Setting the IP Address of SMC EtherNet/IP Product

Revision 1.2

Contents

Purpose

The purpose of this document is to show how to use the IP address setting tools available for setting the IP address on SMC EtherNet/IP product and explain some of the issues that one might encounter when using these tools.

Products and Software Tools

The products that are covered in the document are the EX250-SEN1, EX260-SEN1/2/3/4, EX500-GEN2, EX600-SEN1/2/3/4/7/8, JXC9*, LECSN2-T#-9 and the LEC-GEN1. The tools used to set the IP address for these products that will be discussed are the BOOTP DHCP Tool from Rockwell, SMC IP Address Setting Tool and IPConfig.

The BOOTP DHCP Tool can be used to set the IP address on any SMC EtherNet/IP product. SMC's EX250-SEN1 can only be set using the BOOTP-DHCP tool from Rockwell. SMC IP Address Setting Tool may only be used on the EX260-SEN1/2/3/4, EX500-GEN2, EX600-SEN1/2/3/4/7/8, JXC91*, LECSN2-T#-9 and the LEC-GEN1. SMC IP Address Setting Tool cannot be used on any non-SMC product. The IPConfig tool (from HMS) can only be used on the EX600-SEN1/2/3/4, LECSN2-T#-9 and the LEC-GEN1.

General IT Statement

The following is required for the use of IP addressing tools (IPConfig, SMC IP Address Setting Tool, Rockwell BOOTP-DHCP, etc)

- The IPConfig and Rockwell BOOTP-DHCP software installations require Administrator privileges on the PC.

- The tools must be added to the allow list on the OS firewall (e.g., Windows Defender Firewall). *For port-based firewalls, UDP-67 and UDP-68 must be allowed*

- The tools must be allowed by any antivirus/endpoint protection software running on the PC.

- If running the tools over a network where DHCP snooping is enabled, the switchport that the PC running the tool is connected to must be configured as trusted.

****Legal Disclaimer (SMC is not responsible for risks associated with changes to customer computers and networks, etc…)****

BOOTP-DHCP Server (from Rockwell – latest version 3.06)

The BOOTP/DHCP server may be used to set any of the SMC EtherNet/IP devices. Follow the steps below to set the IP address on an SMC device.

Setting Steps

- Ensure that the SMC device is in remote control mode. See specific switch settings in this document. Each SMC device is in remote control mode by default from the factory with the exception of the JXC91. The JXC91 is set to 192.168.1.1.
    - If the device is not in remote control mode, ensure that the device is powered down and put the device in DHCP mode. Power the device for 30 seconds and power back down. Then put the device back in remote control mode. This will reset the device. Do not power the device back up at this time.
- Make sure that the local NIC (Network Interface Card) on the PC is set to a static IP address that is on the same subnet as the IP address that is going to be assigned to the SMC device. As an example, if the IP address 10.10.10.25 is going to be assigned to the SMC device, then the local NIC must be set to 10.10.10.### with ### being any number between 1 and 254. Do not set the local NIC to the same address as the address that will be assigned to the SMC device.
- Connect the PC directly to the powered down SMC device. This is recommended as other devices on the network may interfere with the IP address setting process. A switch may be used if a direct connection cannot be made.
- Rockwell recommends that the firewall, wireless and antivirus are turned off. If the firewall cannot be turned off, ensure that the BOOTP-DHCP Tool is allowed through the firewall.
- Power on the SMC device and start up the BOOTP-DHCP server and select the local NIC that is connected to the device or switch then hit OK. If connected directly to a PC and the SMC device is not powered, the BOOTP-DHCP server will not run as the local NIC cannot be selected.
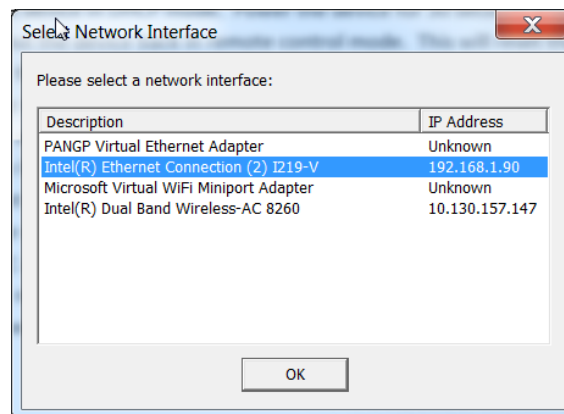

- Once the BOOTP-DHCP server is running, click on Tools, Network Settings to set the subnet mask and gateway. This is where the subnet mask and gateway are set for the SMC device. Click OK when finished.

# Setting the IP Address of SMC EtherNet/IP Product
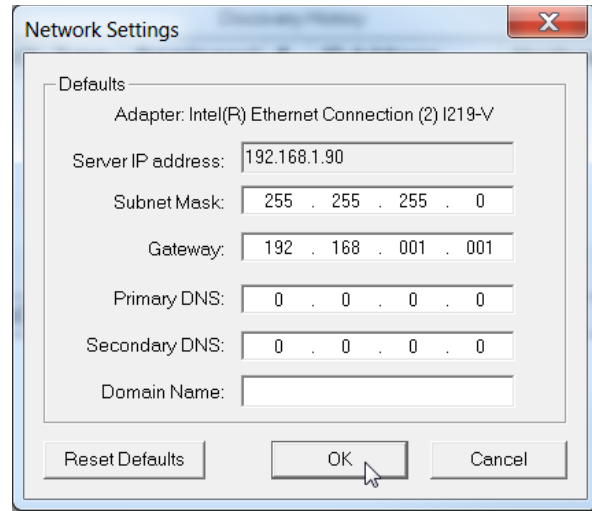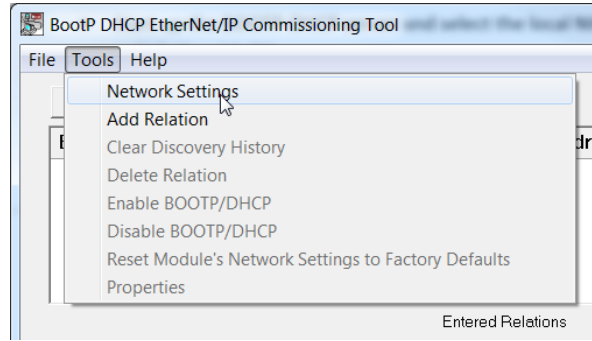
- After setting the Network Settings and clicking OK, verify that the MAC address in the Discovery History window matches the SMC device that the IP address is going to be set on.
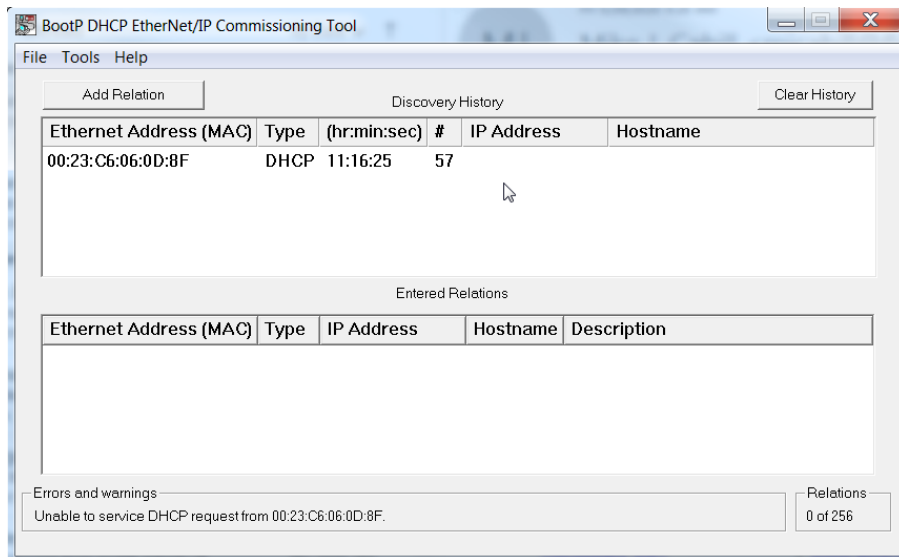
- Double click on the device in the Discovery History window, assign the IP address and hit OK as shown below.

Setting the IP Address of SMC EtherNet/IP Product
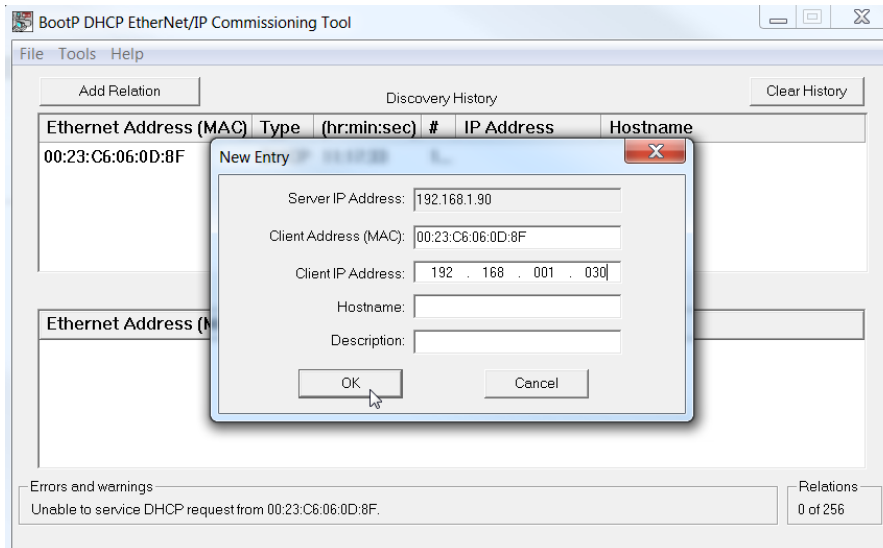
- After assigning the IP address and seeing this in the Entered Relations window, wait for the IP address to show up in the Discovery History window as shown below.
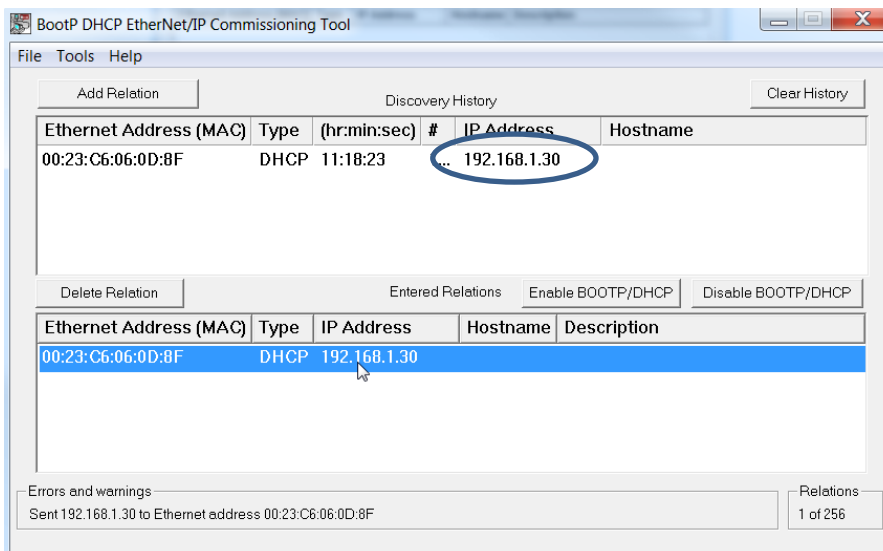
- After seeing the IP address, click on the device in the Entered Relations window and click on Disable BOOTP/DHCP. If successful, you will see [Disable DHCP] Command successful in the

lower part of the main window. If DHCP is not disabled successfully, the SMC device will lose its IP address on a power cycle. If this command is not successful, see Troubleshooting Issues in BOOTP-DHCP server.

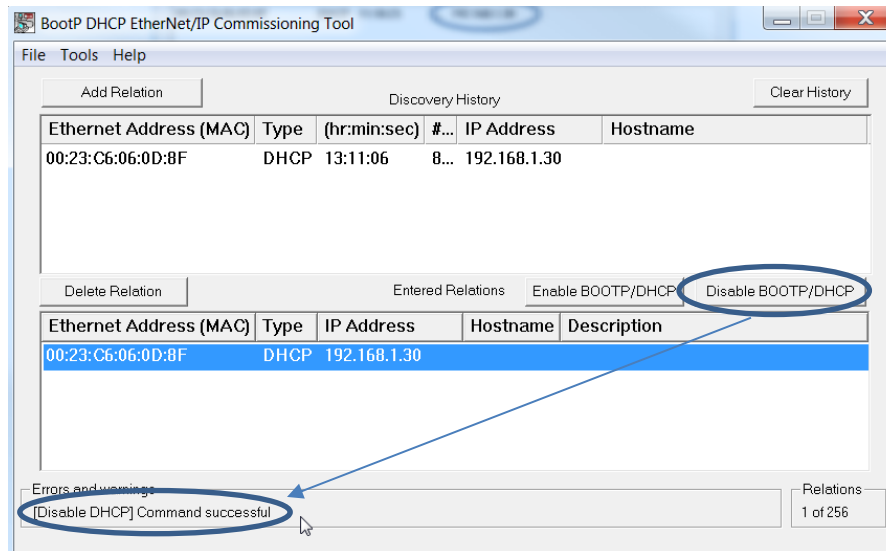## SMC IP Address Setting Tool – EX9-ZSW-IPC1

The SMC IP Address Setting Tool may be used on any SMC EtherNet/IP device except the EX250-SEN1. This tool works similar to the BOOTP-DHCP server. Download the zip file that contains this tool and extract all files into a folder. This is an executable file and will not be installed

Note: Another version of the SMC IP Address Setting Tool is available (EX9-ZSW-IPC2). This version is not designed for commissioning new devices. EX9-ZSW-IPC1 is recommended.

Setting Steps

- Ensure that the SMC device is in remote control mode. See specific switch settings in this document. Each SMC device is in remote control mode by default from the factory with the exception of the JXC91. The JXC91 is set to 192.168.1.1.
    - If the device is not in remote control mode, ensure that the device is powered down and put the device in DHCP mode. Power the device for 30 seconds and power back down. Then put the device back in remote control mode. This will reset the device. Do not power the device back up at this time.
- Make sure that the local NIC (Network Interface Card) on the PC is set to a static IP address that is on the same subnet as the IP address that is going to be assigned to the SMC device. As an

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example, if the IP address 10.10.10.25 is going to be assigned to the SMC device, then the local NIC must be set to 10.10.10.### with ### being any number between 1 and 254. Do not set the local NIC to the same address as the address that will be assigned to the SMC device.

- Connect the PC directly to the powered down SMC device. This is recommended as other devices on the network may interfere with the IP address setting process. A switch may be used if a direct connection cannot be made.

- Power on the SMC device and start up the SMC IP Address Setting Tool by double clicking the SMC IP Address Setting Tool.exe file in the folder, accept the license agreement, and select the local NIC that is connected to the device or switch then hit OK. If connected directly to a PC and the SMC device is not powered, the SMC IP Address Setting Tool will not run as the local NIC cannot be selected.
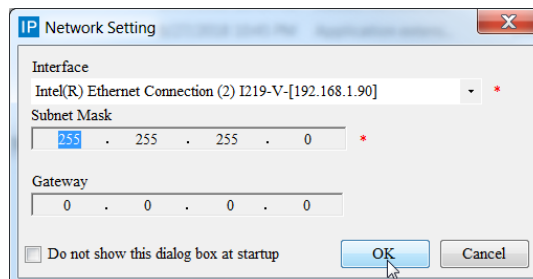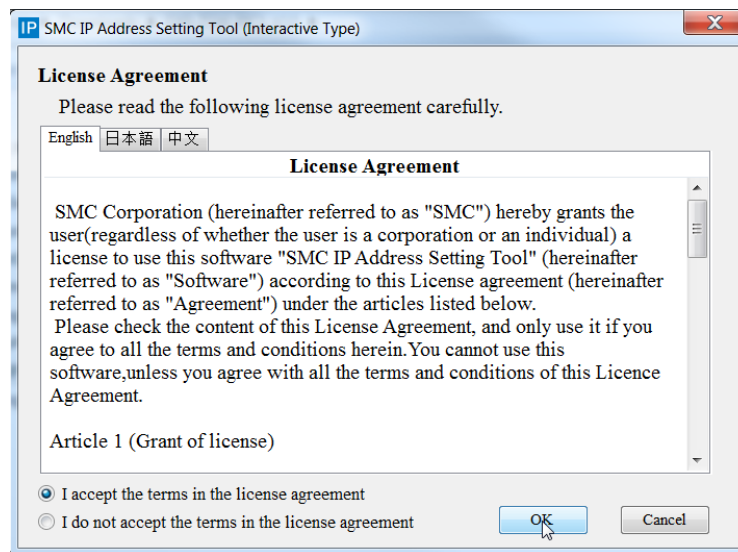
- After the SMC IP Address Setting Tool is running, click on the SCAN icon as shown below.

Setting the IP Address of SMC EtherNet/IP Product
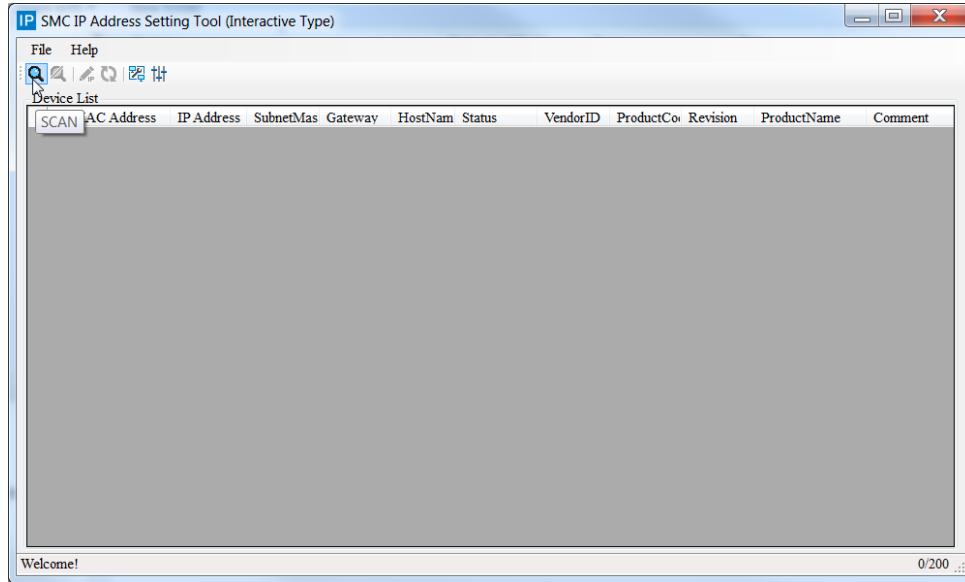
- After clicking the SCAN icon, the following should be shown. Note that there is no IP address associated with the MAC ID as this device is in remote control mode.
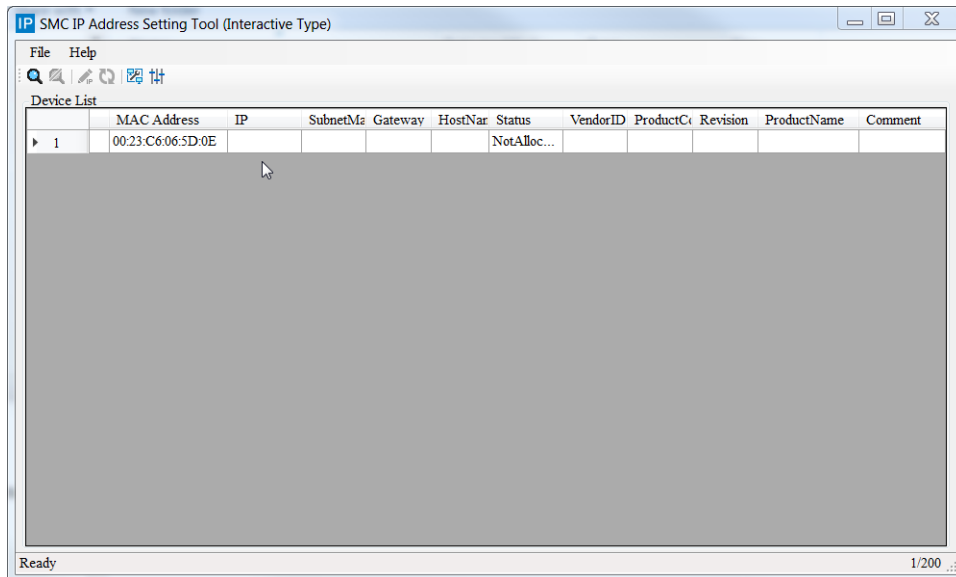
- Click on the row and then click on the IP Setting icon to set the IP address and subnet mask. In the IP Address Setting window, ensure that the No Storage Mode is unchecked. If checked, the device will remain in DHCP mode. Click OK to set the IP address.
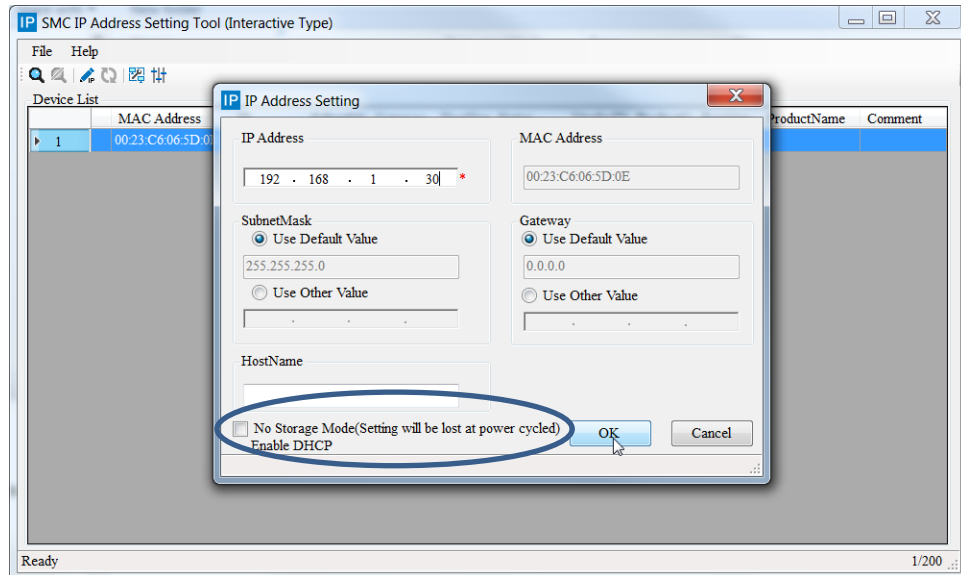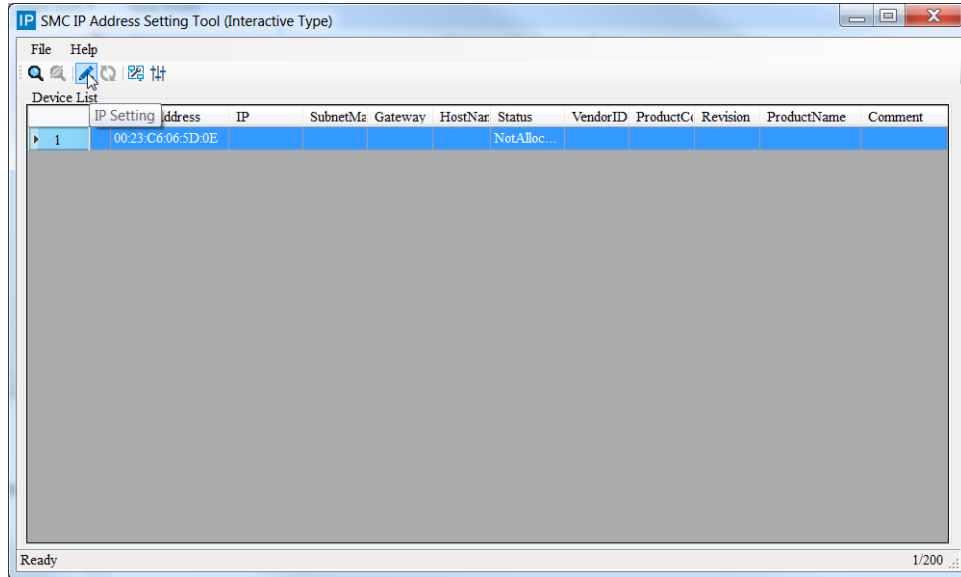
- After clicking OK, the IP address should be set and a Parameter setting success should be shown at the bottom left side of the window. If this is not successful, the SMC device will lose its IP address on a power cycle. If this is not successful, see Troubleshooting Issues in SMC IP Address Setting Tool.
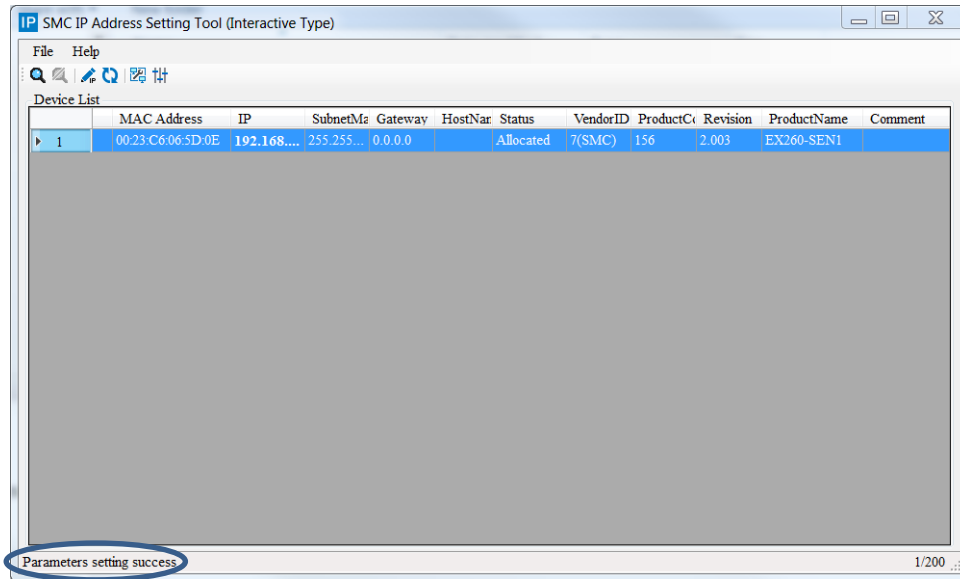
IPConfig Tool – DHCP IP Config Tool

The IPConfig tool may only be used to set the EX600-SEN1/2/3/4/7/8, LECSN2-T#-9 and the LEC-GEN1. Download the tool and install. This is one of the easiest tools to use for setting the IP address on an EX600-SEN1/2/3/4/7/8, LECSN21-T#-9 and LEC-GEN1.

Setting Steps

- Ensure that the SMC device is in remote control mode. See specific switch settings in this document. Each SMC device is in remote control mode by default from the factory with the exception of the JXC91. The JXC91 is set to 192.168.1.1.
    - If the device is not in remote control mode, ensure that the device is powered down and put the device in DHCP mode. Power the device for 30 seconds and power back down. Then put the device back in remote control mode. This will reset the device. Do not power the device back up at this time.
- Make sure that the local NIC (Network Interface Card) on the PC is set to a static IP address that is on the same subnet as the IP address that is going to be assigned to the SMC device. As an example, if the IP address 10.10.10.25 is going to be assigned to the SMC device, then the local NIC must be set to 10.10.10.### with ### being any number between 1 and 254. Do not set the local NIC to the same address as the address that will be assigned to the SMC device.
- Connect the PC directly to the powered down SMC device. This is recommended as other devices on the network may interfere with the IP address setting process. A switch may be used if a direct connection cannot be made.
- Power on the SMC device and start up the IPConfig Tool by navigating to HMS IPConfig and right click, click More and then Run as administrator.

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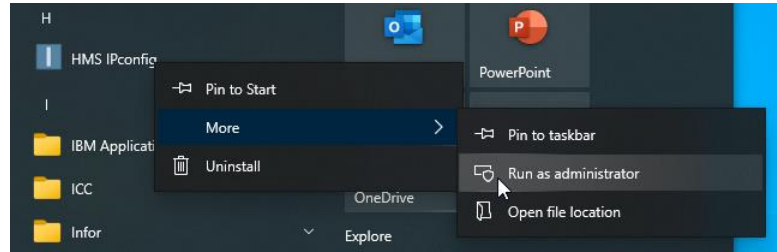
- Once IPConfig is running, it will typically scan automatically. If it does not click on the Scan Icon circled in red.
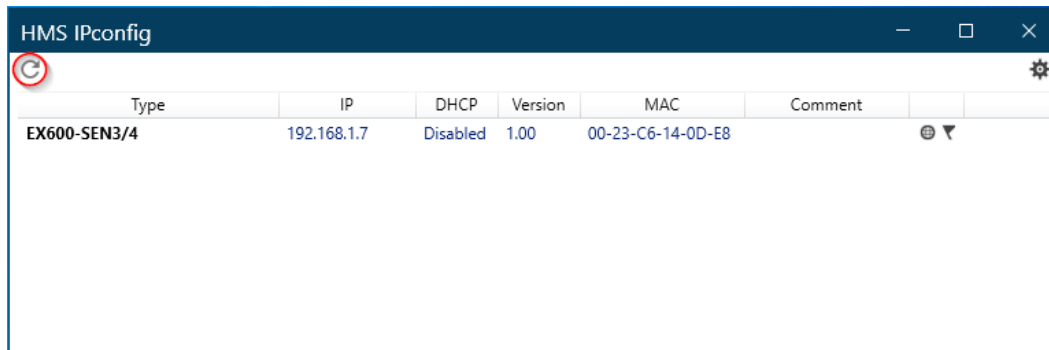
- After scanning and the SMC device has shown up, click on the SMC device to set the IP address, subnet mask and gateway. Ensure that the box Retrieve IP settings dynamically from a DHCP is not selected. If this is selected, the SMC device will lose its IP address on a power cycle. When everything has been set, click on the Apply button to set IP address.
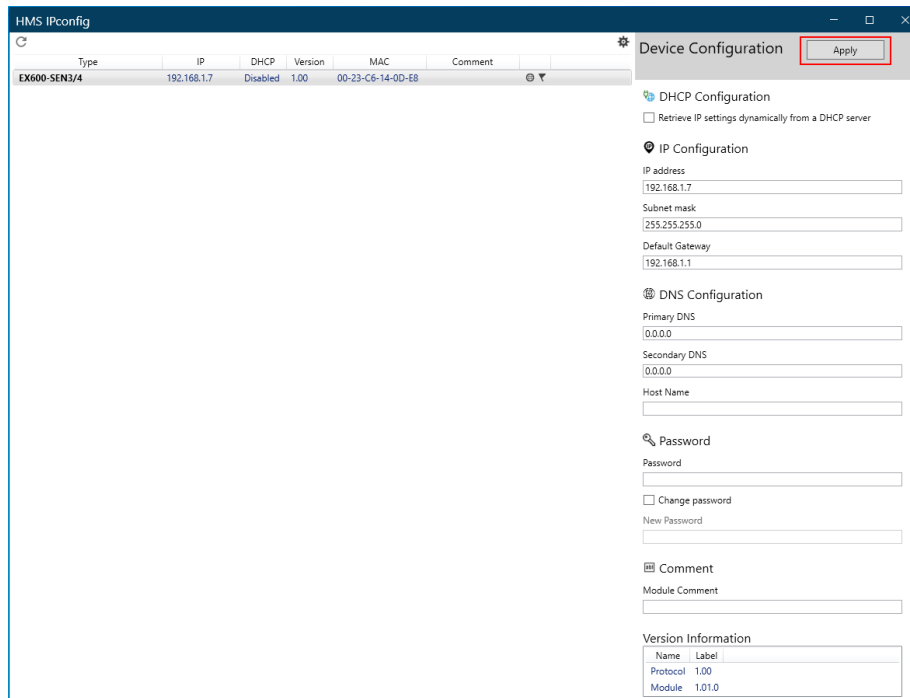
- After setting, the IP address will show up in the main window. This will also show that DHCP is Disabled. When finished, click on X to exit the program. If there are issues in this process, see Troubleshooting Issues in IPConfig.
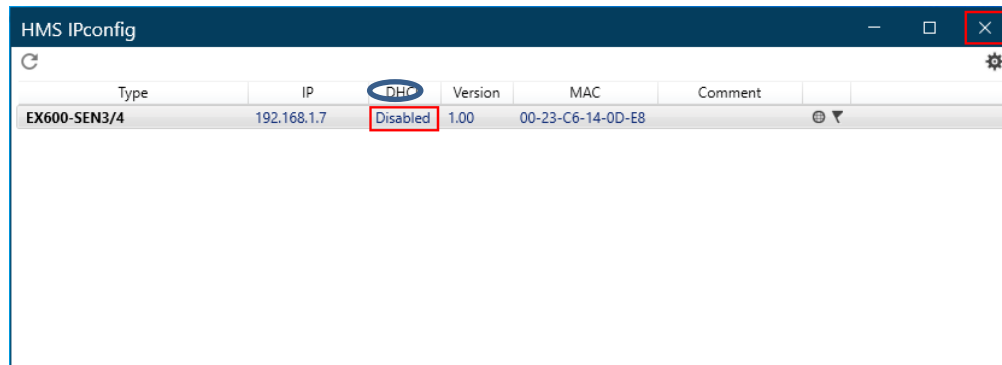
Troubleshooting Issues in BOOTP-DHCP

- As previously stated, Rockwell recommends turning off the firewall, antivirus and wireless. If the firewall cannot be turned off, ensure that the BOOTP-DHCP Tool is allowed through the firewall.
- The Disable BOOTP/DHCP button does not work. Verify that the latest version 3.06 is being used. In versions 3.00, 3.01 and 3.02, the Disable button did not work. To successfully Disable BOOTP/DHCP in these versions select the device in the Relation List and right click to select Disable BOOTP/DHCP.
- If a Command successful in not achieved, verify local NIC IP address. The address must be on the same subnet to disable DHCP.
- There have been instances with customers where they could not see the MAC ID or disable DHCP when trying to set an IP address while a device is on the network. In cases such as these, have the customer remove the SMC units from the network and connect up directly if possible. If not possible, have the customer remove as many other devices from the network as possible. This typically solves these types of issues.
- There have been instances where the issue could not be resolved with a customer trying to set an IP address and using another computer will work. The specific security setting on a computer may not allow the setting of an IP address using this tool.

Troubleshooting Issues in SMC IP Address Setting Tool

- If hitting the SCAN icon does not find the SMC device, hit it again to perform another scan. There have been times where the scan needs to be performed 3 to 4 times before finding a SMC device.

- There have been instances where the issue could not be resolved with a customer trying to set an IP address and using another computer will work. The specific security setting on a computer may not allow the setting of an IP address using this tool.

Troubleshooting Issues in IPConfig

- There have been instances where the issue could not be resolved with a customer trying to set an IP address and using another computer will work. The specific security setting on a computer may not allow the setting of an IP address using this tool.

Product Related Troubleshooting

Always make sure that the switches are in the remote control mode. The IP address cannot be set and DHCP turned off if the switches are not set correctly.

EX250-SEN1

- The EX250-SEN1 must have an IP address set within 30 seconds of power up or it will go back to its last know IP address. This is stated in the manual. If this happens, then the customer has to start over again by resetting using DHCP mode, powering down and putting back in remote mode.

EX260-SEN*

- The EX260-SEN* product must have the IP address set when the PLC EtherNet/IP scanner is not connected to the network. If the scanner is connected to the network when setting the IP address, it may cause and error on the EX260.

Switch Settings of Each SMC Device

EX250-SEN1 DIP Switch Settings

The DIP switches on the EX250-SEN1 can only be used to set the unit to DHCP mode, Remote Control mode or 192.168.0.1 to 192.168.0.14. The following shows the switch settings from the manual.
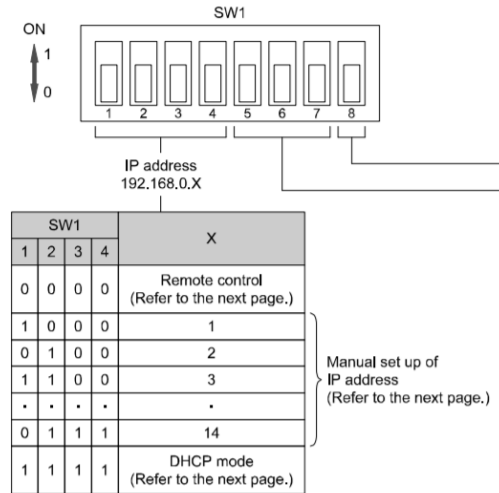
EX260-SEN1/2/3/4 Switch Settings

The switches on the EX260-SEN1/2/3/4 can only be used to set the unit to DHCP mode, Remote Control mode, 192.168.0.1 to 192.168.0.254 or 192.168.1.1 to 192.168.1.254. The following shows the switch settings from the manual. Note: Setting the rotary switches to a value between 255 and 999 also puts the unit in DHCP mode.

EX500-GEN2 Switch Settings

The switches on the EX500-GEN2 can only be used to set the unit to DHCP mode, Remote Control mode, 192.168.0.1 to 192.168.0.254 or 192.168.1.1 to 192.168.1.254. The following shows the switch settings from the manual. Note: Setting the rotary switches to a value between 255 and 999 also puts the unit in DHCP mode.

IP address

Setting			Meaning
x100	x10	x1	
0	0	0	Remote control (DHCP) *1
0	0	1	
0	0	2	Manual setting of IP address: 192.168.Y.X (X: 1-254) *2
:	:	:	
2	5	4	
2	5	5	DHCP mode *3
2	5	6	
:	:	:	Reserved
9	9	9	

The default setting is 0.

DIP switch

No.	Meaning
1	Reserved (Fixed to OFF)
2	HOLD/CLEAR setting ON: If EtherNet/IP™ communication error occurs, the output will be retained. OFF: Set the output condition during EtherNet/IP™ communication error via network. Cleared when this is not set.
3	Mode setting ON: Gateway distribution system (64 point) OFF: Gateway distribution system 2 (128 point)
4	Manual setting of IP address: 192.168.Y.X (Y: OFF_0, ON_1)

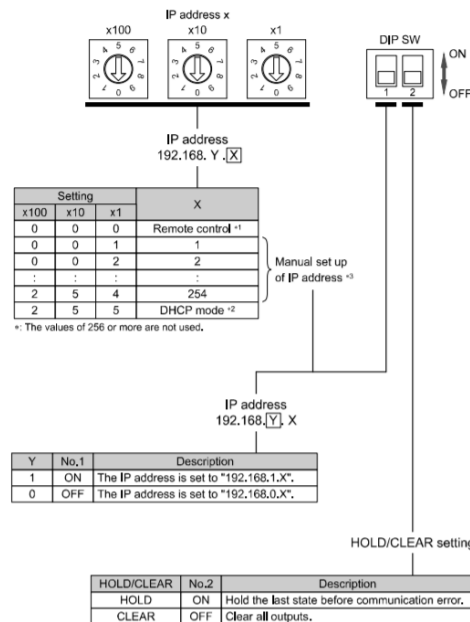## EX600-SEN1/2 Switch Settings

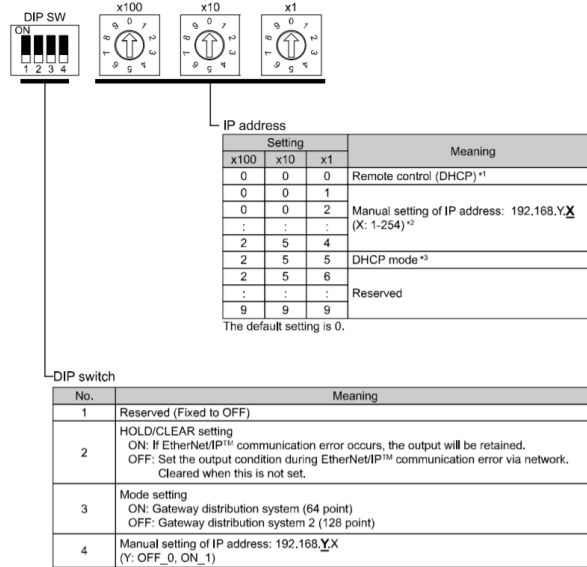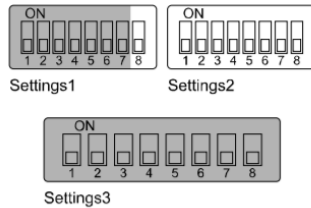The switches on the EX600-SEN1/2 can only be used to set the unit to DHCP mode, Remote Control mode, 192.168.0.1 to 192.168.0.254 or 192.168.1.1 to 192.168.1.254. The following shows the switch settings from the manual.

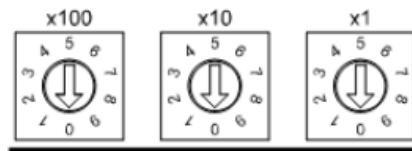| Settings1	Settings2								IP address
8	1	2	3	4	5	6	7	8	
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	192.168.0.1
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	192.168.0.2
:	:	:	:	:	:	:	:	:	:
OFF	ON	OFF	ON	ON	ON	ON	ON	ON	192.168.0.253
OFF	OFF	ON	ON	ON	ON	ON	ON	ON	192.168.0.254
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	192.168.1.1
ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	192.168.1.2
:	:	:	:	:	:	:	:	:	:
ON	ON	OFF	ON	ON	ON	ON	ON	ON	192.168.1.253
ON	OFF	ON	ON	ON	ON	ON	ON	ON	192.168.1.254
ON/OFF	ON	ON	ON	ON	ON	ON	ON	ON	DHCP mode *1
ON/OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Remote Control mode *2

EX600-SEN3/4/7/8 Switch Settings

The switches on the EX600-SEN3/4 can only be used to set the unit to DHCP mode, Remote Control mode, 192.168.0.1 to 192.168.0.254 or 192.168.1.1 to 192.168.1.254. The following shows the switch settings from the manual.

Settings1   Settings2

Settings1	Settings2								IP address	Subnet mask
8	1	2	3	4	5	6	7	8		
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	192.168.0.1	
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	192.168.0.2	
:	:	:	:	:	:	:	:	:	:	255.255.255.0
OFF	ON	OFF	ON	ON	ON	ON	ON	ON	192.168.0.253	
OFF	OFF	ON	ON	ON	ON	ON	ON	ON	192.168.0.254	
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	192.168.1.1	
ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	192.168.1.2	
:	:	:	:	:	:	:	:	:	:	255.255.255.0
ON	ON	OFF	ON	ON	ON	ON	ON	ON	192.168.1.253	
ON	OFF	ON	ON	ON	ON	ON	ON	ON	192.168.1.254	
ON/OFF	ON	ON	ON	ON	ON	ON	ON	ON	DHCP mode	
ON/OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Remote Control mode	

JXC91, JXC92 and JXC93 Switch Settings

The switches on the JXC91, JXC92 and JXC93 can only be used to set the unit to DHCP mode, Remote Control mode, or 192.168.1.1 to 192.168.1.254. The following shows the switch settings from the manual. Note: Setting the rotary switches to a value between 255 and 999 also puts the unit in DHCP mode.

IP address 192.168.1. ***

Setting			***
x100	x10	x1	
0	0	0	Remote Control(DHCP) *1
0	0	1	1
0	0	2	2
:	:	:	: *2
2	5	4	254
2	5	5	DHCP mode *3
2	5	6	Unused
:	:	:	
9	9	9	

The default setting is 0.0.1.

LEC-GEN1 Switch Settings

There are no IP address switches on the LEC-GEN1.

Alternative to Using Software

IP Explorer Professional

This hand held tool (part number SIM-IPE) may be used to set the IP address of any SMC EtherNet/IP device. SMC does not sell this product or support this product. If interested, the SIM-IPE can be purchased online at the following location.

https://plctools.com/products/plc-tools-sim-ipe-ethernet-ip-address-explorer-dhcp-and-bootp-server