The SNMPTrap Driver

The SNMPTrap driver allows a North device to notify a network management station of events by sending Simple Network Management Protocol (SNMP) traps. SNMP is widely used to manage and monitor devices on TCP/IP-based networks. It is an Internet standard – IETF RFC 1157. Available for ObSys and Commander.

This document relates to SNMPTrap driver version 1.2

Please read the *Commander Manual* or *ObSys Manual* alongside this document, available from *www.northbt.com*

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Purpose of SNMPTrap Driver

The SNMPTrap driver allows a North device to notify a network management station of events by sending Simple Network Management Protocol (SNMP) traps.

SNMP is widely used to manage and monitor devices on TCP/IP-based networks. It is an Internet standard – IETF RFC 1157.

The driver contains a list of 250 triggers. When a trigger value is set to 'Yes', then a trap notification is sent indicating a condition to the management station. The driver can send traps to up to five management stations.

Each trap notification from the North device includes the trigger number, contained within the SNMP trap message's unique object identifier (OID). In order that a management station understands a trap sent to it, the management station must know what this OID defines. This information is contained within a Management Information Base (MIB) for the device.

As the MIB contains North's unique identifier, North are responsible for creating, publishing, and maintaining any MIB files. Once you have decided on how the driver triggers will be used, we can create a unique MIB identifying the traps to a network management station. Please contact support for further details and pricing.

Values

The driver contains 250 triggers to send SNMP trap notifications. When the trigger value is set, the trap message contains:

- Object identifier (OID) – unique number to identify the trap. An OID has the structure iso(1).org(3).dod(6).internet(1).private(4).north(14949).obsys(1).mib(x).trigger(t), where x is the MIB reference and t the trigger number. For example, '1.3.6.1.4.1.14949.1.99.23'
- Trigger value – if the trap format is set to 'include text', then the trigger's string value is also included in a variable bindings field.

Prerequisites

SNMP version 1 (SNMPv1, RFC 1157) trap notifications only are sent. The driver will not respond to SNMP requests for data. Ensure that the network management station can receive SNMPv1 trap notifications.

Typically, a MIB file will be required by the management station to understand the traps.

If you are connecting via a firewall, then the driver will require access to UDP port 162 on the network management station.

Using the Driver

On ObSys and Commander, the SNMPTrap driver is pre-installed. On all of these North devices, you can use the driver to create an interface to a third-party SNMP management station. Once started, you will need to set up the driver before it can send notifications to the management station.

Starting the Interface

⌨ To start an interface using the SNMPTrap driver, follow these steps:

→ **Start Engineering** your North device using ObSys

→ Navigate to **Configuration, Interfaces,** and set an unused **Interface** to 'SNMPTrap' to start the particular interface

→ Navigate to the top-level of your North device and re-scan it

The driver setup object (M*c*), labelled **SNMP Trap Setup**, should now be available. If this object is not available, check an interface licence is available and the driver is installed.

Setting up the Driver

⌨ To set up the driver, follow these steps:

→ Navigate to the **SNMP Trap Setup** object (M*c*). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'

→ Set **Manager 1: IP address** with the IP address of the network management station

→ Set **MIB reference** to the number provided by North with your MIB file

→ Set **Trap format** to select if you would like to send simple trap notifications, or include text.

Checking Communications

The **Trap notifications sent** object (TS) provides a count of trap notifications sent to network management stations. Note however that a management station does not acknowledge receipt of a trap.

Object Specifications

Once an interface is started, one or more extra objects become available within the top-level object of the device. As with all North objects, each of these extra objects may contain sub-objects, (and each of these may contain sub-objects, and so on) – the whole object structure being a multi-layer hierarchy. It is possible to navigate around the objects using the ObSys Engineering Software.

Each object is specified below, along with its sub-objects.

Example Object Reference

An example of a reference to an object in the same device: the SNMPTrap object (S1) contains a Trap 1 object – therefore the complete object reference is 'S1.T1'.

An example of a reference to an object in a different device: the IP network object (IP) contains the Default Commander object (CDIP), which contains the object above (S1.T1) – therefore the complete object reference is 'IP.CDIP.S1.T1'.

Device Top-Level Objects

When an interface is started using the SNMPTrap driver, the objects below become available within the top-level object of the device. For example, if Interface 1 is started, then the object with references 'M1' and 'S1' become available.

Description	Reference	Type
SNMPTrap Setup Set up the SNMPTrap driver, started on interface c (c is the interface number)	Mc	Fixed Container: On the Commander platform this will be *[CDM v20\SNMPTrap v12]* On the ObSys platform this will be *[OSM v20\SNMPTrap v12]*
SNMP Traps Send trap notifications to network management stations	Sc	Variable Container: *[SNMPTrap v12]*

SNMPTrap Setup

Object Type: *[OSM v20\SNMPTrap v12]*
Object Type: *[CDM v20\SNMPTrap v12]*

The SNMPTrap Setup contains the following objects:

Description	Reference	Type
Manager *x*: IP address Set the IP address for up to five SNMP network management stations. Where *x* is in the range 1…5. Trap notifications will be sent to all management stations	MIP*x*	Obj\IP: Adjustable
SNMP community The SNMP community name is a plain-text password, usually set to 'public'	C	Obj\Text: 20 chars: Adjustable
MIB reference The Management Information Base (MIB) reference is assigned and managed by North when issuing a MIB definition file. This becomes part of the object identifier (OID) for trap notifications. An MIB reference of '0' is invalid and will stop the sending of traps.	MR	Obj\Num: 0, 1..255; Adjustable
Trap format Trap notifications can be sent in a simple granular format, only containing an object identifier (OID), or can additionally include the text value set in the system object	TF	Obj\ENum: Adjustable Values: 0=Simple, 1=Include text
Trap notifications sent Count of trap notifications sent	TS	Obj\Num

SNMP Traps

Object Type: *[SNMPTrap v12]*

SNMP Traps contains 250 triggers that are used to send trap notifications to the configured network management stations.

The **Trap format** driver object (TF) selects the type of SNMP trap notification sent, and the type of trigger value available.

In 'simple' mode, when a trigger value is set to '1' (Yes) then a trap notification is sent. The notification includes an OID field containing the trigger number.

In 'include text' mode, when a trigger value is set to any value (other than '0' or blank) then a trap notification is sent. The notification includes an OID field containing the trigger number, along with a variable bindings field containing the text string value.

In either mode, read the trigger value to find its current state (No/Yes only). Set the trigger value to '0' (No) or blank to clear an active trigger state, no trap notification will be sent.

If a management station requires trap notifications to be sent as a heartbeat, then set a trigger periodically with the same value using the North device's Data Transfer, Essential Data, or ObVerse Processor.

Description	Reference	Type
Trigger *x* Triggers the sending of an SNMP trap notification. The trigger number, *x*, is in the range 1…250	T*x*	Obj\NoYes; Adjustable When trap format is set to 'include text', the type is also: Obj\Text: max 59 chars; Adjustable only

Driver Versions

Version	Build Date	Details
1.0	02/4/2007	Initial driver released
1.1	01/3/2016	Driver reworked. DS object added
1.2	01/1/2012	Added Trap Format (TF) object. Trigger value now supports a text string, which is included in the trap message (variable bindings field)

Next Steps…

If you require help, contact support on 01273 694422 or visit *www.northbt.com/support*

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