User Manual

Basic Configuration
HiProvision Add-on: SNMP Northbound

You can get the latest version of this manual on the Internet at the Hirschmann product site (www.hirschmann.com).

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1. INTRODUCTION

1.1 Description

This document is valid as of Dragon PTN R3.0DR. This add-on provides alarm, counter and configuration status information from the Dragon PTN network through an SNMP (=Simple Network Management Protocol) interface to an upper management system (=umbrella system). Information can be exchanged in two ways:

- **Via SNMP Get Request (=req)/Response (=res) messages**. The umbrella system decides itself when it needs some information from the Dragon PTN network. It must send an SNMP Get Request message to HiProvision. The HiProvision SNMP Agent replies the requested information from its HiProvision MIB via an SNMP Get Response message to the umbrella SNMP manager. The HiProvision MIB and database are filled (independently from the SNMP add-on) by HiProvision polling the Dragon PTN network via SNMP;

- **Via SNMP traps**: HiProvision will automatically send SNMP traps (=notification message) to the umbrella system for events listed in Figure 2. No request from the umbrella system is needed. One trap that can be enabled/disabled (=default) is the heartbeat trap that informs the Umbrella SNMP manager that the HiProvision SNMP Agent is still alive

More information on the different fields and traps can be found in the MIB in §2. The add-on behaves internally as a client to the HiProvision server and as an SNMP proxy agent for the entire Dragon PTN network. The HiProvision SNMP agent supports SNMP version 2 and 3.

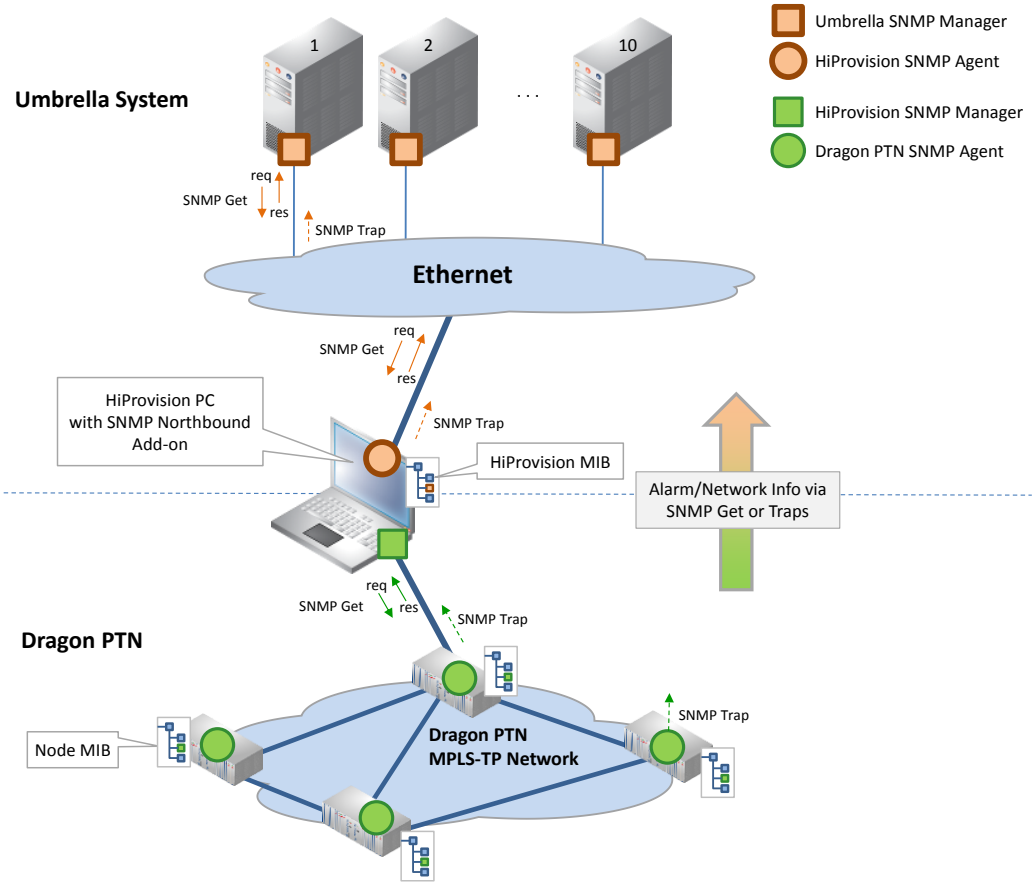

Figure 1 SNMP Northbound Example

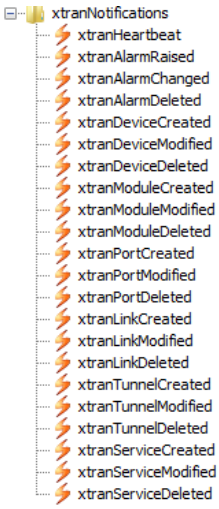

Figure 2 SNMP Trap Overview

1.2 Prerequisite

An 'SNMP Northbound Add-on' voucher must be purchased first. Once it has been purchased, install a license pack with this voucher on the HiProvision PC. See chapter 'SERIAL KEY / VOUCHERS / LICENSE PACK' in the 'Dragon PTN and HiProvision Operation' manual in Ref.[2] in Table 1 to generate and install the license pack. It can be verified in HiProvision whether a SNMP Northbound license has been installed via Dashboard → Licenses: Voucher type = SNMP Northbound. 'Vouchers available' must be at least one.

1.3 Installation/Activation

1. The SNMP Northbound add-on is by default available in HiProvision and can be found via Dashboard → (Tools) Add-ons;
2. Click the SNMP Northbound tab;

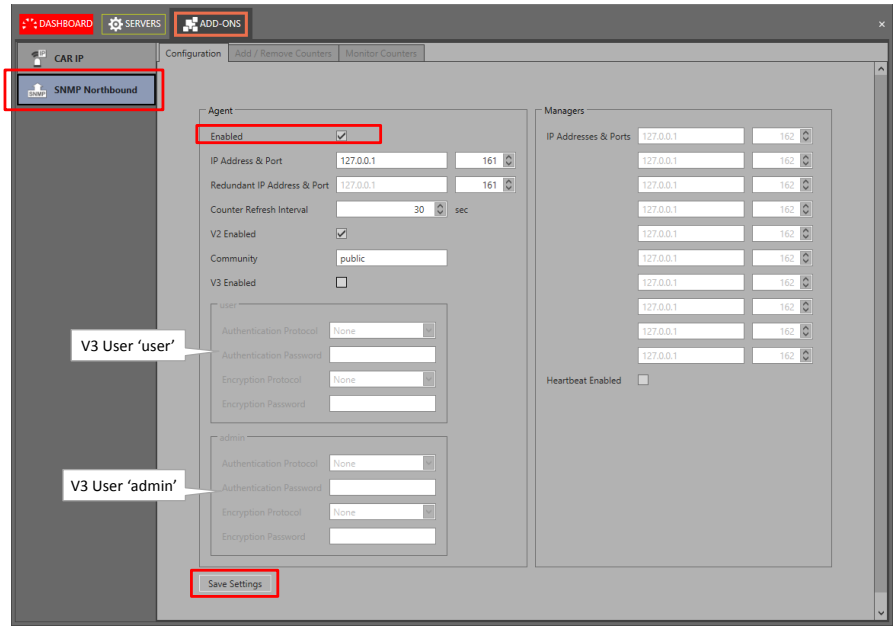

Figure 3 Enable SNMP Northbound

3. In the Configuration tab, check the Enabled checkbox and click the Save Settings button;
4. When the HiProvision servers were already started, a pop-up requests to restart the servers. If the servers were not started yet, just start the servers. (Re)start the HiProvision servers via Dashboard → Servers → Play button;
5. The (re)start of the servers will check the availability of a valid SNMP Northbound license and starts up the SNMP Northbound ('SN') process if the license is valid. The servers will not start without a valid license.
6. If the 'SN' process is in the Started state, the SNMP Northbound add-on is up and running. It acts according the configured settings Figure 3.

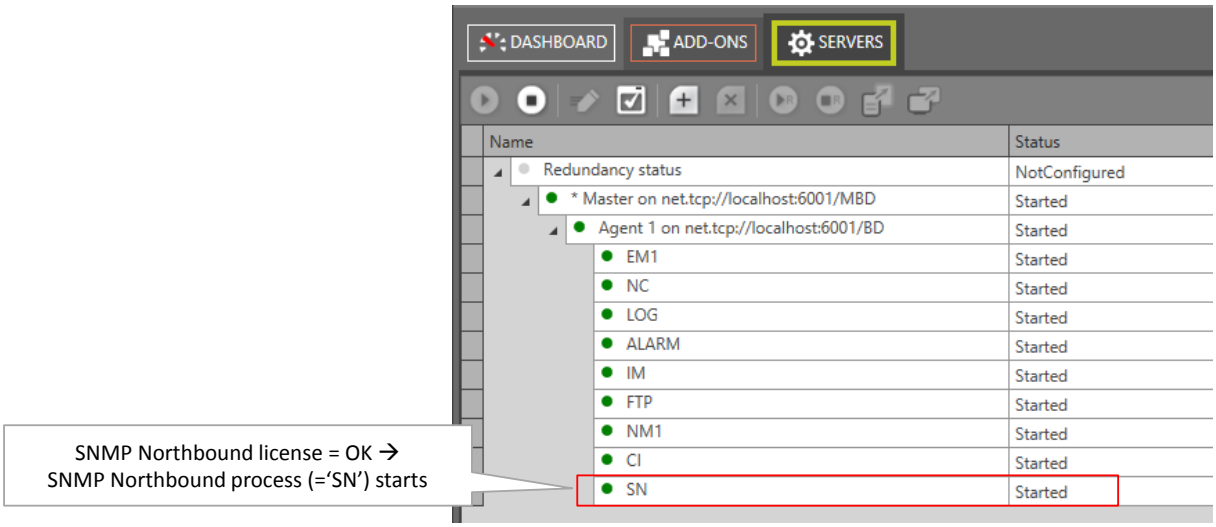

Figure 4 SNMP Northbound (=SN) Process in Servers Tab

1.4 Supported Hardware, Firmware, Software

The supported hardware, firmware and software within this Dragon PTN release can be found on the Portal https://hiprovision.hirschmann.com via Shortcuts → Downloads.

1.5 Manual References

Table 1 is an overview of the manuals referred to in this manual. '&' refers to the language code, '*' refers to the manual issue. All these manuals can be found in the HiProvision Help function as well.

Table 1 Manual References

Ref.	Number	Title
[1]	DRA-DRM801-&-*	Dragon PTN Installation and Operation
[2]	DRA-DRM821-&-*	Dragon PTN and HiProvision Operation
[3]	DRA-DRM822-&-*	HiProvision Alarms List

2. SNMP INTERFACE: DRAGON PTN / HIPROVISION MIB

The MIB description is located in '<HiProvision path>\documentation\mibs\TXCareMIB.mib'. It describes the interface to HiProvision, needed for SNMP managers to request the HiProvision PC for network information or for receiving SNMP traps (=notifications).

This MIB can be viewed by a MIB browser that can be downloaded from the internet.

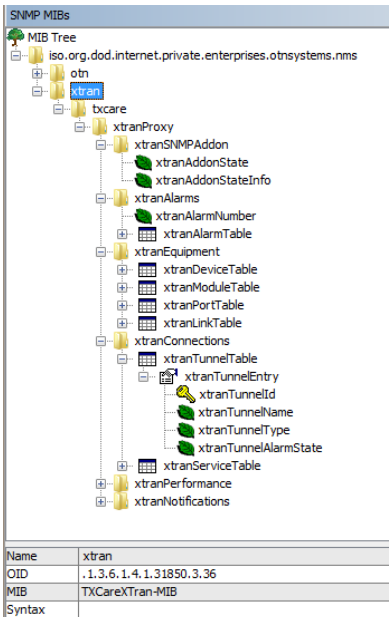

Figure 5 HiProvision MIB Window

3. ALARM HANDLING

When an alarm situation occurs in an Dragon PTN network, a corresponding alarm will be raised in HiProvision. See Ref.[2] in Table 1 for more information on alarm handling in HiProvision.

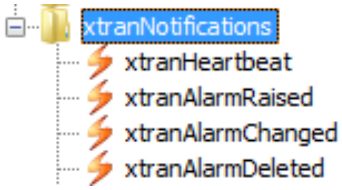

Figure 6 Dragon PTN Alarm SNMP Traps (or Notifications)

This add-on sends alarm traps to the umbrella system in following conditions:

- Alarm is raised in HiProvision → send 'xtranAlarmRaised' trap;
- Alarm is cleared or acknowledged → send 'xtranAlarmChanged' trap;
- Alarm is cleared and acknowledged → send 'xtranAlarmDeleted' trap.

All these alarm traps contain all the alarm fields present in HiProvision.

NOTE: The time in the trap messages is expressed in UTC.

4. CONFIGURATION TAB

Table 2 Configuration Fields in Figure 3

Field	Description
Agent	
Enabled	Unchecked: This Add-on will be disabled after restarting the servers. All the fields will be greyed out and are read-only. Checked: This Add-on will be enabled (if the required license has been installed) afer restarting the servers. All the fields will be activated.
IP Address & Port	IP Address (default = 127.0.0.1): The IP address of the HiProvision PC in the subnet of the Umbrella system, see also Figure 1. The default IP address 127.0.0.1 must only be used when the both SNMP agent and SNMP manager reside on the HiProvision PC. Port number (default = 161, range[0..65535]): port number on which the HiProvision SNMP agent will receive SNMP Get Requests from the SNMP manager.
Redundant IP Address & Port	Optional field. Only fill out this field if a redundant HiProvision is available. Similar as 'IP Address & Port' but for the Redundant HiProvision PC.
Counter Refresh Interval	(default = 30s, range[1..600 s]) The configured counters in the 'Monitor Counters' tab will be refreshed according the configured interval if at least one SNMP manager is connected to this add-on (connected means a filled out IP address/Port). Without connection, no refresh will be done.
V2 Enabled	Check this checkbox to enable SNMP V2. At least V2 or V3 must be enabled to use this Add-on
(V2) Community	(default = public) some sort of userid or password string that must be used by the SNMP V2 requester (=umbrella system) to communicate with HiProvision. Change the default 'public' into something customized.
V3 Enabled	Check this checkbox to enable SNMP V3. At least V2 or V3 must be enabled to use the Add-on
user/admin	The SNMP manager can send SNMP requests to HiProvision for 2 users: 'user' and 'admin'. The authentication for both users can be configured.
(V3) Authentication Protocol	(Optional) default = None: No authentication is required by the SNMP manager to read out HiProvision. Md5/Sha: Possible authentication protocols. The SNMP manager must use the configured Authentication Protocol to read out info from HiProvision.
(V3) Authentication Password	(Optional) Fill out this password when Authentication Protocol is different from 'None'.
(V3) Encryption Protocol	(Optional) default = None: No encryption is applied, commands are transmitted in plain text. Possible encryption protocols: Des/TripleDes/AES128/AES192/AES256. SNMP commands will be encrypted according the selected protocol. Note: An Authentication Protocol and Password must be selected in order to use the Encryption protocol.
(V3) Encryption Password	(Optional) Filling out this password makes sure to encrypt the SNMP V3 commands with the selected Encryption Protocol. Not filling it out or filling out a wrong password transmits plain text commands without encryption.
Managers	
IP Addresses & Ports [1..10]	Up to 10 SNMP managers in the umbrella system can be used to interface with this add-on. IP Address (default = 127.0.0.1): The IP address of the SNMP manager in the subnet of the Umbrella system, see also Figure 1. The default IP address 127.0.0.1 must only be used when the both SNMP agent and SNMP manager reside on the HiProvision PC. Port number (default = 162, range[0..65535]): port number on which the SNMP Manager in the umbrella system will receive SNMP Traps.
Heartbeat Enabled	Unchecked (=default): HiProvision does not send a heartbeat or keep alive trap to the SNMP managers. Checked: HiProvision sends every minute a heartbeat or keep alive trap to the SNMP managers.

5. COUNTERS

5.1 Add/Remove Counters Tab

Follow the steps below to add/remove an Dragon PTN counter to/from the MIB. As a result, info from the added counter can be requested by the umbrella system via SNMP.

1. Go to the Add/Remove Counters tab;
2. Expand the Performance rows to find the desired counter. Click the desired performance row e.g. Ethernet Port Monitoring and click it. A list with all nodes and devices that have Ethernet modules will show up in the 'PORT COUNTERS' section. If no Ethernet module is available in your network, the list remains empty. Similar for other functionalities.
3. In the PORT COUNTERS section, expand the desired node/IFM to show the available ports;
4. Click the Selected checkbox to show a row with counters (e.g. Bytes In, Ucast In Packets, Multicast in Packets, ...) valid for that port;
5. To add the 'Bytes In' counter to the MIB, click the 'Bytes In' cell to select it and click the button to add the counter to the MIB;
6. A new window pops up to provide a description. Keep the default counter description (e.g. 'Bytes In') or fill out a custom description for your counter. Click OK;
7. The added counter (e.g. 'Bytes In') cell will be highlighted with a green border. If desired, it can be removed again from the MIB by clicking the higlighted cell and clicking ;
8. A list with all the added MIB counters is available in the Monitor Counters tab, see §5.2;
9. All these counters are located in the Dragon PTNPerformance table in the MIB;

NOTE: The counter values in Figure 7 will be refreshed according the Counter Refresh Interval, see Table 2.

NOTE: Hover green highlighted cell to show customized counter description.

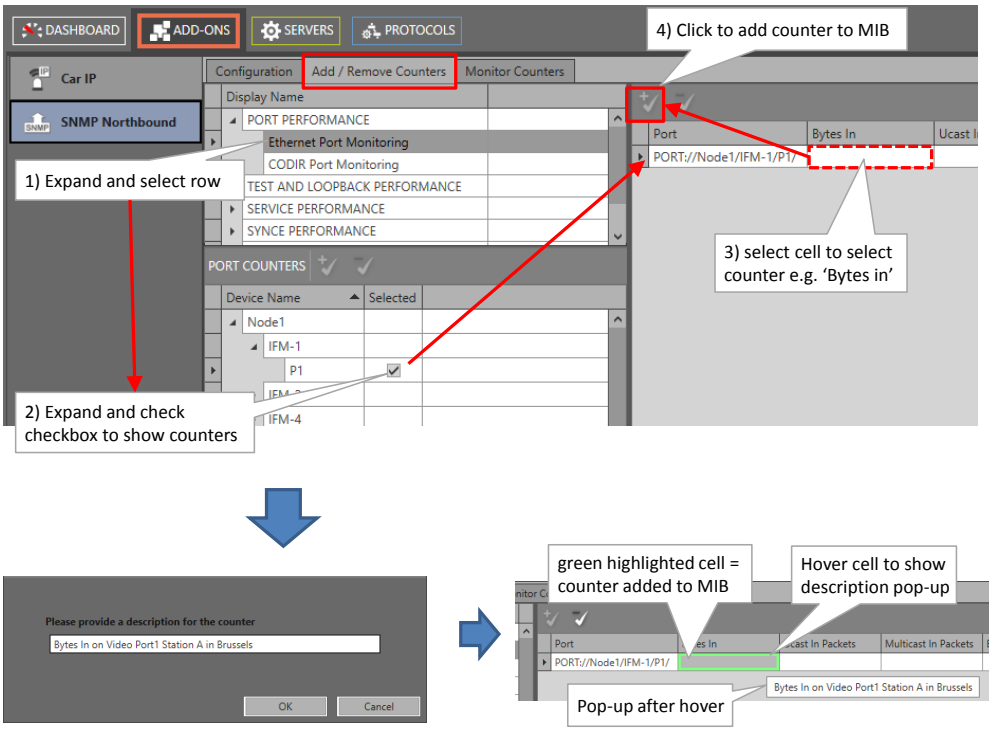

Figure 7 Add/Remove Counters Tab

5.2 Monitor Counters

Every counter added to the MIB via §5.1, will be listed in the Monitor Counters tab. An SNMP manager can request the counter info from HiProvision based on the Counter Id.

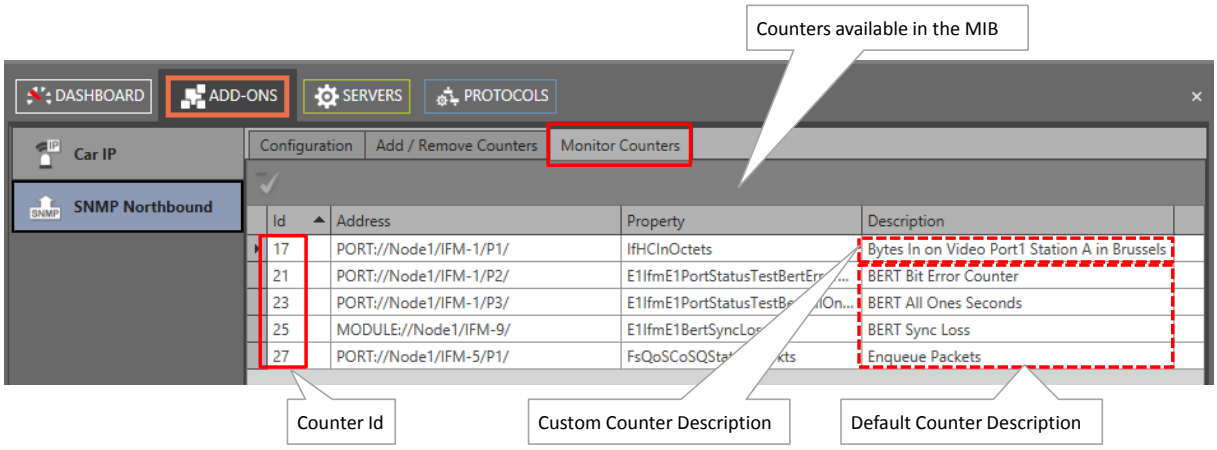

Figure 8 Monitor Counters Tab: Counters Added to MIB

NOTE: A counter can be removed from this list via selecting the row and clicking .

6. ABBREVIATIONS

CAS	Central Alarm System
GUI	Graphical User Interface
LNM	Large Network Monitor
MIB	Management Information Base
MPLS-TP	Multiprotocol Label Switching – Transport Profile
PTN	Packet Transport Network
SNMP	Simple Network Management Protocol
UDP	Universal Data Protocol
URL	Uniform Resource Locator
UTC	Coordinated Universal Time