Virtual Sensors manual for RAMOS Ultra

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Content

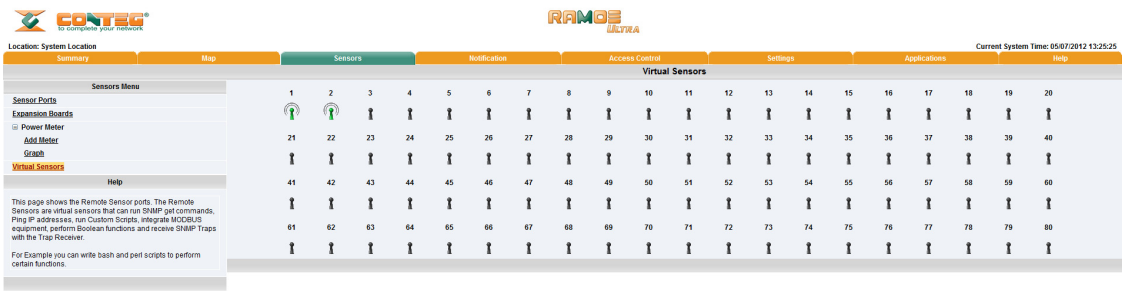
1. Introduction

Virtual sensors can be a very powerful tool in your monitoring system. On the RAMOS Ultra you can have up to 80 of these virtual sensors and they allow for a multitude of applications.

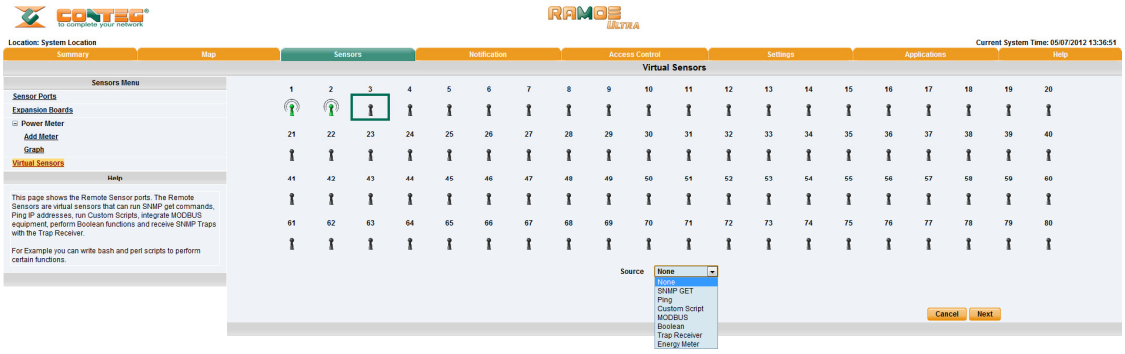
Integration with MODBUS networks with the RAMOS Ultra as a MODBUS master/slave, SNMPget and ping commands and others are all possible from the virtual sensors. An example use of this could be to use the RAMOS Ultra as a probe manager. If you had a RAMOS Ultra and other RAMOS devices they could all be monitored, mapped and alerted via the RAMOS Ultra. You can perform SNMPget commands on a server to monitor memory or CPU load, or you can ping network enabled devices and be alerted if they go offline.

2. Configuring Virtual Sensors

The virtual sensors are found in the sensors tab and “virtual sensors” from the left hand menu. This way they take you to the following screen showing 80 virtual sensors:

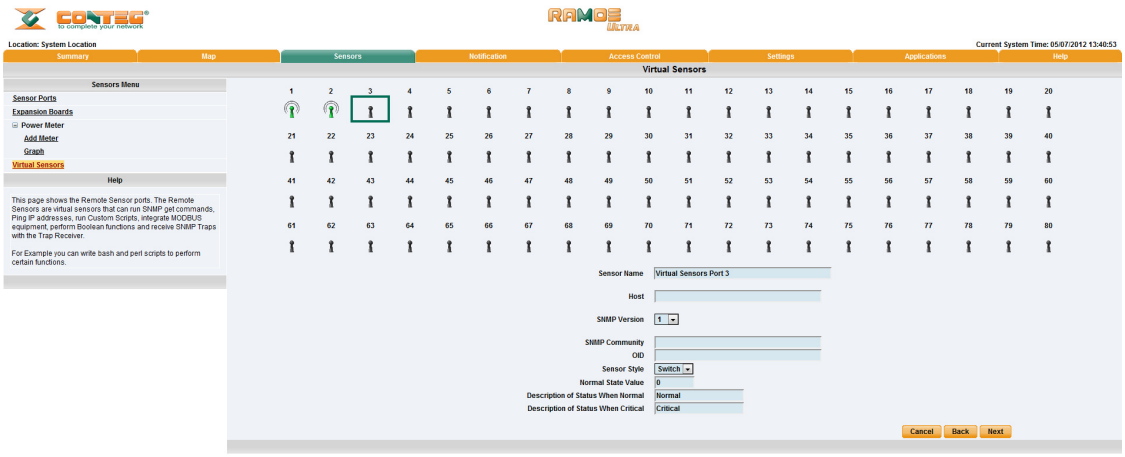


Click on the first available virtual sensor (in this case 3) you can then choose what type of sensor to setup from the next screen. First, click on “Configuration” button, and then you will have a choice of SNMP Get, Ping, Custom Script, MODBUS, Boolean, or Trap Receiver.



3. SNMP GET:

If you select SNMP get from the menu and click next you will get the following page:



Sensor Name: Input the name you wish to use to identify your virtual sensor

Host: The IP address of the unit on which you wish to perform a SNMPget command. For example, this could be the IP address of a RAMOS Optima device.

SNMP community: The NSMP password, default is usually “public”.

OID: The OID is used for what you wish to monitor. If for example you want to poll temperature data from a RAMOS Optima device with a temp sensor on port 1 then you would use the following OID

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0

The last digit (0) is the intelligent port no. 1. For the intelligent port no. 2, the last digit would be (1). If you monitor some other device you will need the relevant OID for what you wish to measure.

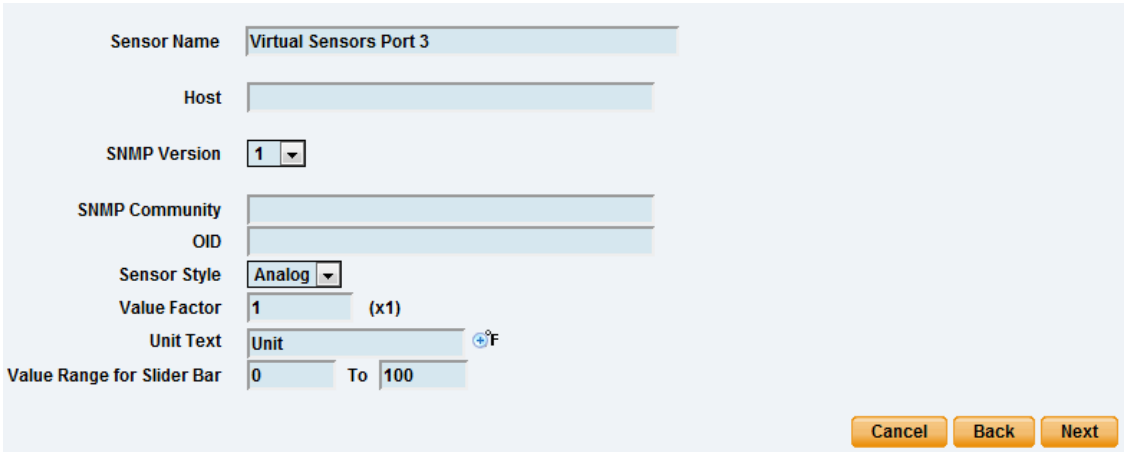
Sensor Style: Choose either switch or analogue. A switch sensor would be for example a water sensor, on or off, an analogue sensor would be a temperature sensor or humidity sensor or some other sensor that gives a data value.

Description when Normal: e.g., Normal, Critical, Online etc.

Description when Critical: e.g., Critical, Offline, Low etc.

Normal State value: 0 or 1 (for switch type sensor only).

If you choose an analogue sensor you will get a slightly different menu.

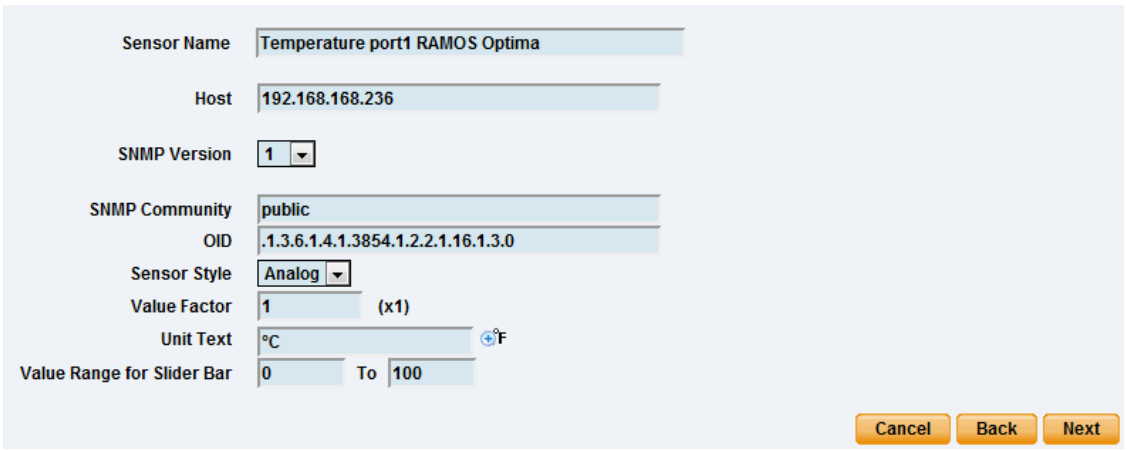


Value Factor: gives you the option to choose from the drop down menu as x1, x 0.1, x 0.01 or x0.001

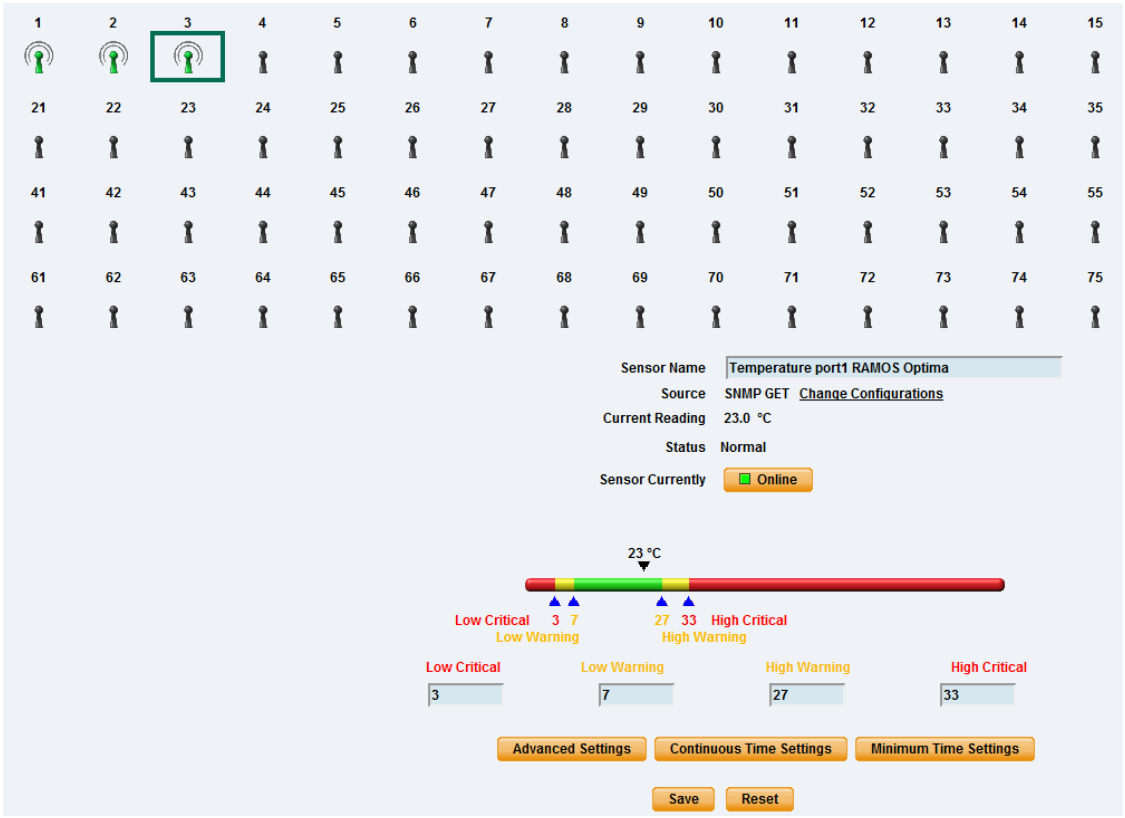
Unit text: for example, when measuring temperature “degrees centigrade” or measuring humidity “percentage humidity”, etc.

Value range for slider bar: The range that you wish to measure. For temperature you could put the max at 100 for 100 degrees, or humidity, 100 for 100%.

Example of filed data

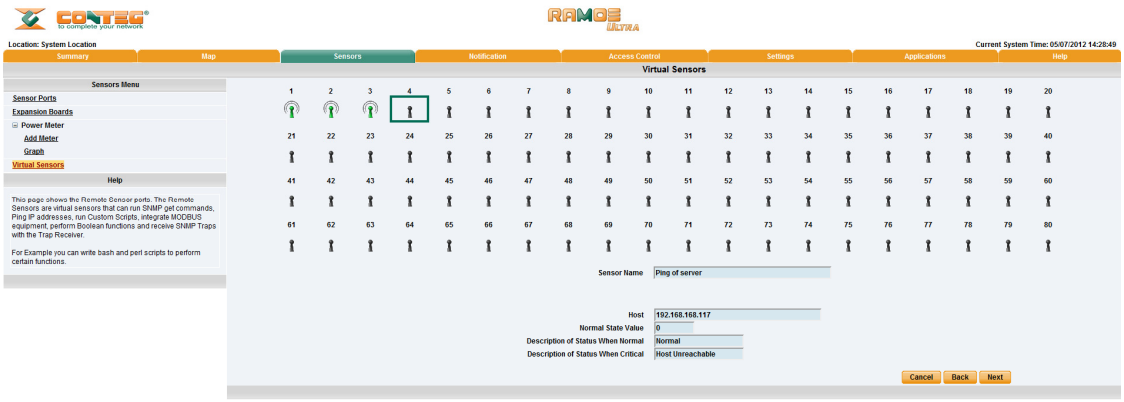


When finished, click on next, you can then configure ranges and the time interval between data polling. And at the end you can see the value as on picture below.



4. PING

If you select a Ping virtual sensor and click next you will get the following screen:



Sensor Name: The name you wish to use to identify the sensor, for example “Ping of server”

Host: The IP address of the network device you wish to ping

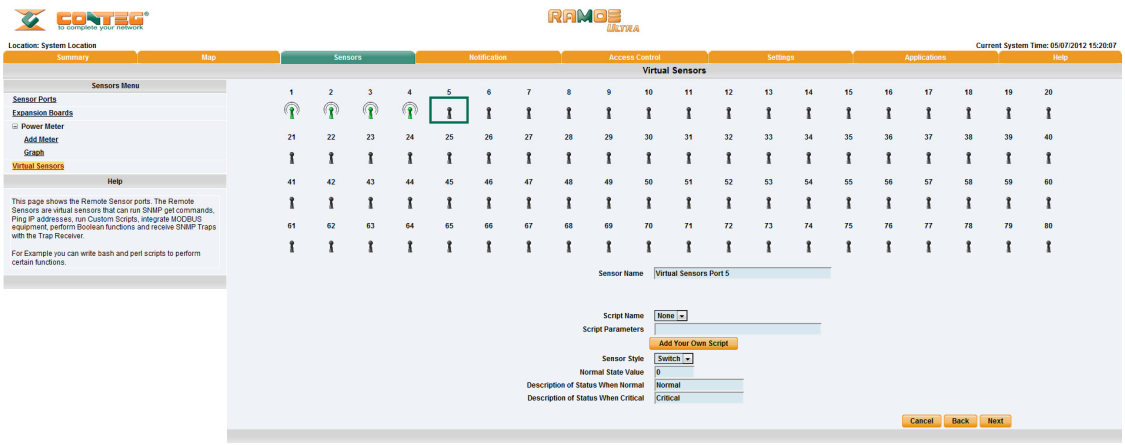
Description when Normal: e.g., online

Description when critical: e.g., offline

Normal state value: 0 = ping successful, 1 = ping times out.

5. CUSTOM SCRIPT

If you select a Custom Script and click next you will get the following screen:

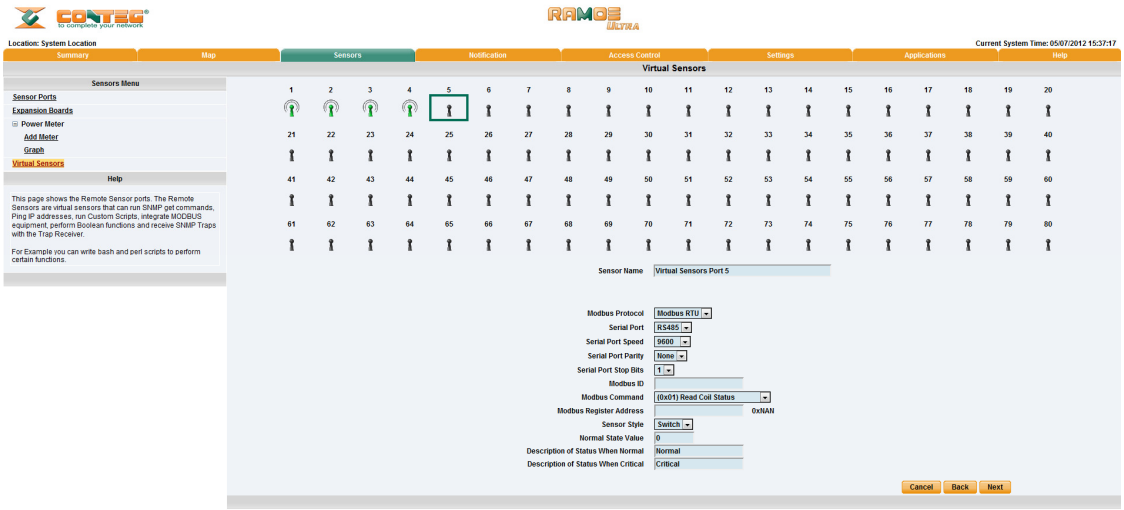


Sensor Name: The name you wish to use to identify the sensor, for example “Custom Script of sensor”.

You can add the Script Parameters. Add Your Own Script button allows you to attach your own script file. If you choose Analogue from the Sensor Style option you will get a slightly different menu.

6. MODBUS

If you select MODBUS and click next you will get the following screen:



Sensor Name: The name you wish to use to identify the sensor, for example “MODBUS”

Modbus Protocol: You can select the Modbus Protocol to either Modbus RTU (serial) or Modbus TCP (Ethernet Network).

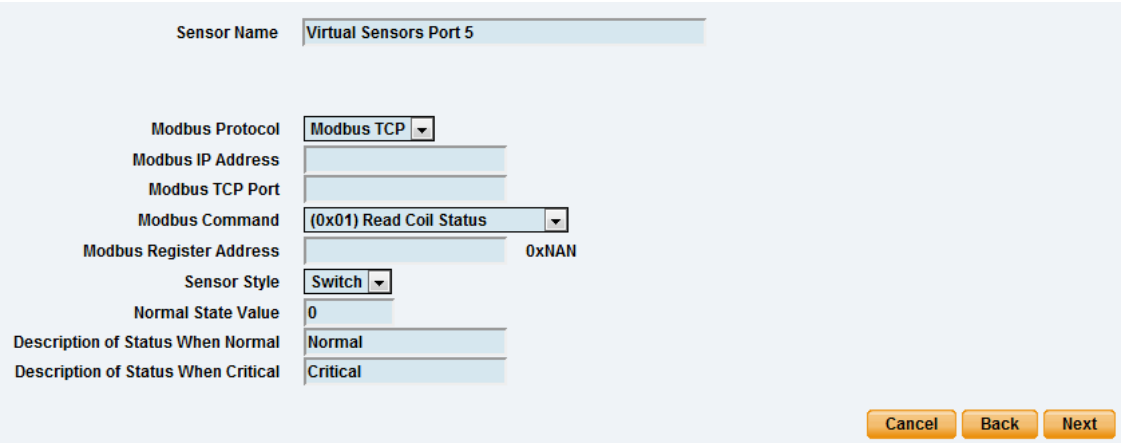
7. MODBUS RTU

If selecting the Modbus RTU protocol you will use the RS485 port to connect the Modbus device. See the following picture of the RAMOS Ultra with the RS485 port highlighted.

Still following the screen shot above, you will then select your Serial Port Speed, your Serial Port Parity as None, Odd or Even. Select the Serial Port Stop Bits as 1 or 2, enter the Modbus Slave ID (each slave in a network is assigned a unique unit address from 1 to 247), the Modbus Command, which includes 4 options for the virtual sensor: (0x01) Read Coil Status, (0x02) Read Input Status, (0x03) Read Holding Registers and (0x04) Read Input Registers. You will then enter the Modbus Register Address and the Style of the sensor, the Normal State Value and descriptions of the sensor status.

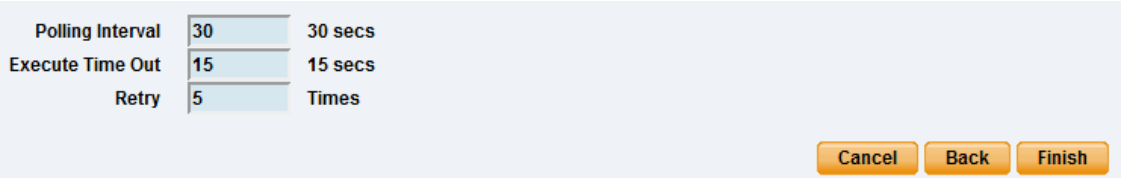
8. MODBUS TCP

If selecting the Modbus TCP protocol you will get the following screen:



You will then enter your Modbus IP Address, Modbus TCP Port and again Modbus Command, Modbus Register Address, Sensor Style, Normal State Value and the Descriptions of the sensor status.

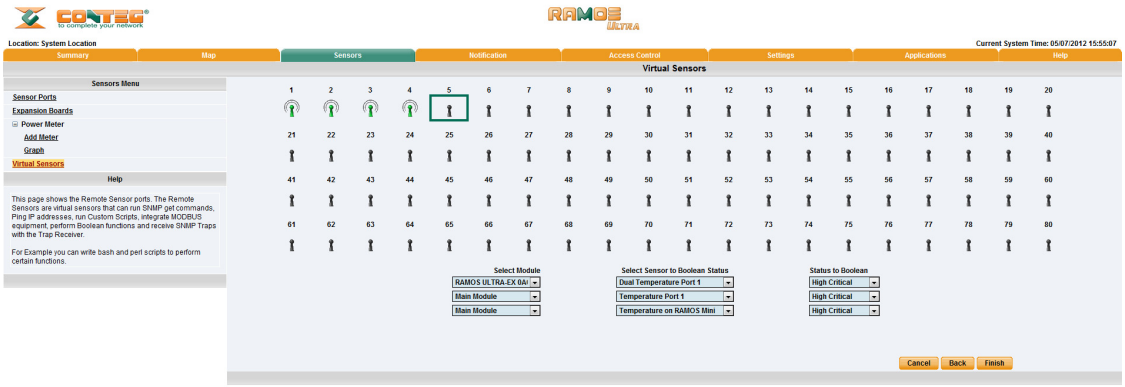
You will get the following screen when choosing either Modbus RTU, or Modbus TCP:



This screen is where you enter your Polling Interval, Time Out periods for the sensor and also your Retry amount. Click on the Finish button to complete the Modbus setup wizard and return to the Virtual Sensor main screen.

9. Boolean

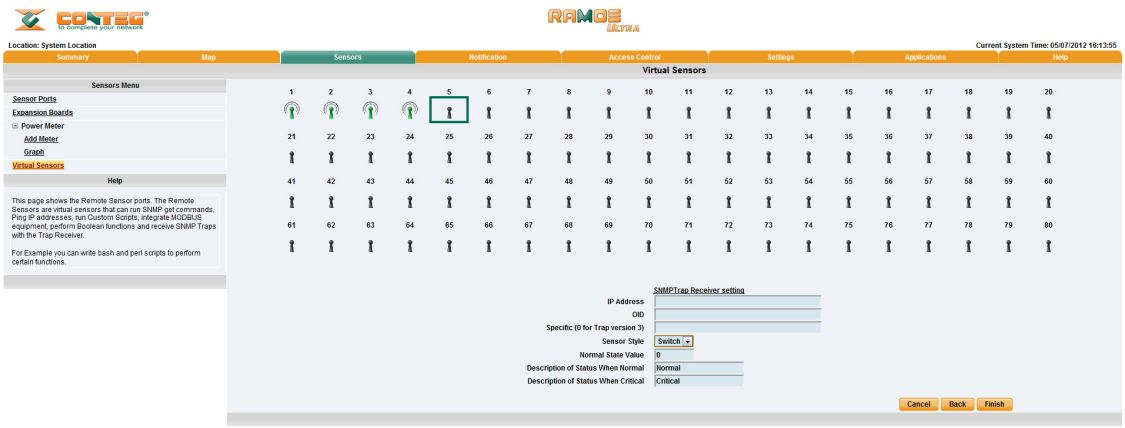
When selecting Boolean you get the following screen:



Boolean works on the virtual sensor by checking the status of, for example, 2 to 3 sensors and if the sensors status matches that of the setting they will return a value of 1, the normal value is 0.

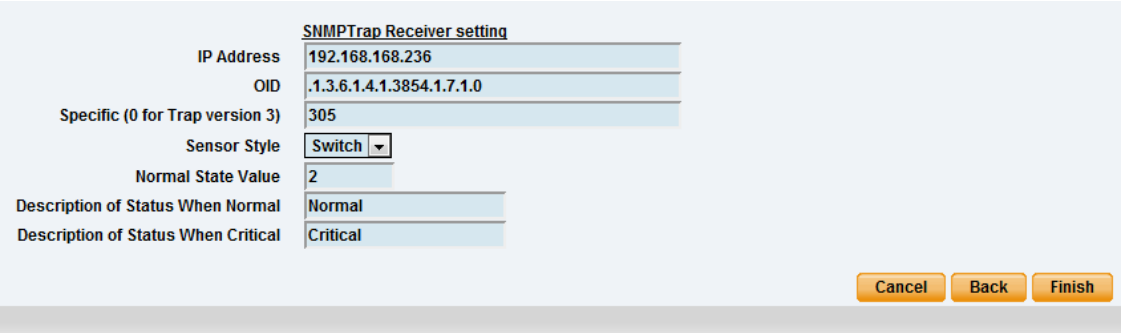
10. Trap Receiver

If selecting the Trap Receiver you will get the following screen:



The Trap Receiver feature on the Virtual Sensor will check 3 parameters before setting a value. These three parameters are the IP Address, the sensors OID and the Trap sub-type.

In our example below the Trap is sent by the motion sensor on port 5 of our RAMOS Optima unit. Our device IP is 192.168.186.236. Our RAMOS Optima Trap Type is set to the specific sub type and will check status of our motion sensor in the following screen.



The Trap Receiver feature on Virtual Sensor will check 3 parameters before setting a value.

Normally the Trap will have 6 OIDs

1. spSensorStatus (.1.3.6.1.4.1.3854.1.7.1.0). The current integer status of the sensor causing this trap to be sent

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

2. spSensorValue (.1.3.6.1.4.1.3854.1.7.2.0).The current integer value of the sensor causing this trap to be sent.

3. spSensorLevelExceeded (.1.3.6.1.4.1.3854.1.7.3.0).The integer level that was exceeded causing this trap to be sent.

4. spSensorIndex (.1.3.6.1.4.1.3854.1.7.4.0).The integer index of the sensor causing this trap to be sent.

5. spSensorName (.1.3.6.1.4.1.3854.1.7.5.0).The name of the sensor causing this trap to be sent.

6. spSensorDescription (.1.3.6.1.4.1.3854.1.7.6.0).The description of the sensor causing this trap to be sent.

The specific value depends on the RAMOSoptimaTrapType (.1.3.6.1.4.1.3854.1.2.2.1.60.0)

If it is set to specificTypeTrap(1) specific value is to show the sensor type and port (Specific value of Motion Sensor port 5 is 305)

If it is set to generalTypeTrap(2) specific value is to show the sensor type (Specific value of Motion Sensor port 5 is 30)

If it is set to bothTypeTraps(3) device will send the trap two times specific value will show sensor type and show sensor type and port (Specific value of Motion Sensor port 5 is 305 and 30)

If it is set to statusTypeTraps(4) specific value is up to status of sensor (spSenUnknownStatus(51), spSenNoemalStatus(52), spSenWarningStatus(53), spSenCriticalStatus(54))

Example Trap send by Motion Sensor port 5 on our device IP is 192.168.168.236 RAMOSoptimaTrapType is set to pecificTypeTrap and need to check status of Motion Sensor

IP Address is 192.168.168.236

OID is .1.3.6.1.4.1.3854.1.7.1.0

Trap sub-Type(Specific) is 305

Sensor Style is Switch

Normal State Value is 2 (2 means sensor status is normal so far)