

"0" Device is Off line  
"1" Device is Online

• **ALARM**

Alarm status of the device  
"0" Normal status  
"1" Device in alarm (received trap)  
Write "0" in this variable to acknowledge the status of the alarm

The <DEVICE> subjects also contain all the data declared in the MIB of the devices.  
The name of the item that should be specified to have access to a variable is the name of the variable ("DDE Ref" field on the identification page of the properties sheet of the variable).  
For the COUNTER type variables, this name can include the <.RATE> extension to specify that the value of the counter must be transmitted under differential form (variation rate).  
For the TRAP type variables, this name can include the <.MSG> extension to specify that the trap message must be transmitted (instead of the trap status).  
The complete DDE reference (under the "Service | Topic | Item" form) or partial ("Item") of a variable can be copied in the clipboard to be paste in the client application. To copy a DDE refer-



## OPC server interface

*Net'Sentinel* integrates an OPC 2 compatible interface. This interface specially offers the possibility to browse the database of the devices declared in *Net'Sentinel* from a OPC client application.

The name to be specified to have access to a variable is the name of the variable ("Ref DDE" field on the identification page of the properties sheet of the variable). This name can contain an extension under the form "#<EXT>" to specify the waited transmission format. All the formats defined for the display can be transmitted by OPC

For the TRAP variable, the extension can be:

#COUNT transmission of the TRAP counter  
#STATUS transmission of the trap status (0, 1, 2 or 3)  
#MESSAGE transmission of the message associated with the trap

The "ONLINE" and "ALARM" items (see above) can also be accessed by OPC.

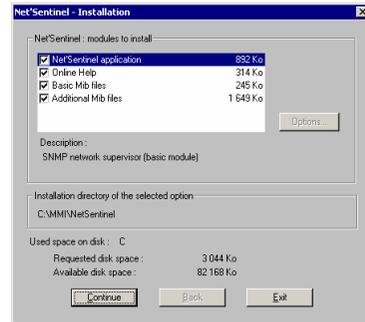
The OPC reference of a variable can be copied in the clipboard to be paste in the client application. To copy a DDE reference, click on the variable with the right button of the mouse, select the "Copy OPC reference" command in the displayed contextual menu, then select the appropriate format in the displayed sub-menu.

Getting  
Started  
with  
**NET'SENTINEL**

## Installation

From the CD-ROM, launch the setup program: "INSTALL.EXE". This program proposes you to choose the software you want to install. The default options correspond to a standard installation.

The installation also can be done from the auto-extractable and auto-installable file "NetSentinel.exe" located in the "Autoinstall" directory of the CD-ROM.



## Starting with Net'Sentinel

If *Net'Sentinel* has been provided with a **hardware key** (dongle), connect this key on a parallel port of the PC (printer port). The hardware key can be plugged on an existing printer connection; it can also be plugged serially with other keys. When first launching *Net'Sentinel* with a plugged dongle, the software will ask you for an **installation code** : this code is written on the warranty card (AAA-AAA-AAA-AAA). This code defines the validated options for the software. You can later change the options by entering a new code (*Registration...* button of the "About" dialog box).

If there is no key plugged, the software will warn you at launching time. If you wish to use the software in **demonstration mode** or install it with a **software key**, click on the *Ignore* button. To install the software key, you must click on the *Register* button of the "About" dialog box (displayed at launching time or by the command *About Net'Sentinel...* of the ? menu), then enter the installation code which corresponds to the environment code displayed in the registration dialog box. To get this installation code, contact your software provider (after having noted the environment code of your PC).

To use *Net'Sentinel*, you must first :

- 1) Declare the MIB files which are used.
- 2) Declare the devices which are connected to the network and that you want to supervise.
- 3) Configure the declared devices.
- 4) Configure the operating variables (display, polling).
- 5) Configure the operating traps (display, alarms)

It is then possible to configure a client DDE or OPC application to use the data reclaimed by *Net'Sentinel*

## Declaration of the MIB files

*Net'Sentinel* uses a library of files describing the devices (MIB files stand for Management Information Base). As these files can contain implicit references to other files, it is important to declare all the files necessary to describe the devices used so that *Net'Sentinel* can compile the resulting database.

To declare the MIB files that are used, select the *Referenced MIB files...* command of the *Configuration* menu or click on the *MIB* button.

In the displayed dialog box, click on the *Add* button to search for the MIB files that must be used. These files are normally located in the "Mibs" sub-directory of the application. It is possible to add every MIB file supplied by a device manufacturer.

To have access to *Net'Sentinel* DDE server through the network, from a remote computer, you need to use the NetDDE sharing names which are automatically saved by the server application:

- NETSENTINEL\_SYSTEM\$ for the "SYSTEM" topic
- NETSENTINEL\_<DEVICENAME>\$ for the <DEVICENAME> device topic

## A/ SYSTEM topic

The SYSTEM topic contains general information linked to the DDE protocol as well as control items of *Net'Sentinel* application.

### A.1. Items linked to the DDE protocol

- TOPICS List of topics managed by the DDE server interface
- SYSTEMS List of the items managed in the SYSTEM topic
- STATUS Application status :
  - "INIT" during initialization
  - "READY" in normal operational mode
  - "DEMO" in demonstration mode
- FORMAT List of the supported formats
- CONVCOUNT Number of current DDE conversations with the SYSTEM topic
- ADVISECOUNT Number of current advise transactions with items of the SYSTEM topic

### A.2. General control items of the application

- SHOW Visualization command of *Net'Sentinel* application
  - "0" Invisible application
  - "1" Display of *Net'Sentinel* window in normal dimensions
  - "2" Display of *Net'Sentinel* window in icon
  - "3" Display of *Net'Sentinel* window in full screen
  - "4" *Net'Sentinel* window always visible
- CLOSE Closing command of *Net'Sentinel* application
  - "1" Closing if no other current DDE conversation
  - "2" Unconditional closing

## B/ <DEVICE> topics

The <DEVICE> topics (<DEVICE> represents the name of the device) contain, in addition to the information of the DDE protocol regarding the topic, all the data of the devices accessible by SNMP.

### B.1. Articles linked to the DDE protocol

- TOPICITEMLIST List of the items managed in the topic
- CONVCOUNT Number of current DDE conversations with the topic
- ADVISECOUNT Number of current advise transactions with items of the topic

### B.2. Articles linked to the management of the devices

- ONLINE Functioning status of the device

## Configuration of the traps

The traps are asynchronous information that can be automatically transmitted by a device when a special event occurs.

So that **Net'Sentinel** could receive traps from a device, you must first configure this equipment to declare in its table receivers of the trap and the address of the PC where **Net'Sentinel** is installed. You can also if necessary configure the transmission conditions of the traps. This configuration is specific to each device. It can be performed either through the standard interface of the device, or through **Net'Sentinel**, by the adequate writing of the variables of the device database.

The nodes of the MIB tree of a device containing traps declarations are signaled by a "T". The traps are represented like TRAP variables.

As a trap often signals a special status of the device, it could be necessary to define the condition of return to a normal state. This condition can be signaled either by another trap (reverse trap) or by a special status of a variable associated to the trap. To define the condition of the return to normal state of a trap, select the *Treatment* page of the properties sheet of the trap.

On the Display page of the properties sheet of the trap, you can define its representation at display:

- Number of traps received with time stamping of the last received trap
- 0 or 1 :        0 = no trap or acknowledged trap,  
                  1 = received trap,
- 0, 1, 2 or 3 : 0 = trap at normal status  
                  1 = received trap, still active, but acknowledged  
                  2 = received trap, returned to normal status, but not acknowledged  
                  3 = received trap, active but not acknowledged

The display format "0,1,2,3" is the one used to transmit the status of the trap by DDE. It is especially adapted to be used with **Alert** (event condition "AND 1", acknowledgement condition "NO AND 2").

Finally, it is possible to define the trap as an alarm. A trap defined in alarm is signaled in the tree with a "!". It is also saved in the event journal with a configurable message.

To define the desired alarm treatment for a trap and the message associated to it, select the *Display* page of the properties sheet of the trap.

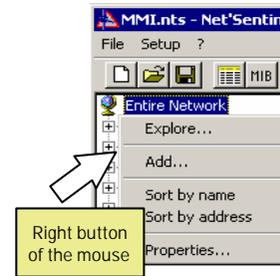
## DDE Server Interface

**Net'Sentinel** DDE server interface enables to have access to the internal database of the application and to the variables of all the declared devices. To know the list of subjects and proposed items, with the syntax specific to each item, you can consult the DDE server dialog box (*DDE Server* command in the "?" menu).

**Net'Sentinel** DDE interface is accessible for the DDE client applications under the service name "NETSENTINEL". This interface proposes a SYSTEM topic and one topic per device (identified by the device name).

## Declaration of the connected devices

The devices connected to the network and manageable by SNMP can be automatically detected by **Net'Sentinel** by simple exploration of the network. To do so, you just have to click with the right button of the mouse on the root of the network tree ("Entire network") and to select the *Explore* command in the displayed contextual menu. Then, select the IP address for the beginning and end of the exploration and validate.



It is also possible to "manually" declare a device by clicking on the *Add* command of the contextual menu.

With the same command you can organize the network by the definition of networks and sub-networks.

The graphical representation of the device on the network can be chosen among a whole range of predefined icons, either during the "manual" declaration of the device, or by clicking with the right button of the mouse on the device icon then by selecting the *Properties...* command in the displayed contextual menu.

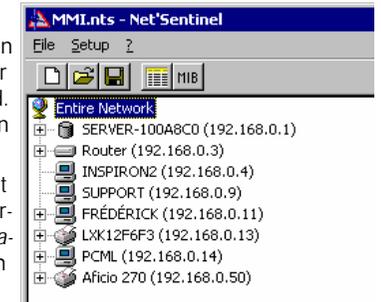
## Configuration of the devices

When a device has been detected or declared, it is necessary to define the type of device by designation of the file(s) which describe(s) it. To do so, click with the right button of the mouse on the equipment icon then select the *Properties...* command in the displayed contextual menu. Then select the *Definition* tab (MIB's) in the dialog box then click on the *Add* button.

The SMI.MIB and MIB\_II.MIB files contain the basic necessary declarations for the SNMP management. However, it is not always necessary to add them when these declarations are included in a MIB manufacturer file. When they are included in the list, these files must first be declared, in the following order SMI, MIB\_II.

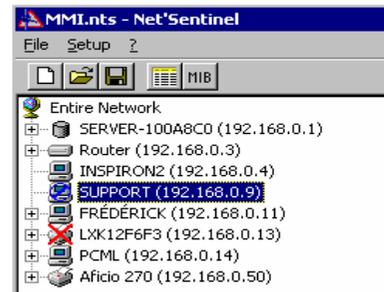
Once you have declared the MIB files, after validation (closing of the properties sheet or selection of another device), the MIB of the device are automatically compiled. Click on the "+" box on the left of the device icon to open the tree of the device corresponding to the compiled MIB.

The declared devices are automatically scanned to test their functioning. The basic polling cycle can be parameterized at a global level (*Options...* command of the *Configuration* menu, *SNMP Polling* page), or at the level of each device (*polling* page of the device property sheet).



When a device does not answer, its icon is crossed in red (X).

You can also place a device out of polling by selecting the *Polling* command in the contextual menu when you click with the right button of the mouse on the icon of the device. When a device is not being scanned, its icon is covered with a crossed blue circle (?).



# Configuration of the variables

As soon as the devices are declared and configured, it is possible to read or write the variables in the database of these devices, using *Net'Sentinel* user interface, or from an external client application (via DDE or OPC). To display the variables contained in the node of the tree structure of a device, click on the corresponding node in the tree structure. The variables declared at the level of this node are displayed in the list on the right side of the screen. The variables are only read or polled when the value is required for display or by a client application.

To parameterize the treatment to perform on a variable, click on the concerning variable with the right button of the mouse, then select the Properties... command in the displayed contextual menu (or double-click on the variable).

## 1) Treatment of the STRING variables

The STRING type variables are displayed under the form of a string of ASCII characters.

By default, as they do not usually vary, they are only read once, each time there is a reading demand (display of client request). If a string may change during its consultation, select the "periodic polling" option (*Treatment* page) then define the refresh frequency.

## 2) Treatment of the BYTESTRING variables

The BYTESTRING variables can be displayed under the form of a hexadecimal, binary or ASCII characters chain. Select the display type you want on the *display* page. The default selection corresponds to the selection which has been configured at a global level (*Options...* command of the *Configuration* menu, *Display* page of the *General Properties* dialog box).

The treatment of the BYTESTRING variables is the same as for the STRING variables (reading on demand with periodic polling option).

The BYTESTRING variables can be transmitted by OPC using the format required by the client, under the form hexadecimal (#HEXA extension), binary (#BINARY extension) or ASCII (#ASCII extension).

## 3) Treatment of the INTEGER variables

The INTERGER variables represent a numeric value. They are displayed under the form of decimal numbers.

By default, these variables are periodically scanned with a polling cycle of 10 (one scan every 10 basic cycle). These parameters can be modified in the *Treatment* page of the properties sheet of the variable.

## 4) Treatment of the TIMETICKS variables

The TIMETICKS variables represent an elapsed time counted in hundredth second. They can be displayed under the form of positive integers or under the form of Days H:M:S (days hours:minutes:seconds).

By default, these variables are periodically scanned with a polling cycle of 1 (one scanning at each basic cycle). These parameters can be modified in the *Treatment* page of the properties sheet of the variable.

The TIMETICKS variables can be transmitted by OPC using the format required by the client, under the form of positive integers (#VALUE extension) or Days H:M:S (#TIME extension).

## 5) Treatment of the COUNTER variables

The COUNTER variables represent an impulsion counting. They can be displayed under absolute form (current value of the clock) or differential (variation of the counter value between two

reads). Select the desired display type on the *Display* page. The default selection corresponds to the selection which has been made at a global level (*Options...* command of the *Configuration* Menu, *Display* page of the *General properties* dialog box).

By default, these variables are periodically scanned with a polling cycle of 1 (one reading at each basic cycle). These parameters can be modified in the *Treatment* page of the properties sheet of the variable.

The COUNTER variables can be transmitted by OPC using the format required by the client, under the form of absolute value (#VALUE extension) or differential value (#RATE extension).

## 6) Treatment of the GAUGE variables

The GAUGE variables are treated like the INTEGER variables.

## 7) Treatment of the IPADDRESS variables

The IPADDRESS variables represent an IP network address. They are displayed under the standard IP addresses form: "0.0.0.0" to "255.255.255.255".

By default, they are read only once, at each reading demand (display or client request). If an IP address may change during its consultation, select the "periodic polling" option (*Treatment* page) then define the refresh frequency.

## 8) Treatment of the NETADDRESS variables

The NETADDRESS variables represent a network address with 10 hexadecimal numerals: "XX:XX:XX:XX:XX".

By default, they are only read once, at each reading demand (display or client request). If an address may change during its consultation, select the "periodic polling" option (*Treatment* page) then define the refresh frequency.

## 9) Treatment of the PHYSADDRESS variables

The PHYSADDRESS represent a physical network address with 12 hexadecimal numerals. They are displayed under the form : "XX:XX:XX:XX:XX:XX".

By default, they are only read once, at each reading demand (display or client request). If an address may change during its consultation, select the "periodic polling" option (*Treatment* page) then define the refresh frequency.

## 10) Treatment of the IDENTIFIER variables

The IDENTIFIER variables represent objects from the database (nodes or variables). They are identified under the form of a dotted integer sequence that identify a path in the MIB tree as: "1.6.1.2.1.1.2".

By default, they are only read once, at each reading demand (display or client request). If an address may change during its consultation, select the "periodic polling" option (*Treatment* page) then define the refresh frequency.