Newtec

SNMP Manual

for

AZ202 Universal Switching System

Version 1.1

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About this manual

This manual describes the SNMP functionality for the AZ202 Universal Switching System product.

Cautions and Symbols

The following symbols appear in this manual:

A caution message indicates a hazardous situation that, if not avoided, may result in minor or moderate injury. It may also refer to a procedure or practice that, if not correctly followed, could result in equipment damage or destruction.

A hint message indicates information for the proper operation of your equipment, including helpful hints, shortcuts or important reminders.

A reference message is used to direct to; an internal reference within the document, a related document or a web-link.

Version History and Applicability

Document version	Date	Comments
1.0	September 2011	Initial Version
1.1	April 2013	Adjusted template

Feedback

Newtec encourages your comments concerning this document. We are committed to providing documentation that meets your needs.

Please send any comments by contacting us at documentation@newtec.eu

Please include document and any comment, error found or suggestion for improvement you have concerning this document.

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1 Introduction

SNMP (Simple Network Management Protocol) is a standard protocol that is widely used for managing devices on IP networks. It is used by network administrators to monitor, configure and solve problems from a central point.

SNMP is an application-layer protocol. It runs over UDP at the transport level.

The protocol is based on a manager / agent model.

Newtec's devices are SNMP manageable.

This means that they have an SNMP agent that can be polled for information from a Network Management Station (NMS). The following figure presents the setup between an NMS and a device.

Figure 1 - SNMP Management System

The SNMP agent used is MIB-II compliant.

The Newtec Management Information Base (MIB) provides a standard representation of the SNMP Agent's available information and where it is stored. The MIB is defined according to the ASN.1 (Abstract Syntax Notation One).

Newtec SNMP manageable devices also support the Trap PDU. A trap is a mechanism to trigger the NMS that a change in the device has occurred. After receiving the trap the NMS still has to poll the device to find out the details of the change.

2 SNMP Operations

SNMP uses the following internal operations:

Operation	Description	Action by the
Get	Readout the current value of specific objects in the MIB.	NMS
Get next	Readout the current value of the next object in the MIB.	NMS
Set	Change a value of a specific object in the MIB.	NMS
Get response	Responds to a get, get next or set request	Agent
Trap	A trap is a mechanism to trigger the NMS that a change in the device has occurred. After receiving the trap the NMS still has to poll the device to find out the details of the change.	Agent

The different operations are displayed in the following figure:

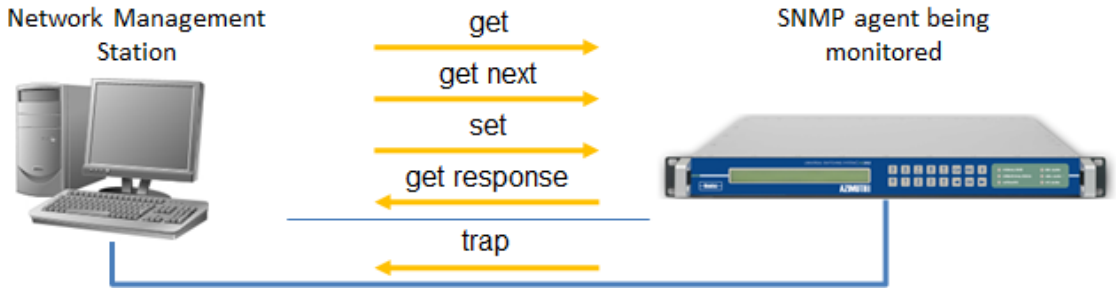

Figure 2 - SNMP Operations

3 Ports used by SNMP

The ports are used to allow SNMP information to be sent to the correct application.
The following ports are used:

Name	Port Number	Description
SNMP	161	An external SNMP manager uses this port to communicate with the SNMP agent.
Trap	162	The SNMP agent generates traps from this port. The manager listens to this port for trap messages from the SNMP agent.

4 MIB

The MIB (Management Information Base) is a database that describes the structure of the management data that can be used within a device.

The MIB uses hierarchical names containing OID (object identifiers) to describe the management data of the device in a structured way. Every OID describes a variable that can be read and/or set using SNMP.

The Newtec MIB provides a standard representation of the SNMP Agent's available information and where it is stored.

The MIB is defined according to the ASN.1 (Abstract Syntax Notation One).

The Newtec MIB is derived from the device definition database and allows full monitor and control over the complete device using any SNMP browser (HPOpenView, NetworkView).

We support the basic standard MIB (monitor and control of IP interface, versions of the software …) and above that we have a full proprietary MIB.

The customer must compile the obtained .mib files from within his Network Management Software.

There are two MIB files:

1 NEWTEC-MAIN-MIB.mib: This is the Newtec top level MIB containing the following sub trees;
   - ntcSems: Subtree (Not used);
   - ntcPlex: (Not used);
   - ntcDevices: Subtree to manage Newtec devices;
   - ntcSecurity.

2 NEWTEC-USS-MIB.mib: This is the MIB Module for the management of the AZ202 USS device.

Use the Newtec Service Desk tool to receive the Newtec MIB files.
> Browse to ***https://customersupport.newtec.eu***
> Fill in your Username and Password
> Create a ticket

As response of your request you will receive the requested MIB files from our support team.
In case you don't have a Username and Password for the Newtec Service Desk tool: request a login to via
http://www.newtec.eu/support/register-service-desk-account

5 Trap Mechanism

A trap is sent by the Agent whenever a state change (off or on) in the alarm status of the device occurs.

The Agent encapsulates the trap PDU in UDP datagrams and generates trap messages from port 162. The NMS will receive trap messages on port 161.

A trap message consists of at least three varbinds:

A varbind or variable binding is a sequence of the following two specific fields.

- The first field is the OID of a specific parameter.
- The second field contains the value of the specified parameter.

a Binding #1: sysUpTime.0 *** (timeticks) 0 days 16h:41m:39s.03th
b Binding #2
- and Binding #3:

- ntcUssCtl**Device**Notifications;
  - ntcUssCtlDevice**Internal**AlarmTrap
  - ntcUssCtlDevice**Setup**ErrorTrap

- ntcUssCtl**Interface**Notifications
  - ntcUssCtlInterface**DevMonConLost**Trap
  - ntcUssCtlInterface**SwitchFailed**Trap
  - ntcUssCtlInterface**CopyFailed**Trap

- ntcUssCtl**Warning**Notifications
  - ntcUssCtl**Warning**Trap

The counting of the bytes starts from 0 and is from left to right.

6 SNMP Menu Items

Use the GUI (Graphical User Interface) to set the SNMP community strings and SNMP trap receivers.

Refer to the User manual of the AZ202 for more information on how to manage the device using the GUI.

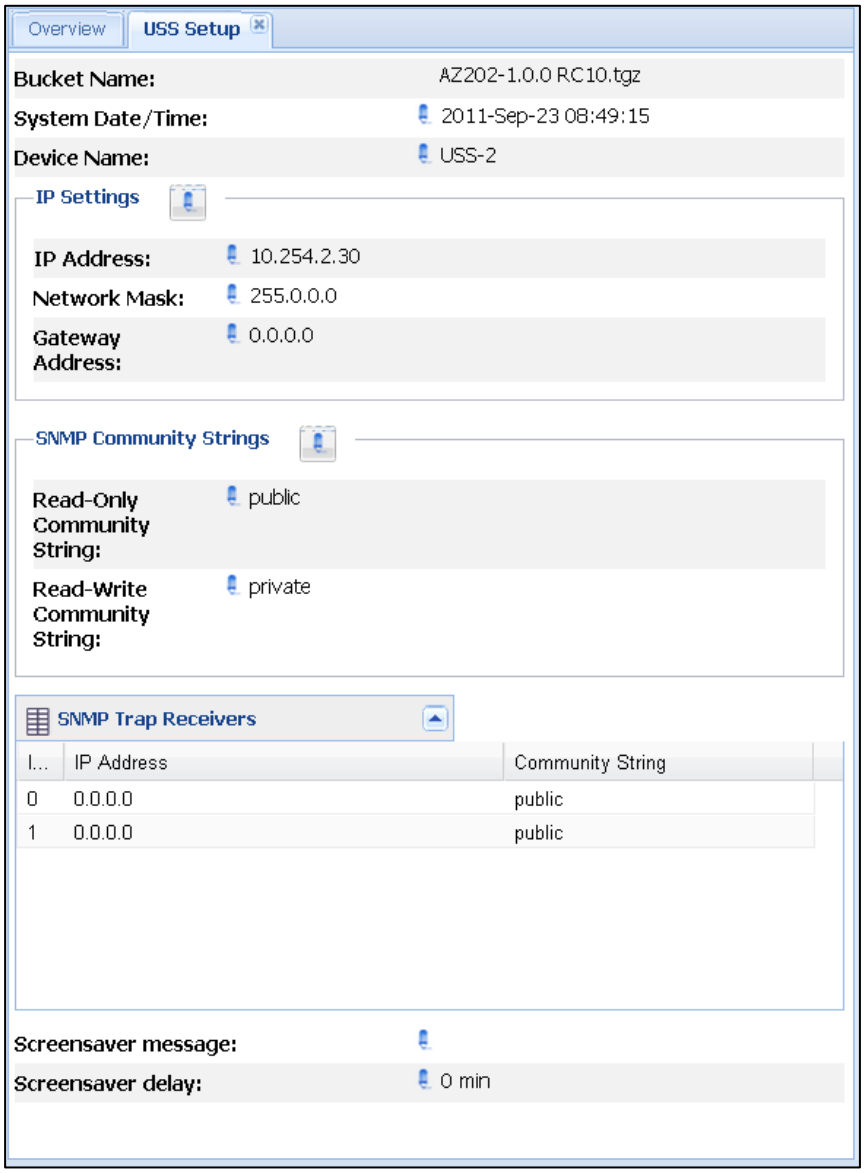

Figure 3 - Device Setup

6.1 SNMP Community Strings

Define the public and private community string.

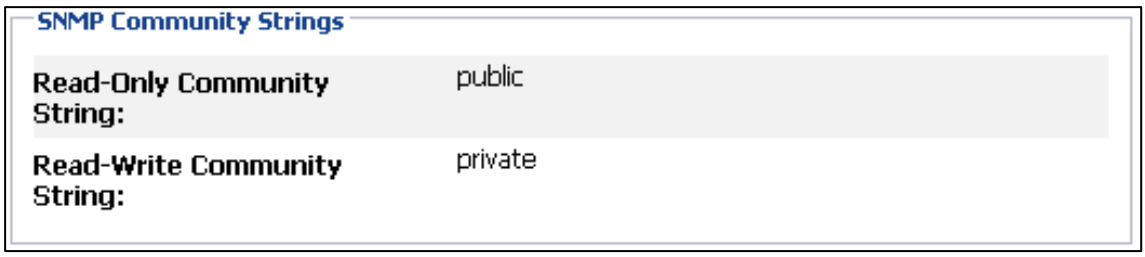

Figure 4 - SNMP Community Strings

6.2 SNMP Trap Receivers

Define which IP addresses may receive traps and define per receiver the wanted community string.

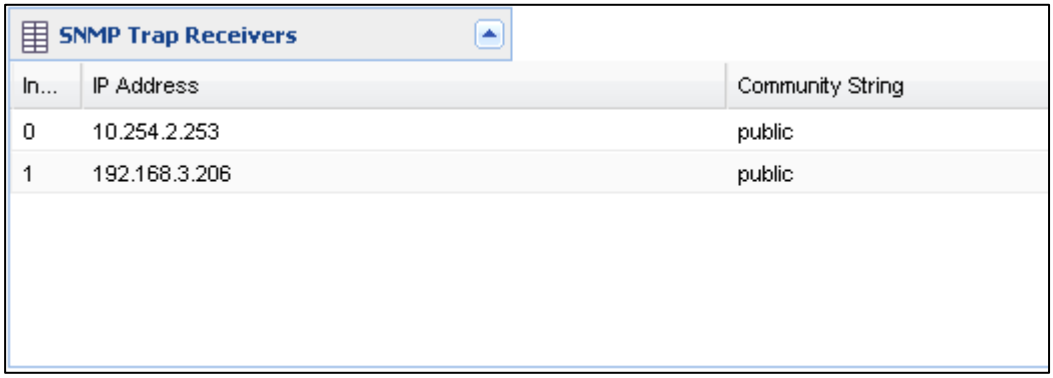

Figure 5 - SNMP Trap Receivers

7 Acronyms

Acronym	Definition
ASN	Abstract Syntax Notation
GUI	Graphical User Interface
IP	Internet Protocol
MIB	Management Information Base
NMS	Network Management System
OID	Object Identifier
PDU	Protocol Data Unit
SNMP	Simple Network Management Protocol
UDP	User Datagram Protocol
USS	Universal Switch System