GCC Controller SNMP Support

1 Purpose

This document provides a summary of Simple Network Management Protocol (SNMP) support as implemented in the GCC controller firmware. This note contains information relevant to GCC firmware version 2.31.

2 Overview

Simple Network Management Protocol (SNMP) is an Internet standard protocol for management of network devices. SNMP Management systems can supervise a variety of networked equipment simply by importing a file with definitions of the Management Information Base (MIB). The SNMP Manager program can access and control the UNIPOWER power systems by adding the MIB describing the controller manageable objects to its collection of MIB files.

The controller implements SNMPv3 as well SNMPv2c. The user can select which SNMP protocol will be used, SNMPv2c or SNMPv3. For security reasons, selection is only available via the GCC front panel under menu item: *Miscellaneous > SNMP version*.

3 MIB

The available MIB objects are common for both SNMP versions with the exception of security parameters for SNMPv3. If SNMPv3 is selected, the controller does not respond to SNMPv2c commands and vice-versa.

4 SNMPv2 parameters

The default community names for GCC are:

- read community name is **accread**
- write community name is **accwrit**
- trap community name is **accread**

5 SNMPv3 parameters

SNMPv3 uses five security parameters - user name, authentication protocol, authentication key, privacy protocol and privacy key.

- User name - is a text string up to 31 characters
- Authentication protocol - can be one value of the following {0=MD5, 1=SHA1, 2=no authentication}
- Authentication key - is a text string up to 47 characters
- Privacy protocol - can be one value of the following {1=AES (128bit), 2=no privacy}
- Privacy key - is a text string up to 47 characters

These security parameters are defined as manageable table row objects in the GCC MIB under the SNMPv3 USM group and can be changed via the SNMPv3 protocol.

NOTE: The UsmUserTable MIB object contains three rows for three users with predefined user rights. It is not possible to add or delete a user.

Default user parameters are:

1. User name: Admin
   Auth. Protocol: SHA1
   Auth. Pwd: unipower12345
   Priv. Protocol: AES
   Priv. Pwd: unipower98765
   This user can read/write all objects and can change all security parameters.
2. User name: PowerUser
   Auth. Protocol: SHA1
   Auth. Pwd: gct12345
   Priv. Protocol: AES
   Priv. Pwd: gct98765
   This user can read/write all objects but can't change security parameters.
3. User name: ReadOnly
   Auth. Protocol: NoAuth
   Auth. Pwd:
   Priv. Protocol: NoPriv
   Priv. Pwd:

This user can only read objects.

NOTE: A GCC Master Reset will revert user parameters to these default values.

6 SNMP Notifications

An SNMP notification (Trap) is sent from the controller when an alarm event occurs.

By default, all 23 standard alarms and 16 programmable alarms can send a trap individually (each notification has its own OID) with a variable showing if the alarm is set or cleared.

Sending of traps for a particular alarm can be disabled in the SNMP alarmTable object by setting the respective alarmTrapDisable value to 1. A notification is also sent when the charge mode changes.

There are 4 different OIDs for four charging modes (U1-U4). Notifications are sent to all defined recipients (up to 8) that can be set by SNMP itself. IPv6 notifications are not presently supported in current firmware but are planned for the future.

7 SNMP usage examples

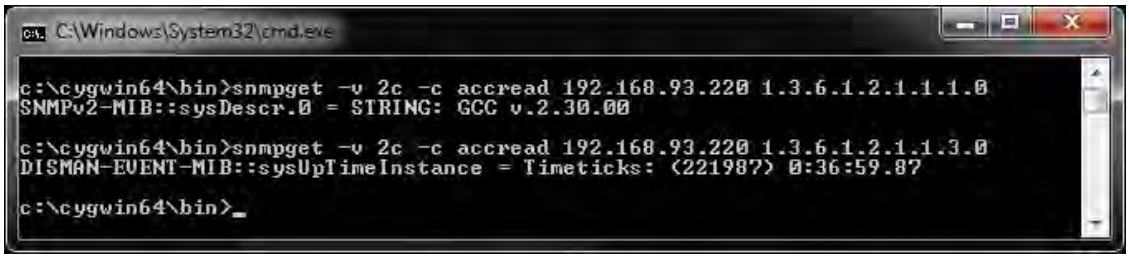
The following free and open-source software is recommended for GCC SNMP testing or verification:

- NET-SNMP (http://www.net-snmp.org/) version 5.7.3 or newer. This is a set of command line tools.
- SNMPb (https://sourceforge.net/projects/snmpb/) version 0.8. This is a GUI tool that is able to import and use MIB files.

7.1 NET-SNMP

SNMP v2c Get command example:

snmpget -v 2c -c accread 192.168.93.220 1.3.6.1.2.1.1.1.0

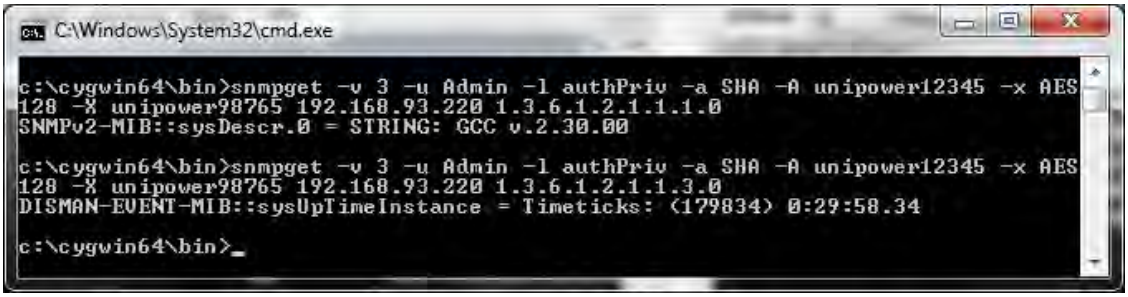


SNMP v2c Walk command example:

snmpwalk -v 2c -c accread 192.168.93.220 1.3.6.1.4.1.5961.5.1

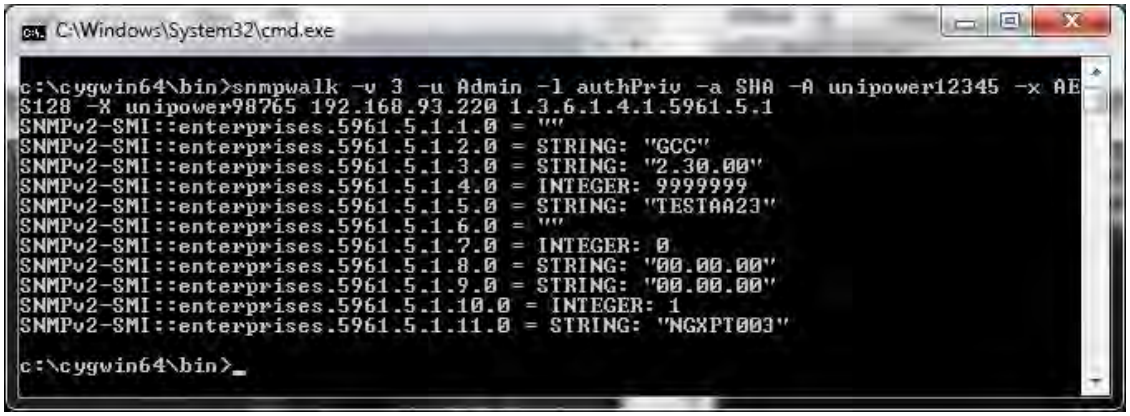
SNMP v3 Get command example:

snmpget -v 3 -u Admin -l authPriv -a SHA -A unipower12345 -x AES128 -X unipower98765 192.168.93.220 1.3.6.1.2.1.1.1.0



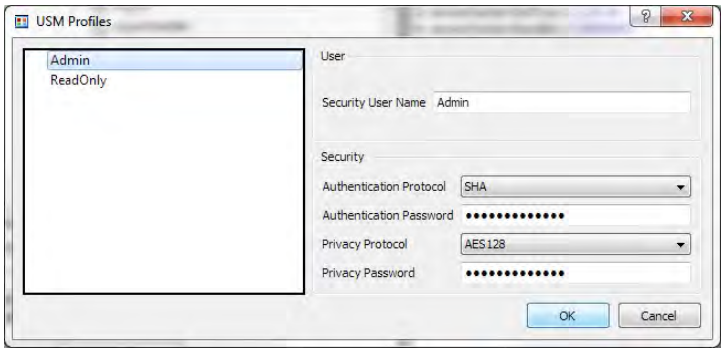
SNMP v3 Walk command example:

snmpwalk -v 3 -u Admin -l authPriv -a SHA -A unipower12345 -x AES128 -X unipower98765 192.168.93.220 1.3.6.1.4.1.5961.5.1

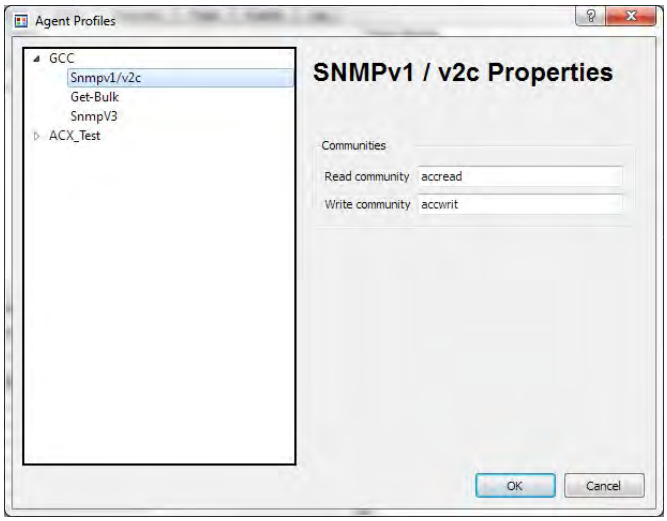


7.2 SnmpB

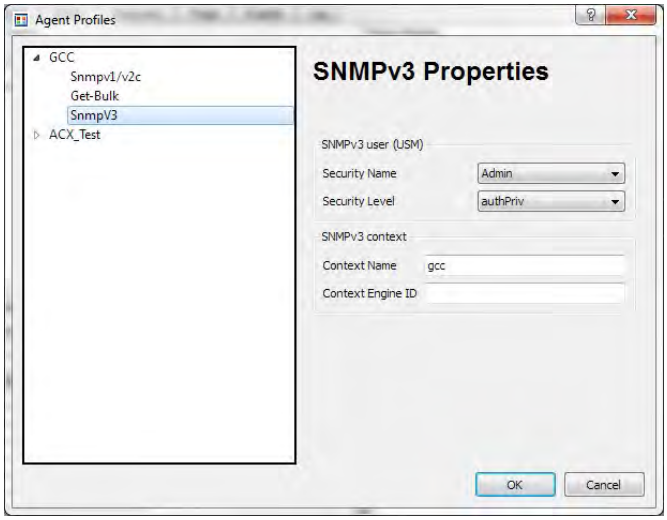
User profile setting



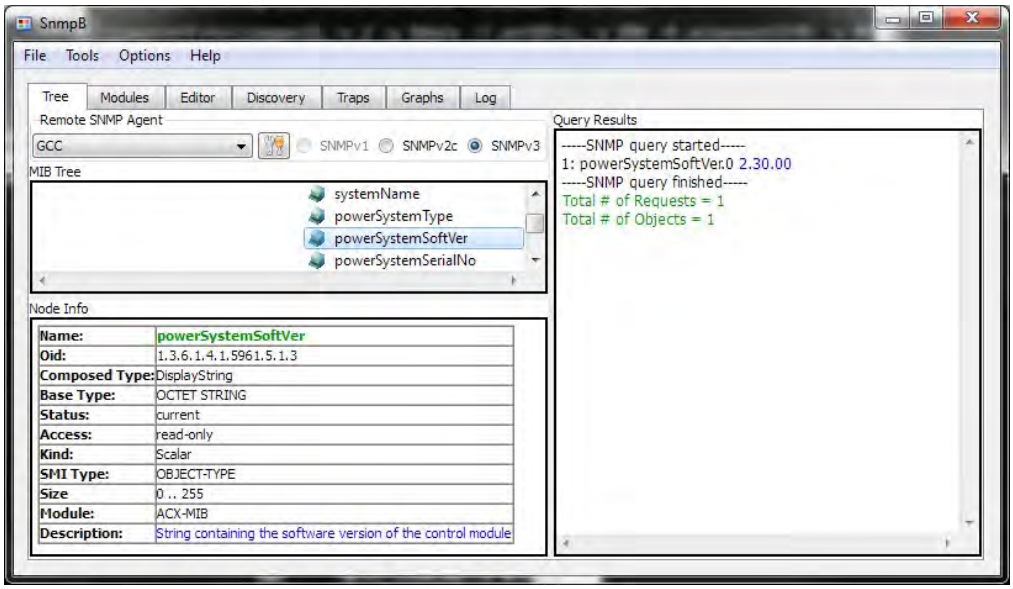
SNMPv2c properties



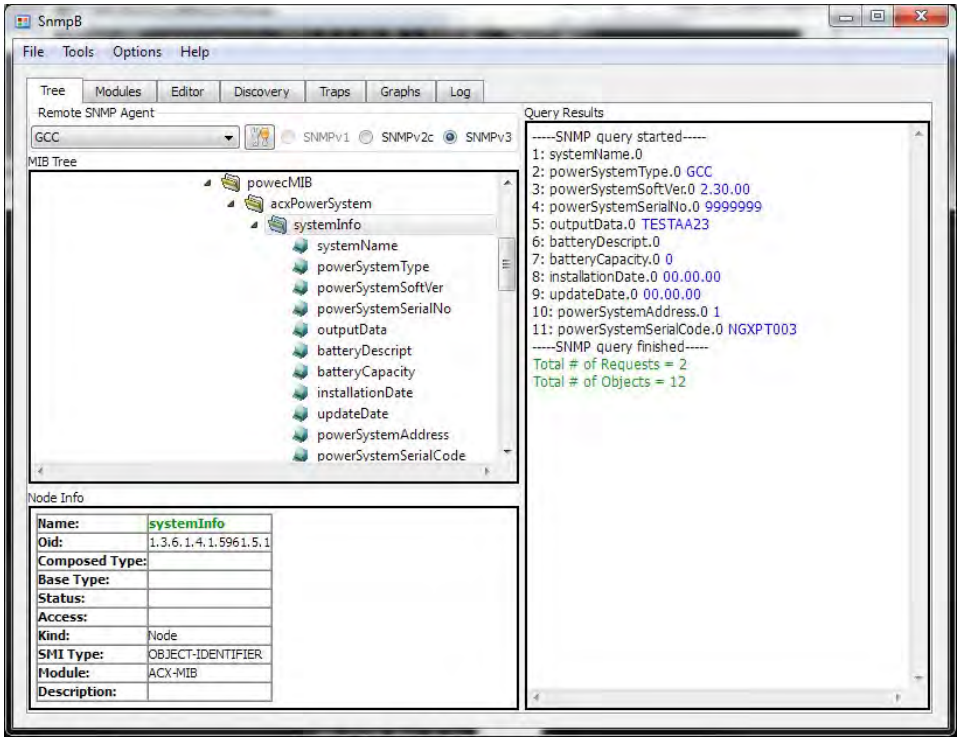
SNMPv3 properties



SNMPv3 get example



SNMPv3 walk example



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