



SNMP TRAPs in SAEAUT SNMP OPC server

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Configuring and using

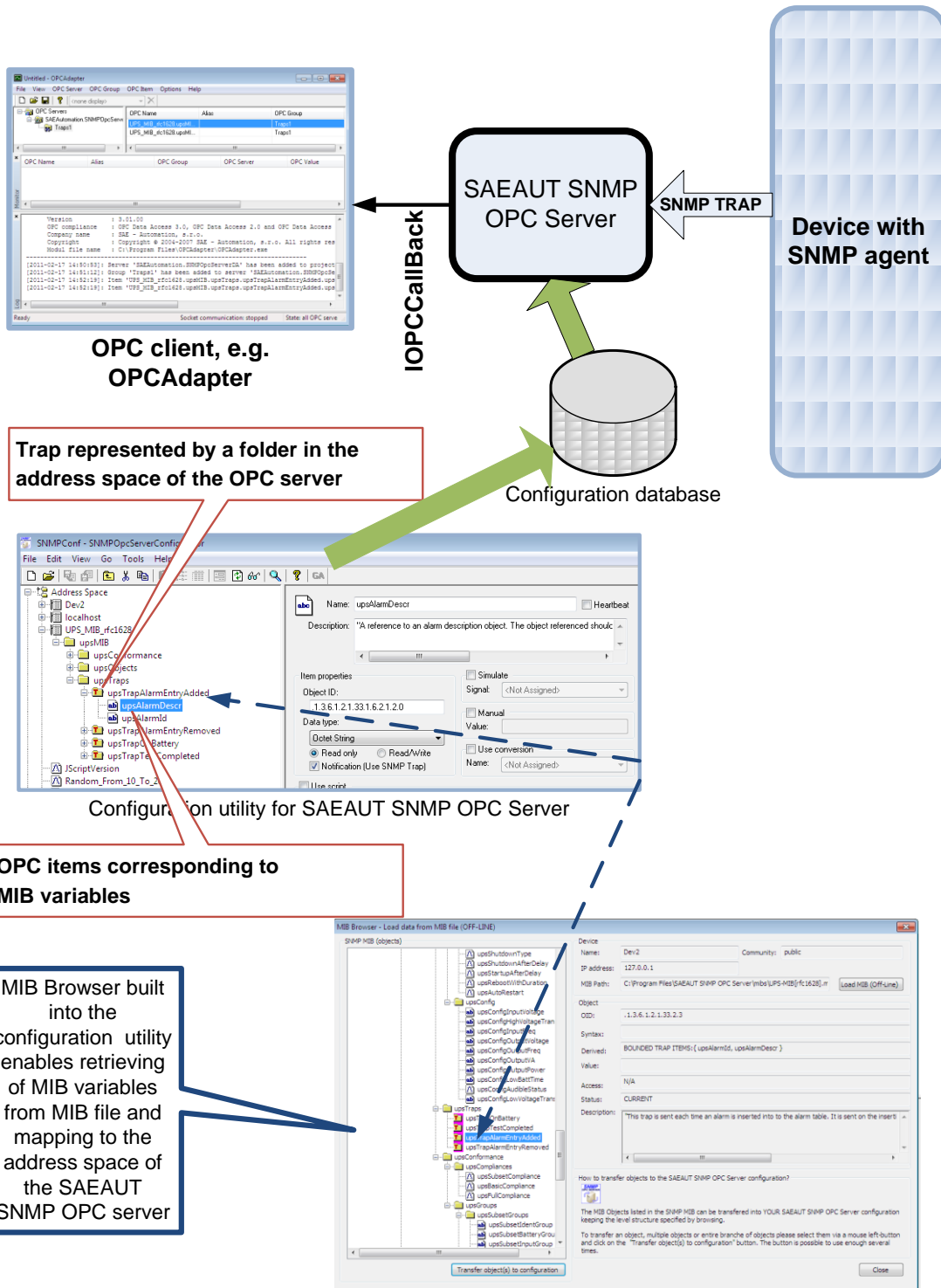


Figure 1 Configuring of TRAPs in the address space of the SNMP OPC Servers

SNMP/OPC gateway

SNMP protocol is already long time used for monitoring and control of the IT devices as computers, printers, routers... Due to its maturity and broad usage, it is used more and more also in other areas as communication with I/O modules for monitoring and control technological processes and devices in buildings.

In SCADA/HMI systems, the OPC standard is used very often. Almost every well known SCADA/HMI system has built-in OPC client which enables to mediate access to different devices over OPC servers which are used as gateway between OPC communication and the proprietary communication used by the device. Product SAEAUT SNMP OPC Server represents just this kind of communication gateway. It consists of two individual applications: a [configuration utility](#) and a [run-time application](#). The configuration utility is used to eliminate necessity of the creation different OPC servers for different transferred data sets. The configuration created by configuration utility is put to the configuration database which is then used to control data transfers provided by the run-time application.

Usage of the SNMP Traps

Both protocols are able to communicate using [request/response](#) or [notifications](#). If we want to find out what is happening in the controlled system using the first method, it is necessary to send periodically requests and evaluate responses. Such a communication uses communication resources too extensively. Communication using notifications is much more effective. In case that something in the monitored system has changed, a one shot notification is sent. It means that periodical pooling is eliminated and communication lines are relieved.

Of course, this solution has also disadvantages. If only notifications would be used, it could happen that a notification will not be delivered due to an error on communication line and the monitoring system does not get this information. This problem can be suppressed by proper combination of both communication methods – requests are sent less often, as not to overload communication infrastructure (first of all to test if the connection is not broken) and notifications provide fast information when something happens in the monitored system (it is not necessary to wait for next pooling cycle).

Communication using TRAPs has also another possibility to reduce the communication infrastructure load – more MIB variables are usually transferred in one telegram. (The communication where more MIB variables are transferred in one telegram of the type GET or SET is possible as well, but, it is used less often in SNMP OPC servers.) Transferring of more variables within one TRAP telegram is used more often also as the groups of variables transferred in TRAPs are defined in some standard MIB files, e.g. the MIB file according to the RFC1628 describing SNMP variables placed in uninterruptible power sources (UPS).

If configuration utility has [built-in MIB browser to read MIB variables from MIB files](#) and to map them to the OPC items, as it is in the [SAEAUT SNMP OPC Server Professional](#), the configuring of OPC items corresponding to MIB variables is easy and fast. The way to do it is shown in the Figure 1. We have to create new *Device* using configuration utility. After the right mouse click, the context menu of the *Device* is shown where we can see the item *MIB Browse (Off line)*. After choosing it, we can search for MIB file with required MIB variables. Distinct MIB variables are shown in a tree structure. We can choose either individual variables or even whole sub trees to map them to the tree-structure of the OPC server address space. TRAPs which transfer more than one MIB variable are transferred as special folders

marked by red „T“. Every MIB variable included in the TRAP is mapped to individual OPC item. It is possible that by mapping an MIB variable is associated individually with one OPC item and in the same time within a TRAP. This way multiple OPC items can be created to the same MIB variable. In this case, we have two possibilities – either to actualize all corresponding OPC items, or only the one associated with the TRAP. Although not always is it necessary, in the SAEAUT SNMP OPC server, all corresponding OPC items are actualised. Better data consistency is provided this way.