

Description: How to use the SNMP Traps with GENESIS32

OS Requirement: Win 2000/2003/XP/Server 2000/Server 2003

General Requirement: Genesis v9.0 must be installed, basic knowledge of SNMP.

Introduction

SNMP stands for Simple Network Management Protocol and it is a simple protocol that allows devices to expose useful information to other devices.

The SNMP Protocol is based on the communication between an Agent and a Manager.

The **Agent** is the software installed on a device (Router, Printer or PC) and it simply answers to the messages of the Manager. These messages can be

- Read – manager wants to retrieve data
- Write – manager wants to set data
- Traps – alarms (e.g. "the CPU Temperature is high!")

The **Manager** is the software (for example our Iconics SNMP Connector) that collects data from the devices, organizes it and shows it to the final user.

Traps are alarms automatically sent through SNMP messages by a device. These messages can say that the *"Printer door is open"* as well as *"The machine has been reset"*. Thanks to the translation of the SNMP connector there is no practical difference between traps and OPC alarms management within the GENESIS32 suite.

Installation

To receive traps, it is necessary to follow these steps:

Configure your machine

It is necessary to setup the SNMP Windows service to send and receive traps. It's possible to *receive* traps from all the devices or to receive traps form the chosen devices only just selecting the relative option in the Security tab (Figure 1). If we want to *send* traps to a machine whose IP address is *192.168.1.17* we must put this address in the Trap destinations (Figure 2) of the Traps Tab

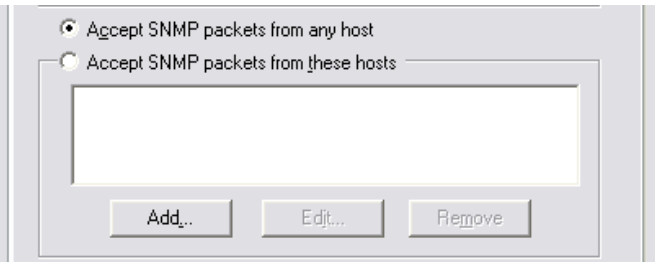


Figure 1: Windows SNMP Service Properties - Security tab

Note: Installing the Microsoft Windows SNMP Agent and changing its security settings allows your PC to transmit and accept SNMP packets to and from computers on your network (for more details look at the Application Note "SNMP Data Mining – Setting Up the SNMP Agent in Windows").

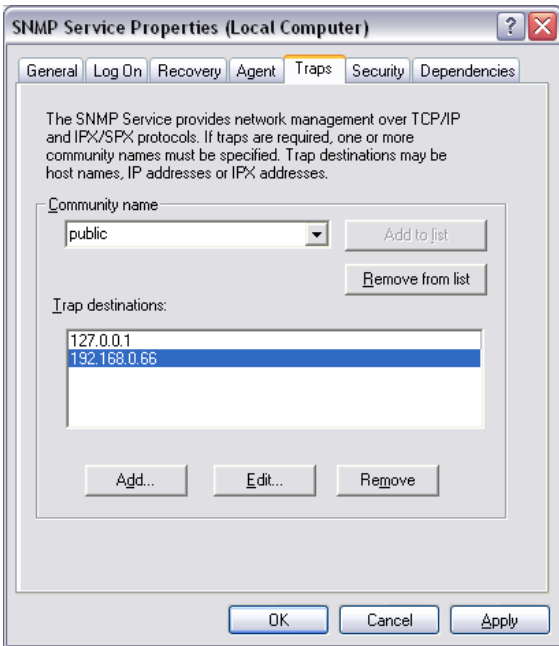


Figure 2: Windows SNMP Service Properties – Traps tab

Note: When you finished with Windows SNMP Service configuration, restart the service by selecting it and clicking the restart service button (Figure 3). Start the SNMP Trap Service as well.

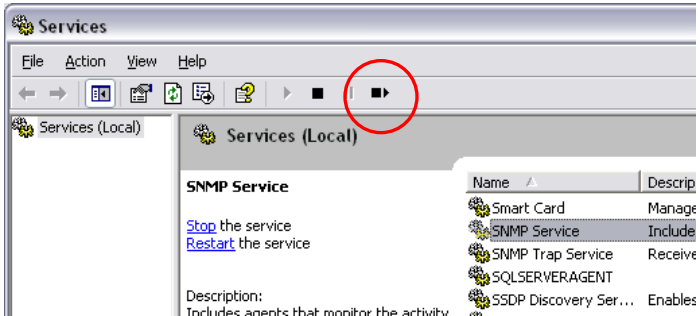


Figure 3: Restart the Windows SNMP service

Disable Windows SNMP Trap Service

Traps are automatically sent on Port 162 by all devices. If this port is already used by the *Windows SNMP Trap Service* the *SNMP Trap AE Server* will no longer work. So it's necessary to shut down and disable the *SNMP Trap Service* from the *Services* panel.

Shell Hardware Det...	Provides n...	Started	Automatic	Local System
Smart Card	Manages a...		Manual	Local Service
SNMP Service	Includes a...		Automatic	Local System
SNMP Trap Service	Receives tr...		Disabled	Local Service
SQL Server (SQLE...	Provides st...	Started	Automatic	Network S...
SQL Server Active ...	Enables int...		Disabled	Network S...
SQL Server Browser	Provides S...		Disabled	Network S...

Figure 4: SNMP Trap Service must be disabled

Configure the device
Setup the device to let it know where to send the traps. Follow the device instructions to set the IP address of the machine as the destination of the traps.

Configure SNMP Connector
The *SNMP Configurator* is a filter from the devices and the GENESIS32 suite. For each device it is possible to enable or disable the traps reception. This may seem a repetition of the previous steps, but simplifies the traps enabling/disabling (It is not necessary to change every time the configuration on the devices and on the Windows SNMP Service). If the SNMP Trap AE Server was already running it's necessary to restart it.

SNMP Configurator

1. To open the SNMP Configurator, select on *Start -> Programs -> ICONICS Tools -> SNMP Configurator*.
2. Then you can use the existing configuration (screen Fig4) with predefined devices (e.g. ICONICS Simulator, MonitorWorX, etc.) or you can create a new configuration database and add new device.

Note: If you need to know how to setup the SNMP Configurator (using MIB Files, exploring the network, organization of collected data, etc.) look at the SNMP documentation (SNMP Connector – Quick Start).

3. Clicking on a Device (i.e. SNMP Simulator) you will see this dialog:

Name: newDevice

Type: Windows XP

Device Data

Host: 127.0.0.1

Specify IP: ☐ No ☒ Yes

Read Community: public

Write Community: private

SNMP Version: ☒ v1 ☐ v2

Port: 161

GetBulk Count: 30

Parameters: <None>

Receive Traps: ☒

Timing

Timeout: 3000

Retry Count: 3

Update Rate: 10000

SNMP Explorer

☒ Cache MIB

☒ Rebuild MIB Tree

Explore...

Figure 5: Device configuration in SNMP Configurator

4. Here you can also decide to receive traps by the device selecting the “Receive traps” field.
5. Under the “Traps” Sub Tree you can configure the type traps you want to receive. Each Trap will be converted in an OPC AE event by the SNMP Trap Server.

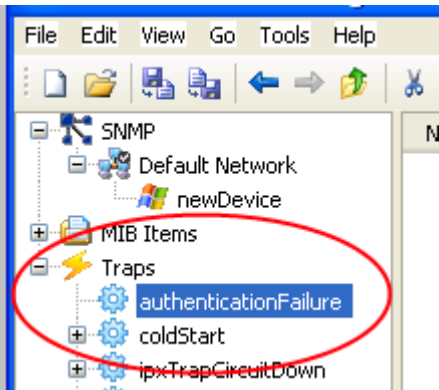
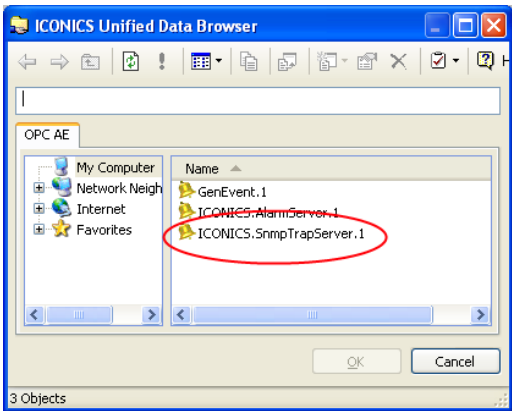


Figure 6: Traps Sub Tree

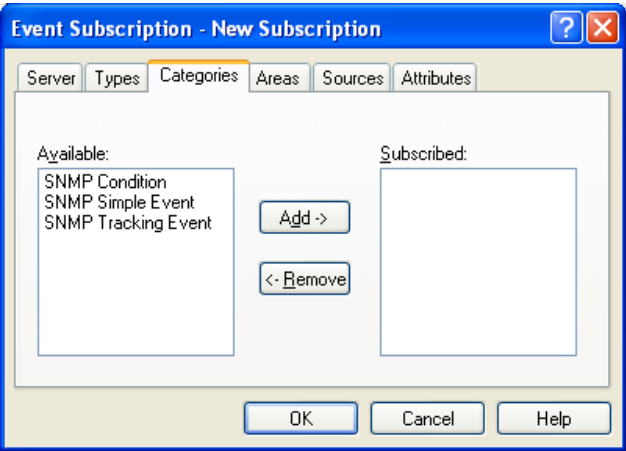
6. For each trap it's possible to specify the severity, the type of event (Condition, Simple, Tracking) and if the acknowledgment is required or not. The name of the trap will be the tag of the Alarm.
7. For each trap it's also possible to specify a list of values that are sent together with the trap. For each value it's possible to specify an attribute: when the trap will be received by the server the related value will be visible in the specified attribute in the viewer.

Get the alarms in AlarmWorX32

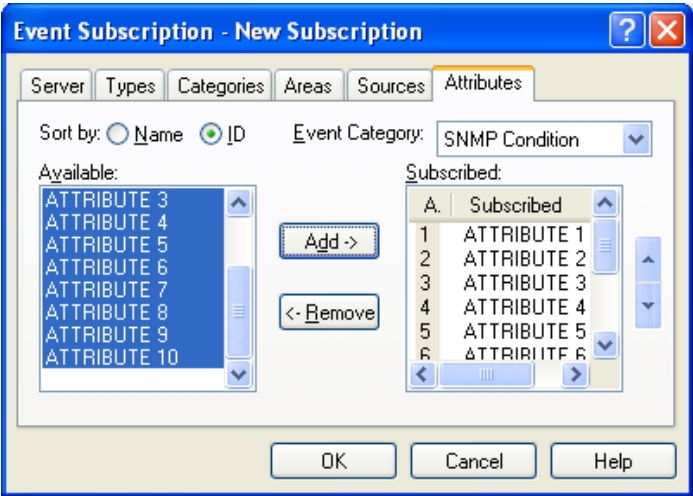
Now that all the SNMP traps are correctly configured, we can start GraphworX32 from *Start -> Programs -> ICONICS GENESIS32 -> GraphWorX32* and add an AlarmWorX32 control. Then open the configurator and click on the *Subscription* tab. Delete the existing subscriptions and click on the *Add* button. In the *Server* tab click on the *Browse* button and select *ICONICS.SnmpTrapServer.1*



1. In the *Categories* tab it's possible to select the type of Trap AE you want to receive (SNMP Condition, SNMP Simple Event and SNMP Tracking event). If no category is select all events will be shown.



2. In the *Attributes* tab it's possible to select the list of attributes that will be subscribed. In each attribute it will be visualized a trap value as previously specified in the SNMP Configurator. Please notice: by default NO attribute is subscribed.



Now it's possible to go in runtime and see the traps coming in the AlarmWorX32 Viewer

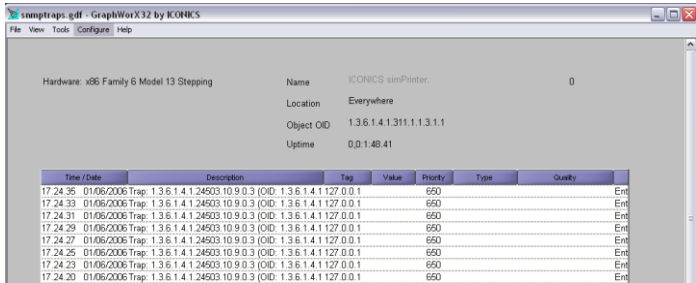


Figure 9: Traps through the AlarmWorX32 Viewer ActiveX