

SNMP: Frequently Asked Questions About MIB Theory and Operation

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Questions

Introduction

What tool can I use to capture and analyze SNMP packets and SNMP traps on my workstation? A. On Solaris, use **snoop**, which is located in `/usr/sbin/snoop`.

Why do I have an interface with `ifDescr = Null0` in the `ifTable`?

Some `ifTable` columns do not show up for certain interface types. Why? Is this a bug?

I see two coldstart traps out of the box. Is this a bug?

What is the exact information contained in an SNMP trap, and where is it documented?

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Introduction

This document provides answers to commonly asked questions, and guides users to find helpful resources on Simple Network Management Protocol (SNMP), and SNMP issues as they relate to Cisco equipment.

Q. What tool can I use to capture and analyze SNMP packets and SNMP traps on my workstation? A. On Solaris, use **snoop, which is located in `/usr/sbin/snoop`.**

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Note: You need to be user **root** to be able to capture packets on the wire.

For example:

```
snoop udp port 162
router1 -> host1 UDP D=162 S=1480 LEN=120
```

The above example captured one packet. Device **router1** sends a SNMP-TRAP (UDP port 162) to device **host1**.

You can also use **Ethereal**. Ethereal is a free network protocol analyzer for UNIX systems and Microsoft Windows. Starting from Ethereal release 0.8.0, SNMP packets can be analyzed. You can find Ethereal here .

Q. Why do I have an interface with `ifDescr = Null0` in the `ifTable`?

A. As of Cisco IOS® Software Release 12.0, there is an interface with `ifDescr Null0` showing up in the `ifTable`.

The null interface, `Null0`, is a virtual network interface (similar to the loopback interface). While traffic to the loopback interface is directed to the router itself, traffic sent to the null

interface is discarded.

The null interface may not be configured with an address. Traffic can only be sent to this interface by configuring a static route where the next hop is the Null0 interface. This is done to create a route to an aggregate network that can then be announced through the Border Gateway Protocol (BGP), or to ensure that traffic to a particular range of addresses is not propagated through the router, perhaps for security purposes.

The router always has a single null interface, Null0. By default, a packet sent to the null interface causes the router to respond by sending an Internet Control Message Protocol (ICMP) Unreachable message to the packet's source IP address. You can configure the router either to send these responses or to silently drop the packets.

To disable the sending of ICMP Unreachable messages in response to packets sent to the null interface, in interface configuration mode, type:

```
no ip unreachable
```

To enable the sending of ICMP Unreachable messages in response to packets sent to the null interface, in interface configuration mode, type:

```
ip unreachable
```

Q. Some ifTable columns do not show up for certain interface types. Why? Is this a bug?

A. This is not a bug. The ifTable, based on RFC 1573, is designed specifically so that some columns in a given row are not instantiated based on ifType. Read the RFC compliance statement for further clarification for which columns to expect for different media groups. An example of this would be ATM, which is a fixed-length packet. As such, rows in the ifTable (and others) are based on ifFixedLengthGroup.

Q. I see two coldstart traps out of the box. Is this a bug?

A. This behavior is not a bug. A coldstart trap is normally the first trap (and the first packet) to be sent to a trap destination. The router needs to Address Resolution Protocol (ARP) for the trap destination. Cisco devices drop the trap if an ARP has to be sent out. Therefore, many customers were not seeing the coldstart trap before the fix, which was to send it twice. This is RFC compliant, as the network can also duplicate the coldstart traps. The customer's network management system (NMS) station should be able to handle this (or else it is broken).

Note: To follow this bug ID link and see detailed bug information, you must be a registered (registered customers only) user and you must be logged in.

Q. What is the exact information contained in an SNMP trap, and where is it documented?

A. Each trap is defined in some MIB. To see the exact definition of the trap with the list of objects contained in it, find the trap in SNMP Object Navigator. For example, translate cctCallSetupNotification from CISCO-CALL-TRACKER-MIB and see the results.

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