

## General Sample ActiveX Control for SNMP-compliant Devices

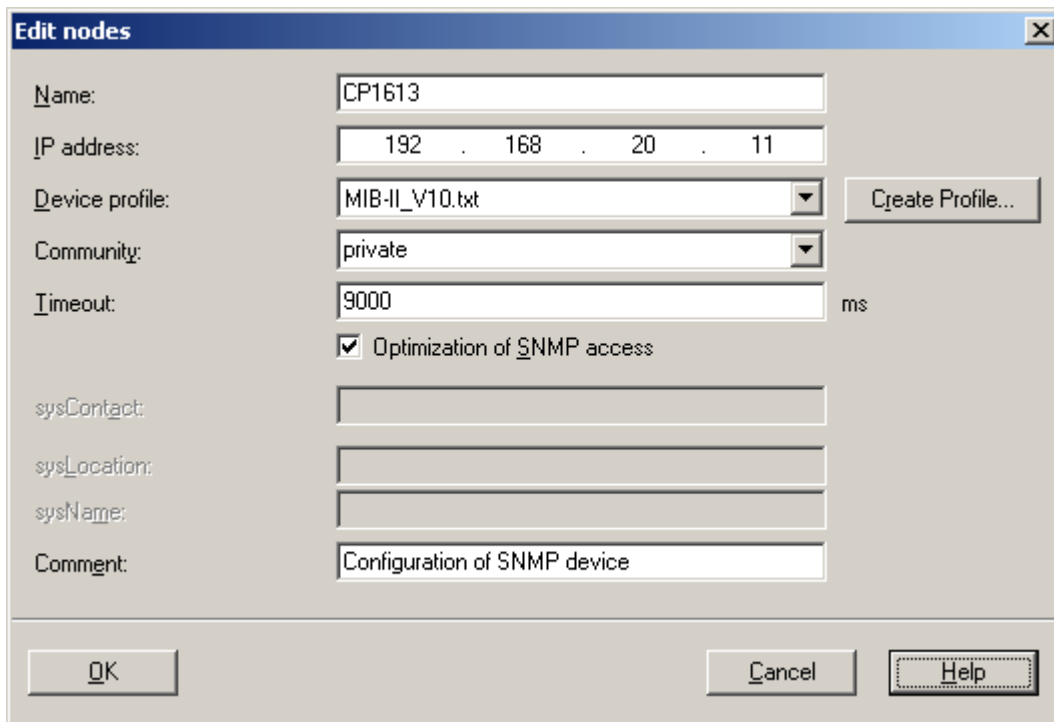
This sample in Visual Basic uses the OPC SNMP Server from SIMATIC NET to monitor a device with SNMP capability. This control can be used for all devices with SNMP capability (CP1613, RLM etc.) since it uses only objects of MIB II.

This description is divided into the following sections:

- Settings for the ActiveX Control on the OPC Server
- Working with the ActiveX Control
- Description of the ActiveX Control Program
- Requirements for Programming the Control in Visual Basic

### Settings for the ActiveX Control on the OPC Server

On the OPC Server, a connection to an SNMP-compliant device using the SNMP protocol must be configured.



The screenshot shows a dialog box titled "Edit nodes" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Name:** Text box containing "CP1613".
- IP address:** Text box containing "192 . 168 . 20 . 11".
- Device profile:** Dropdown menu showing "MIB-II\_V10.txt". To its right is a "Create Profile..." button.
- Community:** Dropdown menu showing "private".
- Timeout:** Text box containing "9000" with "ms" to its right.
- Optimization of SNMP access:** A checked checkbox.
- sysContact:** Empty text box.
- sysLocation:** Empty text box.
- sysName:** Empty text box.
- Comment:** Text box containing "Configuration of SNMP device".

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

#### Name

You can select any suitable name and the name configured here must later be set as the ConnectionName in the MIB II ActiveX Control.

#### IP address

Here, you enter the IP address of the SNMP-compliant device.

#### Device profile

Here, select the profile "MIB-II\_V10.txt".

In all other input boxes, you can leave the default entries.

## Working with the ActiveX Control

### Registering the ActiveX Control

Before you can use the control, you must include it in your project (for example in WinCC).

In WinCC:

In the *Object Palette*, select the *Controls* tab.

Right-click on the *Controls* tab.

Select *Add/Remove*.

Click the *Register OCX...* button.

Now browse to the ActiveX Control (\*.ocx), select it and *open* it.

Put a check mark beside the inserted control in the list.

Close the *Select OCX Controls* window with the *OK* button.

In Visual Basic:

In the *Project* menu, select *Components*.

Then select the *Controls* tab and click the *Browse* button.

Now browse to the ActiveX Control (\*.ocx), select it and *open* it.

Confirm the *Components* window with the *OK* button.

### In Design Mode

in design mode, only the gray control mode icon is displayed. The size of this icon is set automatically.



The properties of the control must now be set. The *ConnectionName* must be specified since this represents the connection to the SNMP-compliant device. The connection is configured in the system configuration in NCM. The name of the connection specified there is now entered here as *ConnectionName*. The *UpdateTimerInterval* does not necessarily need to be specified. It has the default value (1000 ms).

Properties of the Control:



Name:	Description:	Default:
ConnectionName	The connection name represents the connection to the OPC SNMP Core Server. It also matches the name in the system configuration of the OPC SNMP server in NCM.	
UpdateTimerInterval	This is the update time of the control. How often the displayed data is polled.	1000 ms

### In Run Time

In run time, the control operates in two different modes. The Control mode and the Config mode.

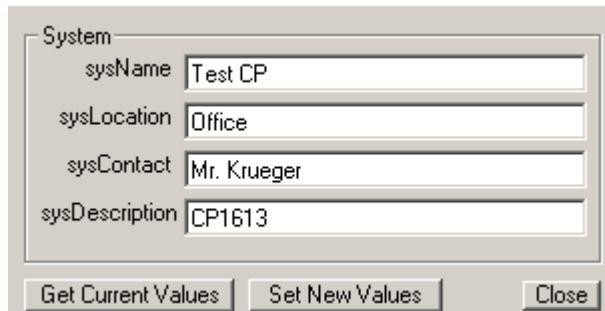
Control Mode:

In the Control mode, only two icons are displayed. These icons indicate the status of the SNMP-compliant device.

	No connection to the SNMP-compliant device. If, for example, there is no network link to the SNMP-compliant device. Or when the OPC SNMP Core Server is not running. Or the control was incorrectly configured.
	Link to the SNMP-compliant device.

If the Control Icon is green, when you click on the icon, you change to the Config mode. If the icon is gray, this does not work since there is no link to the SNMP-compliant device.

Config Mode:



The screenshot shows a 'System' configuration dialog box. It contains four text input fields with the following values: 'sysName' is 'Test CP', 'sysLocation' is 'Office', 'sysContact' is 'Mr. Krueger', and 'sysDescription' is 'CP1613'. Below the fields are three buttons: 'Get Current Values', 'Set New Values', and 'Close'.

### System Field:

Here, the four SNMP objects sysName, sysLocation, sysContact, and sysDescription are displayed. When you change to the Config mode, these four values are fetched once from the device. Apart from the sysDescription, these values can be modified.

### Get Current Values:

This button updates the values in the system field and the trap field.

### Set New Values:

This button writes all values to the SNMP-compliant device.

### Close:

This button exits the Config mode.

## Description of the ActiveX Control Program

The control uses asynchronous communication. In the Control mode, only 1 item (Linkstatus) is queried. There is an immediate reaction if the status of the link to the SNMP-compliant device changes. If there is no longer a link to the SNMP-compliant device, the gray icon is displayed immediately. As long as there is a link, the green icon is displayed. If there is no link to the SNMP-compliant device, the control attempts cyclically to reestablish the link to the SNMP-compliant device over the OPC SNMP Server.

If the Config mode is activated by clicking the green icon, all items required for reading and writing are logged on. If you exit the Config mode again, the additional items are logged off again. If the link to the SNMP-compliant device is lost in the Config mode, the Config mode is closed immediately and the gray icon is displayed.

## Requirements for Programming the Control in Visual Basic

To modify the example with the aid of Visual Basic, the following requirements must be met for Visual Basic:

### Loading the Siemens OPC DAAutomation DLL:

To create a control that uses the SOPCDAAuto.dll functions for accessing the OPC Server, this DLL must be loaded in the development environment of Visual Basic.

It is assumed that the OPC Server of SIMATIC NET is installed on the PC.

Select *View – Object Browser*

Right-click on <All Libraries> - *References*

Then navigate to the DLL with Browse. This is located under Dr:\Programs\Common Files\Siemens\OPC\SOPCDAAuto.dll. Select and open this file.

Now place a check mark beside Siemens OPC DAAutomation 2.0.

### Properties of the Control

The Public property of a UserControl must always be set to TRUE to compile the control.