



ServSensor V4E

Use this intelligent environmental monitoring device to identify problems before they disrupt your equipment.

Features an embedded Web server and Linux operating system.



Contact Information

Order toll-free in the U.S. or for FREE 24/7 technical support: Call 877-877-BBOX (outside U.S. call 724-746-5500)
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This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

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Instrucciones de Seguridad (Normas Oficiales Mexicanas Electrical Safety Statement)

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

Table of Contents

1. Specifications	6
2. Overview	7
2.1 Introduction.....	7
2.2 What's Included.....	7
2.3 Hardware Description	8
2.3.1 Front Panel	8
2.3.2 Back Panel.....	9
3. Installation	10
3.1 Setting the IP Address.....	10
3.2 Testing the New IP Address with the "Ping" Command	12
3.3 Firmware Upgrade	14
3.4 Multiusers and Groups Setup.....	19
3.4.1 Group Setup.....	19
3.4.2 User Setup	21
3.5 Services and Security	23
3.5.1 Active Services Application (Disabling).....	23
3.5.2 Closing or Changing Ports Disabling HTTP and Enabling HTTPS.....	24
3.5.3 The SNMPv3 SSL Security Feature.....	24
3.5.4 Active Security	25
3.5.5 The NAC or Network Access Control Security Feature	26
3.6 Setting Up a Sensor	26
3.6.1 Notification Thresholds.....	28
3.6.2 Advanced Sensor Settings	30
3.7 Using an Internal Mic as a Sound Detection Sensor.....	47
3.8 Expansion Ports	49
4. Notifications.....	53
4.1 Adding a Notification.....	53
4.2 SNMP Trap.....	54
4.3 E-mail	58
4.4 SMS Notification.....	63
5. Camera	70
5.1 Basic Setup	70
5.2 Pan/Tilt Camera Functions	76
5.3 Automating Camera Movements	78
5.4 Recording from the Camera.....	82
5.5 Picture Log	86
6. Mapping	89
6.1 Adding a Map	89
6.2 Monitoring via the Map Interface.....	93
7. Filters	95
7.1 Sensor Filters	95
7.2 Syslog Filters	97
8. Making the ServSensor Visible to the Internet	100
9. SEC to SEC SNMP Trap Receive	101
9.1 Introduction.....	101
9.2 SNMP Trap Sender (A) SEC (10.1.1.225) configuration	101
9.3 Getting OIDs for the SNMP Traps.....	107
9.4 SNMP Trap Receiver (B) SEC (10.1.1.137) configuration.....	112
10. SNMP Trap Receiver Controlling IO-digital8 Relay.....	117
11. Frequently Asked Questions (FAQs).....	126
Appendix A: Black Box Open Source Software License Disclaimer	137
A. Licensing Information	137
B. GNU GPL v2.....	137
C. GNU GPL v3.....	142
D. GNU LGPL v2.1	150
E. BSD and BSD like Licenses	156
F. Other Licenses	157

Chapter 1: Specifications

1. Specifications

Certifications: AdRem NetCrunch, Quest Software—Big Brother®, Castle Rock, HP® OpenView®, IBM® Tivoli®, LorientPro, Logalot, MRTG®, SiteScope®, Somix®—WebNM® and Denika®, WhatsUp® Gold, Computer Associates Unicenter® TNG

Components: Manufactured using highly integrated, low-power surface-mount technology to ensure long-term reliability; 32-bit Xscals PXA270, 520-MHz processor, 128 MB Flash memory, internal on-board 2 GB SD memory slot drive plus card

Expandable Modules: EME1X8: 8-port intelligent sensors module;
EME1DC16: 16-port dry-contacts modules

Mean Time Between Failures (MTBF): 400,000 hours

Network Interface: (1) 10/100BASE-T Ethernet RJ-45

Connectors: Inputs: (8) RJ-45 for connecting sensors; (2) RJ-45 expansion ports; (4) video input ports V1–4, NTSC/PAL;
(1) USB Version 1.1 Type A; (4) PTZ 2-pin controllers; (1) 2.5" jack for analog audio; (1) RS-485 2-pin terminal box (used for Modbus);
Output: (1) 2.5" jack for analog audio; (1) 2.5" jack for microphone

Temperature Tolerance: Operating: -31 to 131° F (-35 to +55° C)

Humidity: 20 to 80%, noncondensing

Indicators: (3) LEDs: (1) Power, (1) Network Connectivity, (1) LED for sensor on-line and threshold status

Power: Output: 7.0–9 VDC, 3 amps;
Consumption: 6.46 watts, 0.86 amps

Size: 1.8"H x 8.5"W x 5.4"D (4.6 x 21.6 x 13.7 cm)

Weight: 2.4 lb. (1.1 kg)

2. Overview

2.1 Introduction

Used for environmental monitoring, the ServSensor V4E identifies problems before they lead to business disruptions. This high-speed, accurate, intelligent monitoring device features a completely embedded host and Linux® operating system. It includes video capability, so you can connect your own cameras through the rear-panel connectors.

2.2 What's Included

Your package should contain the following items. If anything is missing or damaged, contact Black Box Technical Support at 724-746-5500.

- (1) ServSensor V4E unit
- (1) 5-ft. crossover cable
- (1) 5-ft. straight-pinned cable
- (2) rackmounting brackets
- (1) 7.0–9.0-V, 2.5-A power supply
- (1) temperature/humidity sensor (EME1TH2-005) with RJ-45 to RJ-45 cable
- (4) terminal blocks (installed)
- (1) CD-ROM containing this user's manual

2.3 Hardware Description

Figure 2-1 illustrates the ServSensor’s front panel. Table 2-1 describes its components.

2.3.1 Front Panel

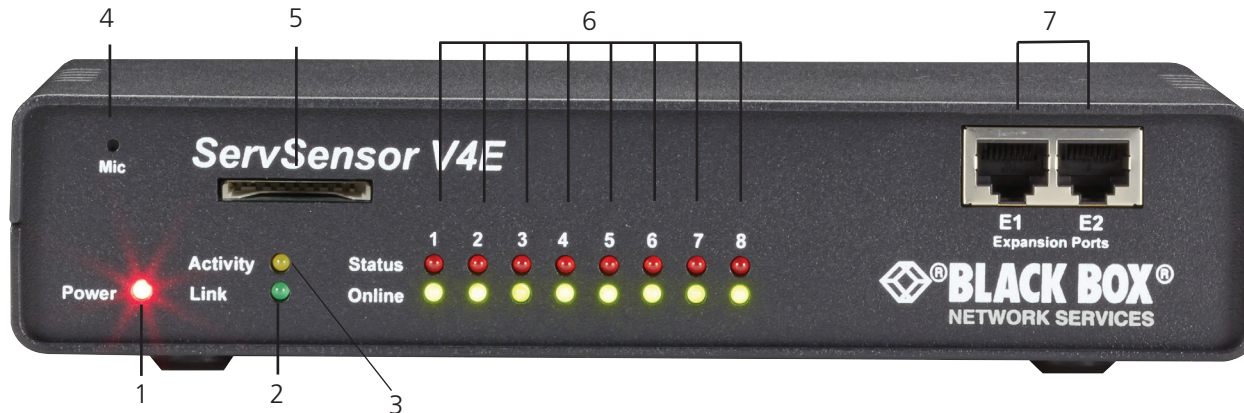


Figure 2-1. Front panel.

Table 2-1. Front panel components.

Number	Component	Description
1	Power LED	When the unit is powered on, the power LED will be lit continuously. If the power LED is flashing, there is a problem with the CPU. Contact Technical Support at 724-746-5500 or info@blackbox.com.
2	Link LED	The Link LED indicates network connectivity. It lights when a network is connected to the ServSensor V4E.
3	Activity LED	The Activity LED flashes when network traffic is sent to or received by the ServSensor V4E.
4	Mic	The mic is a small hole for access to the internal microphone. Use it as a sound sensor (or use an external mic).
5	Memory slot	Insert SD memory card here.
6	Status/Online LEDs 1–8	<p>The Status/Online LEDs are numbered 1–8. They indicate the connectivity status of the sensors connected to each port. You can also use these LEDs to indicate system status during various operations.</p> <p>The LEDs can also indicate the progress of an upgrade. The red LEDs move from left to right to indicate activity, and all the green LEDs indicate overall progress of the upgrade. When all the red lights are off and the green are on, the upgrade/recovery process is complete.</p> <p>These lights also indicate if the unit is operating in safe mode. This is when the unit loads the operating system (OS) with a minimal set of drivers. If your device enters safe mode after rebooting, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.</p> <p>The unit may enter recovery mode if a firmware upgrade is incomplete. In this case, the unit displays a continuously lit row of red LEDs. If this happens, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.</p>
7	Expansion ports E1–E2	Use the two expansion ports numbered E1–E2 to connect the 8-port expansion module (EME1X8) and/or the 16 dry-contact expansion module (EME1DC16).

2.3.2 Back Panel

Figure 2-2 shows the ServSensor’s back panel. Table 2-2 describes its components.

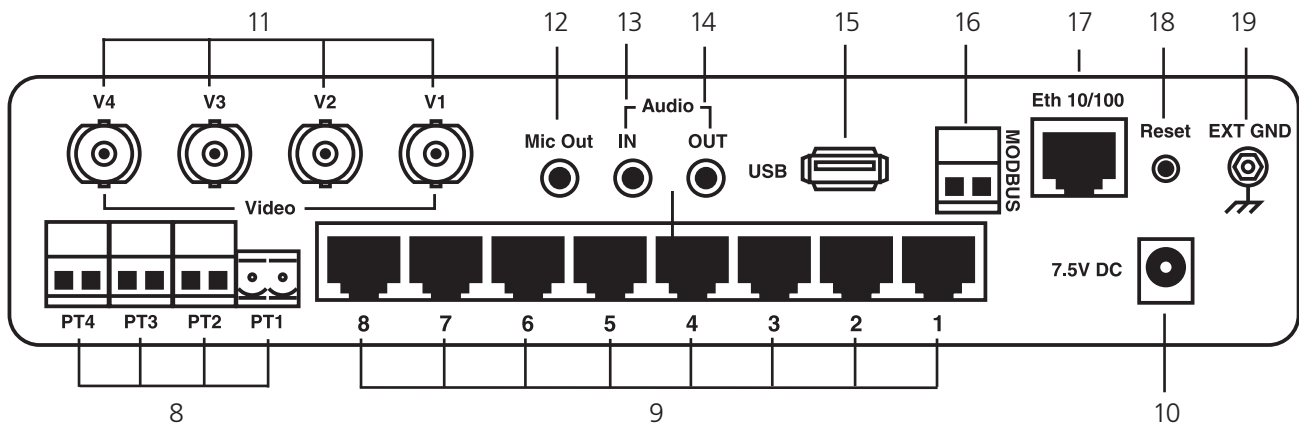


Figure 2-2. Back panel.

Table 2-2. Back panel components.

Number	Component	Description
8	(4) terminal blocks (PT1–PT4)	Use the four 2-pin terminal blocks labeled PT1–PT4 to connect a PTZ camera to the ServSensor V4E.
9	(8) RJ-45 connectors	Use these ports to connect Intelligent Sensors to the ServSensor V4E.
10	Barrel connector	This is a 7.5V DC plug. Connect a 7.0–9.0-V, 2.5-A power supply (included).
11	(4) video connectors (V1–V4)	Use the four video inputs (V1–V4) to connect a PAL/NTSC camera via a BNC jack.
12	Mic out connector	Connect an external microphone for voice modem applications.
13	Audio in	Connect an external microphone.
14	Audio out	Connect the output for external speakers.
15	USB Type A port	Use the USB 1.1 port to connect a USB GBarPRS/GSM compatible modem, a USB Wi-Fi® dongle, or a USB Bluetooth® dongle.
16	2-pin terminal block (RS-485 port)	The ServSensor v4E supports Modbus master or slave.
17	RJ-45 10/100 network port	Use this RJ-45 port to connect your ServSensor V4E to the network.
18	Safe Mode button	<i>NOTE: This button does NOT reset the unit.</i> Press the button once to announce the IP address of the unit through the internal speaker. It also broadcasts the IP address to the IPset program. Hold down the button for 12 seconds to turn off password checking when accessing the Web based interface. Press and hold the button for more than 12 seconds to reboot the unit into the firmware upgrade or "SAFE" mode.
19	EXT GND	Use the EXT. GND connector to externally ground the unit.

Chapter 3: Installation

3. Installation

3.1 Setting Up the IP Address

The ServSensor V4E is shipped with the default IP address of 192.168.0.100. Follow the steps listed below to change this IP address to fit your own network configuration.

Before starting, make sure you have these items:

- (1) RJ-45 male CAT5 crossover cable
- (1) PC with Ethernet card
- (1) power socket used to plug in the unit

To set up the IP address:

1. Connect the ServSensor V4E via its Ethernet port to your computer's Ethernet port with a CAT5 crossover cable.
2. Open a Web browser and type the default IP address (as in Figure 3-1), then press the Enter key.

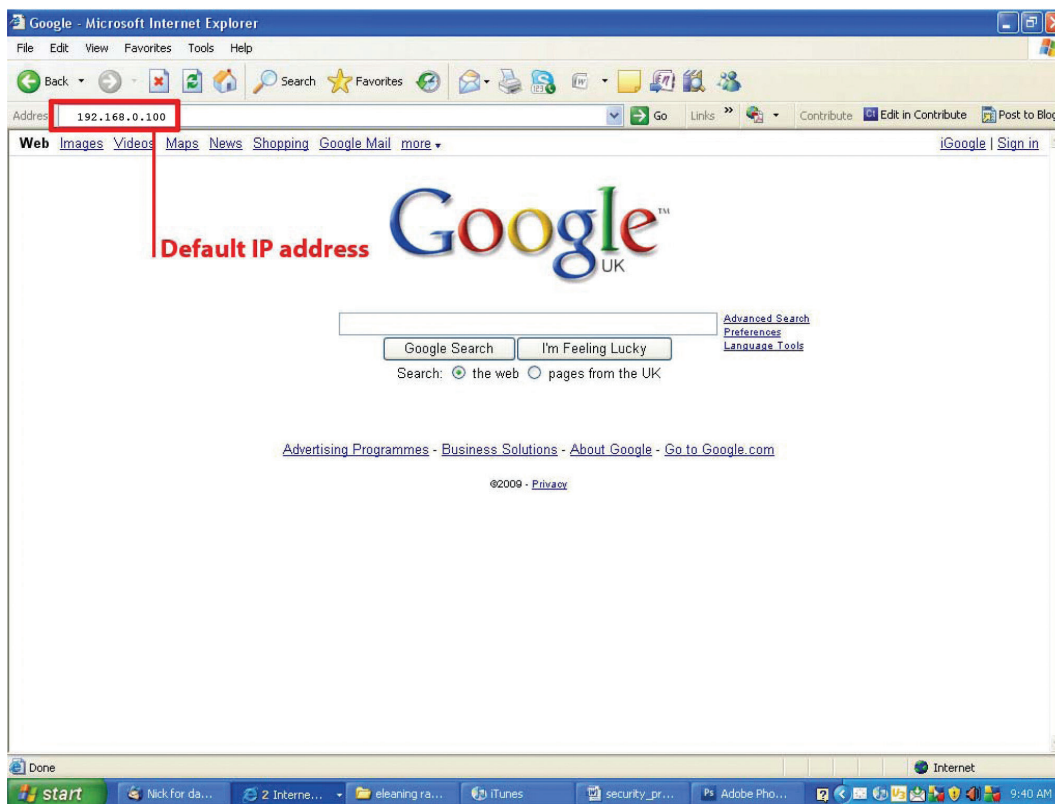


Figure 3-1. Google Web browser screen.

NOTE: In some cases, your computer might not be able to connect to this default IP address. In this situation, you will need to change the IP address of your PC. See Chapter 9 for instructions.

3. After you press the Enter key in Step 2, Figure 3-2 appears. The default password for Admin is “public.” Change the password to make your unit secure.

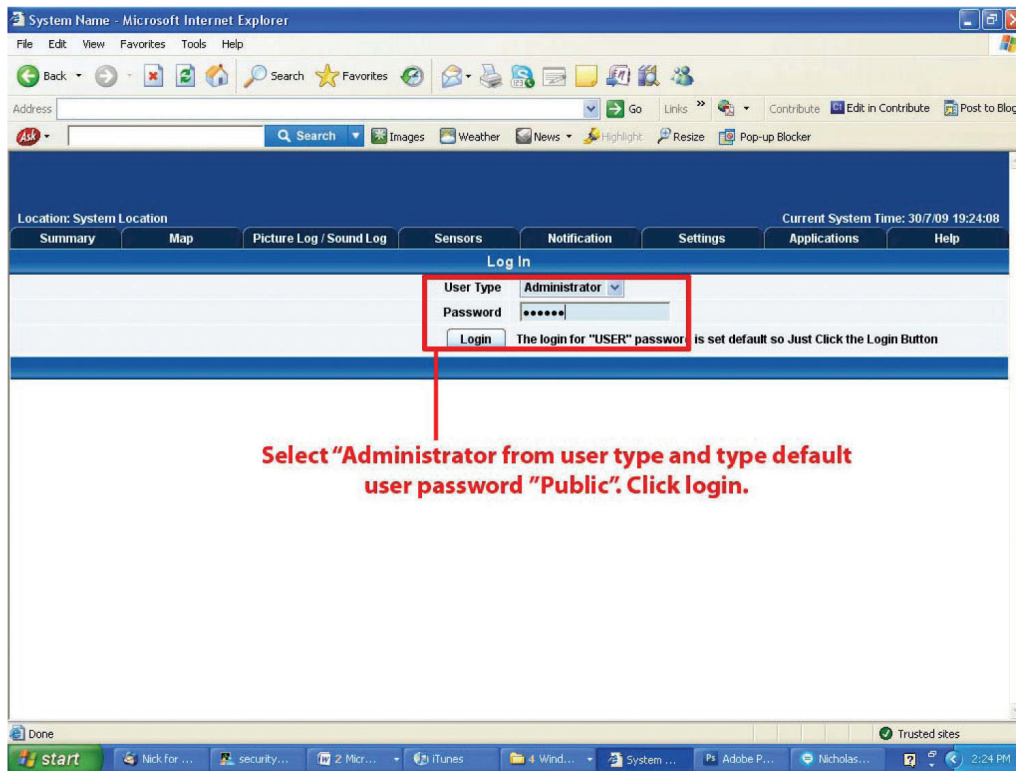


Figure 3-2. User type/password screen.

4. Next, the home page will be displayed. It looks similar to the screen shown in Figure 3-3.

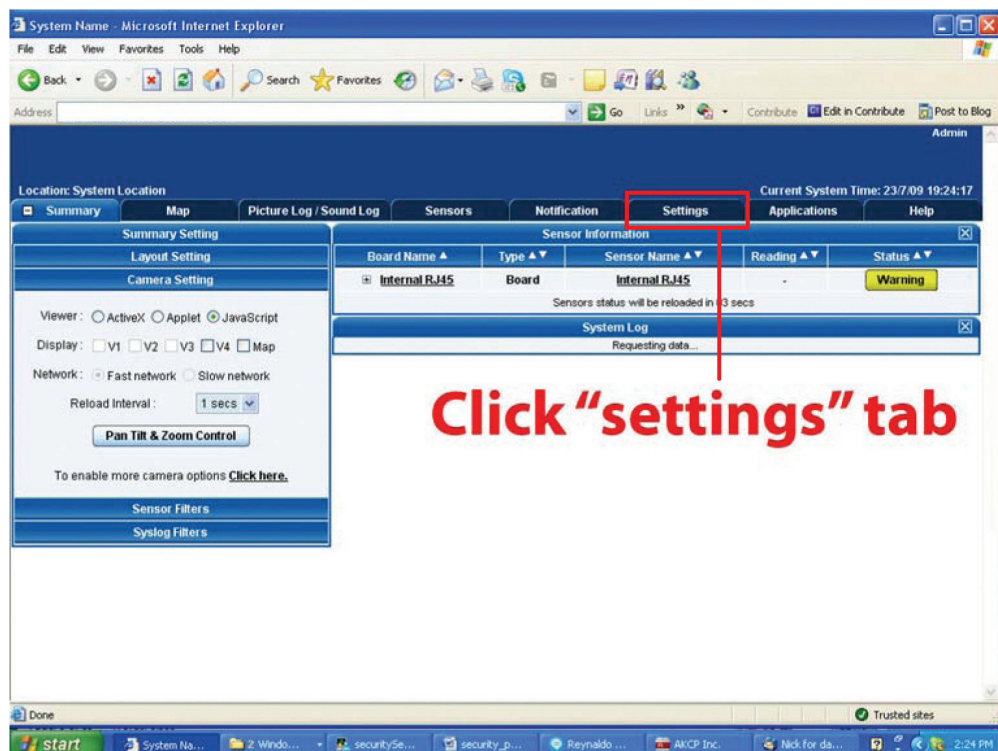


Figure 3-3. Settings tab.

Chapter 3: Installation

5. Click on “Ethernet network” from the list on the left frame of the page. See Figure 3-4.

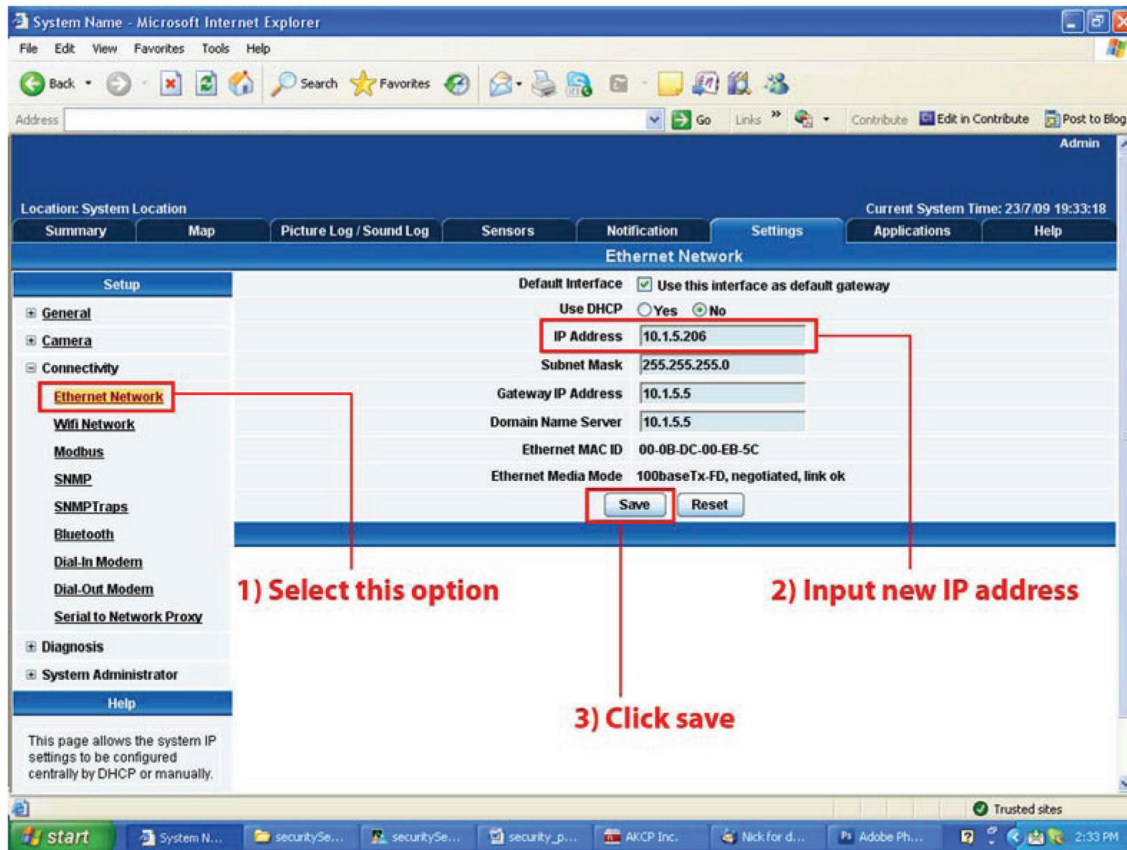


Figure 3-4. Ethernet network screen.

To change the IP address of the ServSensor V4E:

1. Select Ethernet network.
2. Input the new IP address.
3. Click the “Save” button.

3.2 Testing the New IP Address with the “Ping” Command

Once you assign the new IP address, use the “ping” command to test the ServSensor V4E. You can also use this command as a diagnostic tool to check whether your unit is connected to the network. See Figure 3-5.

1. Click “Start.”
2. Click “Run.”
3. Type “ping” and the new IP address, and press Enter.

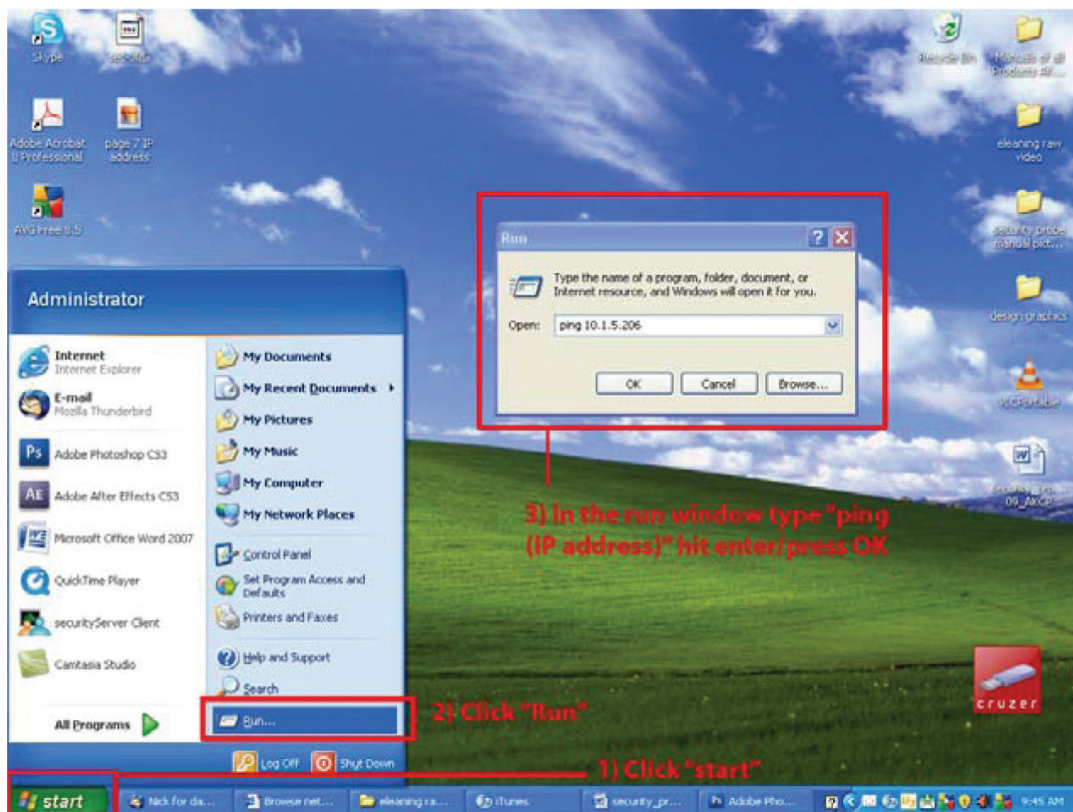


Figure 3-5. Ping command screen.

4. After you press the “Enter” key, an MS-DOS® prompt window showing the test results appears (see Figure 3-6). If you get a message saying “request timed out,” either the IP address is incorrect or a ServSensor V4E is not connected to the network.

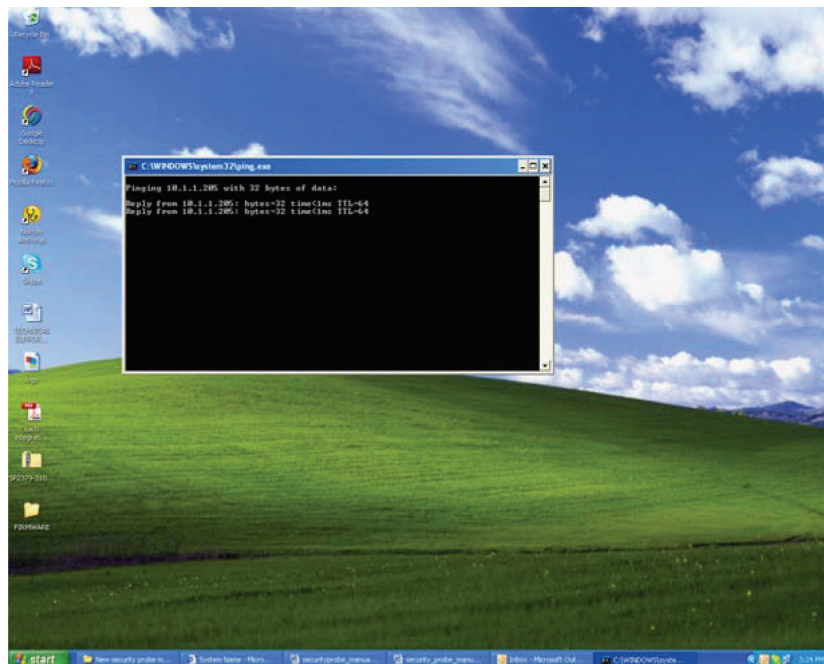


Figure 3-6. MS-DOS window.

Chapter 3: Installation

3.3 Firmware Upgrade

Make sure you are running the latest firmware. Contact Black Box Technical Support at 724-746-5500 or info@blackbox.com for the latest firmware.

NOTE: This manual refers to the Default IP address, 192.168.0.100. Substitute this for your own IP address if you have changed the default IP address.

This tutorial gives you the information you need to upgrade the firmware.

To get to the tutorial's starting point:

- Log in as administrator.
- Click the "Settings" tab.

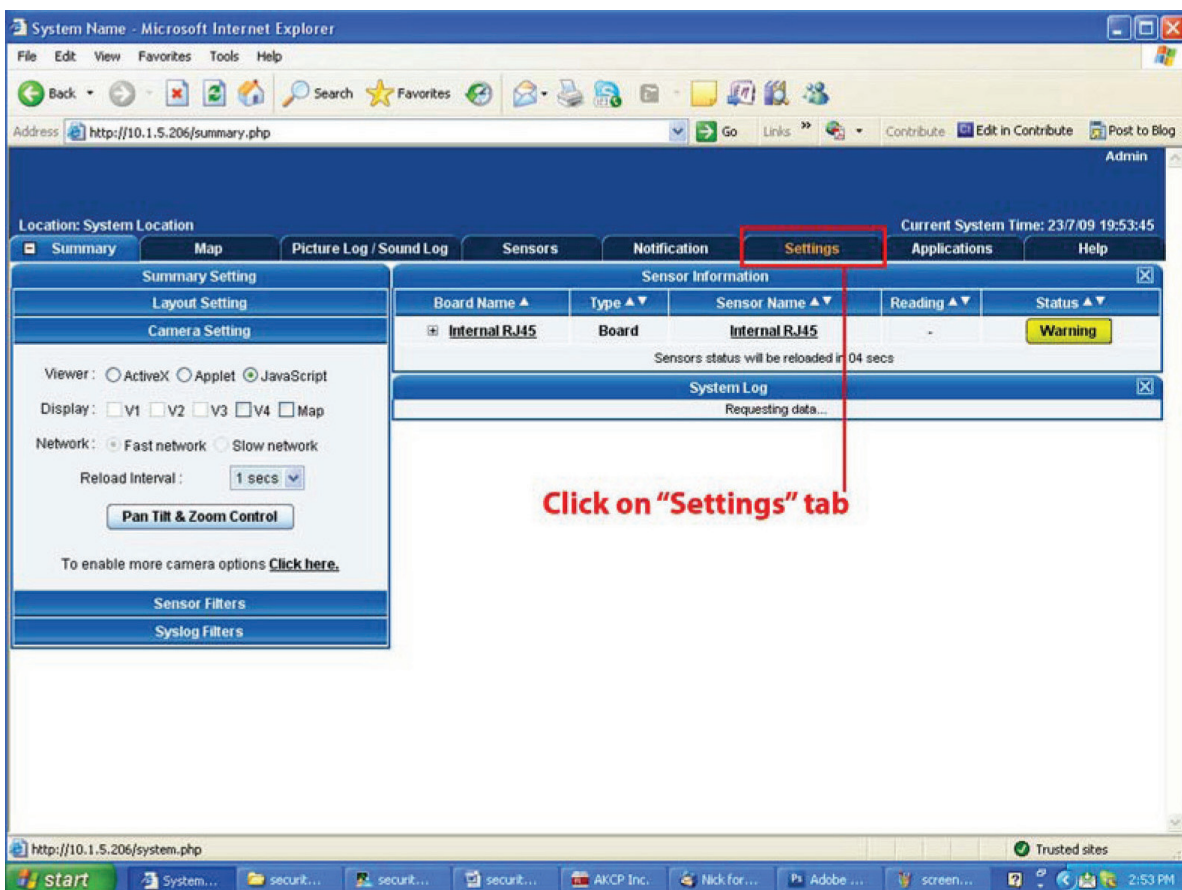


Figure 3-7. Settings tab.

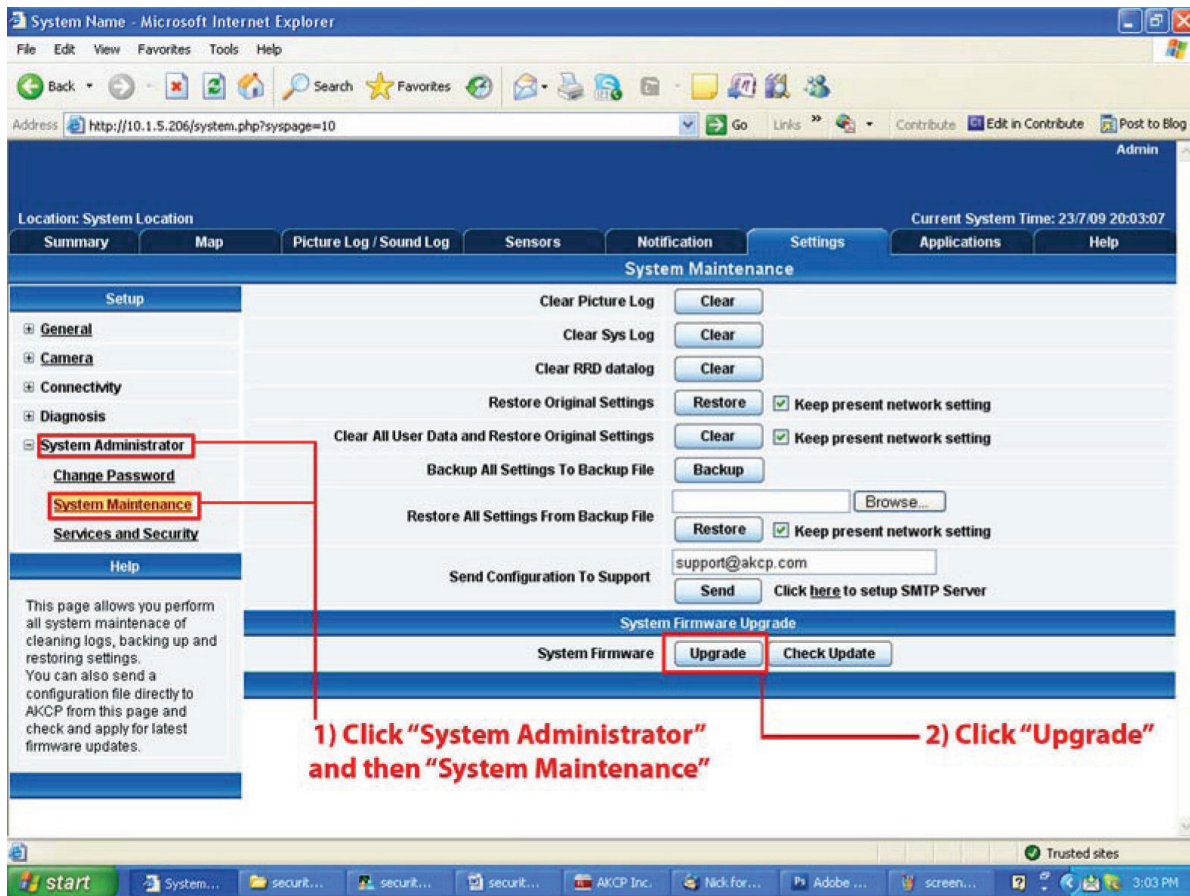


Figure 3-8. System Administrator, System Maintenance screen.

1. Click "System Administrator" and then "System Maintenance."
2. Click "Upgrade."
3. The popup screen shown in Figure 3-9 appears.

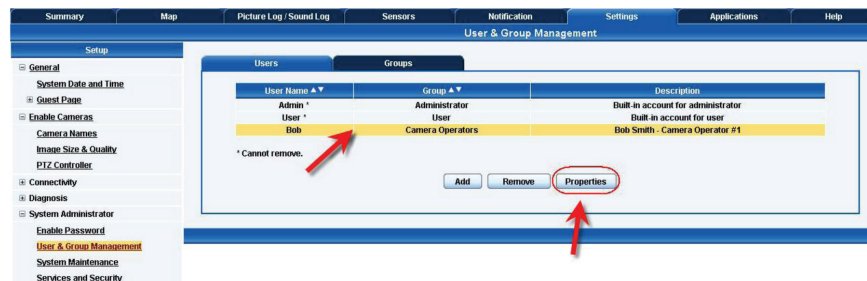


Figure 3-9. Reboot prompt.

4. Click "OK." The unit will reboot in Safe Mode. Then you will be redirected to the Safe Mode Web-based interface. This can take some time, so please be patient. The page will display the message shown in Figure 3-10 when rebooting.



Figure 3-10. Firmware Upgrade Rebooting screen.

5. After the ServSensor reboots, the page shown in Figure 3-11 appears. Click "Browse" and navigate to the firmware file you downloaded, then click "Upgrade."

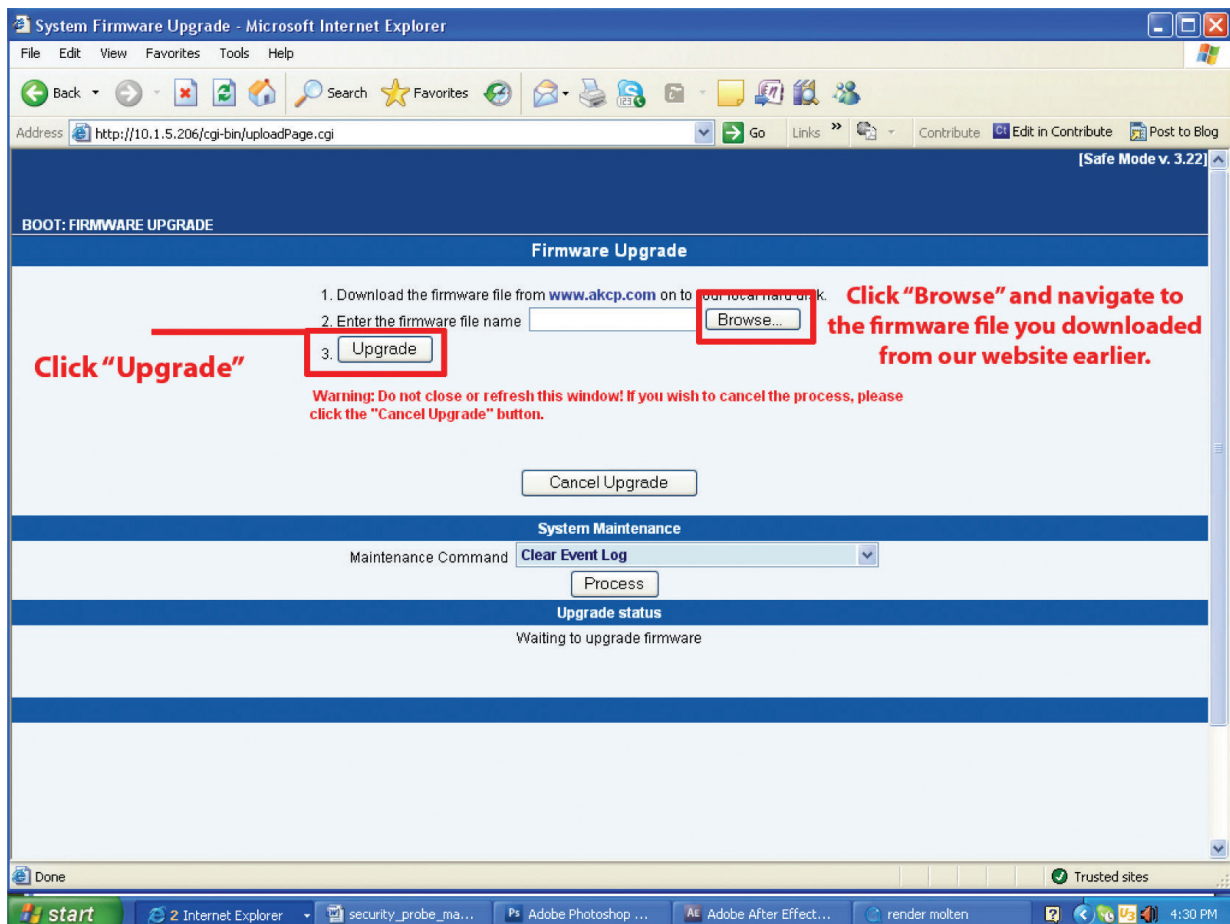


Figure 3-11. Upgrade button.

6. During the process, you will see the messages shown in Figure 3-12.

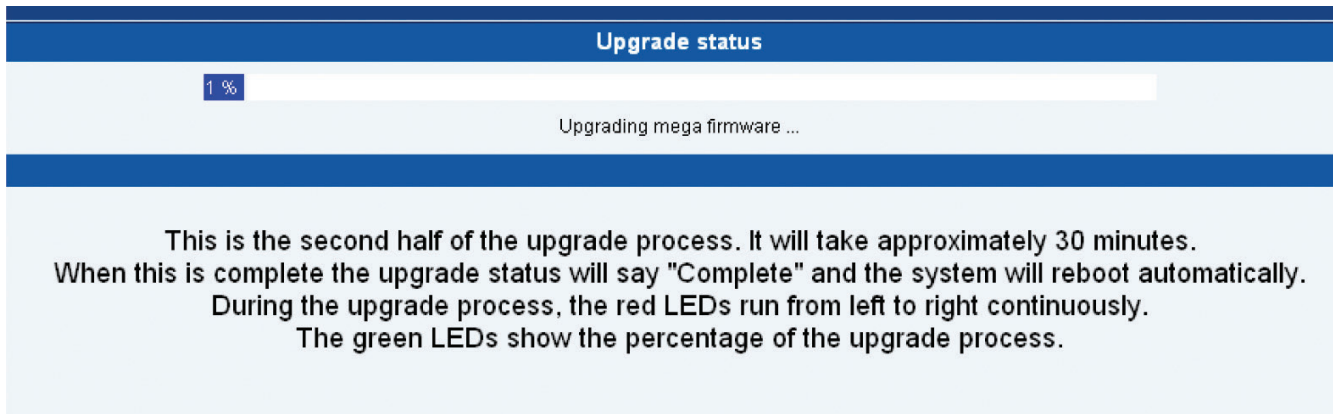


Figure 3-12. Upgrade status screen.

7. The unit will then reboot. The process is complete when the LEDs are back to their “normal” status.

NOTE: If the unit gets disconnected from the AC power or something else occurs during the firmware update that results in the unit not being rebooted, leave the power on. The unit should boot back to the normal mode.

NOTE: Do NOT push the safe mode button on the back of the unit.

If the unit does not boot back to normal mode or remains with the LEDs circling in a counter-clockwise rotation after 30 minutes, the unit is most likely stuck in safe mode.

If this is the case, DO NOT CONTINUE TO PRESS THE SAFE MODE BUTTON ON THE BACK OF THE UNIT. Instead, perform the following steps:

Firmware Update Mode Using LinuxIPSet

NOTE: We recommend that you use the Web interface when upgrading the firmware on the units. If you are not able to access the Web interface, then use the LinuxIPSet.

To set the unit back to normal mode:

1. Power OFF your device.
2. Connect the ServSensor V4E via crossover cable directly to your computer's network interface card.
3. Reconfigure your network interface card's TCP/IP settings (IP Address: 192.168.0.2, subnet address: 255.255.255.0, default gateway and DNS: leave both blank).
4. Make sure that firewall programs are temporarily turned OFF or make an exception for InuxIPSET5.8.1.exe.
5. Run InuxIPSET5.8.1.exe from your product CD, or from the firmware update compressed file.
6. Click on the “Firmware Upgrade” option mode in the LinuxIPSet.
7. Press and hold the reset button, and power ON the unit. Remember not to let go until you see the text in the LinuxIPSet (received a request of “kernel-pxa.img” from 192.168.0.100).
8. Check the Link LED. It should turn ON. Wait for the green bar to appear in the LinuxIPSet after a minute or two.
9. Click on this bar to access the device's Web interface and start uploading the new firmware to the SD card or to the unit.

NOTE: If your Web browser displays “404 not found” or “page cannot be displayed” errors, then try pasting <http://192.168.0.100/index2.html> directly to your browser's address bar.

NOTE: If you still have a problem with the upgrade or the unit, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

Chapter 3: Installation

Creating a Backup Configuration File

Keep in mind that after you set up your ServSensor V4E unit and have all the settings and alerts completed, you can create a backup configuration file. This file will contain the configuration of the unit's settings and also the sensor settings and notification alerts.

These backup configuration files can be loaded on other units as long as they are the same basic type. For example, you can load a backup config file from a ServSensor V4E onto a ServSensor V4ES unit. You can also use the utility to push out the same configuration file to multiple units on your network simultaneously.

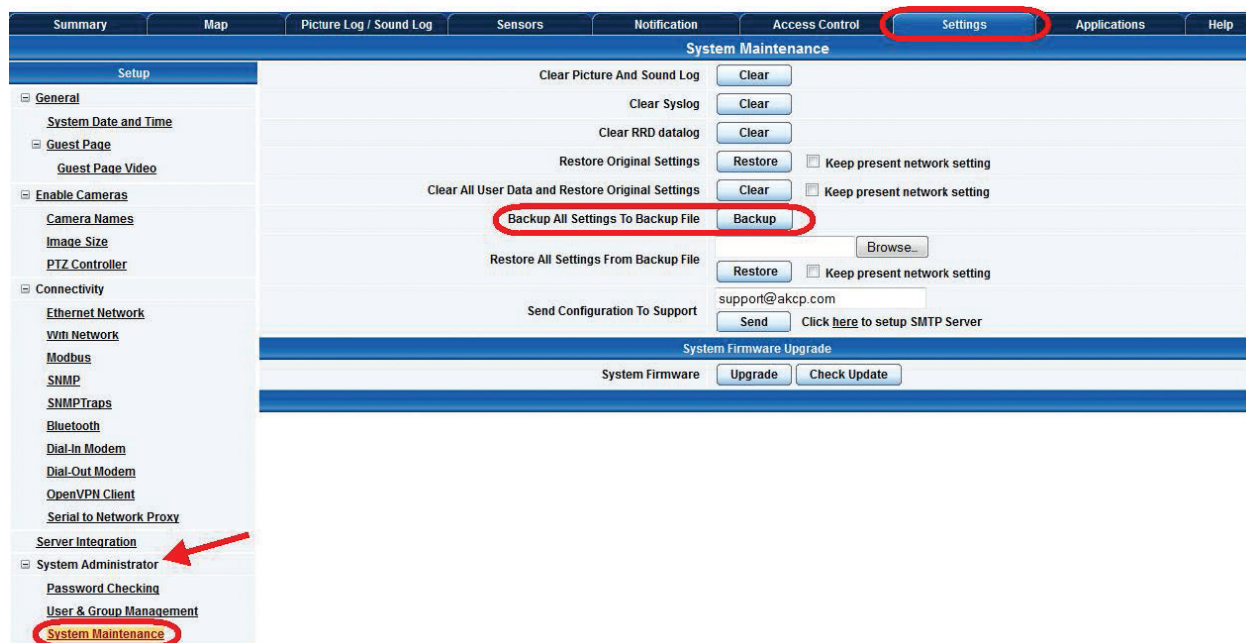


Figure 3-13.

To create your backup config file, you first need to log in to the unit as an Administrator. Then, navigate to the Settings page > System Administrator > System Maintenance and click on the "Backup" button as shown in the screen shot above.

You will then browse to where you would like to store the backup file on the PC, choose the Save button, then click on the OK button.

You can restore this or another backup file using the Restore All Settings From Backup File.

3.4 Multi-users and Groups Setup

3.4.1 Group Setup

1. Log in to the ServSensor V4E with the Administrator password. The default will be “public” if you have not changed this yet.
2. Click on the Settings page, then System Administrator, then User & Group Management as shown in Figure 3-14.

NOTE: The following screen diagrams may appear small and hard to read. Please use the zoom feature in your PDF reader program to increase the size of the page to better view these screen diagrams.

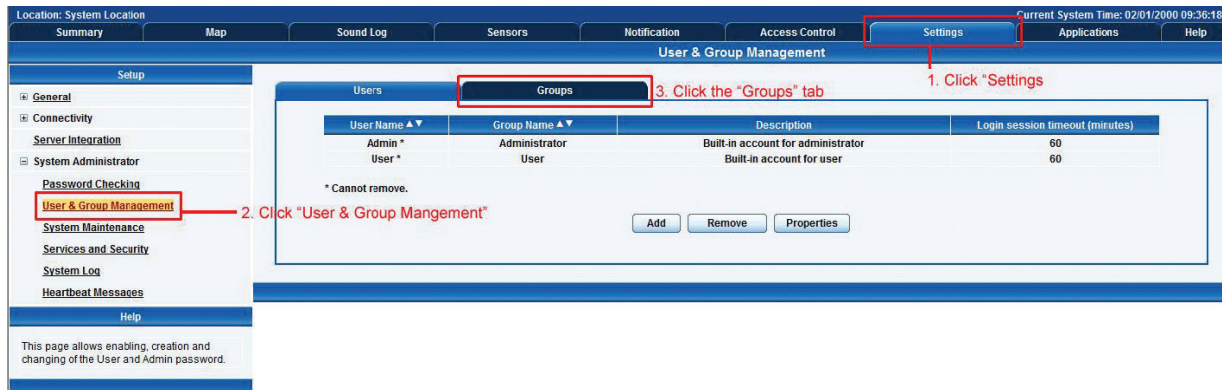


Figure 3-14. Group setup screen.

3. Click on the “Go to Group Setup” link that will take you to the Groups page shown in Figure 3-15.

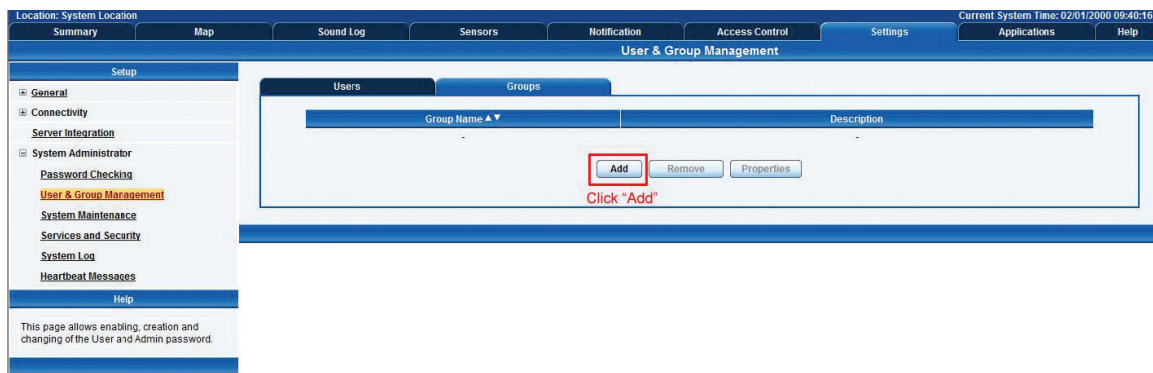


Figure 3-15. Add button.

4. Click on the “Add” button to add your groups as shown in Figure 3-15.

5

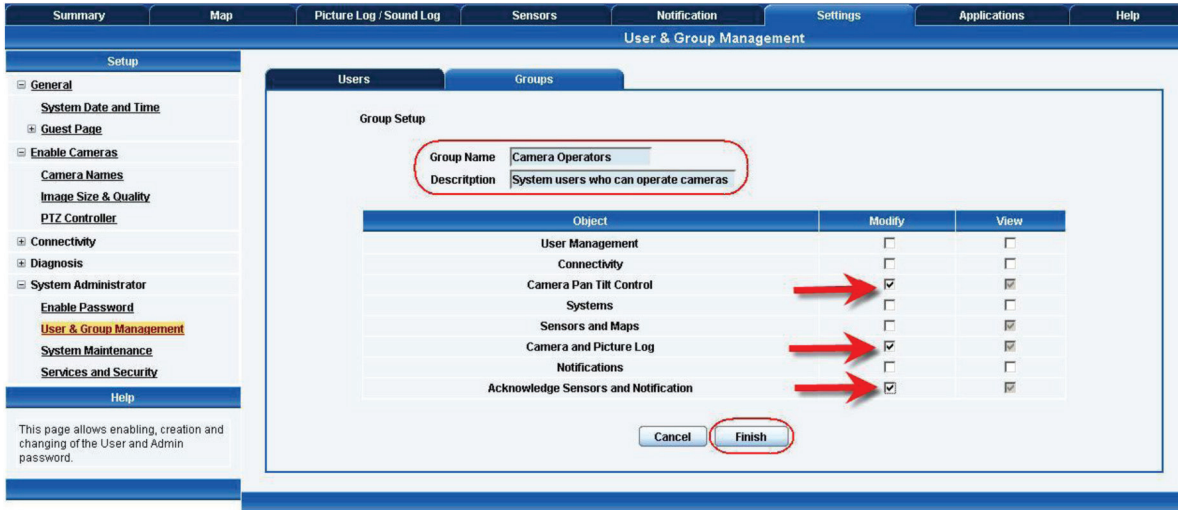


Figure 3-16. User & Group Management screen.

5. Enter your group name. For example, we have added a group called “Camera Operators” and entered our description.
6. Check the objects with the Web interface that this group will be able to Modify and View. Then, click the “Finish” button to save your group.

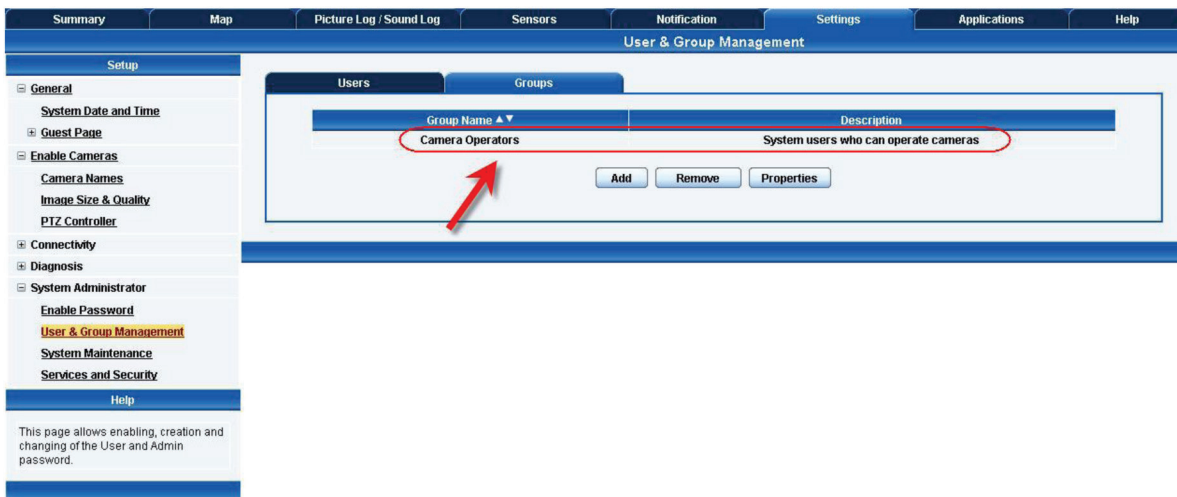


Figure 3-17. Camera Operators group added.

7. The new group “Camera Operators” has been added to our group list as shown in Figure 3-17.

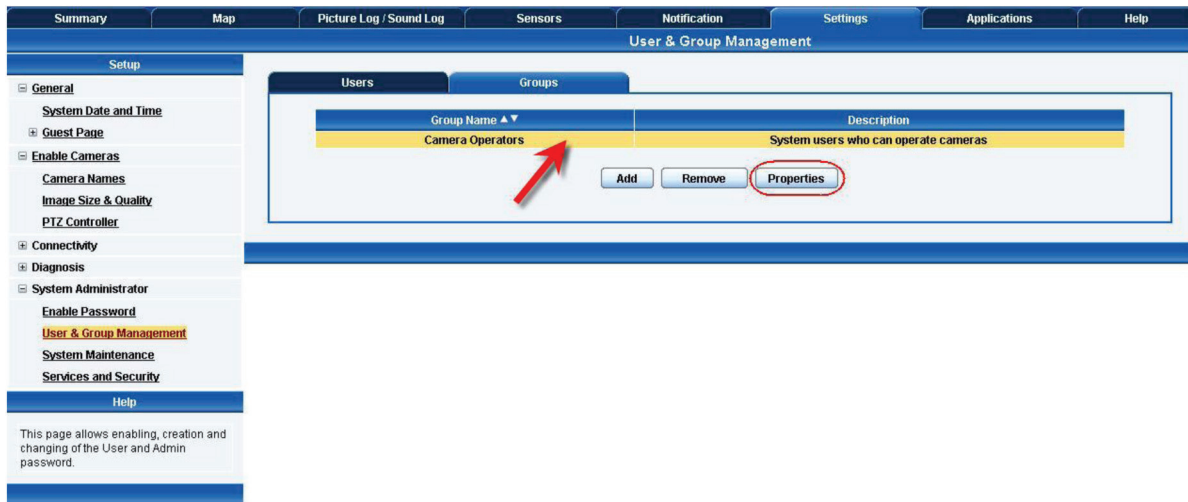


Figure 3-18. User & Group Management screen.

8. If you want to modify your group settings, click on the group you want to modify. Then click on the “Properties” button as shown in Figure 3-18.

3.4.2 User Setup

1. Click on the “Users” tab and then click the “Add” button to add the new users to your groups as shown in Figure 3-19.

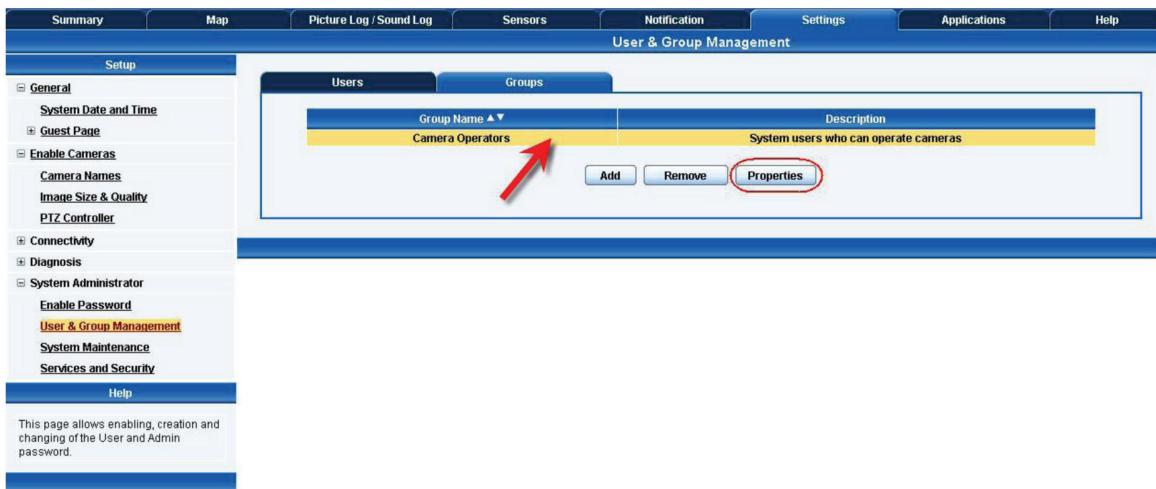


Figure 3-19. User setup screen.

Chapter 3: Installation

2. Enter your user details as shown in Figure 3-20. In our example, we have entered Bob Smith as your camera operator #1 into our "Camera Operators" group. We have also added the option so that this user cannot change his login password. After adding your users for each group, click the "Finish" button to save each user.

The screenshot shows the 'User & Group Management' interface. On the left is a navigation menu with categories like 'General', 'Connectivity', and 'System Administrator'. The 'User & Group Management' option is highlighted. The main area is titled 'User Setup' and contains a 'User Details' form. The form has the following fields: 'User Name' (Bob), 'Password' (***), 'Confirm Password' (***), 'Description' (Bob Smith - Camera Operator #1), and 'Member of Group' (Camera Operators). A checkbox labeled 'User Cannot Change Password' is checked. At the bottom of the form are 'Cancel' and 'Finish' buttons. Red arrows point to the 'User Name' field, the 'User Cannot Change Password' checkbox, and the 'Finish' button.

Figure 3-20. Enter user details.

3. The new user has been entered into our list of users.

The screenshot shows the 'User & Group Management' interface with the 'Users' tab selected. A table lists the users:

User Name	Group	Description
Admin *	Administrator	Built-in account for administrator
User *	User	Built-in account for user
Bob	Camera Operators	Bob Smith - Camera Operator #1

Below the table are 'Add', 'Remove', and 'Properties' buttons. A red arrow points to the 'Bob' row, which is circled in red. A note below the table says '* Cannot remove.'

Figure 3-21. User list.

4. To modify a user's setting, click on the user to select it, then click the "Properties" button as shown in Figure 3-22.

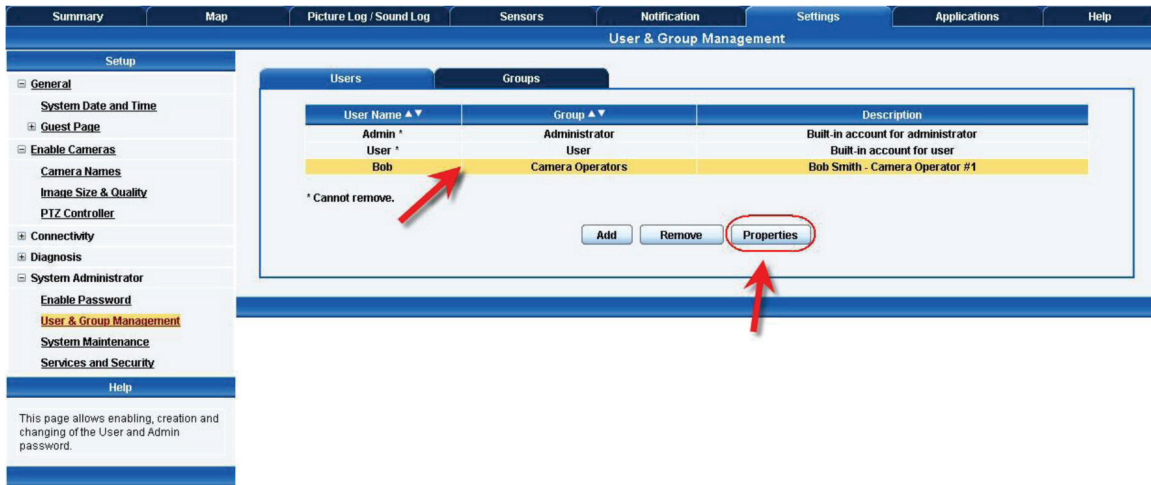


Figure 3-22. Properties button.

3.5 Services and Security

3.5.1 Active Services Application (disabling)

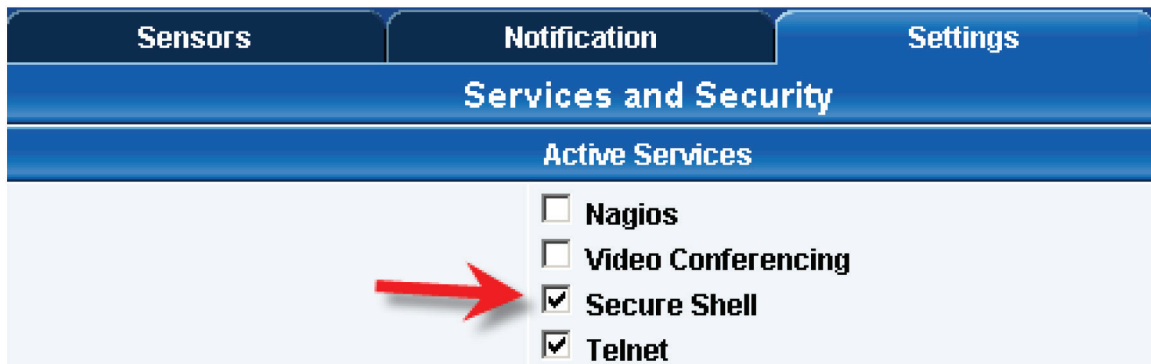


Figure 3-23. Services and Security screen.

You can enable or disable the Nagios, Video Conferencing, Secure Shell, and Telnet applications running on the unit to make it more secure.

3.5.2 Closing or Changing Ports Disabling HTTP and Enabling HTTPS

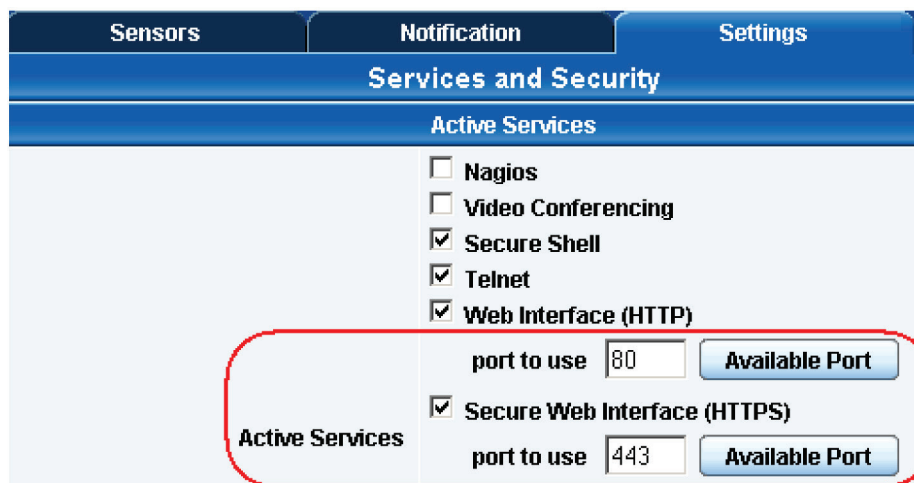


Figure 3-24. Active services.

You can also close or change the ports used to access the unit's Web interface, disable HTTP, and enable HTTPS only.

The "s" at the conclusion of HTTPS stands for secure. The SSL/TLS connection type is used primarily for high-value sites or "pages," to make it more likely to be unreadable to someone at the end points.

The traffic between client and the ServSensor V4E is not cached along the various units as it moves across the Internet, so it can't be accessed by someone after the connection is terminated.

3.5.3 The SNMPv3 SSL Security Feature

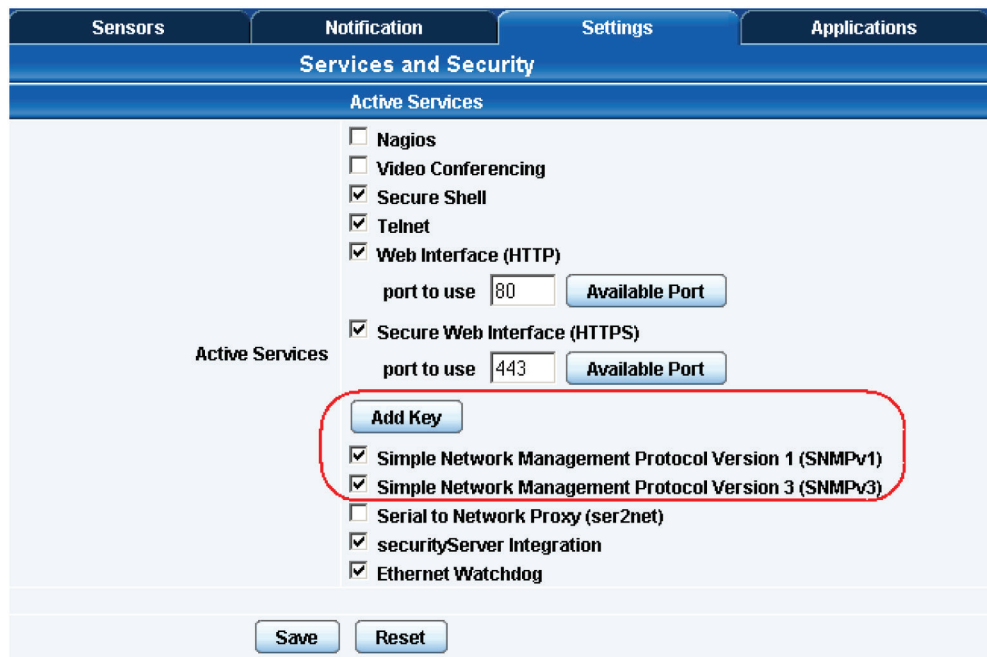


Figure 3-25. Add Key screen.

Use the SNMPv3 SSL (Secure Sockets Layer), which is the standard security technology for establishing the encrypted link between the ServSensor and the Web browser. The link ensures that all data passed between the ServSensor and the browser remains private and integral.

SNMPv3 provides important security features:

- Confidentiality—Encrypts packets to prevent snooping by an unauthorized source.
- Integrity—Message integrity to ensure that a packet has not been tampered with in transmit.
- Authentication—To verify that the message is from a valid source.

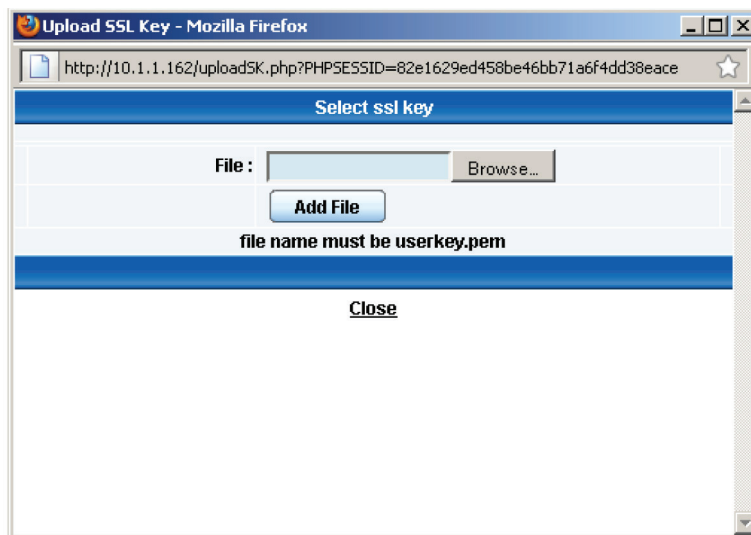


Figure 3-26. Select SSL Key screen.

3.5.4 Active Security

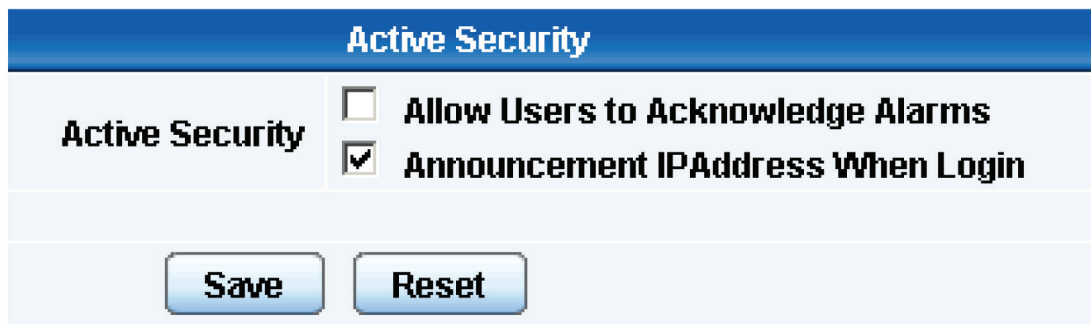


Figure 3-27. Network Access Control screen.

In the active security section, you can enable users who are logged into the unit's Web interface to "Acknowledge" alarms, which is normally reserved only for the Administrator.

When the unit boots up, it will announce the IP address that it has been configured with. As an added security feature, this announcement can be disabled so that the IP address remains unknown.

3.5.5 The NAC or Network Access Control Security Feature

The NAC or Network Access Control feature enables you to restrict access to the Web interface for only certain IP addresses, or deny access to the Web interface for only certain IP addresses.

Network Access Control	
Network Access Control	<input type="radio"/> Off <input checked="" type="radio"/> On
Access Policy	<input checked="" type="radio"/> Only allow access to the host below <input type="radio"/> Only deny access to the host below
Allow List	<div style="border: 1px solid #ccc; padding: 2px;">Address</div> <div style="border: 1px solid #ccc; height: 20px; margin-top: 5px;"></div> <div style="text-align: right; margin-top: 5px;"><input type="button" value="Add"/></div>
<input type="button" value="Save"/> <input type="button" value="Reset"/>	

Figure 3-28. NAC security screen.

3.6 Setting Up a Sensor

This section describes the basic setup of a sensor, using a Black Box temperature sensor as an example. If you require information on specific functions of a particular sensor, then download the manual for that sensor from our Web site, www.blackbox.com.

1. Plug the sensor into one of the RJ-45 “intelligent sensor ports” on the ServSensor’s rear panel. In this example, we will use Port 1. See Figure 3-29.

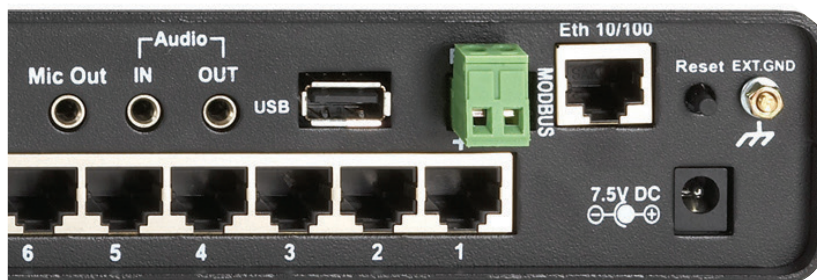


Figure 3-29. Intelligent sensor Port 1.

2. Point your browser to the ServSensor's IP address (the default is 192.168.0.100). Log in as the administrator using your administrator password (the default is "public"). You will then be taken to the summary page shown in Figure 3-30.

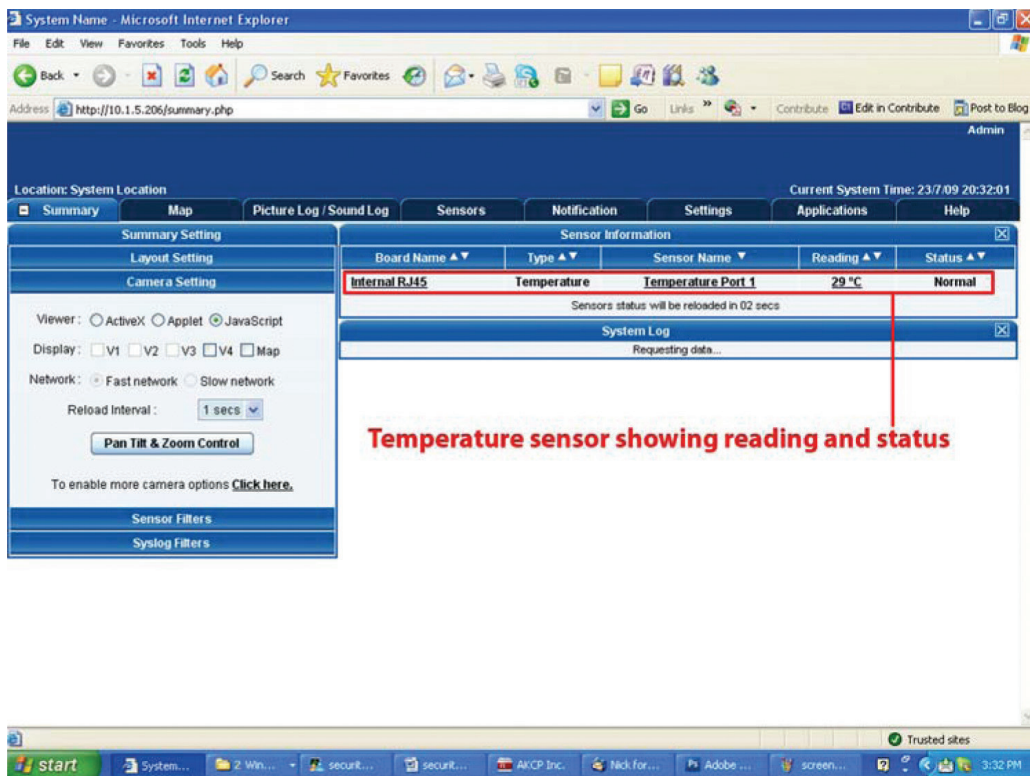


Figure 3-30. Summary page.

The temperature sensor should be listed, along with its current reading and status. If this is not shown, go to Chapter 9.

This summary page enables you to quickly see which sensors are connected and their status, view the system log, and also view footage from any connected cameras. Next are some of the tools the Web-based interface provides for getting feedback from the sensors.

Chapter 3: Installation

3. Click on the temperature sensor's name (indicated in Figure 3-29). This will bring you to Figure 3-31, the Sensors page.

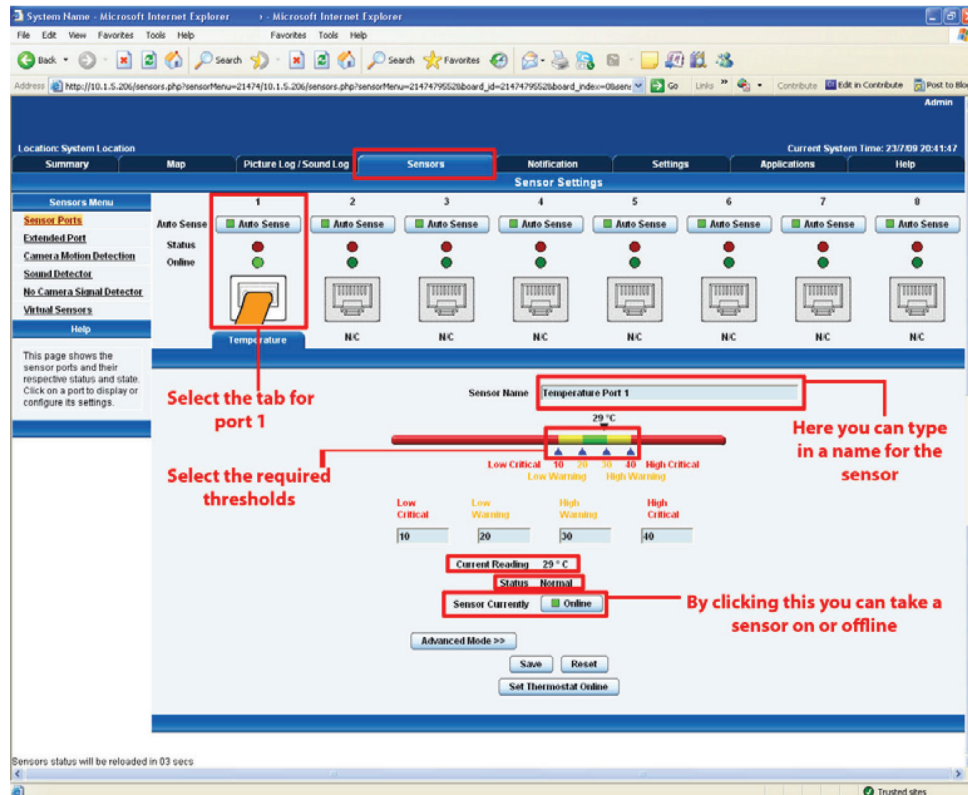


Figure 3-31. Sensors page.

NOTE: Another way to access this page is to click on the "Sensors" tab at the top of the page.

3.6.1 Notification Thresholds

From this page, you can carry out various operations as indicated above. You can also view the current status (normal, low critical, high critical, etc). In Figure 3-30, the sensor indicates a temperature of 29° C and a status of Normal. If you click on the blue marker arrow next to the "Set the required threshold" label (shown in Figure 3-31), you can drag this marker to re-configure the thresholds. After dragging the marker, click "Save." In Figure 3-31, you can see that this marker has been moved to make a new threshold, and the sensor status has changed along with it.

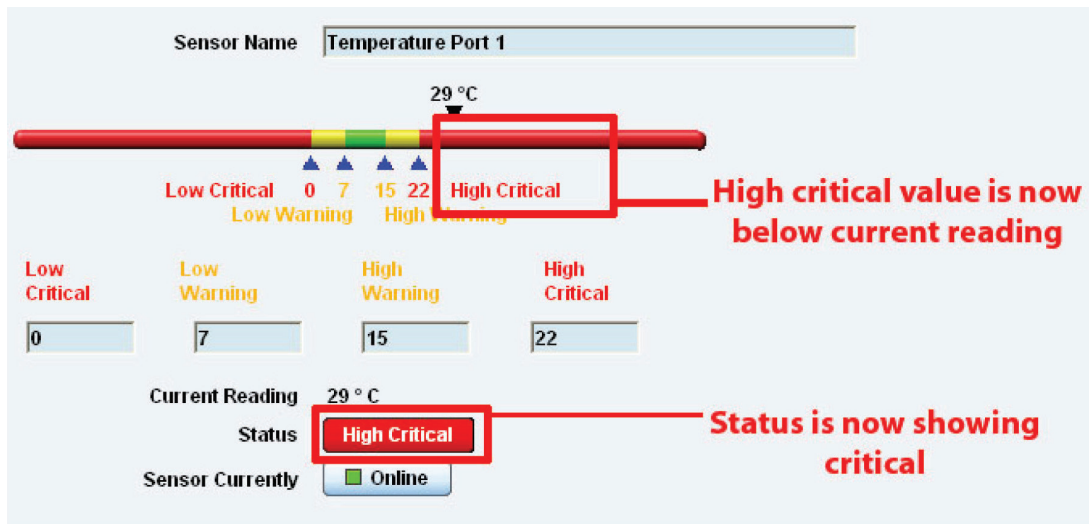


Figure 3-32. High critical status shown.

If the marker is then dragged back above the current temperature reading, the status should return to a normal condition again.

NOTE: If this does not happen right away, press the browser's refresh button.

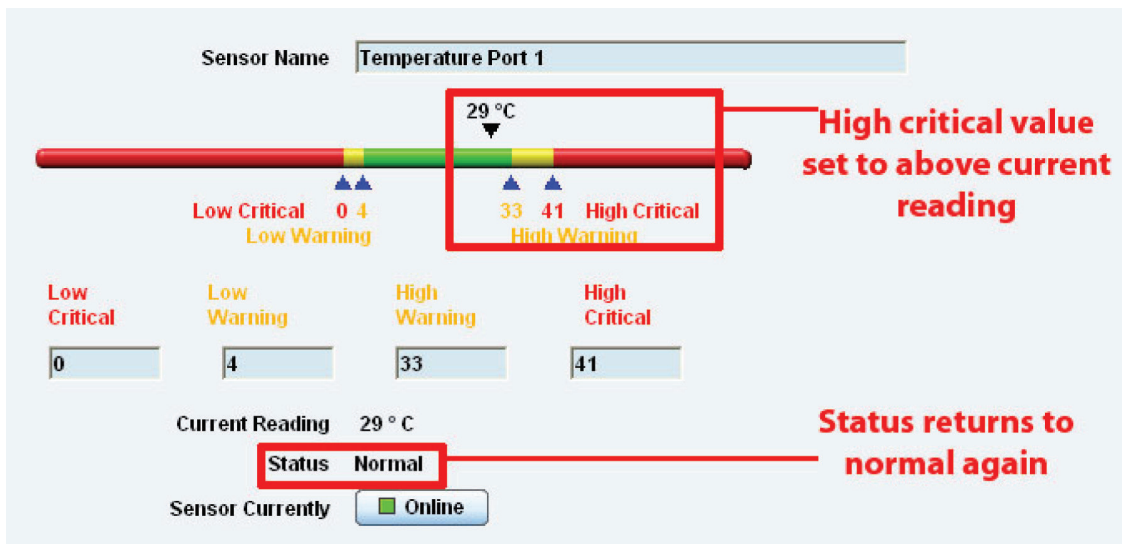


Figure 3-33. Normal status indicated.

If you want to take a sensor offline, then click on the "sensor currently" button. This will place the sensor offline and you won't have to physically unplug it. See Figure 3-33.



Figure 3-34. Sensor Online/Offline screen.

Your page will look similar to Figure 3-35 after you take the sensor offline.

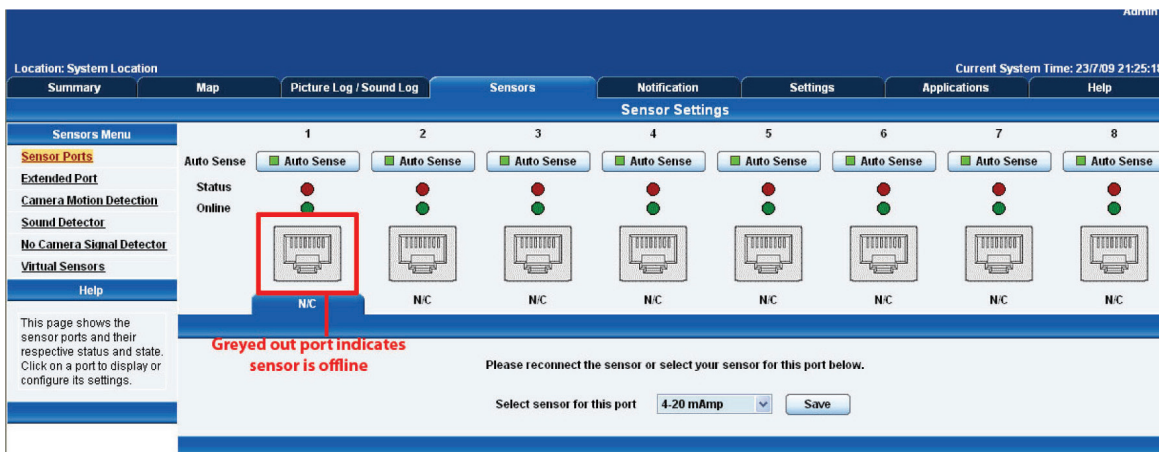


Figure 3-35. Sensor Offline screen.

To bring a sensor back online, select the type from the drop-down menu and click “Save.” See Figure 3-36.

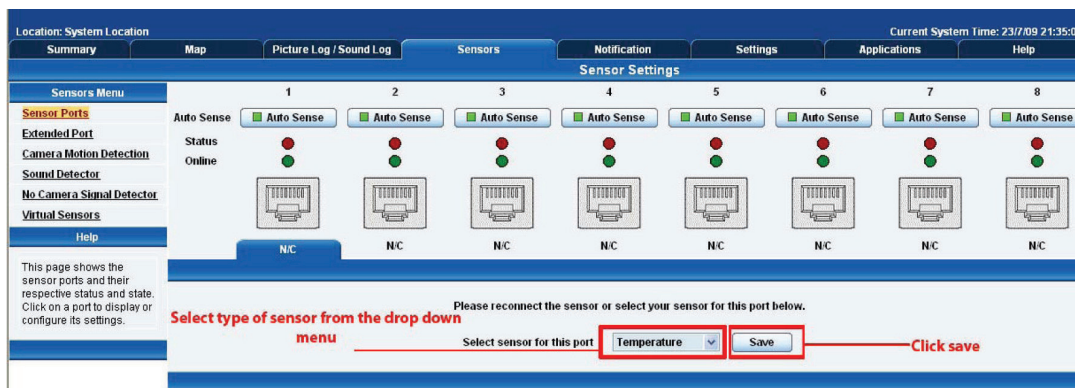


Figure 3-36. Select Sensor Type screen.

3.6.2 Advanced Sensor Settings

Near the bottom of the sensors page, you will see the Advanced Mode button (shown at right).



Click on this button to get the options shown in Figure 3-37.

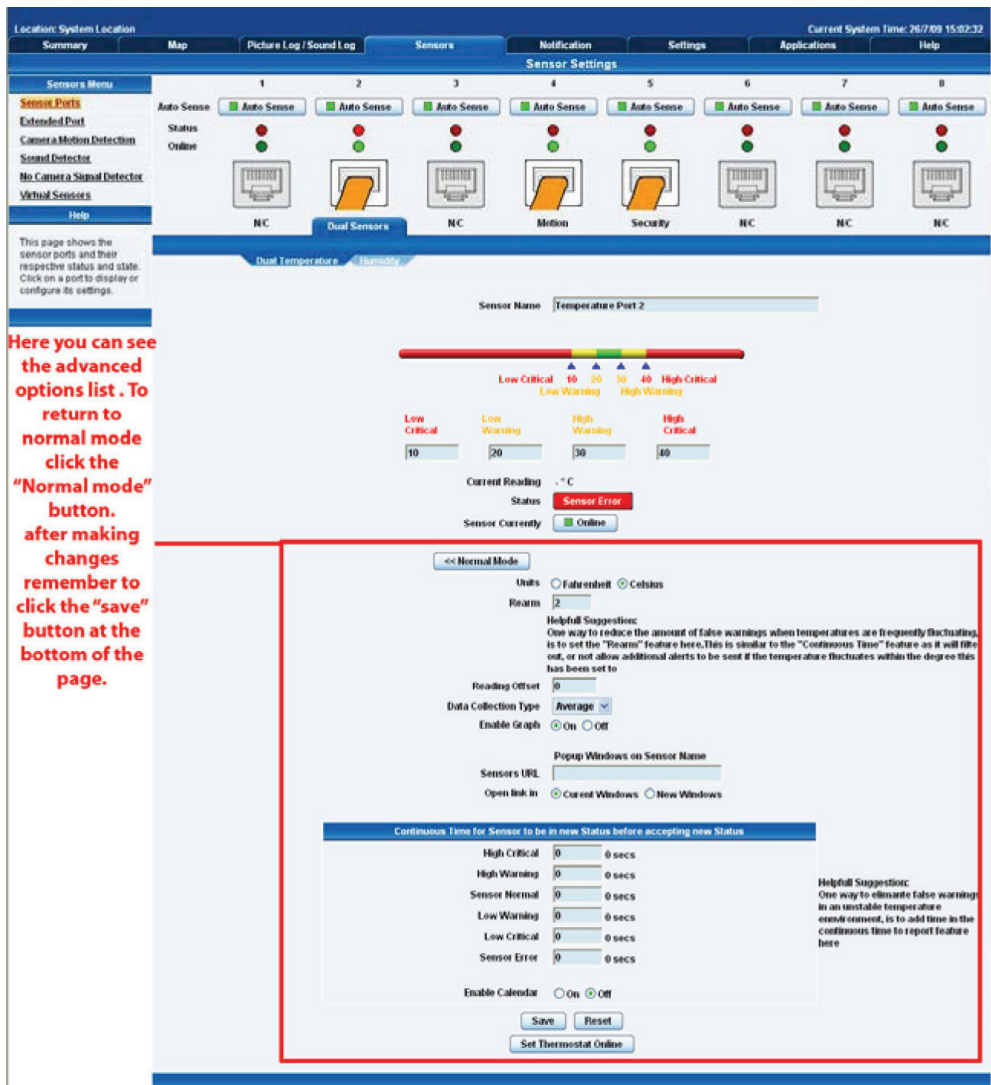
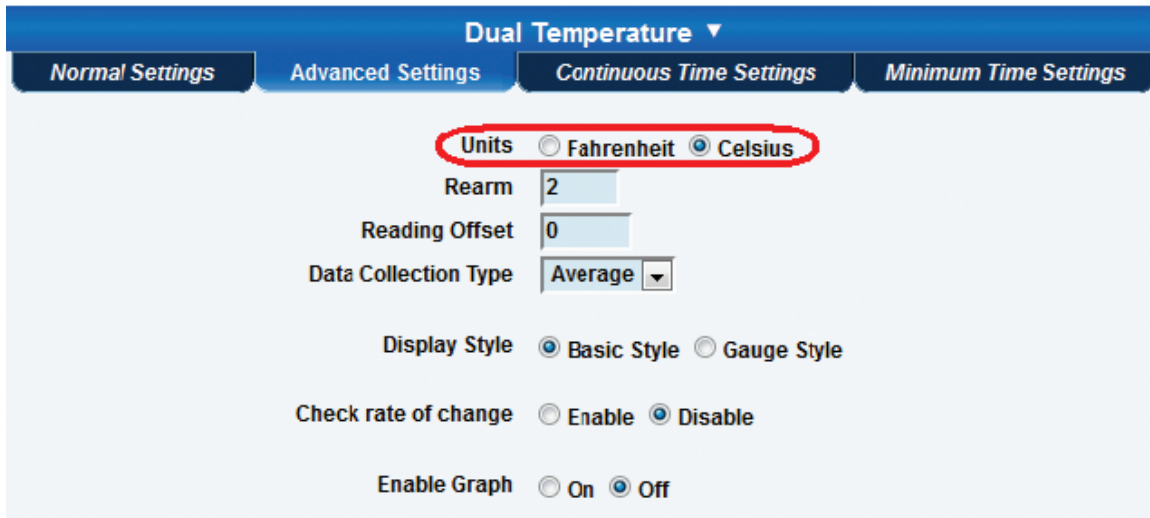


Figure 3-37. Advanced sensor screen.

Chapter 3: Installation

Advanced Mode Functions:



Dual Temperature ▾

Normal Settings **Advanced Settings** *Continuous Time Settings* *Minimum Time Settings*

Units Fahrenheit Celsius

Rearm

Reading Offset

Data Collection Type

Display Style Basic Style Gauge Style

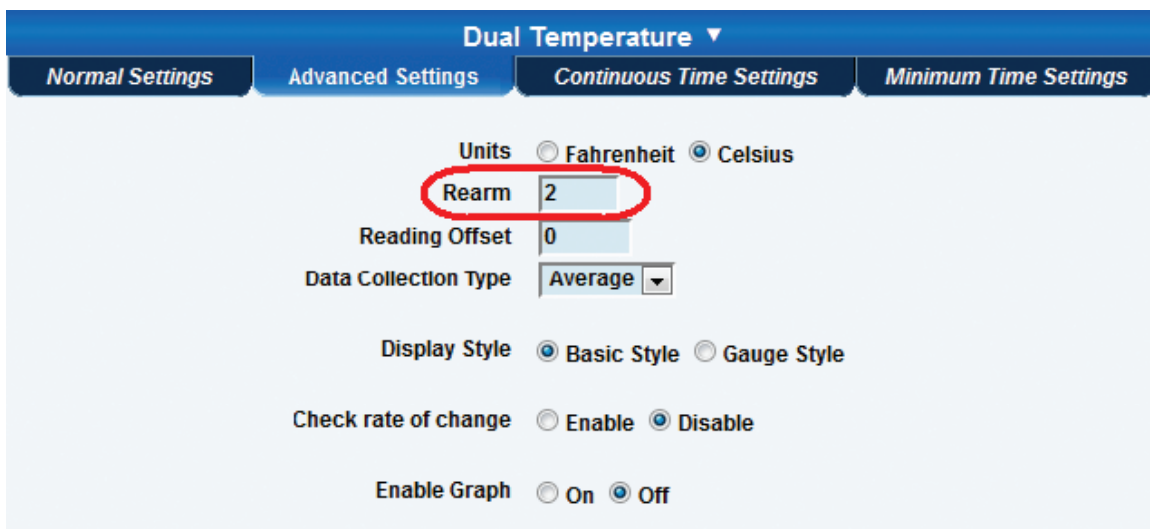
Check rate of change Enable Disable

Enable Graph On Off

Figure 3-38.

Units: Changes units from C to F or vice versa

Rearm:



Dual Temperature ▾

Normal Settings **Advanced Settings** *Continuous Time Settings* *Minimum Time Settings*

Units Fahrenheit Celsius

Rearm

Reading Offset

Data Collection Type

Display Style Basic Style Gauge Style

Check rate of change Enable Disable

Enable Graph On Off

Figure 3-39.

The Rearm parameter is useful for sensors, such as the temperature and humidity sensors, since their values can vary.

This prevents the sensor from flickering between two states. For example, if the Warning High threshold for the temperature sensor is set to 80 degrees, and the sensor temperature varies between 79 and 80, you might receive a very large number of e-mails, traps, and events logged. The Rearm parameter prevents this by forcing the temperature to drop by the Rearm value before changing the state back to normal. In this example, if Rearm is set to 2, then the sensor would have to drop from 80 down to 77 before the status would change from Warning High back to normal.

Reading offset:

The image shows a settings interface for 'Dual Temperature'. At the top, there are four tabs: 'Normal Settings', 'Advanced Settings', 'Continuous Time Settings', and 'Minimum Time Settings'. The 'Advanced Settings' tab is selected. Below the tabs, there are several settings:

- Units:** Radio buttons for 'Fahrenheit' and 'Celsius'. 'Celsius' is selected.
- Rearm:** A text input field containing the number '2'.
- Reading Offset:** A text input field containing the number '0', which is circled in red.
- Data Collection type:** A dropdown menu showing 'Average'.
- Display Style:** Radio buttons for 'Basic Style' and 'Gauge Style'. 'Basic Style' is selected.
- Check rate of change:** Radio buttons for 'Enable' and 'Disable'. 'Disable' is selected.
- Enable Graph:** Radio buttons for 'On' and 'Off'. 'Off' is selected.

Figure 3-40.

The Reading Offset is a calibration tool. If you want to calibrate the temperature sensor, for example, you could enter an offset value of 5. This means that if the sensor reads 20 degrees then it would record as 25 degrees. This figure can also be a minus figure (for example, -5 would show 15 degrees instead of 20).

Chapter 3: Installation

Data Collection Type:

The screenshot shows the 'Dual Temperature' settings interface. At the top, there are four tabs: 'Normal Settings', 'Advanced Settings', 'Continuous Time Settings', and 'Minimum Time Settings'. The 'Advanced Settings' tab is selected. Below the tabs, there are several settings:

- Units:** Radio buttons for 'Fahrenheit' and 'Celsius', with 'Celsius' selected.
- Rearm:** A text input field containing the number '2'.
- Reading Offset:** A text input field containing the number '0'.
- Data Collection Type:** A dropdown menu with 'Average' selected. This dropdown is circled in red.
- Display Style:** Radio buttons for 'Basic Style' and 'Gauge Style', with 'Basic Style' selected.
- Check rate of change:** Radio buttons for 'Enable' and 'Disable', with 'Disable' selected.
- Enable Graph:** Radio buttons for 'On' and 'Off', with 'Off' selected.
- Popup Windows on Sensor Name:** A section header above a text input field.
- Sensors URL:** A text input field.
- Open link in:** Radio buttons for 'Current Windows' and 'New Windows', with 'Current Windows' selected.
- Filter Status:** Radio buttons for 'Enable' and 'Disable', with 'Enable' selected.
- Enable Calendar:** Radio buttons for 'On' and 'Off', with 'Off' selected.

At the bottom of the settings area, there are three buttons: 'Save', 'Reset', and 'Set Thermostat Online'.

Figure 3-41.

Data Collection Type refers to the data collection from the sensor and how the data is then displayed on the graphs.

There are three options for the collection of data. Average, Highest, and Lowest. The default setting is "Average."

When the data collection type is set to "Average," the output graphs for the daily, monthly, and yearly are the same size on the screen. For the daily graph, each data point on the graph is one data point collected from the sensor. But, for the monthly and yearly graph, in order to display more data into the same size as the daily graph, some consolidation on the data is needed. One data point on the monthly and yearly graph is an average of the sensor data in a range.

The maximum and minimum values showing on the monthly and yearly graphs are the value of this consolidated data and not the raw data over that period of that time.

When the Data Collection Type is set to the Highest setting, then you will get the graphing output displaying the sensors highest reading. This is the same for the Lowest setting.

Display Style:

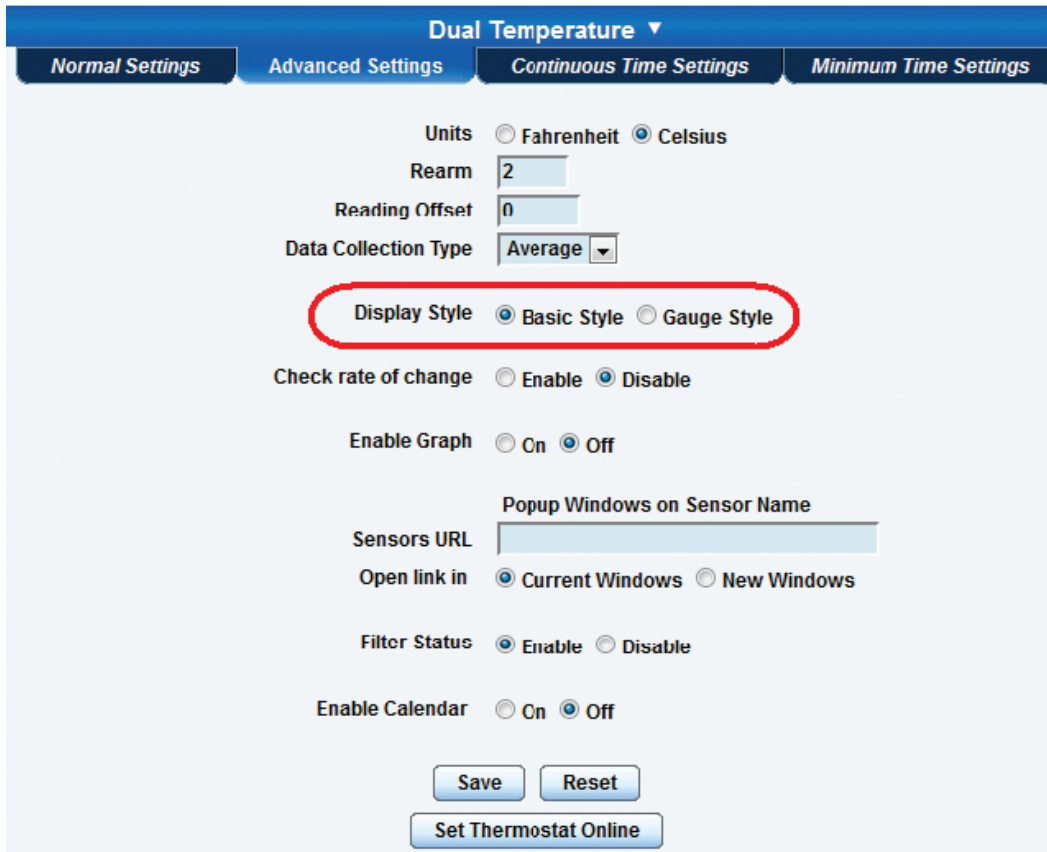


Figure 3-42.

You can keep the sensor's "Display Style" in the Web interface as the basic style (the slide bar style) or you can change it to the "Gauge Style" type.

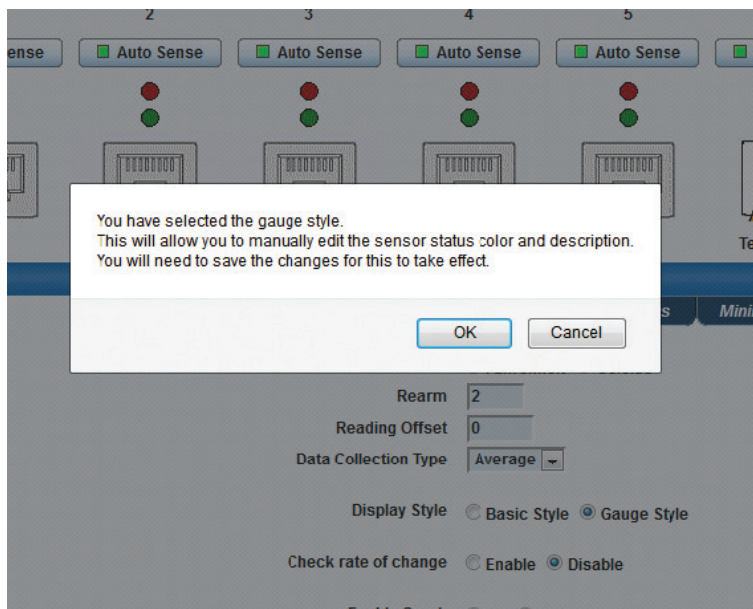


Figure 3-43.

When switching to the gauge style type, you will first be prompted with the popup dialog box shown above.

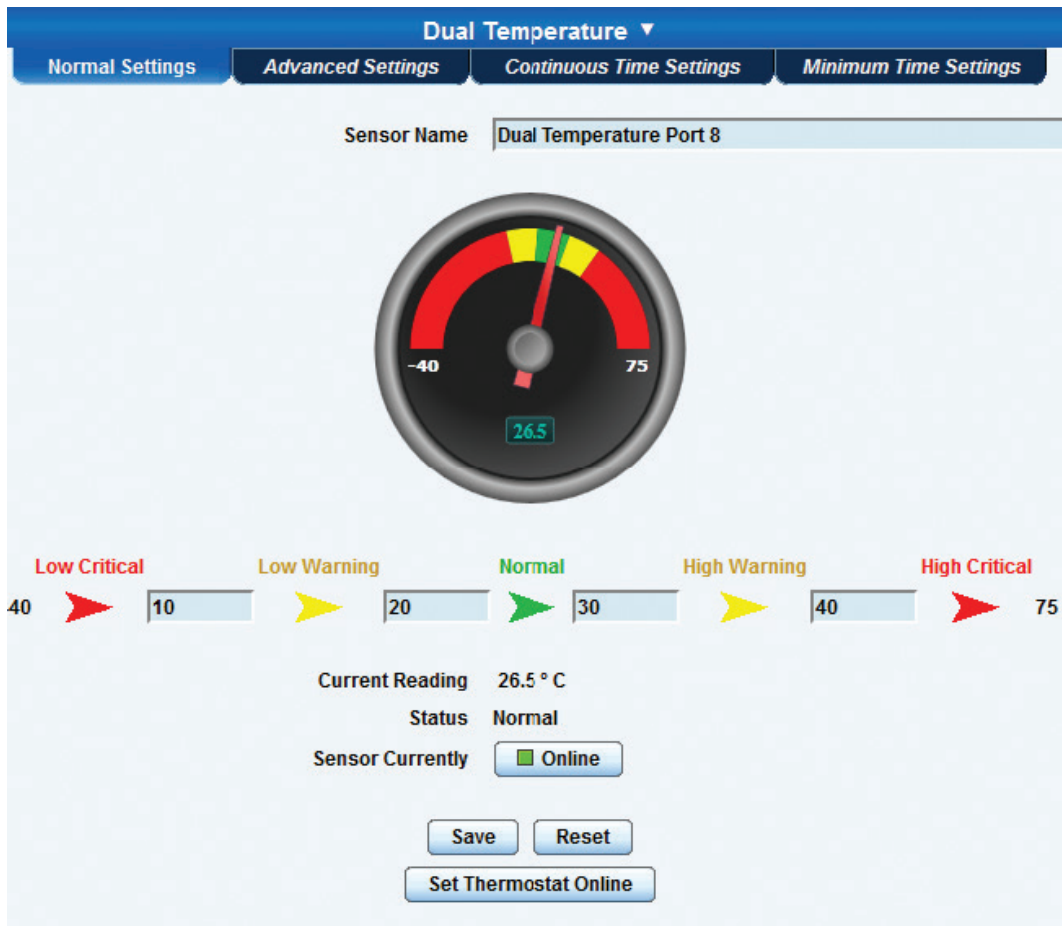


Figure 3-44.

You will now see the new display where you can set the sensor's threshold levels as shown above.

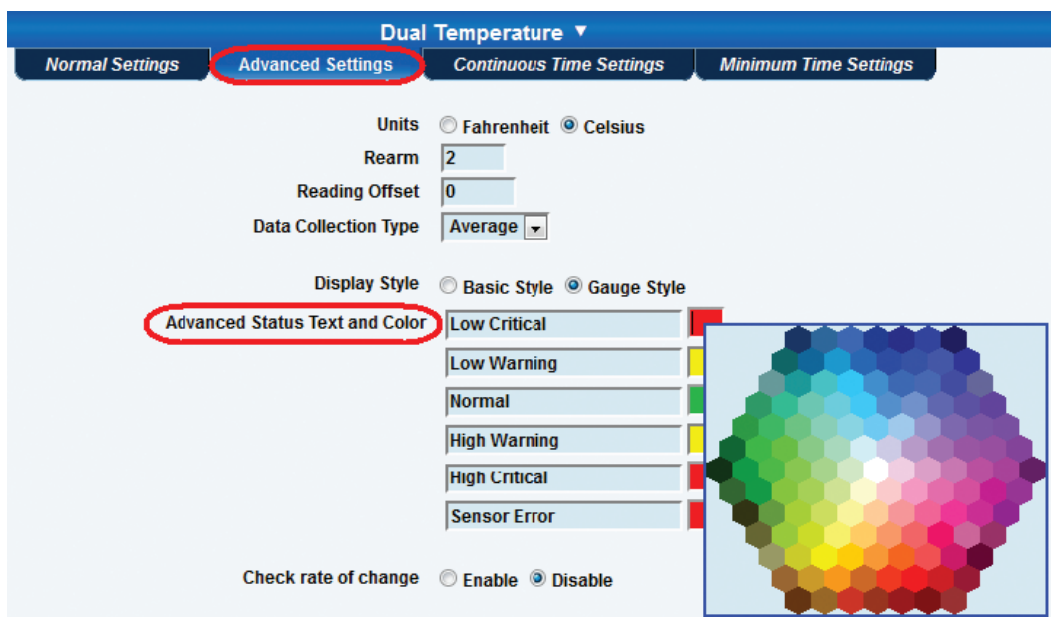
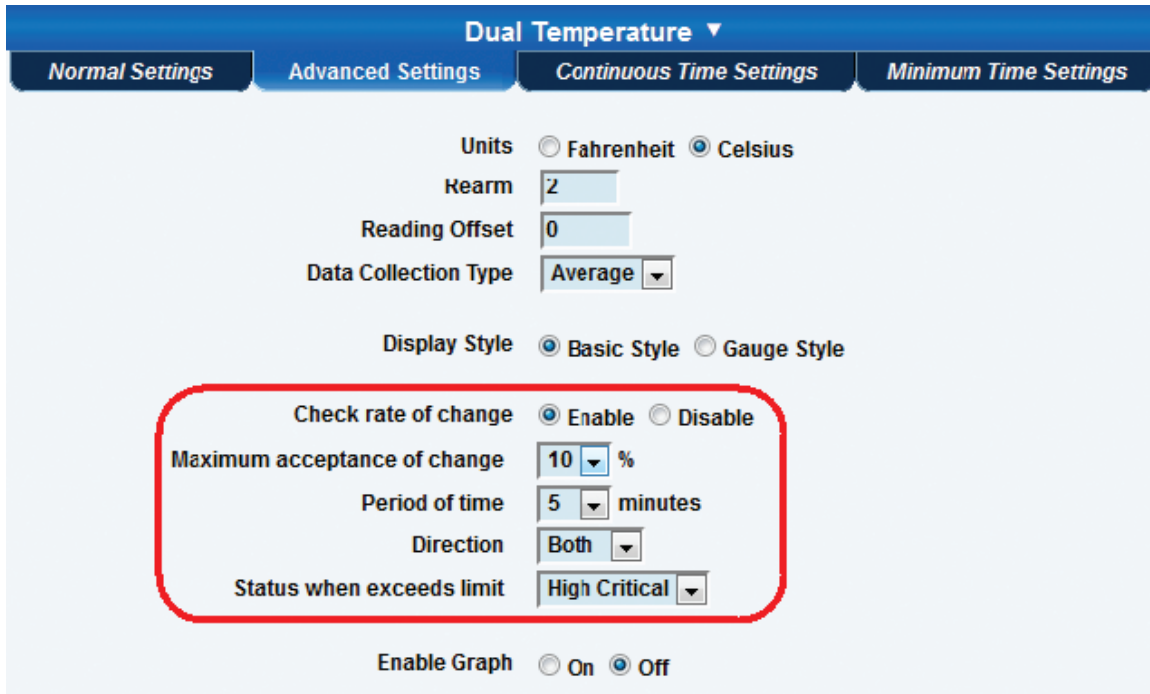


Figure 3-45.

After clicking on the “Advanced Settings” tab, you can change the text and colors for each sensor threshold as shown in the previous screen.

Check rate of change:



Dual Temperature ▾

Normal Settings | **Advanced Settings** | **Continuous Time Settings** | **Minimum Time Settings**

Units Fahrenheit Celsius

Rarm

Reading Offset

Data Collection Type

Display Style Basic Style Gauge Style

Check rate of change Enable Disable

Maximum acceptance of change %

Period of time minutes

Direction

Status when exceeds limit

Enable Graph On Off

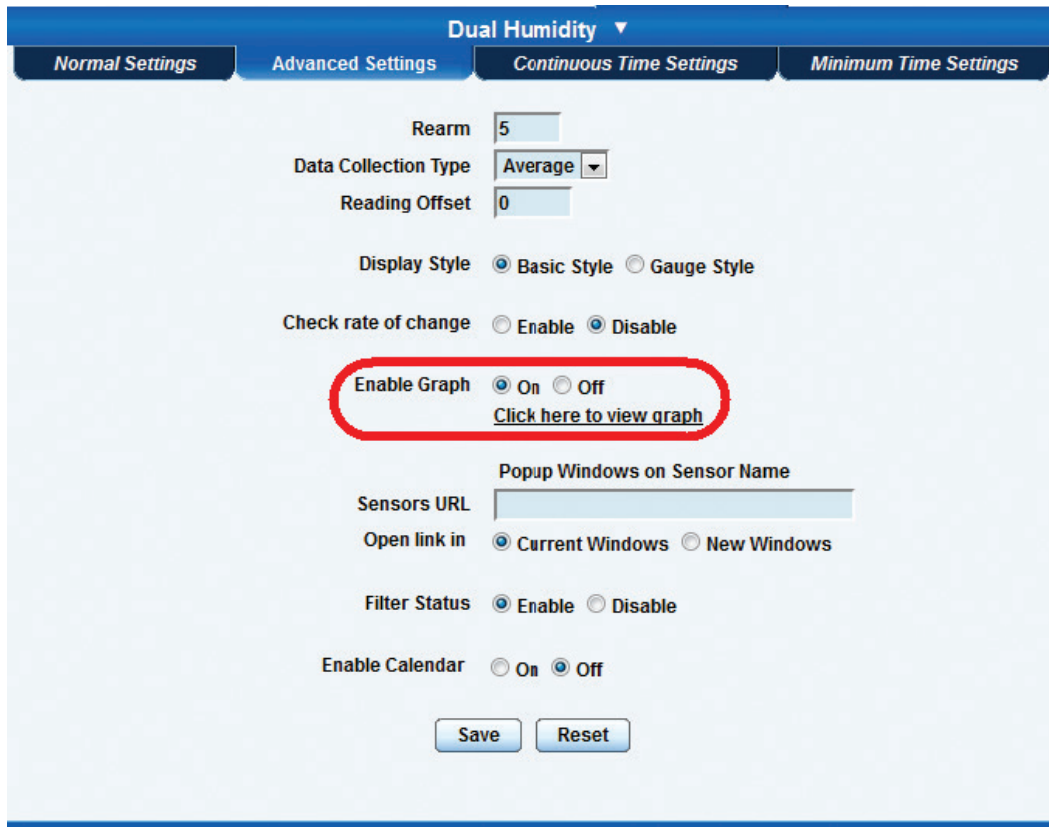
Figure 3-46.

When enabling the “check rate of change” feature for this sensor, you can set the rate in a percentage from 1% to 50% over a period of time from 1 to 20 minutes. You can set the direction to Up, Down, or Both and you can set the Status when the limit is exceeded to show either High Critical or Low Critical.

Now you can tie this sensor alert to any notification.

Chapter 3: Installation

Graphing Sensor Data:



The screenshot shows the 'Dual Humidity' settings page with four tabs: 'Normal Settings', 'Advanced Settings', 'Continuous Time Settings', and 'Minimum Time Settings'. The 'Advanced Settings' tab is active. The settings include:

- Rearm: 5
- Data Collection Type: Average
- Reading Offset: 0
- Display Style: Basic Style (selected), Gauge Style
- Check rate of change: Enable, Disable (selected)
- Enable Graph: On (selected), Off. A red circle highlights this section, and a link 'Click here to view graph' is visible below it.
- Popup Windows on Sensor Name: (empty field)
- Sensors URL: (empty field)
- Open link in: Current Windows (selected), New Windows
- Filter Status: Enable (selected), Disable
- Enable Calendar: On, Off (selected)

At the bottom, there are 'Save' and 'Reset' buttons.

Figure 3-47.

To save the data from the sensors on the ServSensor V4E, you will need to enable the Graphing feature on the unit. You need to change the Enable Graph to the On position and click on the Save button to enable the graphing.

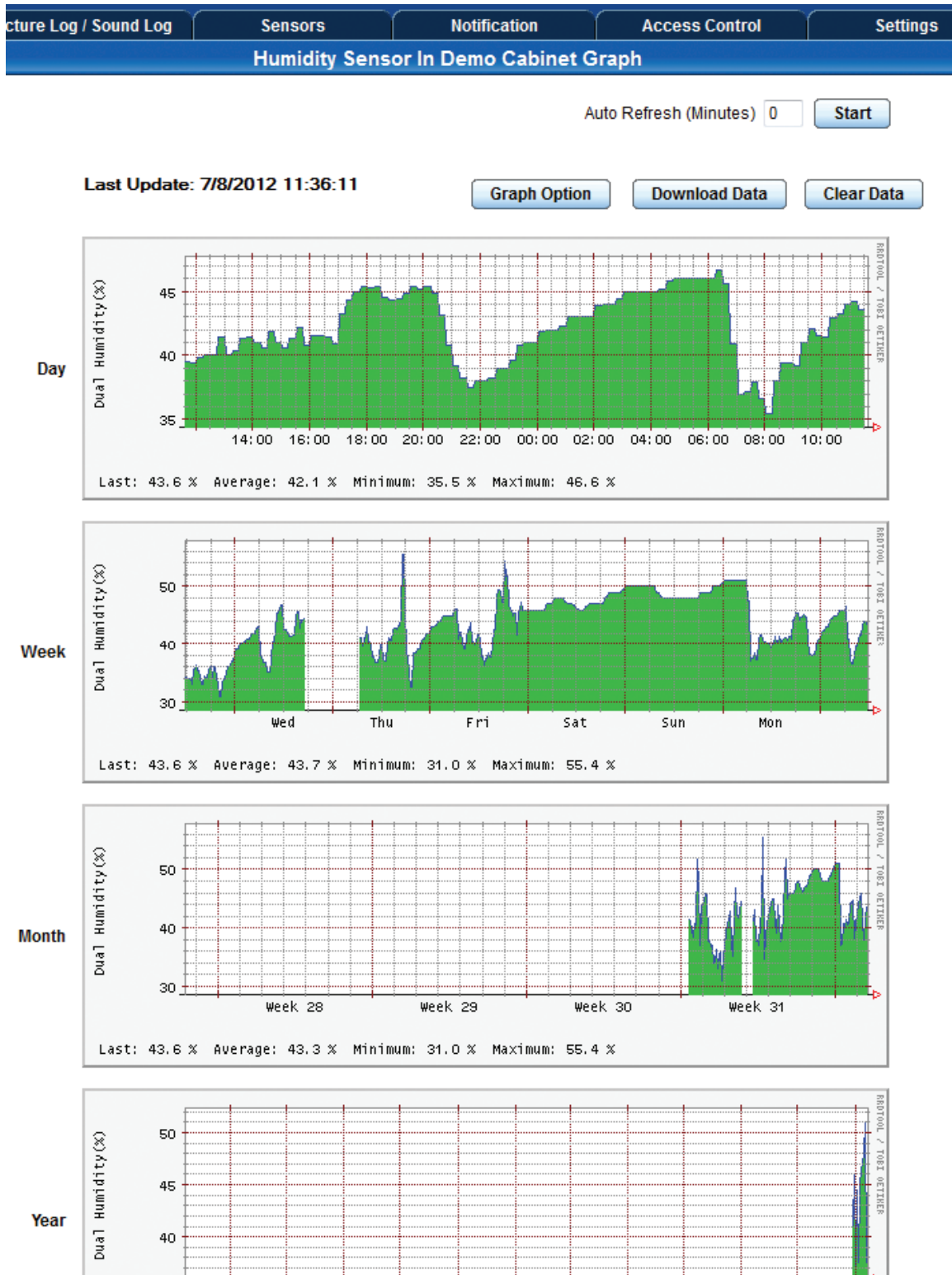


Figure 3-48.

After clicking on the "Click Here to View Graph" link shown in the screen shot on the previous page, you will then see the graphs for this sensor.

Chapter 3: Installation

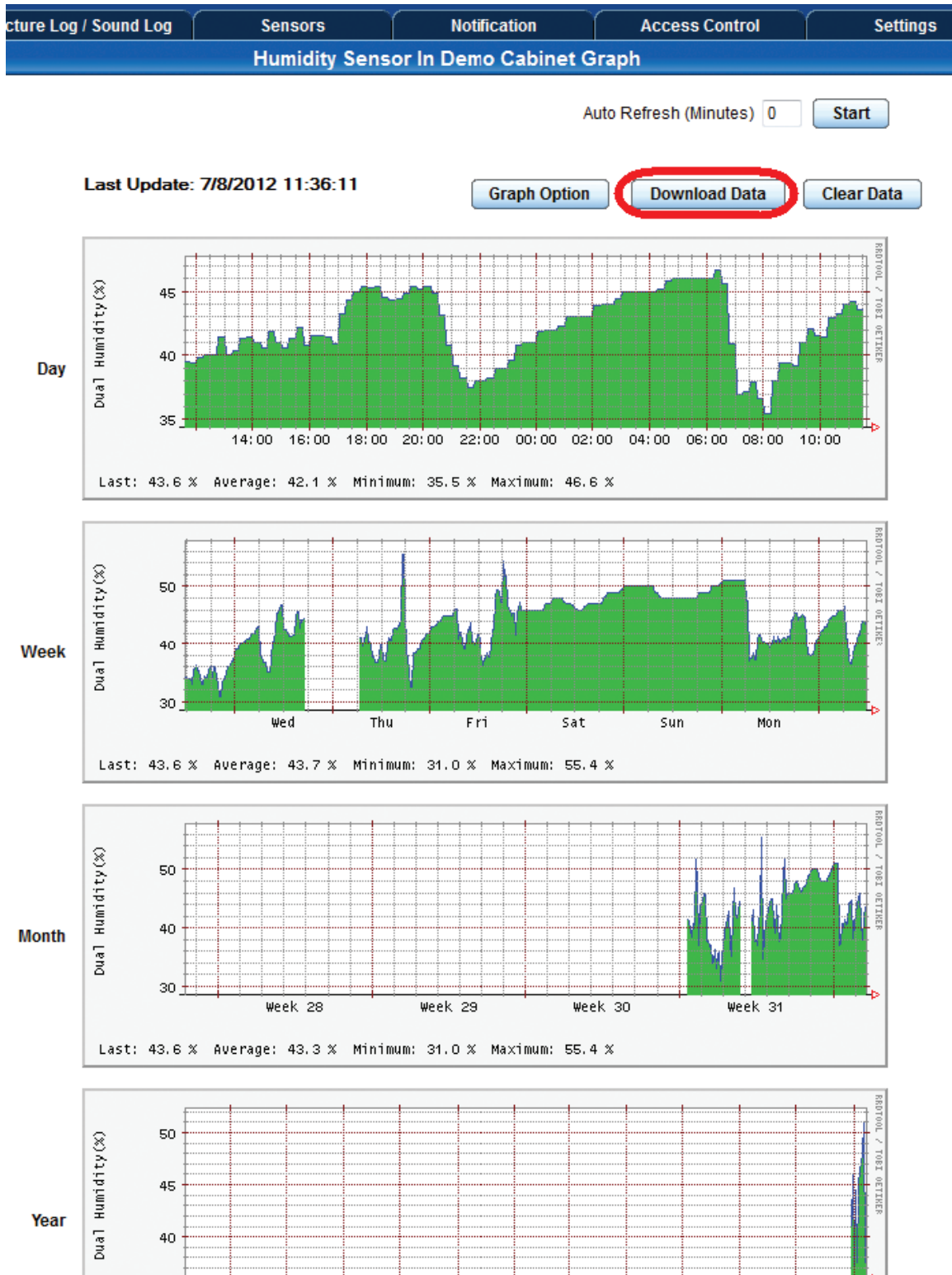


Figure 3-49.

You can download the sensor data to a text file by clicking on the "Download Data" button shown in the screen above.

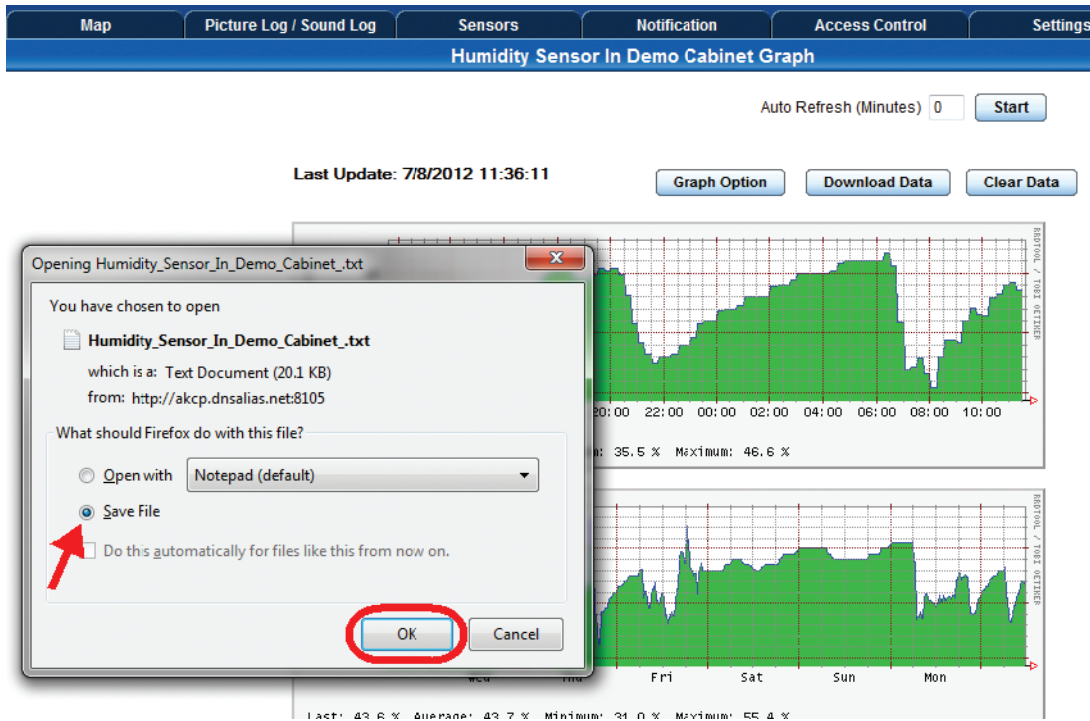


Figure 3-50.

The popup box will display as shown in the screen above.

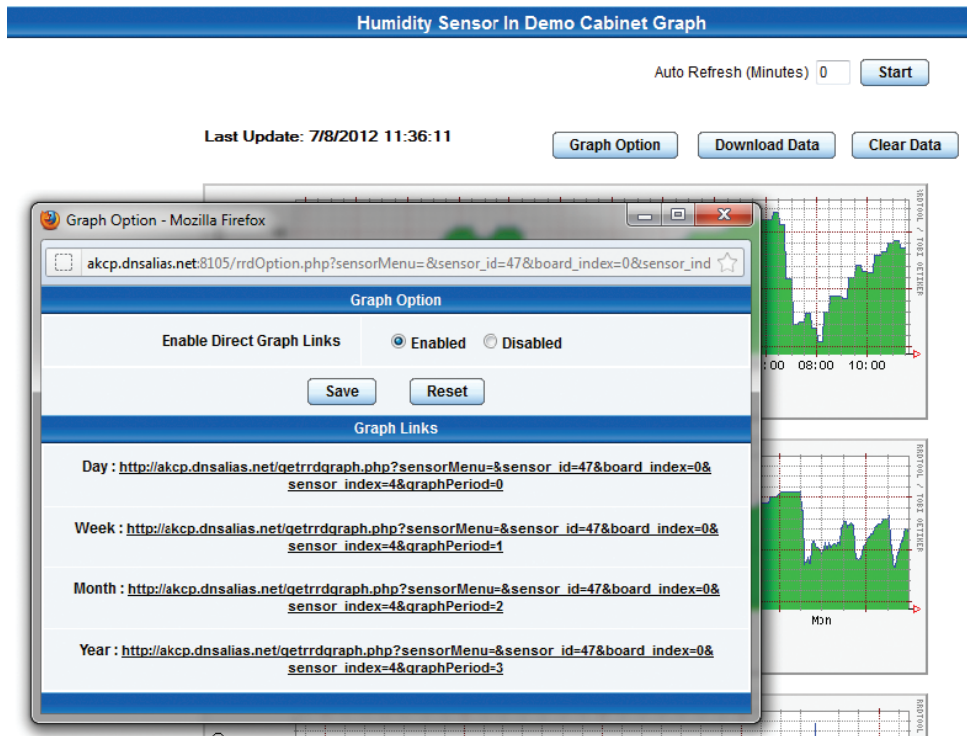


Figure 3-51.

You can also set the graph options by clicking on that button , then enabling the graphing page URLs as shown in the screen above.

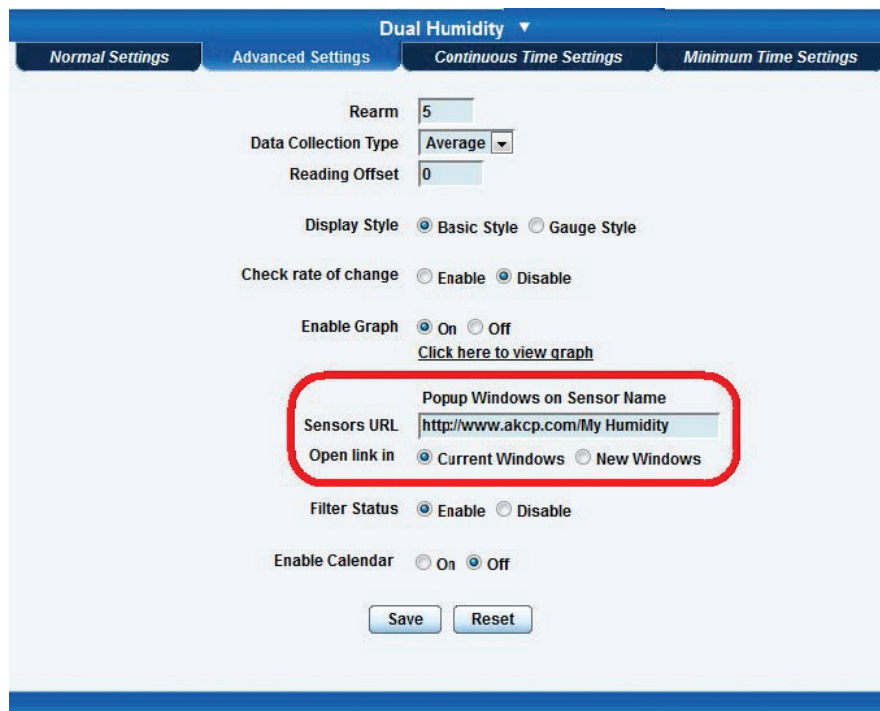


Figure 3-52.

The Sensors URL feature in the Advanced Settings tab is the optional Hyperlink URL for each sensor.

This feature allows you to add a Hyperlink to a sensor, then this link will be displayed in the ServSensor V4E 5E's mapping feature for that sensor (see the screen shot below).

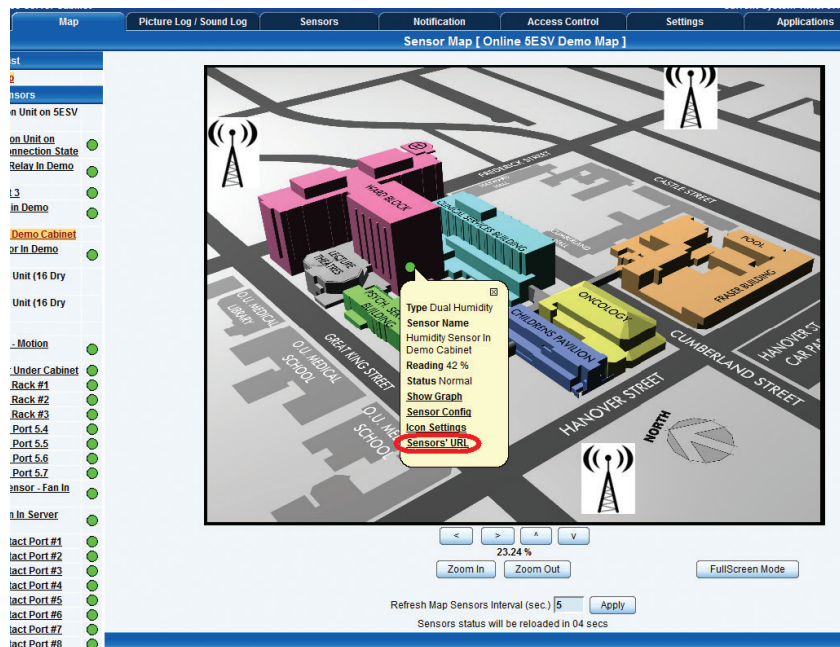


Figure 3-53.

The screenshot shows the 'Dual Humidity' configuration interface. At the top, there are four tabs: 'Normal Settings', 'Advanced Settings', 'Continuous Time Settings', and 'Minimum Time Settings'. The 'Advanced Settings' tab is selected. The settings are as follows:

- Rearm: 5
- Data Collection Type: Average
- Reading Offset: 0
- Display Style: Basic Style Gauge Style
- Check rate of change: Enable Disable
- Enable Graph: On Off
- Click here to view graph
- Popup Windows on Sensor Name
- Sensors URL: <http://www.akcp.com/My Humidity>
- Open link in: Current Windows New Windows
- Filter Status: Enable Disable** (highlighted with a red circle)
- Enable Calendar: On Off

At the bottom, there are 'Save' and 'Reset' buttons.

Figure 3-54.

The Sensor Filter Status is a feature that you can Enable or Disable. If the status of the sensor changes very rapidly, then it will report how many times the sensor status changed, instead of having 36 separate entries in the syslog entry. This reduces writing to the flash and improves performance.

Chapter 3: Installation

Enable Calendar: If you select this option then the following will be displayed:

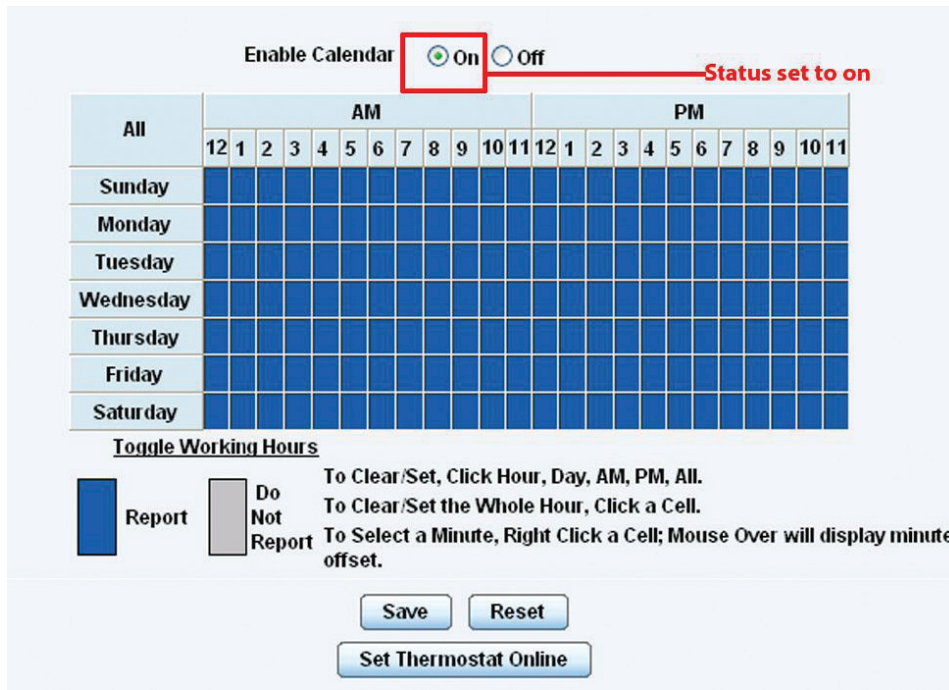


Figure 3-55.

In our example, we monitor an office building between the hours of 7 PM–9 AM, Monday–Friday only. In this picture, we have selected the “Do Not Report” option for the hours that we do not wish to receive any notifications for or have any events logged. You change the status of that time frame (Report / Do Not Report) by simply clicking on the square. This will change it from blue to gray; a second click will return it to blue.

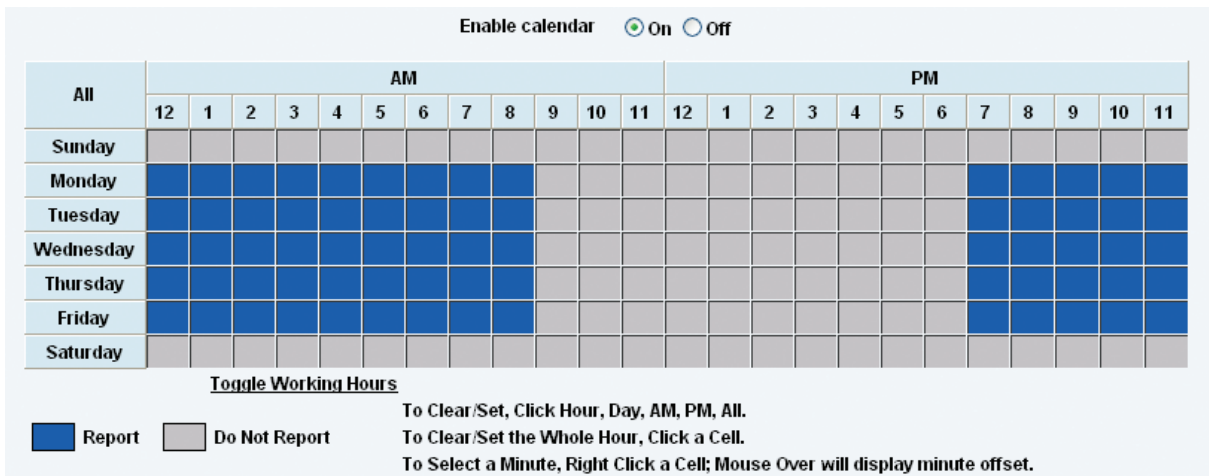


Figure 3-56.

Continuous Time Settings Tab

Continuous Time for Sensor to be in new Status before accepting new Status	
High Critical	0
High Warning	0
Normal	0
Low Warning	0
Low Critical	0
Sensor Error	0

Save Reset

Figure 3-57.

The following advanced functions are for setting the time frame in which the system should delay a notification being triggered when a sensor gives a reading that exceeds the thresholds (high warning, normal, etc).

Continuous Time to Report High Critical: This helps to eliminate unnecessary messages during minor fluctuations. You can set the amount of time to delay a notification of a status change from high warning to high critical. Enter the time in seconds and press the "Save" button. The amount of time that can be entered is between 0 and 65535 seconds, which equals approximately 18 hours

Continuous Time to Report High Warning: As above, but delays notification for "High Warning."

Continuous Time to Report for Normal: As above, but delays notification for return to "Normal" state.

Continuous Time to Report for Low Warning: As above, but delays notification for "Low Warning" state.

Continuous Time to Report for Low Critical: As above, but delays notification for "Low Critical" state.

Continuous Time to Report for Sensor Error: As above, but delays notification being sent for sensor going into an error state.

Example: An airflow sensor or humidity sensor may have temporary drops in readings that are normal operating characteristics; a logical time limit is set to show abnormal conditions.

Minimum Time Settings Tab

The screenshot shows a web interface for configuring a Dual Humidity sensor. At the top, there is a blue header with the text "Dual Humidity" and a dropdown arrow. Below the header are four tabs: "Normal Settings", "Advanced Settings", "Continuous Time Settings", and "Minimum Time Settings". The "Minimum Time Settings" tab is highlighted with a red circle. Below the tabs is a section titled "Minimum Time between each Status" with a blue header. This section contains a list of status types with corresponding input fields, all set to "0":

Status	Minimum Time
High Critical	0
High Warning	0
Normal	0
Low Warning	0
Low Critical	0
Sensor Error	0

At the bottom of the form are two buttons: "Save" and "Reset".

Figure 3-58.

Minimum Time Status prevents the status from fluctuating within the time set. For example, a sensor can only show a high critical state once within 3 seconds, if the value is set to 3 seconds.

3.7 Using an Internal Mic as a Sound Detection Sensor

You can use the internal microphone (or an external microphone plugged into the line-in jack) as a sound detector.

This tutorial provides you the information you need to set up the internal mic as a sound detection sensor.

To get to the starting point of this tutorial:

- Log into the Web based interface.
- Click on the Sensors tab.

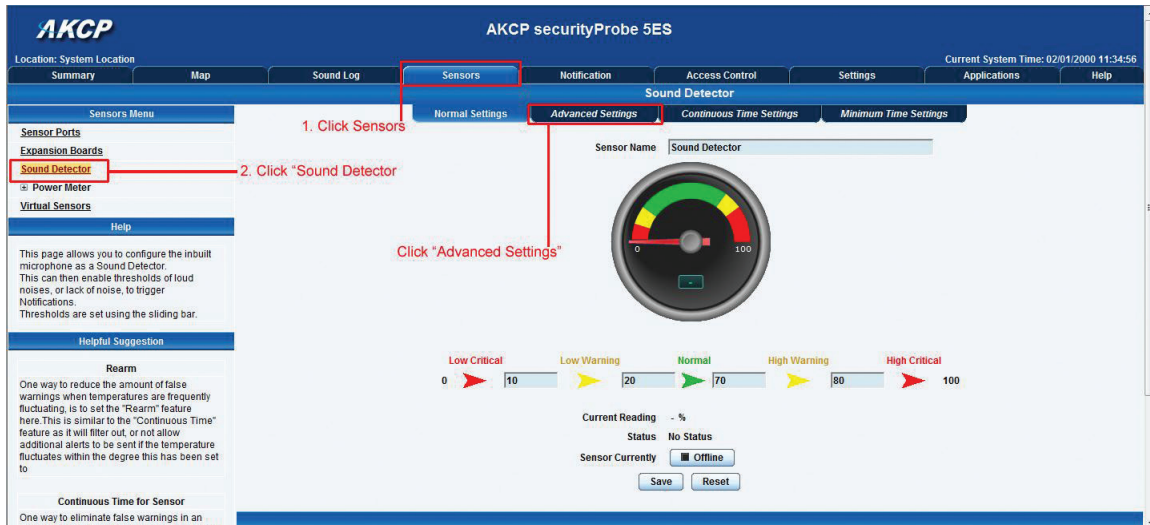
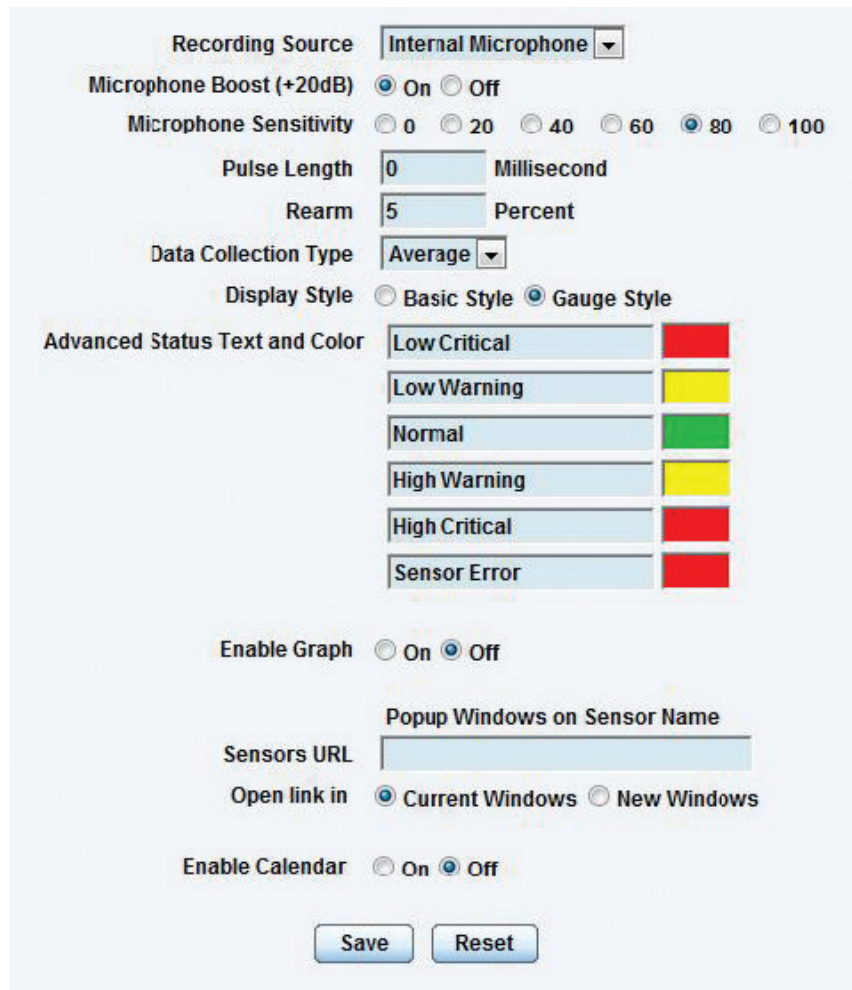


Figure 3-59.

- Click “Sound Detector” under the Sensors menu. See Figure 5-39.
- Click “Advanced Mode.”
- After you click on the Advanced Mode button, you’ll see the advanced options available.



The screenshot shows a configuration panel for a sound sensor. It includes the following settings:

- Recording Source:** A dropdown menu set to "Internal Microphone".
- Microphone Boost (+20dB):** Radio buttons for "On" (selected) and "Off".
- Microphone Sensitivity:** Radio buttons for 0, 20, 40, 60, 80 (selected), and 100.
- Pulse Length:** A text input field with "0" and the unit "Millisecond".
- Rearm:** A text input field with "5" and the unit "Percent".
- Data Collection Type:** A dropdown menu set to "Average".
- Display Style:** Radio buttons for "Basic Style" and "Gauge Style" (selected).
- Advanced Status Text and Color:** A table with six rows, each with a text input field and a color swatch:

Low Critical	Red
Low Warning	Yellow
Normal	Green
High Warning	Yellow
High Critical	Red
Sensor Error	Red
- Enable Graph:** Radio buttons for "On" and "Off" (selected).
- Popup Windows on Sensor Name:** A text input field.
- Sensors URL:** A text input field.
- Open link in:** Radio buttons for "Current Windows" (selected) and "New Windows".
- Enable Calendar:** Radio buttons for "On" and "Off" (selected).

At the bottom are "Save" and "Reset" buttons.

Figure 3-60.

Recording Source: Here you can choose either internal or external microphone.

Microphone Boost (+20 dB): Boosts the microphone by 20 dB.

Microphone Sensitivity: The level of sensitivity that can be set.

For example, if you set the level to 80, the microphone will detect more sound than if the level were set at 20.

Pulse Length: This defines the minimum duration of a sound to trigger an alert notification.

Rearm: The Rearm parameter prevents the sensor from flickering between two states. For example, if the Warning High threshold for the sound sensor is set to 80 and the sensor temperature varies between 79 and 80, a very large number of e-mails, traps, and events would be logged. The Rearm parameter prevents this by forcing the signal level to drop by the Rearm value before changing the state back to normal. In this example, if Rearm is set to 2, then the sensor would have to drop from 80 down to 77 before the status would change from Warning High back to normal.

Data Collection Type: There are three settings for this parameter: lowest, highest, and average. Data will be collected for the lowest, highest, or average sound reading accordingly.

NOTE: As with all the other sensors, you can now set up the sound detector to be attached to a notification. Then, when your thresholds are broken, it will trigger a specified type of notification.

3.8 Expansion Ports

The ServSensor has two expansion ports that enable you to connect up to four daisychainable expansion modules. The available expansion modules are an 8-port intelligent sensor board (EME1X8) and an opto-isolated (16) dry-contact expansion module (EME1DC16). In this section, we will go through the basic setup of the 8-port intelligent sensor board. If you need information on specific functions of a particular sensor or expansion board, then please refer to the relevant manual for that product.

1. Plug the expansion board into one of the four ports located on the front panel of the unit. These are numbered E1–E2.



Figure 3-61. Plug expansion boards into these ports.

2. From the summary page, navigate to the “Sensors” tab. Then click “Expansion ports” as outlined in Figure 3-62.

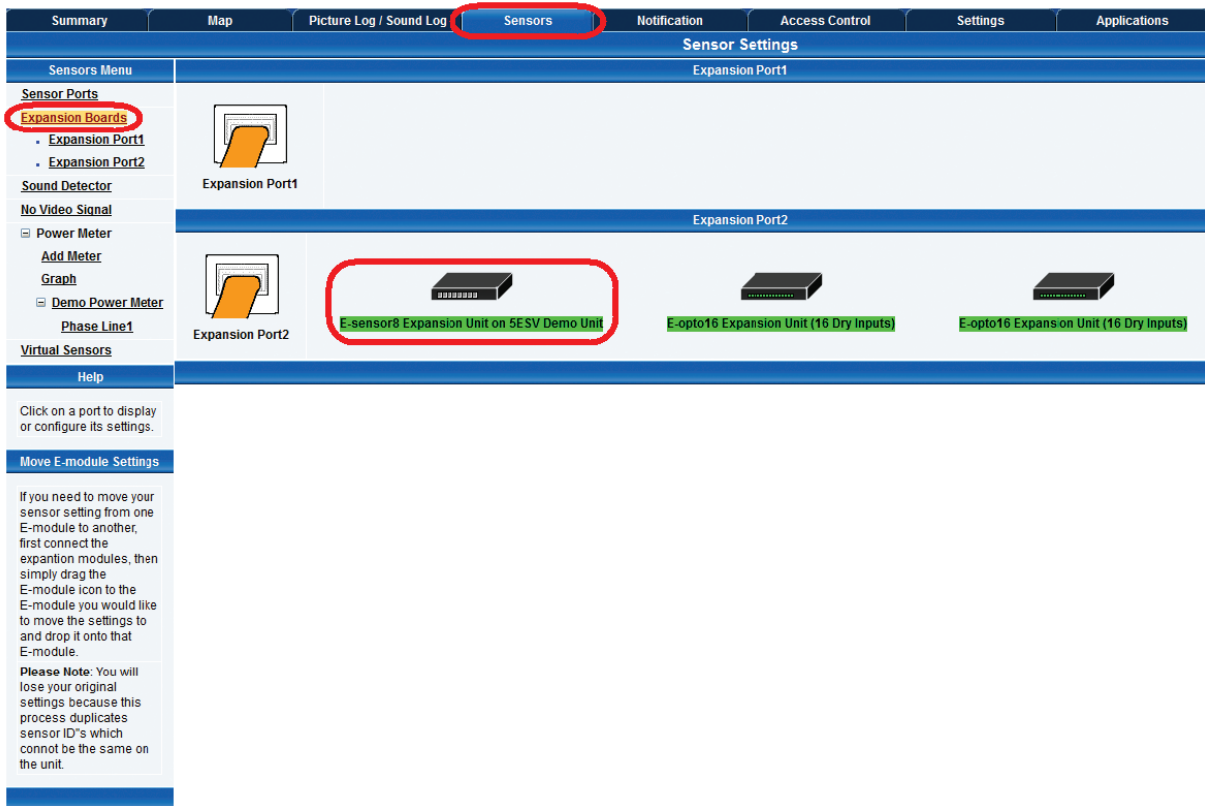


Figure 3-62. Sensors tab, extended port option.

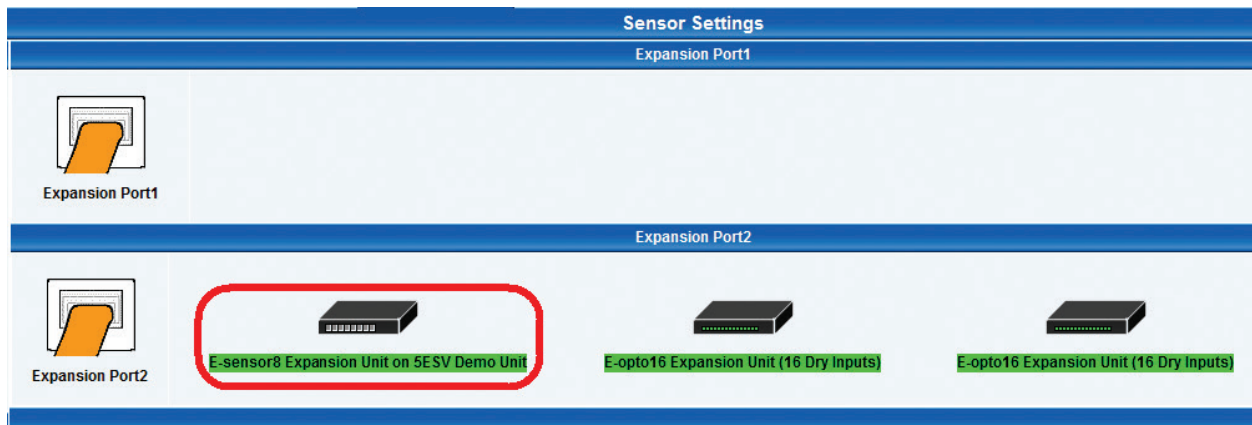


Figure 3-63.

3. A list of all extended ports will be shown. Each port will display any available extension modules, which will be highlighted in green. Click on the module to go to the sensor settings page.

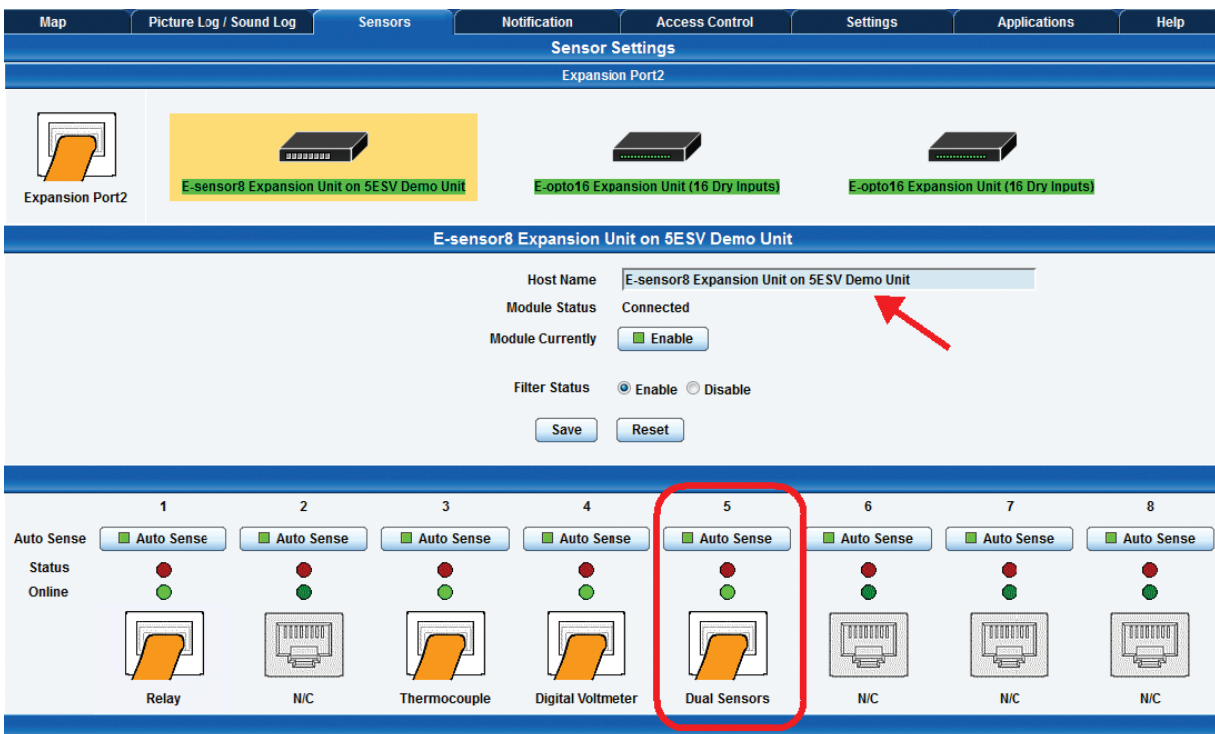


Figure 3-64. Extended Port1 selection.

4. This will bring you to the Extended Port Sensors page (see Figure 3-65).

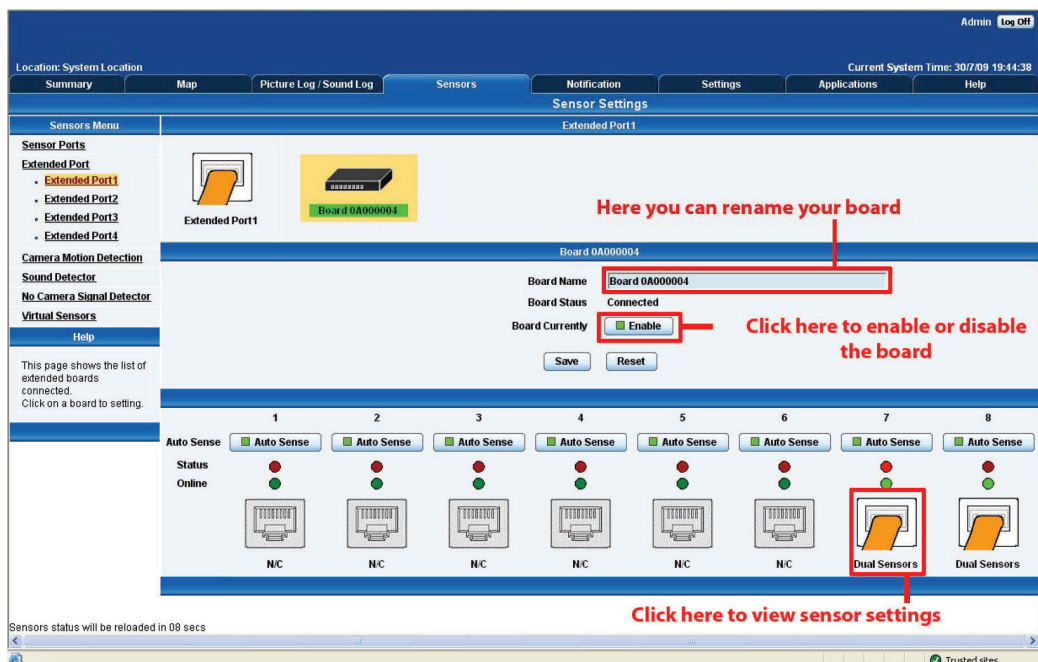


Figure 3-65. Extended Port Sensors page.

5. Once you have clicked on the "Dual sensors" tab, you will be directed to the Notification Thresholds page (see Figure 3-66). From this page, you can carry out various operations as indicated in the sensor settings tutorials.

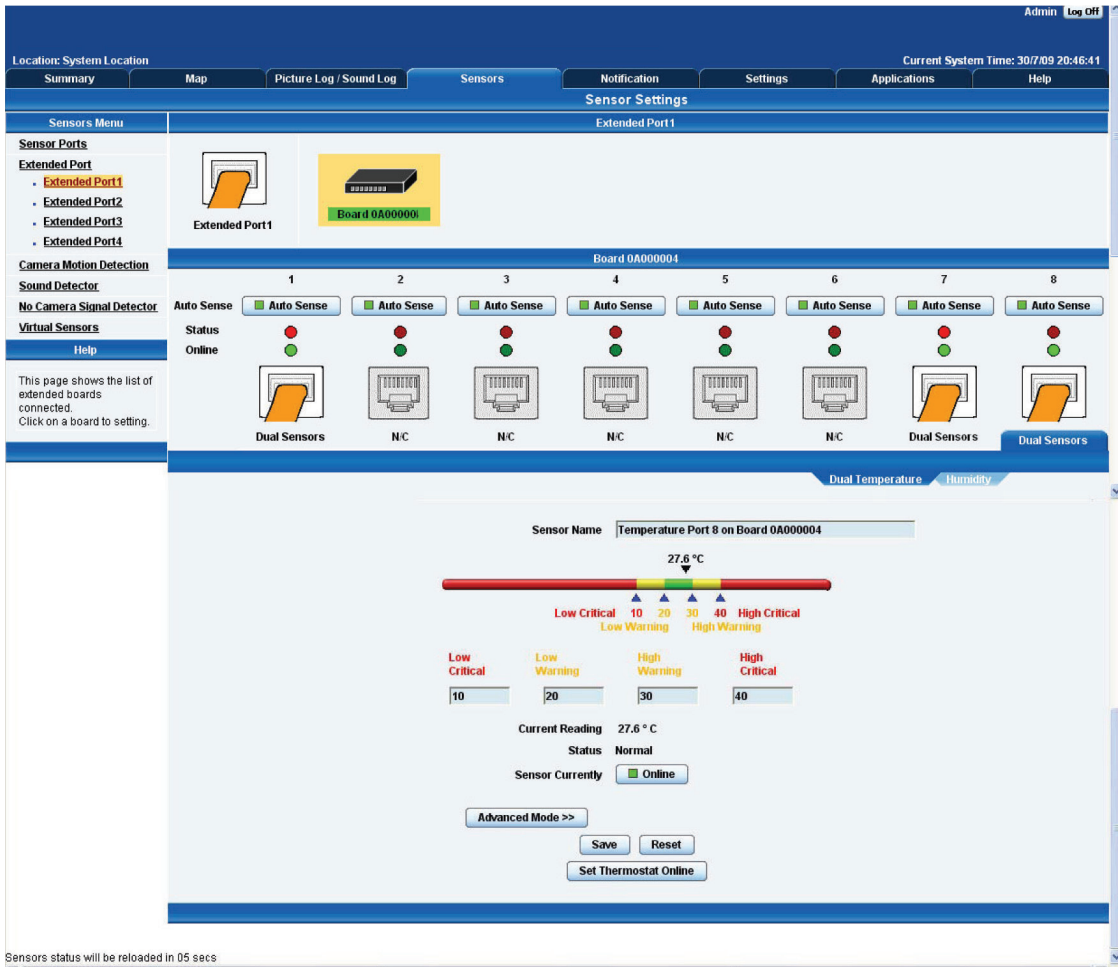


Figure 3-66. Notification thresholds page.

4. Notifications

If you set up a notification, you can define the action to take when the sensor gives a reading beyond your set thresholds. This enables you to determine how you will be notified that a sensor's reading has reached the specified parameters (high warning, critical, etc.) described in Chapter 3.

This tutorial provides you with the information you need to set up a notification.

To get to the starting point of this tutorial:

- Login as administrator.
- Click the "Notifications" tab.

4.1 Adding a Notification

1. Click on the "Begin Notification Wizard" tab as shown in Figure 4-1.

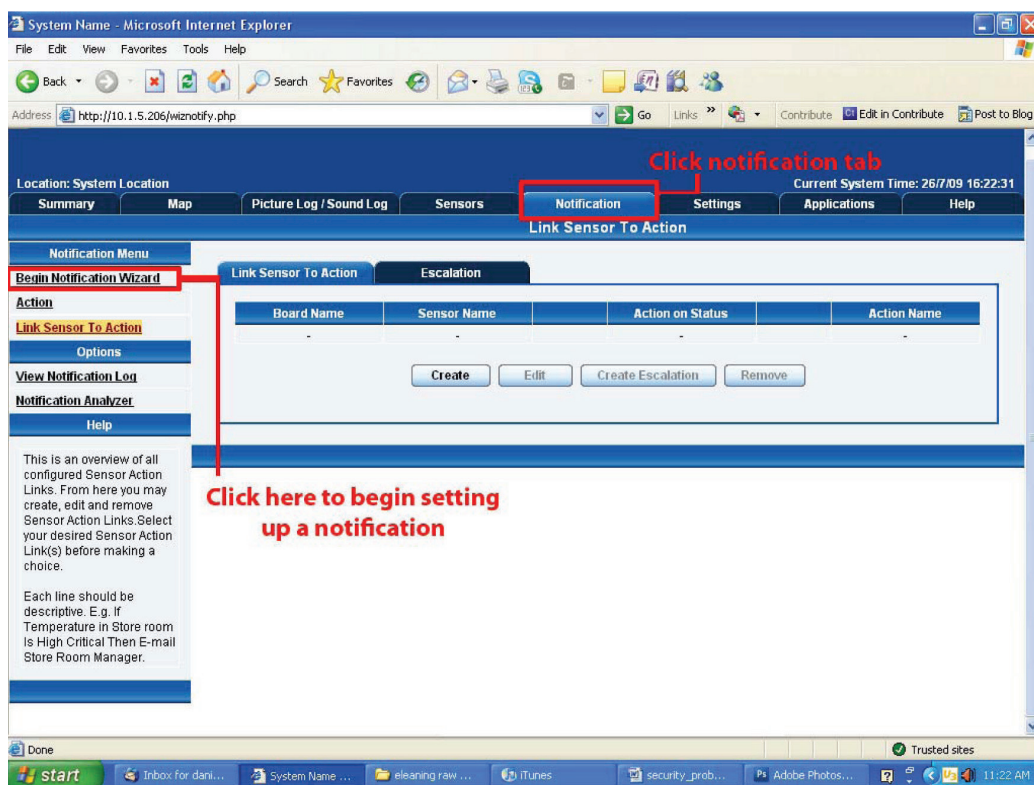


Figure 4-1. Notification Wizard tab.

Chapter 4: Notifications

2. The Notification Wizard page will be displayed as shown in Figure 4-2.

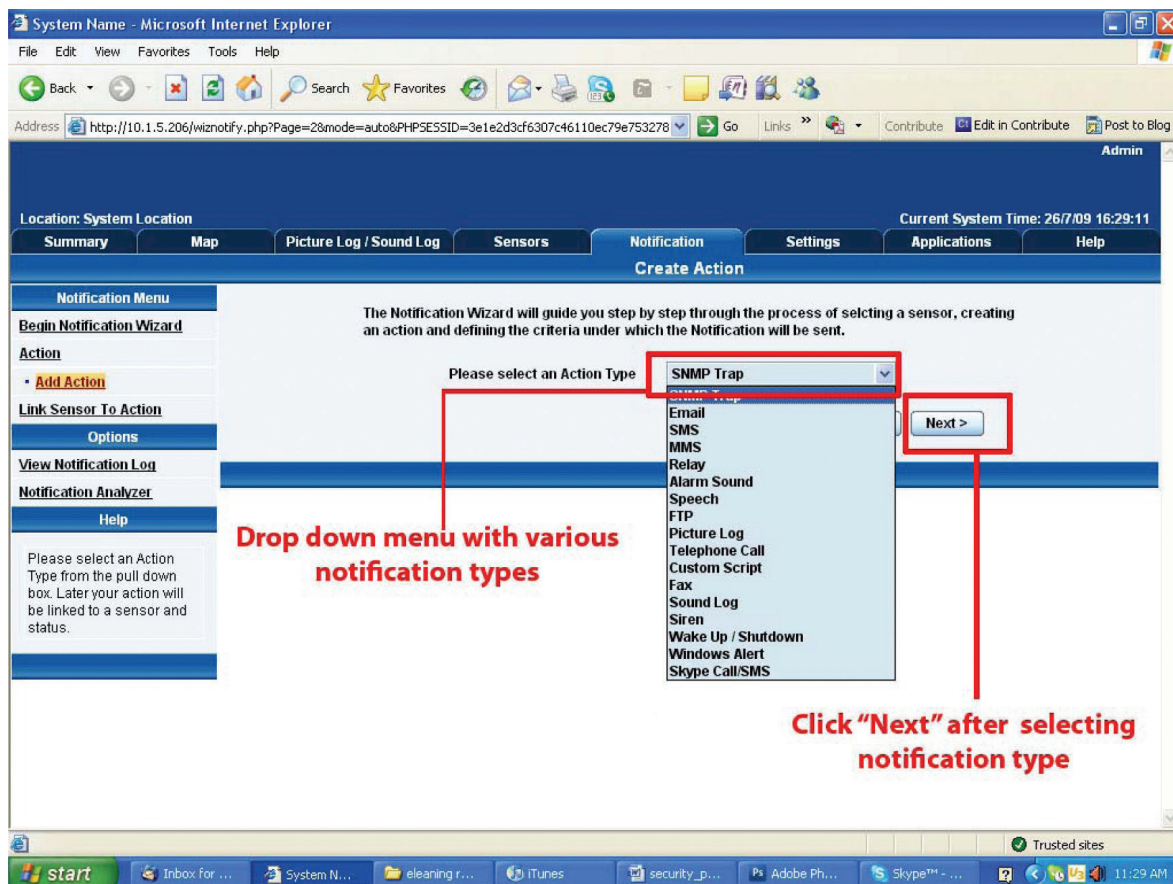


Figure 4-2. Notification Wizard page.

Next, you'll see a few different ways to set up a notification step-by-step.

4.2 SNMP Trap

If you set up a notification via an SNMP trap, when your sensor reaches a certain threshold, it will send a notification to your SNMP server.

This tutorial provides you the information you need to set up an SNMP trap.

To get to the tutorial's starting point:

- Log in as administrator.
- Click the "Notifications" tab.
- Choose "Notifications Wizard."
- Choose "SNMP Trap."

1. After selecting to add an SNMP trap, you will need to fill in the following information shown in Figure 4-3.

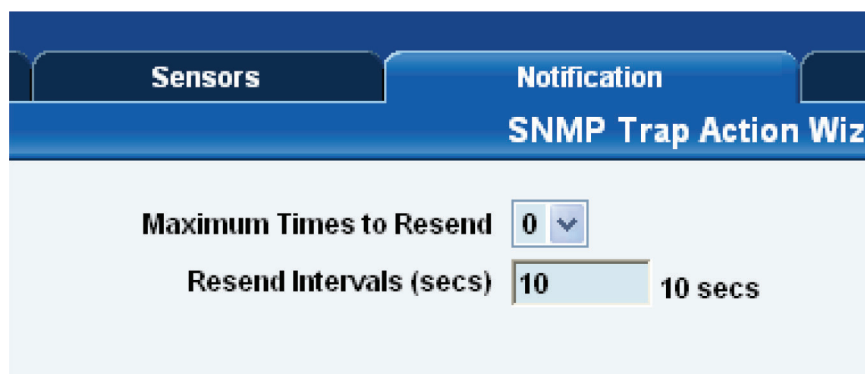


The screenshot shows the 'SNMP Trap Action Wizard' form. It includes the following fields and annotations:

- Action Name:** 'SNMP Trap 1' (Annotated: 'Enter name for your SNMP notification')
- Trap Version:** Radio buttons for v1 (selected), v2c, and v3.
- SNMP Trap send port (default is : 162):** '162'
- Destination Address:** '192.168.0.XXX' (Annotated: 'Enter the IP address of your SNMP trap')
- Community:** 'public' (Annotated: 'Enter community name of trap')
- Buttons:** 'Add Trap Destination', 'Cancel', and 'Next'.

Figure 4-3. Add an SNMP trap.

2. Once this information is correct, click the "Add Trap Destination" button. Input another trap or click on "Next." Enter the parameters shown in Figure 4-4.



The screenshot shows the 'Notification' section of the 'SNMP Trap Action Wizard'. It includes the following parameters:

- Maximum Times to Resend:** A dropdown menu set to '0'.
- Resend Intervals (secs):** A text input field set to '10', followed by the label '10 secs'.

Figure 4-4. Notification parameters.

These parameters set the maximum number of times to send the trap notification and the time interval between each notification.

Chapter 4: Notifications

3. After clicking “Next,” you’ll see the screens shown in Figures 4-5 and 4-6.

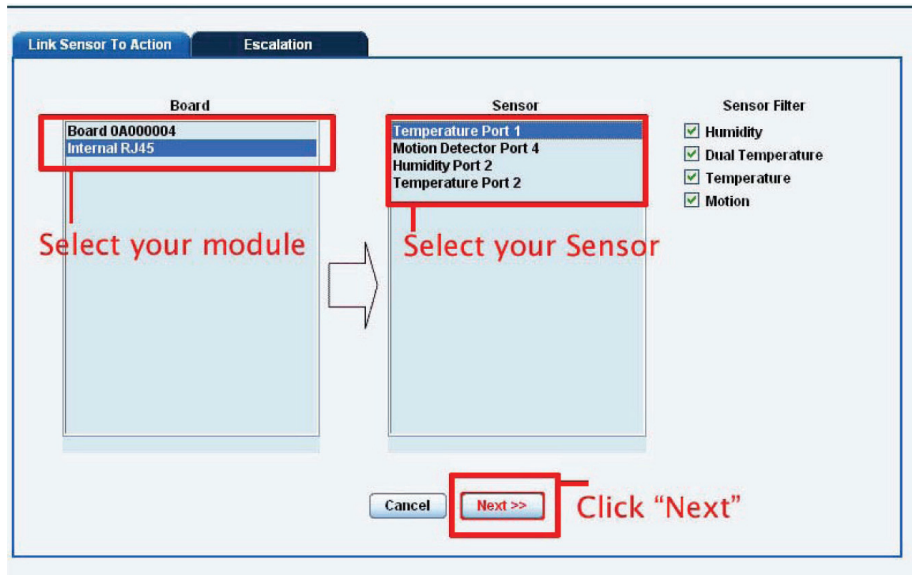


Figure 4-5. Parameter Selection, screen #1.

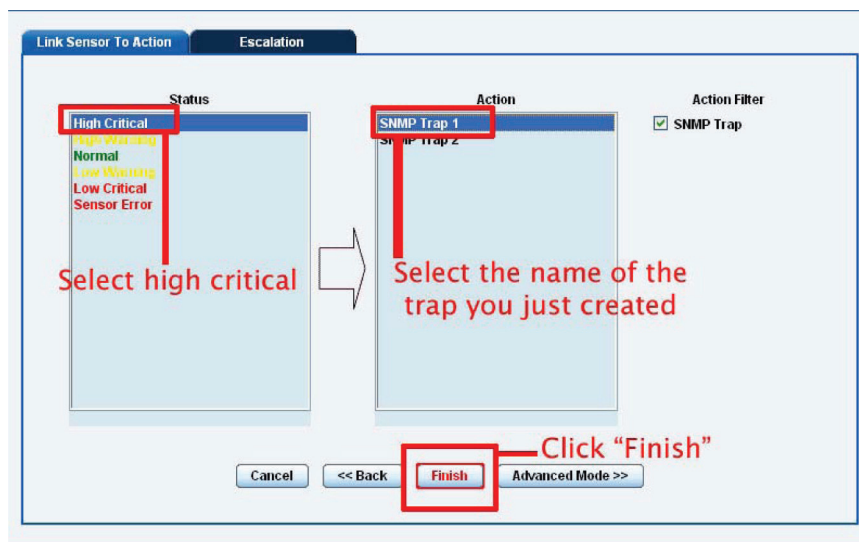


Figure 4-6. Parameter Selection, screen #2.

On these screens, you can select the parameters for when to send the SNMP trap notification. In this example, we selected to bind the SNMP trap to the temperature sensor connected on Port 1. The trap will be sent when the sensor reads a “High Critical” and we bind this to the SNMP trap we just created and named “SNMP Trap 1.”

4. Once we have created the parameters for the SNMP trap, we need to make it active. To do this, go back to the “Notifications” tab. (It should look like the screen shown in Figure 4-7.) Click “Create.”

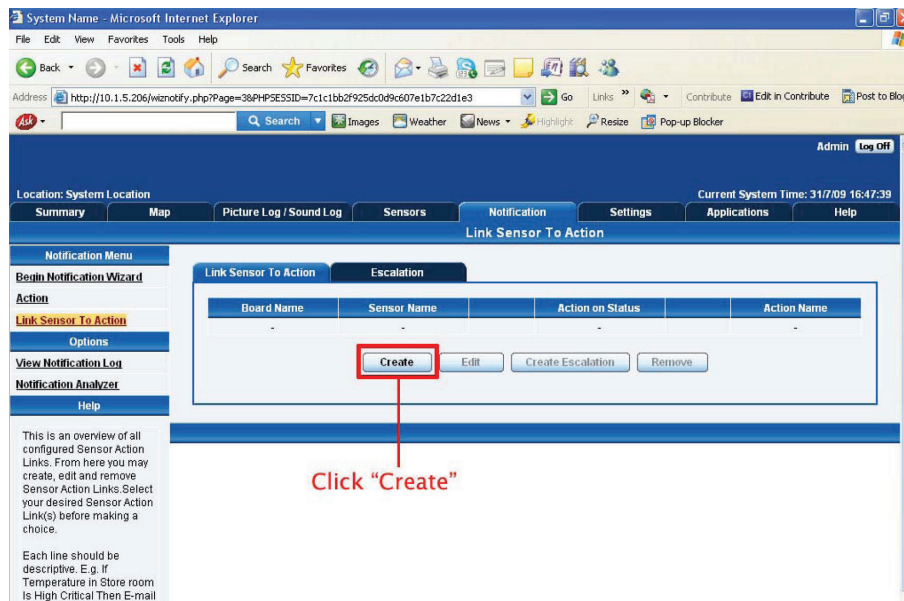


Figure 4-7. Notifications tab.

5. Select the sensor and SNMP trap parameters (see Figures 4-8 and 4-9). First, click on the board that the sensor is attached to and then select the sensor and click “Next.”

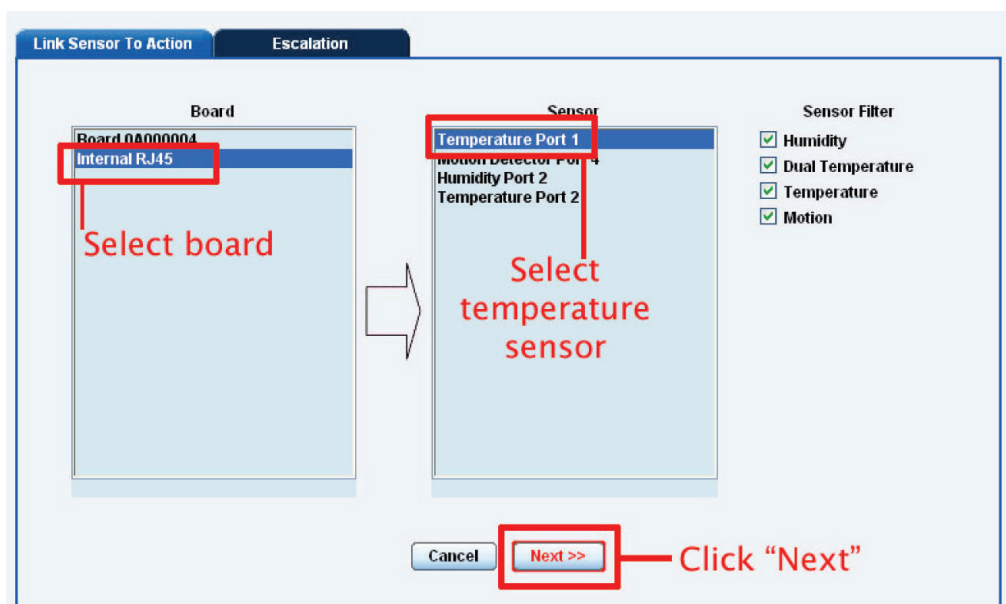


Figure 4-8. Select the sensor.

6. Select the status that you want to issue the notification for, select the action type, then click “Finish.”

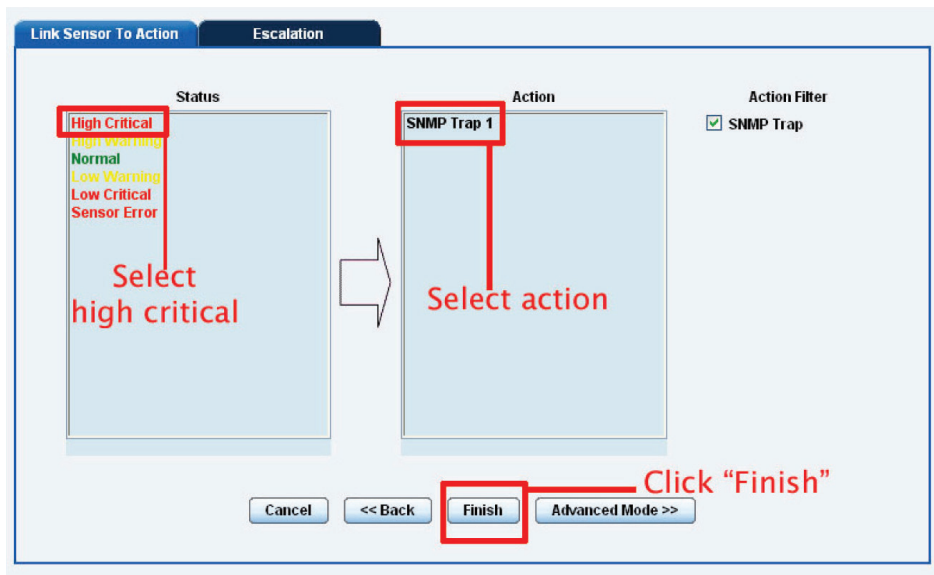


Figure 4-9. Select the SNMP parameters.

7. The SNMP trap has been added to the Notifications page.

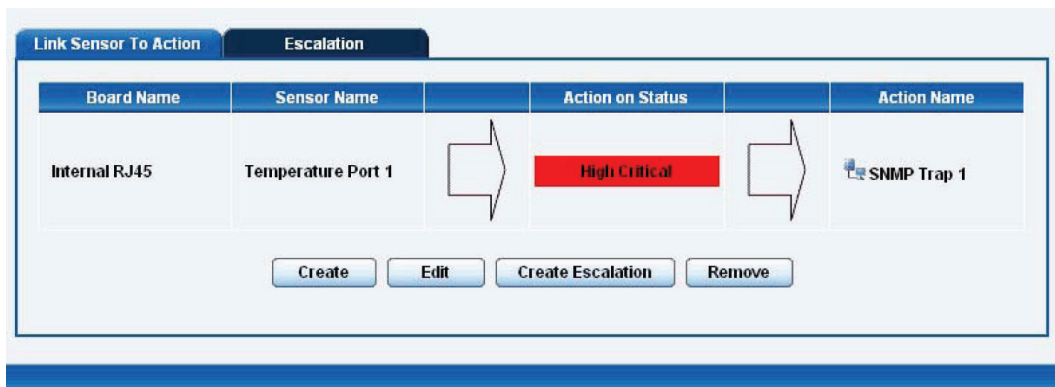


Figure 4-10. SNMP trap added.

NOTE: To remove this trap and make it inactive, highlight the notification and click "Remove."

You can repeat this process to set up multiple SNMP traps for different sensors or for multiple SNMP servers, etc.

4.3 E-mail

This tutorial provides you the information needed to setup an e-mail notification.

To get to the starting point of this tutorial:

- Log in as administrator.
- Select the "Notifications" tab.
- Click "Notification Wizard."

1. If you set up an e-mail notification, Figure 4-11 will appear. Click the "Action Name" field and choose a name for your e-mail. Click the "Mail From" and "Mail To" fields and enter the appropriate information, then click "Next."

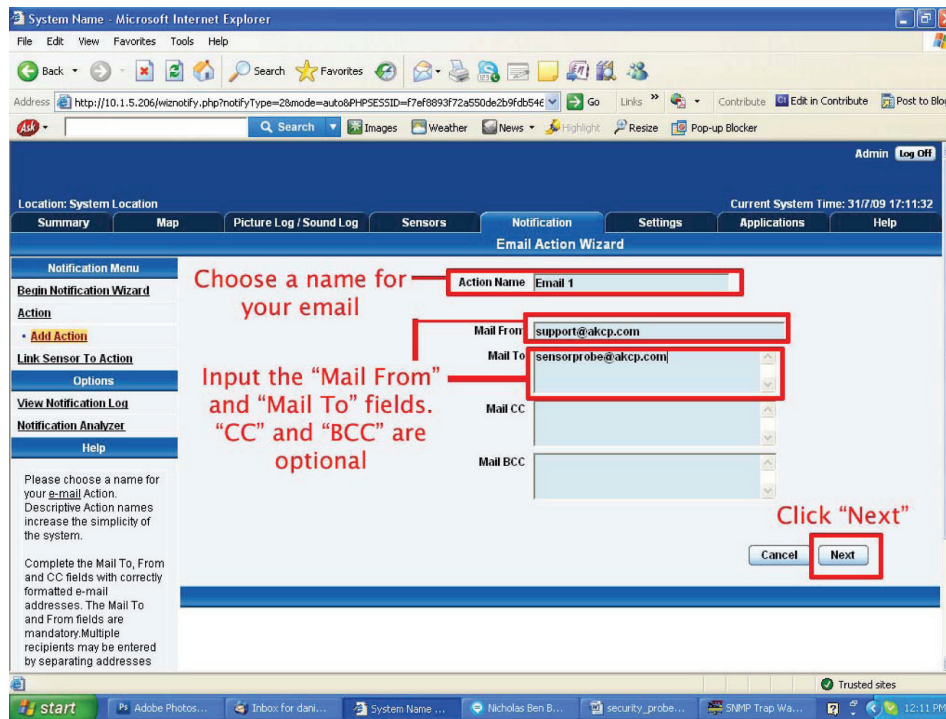


Figure 4-11. E-mail Action Wizard screen.

- After clicking “Next,” you will get a page where you can input the e-mail name and message. Click the “Customize” button, and the fields will re-write in a format that will allow for an automated e-mail that will display the sensor information.

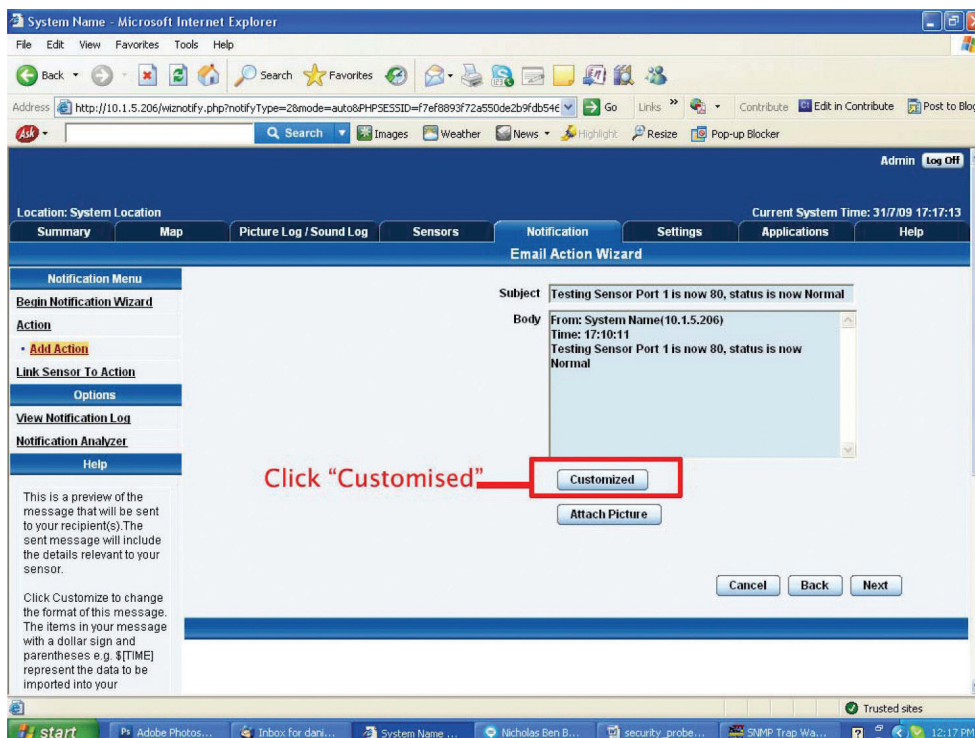


Figure 4-12. Input e-mail name and message.

Chapter 4: Notifications

3. If you have a camera attached, you can click “Attach Picture” to add a .jpg photo to your notification e-mail.

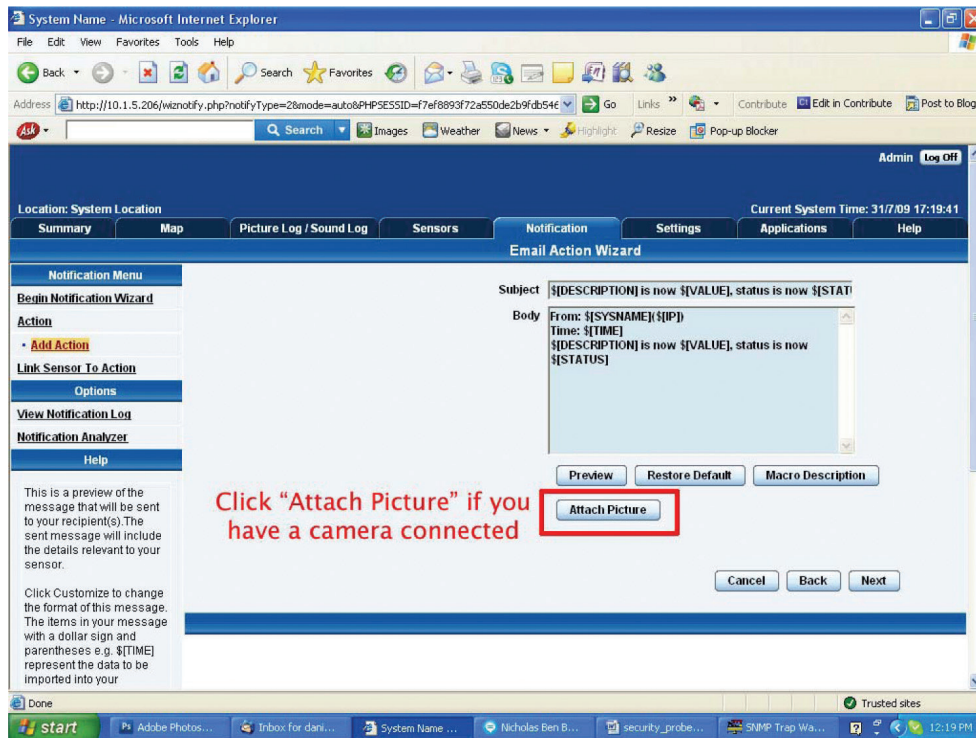


Figure 4-13. Attach picture.

4. Click “Next.”

5. Now you need to input your SMTP server address for your e-mail account.

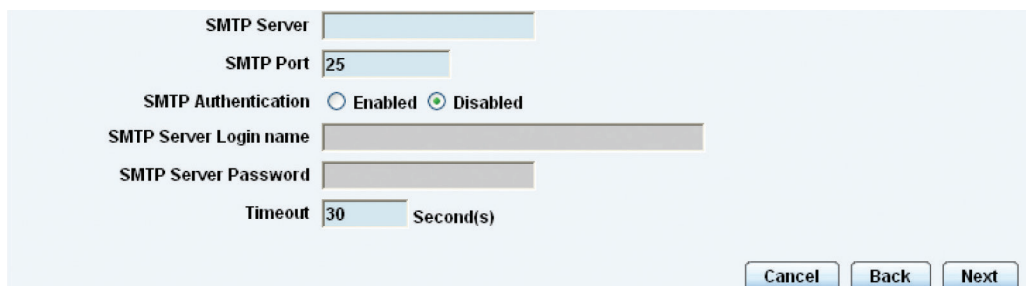
The image shows a screenshot of the SMTP server configuration form. The form has the following fields: 'SMTP Server' (text input), 'SMTP Port' (text input with value '25'), 'SMTP Authentication' (radio buttons for 'Enabled' and 'Disabled', with 'Disabled' selected), 'SMTP Server Login name' (text input), 'SMTP Server Password' (text input), and 'Timeout' (text input with value '30' and 'Second(s)' label). At the bottom right, there are three buttons: 'Cancel', 'Back', and 'Next'.

Figure 4-14. Input SMTP server address.

6. Once this is entered, click “Next.”

7. Now, as with the SNMP trap, you can select how many times to attempt to resend the e-mail, and the time elapsed between each attempt.

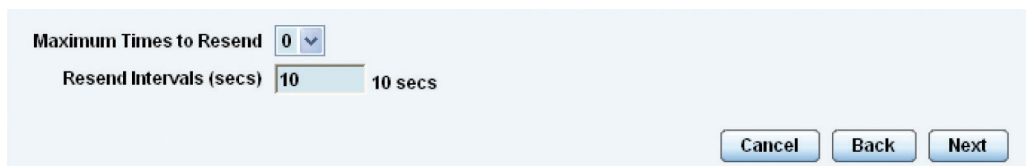
The image shows a screenshot of the resend configuration form. The form has the following fields: 'Maximum Times to Resend' (dropdown menu with value '0') and 'Resend Intervals (secs)' (text input with value '10' and '10 secs' label). At the bottom right, there are three buttons: 'Cancel', 'Back', and 'Next'.

Figure 4-15. Select frequency to resend e-mail attempts.

8. Click “Next” after you fill in your parameters.

9. Now link the e-mail you just created to the temperature sensor on Port 1. Select the board the sensor is attached to, then select the sensor and click "Next."

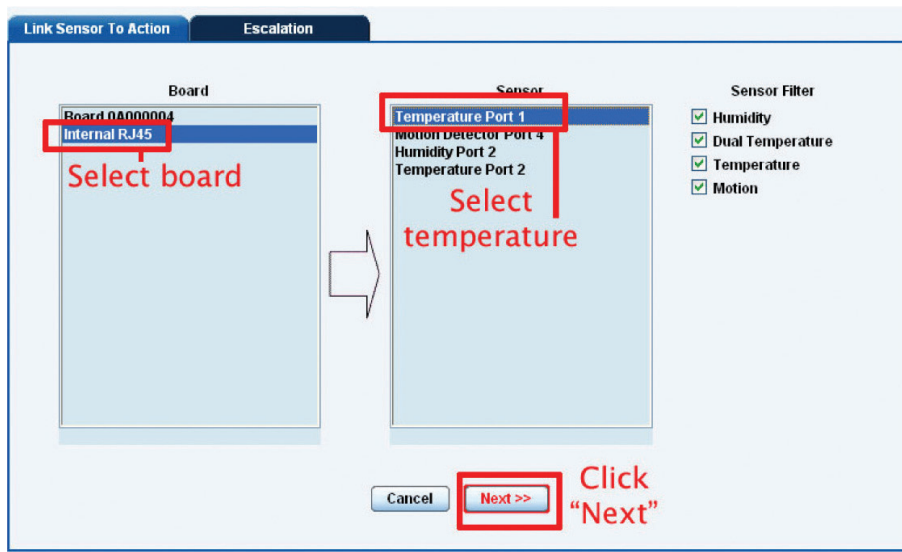


Figure 4-16. Select sensor.

10. Select the status you want to issue the alert for and then select the action type.

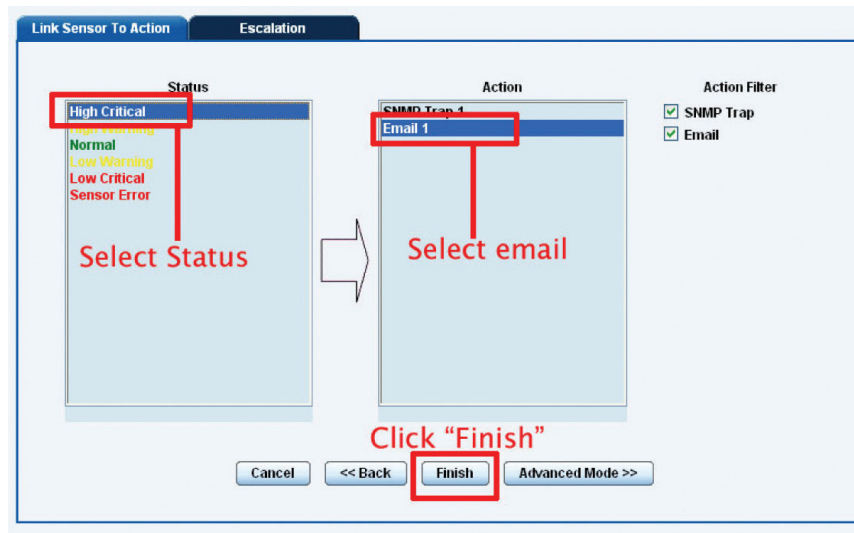


Figure 4-17. Select status and action type.

Chapter 4: Notifications

11. Click "Finish." You will now be taken back to screen shown in Figure 4-18.
12. Click on "Create."

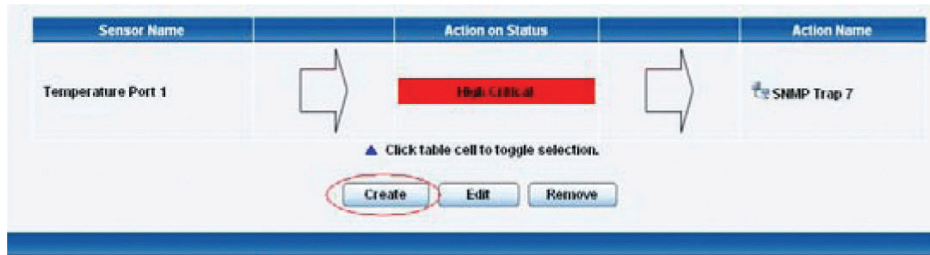


Figure 4-18. Create button.

13. Create the notification link as before. Then click "Finish."

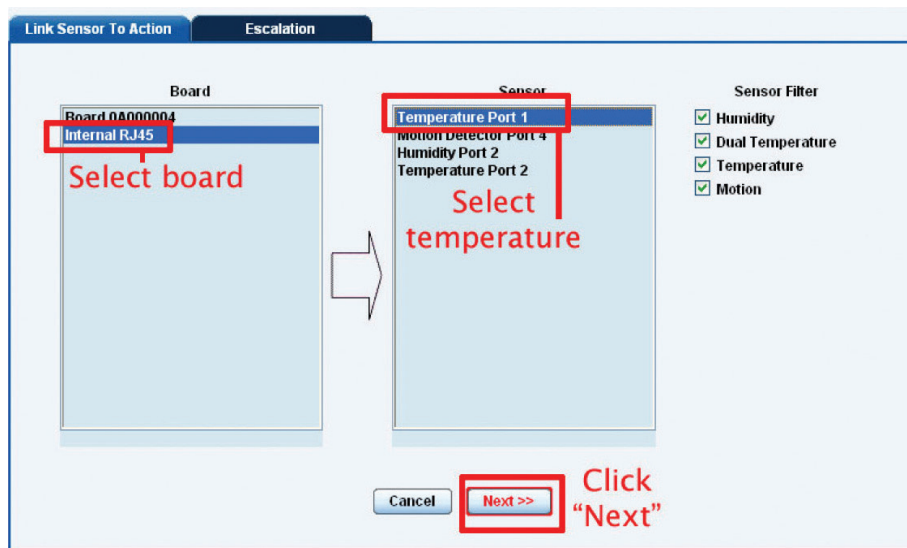


Figure 4-19. Create notification link: select board, select temperature.

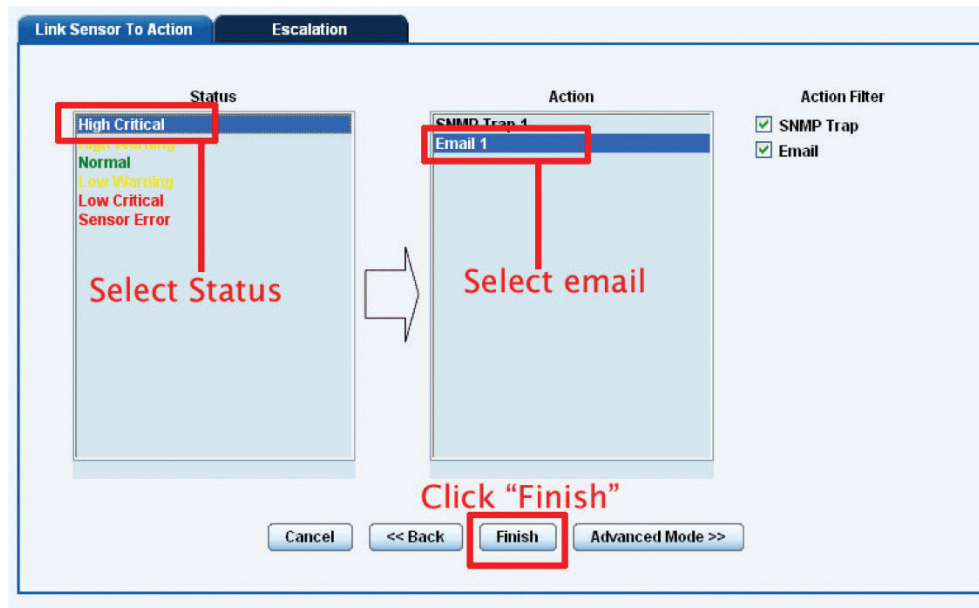


Figure 4-20. Create notification tab: select status, select e-mail.

14. You will now be back at the main notification page. You should now see listed our two notifications, the SNMP trap and the e-mail.

Sensor Name		Action on Status		Action Name
Temperature Port 1	➔	High Critical	➔	SNMP Trap 7
Temperature Port 1	➔	High Warning	➔	Tutorial E-mail

▲ Click table cell to toggle selection.

Figure 4-21. SNMP Trap and E-mail Notifications screen.

As you can see from this page, an SNMP trap is set up to give us notification of a “High Critical,” and an e-mail notification that will activate on a “High Warning.”

4.4 SMS Notification

Set up a notification so that you will be sent an SMS message. This message can be sent via a GSM/GPRS mobile phone connected via a Bluetooth connection or the USB port.

This tutorial provides you with the information you need to set up a SMS notification.

To get to the starting point of this tutorial:

- Log in as administrator.
- Select the “Notifications” tab.
- Click “Notification Wizard.”

1. From the list of notification types, select SMS and click “Next.” You will then be presented with the screen shown in Figure 4-22. Select the “Action Name” field and enter a notification name. Then select the “Phone Number” field and enter the phone number you want to send the notification to. Click “Next.”

Current System Time: 31/7/09 17:32:2

Sensors Notification Settings Applications Help

SMS Action Wizard

Action Name SMS 1

Phone Number

Add Phone Number

input a phone number

Input a notification name

Cancel Next

Figure 4-22. SMS Action Wizard, screen #1.

2. You can now either add multiple numbers, delete phone numbers, "Cancel" this action, or click "Next." In this case, we will click "Next."

Current System Time: 31/7/09 17:37:2

Sensors Notification Settings Applications Help

SMS Action Wizard

Action Name SMS 1

Phone Number List

00639052965214

Phone Number 00639052965214

Add Phone Number Delete Phone Number

Click "Next"

Cancel Next

Figure 4-23. SMS Action Wizard, screen #2.

3. Now we will set up the message that will be sent to the phone. You will see the screen shown in Figure 4-24.

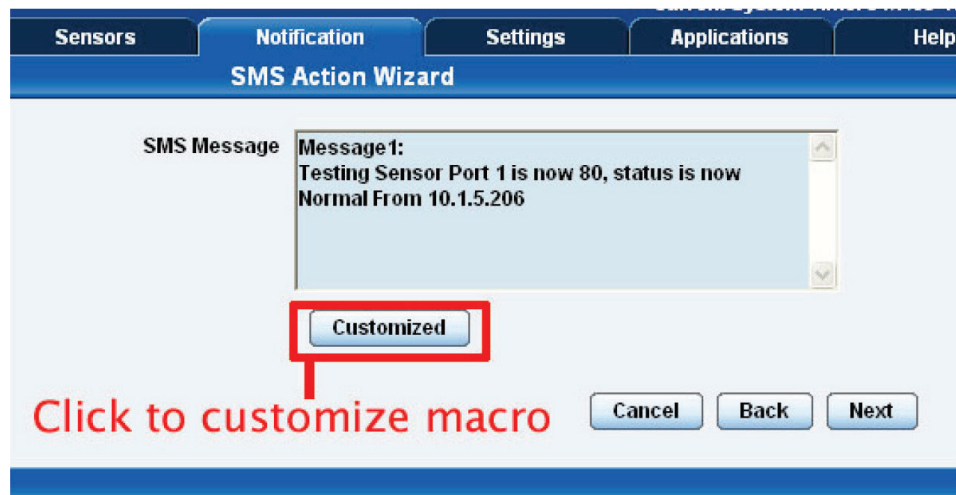


Figure 4-24. Customize macro screen.

Click the “Customized” button to add a macro to your notification.

NOTE: A macro is a script that returns specific data collected by the unit. In our example, the macro will tell the notification to contain the “description” (sensor name), the value (current sensor reading), and the status (high/low warning, etc.). These macros are common to all sensor notifications.

4. You will now see that the SMS message has changed its format to include the Macro script. (See Figure 4-25.) Click “Next.”

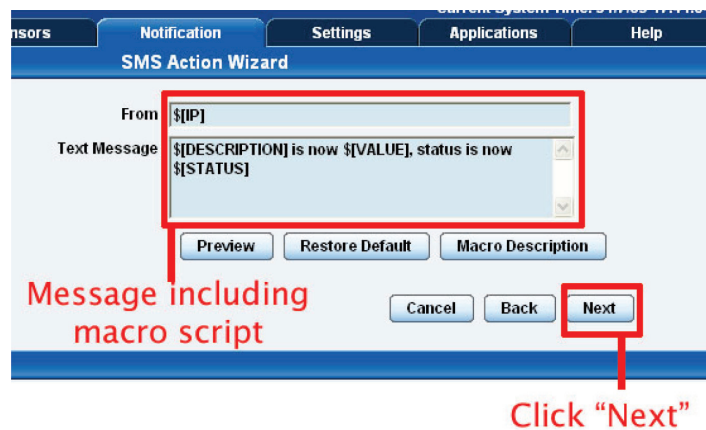
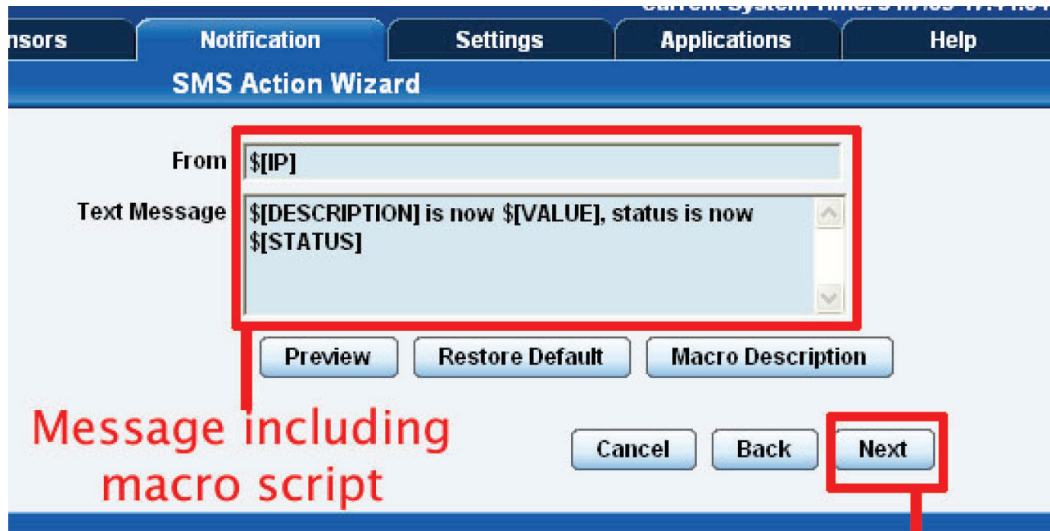


Figure 4-25. Macro script message.

Chapter 4: Notifications

5. Next, we will set up the type of connection. This will depend on the type of modem you are connecting. For the purpose of this tutorial, we will assume you are connecting a GSM/GPRS enabled modem to the serial port. Select COM1 from the list. (See Figure 4-26.)



Choose the connection type you want to use

Figure 4-26. Choose the Connection Type You Want to Use screen.

6. Choose the port that the modem is connected to.
7. You will now be able to select the number of times you want the SMS to be resent and the interval between sending them. (See Figure 4-27.)
8. Select the number of times you want to resend this notification and the interval (in seconds). Click "Next."

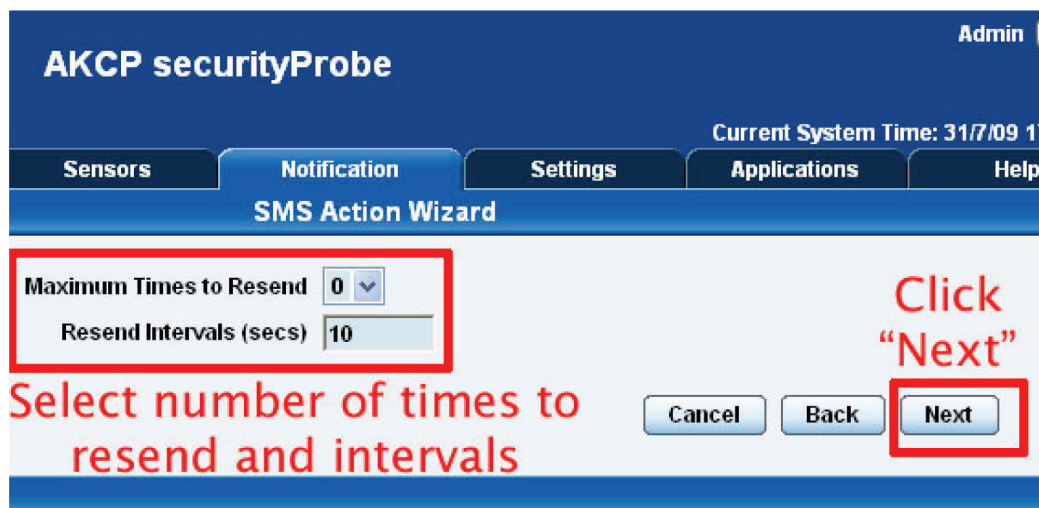


Figure 4-27. Select number of times to resend and intervals.

9. Select the sensor that you want to bind this notification to.

10. Choose the board and sensor, then click "Next."

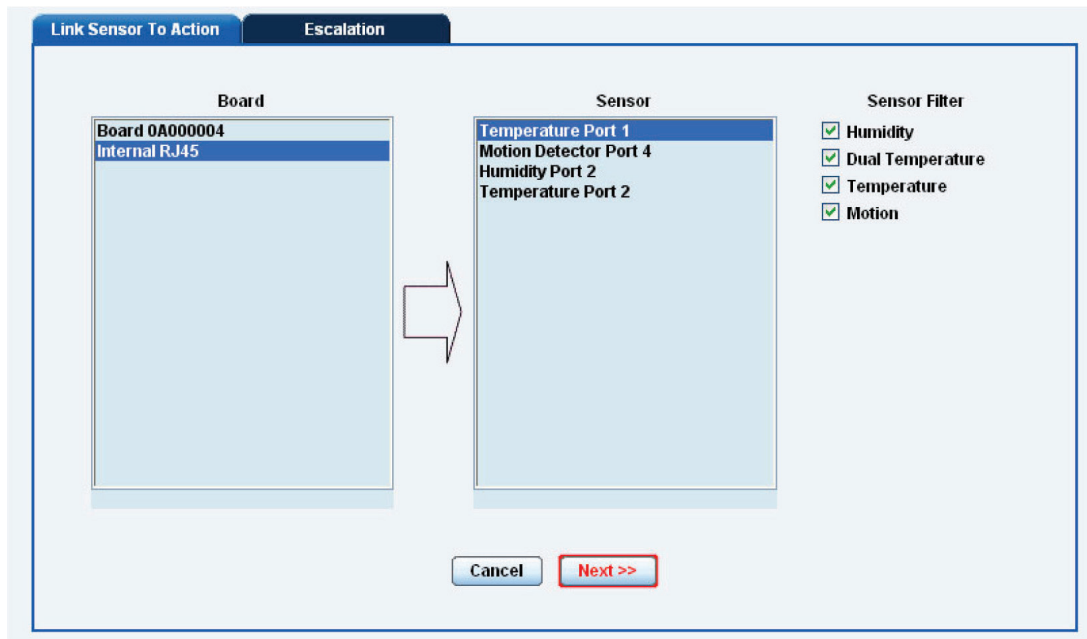


Figure 4-28. Choose board and sensor.

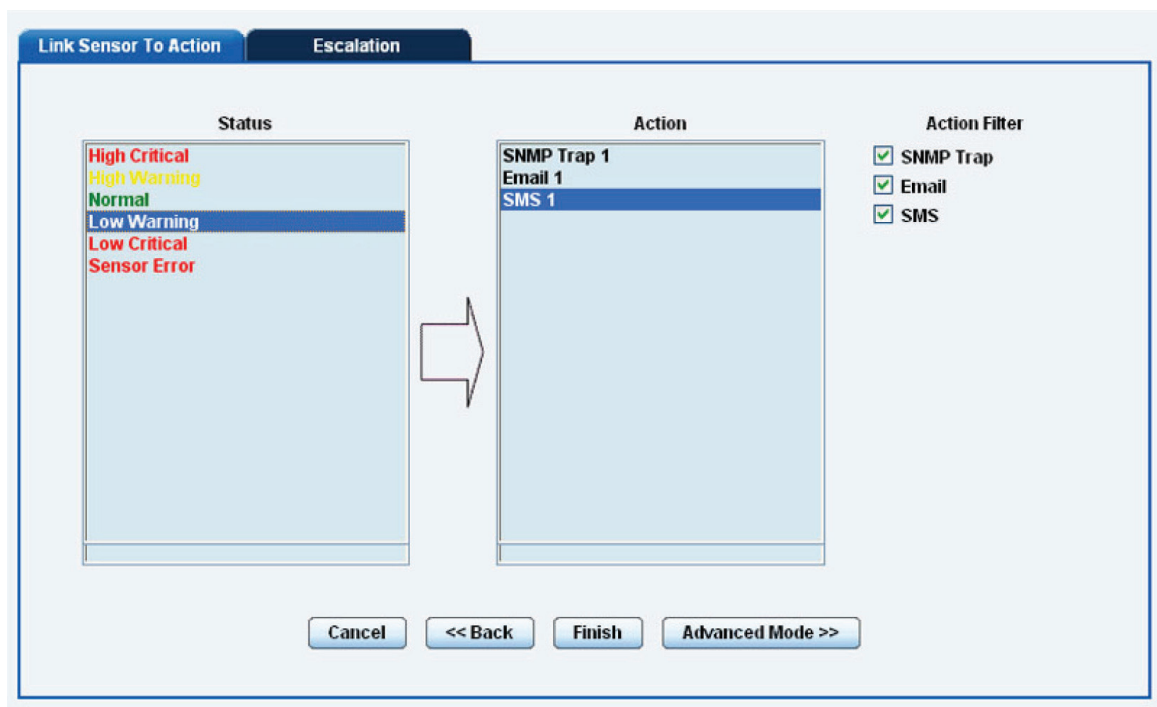


Figure 4-29. Link sensor to action screen.

11. This time we will use this notification for a low warning. Then select the notification name we assigned, in this case we chose "SMS 1." Click "Finish" to finalize this. (See Figure 4-29.)
12. Now we will add the SMS notification to our active list. This is the same process as for the others—simply click on "Create" and then select the appropriate parameters. Follow Steps A–F below and on the next page.

Chapter 4: Notifications

- A. Select the board the sensor is connected to.
- B. Select the sensor.
- C. Click "Next."

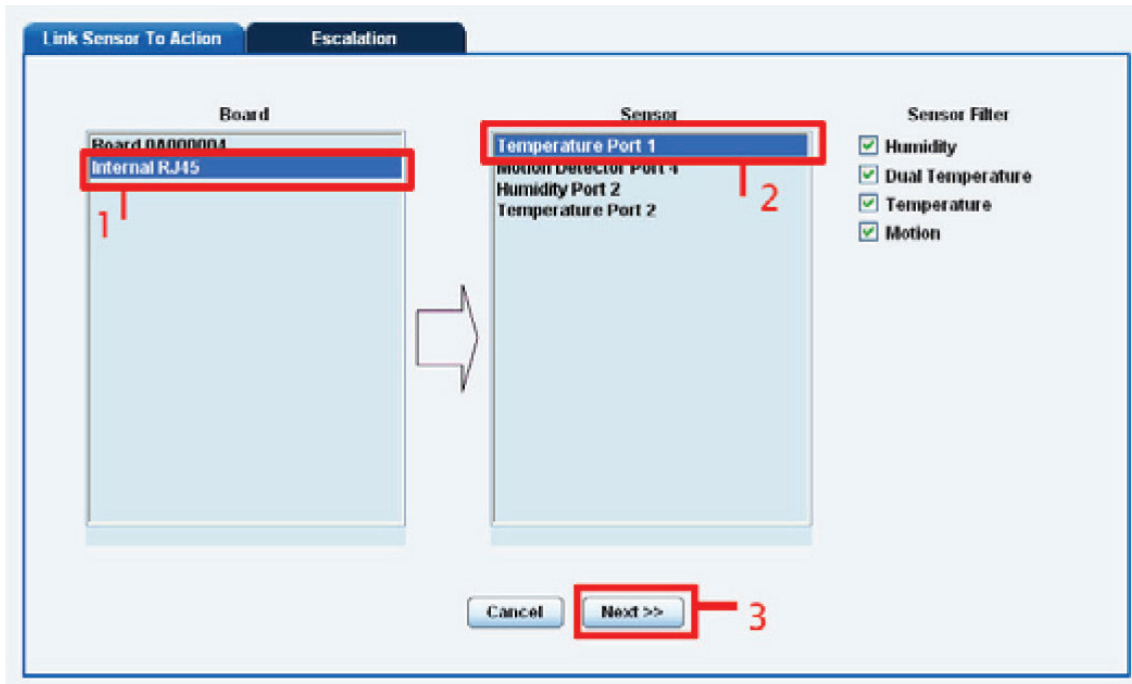


Figure 4-30. Steps A–C.

- D. Select the status you want to issue the alert for.
- E. Select the action type.
- F. Click "Finish."

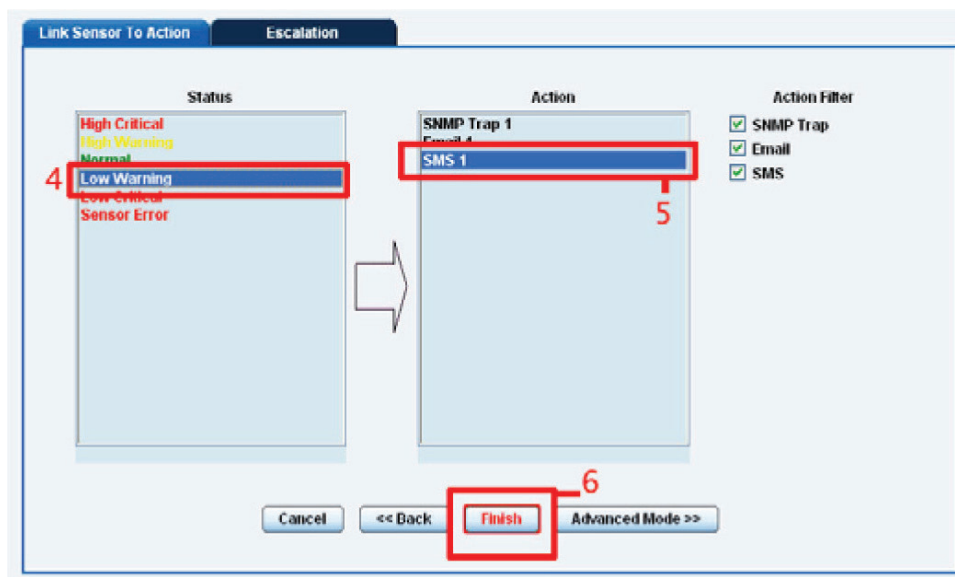


Figure 4-31. Steps D–F.

13. You will now be back at the main notification page. The page should display three types of notifications: the SNMP trap, e-mail, and SMS.

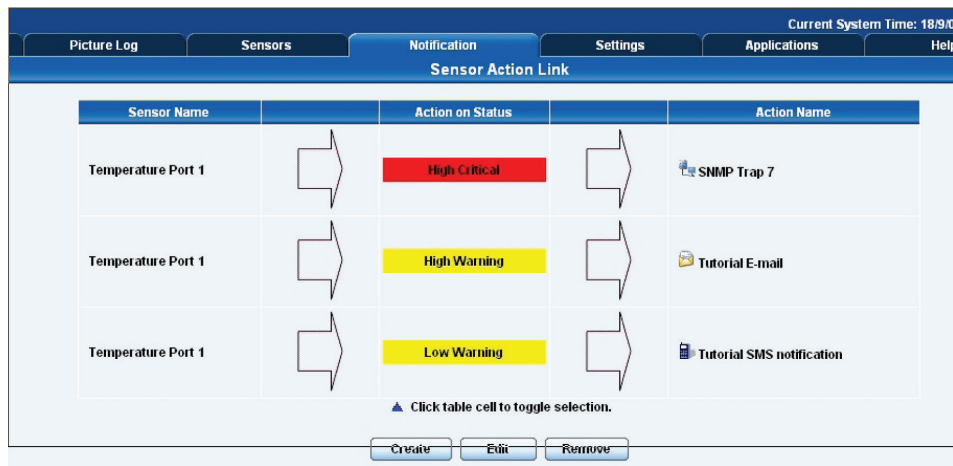


Figure 4-32. Main Notification page.

For the purposes of this tutorial, we will not cover the setup of every type of notification. However, with this information, you should be able to follow the procedure for the other types of notifications easily, as they all follow a similar format. If you have questions, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

5. Camera

5.1 Basic Setup

Connect up to four cameras to the ServSensor through the video inputs (V1 –V4).

The following tutorial provides you with the information needed to set up the camera functions.

In this tutorial, we are going to assume you are connecting a Black Box pan/tilt camera, and we are connecting it to port number V4.

To get to the starting point of this tutorial:

- Connect camera to a video (“V”) port.
- Log into the Web-based interface as administrator.

1. Once you are logged in, you will be taken to the default summary page.

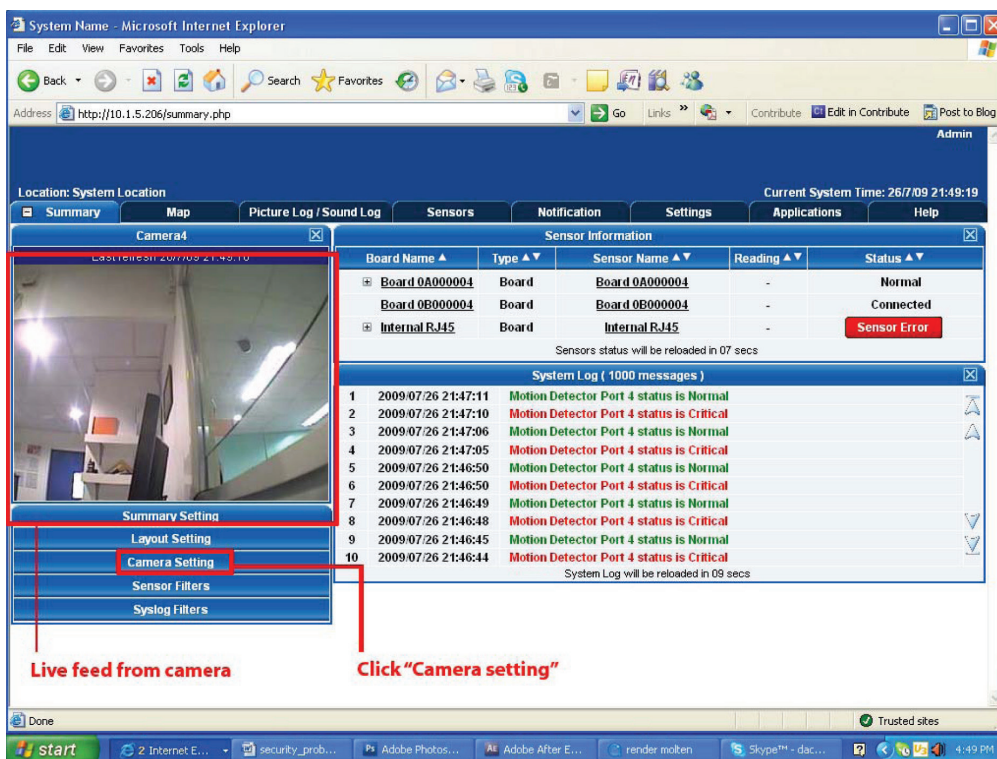


Figure 5-1. Default Summary page.

2. You may or may not see the live image from the camera already. If not, click on “Camera Setting” and follow the instructions on the following screens.

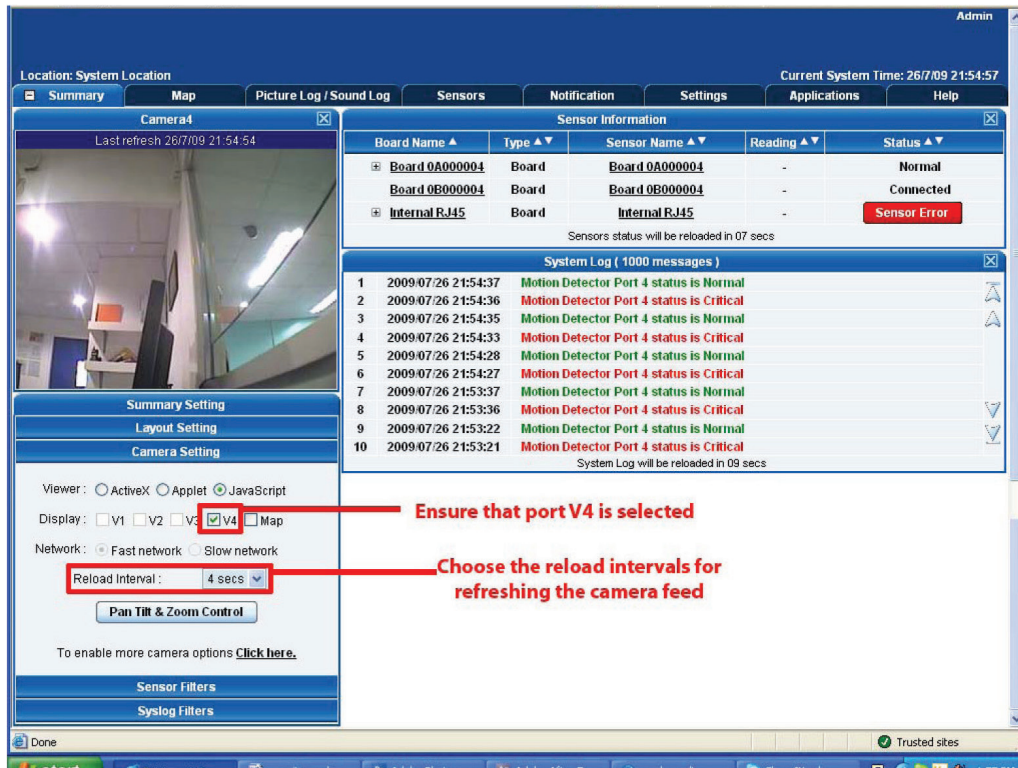


Figure 5-2. Summary page options.

NOTE: At this stage, you will begin opening up multiple windows that may obscure valuable information displayed on the summary page. To prevent this from happening, drag each window to a new position to accommodate your preferred layout. To achieve this, follow the directions below.

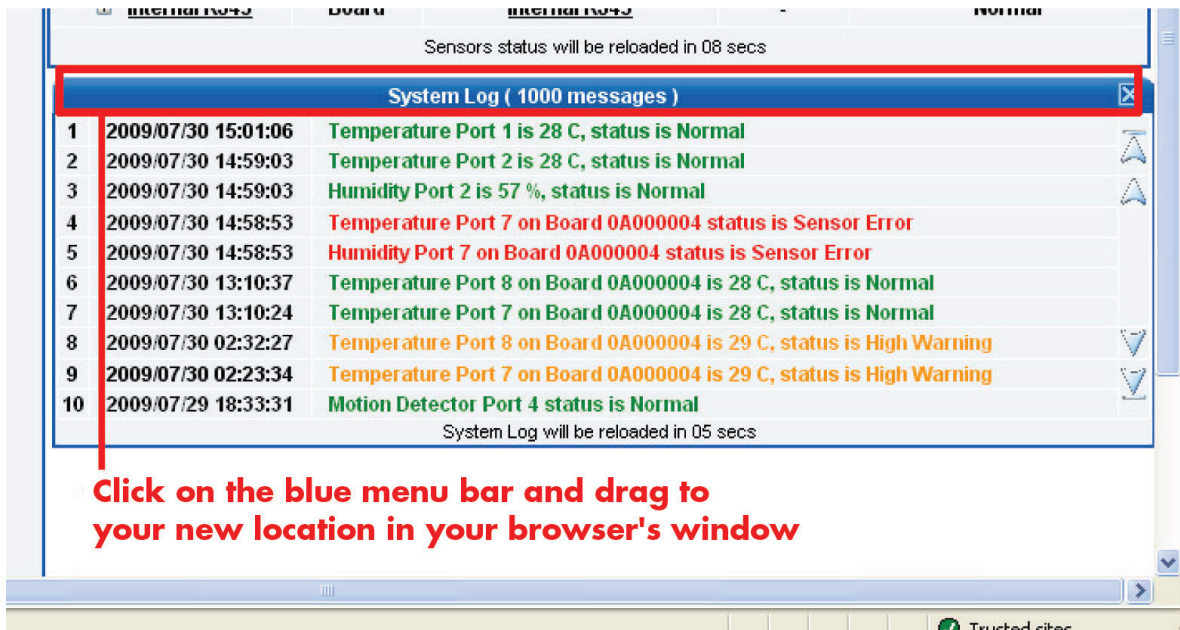


Figure 5-3. Opening multiple windows.

Chapter 5: Camera

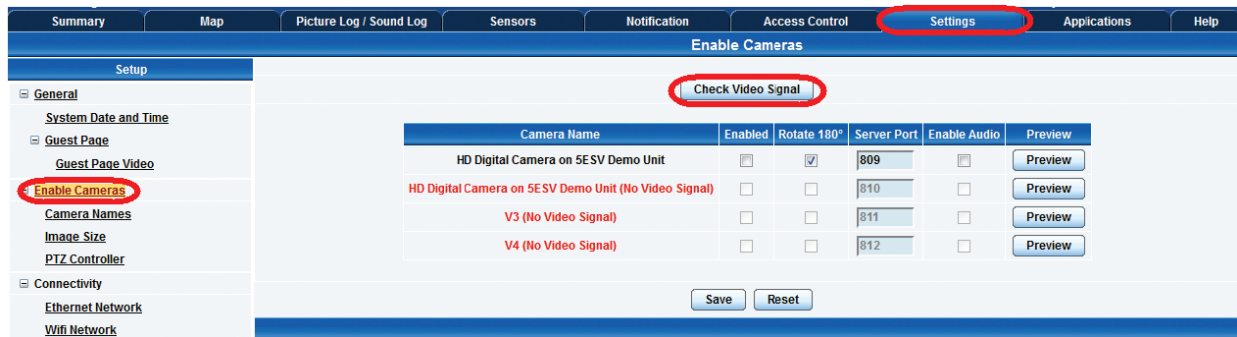


Figure 5-4.

To check the cameras settings in the Web interface, you first need to go to the Settings page, then the Enable Cameras page. Press the Check Video Signal button to scan the camera ports on the unit for connected cameras.

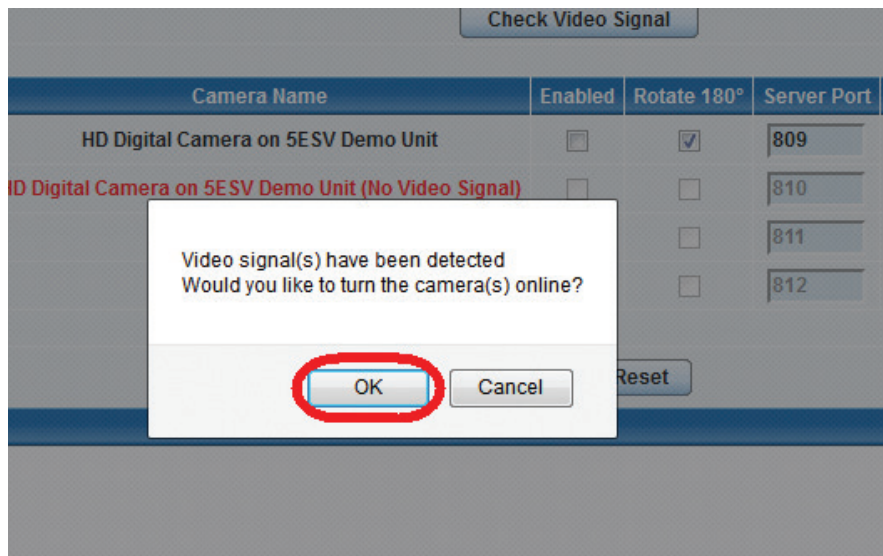


Figure 5-5.

After the camera or cameras are detected, you will then see this pop-up message shown in the screen shot above. Click on the OK button.

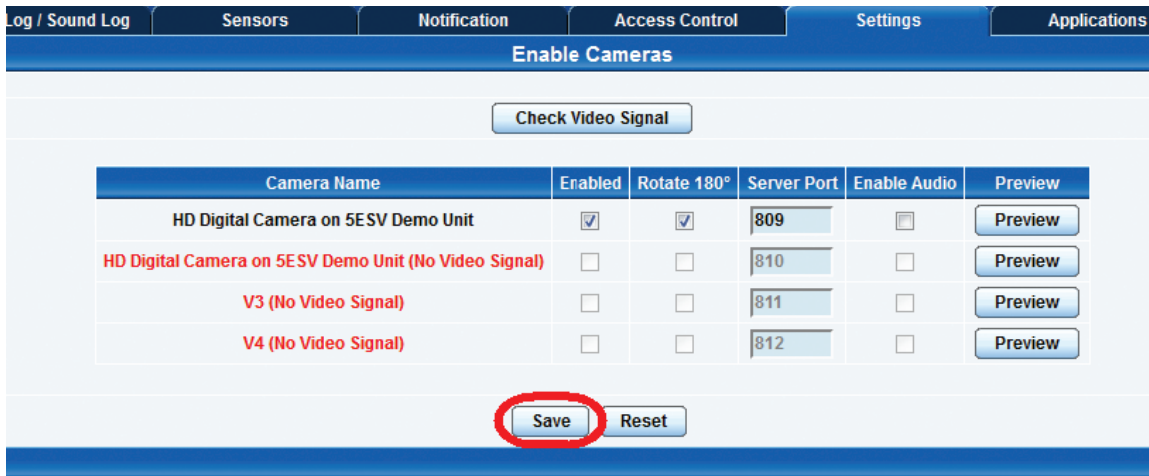


Figure 5-6.

The cameras connected to the ServSensor V4E 5E base unit will now be checked in the Enabled box as shown in the screen shot above.

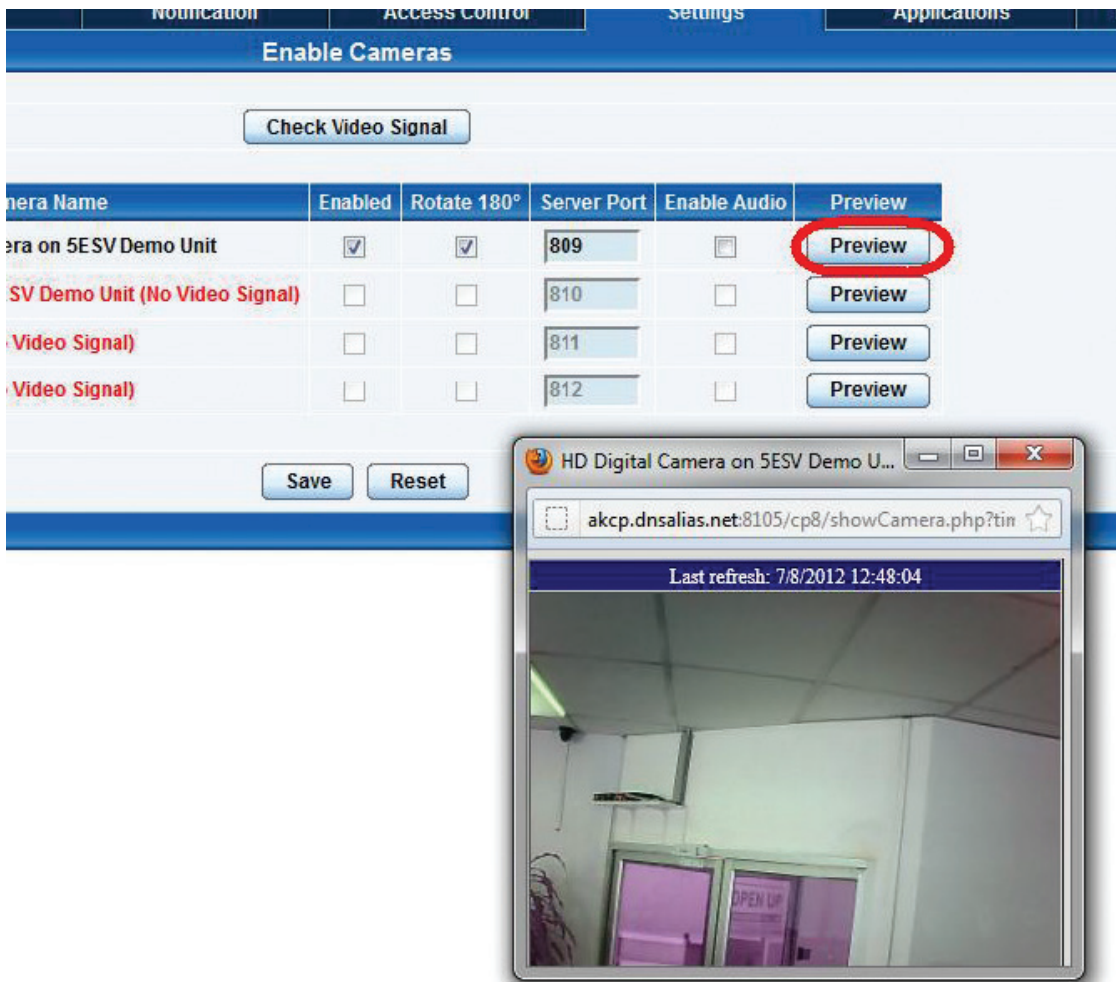


Figure 5-7.

Chapter 5: Camera

You can then check to make sure the video stream is working by clicking on the “Preview” button. If the image appears upside down, you can enable the “Rotate 180” setting to correct the image depending on how the camera is mounted.



Figure 5-8.

After your cameras are enabled, you can then name them as you require by first selecting the “Camera Names” link from the Setup column, then renaming the text in each of the V1–V4 description fields as shown in the screen shot above.

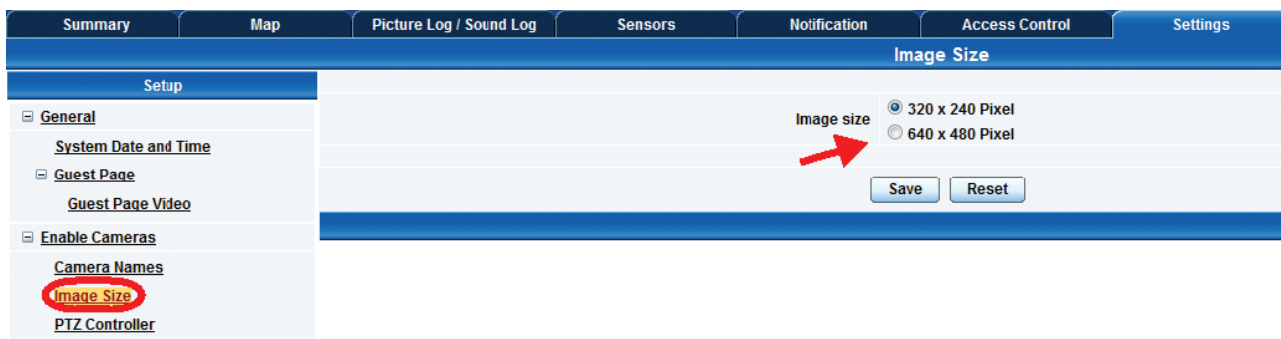


Figure 5-9.

By clicking on the “Image Size” link in the Setup column, you can then change the Image Size of the streaming video from your cameras to either 320 x 240 or 640 x 480.

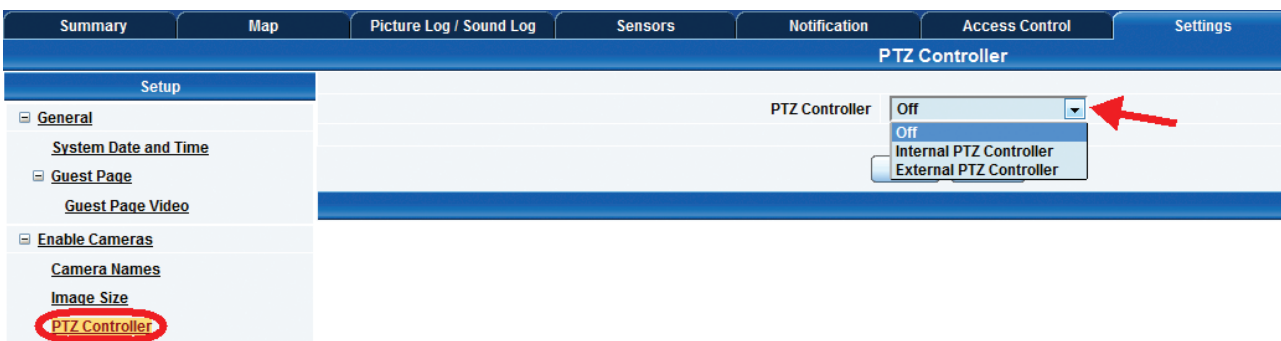


Figure 5-10.

If you are using pan tilt cameras or other third party Pelco-D cameras, then you will need to enable the PTZ Controller from the PTZ Controller page as shown above. You will always normally choose the “Internal PTZ Controller.”

Note: The External PTZ Controller refers to an obsolete option where an external controller could be connected to the unit.

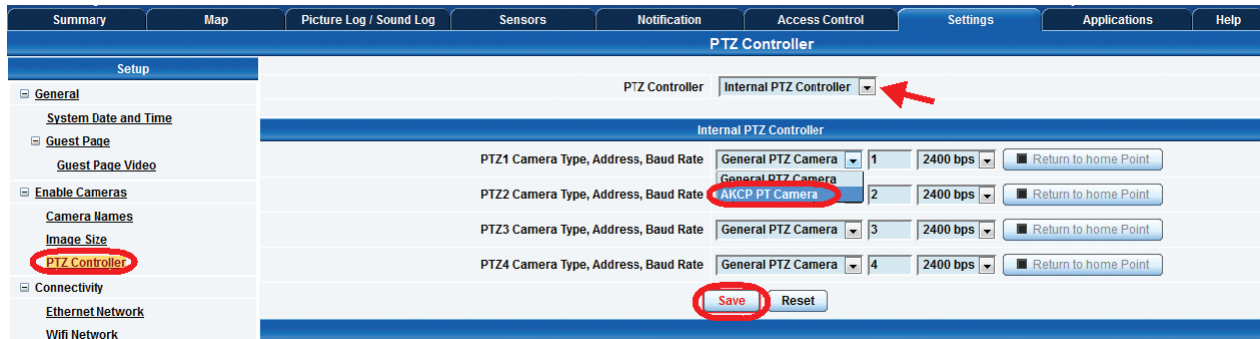


Figure 5-11.

Now that the Internal PTZ controller is set, you need to select "General PTZ Camera" from the drop-down list as shown in the screen shot above.

Note: For more information on the cameras, cable run lengths etc., please refer to the FAQ section at the end of this manual.

Chapter 5: Camera

5.2 Pan/Tilt Camera Functions

This tutorial provides you with the information needed to set up an MMS notification.

To get to the starting point of this tutorial:

- Log in as administrator.
 - From the summary page, select options.
1. First, click on the "Pan Tilt & Zoom Control" button.

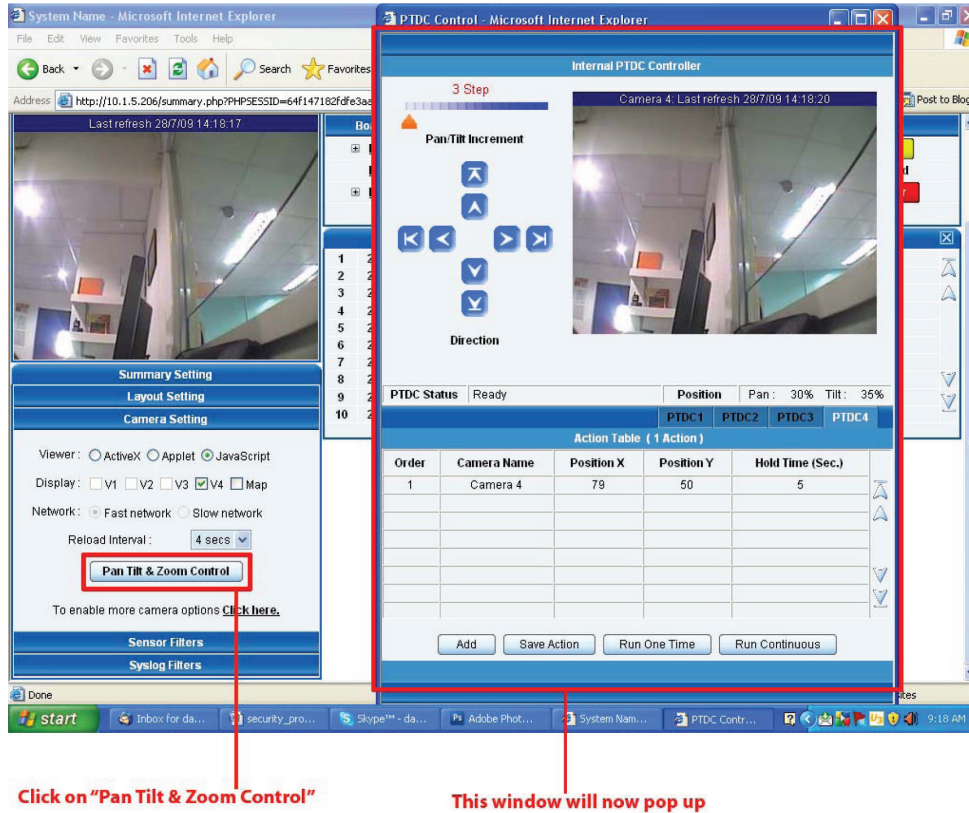


Figure 5-12. PTZ control screen.

2. Pan and tilt the camera via the pan/tilt arrows. See Figures 5-13 through 5-16.



Figure 5-13. Pan/Tilt, screen 1.



Figure 5-14. Pan/Tilt, screen 2.



Figure 5-15. Pan/Tilt, screen 3.

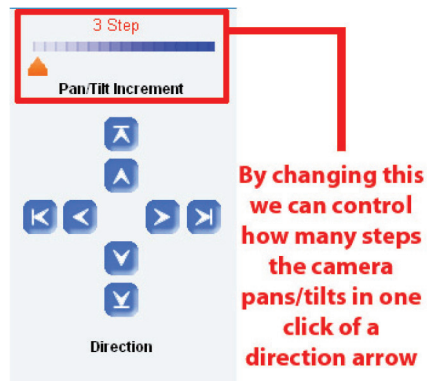


Figure 5-16. Pan/Tilt, screen 4.

NOTE: You can also pan and tilt the camera by placing your mouse on the video image and clicking the position that you want the camera to face. This is useful when you want to enter the values for automated camera movements.

5.3 Automating Camera Movements

This tutorial provides you with the information needed to set up automated camera movements.

To get to the starting point of this tutorial:

- Log in as administrator.

- Select options from the summary page.
- Click “Pan Tilt & Zoom Control.” (See Figure 5-12.)

We will now look at creating automated camera movement. This will make the camera automatically pan or tilt at preset intervals. (See Figure 5-17.)

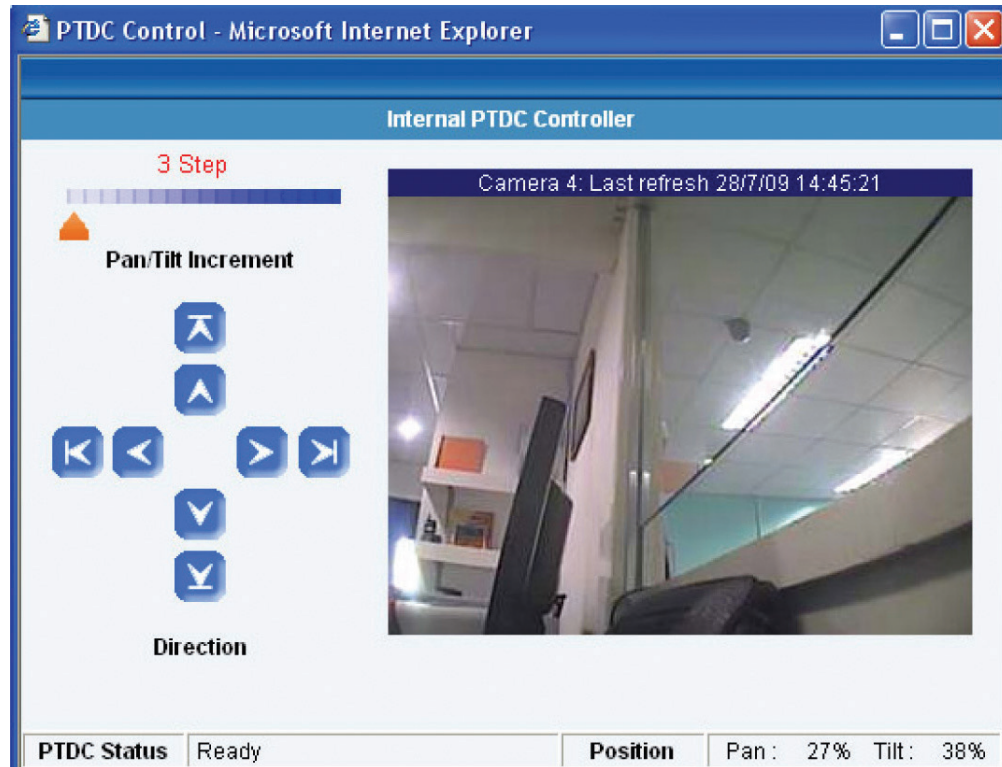


Figure 5-17. Top of the internal PTDC controller screen.

1. Click on the add button, the following pages will appear.

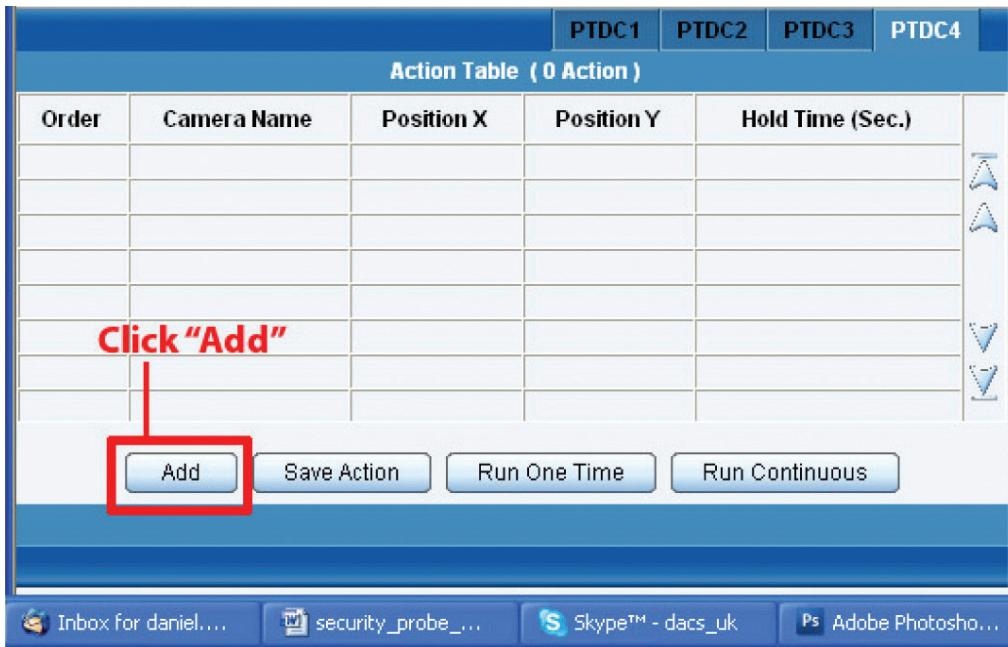


Figure 5-18. Bottom of the internal PTDC controller screen.

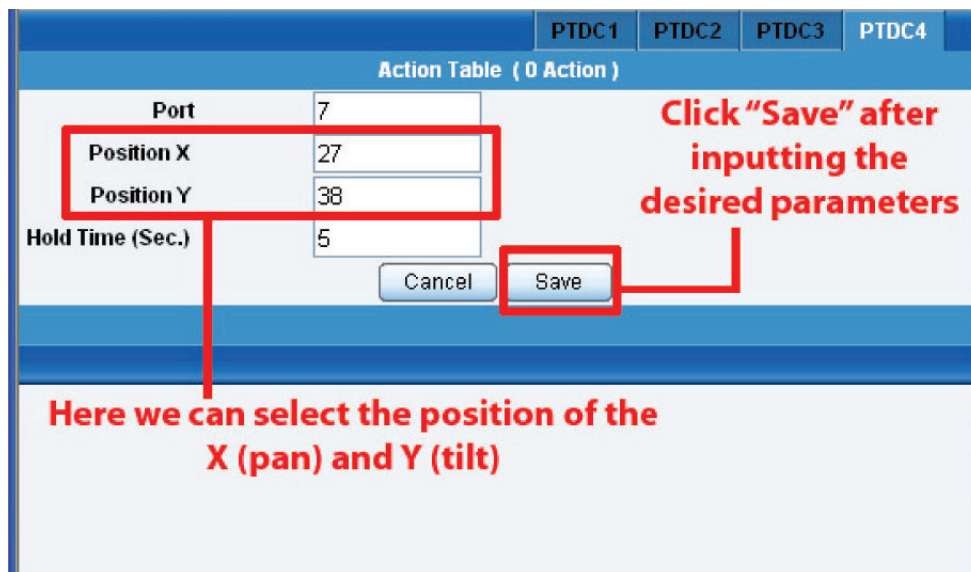


Figure 5-19. Setting position of X (pan) and Y (tilt).

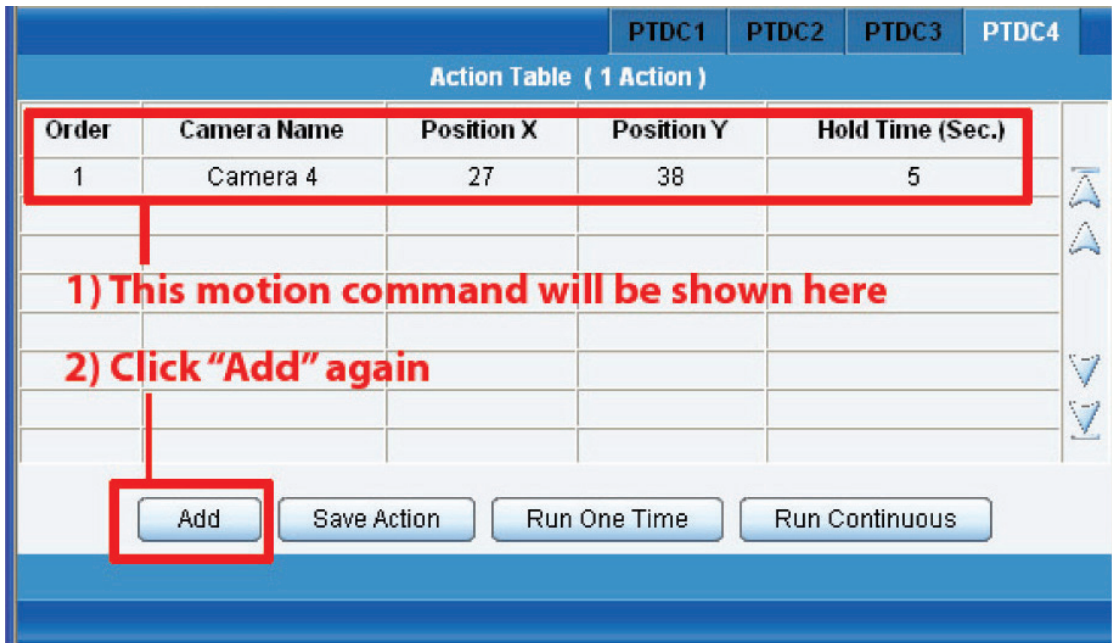


Figure 5-20. Action table.

Click "Add" in Figure 5-20 to move the camera to a new position shown in Figure 5-13.

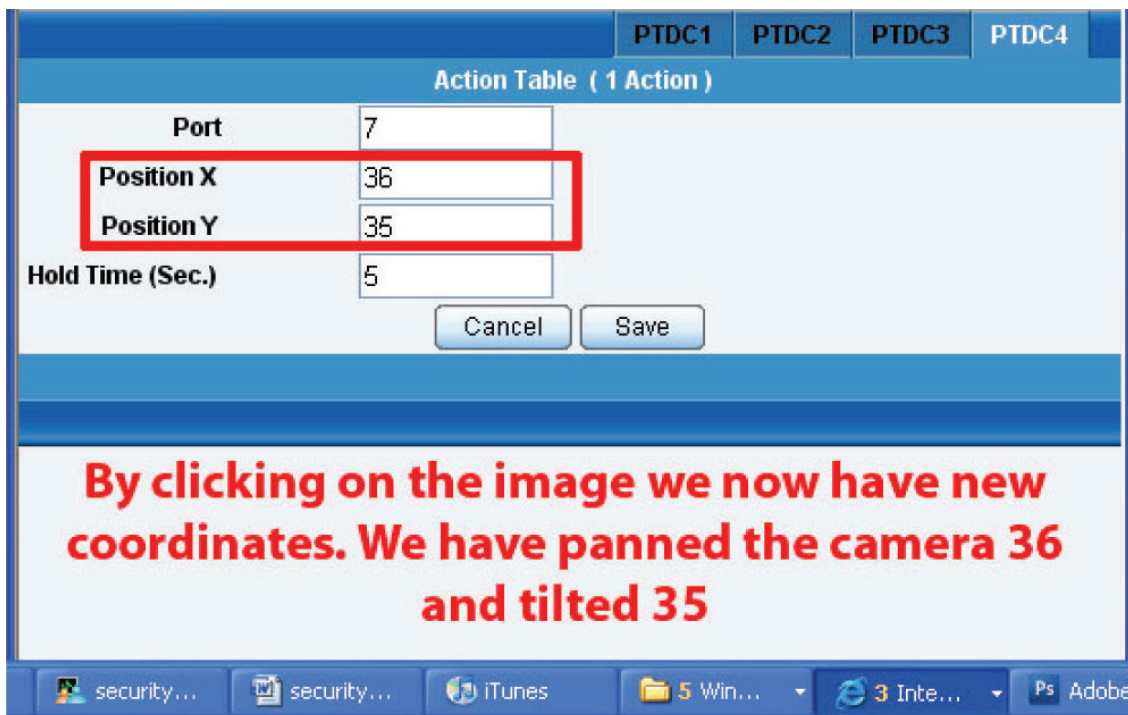


Figure 5-21. New coordinates set for pan/tilt.

2. Repeat this process as many times as you want to automate the camera's movement so that it covers the area you need to monitor. In this example, we have added three different positions.

The screenshot shows a software interface for configuring camera actions. At the top, there are tabs for PTDC1, PTDC2, PTDC3, and PTDC4. Below them is a header for the 'Action Table (2 Action)'. The table has five columns: Order, Camera Name, Position X, Position Y, and Hold Time (Sec.). The first two rows are populated with data: Order 1, Camera Name 'Camera 4', Position X 0, Position Y 0, Hold Time 5; and Order 2, Camera Name 'Camera 4', Position X 36, Position Y 35, Hold Time 5. Below the table are four buttons: 'Add', 'Save Action', 'Run One Time', and 'Run Continuous'. The 'Save Action' and 'Run Continuous' buttons are highlighted with red boxes. Red arrows point from these boxes to red text below the interface.

Order	Camera Name	Position X	Position Y	Hold Time (Sec.)
1	Camera 4	0	0	5
2	Camera 4	36	35	5

After adding several movements click "Save Action"

Now click "Run Continuous" and you should see the camera run through the preset coordinates

Figure 5-22. Action table.

3. After clicking "Save Action," click on "Run Continuous." This will start the script running. You should then see instant feedback from the live stream in the camera window as the camera pans through these positions.

5.4 Recording from the Camera

To record from the camera, you first need to have ActiveX controls installed on your PC. The Web interface will direct you on how to do this. For this tutorial, we will assume this is done.

This tutorial provides you with the information you need to set up the recording from the camera.

To get to the starting point of this tutorial:

- Log in as administrator.
- From summary page, select options.

1. Select ActiveX as the mode of display. (Some users may need to install it. If so, follow the on-screen instructions.) Your camera window will change, giving you setup and record options.

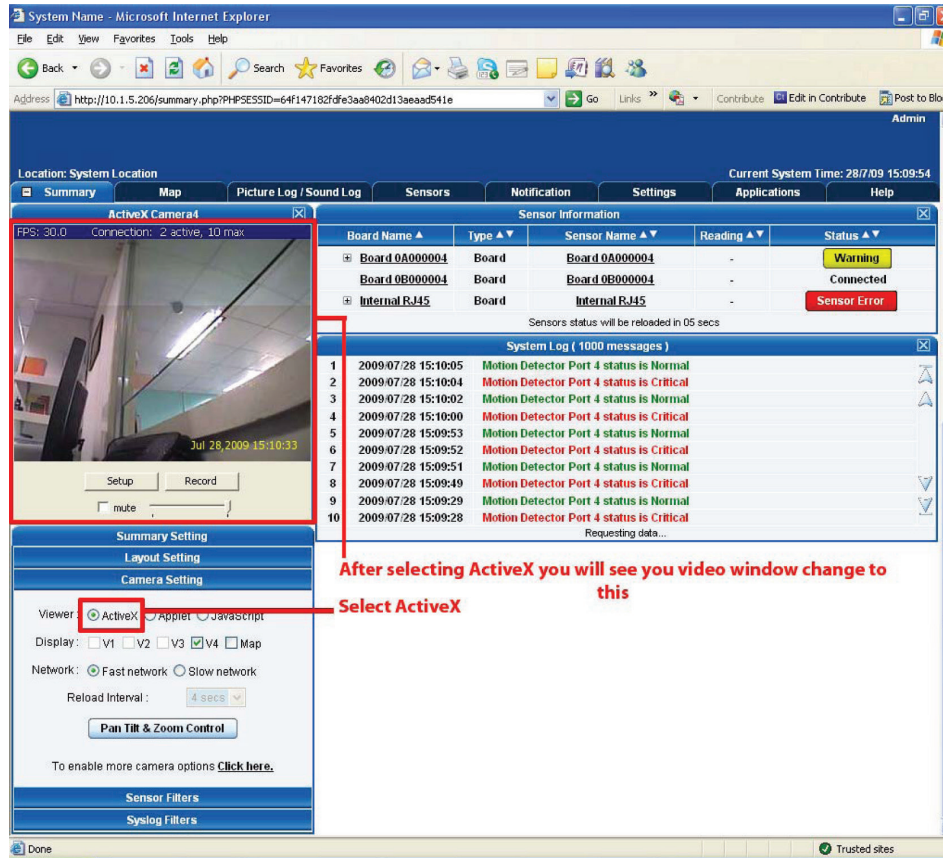


Figure 5-23. Select ActiveX.

2. Click "Record" and the camera record window will now open.

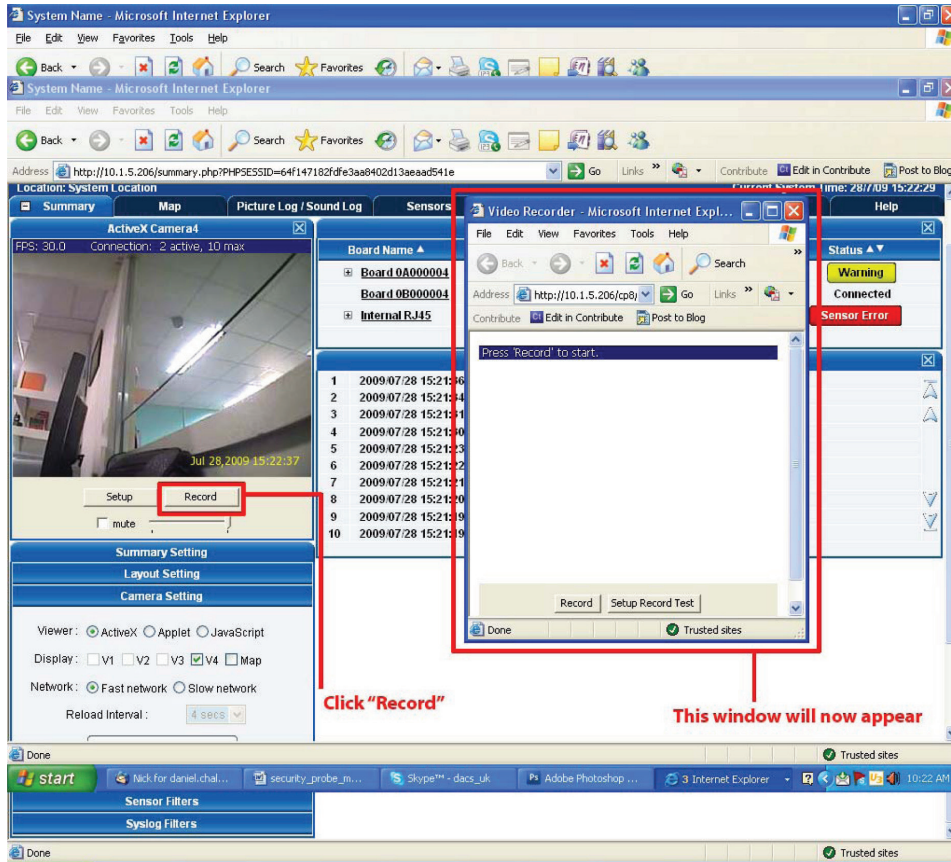


Figure 5-24. Camera record window.

3. Now we need to set up the capture parameters. Click on "Setup Record Test."

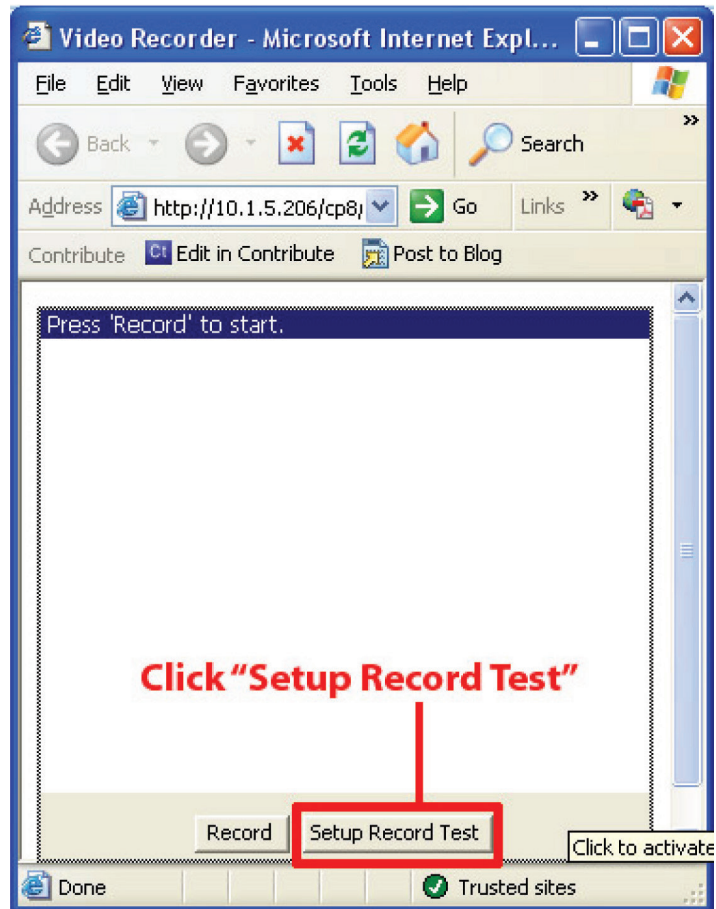


Figure 5-25. Setup record test.

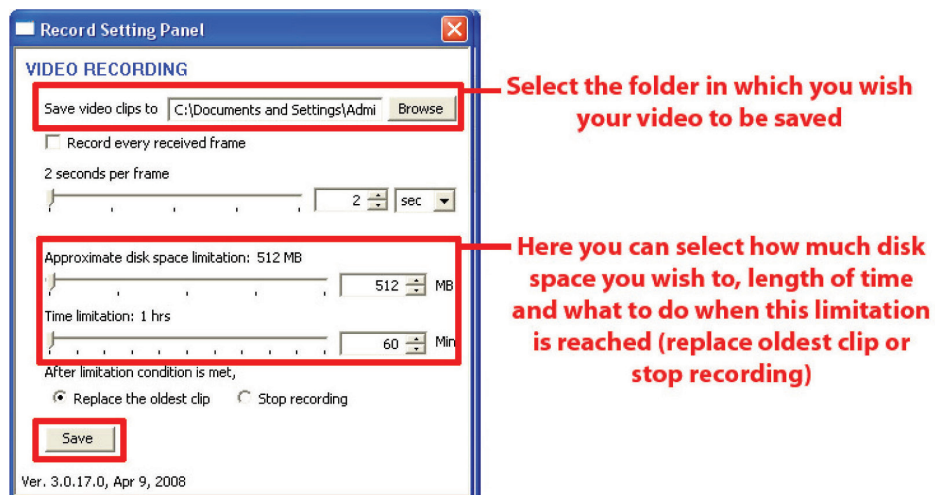


Figure 5-26. Select video save parameters.

4. To begin capture, simply click on "Record."

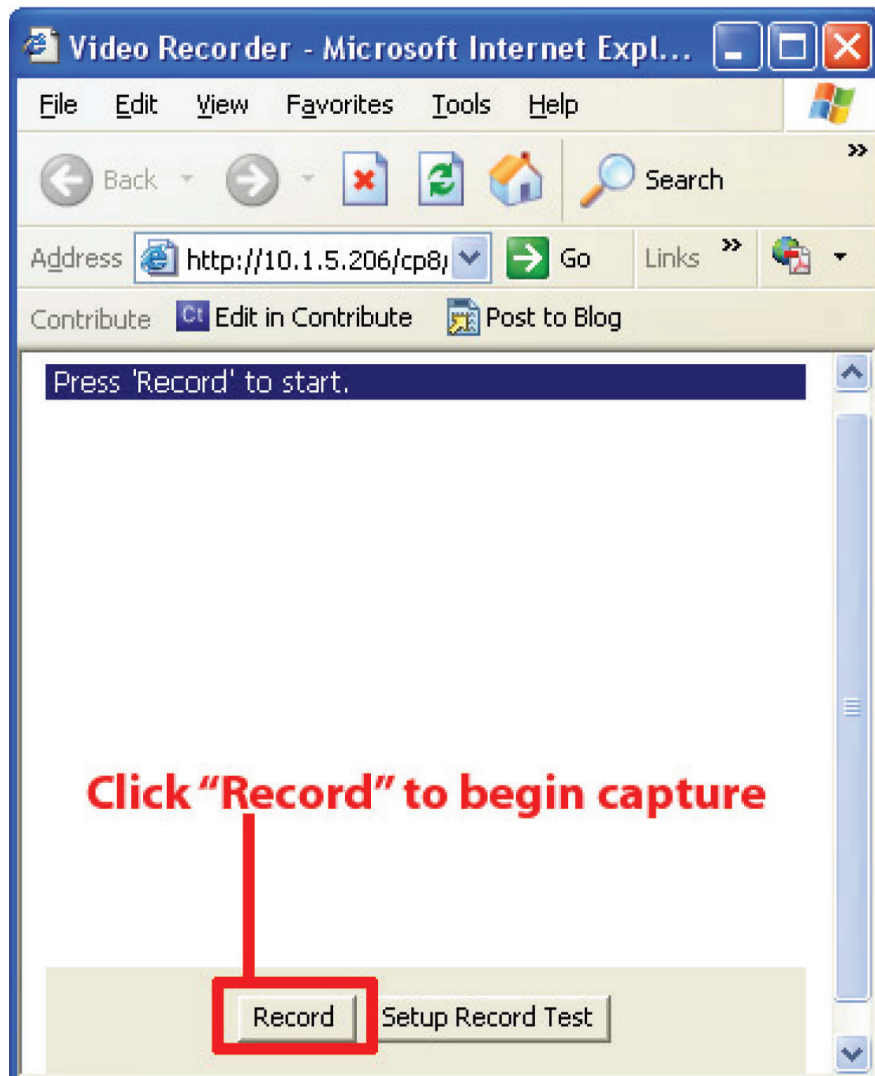


Figure 5-27. Record button.

NOTE: If you want to record and run the automated camera movements at the same time, start the automated camera movements from the "PTZ Control."

5.5 Picture Log

The camera can be used to automatically log a photo and send it as part of a notification. Continuing our example of setting up the temperature sensor in this part of the tutorial, we are going to use the camera to capture an image from 2 seconds and 1 second before and 2 seconds after the event. The event will be when the temperature sensor reading is at "High Critical."

This tutorial provides you with the information needed to set up an MMS notification.

To get to the starting point of this tutorial:

- Log in as administrator.
- Select the "Notifications" tab.

- Select “Notification Wizard.”
 - Choose “Picture Log” as the notification type (follow previous “Notifications Wizard” instructions). See Section 4.2.
1. Once this is done, you can add it to the active notifications so your page should now look like the screen in Figure 5-28.

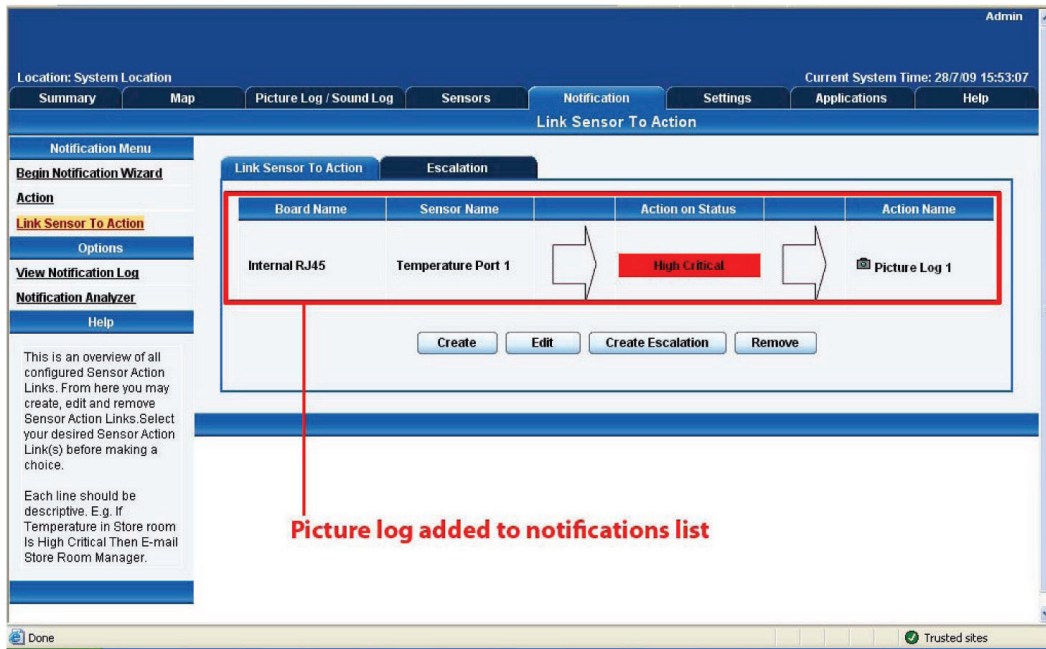


Figure 5-28. Add Picture Log screen.

NOTE: As you can see from the screen shot above, we have set the picture log to be created when the temperature sensor is at a “High Critical” state.

2. Adjust the notification thresholds to trigger a response. This has triggered the picture log notification.
3. Click the “Picture Log/Sound Log” tab. See Figure 5-29.

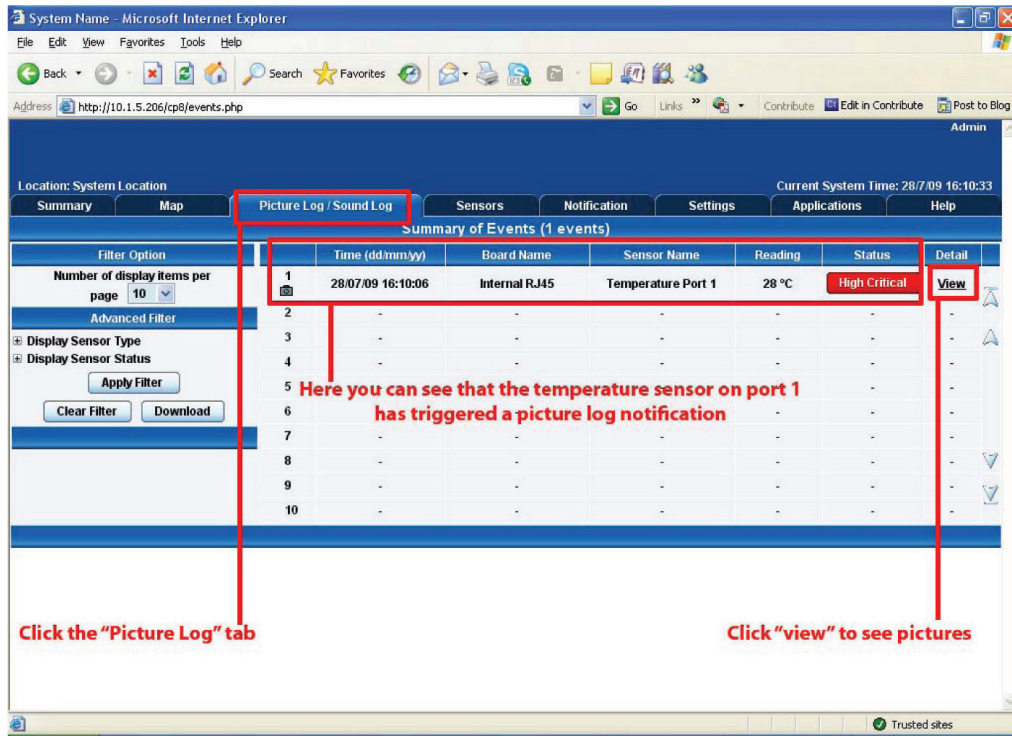


Figure 5-29. Picture and Sound Log tab.

4. Click "View."

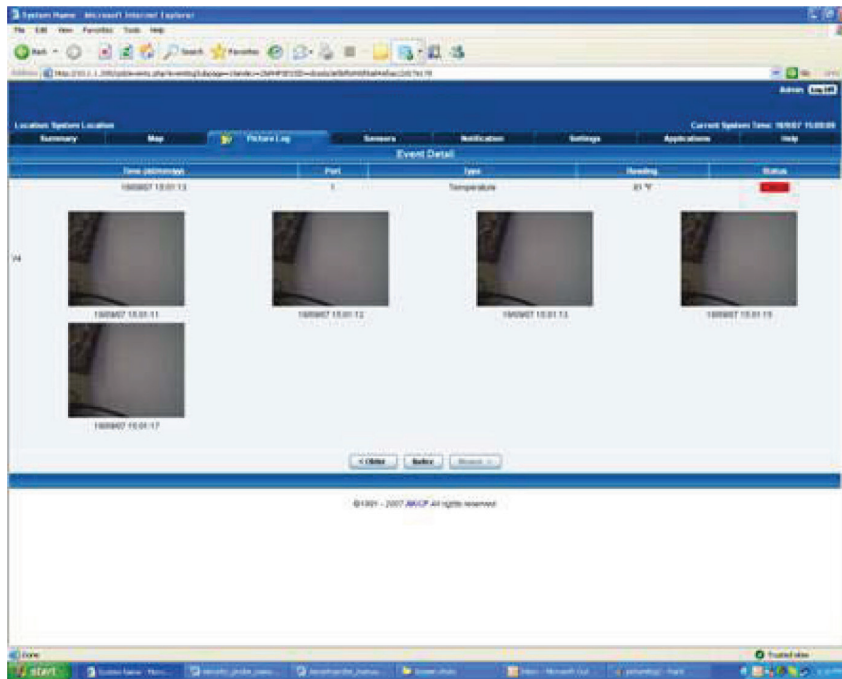


Figure 5-30. Images.

From here you can see there is a series of images. These have been taken at the preset time intervals, before and after the event. These parameters were set up in the notification wizard previously.

6. Mapping

The mapping feature allows instant visual feedback about a sensor's position and status. It is a useful monitoring tool for a setup with several sensors in different positions.

This tutorial provides you with the information needed to set up the mapping feature.

To get to the starting point of this tutorial:

- Log in as administrator.
- Click the "Map" tab.

6.1 Adding a Map

1. First, we need to add a picture file to be used as the map. This can be a blueprint of your office, a 3D picture of your office/site being monitored, or a photo of the wiring closet you are monitoring.

NOTE: The maximum map file size is 512 KB.

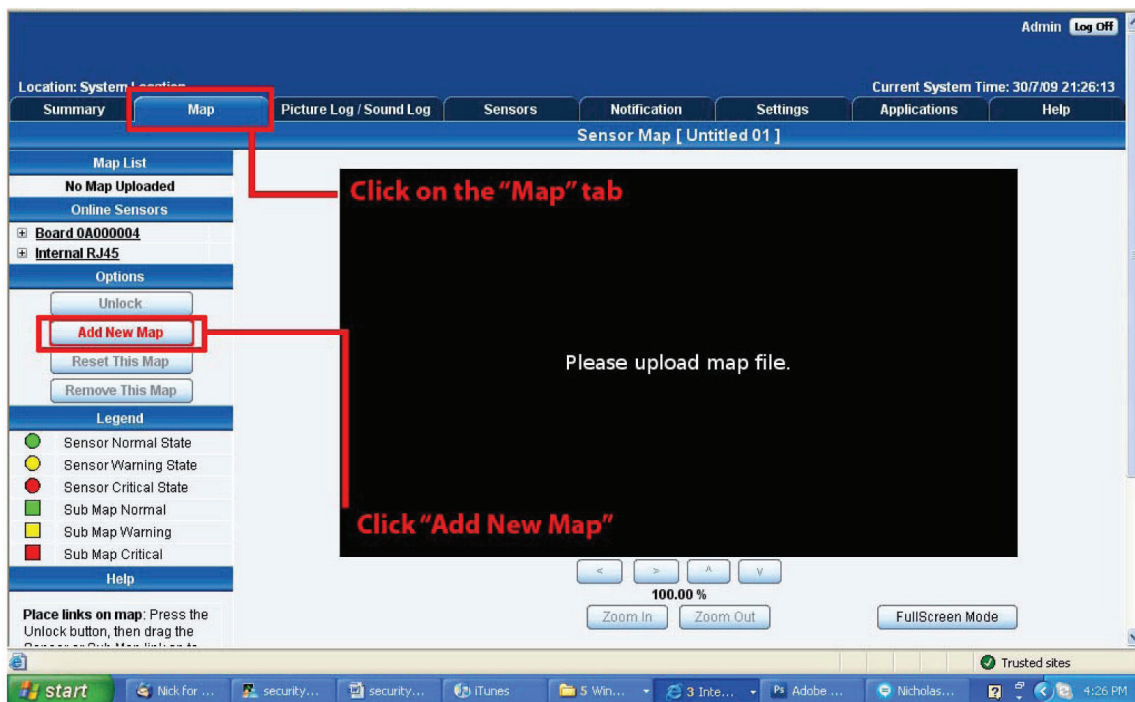


Figure 6-1. Click on the "Map" tab.

2. Browse to the file on your hard drive that you want to use.

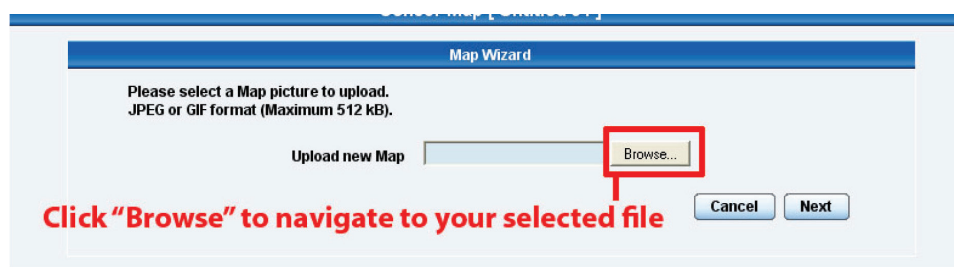
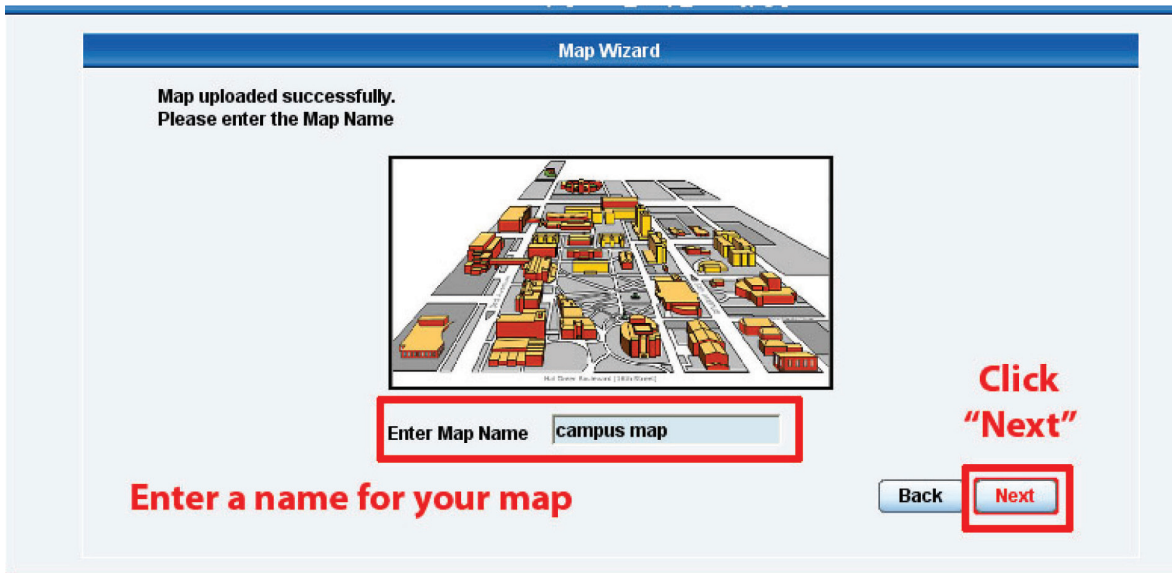


Figure 6-2. Browse to selected file.

Chapter 6: Mapping

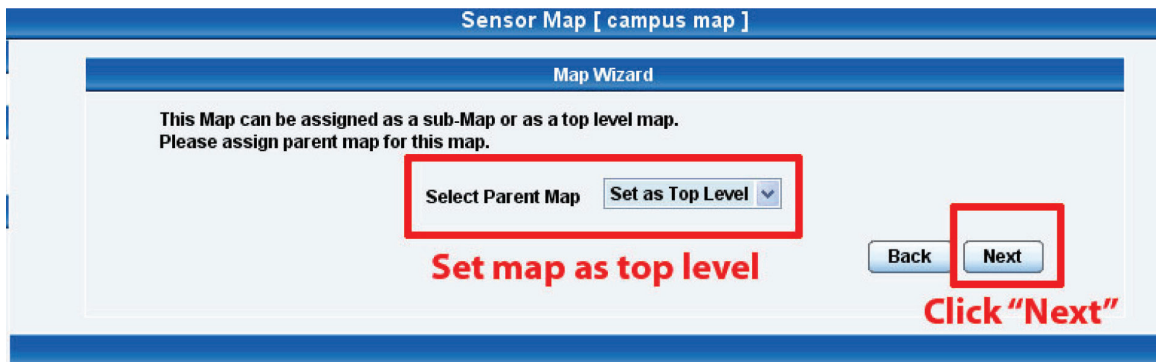
3. In this tutorial, we are going to use a 3D map of a campus site we are monitoring.



The screenshot shows a web interface titled "Map Wizard". At the top, it says "Map uploaded successfully. Please enter the Map Name". Below this is a 3D perspective view of a campus map with various buildings and roads. Underneath the map is a text input field labeled "Enter Map Name" with the text "campus map" entered. To the right of the input field, there is a red text prompt "Click 'Next'" and a "Next" button highlighted with a red box. Below the input field, there is a red text prompt "Enter a name for your map". At the bottom right, there are "Back" and "Next" buttons, with the "Next" button highlighted by a red box.

Figure 6-3. Enter map name.

4. Choose to have the map as a top-level map.



The screenshot shows a web interface titled "Sensor Map [campus map]". At the top, it says "Map Wizard". Below this, it says "This Map can be assigned as a sub-Map or as a top level map. Please assign parent map for this map." Below this text is a dropdown menu labeled "Select Parent Map" with "Set as Top Level" selected. To the right of the dropdown menu, there is a red text prompt "Click 'Next'" and a "Next" button highlighted with a red box. Below the dropdown menu, there is a red text prompt "Set map as top level". At the bottom right, there are "Back" and "Next" buttons, with the "Next" button highlighted by a red box.

Figure 6-4. Enter map level.

5. You will now have the option to finish or to add sensors to your map. For this tutorial, click "Next."



The screenshot shows a web interface titled "Map Wizard". At the top, it says "Map added successfully. Click Finish to close this wizard or click Next to continue to Sensor Adding Wizard." Below this text, there are two buttons: "Finish" and "Next".

Figure 6-5. "Finish" or "Next."

6. You will now be taken to the map page where it will display your map. To add sensors, click "Next."



Figure 6-6. Sensor map.

7. After clicking "Next," click the "Unlock" button. This enables you to add sensors to the map.

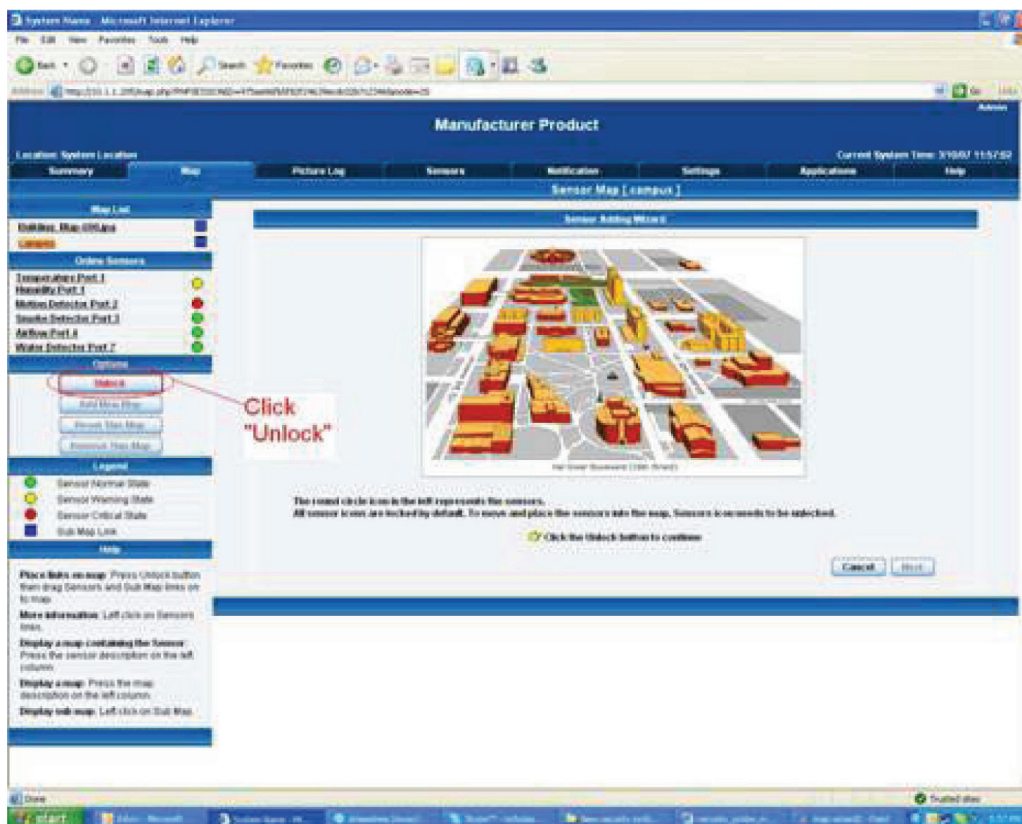


Figure 6-7. Add sensors to map.

Chapter 6: Mapping

8. You can now drag sensor icons and position them on the map.

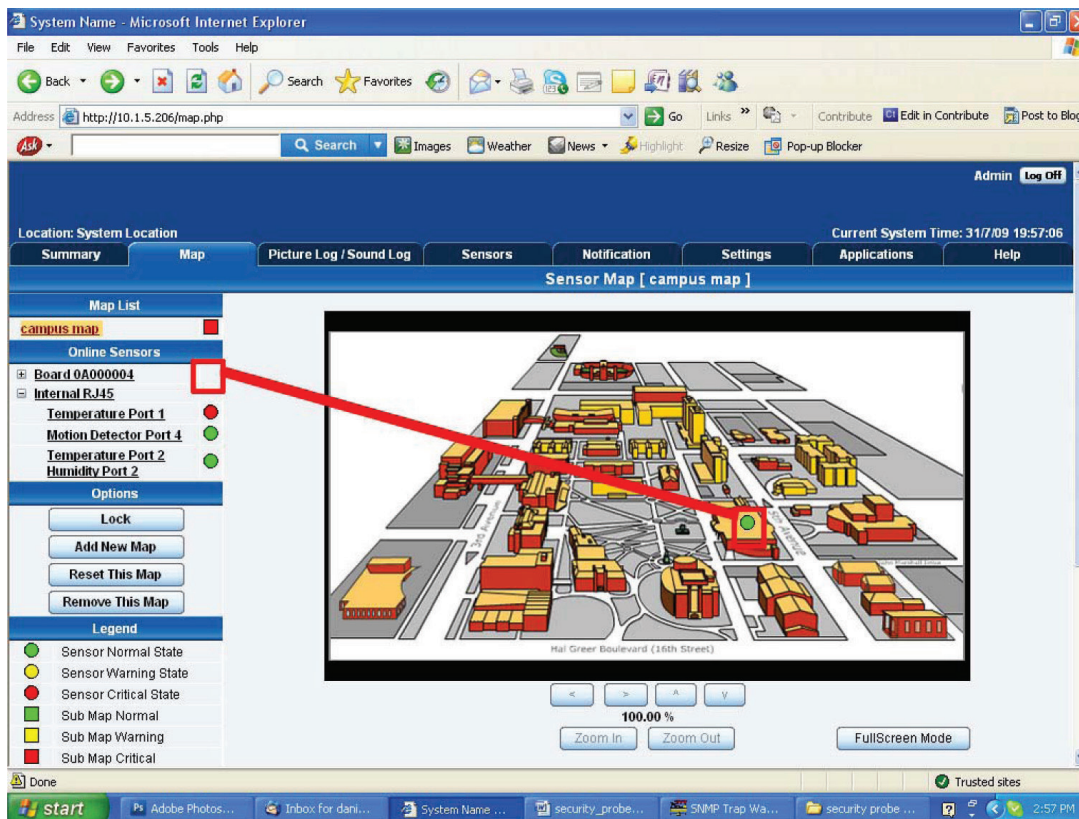


Figure 6-8. Position sensor icons on map.

9. After you have positioned the sensors in the correct location of your map, click "Unlock."



Figure 6-9. Click "Unlock."

10. Finally you click on the "Finish" button to save your changes.

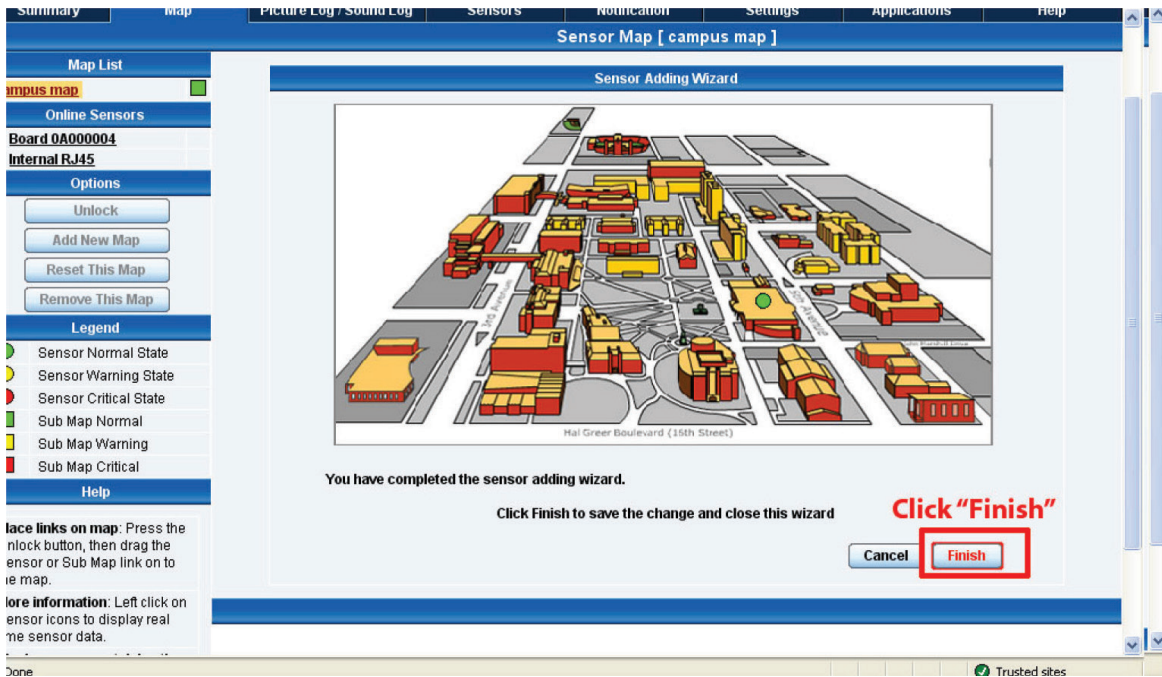


Figure 6-10. Save changes.

6.2 Monitoring via the Map Interface

Now we are going to look at how to monitor the sensor status and use the map interface.

1. To see further information about a sensor, you can click on its icon. First, you must click on the "Lock Icons" button.

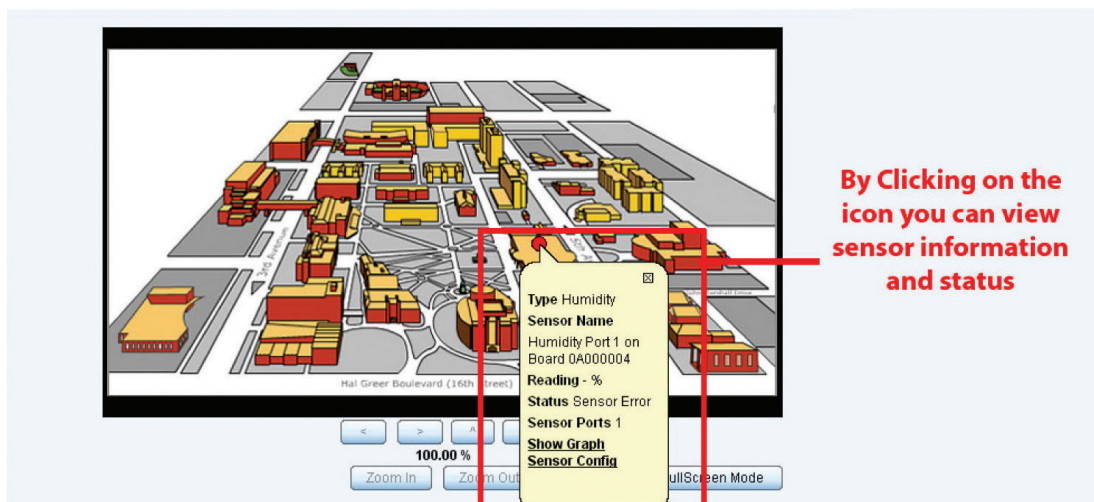


Figure 6-11. Using the map interface.

If you connect other sensors, these too can be dragged and positioned on the map.

Chapter 6: Mapping

2. If you click on "Show Graph" you can view a graph of the sensor's collected data. See Figures 6-12 and 6-13.



Figure 6-12. View graph of sensors data.

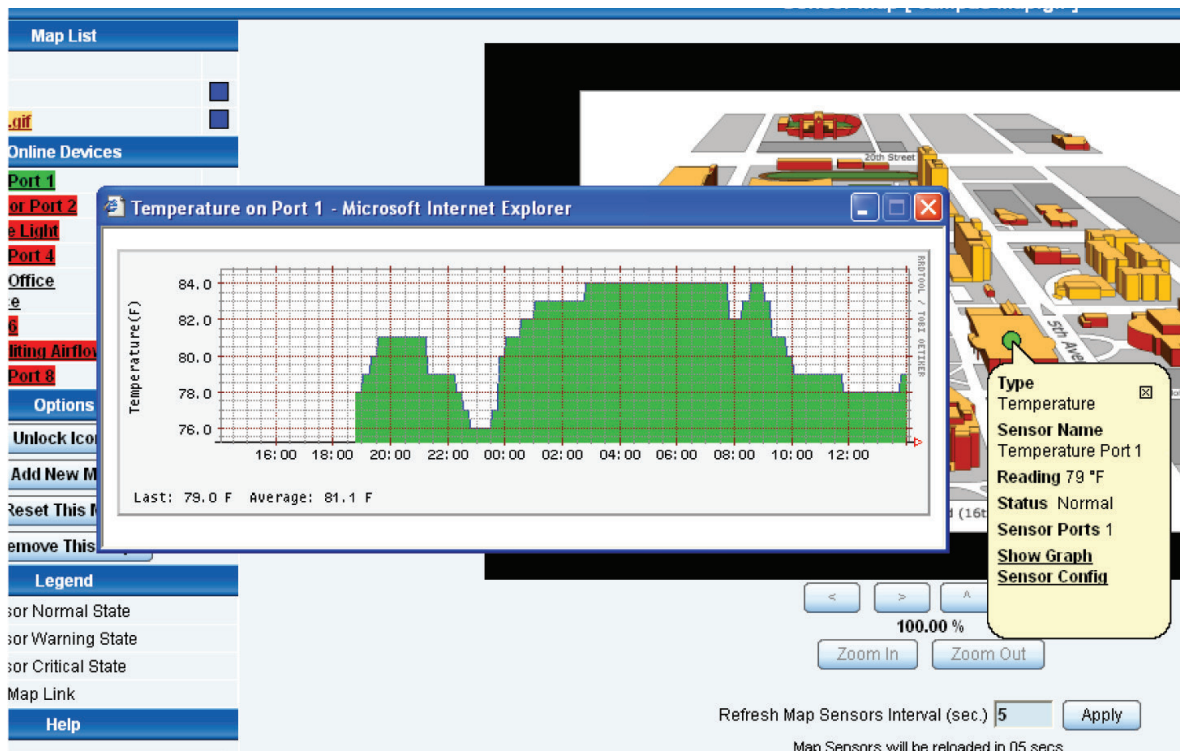


Figure 6-13. Graph of sensors data screen.

7. Filters

7.1 Sensor Filters

1. The ServSensor comes equipped with the option to filter your sensor information that is displayed within the summary page. To enter the filter menu, select "Sensor Filters" from the drop-down tab on the left side of the page.

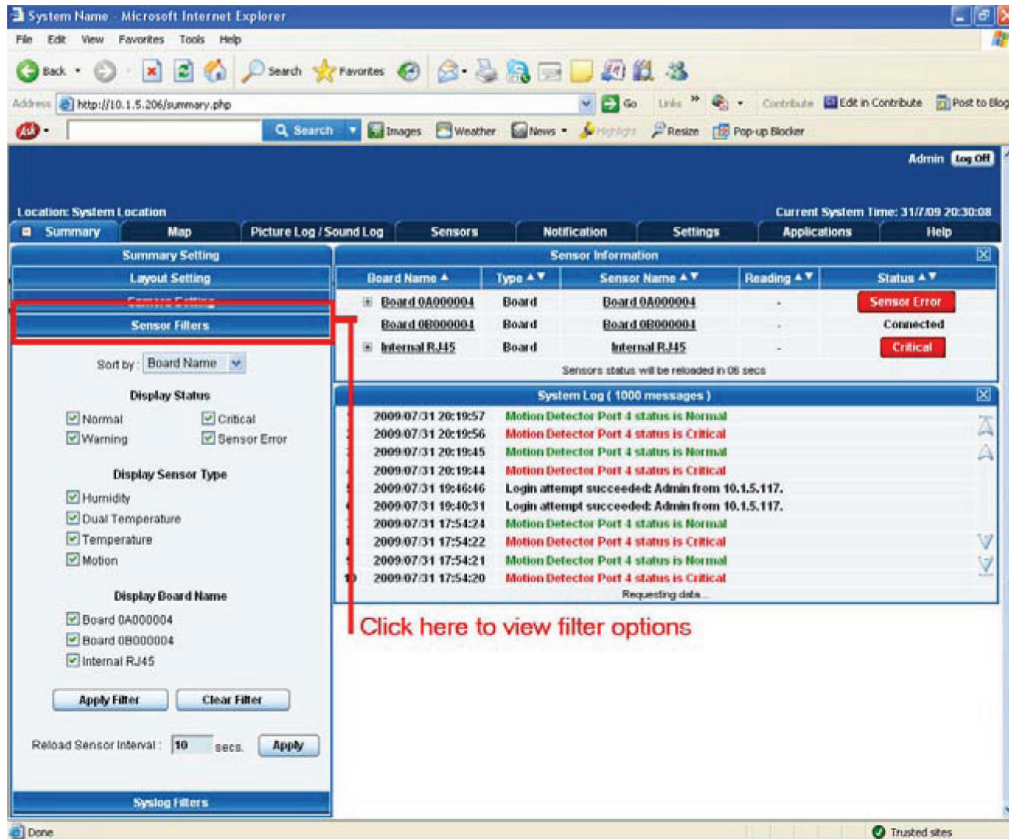


Figure 7-1. Select sensor filters.

2. Once you click the tab, you will be able to select your filter results by altering various fields of information contained within the sensor filter window.

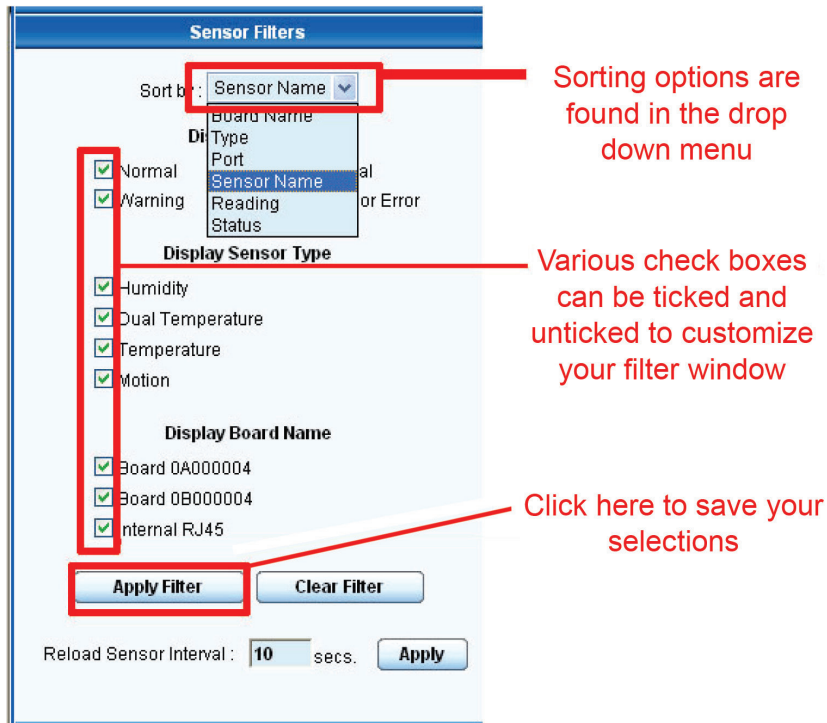


Figure 7-2. Add information fields.

3. You can alter the page reload interval by using these options.



Figure 7-3. Alter the page reload interval.

- Once you have selected your preferred filter options, your new settings will be displayed in the "Sensor Information" window found on the summary page.

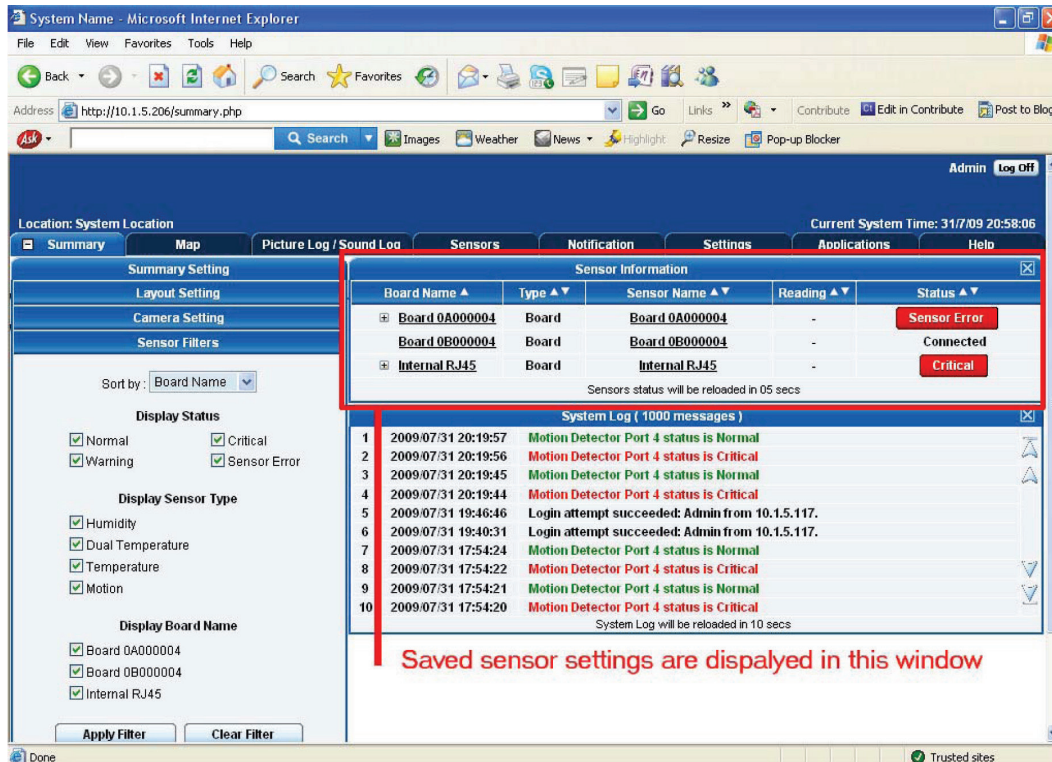


Figure 7-4. Summary page.

7.2 Syslog Filters

Syslog filters enable you to customize your syslog window. To begin, select the "Syslog Filters" tab found on the summary page.

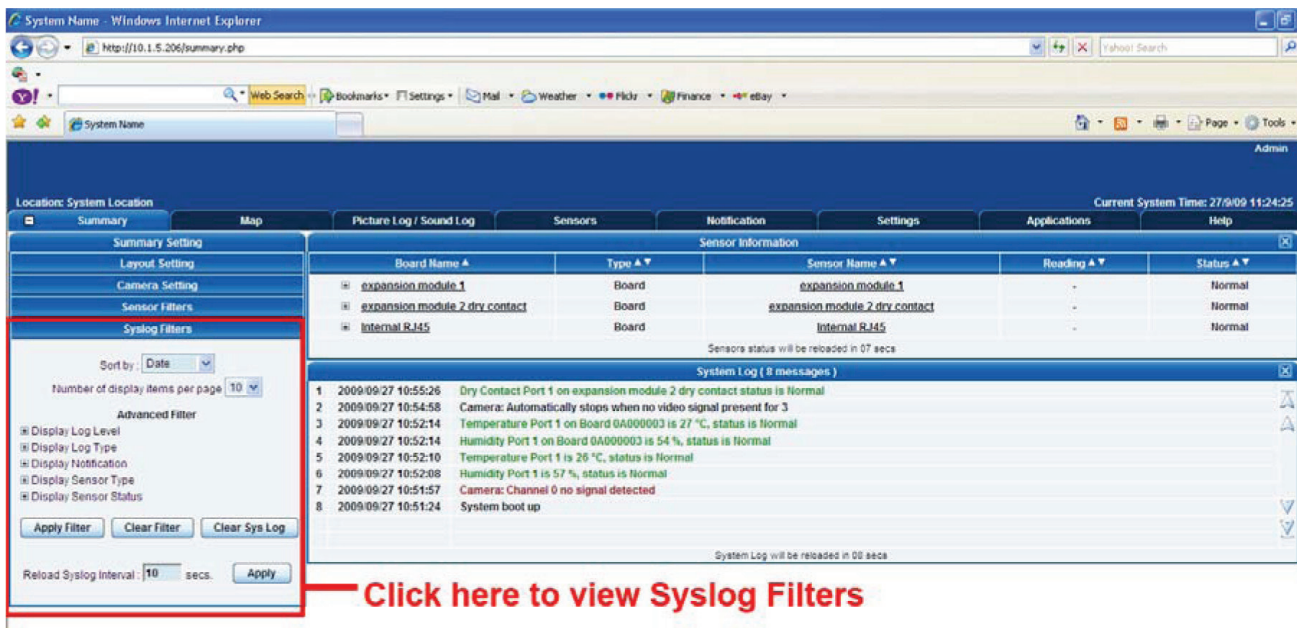
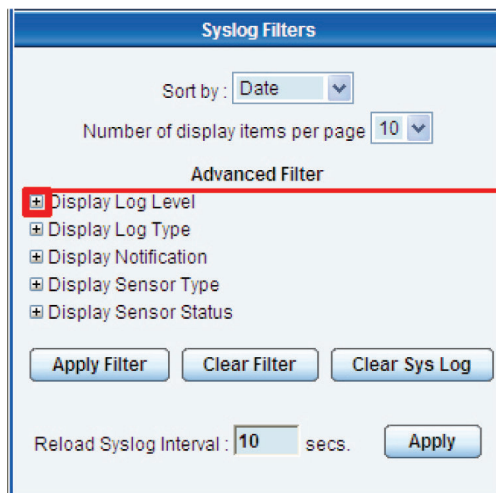


Figure 7-5. Syslog Filters tab.

Chapter 7: Filters

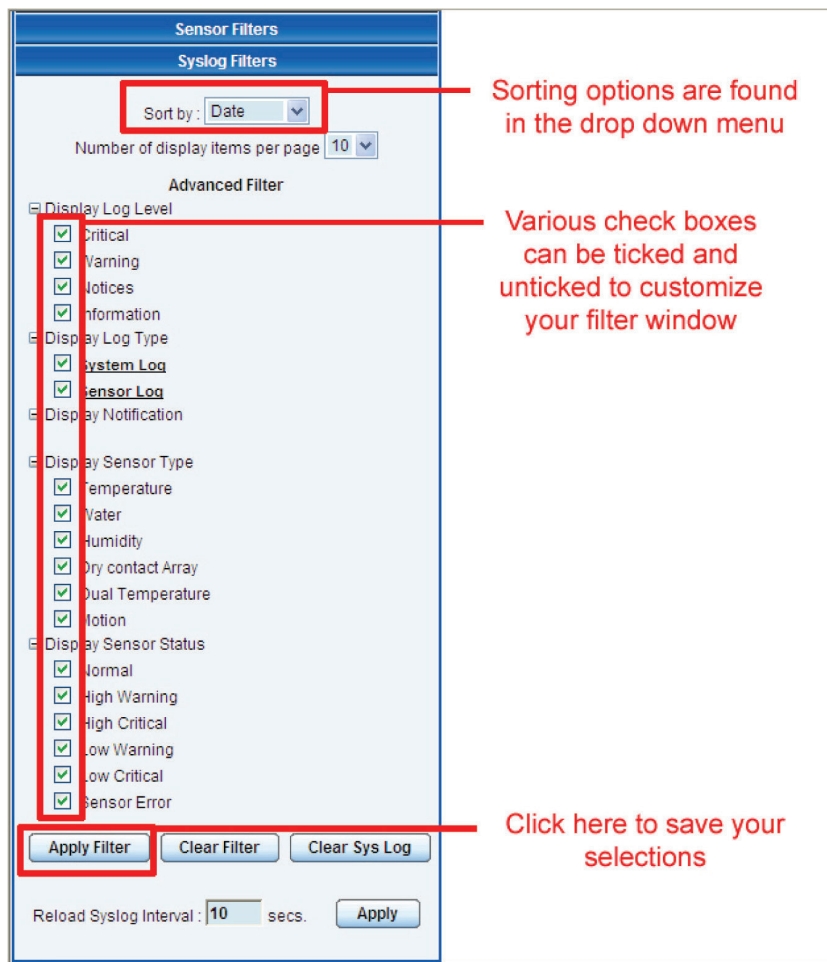
Once you click the tab, you will be able to select your filter results by altering various fields of information contained within the syslog filter window.



By clicking on the “+” sign, a drop down list of options will be come available.

Figure 7-6. Drop-down menu.

By checking and unchecking various boxes within the Syslog filter window, you can customize your displayed results contained within the syslog filter.



Sorting options are found in the drop down menu

Various check boxes can be ticked and unticked to customize your filter window

Click here to save your selections

Figure 7-7. Customize syslog filter results display.

Altering your reload interval can be achieved by using the options shown below.



Figure 7-8. Change reload interval.

Once you have selected your preferred filter options, your new settings will be displayed in the "System log Information" window found on the summary page.

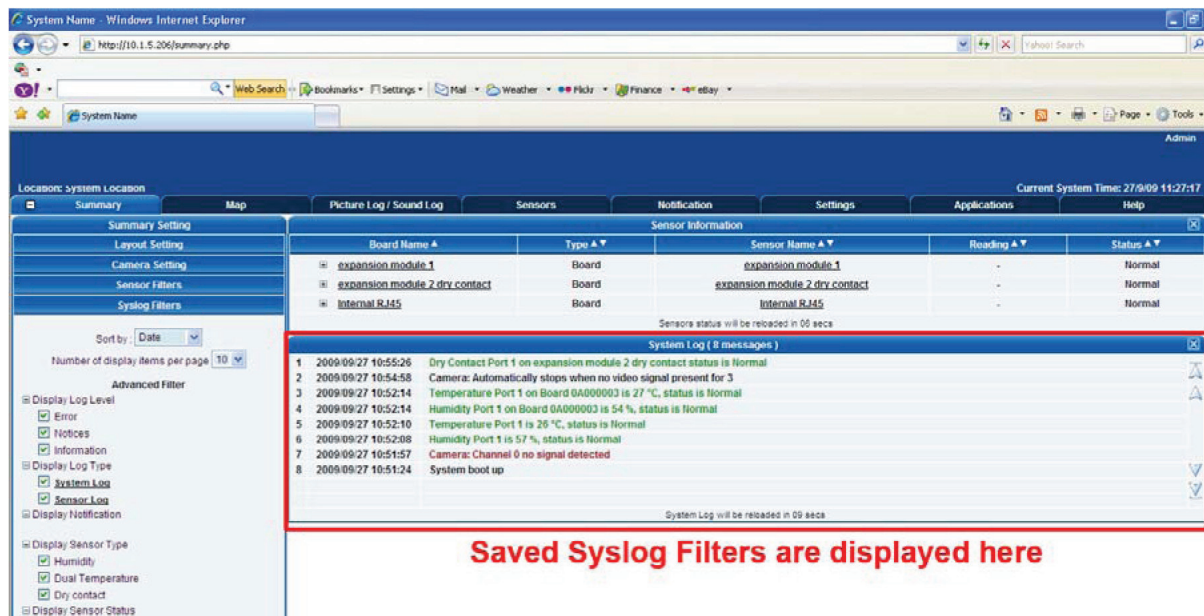


Figure 7-9. Saved syslog filters display.

8. Making the ServSensor Visible on the Internet

The setup we have just created will enable you to access your ServSensor V4E on a local area network (LAN), monitor via the Web based interface, or with SNMP traps.

But, what if you want to be able to remotely access your unit from anywhere in the world? This is possible; however, the following steps are only a guide. Your exact setup and configuration will often depend on your network equipment. You are going to need access to your router, if you are using one, and know whether your IP address is static or dynamic.

1. Suppose your ServSensor is connected to a router on your network, and the following IP addresses are assigned:

Your unit's IP address is the default 192.168.0.100.

Your computer's IP address is 192.168.0.200

Your router's IP address is 192.168.0.300

2. To find out your router's external IP address, go to www.whatsmyip.com

Suppose your router's external IP address is 278.67.04.09

3. You now need to set up port forwarding on your router. This varies depending on your router's model. Generally, you need to point your browser to your router's IP address (in this case 192.168.0.300). This will then enable you to log into your router's administration interface. You can find how to go about doing this for your router on www.portforward.com

For an example of how to do this for a commonly used router, follow this link :-http://www.portforward.com/english/routers/port_forwarding/Linksys/WRT54G/HTTP.htm

You need to set up your router's HTTP forwarding to Port 80. This will then mean when you access your router using the external IP address, you will be forwarded to your unit's internal IP address.

4. To test this, open your Web browser, and go to your external IP address (in our example 278.67.04.09). If you're using a dynamic IP address, check it again before doing this because it may have changed since the start of this tutorial.

5. To make this easier, you could use a dynamic name server (DNS). This means that you no longer need to remember IP addresses or use www.whatsmyip.com to find out your IP address. You will instead register a domain name (for example, myServSensorHub.homeip.com). This will then automatically point to your router's external IP address (e.g. 278.67.04.09). This will require you to register the domain name and open an account with a DNS service provider. We recommend www.dyndns.com because it allows you to register up to five free domain names.

6. If you have set up everything correctly, you will now be able to access your unit from anywhere in the world simply by pointing your Web browser to your DNS address.

9. SEC to SEC SNMP Trap Receive

9.1 Introduction

The SNMP Trap Receiver is a feature that is included in the 80 Virtual Sensors in the ServSensor's web interface. This feature allows you to receive an SNMP trap from another device such as a sensor or another SEC unit. This can also be used to turn on and off other sensors, trigger a relay, send alerts from the ServSensor unit and perform other actions.

This manual describes an example configuration using two SEC units: one will be the SNMP Trap Sender (A) and the other will be the SNMP Trap Receiver (B).

On the sender unit (A) there is a sensor configured: a temperature sensor.

The receiver unit (B) will be configured to listen for SNMP Traps from (A) unit's temperature sensor using virtual sensors.

SNMP Traps are sent from (A) when the sensor status or its reading value changes.

9.2 SNMP Trap Sender (A) SEC (10.1.1.225) configuration

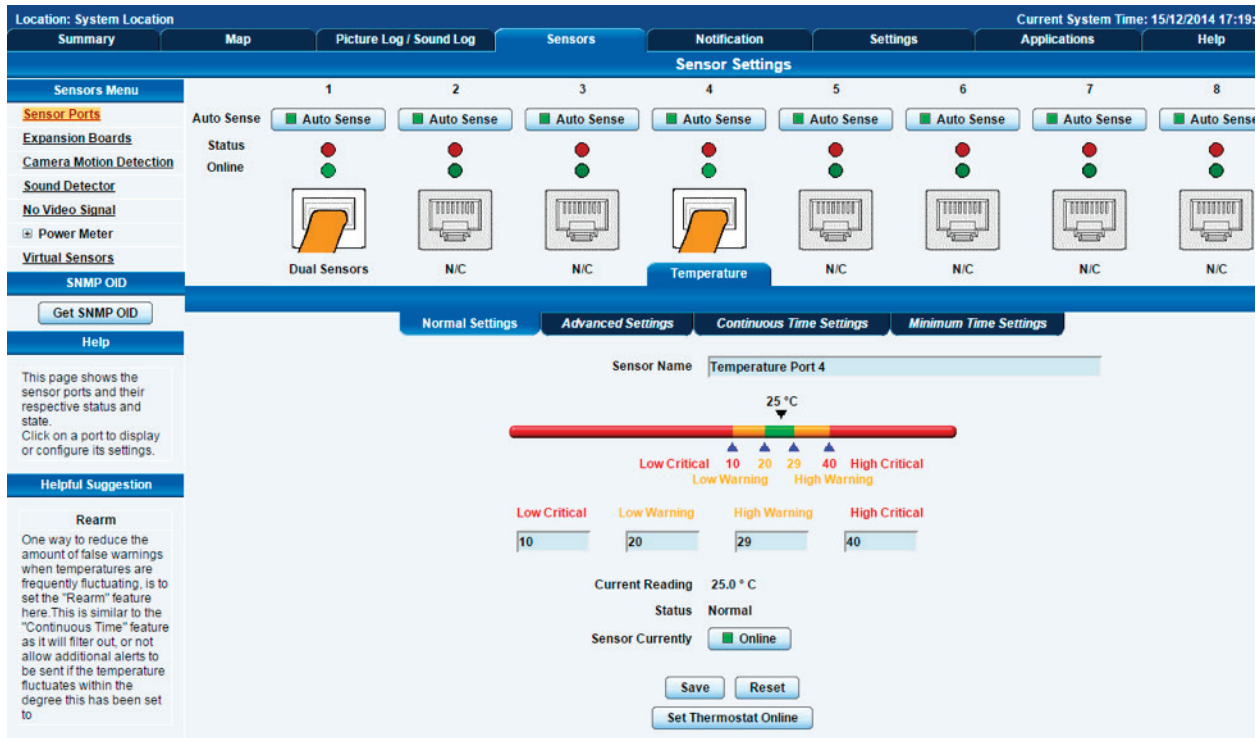


Figure 9-1.

First, make sure that the sensors are working properly and the readings are as desired. We will use the Temperature Sensor in our example.



Figure 9-2.

Chapter 9: SEC to SEC SNMP Trap Receive

Go to Notification / Action and click on the Create button to create SNMP Trap actions.

The screenshot shows the 'SNMP Trap Action Wizard' configuration interface. The 'Action Name' is 'SNMP Trap SensorStatus'. The 'Trap Version' is set to 'v1'. The 'SNMP Trap send port' is '162'. A table lists two trap destinations: '10.1.1.23' with 'public' community and '10.1.1.137' with 'public' community. The 'Destination Address' is '192.168.0.XXX' and the 'Community' is 'public'. There are buttons for 'Add Trap Destination', 'Delete Trap Destination', 'Cancel', and 'Next'.

Address	Community
10.1.1.23	public
10.1.1.137	public

Figure 9-3.

Configure the SNMP Trap action:

- Give the SNMP Trap a name to easily identify it, in our example it's for sending Sensor Status traps.
- Select the Trap Version (v1 is the default).
- Specify the SNMP Trap sending port, if it's different from the default.
- Add the target (B) unit's IP address in the Destination Address field, and specify the Community if it's different from the default "public." You'll need to click the Add Trap Destination to add the IP address to the list. Add IPs one-by-one in the same way if multiple addresses are required.

NOTE: We've also added our PC's IP address (10.1.1.23) to the list, to test the generated SNMP Traps. More on this later.

- Click Next when you've finished adding the target IPs.

The screenshot shows the 'SNMP Trap Action Wizard' configuration interface. The 'SNMPTrap Type' is set to 'CustomTypeTraps'. The 'VarBind' section has 'Sensor Status' checked. Other options like 'Sensor Value', 'Sensor Level Exceeded', etc., are unchecked. The 'Event Class Name' is 'INFORMATIONAL'. There are buttons for 'Cancel', 'Back', and 'Next'.

Figure 9-4.

NOTE: We recommend that you choose the CustomType Traps from the list as the SNMP Trap Type, as it will always have the same "specific" number: 1000.

- Because this SNMP Trap will be only used for sending Sensor Status events, select that from the list and unselect all others.
NOTE: You can also select multiple values to have a single SNMP Trap for sending them.
- Click Next to continue.



Figure 9-5.

You may change the resend times and the interval between resending the SNMP Trap. Click on Finish to complete the SNMP Trap action's configuration.

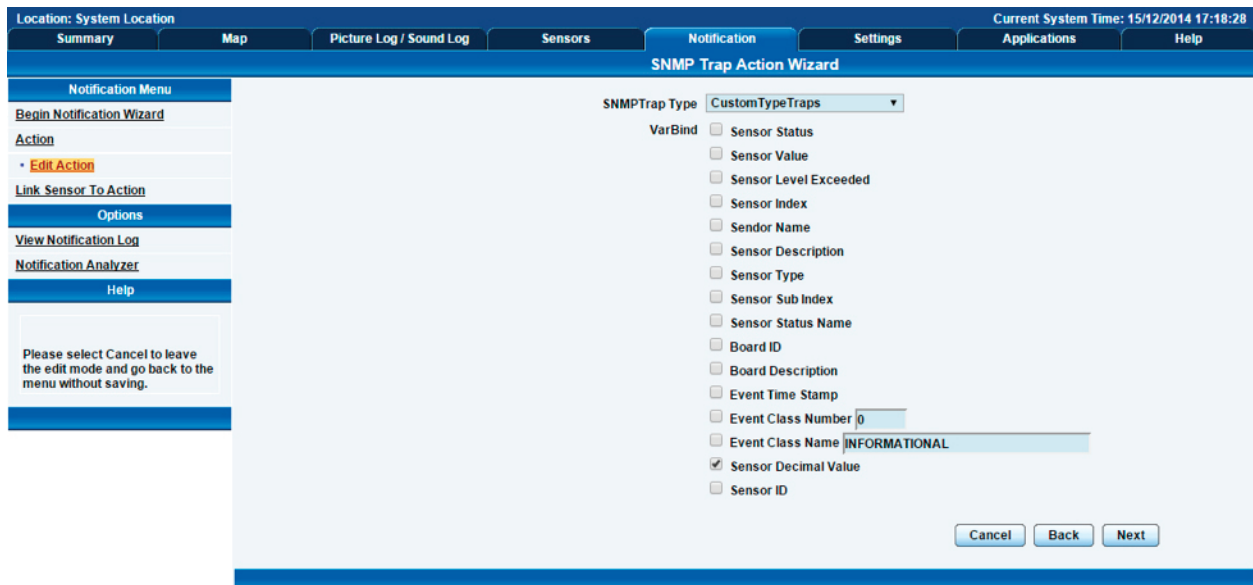


Figure 9-6.

As an example, we also configured a separate SNMP Trap action for the temperature sensor's value.

The configuration of the action is exactly the same as for the previous action (sensor status), the only difference is the Trap Type: here we choose the Sensor Decimal Value to send it to the target unit (B).

Chapter 9: SEC to SEC SNMP Trap Receive

Location: System Location Current System Time: 15/12/2014 17:14:41

Summary Map Picture Log / Sound Log Sensors **Notification** Settings Applications Help

Link Sensor To Action

Notification Menu

- Begin Notification Wizard
- Action
- Link Sensor To Action**
- Options
- View Notification Log
- Notification Analyzer
- Help

This is an overview of all configured Sensor Action Links. From here you may create, edit and remove Sensor Action Links. Select your desired Sensor Action Link(s) before making a choice.

Each line should be descriptive. E.g. If Temperature in Store room is High Critical Then E-mail Store Room Manager.

To disable or enable the notifications without having to delete them, in the Link Sensor To Action listing, just uncheck the checkbox to disable them or check the checkbox to enable them

Host Name	Sensor Name	Action on Status	Action Name
<input checked="" type="checkbox"/> Main Module	Temperature Port 4	High Critical High Warning Normal Low Warning Low Critical Sensor Error	SNMP Trap Sensor Status
<input checked="" type="checkbox"/> Main Module	Temperature Port 4	High Critical High Warning Normal Low Warning Low Critical Sensor Error	SNMP Trap SensorValue
<input checked="" type="checkbox"/> Main Module	Dual Humidity Port 1	High Critical High Warning Normal Low Warning Low Critical Sensor Error	SNMP Trap Sensor Status
<input checked="" type="checkbox"/> Main Module	Dual Humidity Port 1	High Critical High Warning Normal Low Warning Low Critical Sensor Error	SNMP Trap SensorValue

Create Edit Create Escalation Remove

Import notification from file Choose File No file chosen Import Export

Figure 9-7.

After the SNMP Trap actions are made, you need to link the sensors to the SNMP Trap actions.

Go to Notification / Link Sensor To Action and click on the Create button.

As an example, here's our configuration for the Temperature Sensor Status SNMP Trap notification, which will send a Trap upon each status change of the sensor:

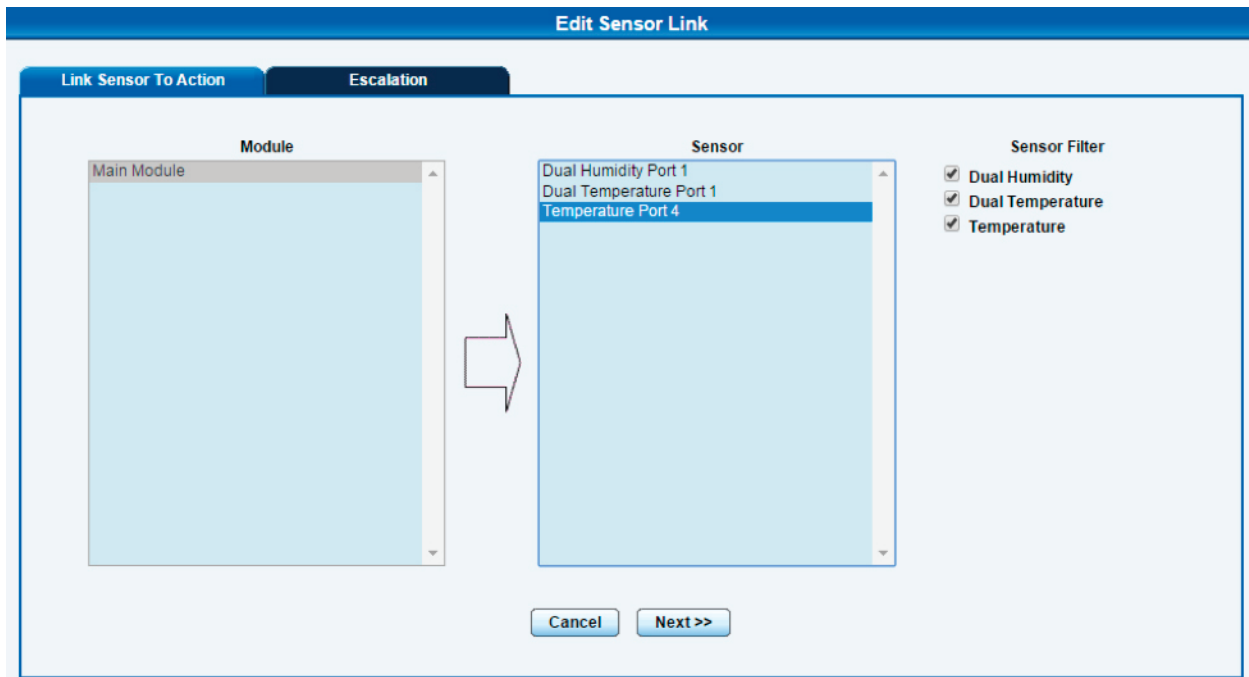


Figure 9-8.

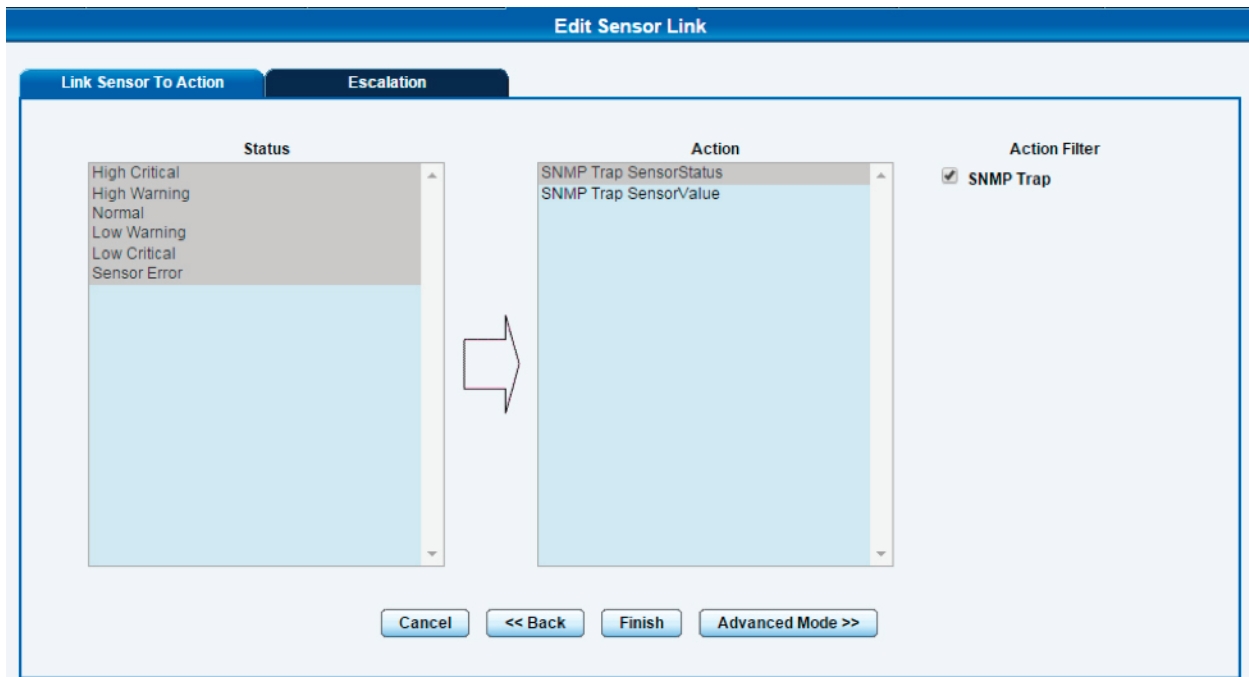


Figure 9-9.

You may select the Sensor Status as desired, for example, if you only want to send SNMP Trap when the sensor status is High Critical and Low Critical, only select those here.

For creating the Temperature Sensor Value SNMP Trap, the configuration is the same; just select that action in the last step.

NOTE: You'll need to create notification rules for each sensor that you want to send an SNMP Trap about.

System Log (2000 messages)		
1	2014/12/14 08:50:32	Trap ok: Sent to 10.1.1.137
2	2014/12/14 08:50:32	Trap ok: Sent to 10.1.1.23
3	2014/12/14 08:50:32	Trap ok: Sent to 10.1.1.137
4	2014/12/14 08:50:32	Trap ok: Sent to 10.1.1.23
5	2014/12/14 08:50:32	Temperature Port 4 is 29.0 °C, status is High Warning
6	2014/12/14 08:50:31	Trap ok: Sent to 10.1.1.137
7	2014/12/14 08:50:31	Trap ok: Sent to 10.1.1.23
8	2014/12/14 08:50:31	Trap ok: Sent to 10.1.1.137
9	2014/12/14 08:50:31	Trap ok: Sent to 10.1.1.23
10	2014/12/14 08:50:31	Temperature Port 4 is 28.5 °C, status is Normal

System Log will be reloaded in 03 secs

Figure 9-10.

To verify that the SNMP Trap sending is working, you can check the System Log entries and the SNMP Trap log on the sender unit (A):

Location: System Location

Summary | Map | Picture Log / Sound Log | Sensors | Notification

View Notification Log

Notification Menu

- [Begin Notification Wizard](#)
- Action
- [Link Sensor To Action](#)
- Options
- [View Notification Log](#)
- [Notification Analyzer](#)
- Help

This page displays a log of all recently complete notifications

Select an Action Type to view Notifications related to that type.

View last log for: SNMP Trap

trap.log	
2014/12/22 09:20:20	: begin send trap to 10.1.1.23
2014/12/22 09:20:20	: begin send trap process
2014/12/22 09:20:20	: trap send to 10.1.1.23 ok
2014/12/22 09:20:20	: begin send trap to 10.1.1.137
2014/12/22 09:20:20	: begin send trap process
2014/12/22 09:20:20	: trap send to 10.1.1.137 ok
2014/12/22 09:20:20	: begin send trap to 10.1.1.23
2014/12/22 09:20:20	: begin send trap process
2014/12/22 09:20:20	: trap send to 10.1.1.23 ok
2014/12/22 09:20:20	: begin send trap to 10.1.1.137
2014/12/22 09:20:20	: begin send trap process
2014/12/22 09:20:20	: trap send to 10.1.1.137 ok

Figure 9-11.

Under Notification / View Notification Log, select SNMP Trap log from the drop-down menu.

9.3 Getting OIDs for the SNMP Traps

Before setting up the SNMP Trap receiver on the target unit (B), you'll need to get the correct sensor OIDs from the sender unit (A).

Use an MIB Browser application, such as iReasoning MIB Browser. We'll show you the steps using this program.

First, you must load the MIB file (downloadable from blackbox.com). Then specify the sender unit's IP (A) in the Address field (in our example, it's 10.1.1.225).

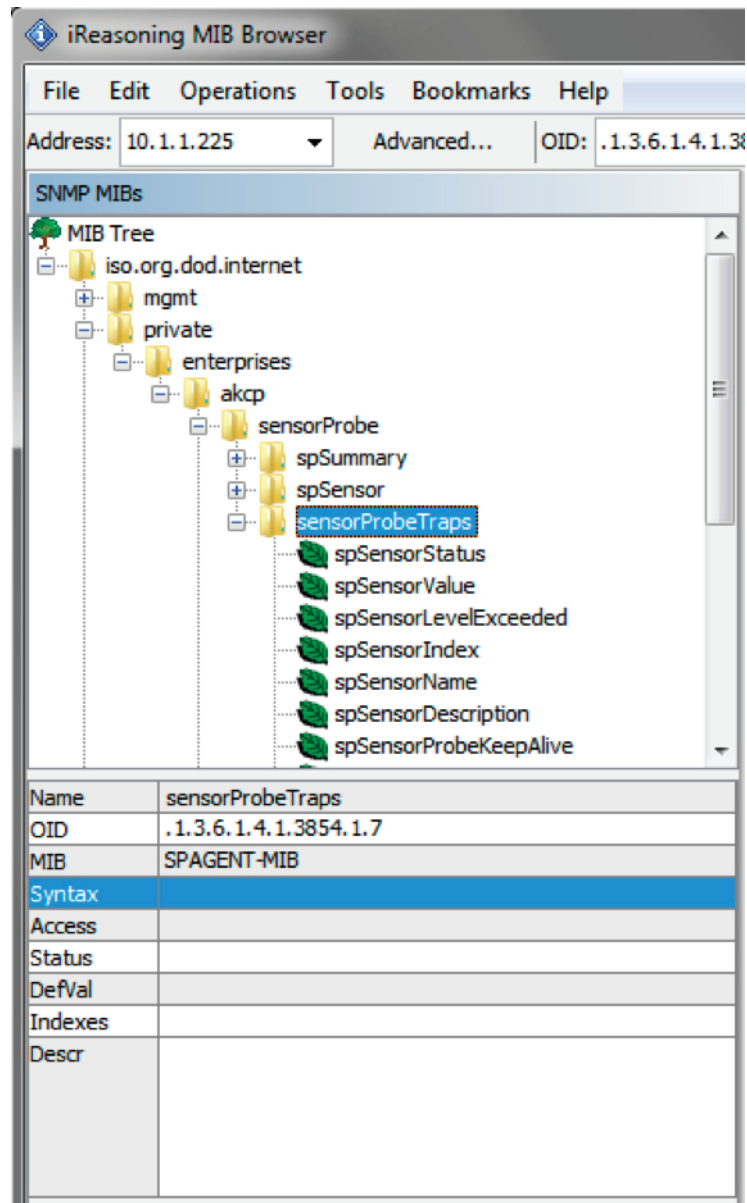


Figure 9-12.

Expand the MIB Tree until you reach the ServSensor's Traps section, as in the picture.

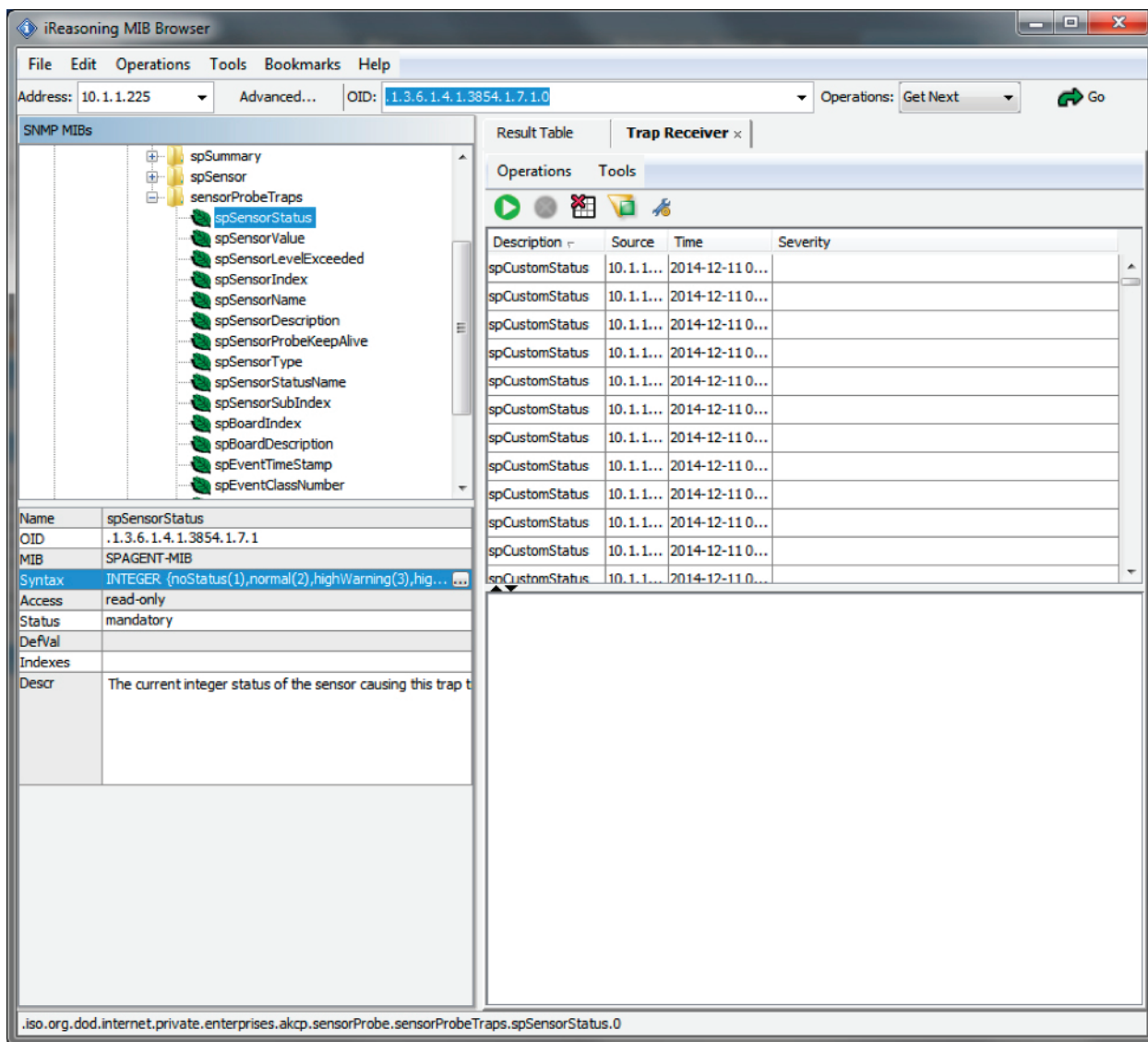


Figure 9-13.

Next, choose the OID value that you need to get the SNMP Trap from the sender unit (A).

In our example, we choose spSensorStatus to get Status SNMP Traps.

For the spSensorStatus it will be .1.3.6.1.4.1.3854.1.7.1.0

Copy the OID from the top of the window (OID: field), next to where you typed the sender (A) unit's IP.

NOTE: For the Syntax field, these values will be needed to configure the virtual sensor on the target unit (B). For the spSensorStatus OID, these are valid:

INTEGER {noStatus(1), normal(2), highWarning(3), highCritical(4), lowWarning(5), lowCritical(6), sensorError(7), turnOn(8), turnOff(9)}

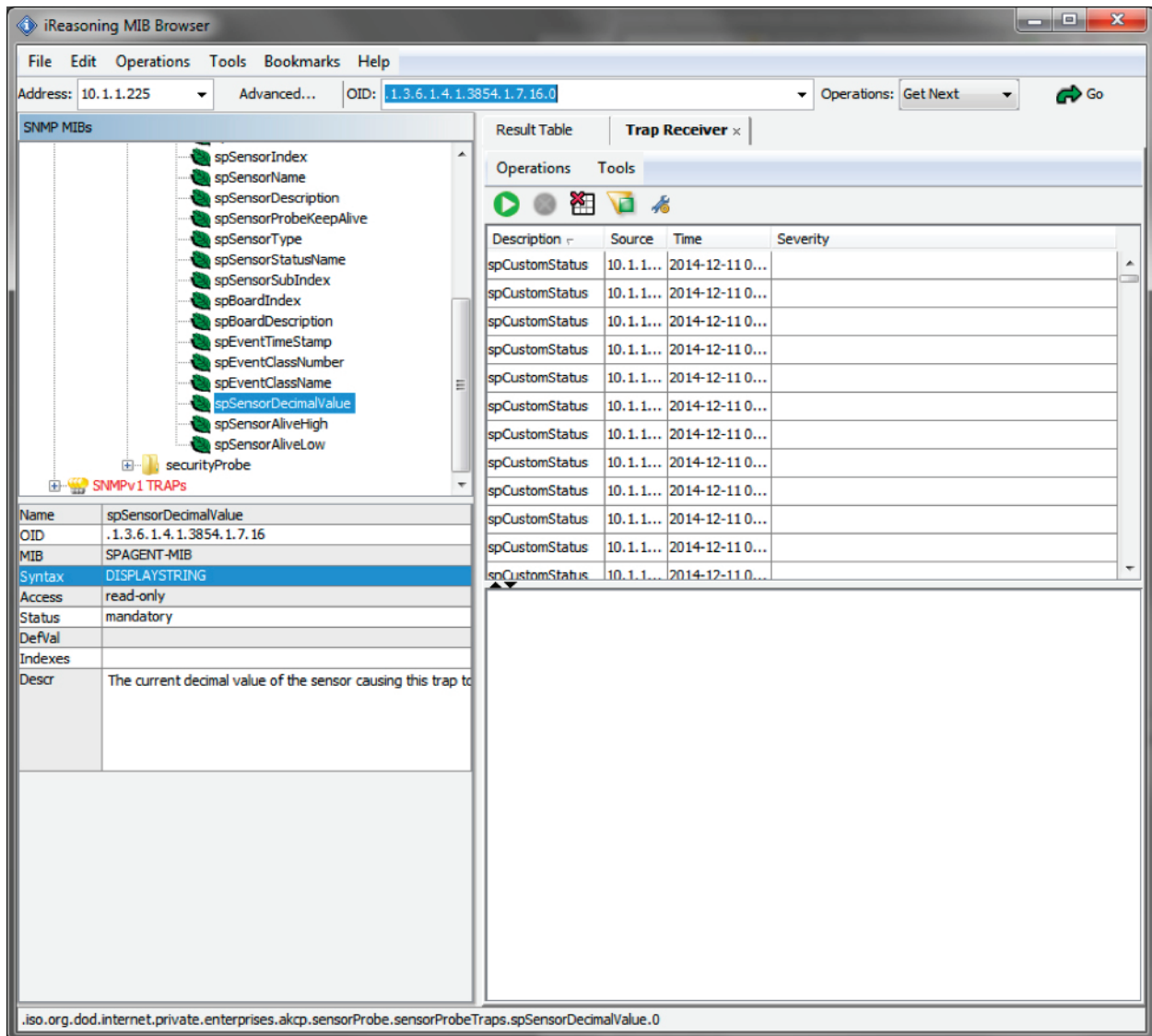


Figure 9-14.

We also set up SNMP Trap for the Temperature sensor's Value reading, so we will also need the spSensorDecimalValue OID from the MIB browser.

The OID for spSensorDecimalValue will always be:1.3.6.1.4.1.3854.1.7.16.0

Similar to the spSensorStatus OID, you need to copy the OID from the top of the window (OID: field), next to where you typed the sender (A) unit's IP.

If you need other OIDs, note them similarly.

Chapter 9: SEC to SEC SNMP Trap Receive

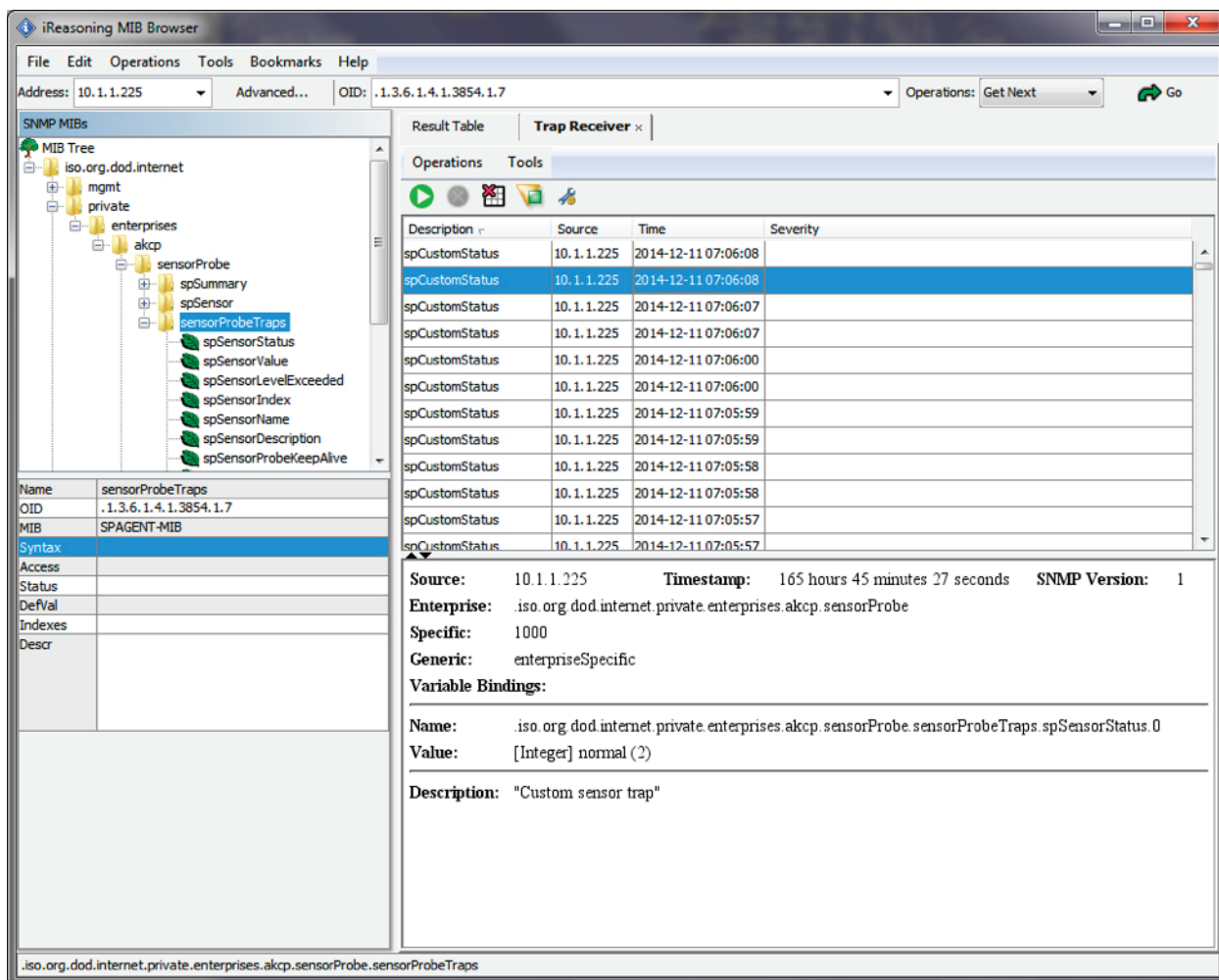


Figure 9-15.

You may also test the SNMP Trap action using iReasoning MIB Browser.

Use the Trap Receiver from Tools / Trap Receiver.

The Trap Receiver will start automatically, and display the results on the right side of the window.

Use the Test Action button on the sender unit (A) WEB UI to initiate an SNMP Trap:



Figure 9-16.

NOTE: You must specify your PC's IP address in the configuration of the SNMP Trap action, otherwise, you won't see the Trap.

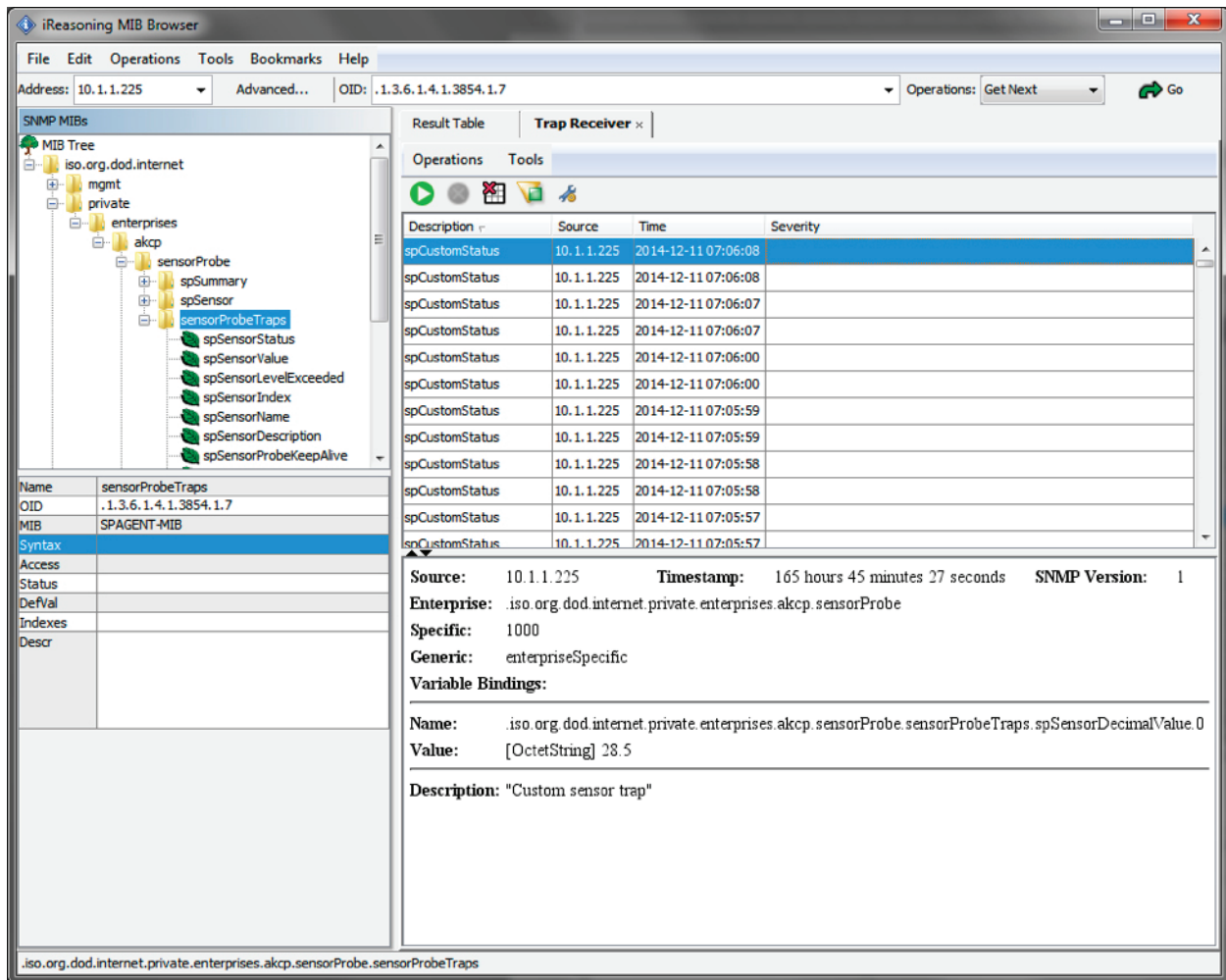


Figure 9-17.

Here is an example result window for the `spSensorDecimalValue` (and in the previous picture, the `spSensorStatus` was shown).

9.4 SNMP Trap Receiver (B) SEC (10.1.1.137) Configuration

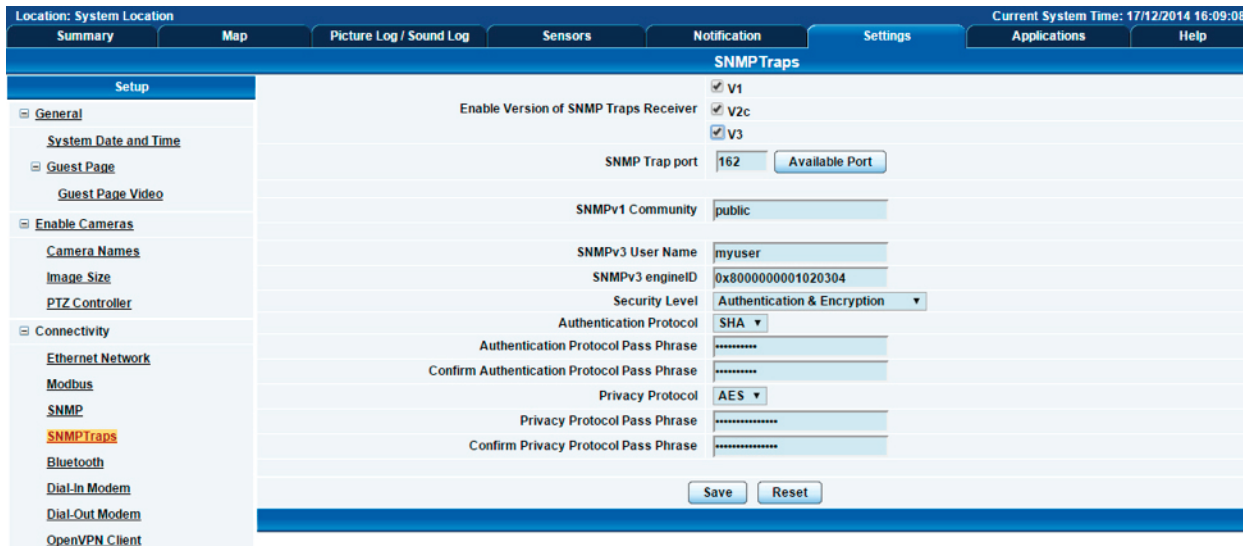


Figure 9-18.

Go to Settings / Connectivity / SNMP Traps page, and ensure the SNMP Traps Receiver versions are enabled as shown above. You may change the SNMP community, SNMP v3 settings, and the SNMP port if you wish.

NOTE: The SNMP Trap receiver is turned on by default.

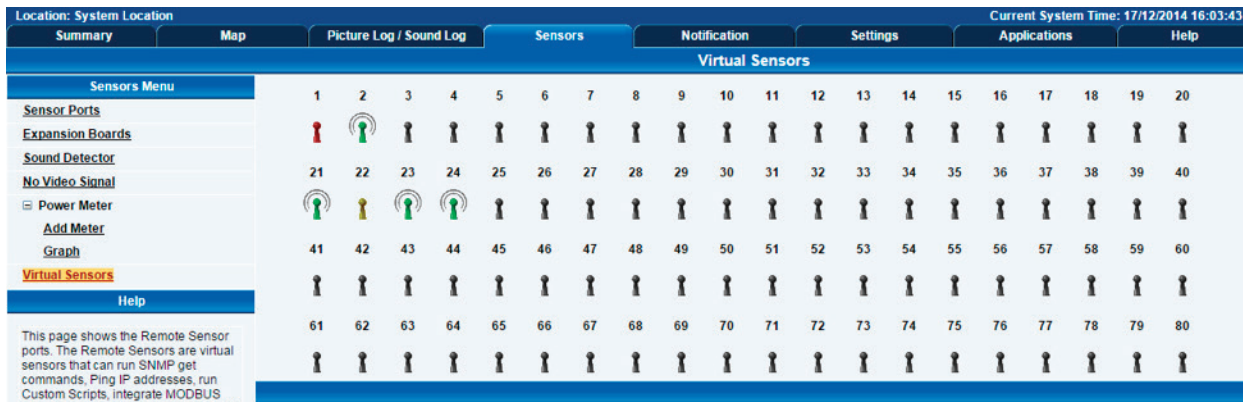


Figure 9-19.

Open the Sensors / Virtual Sensors page to begin configuring the virtual sensors.

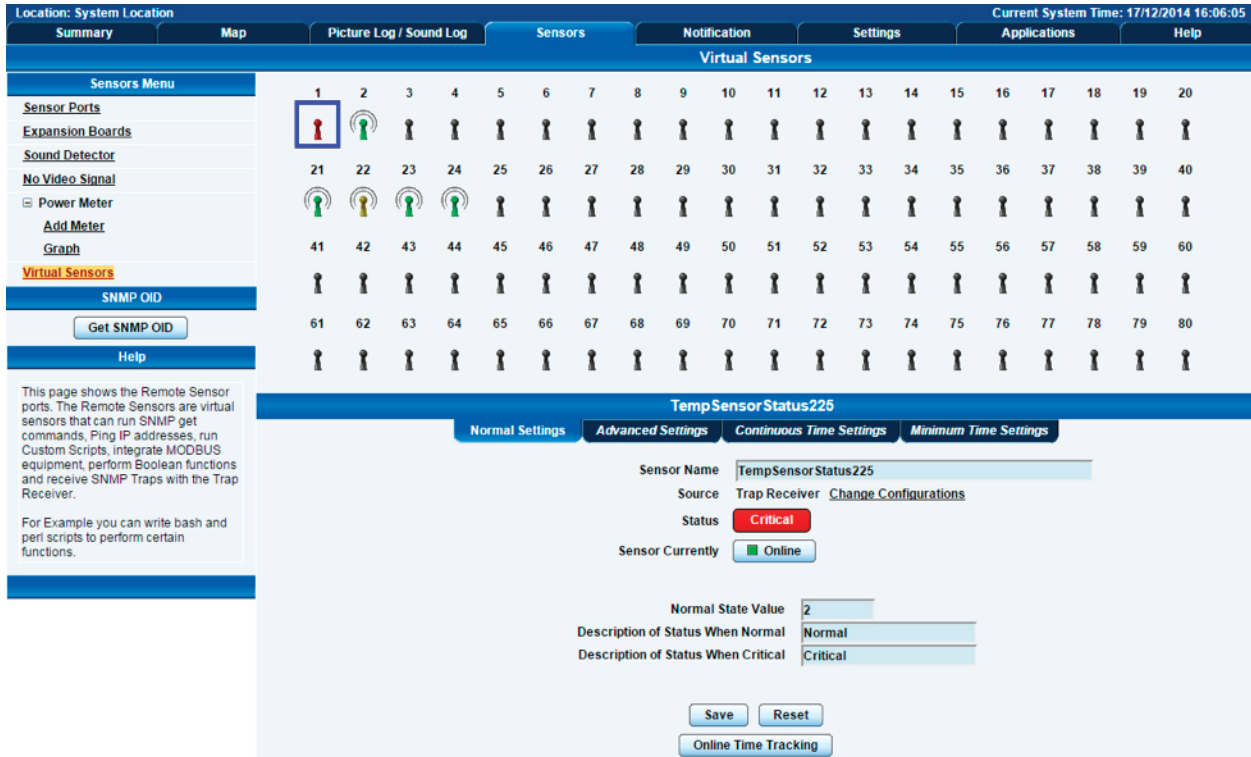


Figure 9-20.

In our first example, here is the configured SNMP Trap receiver virtual sensor on the target SEC (B). It shows the status of the Temperature Sensor on the source SEC (A).

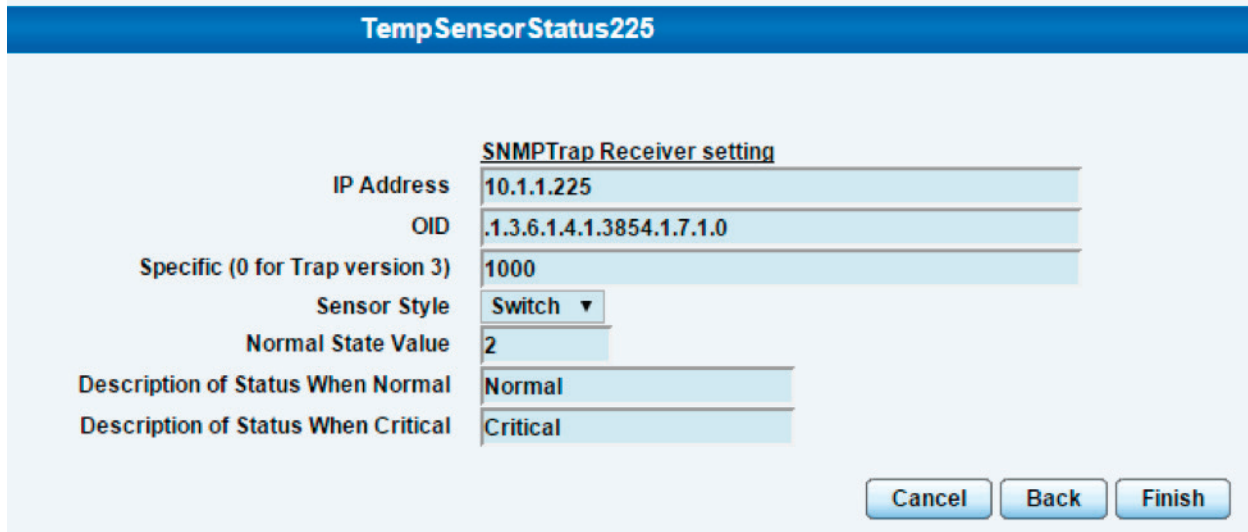
To set up the SensorStatus SNMP Trap receiver, follow these steps:



Figure 9-21.

Chapter 9: SEC to SEC SNMP Trap Receive

Choose an unconfigured virtual sensor, click on the Configuration button, then select the Source as Trap Receiver.



The screenshot shows a configuration window titled "TempSensorStatus225". It contains a table of settings for an SNMP Trap Receiver. The settings are as follows:

SNMPTrap Receiver setting	
IP Address	10.1.1.225
OID	.1.3.6.1.4.1.3854.1.7.1.0
Specific (0 for Trap version 3)	1000
Sensor Style	Switch ▼
Normal State Value	2
Description of Status When Normal	Normal
Description of Status When Critical	Critical

At the bottom right of the window, there are three buttons: "Cancel", "Back", and "Finish".

Figure 9-22.

Configure the following:

- IP: the source SEC unit's IP (A)
- OID: the sensor's OID value that you wish to get the SNMP Trap about; in our example it's spSensorStatus, to get the correct OID you have to use an MIB Browser as mentioned before.
- Specific: except for SNMP Trap v3, it will be always 1000 if you configured the SNMP Trap sender action using the custom settings on the source SEC (A) as recommended earlier; otherwise, you'll have to use a Trap Receiver first, to get the correct "specific value from an SNMP Trap packet sent to your PC.
- Sensor style: Switch or Analog, depending on the sensor; for the Sensor Status it's Switch.
- Normal State Value: the virtual sensor will display "normal" when this status is received in the SNMP Trap packet. Unless you need another value, the default is 2 (see all other values earlier, as mentioned at the MIB browser section).
- Description for statuses: as desired.

Click Finish when you've completed the configuration.

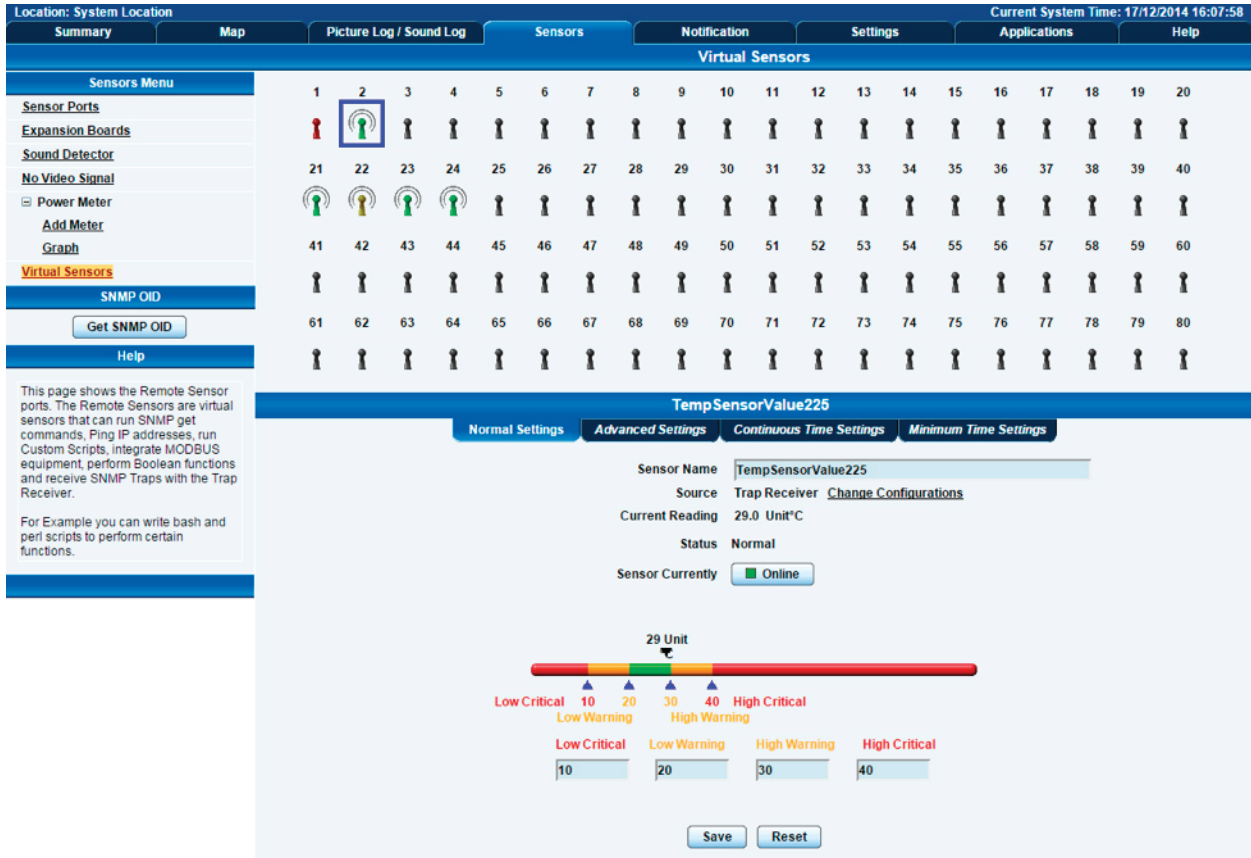


Figure 9-23.

Second example: the configured SNMP Trap receiver virtual sensor on the target SEC (B) from the Temperature Sensor’s decimal value on the source SEC (A).

To set up the SensorValue receiver, follow these steps:

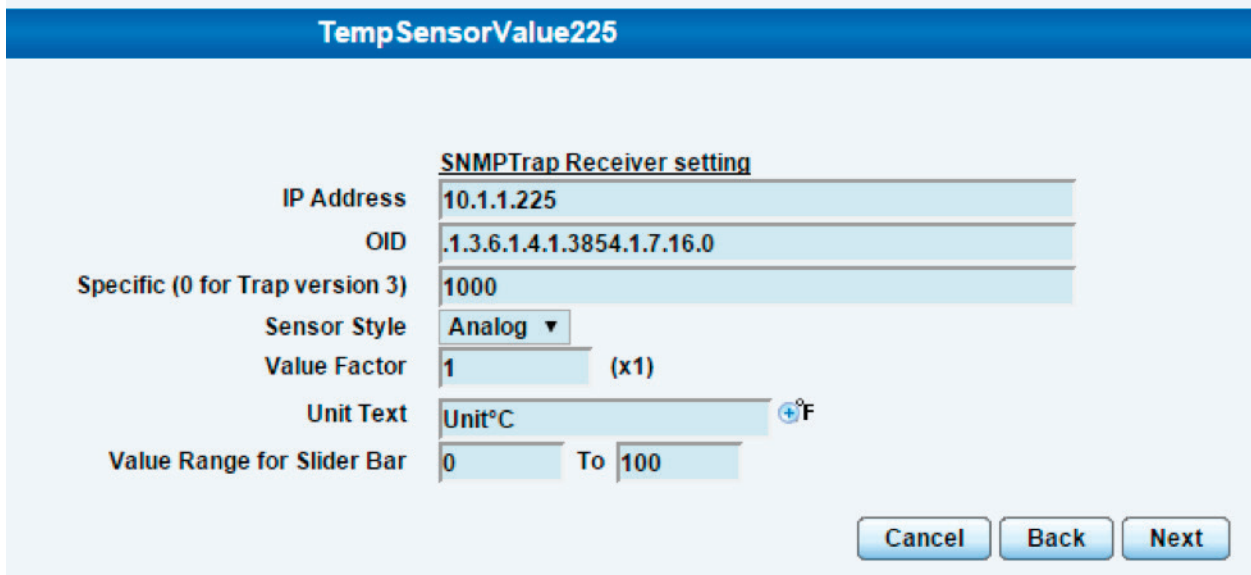


Figure 9-24.

Chapter 9: SEC to SEC SNMP Trap Receive

Select Trap Receiver as in the previous configuration, and then fill out the values:

- IP address of the source SEC (A)
- OID: the sensor's OID value that you wish to get the SNMP Trap about; in this example it's spSensorDecimalValue, to get the correct OID you have to use an MIB Browser as mentioned before.
- Specific: except for SNMP Trap v3, it will always be 1000 if you configured the SNMP Trap sender action using the custom settings on the source SEC (A) as recommended earlier; otherwise, you'll have to use a Trap Receiver first, to get the correct "specific" value from an SNMP Trap packet sent to your PC.
- Sensor style: Switch or Analog, depending on the sensor; for the Sensor Value it's Analog.
- Value factor: if you wish to multiply the reading, specify here.
- Unit Text: the unit of the sensor reading; it could be anything, it's not limited to the built-in units.
- Value Range: the range scale where the sensor readings will be interpreted.

The screenshot shows the 'Summary' page of a device's configuration interface. The top navigation bar includes 'Summary', 'Map', 'Picture Log / Sound Log', 'Sensors', 'Notification', 'Settings', 'Applications', and 'Help'. The 'Current System Time' is 17/12/2014 16:05:32. The left sidebar contains various settings like 'Layout Setting', 'Camera Setting', 'Sensor Filters', 'Notification Filters', and 'Syslog Filters'. The main area is divided into two sections: 'Sensor Information' and 'System Log (2000 messages)'. The 'Sensor Information' table lists various sensors with their status indicators.

Host Name	Type	Sensor Name	Reading	Status
Main Module	Sound Detector	Sound Detector	3 %	Low Critical
	Virtual Sensors	Humidity Sensor Status225	-	No Status
	Virtual Sensors	Humidity Sensor Value225	-	No Status
	Virtual Sensors	Temp Sensor Status225	-	Critical
	Virtual Sensors	Temp Sensor Value225	29.0 Unit°C	Normal
	Virtual Sensors	Virtual Sensors Port 21	-	Normal
	Virtual Sensors	Virtual Sensors Port 22	26.0 Unit°C	Low Warning
	Virtual Sensors	Virtual Sensors Port 23	-	Normal
	Virtual Sensors	Virtual Sensors Port 24	55.0 Unit%	Normal

The 'System Log' section shows a list of messages with timestamps and descriptions of sensor status changes, such as 'Virtual Sensors Port 24 is 57 Unit%, status is Normal' and 'Virtual Sensors Port 24 status is High Warning'.

Figure 9-25.

An overview of the Summary page on the target SEC unit (B), showing the virtual sensors and the recorded System Log messages for virtual sensor status changes by SNMP Traps coming from the source SEC unit (A).

NOTE: There will be no SNMP Trap events recorded in this unit's SNMP Trap log. These are only logged in the source unit (A).

After configuring the virtual sensors properly, you can create custom actions on the target SEC (B) depending on the statuses of the virtual sensors, just like you would with any other type of sensors.

Contact Black Box Technical Support at 877-877-2269 or info@blackbox.com if you have any further technical questions or problems.

10. SNMP Trap Receiver Controlling IO-digital8 Relay

What is the SNMP trap and IO-digital8?

The SNMP Trap Receiver is a feature that is included in the 80 Virtual Sensors in the ServSensor's web interface. This feature allows you to receive an SNMP trap from another device. This can be used to trigger a relay, as this manual will describe. This can also be used to turn on and off other sensors, send alerts from the ServSensor unit and perform other actions.

The IO-digital8 is an 8-port dry contact sensor that uses a single RJ-45 sensor port on the ServSensor. Each of the 8 ports can be configured as an input or an output up to 5 VDC and can sink 20 mA.

1. Enable SNMP Trap Receiver.

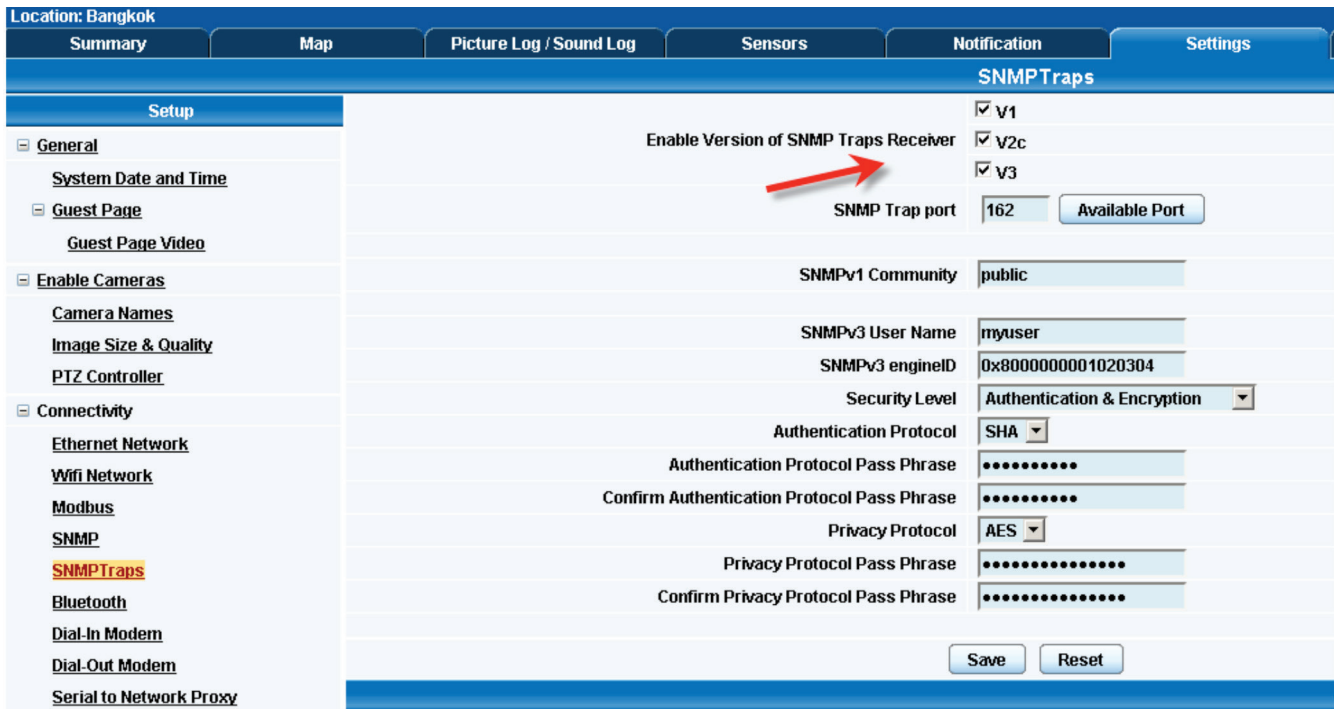


Figure 10-1.

First, open the ServSensor's web interface, login as Admin and navigate to the Settings page >> Connectivity >> SNMP Traps page.

Make sure the SNMP Traps Receiver versions are enabled as shown above.

Chapter 10. SNMP Trap Receiver Controlling IO-digital8 Relay

2. Set up the Trap Receiver in 80 virtual sensors.

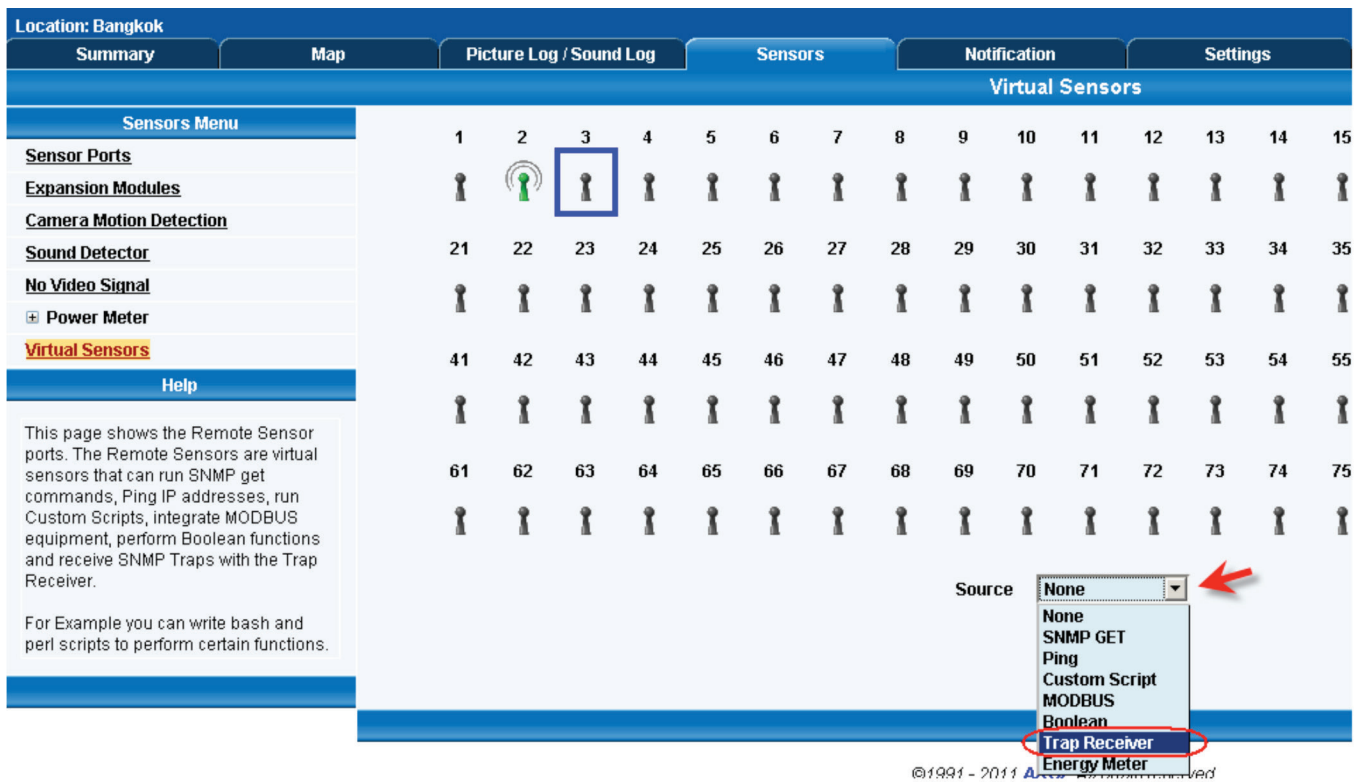


Figure 10-2.

Next navigate to the Sensors page >> Virtual Sensors, then click on the virtual sensor number you wish to setup for the trap receiver, click on the "Configure" button, and choose the "Trap Receiver" from the drop-down menu as shown above.

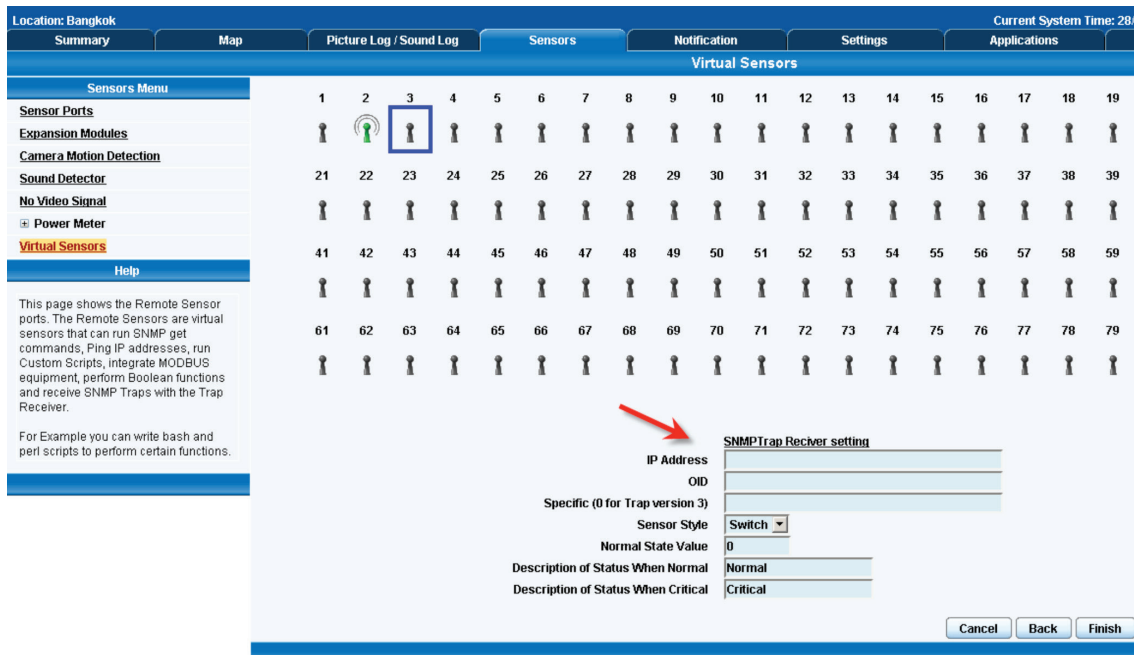


Figure 10-3.

Enter your SNMP trap information, including the units IP address, the OID of the sensor, the Specific number, etc., and click the finish button.

NOTE: The "Specific" you can view from a trap receiver program such as mibbrowser of Ireasoning (it has the trap receiver in the Tools menu).

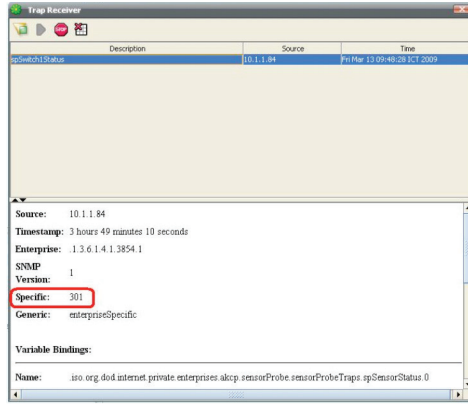


Figure 10-4.

You can check this by opening the trap receiver program and sending the trap to the PC. This specific value will be up to the setting of the ServSensor Trap Type OID, the sensor type and sensor port.

You can change the ServSensor Hub Trap Type by using this snmp command here:

```
snmpset -m all -v1 -c <community> <IPaddress> .1.3.6.1.4.1.3854.1.2.2.1.60.0 i <traptype>
```

When

specificTypeTrap(1),

generalTypeTrap(2),

bothTypeTraps(3),

statusTypeTraps(4)

3. Setup the IO-digital8 relay.

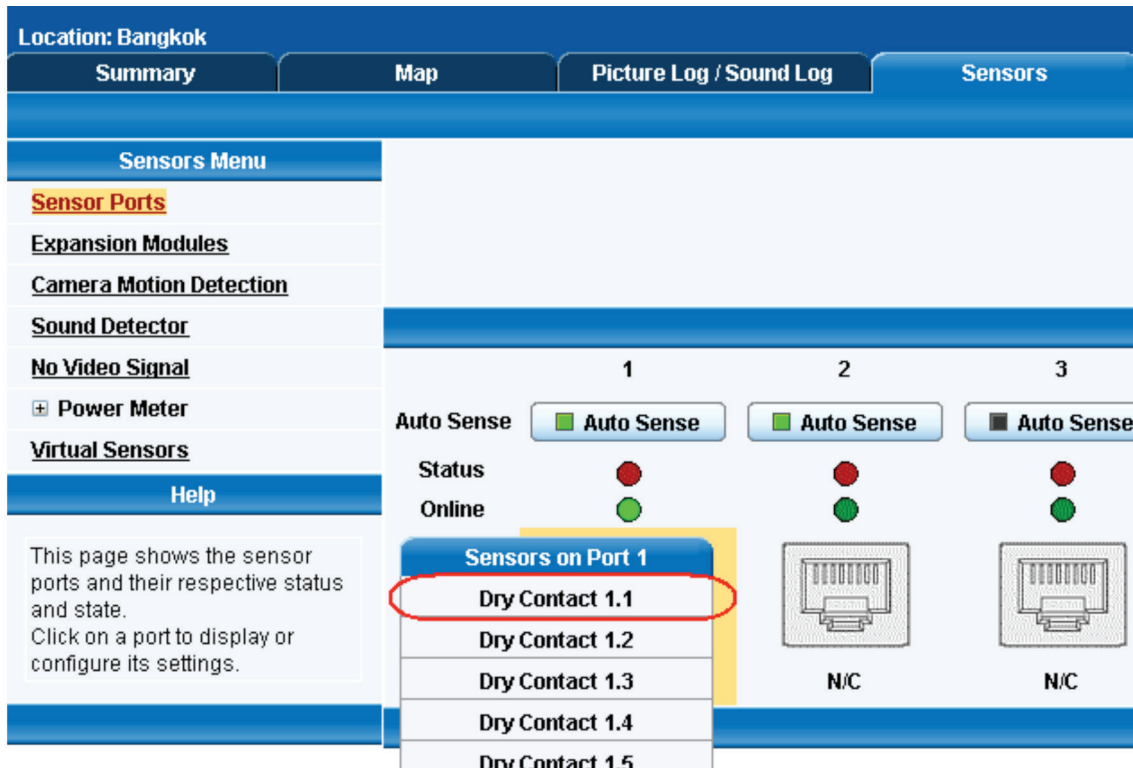


Figure 10-5.

Navigate to the Sensors page >> Sensors page and click on the IO-digital8 relay you will be linking to your Trap Receiver Virtual Sensor.

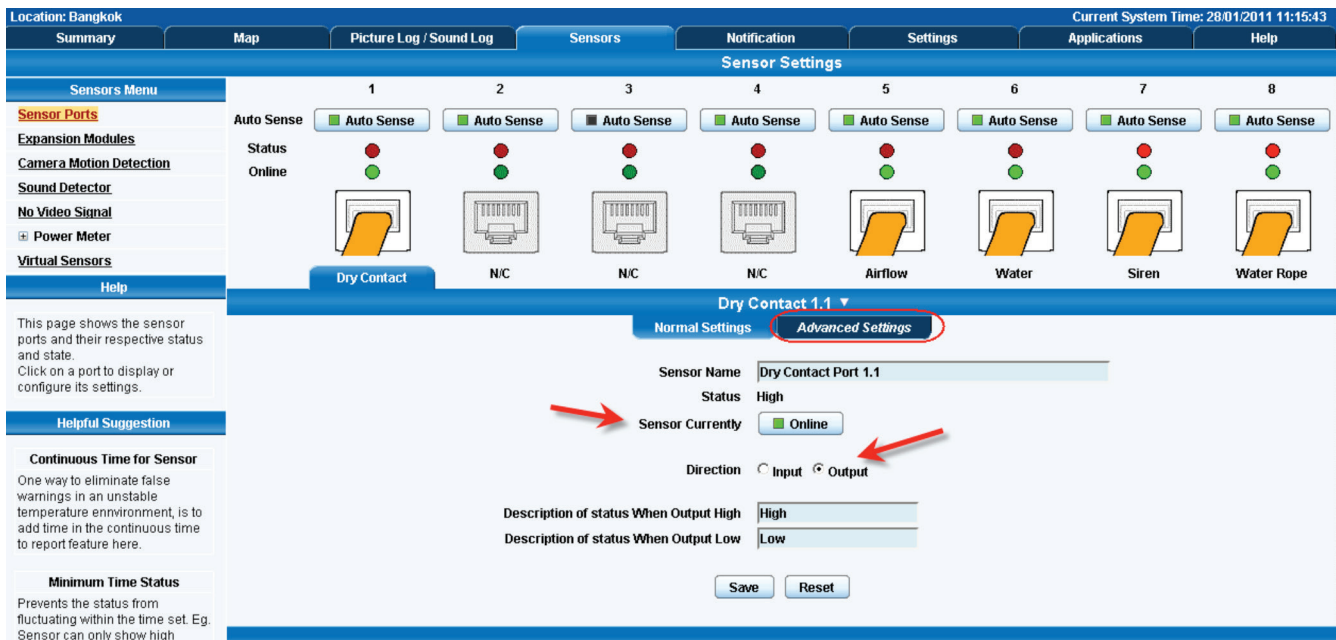


Figure 10-6.

First, enable the relay by turning it "Online," then configure the direction, whether it will be an input or output, then click on the Advanced Settings tab.

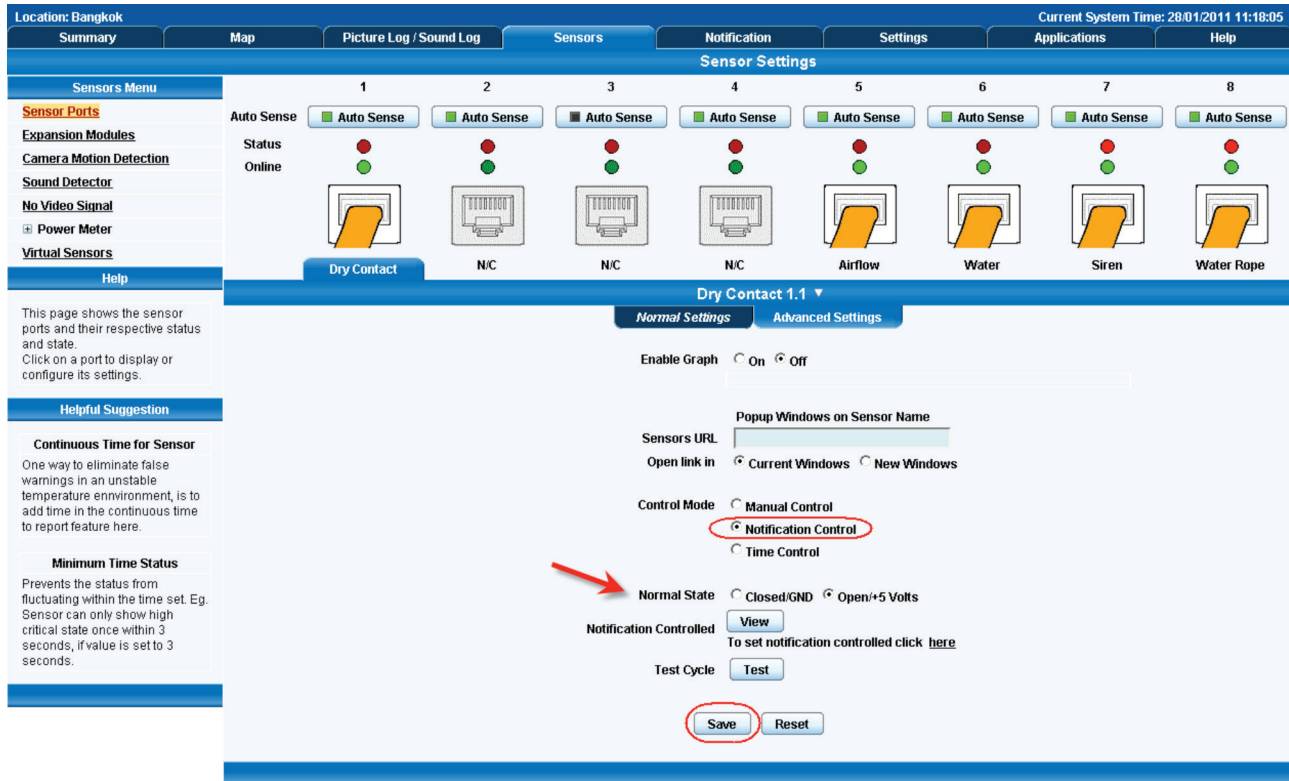


Figure 10-7.

Set the relay's "Control Mode" to Notification Control and set the Normal State to which the relay will be in, either Closed/GND or Open+5 Volts, and click the "Save" button.

4. Setup the Dry Contact Action.

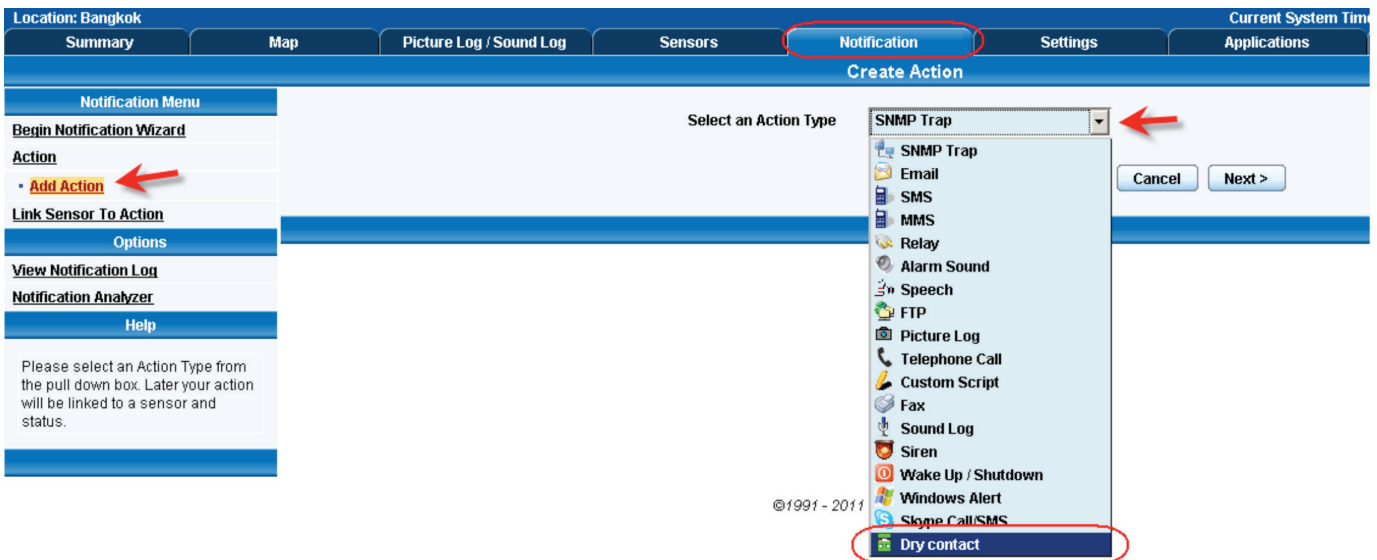


Figure 10-8.

Chapter 10. SNMP Trap Receiver Controlling IO-digital8 Relay

Now we will setup the dry contact action that will control the relay. First Navigate to the Notifications page >> Add Action >> Select the Dry Contact from the Action Type drop down list as shown above, then click the "Next" button.

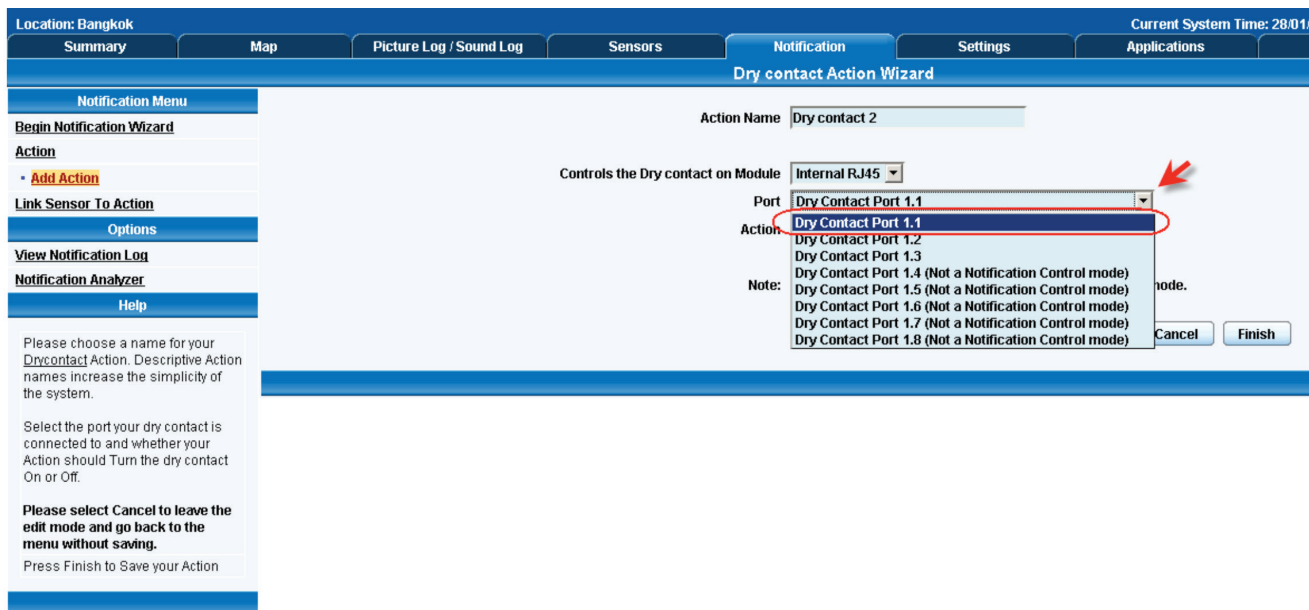


Figure 10-9.

Name the relay action, then select the port that we set up earlier from the Port drop-down list.

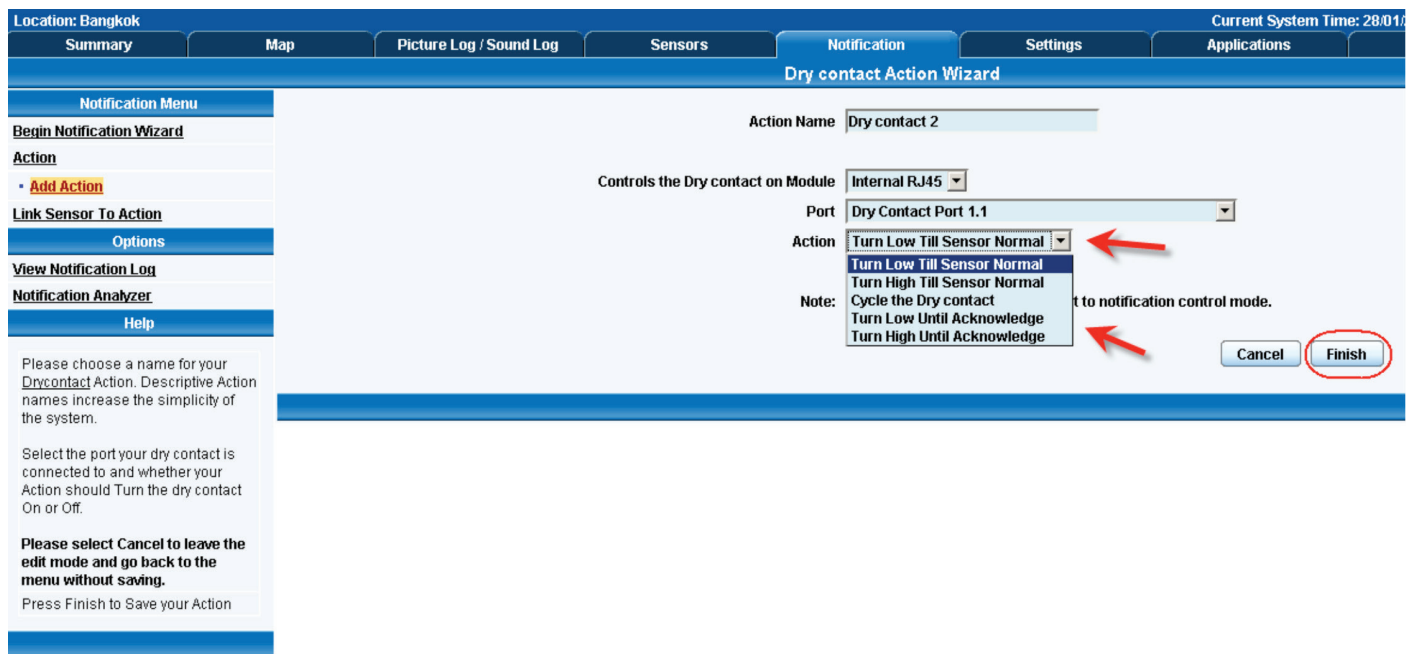


Figure 10-10.

Now select the Action for which you require the relay to perform when it will be triggered by the Trap Receiver Virtual Sensor and click the "Finish" button.

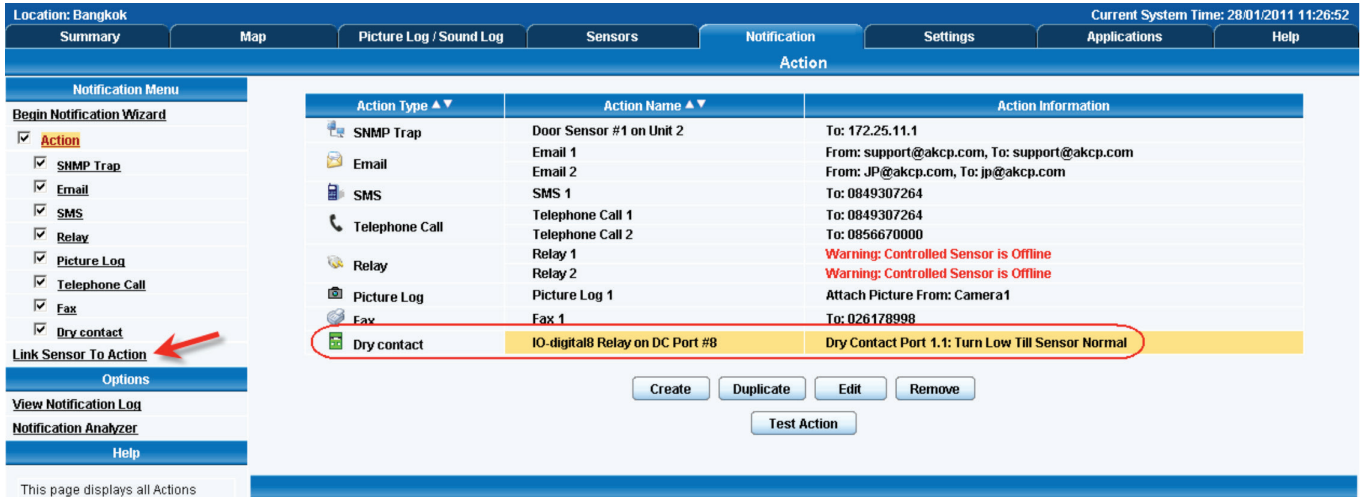


Figure 10-11.

The new action appears in the actions listing. Click on the Link Sensor To Action link.

5. Link the Trap Receiver to the Dry Contact Action.

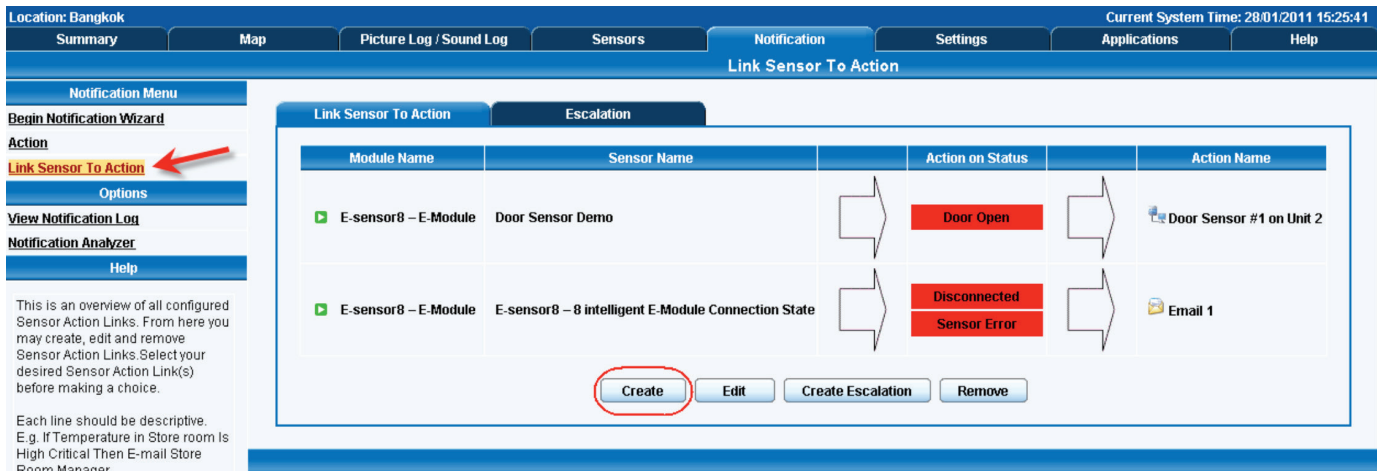


Figure 10-12.

Chapter 10. SNMP Trap Receiver Controlling IO-digital8 Relay

After clicking on the "Link Sensor To Action" link, click on the "Create" button.

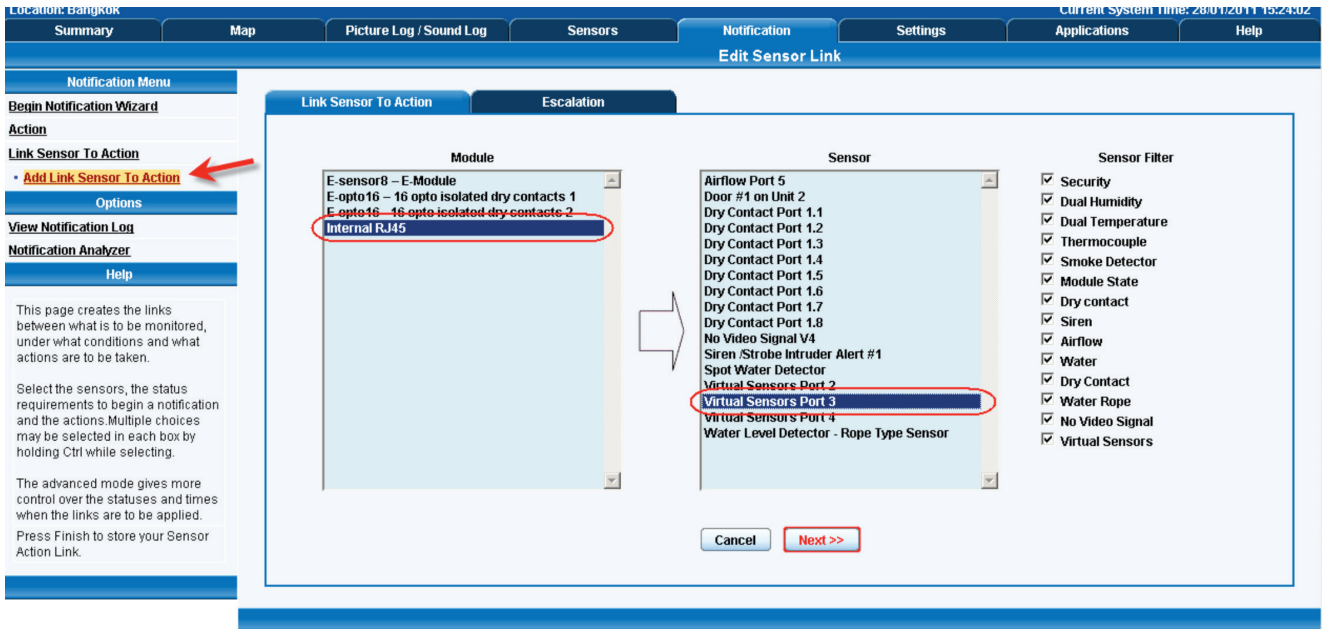


Figure 10-13.

Now click on the Internal RJ-45 in the Module list, then the Virtual Sensor that we setup for the Trap Receiver, and click on the "Next" button.

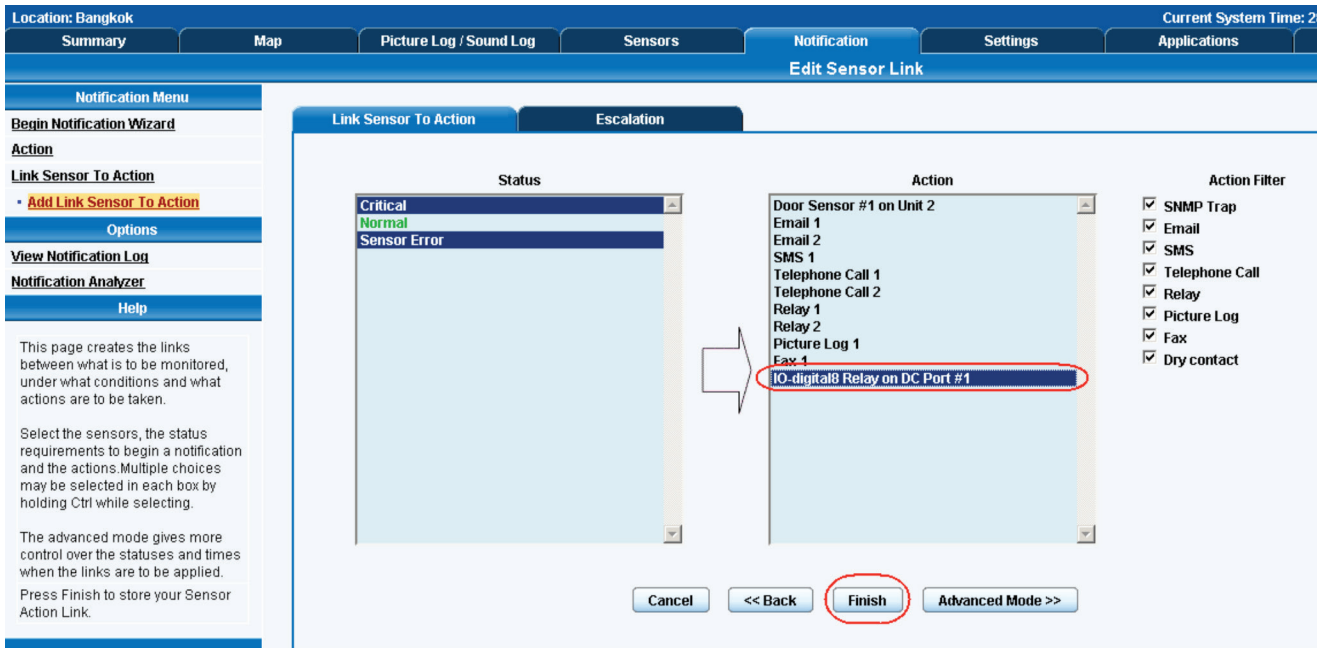


Figure 10-14.

Select the Status that the Virtual Sensor will be in to activate the relay. Then select the Dry Contact relay action that we previously created from the Action listing. Finally, click the “Finish” button.

The screenshot displays the 'Link Sensor To Action' configuration page. The top navigation bar includes 'Summary', 'Map', 'Picture Log / Sound Log', 'Sensors', 'Notification', 'Settings', 'Applications', and 'Help'. The 'Notification' tab is active, and the page title is 'Link Sensor To Action'. On the left, there is a 'Notification Menu' with options like 'Begin Notification Wizard', 'Action', 'Link Sensor To Action', 'Options', 'View Notification Log', 'Notification Analyzer', and 'Help'. The main content area shows a table with the following data:

Module Name	Sensor Name	Action on Status	Action Name
E-sensor8 – E-Module	Door Sensor Demo	Door Open	Door Sensor #1 on Unit 2
E-sensor8 – E-Module	E-sensor8 – 8 intelligent E-Module Connection State	Disconnected Sensor Error	Email 1
Internal RJ45	Virtual Sensors Port 3	Critical Sensor Error	IO-digital8 Relay on DC Port #1

At the bottom of the table, there are buttons for 'Create', 'Edit', 'Create Escalation', and 'Remove'.

Figure 10-15.

The Trap Receiver Virtual Sensor is now linked to the IO-digital8 dry contact relay.

Chapter 11: Frequently Asked Questions (FAQs)

11. Frequently Asked Questions (FAQs)

Question: I cannot see the temperature sensor displayed on summary page.

Answer: After logging in for the first time with the temperature sensor connected, you may need to do the following.

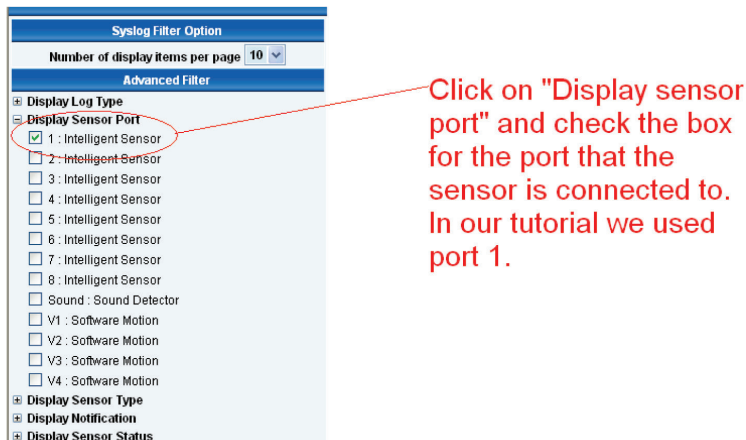


Figure 11-1. Select sensor to display.

Next, click on "Apply Filter." The temperature sensor should then be displayed in the list of connected sensors.

Question: I cannot access my unit's Web interface.

If you're having issues with network connectivity, first make sure that the link100 LED is lit on the front display of the unit. If this is not lit, then no network connection is present.

Answer:

1. If connected directly to a PC, make sure you're using a good quality crossover cable.
2. Make sure you're using a standard CAT5 Ethernet cable to connect to your network.

Question: What do my LED lights mean?

Answer: The following diagrams show what the various LED displays mean.

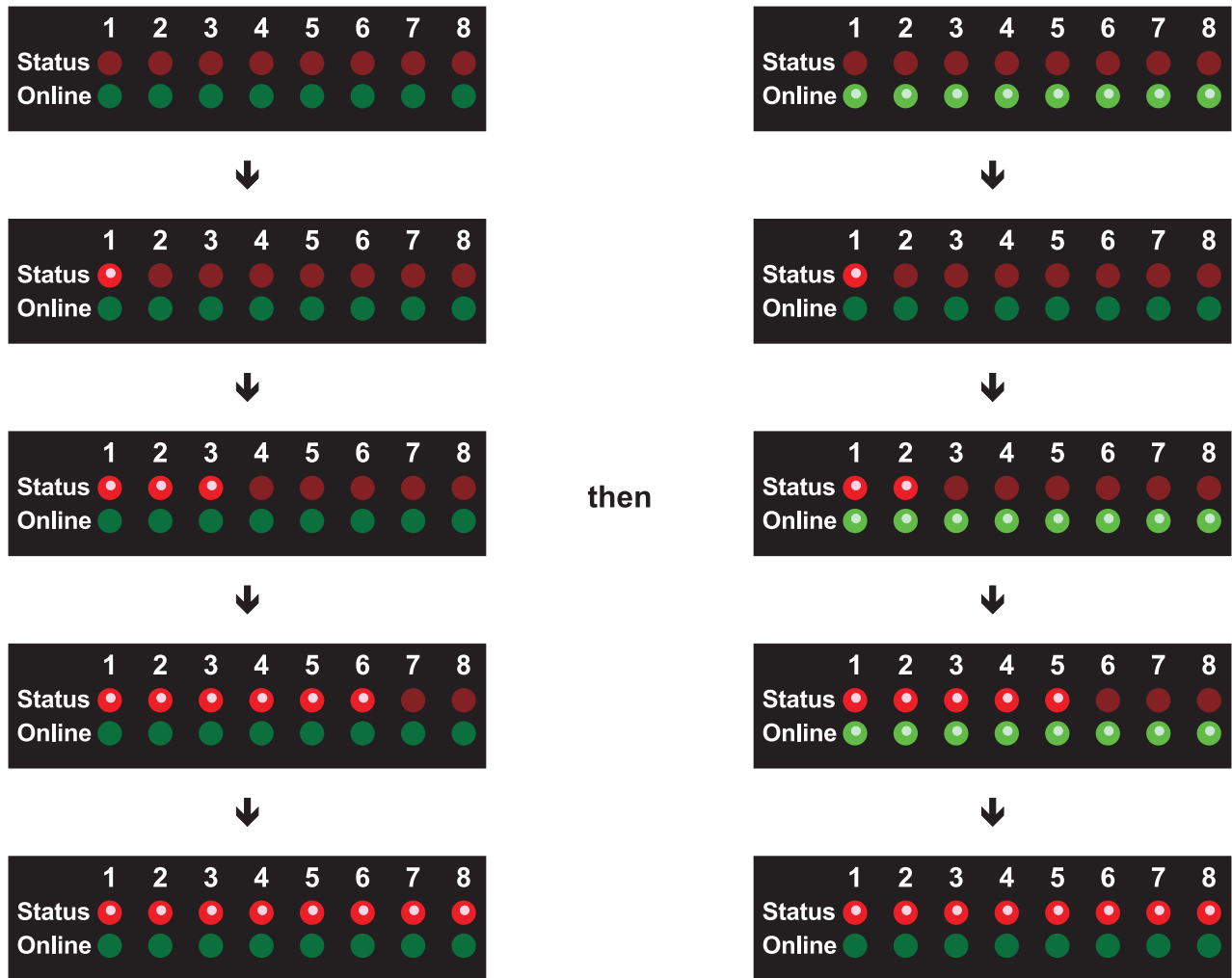


Figure 11-2. LED patterns in Normal mode.

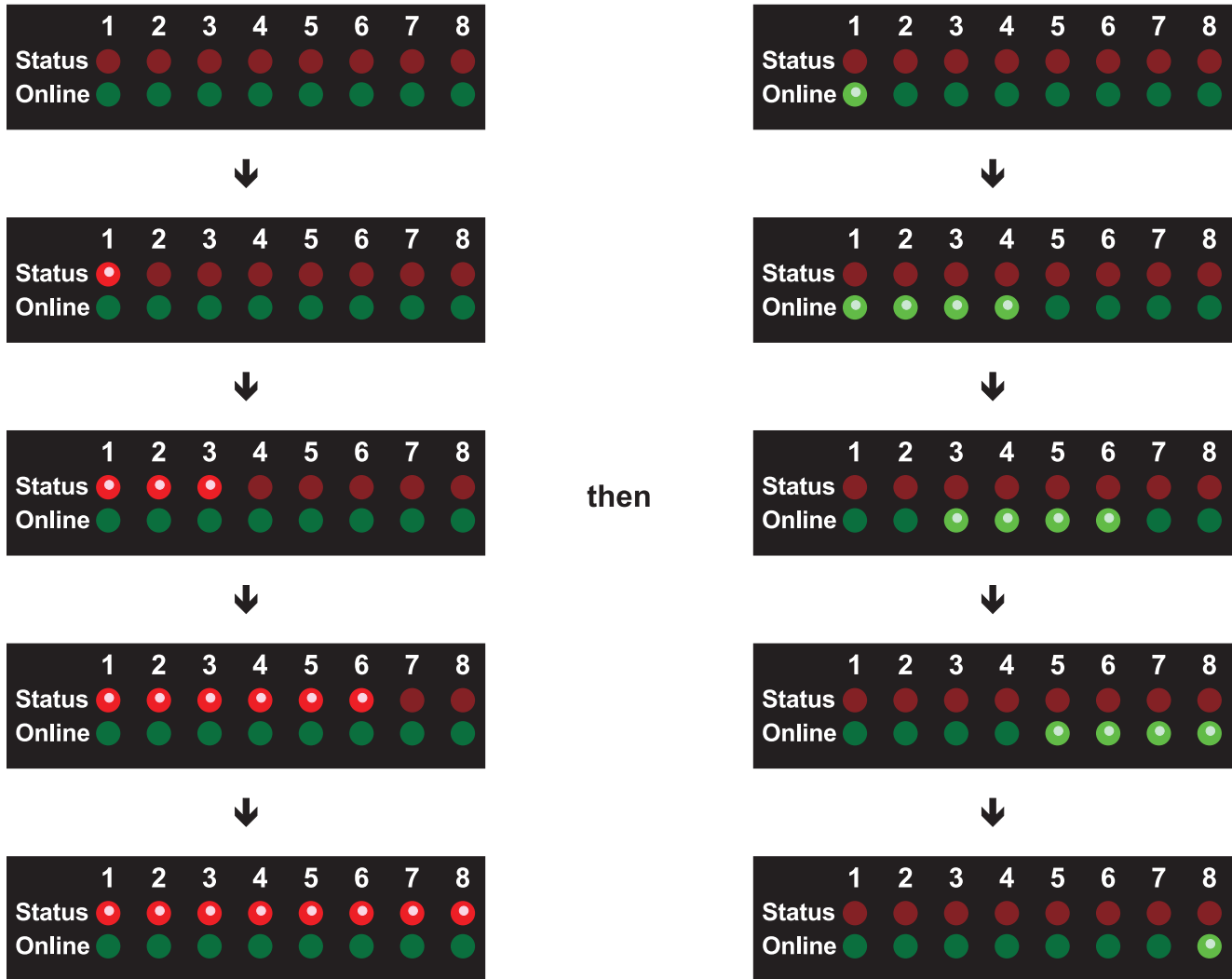


Figure 11-3. LED patterns in Safe mode.

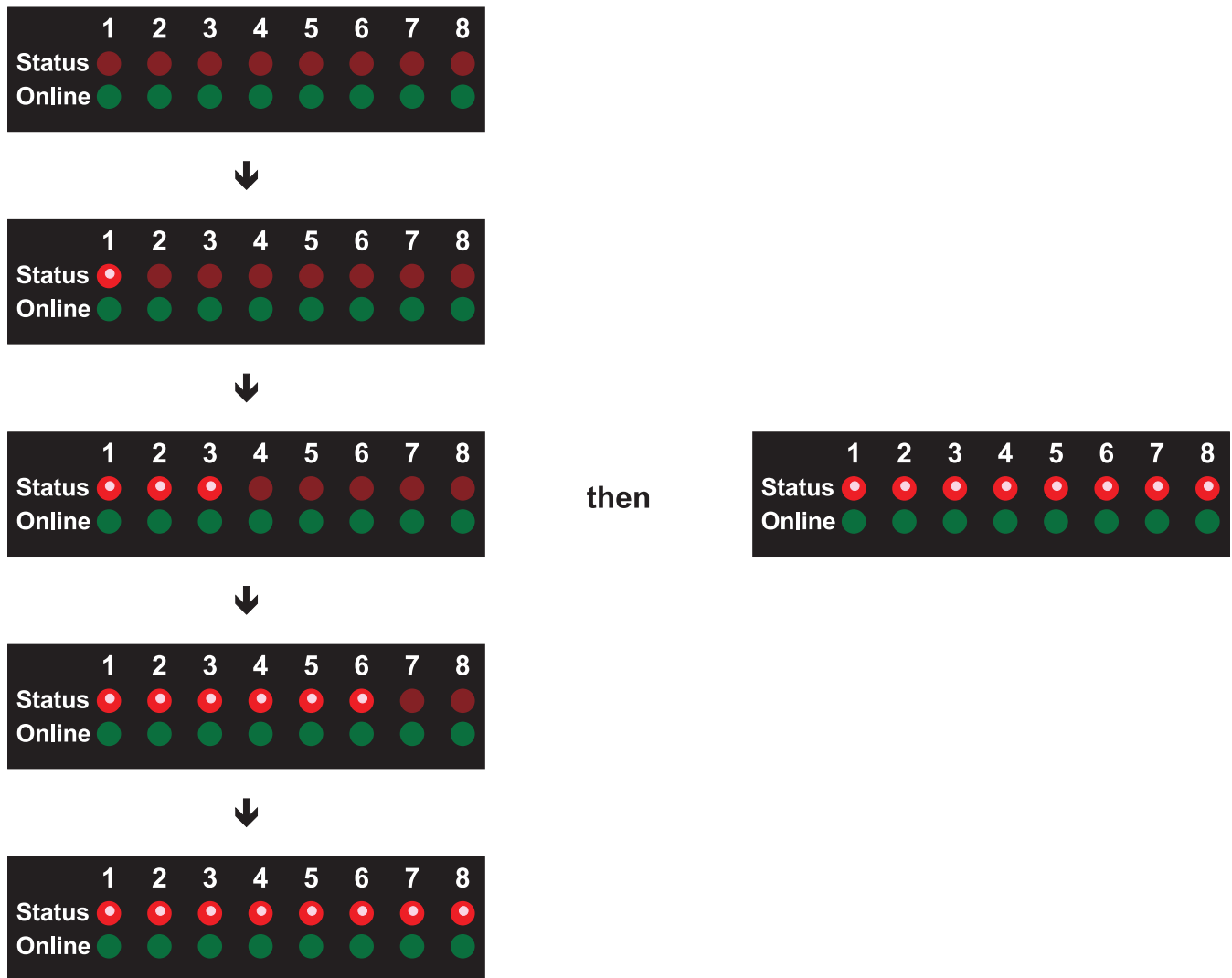


Figure 11-4. LED patterns in Recovery mode.

LEDs run clockwise after the power is connected.

From left to right, each LED indicates:

1st LED: U-Boot init

2nd LED: Kernel loaded with good CRC

3rd LED: Board init

4th LED: Serial port

5th LED: Ethernet

6th LED: NOR Flash

7th LED: NAND Flash

8th LED: Root file-system mounted. Starting initialization process

Chapter 11: Frequently Asked Questions (FAQs)

After the root file-system is mounted, all green LEDs will be flashing, and red LEDs light increasingly from left to right. The onboard Web server can be accessed during this time and shows a splash screen with boot details. After the boot process is finished, the LEDs show the status of the online sensors.

Question: I forgot my unit's IP address.

Answer: If you forget the IP address of your unit, you can simply press the reset button on the back of the unit. This will then announce the IP address through the unit's internal speaker.

Question: I forgot the password for my unit.

Answer: Hold down the reset button for seven seconds. This will turn off the use password feature for the Web-based interface. This will remain turned off until you hold the button down for a further seven seconds, or the unit announces "Now turning off password checking."

NOTE: This will turn off the password checking for accessing the Web interface only; you still have to enter the password when you access the system via Telnet.

Question: Can I use DHCP to assign my unit's IP address?

Answer: Yes, you can use DHCP to assign the IP address. The unit ships with this disabled. To turn it on, you need to log into the Web interface and navigate to the Ethernet settings via the "Security" tab, "Ethernet Network," and then click on the "Yes" button for "Use DHCP."

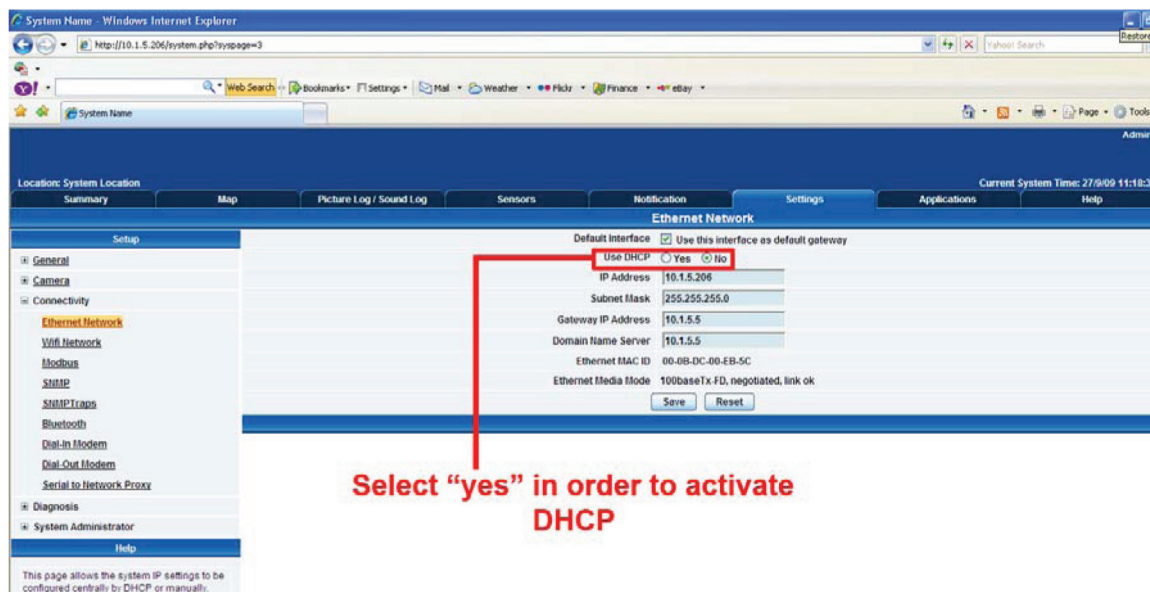


Figure 11-5. Activate DHCP.

NOTE: If the unit has a static IP address assigned, it will no longer send out DHCP requests. If you later want to turn DHCP back on, you can do that using the Web-based interface.

Question: How do I set up my routing table?

Answer: To set up the routing table, open a DOS window (start, run type command press enter) and at the command prompt, then enter: >route add 192.168.0.100.10.1.1.20

Where 10.1.1.20 is the IP address of the Ethernet interface on the PC that the unit is plugged into with the crossover cable.

Now ping* 192.168.0.100 to see if the connection was successful.

Question: How can I change my administrator password?

Answer: If you want to make your unit more secure and change the administrator password from the default (public) to your own choice, follow these steps:

1. Log into your unit using the default password.
2. Click the "Settings" tab.

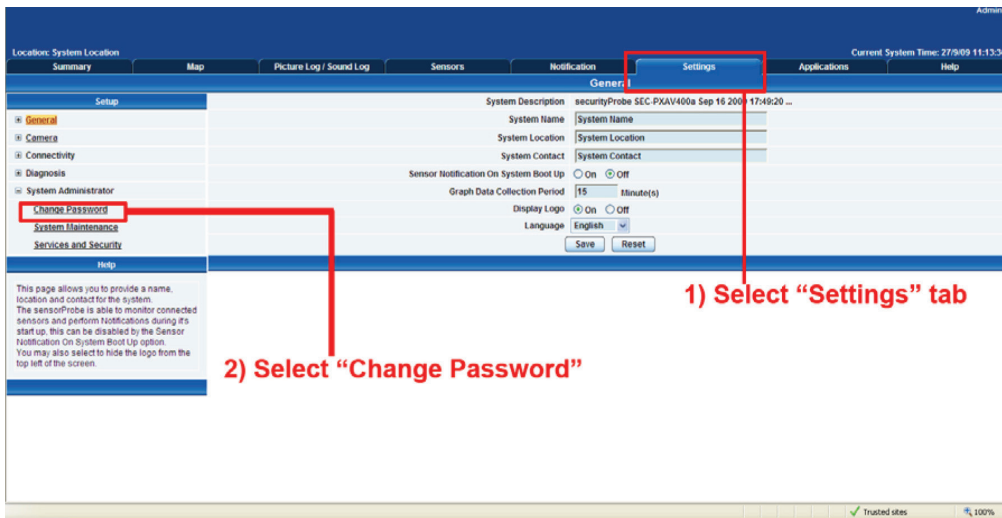


Figure 11-6. Select change password option.

3. Change the password.

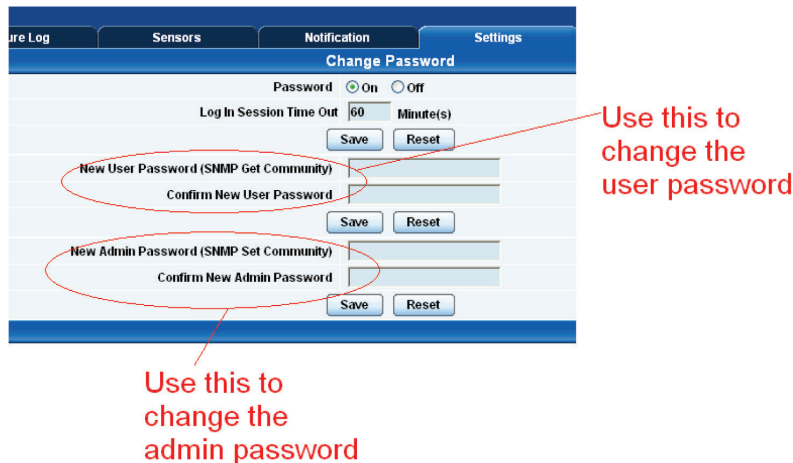


Figure 11-7. Change user and/or admin passwords.

Chapter 11: Frequently Asked Questions (FAQs)

Question: What function do the different types of notifications provide?

Answer: The notifications are used to notify you when a sensor reading has hit a certain preset “critical” threshold. There are many ways you can be notified. They are as follows:

SNMP Trap: This form of notification sends out a signal to your SNMP server.

E-Mail: This sends a notification via e-mail.

SMS: This sends an SMS message to your mobile phone.

MMS: This will send you a multimedia message to your mobile phone. This can include an image captured from one of the ServSensor Hub’s cameras.

Relay: The relay is used as a switch, for example, it could switch on an air-conditioning unit if the temperature reading of a temperature sensor reaches a certain threshold.

Alarm sound: This notification will sound an alarm.

Speech: Creates a text-to-speech notification.

Picture log: Creates an action where the camera logs a series of images when a certain event happens.

Telephone call: Will call you and play a prerecorded message or a text-to-speech message.

Custom script: Allows you to load a custom script that runs on a sensor reading a preset parameter.

Fax: Will send a fax to you with a notification message.

Sound log: Creates a log of sound captured with the internal/external microphone.

Siren and strobe: Will activate a siren and strobe light.

Mobile access: Gives you the function of viewing the camera attached to your ServSensor Hub via your mobile phone.

Wake up/shut down: This will send a signal to wake up or shut down a server.

If you require any assistance in setting these up, contact Black Box Technical Support at info@blackbox.com.

Question: Can I connect my unit via Wi-Fi?

Answer: Yes, you can connect the unit via Wi-Fi. Simply plug a USB dongle into the USB port on the rear of the unit. You then need to configure your connection type and encryption key, etc. Do this from the Web based interface in the “Settings” tab and the connectivity option.

Question: What is the Heartbeat message?

Answer: This setting is to have the ServSensor notify you that it is still running. You can be notified by either traps or by e-mail:

Alive Trap settings: Send Keep Alive Traps (Default Off): Select on if you want the system to send Alive Traps.

Destination: Enter the IP address of the server to send traps to.

Community: SNMP community string.

Resend Interval (mins): The period of time between each keep-alive trap. Values range from 1 to 65535 minutes.

Question: What is the network sniffer?

Answer: The network sniffer application can be used to capture network packets running to and from the ServSensor V4E, and all the network traffic. You can then import the captured file into TCP dump for details of these network packets. The network trace will help in debugging any network problems; for example, if e-mail cannot be sent.

Question: Can I use the camera for a videoconferencing call?

Answer: Yes, it is possible to use the camera and the integrated microphone to make a videoconferencing call. You need the software called "OpenPhone" running on your computer. This is included on the CD-ROM that came with your unit. (Look for OpenPhone.exe). Next follow these steps:

1. Initiate connection from OpenPhone (PC) to ServSensor.
 - a. Open the program by double clicking "openphone.exe"
 - b. Click the "Make Call" button, enter the IP address of the ServSensor Hub Linux/ServSensor V4E Hub to initiate a call in the "Address" field. Then, click "OK."
 - c. The unit will automatically respond to a call and establish the connection. You will then see the video, and hear sound from the unit.
2. Initiate connection from a ServSensor to OpenPhone (PC).
 - a. Open the program by double clicking "openphone.exe"
 - b. On the Web interface, click on the "Applications" tab, and click on "Video Conferencing."
 - c. Select the "Call to" option and enter the IP address of the PC running OpenPhone. Click "Save" to discover your computers IP address in the command prompt, type "ipconfig."
 - d. On the OpenPhone application, click "Answer" to accept the call.
3. Connection between two ServSensor HubLinux/ServSensor V4E Hub (only voice conference).
 - a. On the Web interface of the calling ServSensor Hub Linux/ServSensor V4E Hub, click on the "Applications" tab, and click "Video Conferencing."
 - b. On the right pane, select the "Call to" field and enter the IP address of the receiving ServSensor Hub Linux/ServSensor V4E Hub into this field. Click "Save."
 - c. The connection should automatically establish.

You can end the videoconference call by doing the following:

1. **End the call on OpenPhone (PC):** To end call, click the "Hang Up" button on the OpenPhone. This method can be used to end the call between the system and OpenPhone.
2. **End the call on the unit:** From the Web interface, click on the "Applications" tab and click on "Video Conferencing." On the right pane, select "End call and wait for a new incoming call" option. Then, click "Save."

Question: My ServSensor V4E unit does not boot up normally and the LEDs are circling around counter-clockwise. What should I do?

Answer: Leave the power connected to the unit and let it sit for 30 minutes without pressing the safe mode button, and it should boot back to normal mode.

Chapter 11: Frequently Asked Questions (FAQs)

Question: After I finish the firmware upgrade, I don't see any sensors connected to my unit in the Web interface any longer. What could be the problem?

Answer: Either the update did not completely finish for some reason or your browser has a java script error. First, try to clear your cache on your browser, then do a Ctrl + F5 (refresh). If the sensors still do not show, then re-run the firmware update.

Question: I just noticed this "Mega SPI Error" in my ServSensor V4E's web interface. What is the problem? How do I clear this?

Answer: The Mega SPI Error is caused by a faulty connection between the main board and the Mega SPI board that is mounted underneath the mainboard and has the sensor ports. This error can make the sensors invisible.

The first thing to try is to re-flash the unit with the latest firmware on our Web site, then power cycle the unit. If the unit still has this problem, then you can remove the power from the unit, open the case, and re-seat the cables that connect the main board to the Mega IO board. If you still have the same error, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com and provide the MAC ID of the unit.

Question: "Database Locked" errors entries appear in the syslog on my ServSensor V4E unit; what should I do?

Answer: First, navigate to the Settings >> System Administrator >> System Maintenance page, then run the "Backup All Settings To Backup File." Then run the "Clear All User Data and Restore Original Settings," keeping the network settings. After you reset the unit, you can upload the backup config file using "Restore All Settings From Backup File."

Question: My ServSensor V4E unit keeps rebooting after a firmware update failed. What happened and what can I do?

Answer: It sounds like the database on the unit has been corrupted. Use the most recent version of firmware to update the unit. When updating the unit, follow these procedures:

First, create a backup config file on the unit from the Web interface.

Then, run the firmware update and choose the "Clear All User Data and Restore Original Settings" from the "System Maintenance" drop-down menu.

After the firmware update is completed, restore the backup config file.

Questions: What should I do when I have the following problems?

- When setting a virtual sensor online, the "Configuration" button is missing (several browsers tested).
- The "Restore Original Settings" is not working.
- "Clear All User Data and Restore Original Settings" is not working.

Answer: Most likely, the problem is that some files are missing or have been corrupted. Try these steps:

1. Back up the settings by creating the backup config file.
2. Boot the unit to recovery mode. Push and hold in the reset button while powering up the unit.
3. Choose "clear all settings in recovery mode."
4. Install the firmware again.
5. Restore the backup file in normal mode.

Question: I am having problems with the unit but not sure what to do next?

Please email support@akcp.com and include the following detailed information in your email;

Note: The more details you can provide the easier and faster we can provide you with a resolution, so please be as detailed as possible.

1. The details of the problem, condition of the LED s etc.
2. What you did to determine the unit has this problem
3. Was there anything done to the unit prior to having the problem?
4. Did the unit always have this problem, if not when did this start?
5. Do you have more than one unit having the same problem?
6. What did you do to try and fix the problem?
7. What version of firmware is running on the unit? Did you try and upgrade it?
8. Include the backup configuration file from the unit.
9. If you can put the unit online this would be the fastest way for us to solve the problem.
10. What is the MAC ID of the unit.

Question: The same resolution is shown on both HD and non HD cameras. What is the difference?

Answer: The difference is the HD Cameras provide a a true digital image with enhanced clarity of the overall image. Resolutions are set to 640 x 480 to carefully balance image resolution and network bandwidth usage.

Question: Is the EME134A-R3 a separate board or unit similar to your expansion units?

Answer: No, this is not a separate module, this is the same unit and case as the EME134A-R2, but the main board and back panel are different to provide the RG-6 BNC Digital camera connection inputs.

Question: If I order the EME134A-R3, will I be able to connect other types of third party cameras as I did with my EME134A-R2?

Answer: Yes, the EME134A-R3 unit with the RG-6 BNC option will continue to support other third party cameras as long as they use the standard PELCO-D protocol and are within the previous specifications that worked with the EME134A-R2 base units.

Question: I noticed on the data sheet the EME134A-R3 ships with 2 expansion ports instead of 4. Does reducing the expansion ports also reduce the total number of sensors that can be connected to the EME134A-R3?

Answer: No, the EME134A-R3 unit will still support 500 sensors with the 2 expansion ports.

Question: I noticed the the EME134A-R3 units are now shipping without the SD cards inserted in the slot on the front panel. Did you forget to include them?

Answer: No, the units are now shipped as the NAND type setup where the operating system, settings, sensor data and other information is now stored on board in the NAND flash memory instead of the SD flash cards.

Chapter 11: Frequently Asked Questions (FAQs)

Question: Can I add my own SD flash card to the unit? If so how large can I use and what is then stored on the SD card?

Answer: Yes, you can add your own SD flash card up to 16 GB. The picture and sound logs are stored on the SD flash. There is no setting that needs to be done, you can just insert the card and when the 128 MB memory on the unit is full, it will automatically begin storing the picture and sound logs on the SD flash.

Question: I noticed you have a different firmware for the ServSensor Hub and the SEC-5ES base units, will there be another separate firmware for the SEC-5E?

Answer: No, the SEC-5ES and the SEC-5E units both use the same iMX25 processor so they will use the same firmware update file.

Question: Speaking of firmware, do I need a separate firmware version or file if my unit has the X20 or X60 dry contact inputs? For example my SEC-5ESA-X20 or my SEC-5E-X60?

Answer: No, since all the units with the extra X20 and X60 dry contact inputs use the same iMX25 processor they use the same firmware update file.

Question: Can I still use the same USB modems that worked or work on my ServSensor Hub, my SEC- 5E and 5ES base units?

Answer: Yes, as long as your firmware is updated on the unit, the SEC-5E will support all the same modem types as the previous generation of units.

Question: Will all the sensors that work on my SEC, SEC-5E, SEC-5ES work on the new SEC-5E base unit?

Answer: Yes, all the sensors are supported on the previous generation of SEC and SEC-5E base units will continue to be supported on the new 5E base units.

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```
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```

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```

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```

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```
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```

```
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```

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```
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```

```
signature of Ty Coon, 1 April 1989
```

```
Ty Coon, President of Vice
```

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C. GNU GPL v3

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Version 3, 29 June 2007

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- zlib

zlib.h -- interface of the 'zlib' general purpose compression library

version 1.2.11, January 15th, 2017

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Jean-loup Gailly

Mark Adler

jloup@gzip.org

madler@alumni.caltech.edu

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