

Locating OIDs (Object Identifiers) Using a MIB browser with an ENVIROMUX Enterprise Environment Monitoring System

To use SNMP (Simple Network Management Protocol) to monitor the sensors and control the functions of an ENVIROMUX Enterprise Environment Monitoring System (SYSTEM), you first need to install SNMP network management software. The software package will include an MIB (Management Information Base) browser and there are many different MIB browsers so we will be very general about the instruction provided herein. The MIB browser can be used to quickly view sensor data and the status of all characteristics of the SYSTEM. How you make use of that information is up to you.

General Information

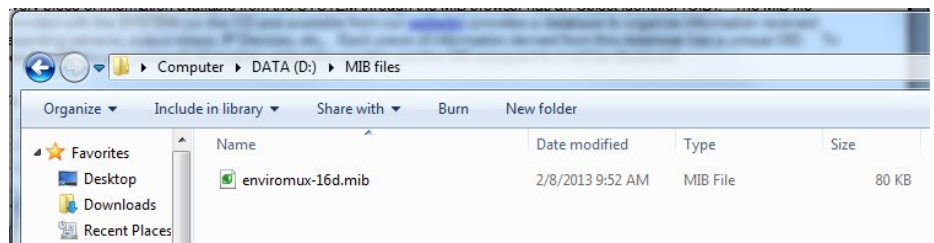
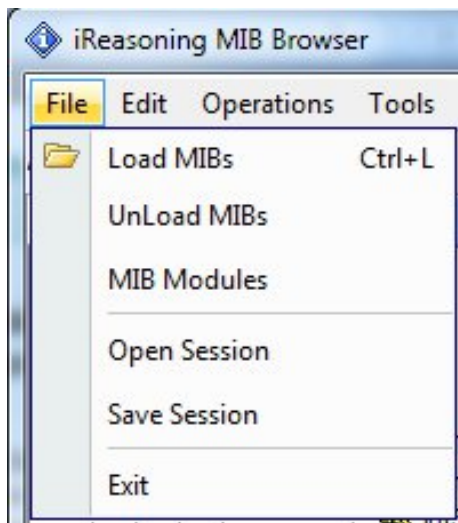
Every piece of information available from the SYSTEM through the MIB browser has an OID (Object Identifier). The MIB file provided with the SYSTEM (on the CD and available from <http://www.networktechinc.com/download/d-environment-monitor-16.html>) provides a database to organize information received regarding sensors, output relays, IP Devices, etc.. Each piece of information derived from this database has a unique OID. To see the OID for any piece of information, select the variable and the OID assigned to it will be displayed.

For this instruction we used the free MIB browser "iReasoning" found at <http://ireasoning.com/mibbrowser.shtml>.

View OIDs

To view this information, you must do the following:

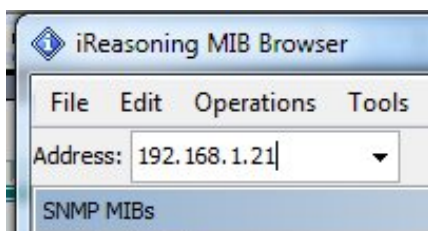
1. Install the browser to your PC
2. Copy the MIB file associated with your SYSTEM to the hard drive on your PC.(perhaps to a new directory "MIB files" as shown below.)
3. Load the MIB file for the SYSTEM to your browser.



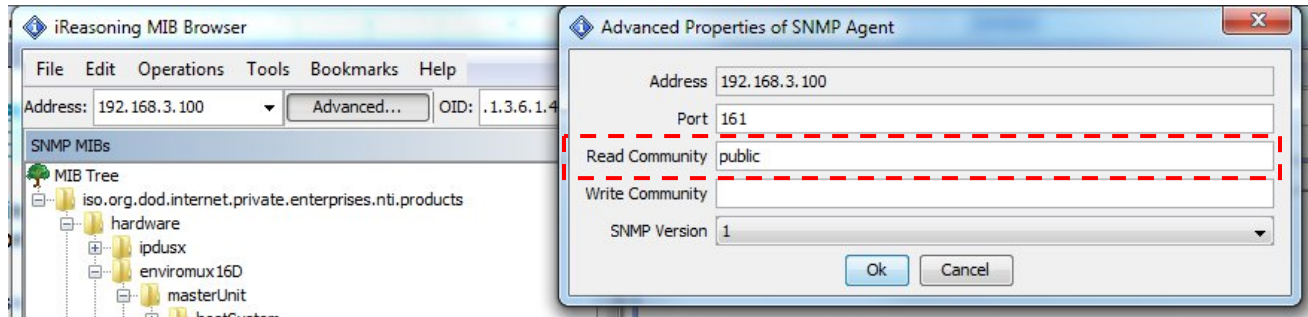
Select "Load MIBs" and locate the MIB file on your PC.

TIP: iReasoning provided a couple of default MIB files that were preloaded. To clean up the resulting data tree, we used "UnLoad MIBs" (above) to remove those.

4. Enter the IP address of the SYSTEM so the browser knows where the SYSTEM is to retrieve data.



5. With the iReasoning browser, the Read-only Community Name (default is “public”) was automatically sensed and applied when the IP address was entered, but if this doesn’t happen in your browser, make sure the “Read Community” field in the agent properties includes the name “public” (or whatever you have changed it to in the E-16D network configuration).



6. With that information entered, the default SYSTEM will be accessible for SNMP browsing.

A connection that uses security will require more configuration, Refer to the SYSTEM manual and your browser manual to apply the required additional settings.

Once a connection is made, the browser will present a directory structure with tree organizing all the different variables of information available from the SYSTEM. Click on the various categories and sub categories to go as deep into the hierarchy as necessary. As seen in the image below, each variable of information presented has an OID assigned to it. These OIDs can be used in conjunction with other SNMP control systems to communicate and/or perform functions automatically.

Select here

View category info here

View OID here

Each variable has a value that can be identified with an OID...

... and each variable for each sensor has a separate OID.

Name/OID	Value	Type	IP:Port
extSensorType.1	temperatureCombo (32769)	Integer	192.168.3.1...
extSensorType.2	humidityCombo (32770)	Integer	192.168.3.1...
extSensorType.3	light (22)	Integer	192.168.3.1...
extSensorType.4	undefined (0)	Integer	192.168.3.1...
extSensorType.5	temperature (1)	Integer	192.168.3.1...
extSensorType.6	undefined (0)	Integer	192.168.3.1...
extSensorType.7	humidity (2)	Integer	192.168.3.1...
extSensorType.8	undefined (0)	Integer	192.168.3.1...
extSensorType.9	temperatureCombo (32769)	Integer	192.168.3.1...
extSensorType.10	humidityCombo (32770)	Integer	192.168.3.1...
extSensorType.11	1542	Integer	192.168.3.1...
extSensorType.12	1542	Integer	192.168.3.1...
extSensorType.13	power (3)	Integer	192.168.3.1...
extSensorType.14	power (3)	Integer	192.168.3.1...
extSensorType.15	water (9)	Integer	192.168.3.1...
extSensorType.16	undefined (0)	Integer	192.168.3.1...
extSensorType.17	acDmpPower (8)	Integer	192.168.3.1...
extSensorType.18	acDmpVoltage (7)	Integer	192.168.3.1...
extSensorType.19	custom (32767)	Integer	192.168.3.1...
extSensorType.20	custom (32767)	Integer	192.168.3.1...
extSensorType.21	26	Integer	192.168.3.1...
extSensorType.22	undefined (0)	Integer	192.168.3.1...
extSensorType.23	undefined (0)	Integer	192.168.3.1...
extSensorType.24	undefined (0)	Integer	192.168.3.1...
extSensorType.25	undefined (0)	Integer	192.168.3.1...
extSensorType.26	undefined (0)	Integer	192.168.3.1...
extSensorType.27	temperatureCombo (32769)	Integer	192.168.3.1...
extSensorType.28	humidityCombo (32770)	Integer	192.168.3.1...
extSensorType.29	keyStation (17)	Integer	192.168.3.1...
extSensorType.30	undefined (0)	Integer	192.168.3.1...
extSensorType.31	motion (12)	Integer	192.168.3.1...
extSensorType.32	undefined (0)	Integer	192.168.3.1...

Name	extSensorType
OID	.1.3.6.1.4.1.3699.1.1.11.1.5.1.1.2
MIB	ENVIROMUX 16D
Syntax	INTEGER (undefined(0), temperature(1), humidity(2), power(3), lowVoltage(4), ...)
Access	read-only
Status	current
DefVal	
Indexes	extSensorIndex
Descr	Sensor Type

Each RJ45 Sensor port has two OIDs assigned, because the sensors that connect to these ports often have two possible functions (Temperature/Humidity, ACLM-V with two connections, etc.). The image above shows they are numbered sequentially (The “extSensor Type” variable for Port 1 is extSensorType.1 and extSensorType.2, port 2 is extSensorType.3 and extSensorType.4, and so on, for a total of 32 extSensors (RJ45 Sensor) for an E-16D.)

Each variable for a sensor that is reported has its own OID (i.e. Index number, type, description of the connected sensor, the connector number the sensor is plugged into, group the sensor belongs to, etc.). When using OIDs, be sure to create an association with the right variable.

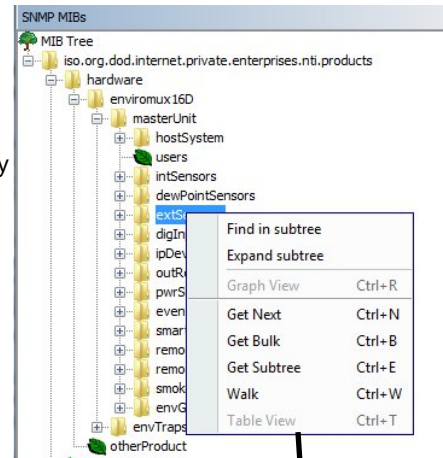
To get specific results in the Result Table, right click on an item in the MIB Tree and choose the type of search (“operation”) you want.

Get Next- will result in the next OID record of that category, displaying them one at a time.

Get Bulk- will result in all the OIDs of that category being displayed at once, but only that category

Get Subtree- will result in OIDs of that category and any sub-categories in the tree

Walk- will result in a listing of every OID in the system from the point at which you select it until the last category in the tree.



The operation can be selected with a right click (above), or using the “Operations” field (below). Once selected, press “Go”

Result Table

iReasoning MIB Browser

Address: 192.168.3.100 Advanced... OID: .1.3.6.1.4.1.3699.1.1.11.1.5.1.2.1 Operations: Get Next Go

Name/OID	Value	Type	IP:Port
extSensorIndex.1	0	Integer	192.168.3.1...
extSensorType.1	temperatureCombo (32769)	Integer	192.168.3.1...
extSensorDescription.1	Temperature 1	OctetString	192.168.3.1...
extSensorConnector.1	1	Integer	192.168.3.1...
extSensorGroupNb.1	0	Integer	192.168.3.1...
extSensorGroup.1	1	OctetString	192.168.3.1...
extSensorValue.1	755	Integer	192.168.3.1...
extSensorUnit.1	1	Integer	192.168.3.1...
extSensorUnitName.1	F	OctetString	192.168.3.1...
extSensorStatus.1	normal (1)	Integer	192.168.3.1...
extSensorMinThreshold.1	600	Integer	192.168.3.1...
extSensorMaxThreshold.1	950	Integer	192.168.3.1...

The value of each variable for the sensor can be listed separately.

The E-STHS-99 is a specialty sensor that provides a third piece of information (dew point) managed through an additional category with virtual ports named "dewPoint Sensors".

The screenshot shows the SNMP MIBs browser interface. On the left, the MIB Tree is expanded to show the path: iso.org.dod.internet.private.enterprises.nti.products > hardware > enviromux16D > masterUnit > intSensors > dewPointSensors > dewPointSensorTable > dewPointSensorEntry > dewPointSensorValue. The right pane displays a 'Result Table' with the following data:

Name/OID	Value	Type	IP:Port
dewPointSensorValue.1	417	Integer	192.168.3.1...
dewPointSensorValue.2	50	Integer	192.168.3.1...
dewPointSensorValue.3	50	Integer	192.168.3.1...
dewPointSensorValue.4	50	Integer	192.168.3.1...
dewPointSensorValue.5	50	Integer	192.168.3.1...
dewPointSensorValue.6	50	Integer	192.168.3.1...
dewPointSensorValue.7	50	Integer	192.168.3.1...
dewPointSensorValue.8	50	Integer	192.168.3.1...
dewPointSensorValue.9	50	Integer	192.168.3.1...
dewPointSensorValue.10	50	Integer	192.168.3.1...
dewPointSensorValue.11	50	Integer	192.168.3.1...
dewPointSensorValue.12	50	Integer	192.168.3.1...
dewPointSensorValue.13	50	Integer	192.168.3.1...
dewPointSensorValue.14	50	Integer	192.168.3.1...
dewPointSensorValue.15	50	Integer	192.168.3.1...
dewPointSensorValue.16	50	Integer	192.168.3.1...

Annotations on the image:

- An arrow points to the value 417 in the first row, with a text box stating: "The sensor connected to Port 1 has a dew point value of 41.7 (deg.F)".
- A text box on the right states: "The other values are 50 because there are no other dewpoint sensors connected. The default value for this variable for an unused sensor is 50."

The category remoteInputs and remoteRelays are reserved for identifying contact sensors connected through E-DI16DO16(R) expansion units. No remoteInputs are connected to this SYSTEM (the default value of the remoteInputValue is closed (0)).

The screenshot shows the iReasoning MIB Browser interface. The address is 192.168.3.100 and the OID is .1.3.6.1.4.1.3699.1.1.11.1.12.1.1.7. The MIB Tree is expanded to show the path: iso.org.dod.internet.private.enterprises.nti.products > hardware > ipdusx > enviromux16D > masterUnit > hostSystem > users > intSensors > dewPointSensors > extSensors > digInputs > ipDevices > outRelays > pwrSupplies > events > smartAlerts > remoteInputs > remoteInputTable > remoteInputEntry > remoteInputValue. The right pane displays a 'Result Table' with the following data:

Name/OID	Value	Type	IP:Port
remoteInputValue.320	closed (0)	Integer	192.168.3.100:161
remoteInputValue.319	closed (0)	Integer	192.168.3.100:161
remoteInputValue.318	closed (0)	Integer	192.168.3.100:161
remoteInputValue.317	closed (0)	Integer	192.168.3.100:161
remoteInputValue.316	closed (0)	Integer	192.168.3.100:161
remoteInputValue.315	closed (0)	Integer	192.168.3.100:161
remoteInputValue.314	closed (0)	Integer	192.168.3.100:161
remoteInputValue.313	closed (0)	Integer	192.168.3.100:161
remoteInputValue.312	closed (0)	Integer	192.168.3.100:161
remoteInputValue.311	closed (0)	Integer	192.168.3.100:161
remoteInputValue.310	closed (0)	Integer	192.168.3.100:161
remoteInputValue.309	closed (0)	Integer	192.168.3.100:161
remoteInputValue.308	closed (0)	Integer	192.168.3.100:161
remoteInputValue.307	closed (0)	Integer	192.168.3.100:161
remoteInputValue.306	closed (0)	Integer	192.168.3.100:161
remoteInputValue.305	closed (0)	Integer	192.168.3.100:161
remoteInputValue.304	closed (0)	Integer	192.168.3.100:161
remoteInputValue.303	closed (0)	Integer	192.168.3.100:161
remoteInputValue.302	closed (0)	Integer	192.168.3.100:161
remoteInputValue.301	closed (0)	Integer	192.168.3.100:161
remoteInputValue.300	closed (0)	Integer	192.168.3.100:161
remoteInputValue.299	closed (0)	Integer	192.168.3.100:161
remoteInputValue.298	closed (0)	Integer	192.168.3.100:161
remoteInputValue.297	closed (0)	Integer	192.168.3.100:161
remoteInputValue.296	closed (0)	Integer	192.168.3.100:161
remoteInputValue.295	closed (0)	Integer	192.168.3.100:161
remoteInputValue.294	closed (0)	Integer	192.168.3.100:161
remoteInputValue.293	closed (0)	Integer	192.168.3.100:161
remoteInputValue.292	closed (0)	Integer	192.168.3.100:161
remoteInputValue.291	closed (0)	Integer	192.168.3.100:161
remoteInputValue.290	closed (0)	Integer	192.168.3.100:161
remoteInputValue.289	closed (0)	Integer	192.168.3.100:161
remoteInputValue.288	closed (0)	Integer	192.168.3.100:161
remoteInputValue.287	closed (0)	Integer	192.168.3.100:161
remoteInputValue.286	closed (0)	Integer	192.168.3.100:161
remoteInputValue.285	closed (0)	Integer	192.168.3.100:161
remoteInputValue.284	closed (0)	Integer	192.168.3.100:161
remoteInputValue.283	closed (0)	Integer	192.168.3.100:161
remoteInputValue.282	closed (0)	Integer	192.168.3.100:161
remoteInputValue.281	closed (0)	Integer	192.168.3.100:161
remoteInputValue.280	closed (0)	Integer	192.168.3.100:161

Metadata for remoteInputValue:

Name	remoteInputValue
OID	.1.3.6.1.4.1.3699.1.1.11.1.12.1.1.7
MIB	ENVIROMUX16D
Syntax	INTEGER {closed(0), open(1)}
Access	read-only
Status	current
DefVal	
Indexes	remoteInputIndex
Descr	The value of the remote input reading.