

# Leonard Valve Method of Configuration

## Preprogrammed BMS ProtoCessors

### Method of Configuration:

- Web-Configurator for interfacing the Valve to BACnet IP, BACnet MS/TP, Modbus TCP/IP, Modbus RTU, Metasys N2 and Ethernet/IP



BACnet IP  
Modbus TCP/IP  
Ethernet/IP

BACnet MS/TP  
Modbus RTU  
Metasys N2  
RS-485

# Questions You Must Ask Integrator

- **For BACnet MS/TP Networks:**
  - What is the BACnet MS/TP MAC address?
  - What is BACnet Device Instance # being used?
  - What is the baud rate on the BACnet MS/TP on RS485 network?
- **For BACnet/IP Networks:**
  - What is BACnet Device Instance # being used?
  - What network IP address should be used for the ProtoCessor?
  - What subnet mask should be used for the ProtoCessor?
  - What IP gateway should be used for the ProtoCessor?
- **For Modbus TCP Networks:**
  - What network IP address should be used for the ProtoCessor?
  - What subnet mask should be used for the ProtoCessor?
  - What IP gateway should be used for the ProtoCessor?
- **For Metasys N2 Networks:**
  - What Metasys N2 device address should be used for the ProtoCessor?
- **For Ethernet/IP Networks:**
  - What network IP address should be used for the ProtoCessor?
  - What subnet mask should be used for the ProtoCessor?
  - What IP gateway should be used for the ProtoCessor?

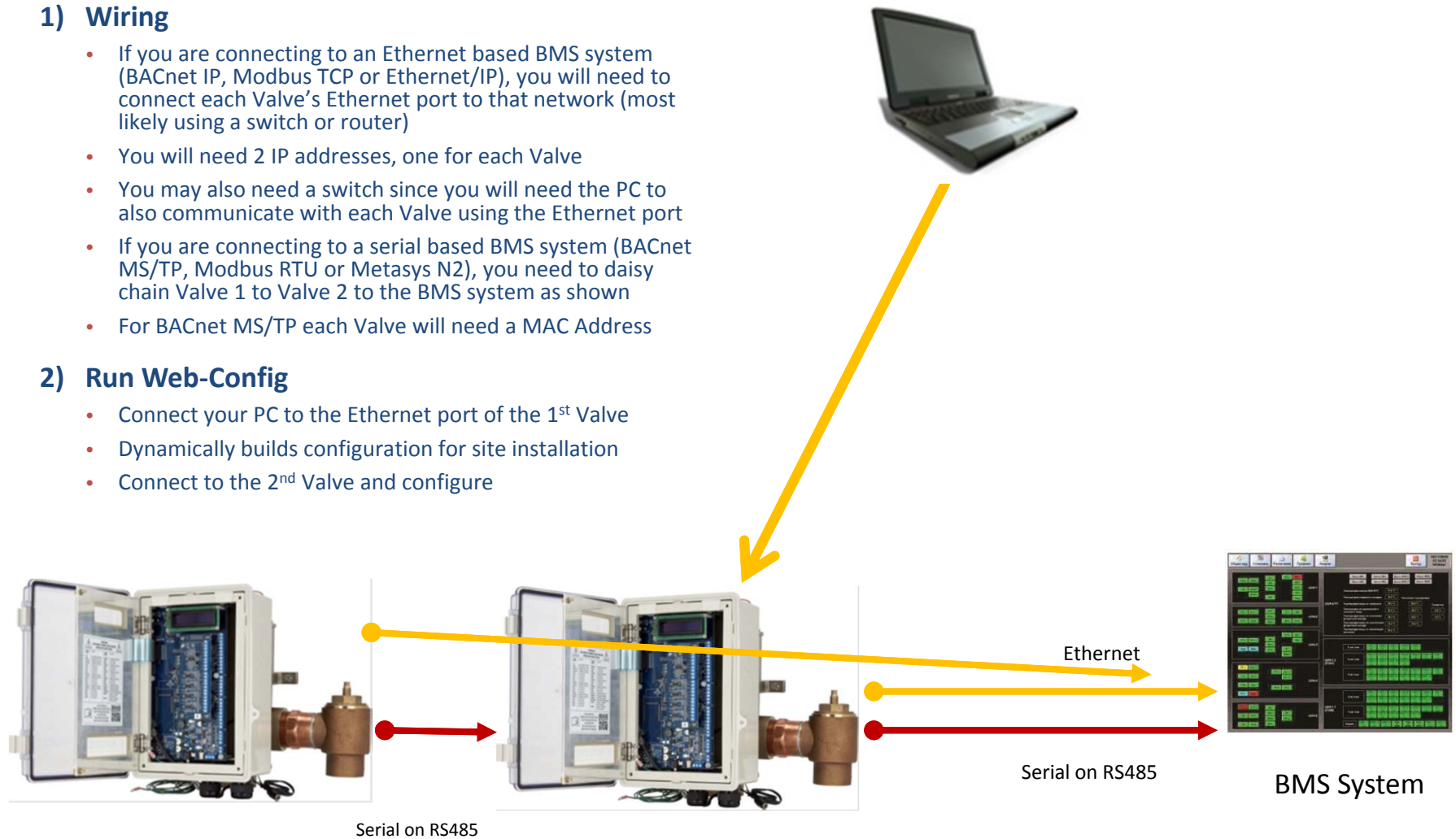
# Installation: 2 Nucleus

## 1) Wiring

- If you are connecting to an Ethernet based BMS system (BACnet IP, Modbus TCP or Ethernet/IP), you will need to connect each Valve's Ethernet port to that network (most likely using a switch or router)
- You will need 2 IP addresses, one for each Valve
- You may also need a switch since you will need the PC to also communicate with each Valve using the Ethernet port
- If you are connecting to a serial based BMS system (BACnet MS/TP, Modbus RTU or Metasys N2), you need to daisy chain Valve 1 to Valve 2 to the BMS system as shown
- For BACnet MS/TP each Valve will need a MAC Address

## 2) Run Web-Config

- Connect your PC to the Ethernet port of the 1<sup>st</sup> Valve
- Dynamically builds configuration for site installation
- Connect to the 2<sup>nd</sup> Valve and configure



# Web Configuration



## Installation:

- Set PC to Static IP address
  - Default ProtoCessor IP Address = 192.168.1.24
  - Set PC to 192.168.1.XXX Subnet Mask = 255.255.255.0

Use the following IP address:

IP address:	192 . 168 . 1 . 11
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	. . .

- Connect PC to Valve's Ethernet port
- Open up a browser and go to 192.168.1.24



# Setting The IP Address

## Run Web-Config

- From the FS-GUI landing page, click on Setup, then select Network Settings
- Now you can change the IP Address and Netmask and Gateway if necessary
- Click System Restart



The screenshot shows the SMC Network Settings web interface. On the left is a navigation menu with options like About, Setup, File Transfer, Network Settings (highlighted), Passwords, Time Settings, View, and User Messages. The main content area is titled 'Network Settings' and has a sub-tab for 'IP Settings'. A 'Note' box states that updated settings only take effect after a system restart. Below this are input fields for N1 IP Address (192.168.3.13), N1 Netmask (255.255.255.0), N1 DHCP Client State (DISABLED), Default Gateway (192.168.3.1), Domain Name Server1 (8.8.8.8), and Domain Name Server2 (8.8.4.4). There are 'Cancel' and 'Update IP Settings' buttons. At the bottom, there is a 'MAC Address' section showing the N1 MAC Address as 00:50:4E:11:7C:F6. A footer bar contains buttons for Home, HELP (F1), Contact Us, and System Restart.

# Web Configuration



## Web-Configurator:

- The Valve must use Web-Config
- The Profile for the Valve is stored in the ProtoCessor

### Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="4"/> <input type="button" value="Submit"/>
mod_baud_rate	<b>Modbus RTU Baud Rate</b> This sets the Modbus RTU baud rate. (9600/19200/38400/57600)	<input type="text" value="9600"/> <input type="button" value="Submit"/>
mod_parity	<b>Modbus RTU Parity</b> This sets the Modbus RTU parity. (None/Even/Odd)	<input type="text" value="None"/> <input type="button" value="Submit"/>
mod_data_bits	<b>Modbus RTU Data Bits</b> This sets the Modbus RTU data bits. (7 or 8)	<input type="text" value="8"/> <input type="button" value="Submit"/>
mod_stop_bits	<b>Modbus RTU Stop Bits</b> This sets the Modbus RTU stop bits. (1 or 2)	<input type="text" value="1"/> <input type="button" value="Submit"/>

### Active profiles

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

# Leonard Valve Method of Configuration

## Preprogrammed BMS ProtoCessors

### 1 Method of Configuration:

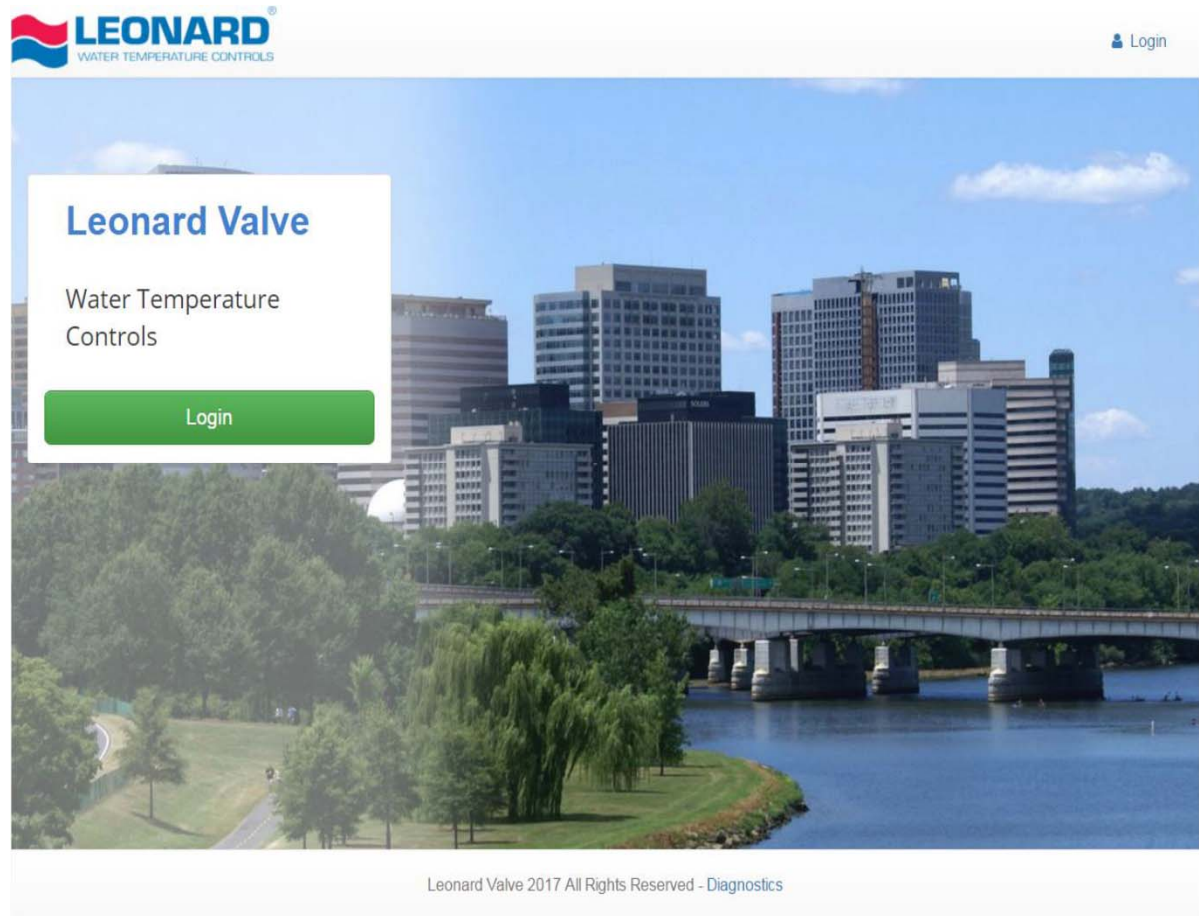
- Web-Configurator
- But first, the ProtoCessor is installed in the Valve control at the factory

Port Setting	Device
Protocol	PSP
Baud Rate	9600
Parity	None
Data Bits	8
Stop Bits	1

# Installation: Overview

## Run Web-Config

- This is the Web Config landing page
- Login – default username is “admin”
- Default password is “admin”





# Installation: Overview

## Run Web-Config

- This is the Web App landing page
- Click on Configure on the left
- Then click the Profiles Configuration button

The screenshot shows the 'System View' page of the Leonard Water Temperature Controls web application. The top left features the Leonard logo and a navigation menu with options: System View, Historian, Event Logger, FieldPoP™, Configure, and About. The top right shows a 'Profile' dropdown menu. The main content area is titled 'System View' and contains a 'Sensors' section with a table. The table has four columns: Address, Location, TempOut, and TempHotIn. A single row is visible with Address '1', TempOut '0', and TempHotIn '0'. The footer contains the text 'Leonard Valve 2017 All Rights Reserved - About - Diagnostics'.

Address	Location	TempOut	TempHotIn
1		0	0

The screenshot shows the 'Configuration' page of the Leonard Water Temperature Controls web application. The top left features the Leonard logo and a navigation menu with options: System View, Historian, Event Logger, FieldPoP™, Configure, and About. The top right shows a 'Profile' dropdown menu. The main content area is titled 'Configuration' and contains a 'Profile Configuration Page' section with a 'Profiles Configuration' button. Below this is a 'Reset Application' section with a warning: 'Warning: This will remove all data from the device' and a red 'Reset Application' button. The footer contains the text 'Leonard Valve 2017 All Rights Reserved - About - Diagnostics'.

# Web Configuration Landing Page

## Run Web-Config

- On the Web Configurator page, the first parameter is the Protocol Selector
- Enter the correct Protocol number and click Submit
- Follow the prompt to restart the system
- The parameters for that Protocol will appear below the Selector
- This example shows Modbus



Configuration Parameters		
Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="4"/> <input type="button" value="Submit"/>
mod_baud_rate	<b>Modbus RTU Baud Rate</b> This sets the Modbus RTU baud rate. (9600/19200/38400/57600)	<input type="text" value="9600"/> <input type="button" value="Submit"/>
mod_parity	<b>Modbus RTU Parity</b> This sets the Modbus RTU parity. (None/Even/Odd)	<input type="text" value="None"/> <input type="button" value="Submit"/>
mod_data_bits	<b>Modbus RTU Data Bits</b> This sets the Modbus RTU data bits. (7 or 8)	<input type="text" value="8"/> <input type="button" value="Submit"/>
mod_stop_bits	<b>Modbus RTU Stop Bits</b> This sets the Modbus RTU stop bits. (1 or 2)	<input type="text" value="1"/> <input type="button" value="Submit"/>

Active profiles		
Nr	Node ID	Current profile
<input type="button" value="Add"/>		

<input type="button" value="HELP (?)"/>	<input type="button" value="Network Settings"/>	<input type="button" value="Clear Profiles and Restart"/>	<input type="button" value="System Restart"/>	<input type="button" value="Diagnostics &amp; Debugging"/>
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# Installation: Overview

## Run Web-Config

- This example shows BACnet IP
- The Active Profiles section lists the currently active device profiles (if any)
- To add an Active Profile to support a Valve, click the ADD button
- Enter the Modbus Node-ID and click Submit (1-255)



Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="1"/> <input type="button" value="Submit"/>
network_nr	<b>BACnet Network Number</b> This sets the BACnet network number of the Gateway. (1 - 65535)	<input type="text" value="50"/> <input type="button" value="Submit"/>
node_offset	<b>BACnet Node Offset</b> This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	<input type="text" value="50000"/> <input type="button" value="Submit"/>
bac_ip_port	<b>BACnet IP Port</b> This sets the BACnet IP port of the Gateway. The default is 47808. (1 - 65535)	<input type="text" value="47808"/> <input type="button" value="Submit"/>
bac_cov_option	<b>BACnet COV</b> This enables or disables COVs for the BACnet connection. Use COV_Enable to enable. Use COV_Disable to disable. (COV_Enable/COV_Disable)	<input type="text" value="COV_Disable"/> <input type="button" value="Submit"/>
bac_bbmd_option	<b>BACnet BBMD</b> This enables BBMD on the BACnet IP connection. Use BBMD to enable. Use - to disable. The bdt.ini files also needs to be downloaded. (BBMD/-)	<input type="text" value="-"/> <input type="button" value="Submit"/>
bac_virt_nodes	<b>BACnet Virtual Server Nodes</b> Set to NO if the unit is only converting 1 device to BACnet. Set to YES if the unit is converting multiple devices. (No/Yes)	<input type="text" value="No"/> <input type="button" value="Submit"/>

Active profiles

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

# Installation: Overview

## Run Web-Config

- You should then be able to see the Valve under the Active Profiles section
- You can also change the BACnet Node Offset here if needed



### Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="1"/> <input type="button" value="Submit"/>
network_nr	<b>BACnet Network Number</b> This sets the BACnet network number of the Gateway. (1 - 65535)	<input type="text" value="50"/> <input type="button" value="Submit"/>
node_offset	<b>BACnet Node Offset</b> This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	<input type="text" value="50000"/> <input type="button" value="Submit"/>
bac_ip_port	<b>BACnet IP Port</b> This sets the BACnet IP port of the Gateway. The default is 47808. (1 - 65535)	<input type="text" value="47808"/> <input type="button" value="Submit"/>
bac_cov_option	<b>BACnet COV</b> This enables or disables COVs for the BACnet connection. Use COV_Enable to enable. Use COV_Disable to disable. (COV_Enable/COV_Disable)	<input type="text" value="COV_Disable"/> <input type="button" value="Submit"/>
bac_bbmd_option	<b>BACnet BBMD</b> This enables BBMD on the BACnet IP connection. Use BBMD to enable. Use - to disable. The bdt.ini file also needs to be downloaded. (BBMD/-)	<input type="text" value="-"/> <input type="button" value="Submit"/>
bac_virt_nodes	<b>BACnet Virtual Server Nodes</b> Set to NO if the unit is only converting 1 device to BACnet. Set to YES if the unit is converting multiple devices. (No/Yes)	<input type="text" value="No"/> <input type="button" value="Submit"/>

### Active profiles

Nr	Node ID	Current profile	Parameters
1	1	BAC_IP_Valve	<input type="button" value="Remove"/>

# Installation: Overview



## Run Web-Config

- For BACnet MS/TP you can enter the MAC Address (1-127 only), Baud Rate and other parameters after you choose that as the protocol

### Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="2"/> <input type="button" value="Submit"/>
network_nr	<b>BACnet Network Number</b> This sets the BACnet network number of the Gateway. (1 - 65535)	<input type="text" value="50"/> <input type="button" value="Submit"/>
node_offset	<b>BACnet Node Offset</b> This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	<input type="text" value="50000"/> <input type="button" value="Submit"/>
bac_mac_addr	<b>BACnet MSTP Mac Address</b> This sets the BACnet MSTP MAC address. (1 - 127)	<input type="text" value="127"/> <input type="button" value="Submit"/>
bac_baud_rate	<b>BACnet MSTP Baud Rate</b> This sets the BACnet MSTP baud rate. (9600/19200/38400/76800)	<input type="text" value="38400"/> <input type="button" value="Submit"/>
bac_max_master	<b>BACnet MSTP Max Master</b> This sets the BACnet MSTP max master. (1 - 127)	<input type="text" value="127"/> <input type="button" value="Submit"/>
bac_cov_option	<b>BACnet COV</b> This enables or disables COVs for the BACnet connection. Use COV_Enable to enable. Use COV_Disable to disable. (COV_Enable/COV_Disable)	<input type="text" value="COV_Disable"/> <input type="button" value="Submit"/>
bac_virt_nodes	<b>BACnet Virtual Server Nodes</b> Set to NO if the unit is only converting 1 device to BACnet. Set to YES if the unit is converting multiple devices. (No/Yes)	<input type="text" value="No"/> <input type="button" value="Submit"/>

### Active profiles

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

# Installation: Overview

## Run Web-Config

- For any Ethernet based network – BACnet/IP, Modbus TCP or Ethernet/IP – you will need to change the IP Address of the ProtoCessor to match what was given before the installation
- To do this, click on Diagnostics & Debugging (bottom right)



### Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	<b>Protocol Selector</b> Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Metasys N2 Set to 4 for Modbus TCP/Modbus RTU Set to 5 for Ethernet IP	<input type="text" value="5"/> <input type="button" value="Submit"/>

### Active profiles

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

HELP (?)

Network Settings

Clear Profiles and Restart

System Restart

Diagnostics & Debugging

# Setting The IP Address

## Run Web-Config

- From the FS-GUI landing page, click on Setup, then select Network Settings
- Now you can change the IP Address and Netmask and Gateway if necessary
- Click System Restart



The screenshot shows the SMC Network Settings web interface. On the left is a navigation menu with options like About, Setup, File Transfer, Network Settings (highlighted), Passwords, Time Settings, View, and User Messages. The main content area is titled 'Network Settings' and has a sub-tab for 'IP Settings'. A 'Note' box states that updated settings only take effect after a system restart. Below this are input fields for N1 IP Address (192.168.3.13), N1 Netmask (255.255.255.0), N1 DHCP Client State (DISABLED), Default Gateway (192.168.3.1), Domain Name Server1 (8.8.8.8), and Domain Name Server2 (8.8.4.4). There are 'Cancel' and 'Update IP Settings' buttons. At the bottom, there is a 'MAC Address' section showing the N1 MAC Address as 00:50:4E:11:7C:F6. A footer bar contains buttons for Home, HELP (F1), Contact Us, and System Restart.