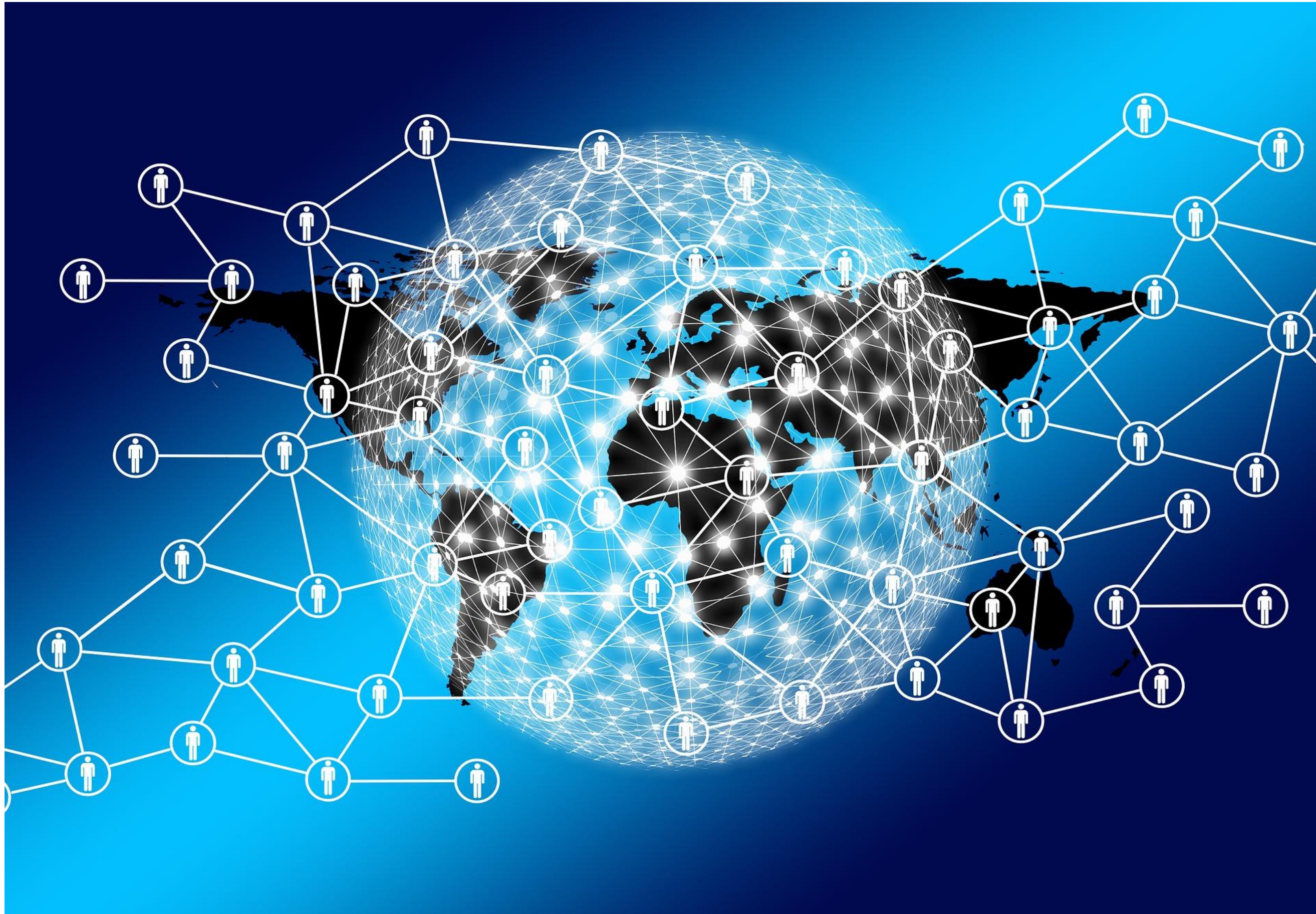




# THE IMPORTANCE OF BEING... SNMP





Simple Network Management Protocol (SNMP) is a communication protocol defined by the Internet Architecture Board (IAB) in RFC1157 for exchanging management information between network devices.

It allows for remote and local management of items on the network: if the networked device is SNMP capable, you can enable and configure it to start collecting and monitoring information, and you can do this in as many network devices as you want from a single point.





What does SNMP do?

- Monitor inbound and outbound Traffic flowing through the device;
- Early Detection of faults within network devices along with Alerts/Notifications;
- Analyzing data collected from devices over long periods to identify any long time issue;
- Ability to remotely configure compatible devices;
- Access and Control devices remotely that are connected via SNMP.

SNMP consists of:

- ✓ **SNMP Manager** (Network Management System)
- ✓ **SNMP Agents**
- ✓ **Managed Device** (including Transmitters, Servers, Switches, Routers, and more)
- ✓ **MIB** (Management Information Base, also known as Management Information Database).

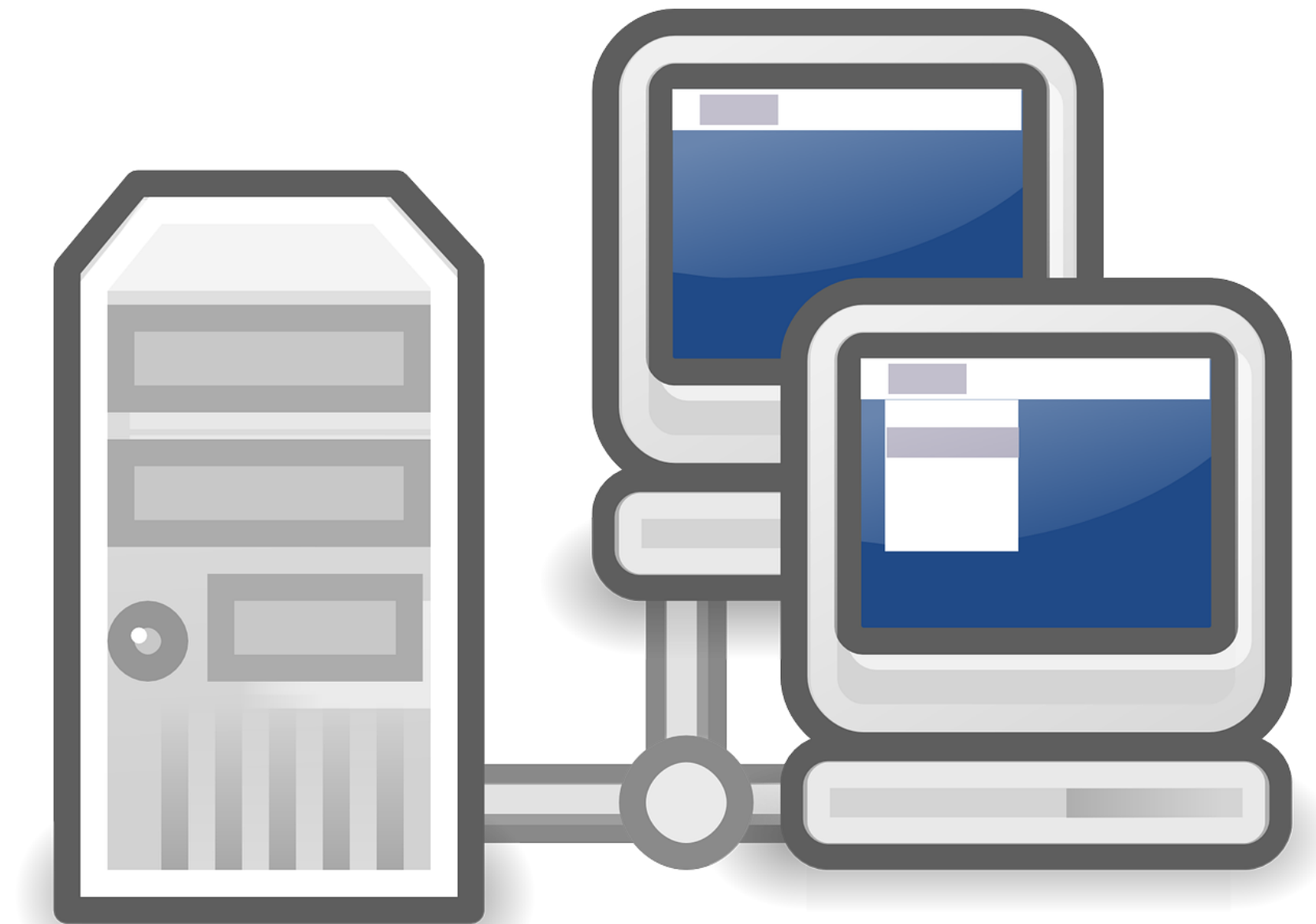


An SNMP manager or SNMP management system is a process running on a management workstation that requests information about devices on the network.

This is typically a computer used to run one or more network management systems.

The SNMP Manager key functions are:

- To Query agents
- To Get responses from agents
- To Set variables in agents
- To Acknowledge asynchronous events from agents.





The agent is a process running on each managed node collecting information about the device it is running on (transmitter, router, UPSs, etc).

When enabled and configured, the agent allows to collect the management information database from the device locally and makes it available to the SNMP manager, when it is queried for.

These agents could be standard (e.g. Net-SNMP) or specific to a vendor (developed by the producer of the device).

The SNMP agent key functions are:

- To Collect management information about its local environment;
- To Stores and To retrieve management information as defined in the MIB;
- To Signal an event to the manager;
- To Act as a proxy for some non-SNMP manageable network node.





A managed device or network element is a part of the network that requires some form of monitoring and management e.g. transmitters, air conditioners, UPSs, etc.







Management Information Base (or MIB) files are the set of questions that a SNMP Manager can ask the agent.

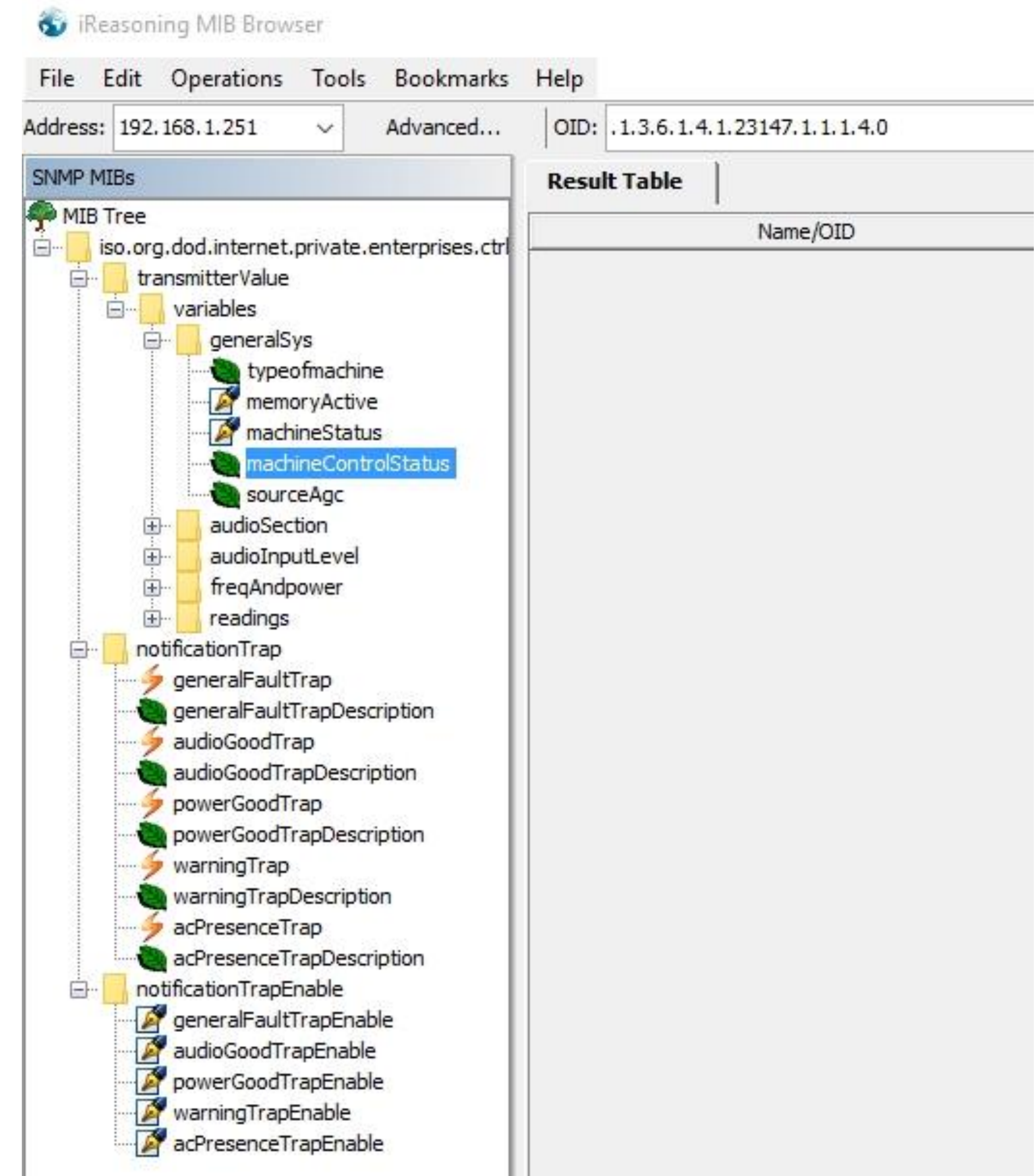
Agent collects these data locally and stores it, as defined in the MIB. So, the SNMP Manager should be aware of these standard and private questions for every type of agent.

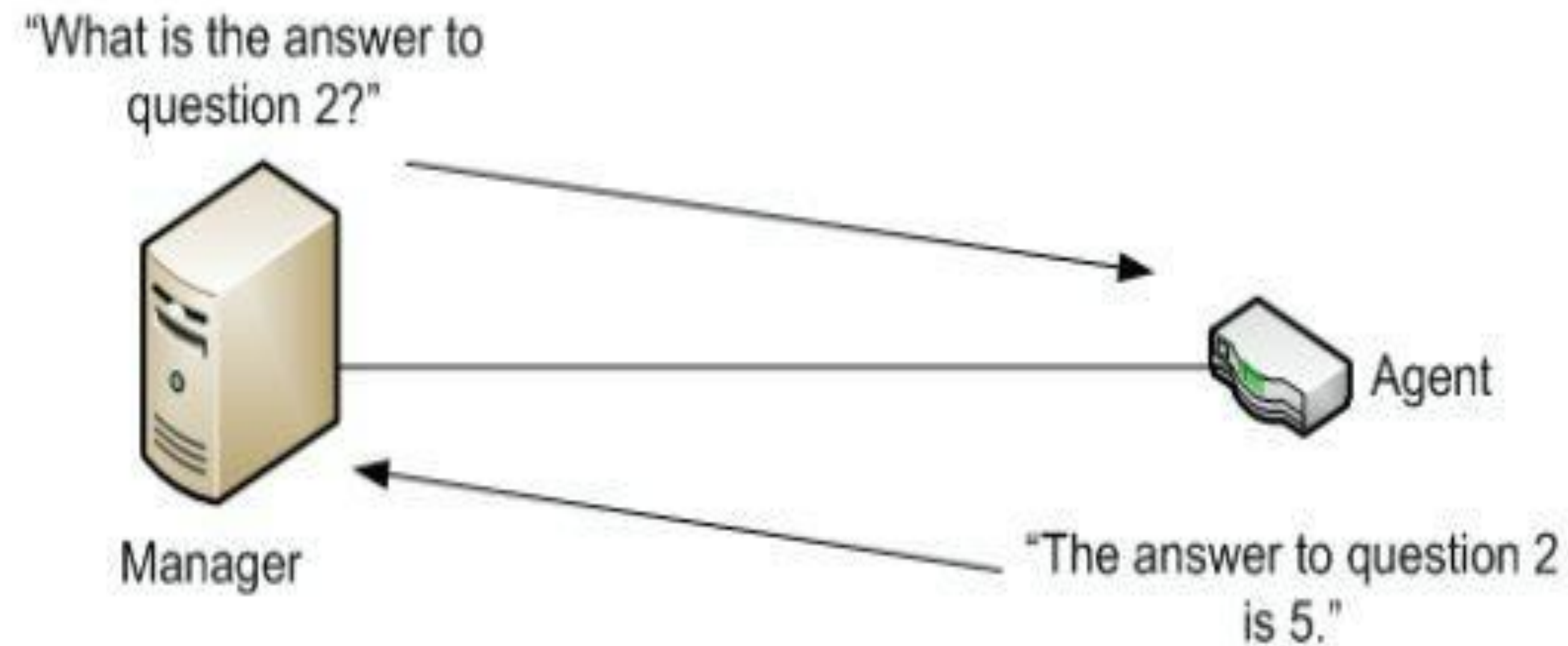
The NMS (Network Management system) polls/requests the Agent of a given device, which then shares its organized information from the database (MIB) with the NMS, which then further translates it into alerts, reports, graphs and more.



Typically these MIB contains standard set of statistical and control values defined for the broadcast transmitter. SNMP also allows the extension of these standard values with factory customized values specific to a particular agent through the use of private MIBs.

The request sent by NMS is a number with the MIB and the Object of Interest, along with something called the Instance.





OID = 1.3.6.1.2.1.1.3.0

Breakdown of OID Number

MIB	Object of Interest	Instance
1.3.6.1.2.1.1	3	0
MIB	SysUptime Object	Instance

The first 2 parts of the number sent to the Agent (MIB and Object of Interest, which in this case is System Uptime) is called the Object Identifier or OID.





The simplicity in information exchange has made the SNMP as widely accepted protocol. The main commands are listed here below:

- **GET:** it is a request sent by the manager to the agent. It is performed to retrieve one or more values from the MIB of the managed device.
- **GET NEXT:** This operation is similar to the GET one. The significant difference is that the GET NEXT operation retrieves the value of the next OID in the MIB tree.
- **GET BULK:** The GETBULK operation is used to retrieve voluminous data from large MIB table by using lots of different GETNEXT commands.
- **SET:** It changes the value of the Managed device (MIB variable).
- **RESPONSE:** The agent sends a RESPONSE to the SNMP manager when replying to a GET request. This provides the SNMP manager with the variables that were requested originally.
- **TRAPS:** Unlike the above commands which are initiated from the SNMP Manager, TRAPS are initiated by the Agents. It is a signal to the SNMP Manager by the Agent on the occurrence of an event (typically a notification of something unexpected, like an error).
- **INFORM:** This command is similar to the TRAP initiated by the Agent, additionally INFORM includes confirmation from the SNMP manager on receiving the message.

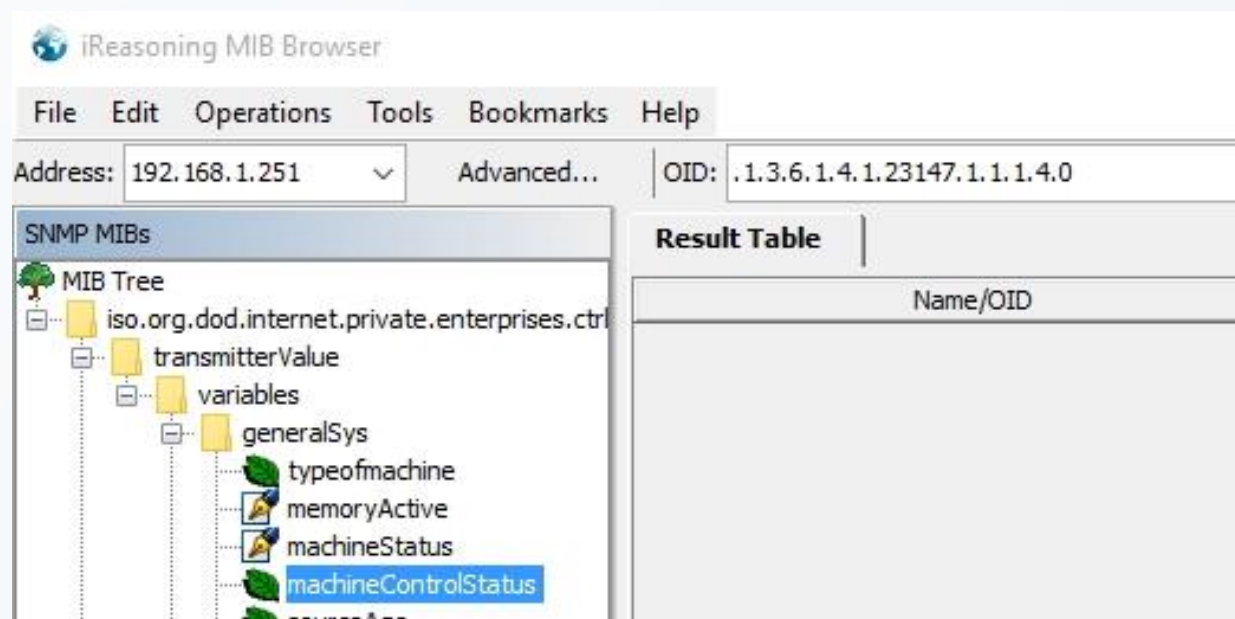
MIB can be accessed with free MIB browsers and the data can be converted in any customized graphic page. This allows a light passage of data between Agent and Manager because all the web graphic is not stored in the Agent but can be defined in the Manager unit.



This kind of communication protocol is mainly used in the big network systems where many stations must be monitored at the same time and so it is easier to plan a global monitoring graphic to check all the transmitters at the same time. However the customer could implement its own monitoring page displaying the transmitter parameters without using the web control page prepared by the supplier.



## NETWORK DEVICE

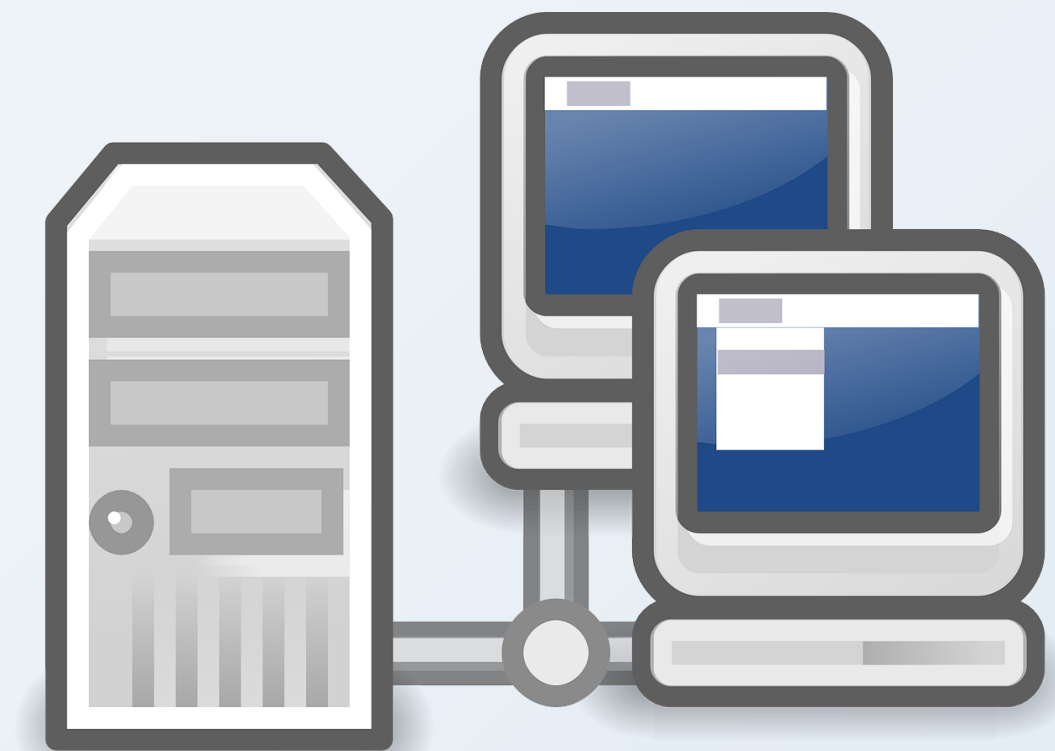
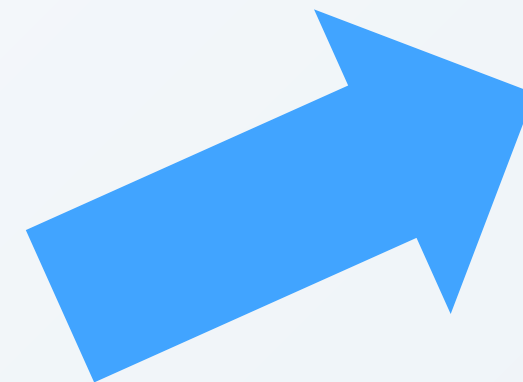


## MIB TABLE

Information database describing the managed network device parameters and values.

## AGENT

Collects the MIB from the device locally and makes it available for the NMS.



## NMS

Host that contains Software that polls SNMP devices at intervals to collect information and values of different devices.





NO

MAYBE

YES

You think this option might be interesting, but you don't know where to find it?

We remind you that in **all DB Mozart Serie transmitters**, when you order the WEB remote control, the SNMP is already included!

Contact DB Elettronica for more information!





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