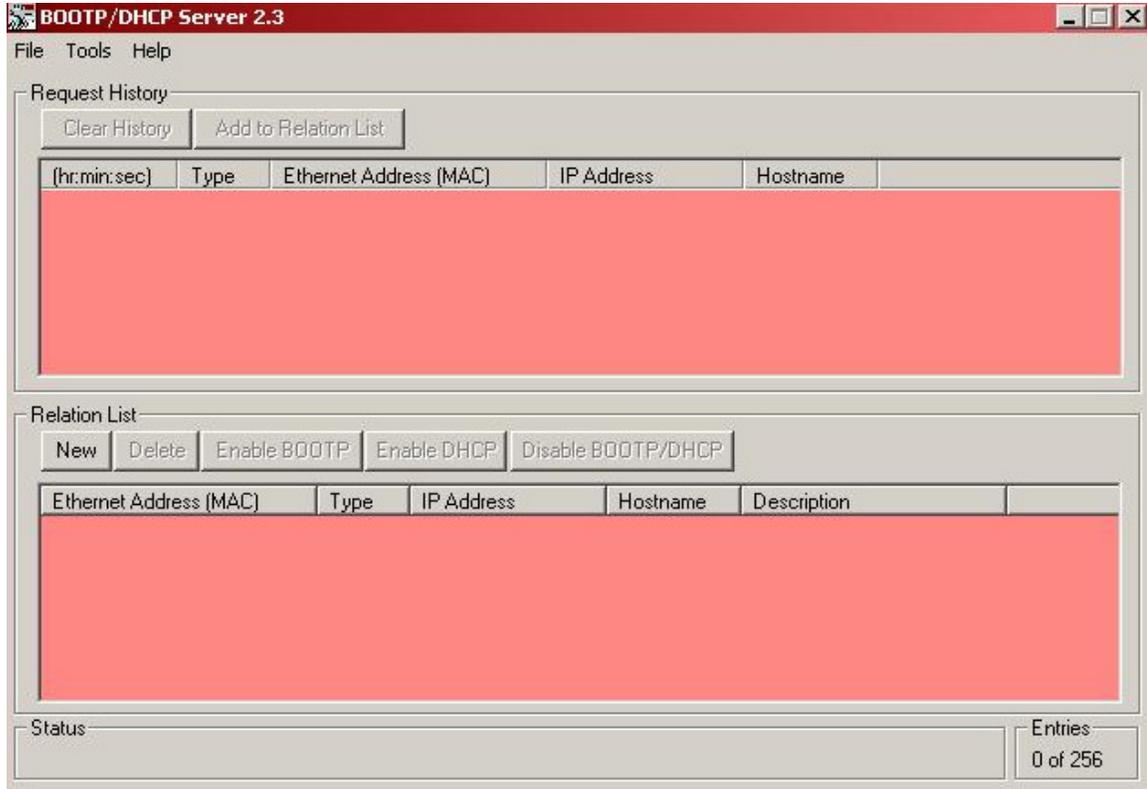
4. Click on **Tools** in toolbar and select **Network Settings**. Verify that the Subnet Mask and the Gateway Address match those of your network. If necessary, change the values to match your network.
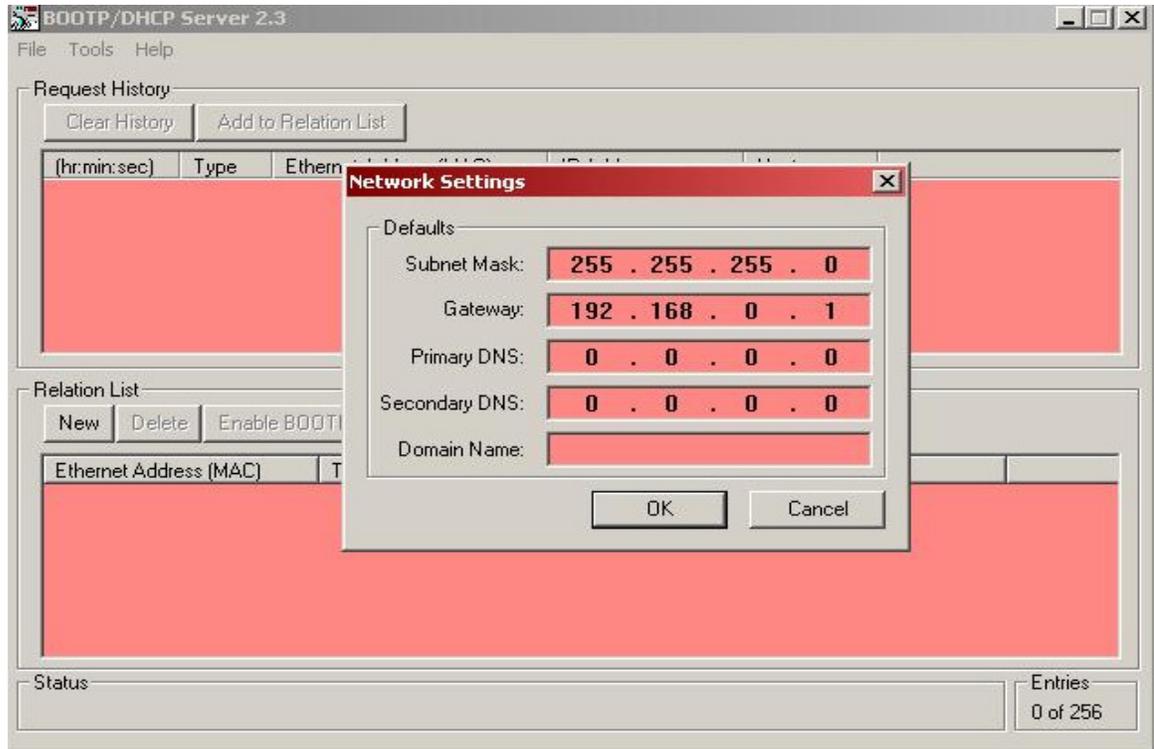
5. Click on OK to close the Network Settings window.
6. Click on **New** in the **Relation List**. The Relation List is located in the lower pane of the BOOTP window. As shown in the following image, the New Entry window will open.
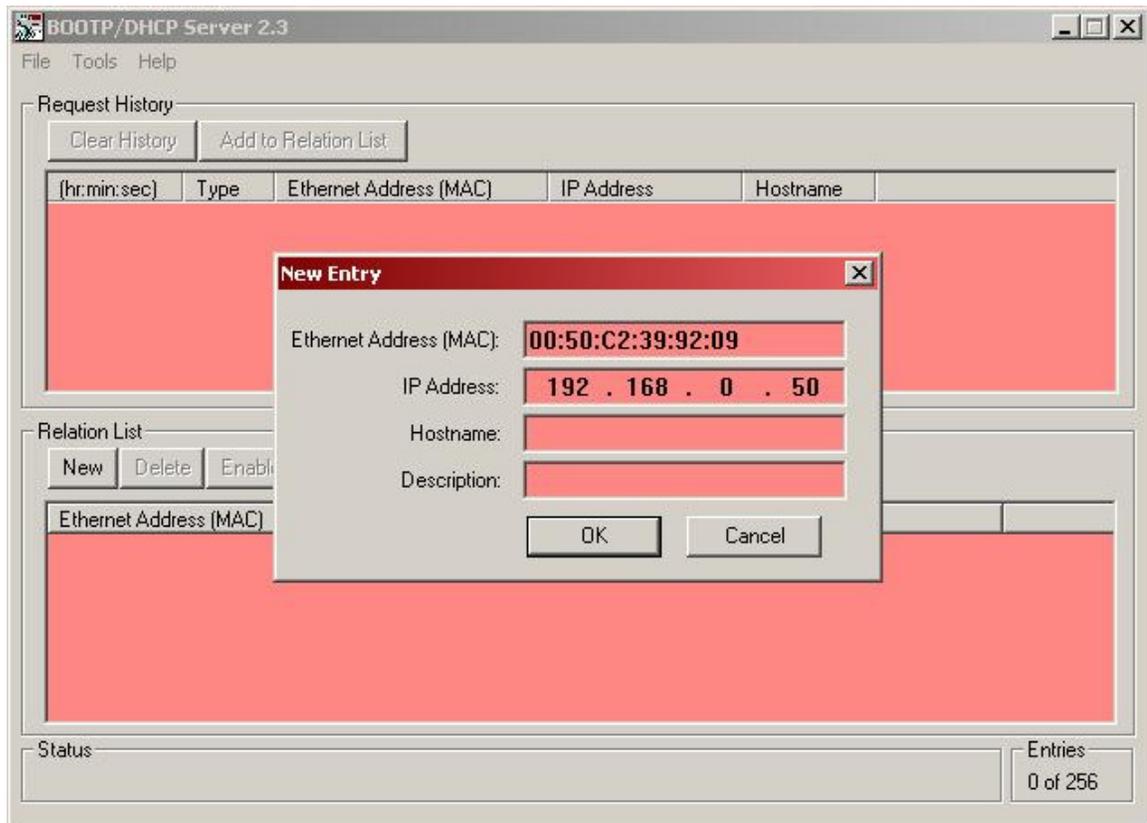
7. Every Ethernet device is assigned its own MAC ID value. This value is located on the driver's label. Enter this value in the Ethernet Address (MAC) field.
8. Enter the devices current IP Address.
9. Click on OK to accept both values.
10. Apply power to the driver.

NOTE ▷ It will not be possible to change the driver's IP address if the driver is powered up before the BOOTP program is open and the Ethernet Address (MAC) and IP Address are added to the Relation List.

11. Click on **Enable BOOTP** in the Relation List.
12. Cycle power to the driver. After power is restored, the driver should be listed in the Request History, the top pane, of the BOOTP window.
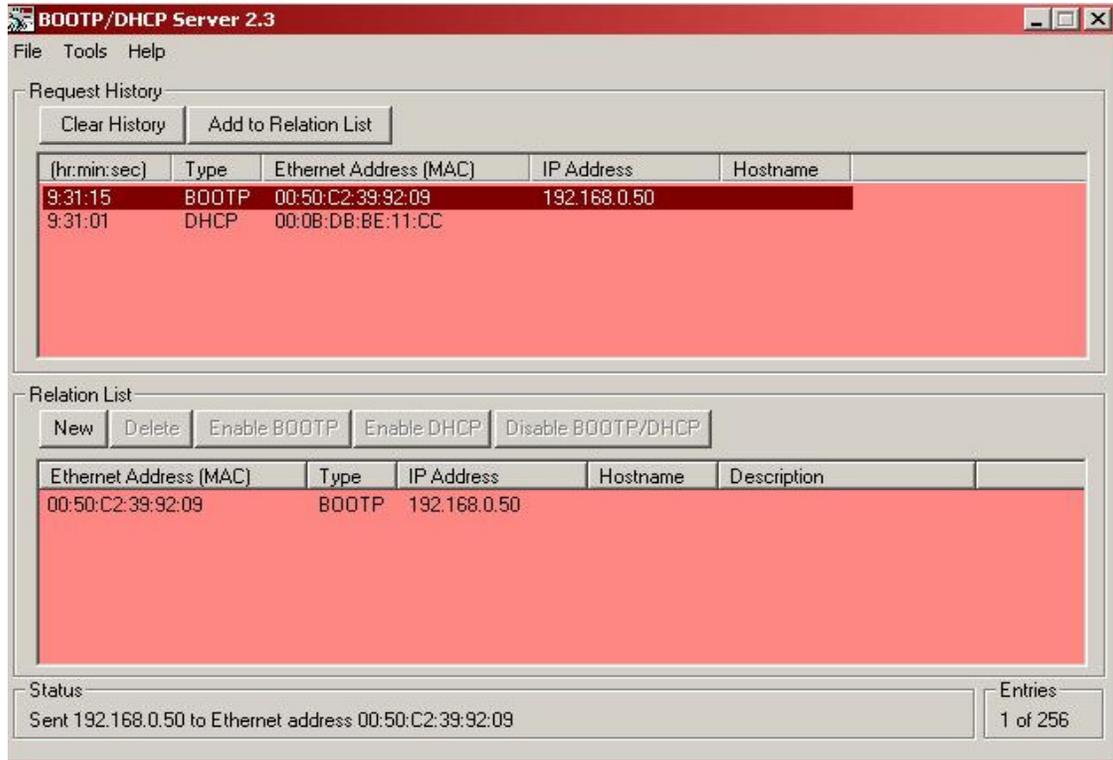
13. Right Click on the driver in the Relation List and select **Properties**.
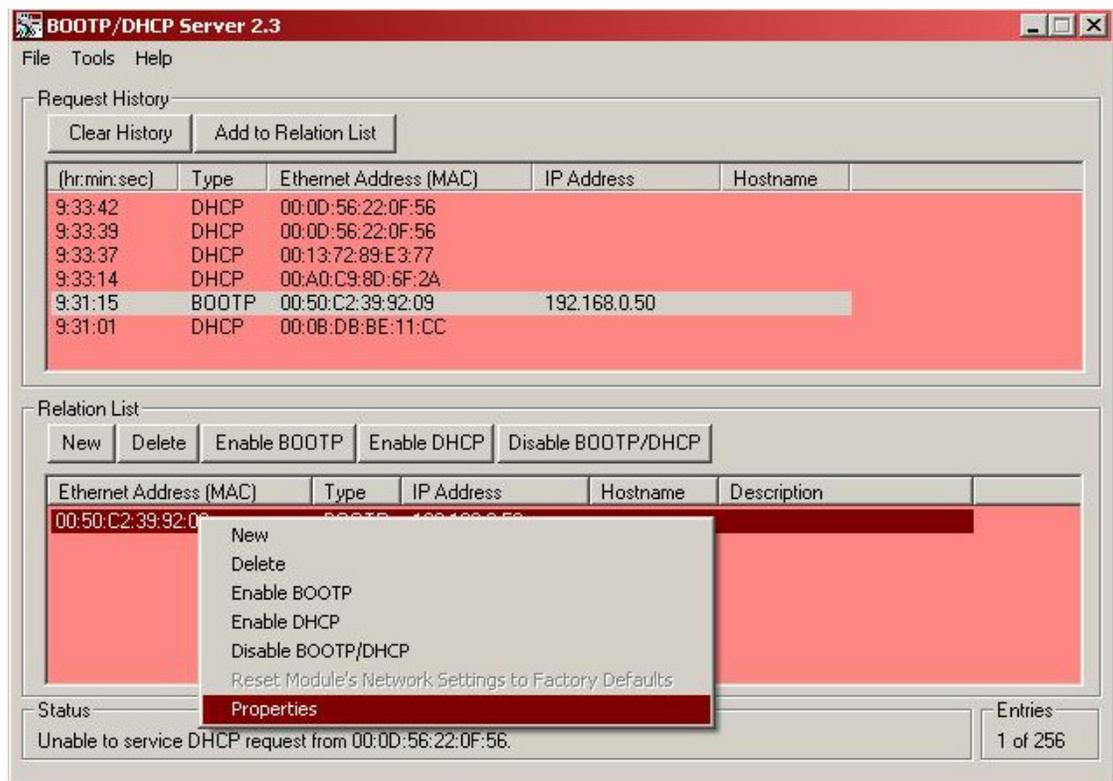
14. Change the IP address to the desired value. Do not change the Ethernet Address (MAC).
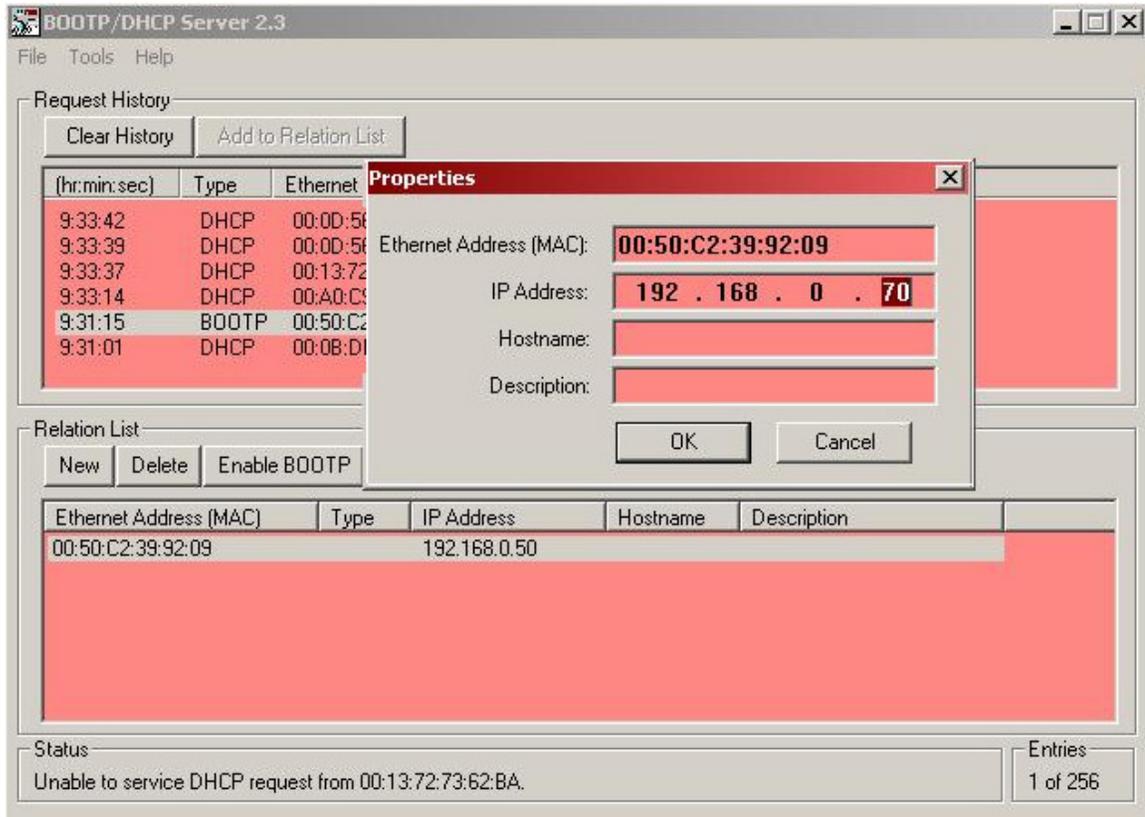
15. Click on OK to accept the new IP Address.
16. Cycle power to the driver.
17. Once power has been restored, the driver with its new IP address should now be listed at the top of the Request History pane.
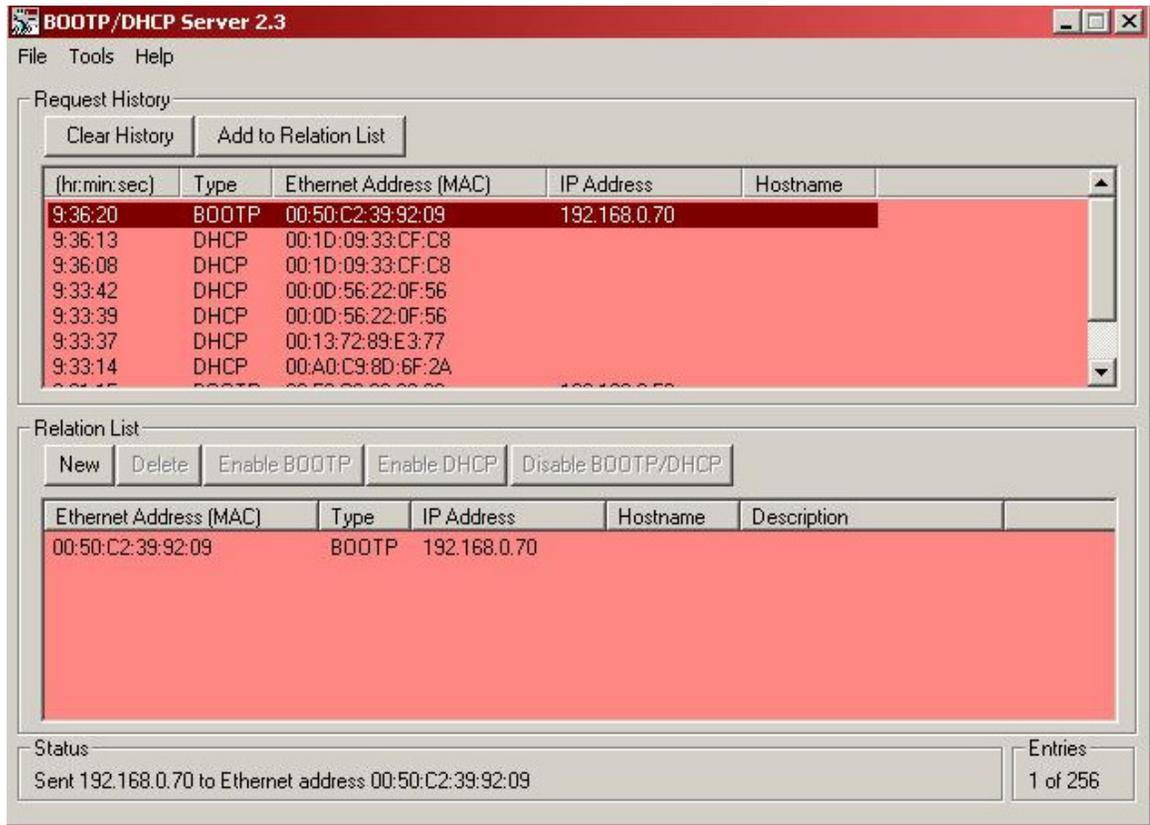
18. Select the driver in the Relation List. This will enable the Relation List buttons.
19. Click on **Disable BOOTP/DHCP** in the Relation List.

CAUTION If the BOOTP/DHCP is not disabled, an active BOOTP server will attempt to change the IP address of the driver at every power up. If it succeeds, you may no longer be able to communicate with the driver.

20. The IP address has now been changed to the new value.

NOTE The above procedure will only work if both the PC and the driver begin and end on the same subnet. The information on the following page explains this in greater detail.

Additional information on changing the IP address of a SD17060E or SD31045E driver

The previous procedure will work as written if both the PC and the driver begin and end the procedure on the driver's subnet. For example,

> Computer's IP address = 192.168.0.2
> Driver's Starting IP address = 192.168.0.50
> Driver's Ending IP address = 192.168.0.70
> Subnet of both = 255.255.255.0

However, if the computer's IP address is initially 192.168.1.2, it will not be possible to change the driver's IP address because clicking on **Enable BOOTP** in the Relation List (steps 11 and 12) will fail. (Page 14 shows how to check the IP address of your PC.) To correct this problem, change the IP address of your PC so that the PC and the driver are on the same subnet.

Another potential problem is if the PC and the driver are initially on the same subnet, but end up on different subnets. For example,

> Computer's IP address = 192.168.0.2
> Driver's Starting IP address = 192.168.0.50
> Driver's Ending IP address = 192.168.1.6
> Subnet of both = 255.255.255.0

Because the driver's ending IP address is on a different subnet, it will not be possible to disable the BOOTP/DHCP server until you change the network address of the PC. Because the server was not disabled at power up, the driver will send out BOOTP requests for 30 seconds, making the driver inoperable during this time. The solution is to change the address of the PC to put it on the same subnet as the driver and then disable the BOOTP server on the driver.

Setting the Ethernet IP Address of an AMCI Nexus unit using AMCI software

1. This software will only work with AMCI Ethernet units that have a serial number of 02110001 or above. A crossover cable will be required to connect units with serial numbers below 07140001 directly, without a switch, to your PC.

2. Download, extract, and run the **AMCI Ethernet Configuration software** from the following page of AMCI's website.

   https://www.amci.com/industrial-automation-support/software/

   The following window will open.
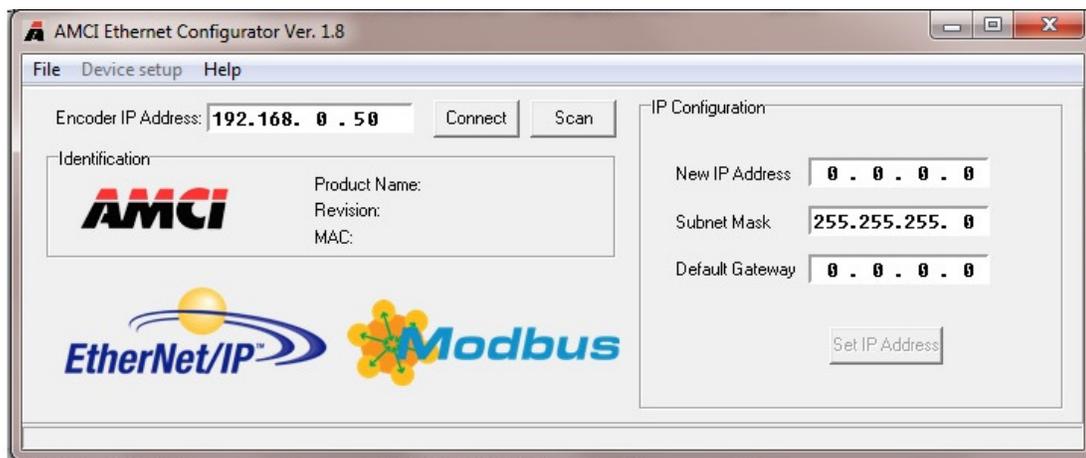
3. The Nexus units ship with a default IP address of 192.168.0.50, where the 50 portion of the address is set by the dip switches. You can use this address, or set all of the dip switches to the ON, up, position if you want to use a previously programmed IP address.

4. Set the Ethernet Port of your PC to be on the same network as the current address IP address of your AMCI Nexus unit. It may be necessary to disable your PC's firewall.

5. Enter the AMCI Ethernet unit's current IP address in the "Encoder IP Address" field.

6. Click on Connect. The button will change from Connect to Disconnect and the lower left hand portion of the window will change from "Idle…" to "Connected to: XXX.XXX.XXX.XXX." The device type and MAC ID will also appear in the Identification field.

7. Enter the new IP address, the subnet mask, and the default gateway in the IP Configuration field. The Default Gateway is required and, unless you have an address that you use for the default gateway, we suggest setting it to the address of the host controller.

8. Click the Set IP Address button. An "IP configuration written successfully" window will be displayed. Click on OK to close this window.

9. Click on Disconnect.

10. Remove power from the Nexus unit. The Nexus unit will not use the new IP address until power has been cycled.

11. **Set all of the switches to the ON (up) position.** This will prevent the Nexus unit for outputting BOOTP requests at power up.

Using a DHCP/BOOTP Server to change the IP Address of an AMCI Nexus unit

1. Remove power from the Nexus Unit.
2. *Set the unit's DIP switches to the OFF (Down) position. This will set the unit's IP address to 0000 0000.*
3. Connect your PC to the Ethernet network.   A crossover cable will be required to connect units with serial numbers below 07140001 directly, without a switch, to your PC.
4. Start your BOOTP program. The following window will open.
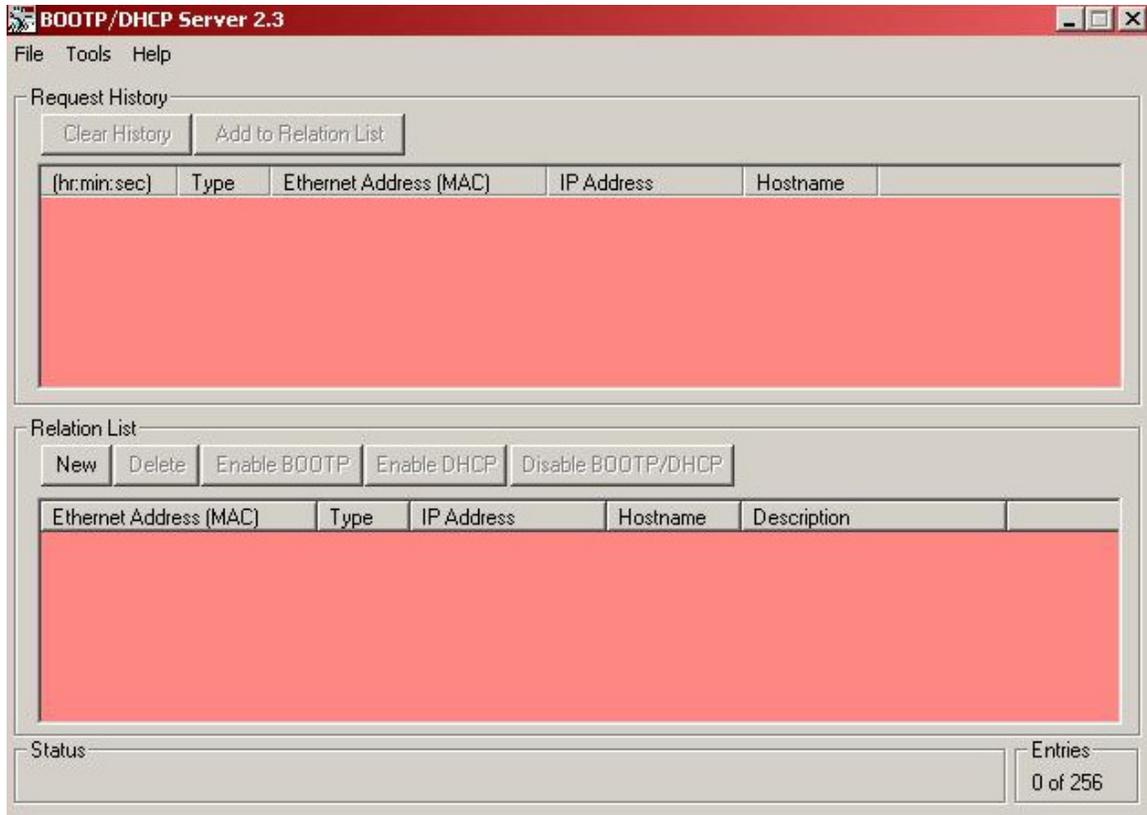
5. Click on **Tools** in toolbar and select **Network Settings**. Verify that the Subnet Mask and the Gateway Address match those of your network. If necessary, change the values to match your network.
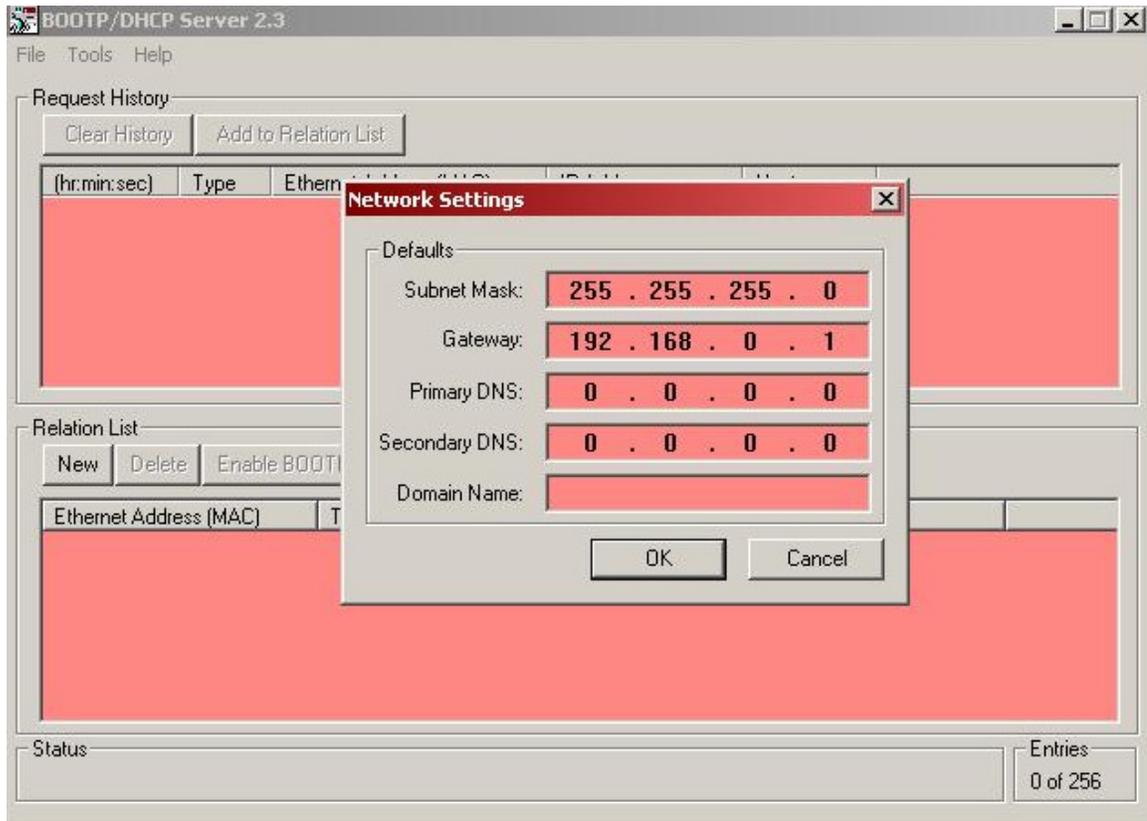
6. Click on OK to close the Network Settings window.
7. Click on **New** in the **Relation List**. (Do not click on **Enable BOOTP**, the Ethernet Nexus units do not support this function.) The Relation List is located in the lower pane of the BOOTP window. The following window will open.
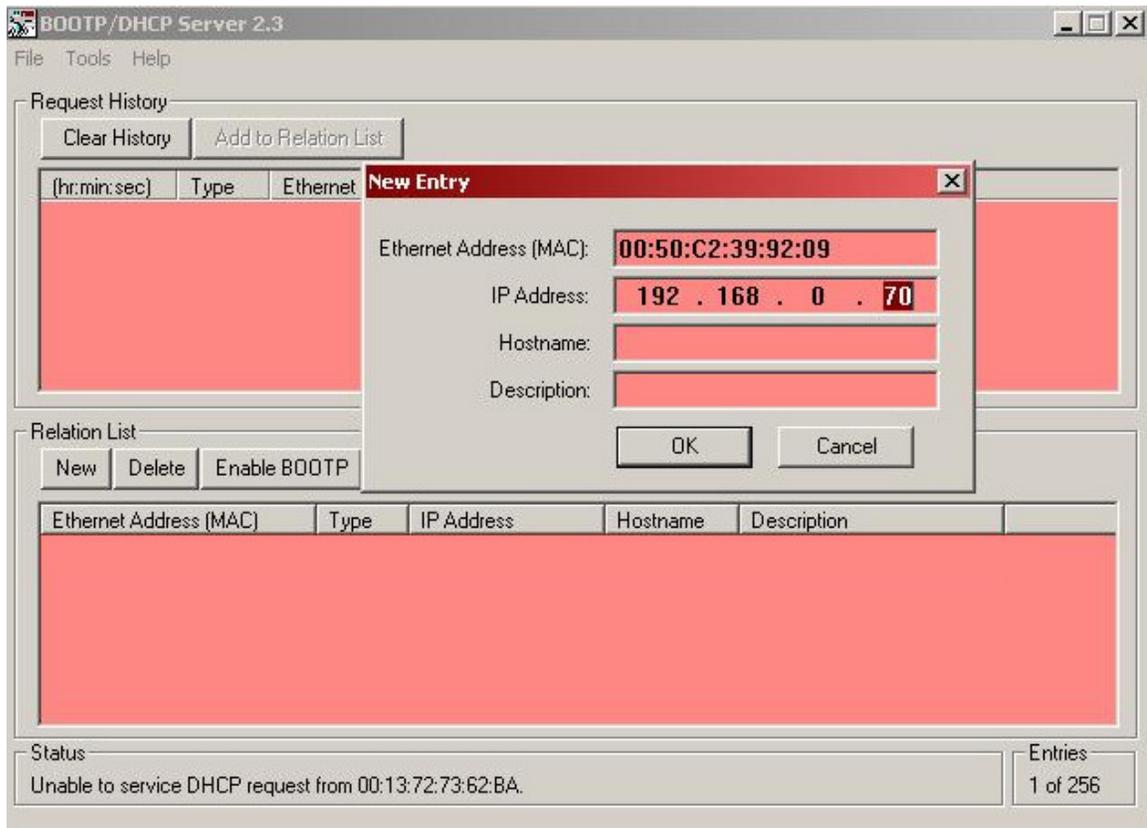
8. Every Ethernet device is assigned its own MAC ID value. This value is located on a label on the side of the Nexus unit. Enter this value in the Ethernet Address (MAC) field.
9. Enter the desired IP address in the IP Address field and click on OK.
10. Apply power to the Nexus unit. The IP Address of a Nexus unit can only be changed at power up.

The Nexus unit sends out several BOOTP requests for the first thirty seconds after power up. It will use the IP address currently stored in its memory if it does not detect a BOOTP server during this time.

11. Once power has been restored, the Nexus unit should be listed at the top of the Request History panel with its new IP address.
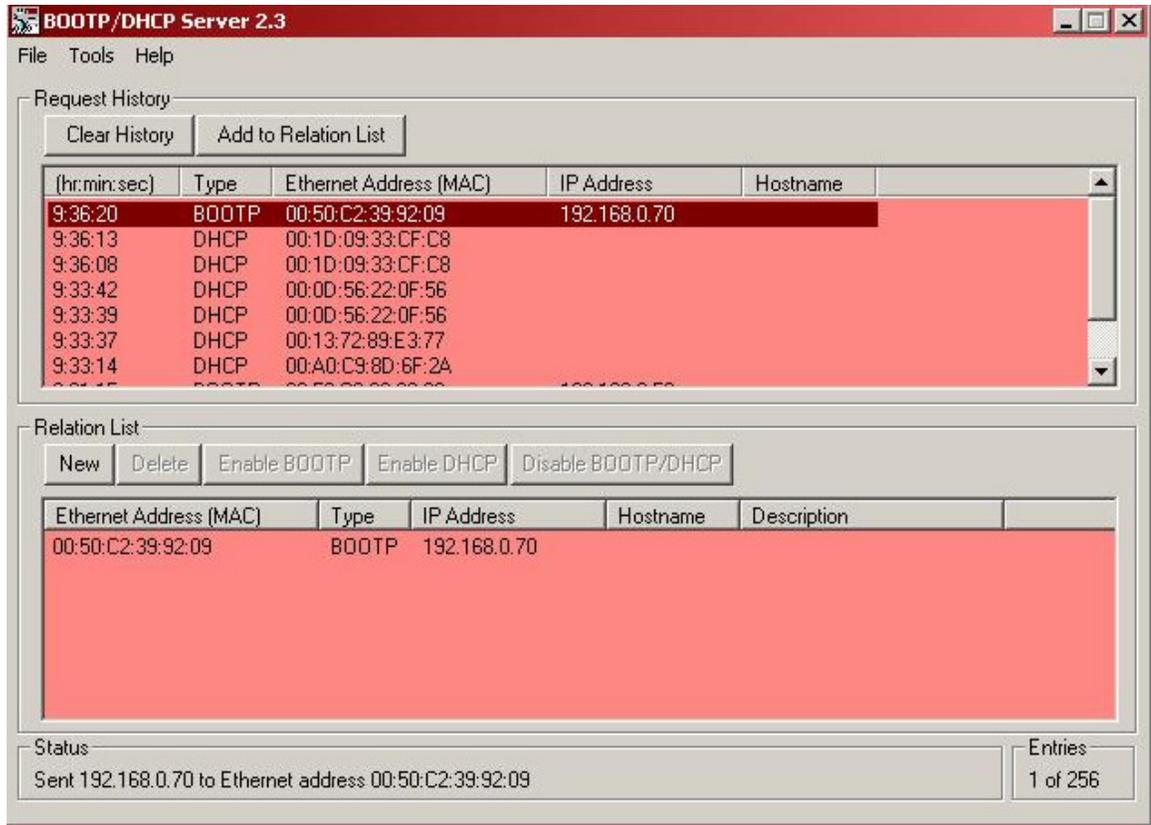
12. The IP address has now been changed and will remain at this new value until the next time the Nexus unit detects a BOOTP server at power up that gives it a new IP address.
13. Remove power from the Nexus unit.

    If your Nexus unit has a serial number above 0211001, set all of the switches to the up, ON, position. This will lock the programmed IP address in the Nexus unit's memory and prevent the Nexus unit from outputting BOOTP requests at power up.

14. Close the BOOTP server program <u>without</u> clicking on the Disable BOOTP/DHCP program. The AMCI Nexus units <u>do not support the Disable BOOTP/DHCP function.</u> Click on NO when asked if you want to save the changes.

NOTE The Nexus unit will use an IP address of 192.168.000.XXX if the switches are set to any value other than all OFF or all ON, even if you have used a BOOTP program to change the IP address to some other value

Using the Dip Switches to set the IP Address of an AMCI Nexus unit

The NEXUS UNIT uses an IP address of 192.168.000.XXX where "XXX" can be any number between 1 and 254. Eight dip switches on the Nexus Unit are used to set the "XXX" portion of the address. Switch 8, the left most switch, is the least significant bit and switch 1, the right most switch, is the most significant bit. The address is programmed using the following procedure.

1. Remove power from the Nexus unit.
2. Determine the address of the Nexus Unit. It can be any unused address between 1 and 254.
3. Convert the address to a binary number. A value of 50 will be 0011 0010.

<div align="center">Switch 1 ⟶ 0011 0010 ⟵ Switch 8</div>

4. Enter the address on the dip switches. Continuing the above example, switches 8, 6, 5, 2 and 1 will be off (down) and switches 7, 4, and 3 will be on (up).

NOTE ▶ The Nexus unit will use an IP address of 192.168.000.XXX if the switches are set to any value other than all OFF, even if you have used a BOOTP program to change the IP address to some other value

Nexus Ethernet Status LED and DIP switch location

Ethernet Status LEDs Address DIP switches Switch 1 RJ45 Ethernet Connector Power Connector
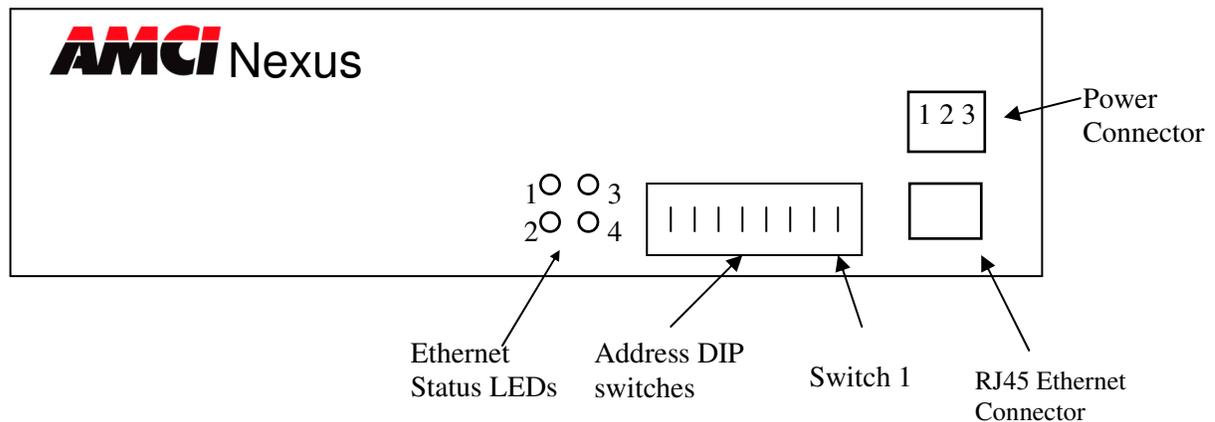
Determining the current IP address of the PC

1. Go to Start.
2. Select Run.
3. At the Command Prompt, type "Command" or "CMD" and press enter.

4. When the DOS prompt appears type "ipconfig". The PC's current IP setup will be displayed.

Revision History

- Revision 1 was released on 6/10/09 and added screen captures to the section on changing the IP address using a BOOTP server. Because it did not apply to the SD17060E, the network status LED table was also removed from the document.
- Revision 2 was released on 9/23/10 and added information that the BOOTP program must not be disabled for Nexus units because the Nexus units do not support this function. Also added a page showing how to check the IP address of the PC.
- Revision 3 was released on 10/8/2015. Added a page on using the AMCI software to change the IP address of a Nexus unit, and a note on setting the dip switches all ON after setting the dip switch.

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