

Using OID's & SNMP commands

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1. Introduction

1.1. What is an OID?

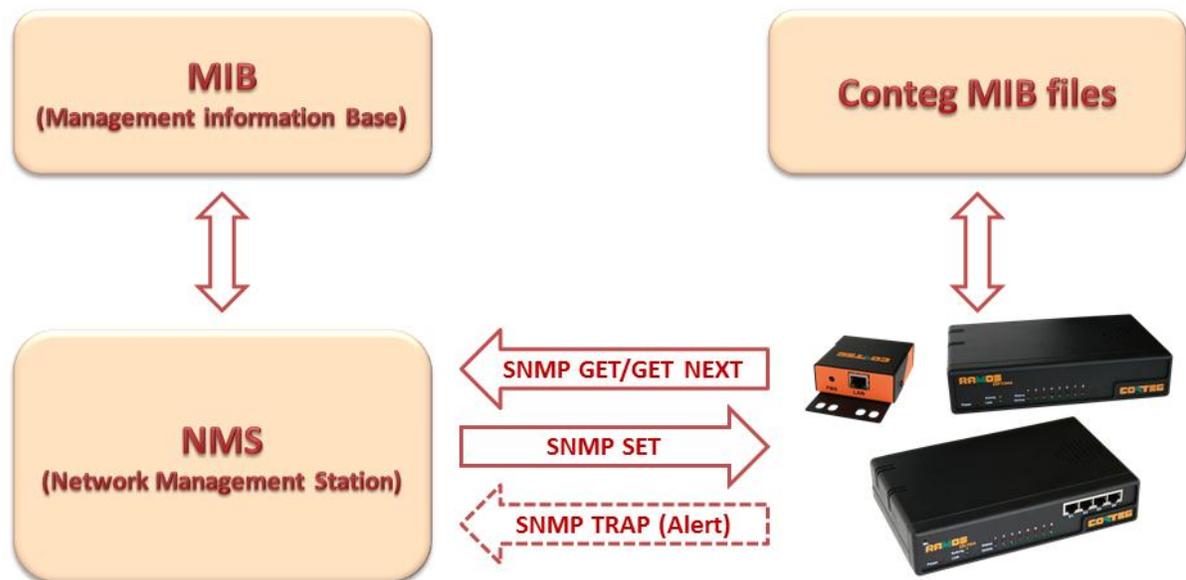
An OID is an “object identifier”. In computer networking the OID is used to identify an object that is stored in a Management Information Base (MIB). The MIB is a database that manages the devices used in a network setup. In this case, the OID's are used to identify the objects, such as sensors, that are connected to your unit. Generally speaking, each OID identifies a variable that can be read or set via an SNMP command.

1.2. What is SNMP?

SNMP is the most popular network management protocol in the TCP/IP protocol suite.

It is a simple request/response protocol that communicates management information between two types of SNMP software entities: SNMP applications (also called SNMP managers) and SNMP agents (Conteg base units and sensors).

SNMP applications run in a network management station (NMS) and issue queries to gather information about the status, configuration, and performance of the RAMOS devices and sensors. For example, this very simple diagram bellow shows this concept of how a network management station and RAMOS Ultra, RAMOS Optima or RAMOS Mini communicates via SNMP across the TCP\IP network.



1.3. How to use this manual

This manual aims to provide the user with a guide on how to use SNMP commands and the RAMOS OID's. It does assume you have previous knowledge through completion of previous tutorials on our products.

If you have any difficulty viewing the screen shots or text in this manual, you can use the “Zoom In” feature on your text viewer.

2. CONTEG OID's

2.1. Ramos Mini

Ramos Mini has specific OID's for Sensors, Input and Output:

2.1.1. The Temperature and Humidity sensors On Ramos mini have same OID

sensString = .1.3.6.1.4.1.28402.4.3.3.1.4.1 (is for Value of **first** sensor)

sensString = .1.3.6.1.4.1.28402.4.3.3.1.4.2 (is for Value of **second** sensor)

Note: for connecting RAMOS Mini in RAMOS Ultra using Virtual sensors is recommended to use OID .1.3.6.1.4.1.28402.4.3.3.1.5.X with integer 10

2.1.2. Ramos Mini Input:

inpValue = .1.3.6.1.4.1.28402.4.3.1.1.2.1 (is for dry contact status)

2.1.3. Ramos Mini Output

outValue = .1.3.6.1.4.1.28402.4.3.2.1.2.1 (is for relay status)

2.2. Ramos Optima and Ultra with intelligent ports

All of the RAMOS intelligent sensors are divided into three groups. All of the sensors in the same group have the same OID. The groups are as follows:

2.2.1. The first group includes temperature sensors only;

ramosOptimaTempDegree = .1.3.6.1.4.1.3854.1.2.2.1.16.1.3.X

ramosOptimaTempStatus = .1.3.6.1.4.1.3854.1.2.2.1.16.1.4.X

Note: for connecting RAMOS Optima in RAMOS Ultra using Virtual sensors is recommended to use OID:

.1.3.6.1.4.1.3854.1.2.2.1.16.1.14.X with integer 10. Example of Temperature OID's for Ramos Optima:

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0 #this is the temperature on intelligent port 1

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.1 #this is the temperature on intelligent port 2

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.2 #this is the temperature on intelligent port 3

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.3 #this is the temperature on intelligent port 4

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.4 #this is the temperature on intelligent port 5

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.5 #this is the temperature on intelligent port 6

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.6 #this is the temperature on intelligent port 7

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.7 #this is the temperature on intelligent port 8

This shows the OID value for a temperature sensor connected to each port. As you can see the last digit hangs from 0-7 showing the 8 intelligent ports of Ramos Optima unit.

2.2.2. The second group includes all analog sensors such as humidity, airflow, 4-20mA, and DC

Voltage, excluding the temperature sensor.

ramosOptimaHumidityPercent = .1.3.6.1.4.1.3854.1.2.2.1.17.1.3.X

ramosOptimaHumidityStatus = .1.3.6.1.4.1.3854.1.2.2.1.17.1.4.X

Note: The dual temperature and humidity sensor consists of a temperature sensor (group1) and a humidity sensor (group2).

Where X is a port number starting from 0 to 7 on RAMOS Optima. So for example an OID value that looks like this:

.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0 would be the value for a temperature sensor status connected to int. port 1.

2.2.3. The third group includes all switch-type sensors such as water sensor, dry contact, security, motion sensor, relay and siren & strobe light.

ramosOptimaSwitchStatus = .1.3.6.1.4.1.3854.1.2.2.1.18.1.3.X

OID's can be used to set a switch output to high. For example, if you wished to remotely activate a device then you could use an OID. The status of a switch (high/low) can be found using following OID:

.1.3.6.1.4.1.3854.1.2.2.1.18.1.3.x [Where "x" is the value (0-7 on 8 port unit) that the switch is connected.]

If you wish to set the status of the switch to high then you can use the following OID:

.1.3.6.1.4.1.3854.1.2.2.1.18.1.8.x [Again the "x" value is the port to which the switch is connected.]

This can now be used for remote activation of a device. If a temperature sensor, for example, is connected to port 1 and a dry contact cable is connected to port 2, and the temperature exceeds the threshold, then the management software can send an SNMP Set to the dry contact on port 2 with the following command:

```
snmpset <ipaddress> <password> .1.3.6.1.4.1.3854.1.2.2.1.18.1.8.1 i 1
```

The **i** denotes an integer value. **i** can take 2 values: 1 = output high, 2 = output low

If set to high it will make the dry contact pins output +5V which can turn on a relay.

Quick Tip:

If you want to control an output of a Dry contact, DO NOT use online/offline button to switch the dry contact on and off. Leave the Dry contact output online and use RamosOptimaSwitchOutputLevel OID instead.

```
snmpset -v1 -c <password> <ipaddress> .1.3.6.1.4.1.3854.1.2.2.1.18.1.8.0 i 0 [This OID will tell port 1 to set to 0 Volts/Close]
```

```
snmpset -v1 -c <password> <ipaddress> .1.3.6.1.4.1.3854.1.2.2.1.18.1.8.0 i 1 [This OID will tell port 1 to set to 5 Volts/Open]
```

Relay and Siren OIDs

We have special SNMP OIDs for controlling relays and sirens. These are:

ramosOptimaSwitchManualRelayAction = .1.3.6.1.4.1.3854.1.2.2.1.18.1.25.x [x is an intelligent port number from 0 to 7]

The integer values of this OID are:

- 1 = Allow sensor to control
- 3 = Turn On
- 4 = Turn Off
- 7 = Cycle Off-On-Off
- 8 = Cycle On-Off-On

The SNMP OID for controlling relays is the following: .1.3.6.1.4.1.3854.1.2.2.1.18.1.25.0

Integer Value: 1 = allow-sensor-control
3 = relay-turn on
4 = relay-turnoff
7 = cycle Off-On-Off
8 = cycle On-Off-On

Dry Contact status

Here is SNMP OID for reading the dry contact status: .1.3.6.1.4.1.3854.1.2.2.1.18.1.3.(Port-1)

The return value can be: 1 = no Status

2 = normal
4 = high Critical
6 = low Critical
7 = sensor Error

ramosOptimaSwitchStatus = 1.3.6.1.4.1.3854.1.2.2.1.18.1.3.X [x is an intelligent port number from 0 to 7]

3. Quick Facts and FAQ:

Question:

Do you have an OID for the RAMOS Ultra that will tell me if any of my sensors connected to any of the RJ-45 sensor ports is in an alarm state?

Answer:

Yes, we do. You can use the following OID: .1.3.6.1.4.1.3854.1.1.2.0

This OID will return the worst case status of the RAMOS. So, for example, when you have a sensor in a normal state, a warning state and a critical state, the OID will return that a sensor on the unit that is in the critical state. From here you can do a SNMPwalk on all the OID's to determine which sensors are in what status. This can be utilized by say a NMS for example.

Question:

Do you have an OID that will return what the MAC ID of my unit is?

Answer:

Yes, we do. You can use the following OID: 1.3.6.1.4.1.3854.1.2.2.1.3.0

Question:

I have used the web interface to configure the device. In particular, I have used the web interface to set temperature thresholds, can these thresholds be set via SNMP commands?

Answer:

Yes, you can use the following SNMP set commands for changing your temperature\humidity thresholds.

Temperature

```
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.16.1.7.<port> i <High Warning value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.16.1.8.<port> i <High Critical value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.16.1.9.<port> i <Low Warning value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.16.1.10.<port> i <Low Critical value>
```

Humidity

```
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.17.1.7.<port> i <High Warning value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.17.1.8.<port> i <High Critical value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.17.1.9.<port> i <Low Warning value>  
snmpset -m all -v 1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.17.1.10.<port> i <Low Critical value>
```

Question:

What is the OID for the Daisy-chain temperature string sensor?

Answer:

Yes, you can use the following SNMP set commands for the Daisy-chain temperature sensor.

For the Daisy-chain temperature sensors and Relay Array the port starts at "1" thresholds.

To check that, the SNMP command is:

```
snmpget -m all -v1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.101.0
```

To set it, the SNMP command is:

```
snmpget -m all -v1 -c <community> <IPaddress> .1.3.6.1.4.1.3854.1.2.2.1.101.0 i <start port>
```

Question:

Do you have an OID for checking the sensor type, or what type of sensor is connected to my base unit?

Answer:

Yes, you can use the SensorType OID for checking the sensor type on each port and also use the Sensor Online OID again for making sure that sensor is online:

.1.3.6.1.4.1.3854.1.2.2.1.18.1.9 [for checking the type of sensor]

When polling this for all sensors on your unit you will get this displayed:

.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.0	8 <- airflow
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.1	9 <- siren & strobe
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.2	3 <- ?
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.3	3 <- ?
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.4	3 <- ?
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.5	13 <- relay / voltage
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.6	3 <- ?
.1.3.6.1.4.1.3854.1.2.2.1.18.1.9.7	3 <- ?

The values represent the sensors as follows:

1 = temperature	6 = security	12 = voltage
2 = 4-20mA	8 = airflow	14 = motion
3 = humidity	9 = siren	23 = thermostat
4 = water	10 = dry contact	24 = smoke

Sensor controlled relay:

```
snmpset -mall -v1 -c<set community> <ip> .1.3.6.1.4.1.3854.1.2.2.1.18.1.7 i <stage>
```

when:	<set community>	is admin password
	<ip>	is IP address of unit
	<stage>	is 0 for close, 1 for open

Question:

What is an MIB Browser?

Answer:

An MIB Browser is a tool that allows you to pull out data from SNMP enabled devices such as routers, switches, and servers. In addition to pulling out data, an MIB Browser may also perform the following functions.

- Retrieve and display MIB data in a human readable form
- Allow you to make it smarter by compiling in more MIB definitions
- Set MIB variables, create, modify or delete conceptual table rows
- Basic alarm (trap) management
- View the text file in a graphical manner usually featuring an MIB tree
- Support all versions of SNMP including SNMPv3 security