

ISDN MIB RFC 2127

Feature Summary

The new Integrated Services Digital Network (ISDN) Management Information Base (MIB) RFC 2127 has been designed to provide useful information in accordance with the IETF's new standard for the management of ISDN interfaces. RFC 2127 provides information on the physical Basic Rate Interfaces (BRIs), control and statistical information for B (bearer) and D (signaling) channels, terminal endpoints, and directory numbers.

The ISDN MIB RFC 2127 controls all aspects of ISDN interfaces. It consists of five groups:

- ISDN Physical Interface Group
- B (Bearer) Channel Group
- D (Signaling) Channel Group
- Terminal Endpoint Group
- Directory Number Group (optional)

Benefits

The ISDN MIB RFC 2127 enables you to use any commercial SNMP network management application to support ISDN call processing in Cisco IOS software. You can integrate management of dial access products using ISDN with your existing network management systems.

List of Terms

The following terms pertain to the ISDN MIB RFC 2127:

Basic Rate Interface (BRI)—An ISDN interface composed of two B (bearer) channels and one D (signaling) channel for circuit-switched communication of voice, video, and data.

B (bearer) channel—A full-duplex, 64-kbps channel used to send user data on the ISDN interface.

D (signaling) channel—A full-duplex, 16-kbps (BRI) or 64-kbps (PRI) channel used to carry control signals on the ISDN interface.

full-duplex—The capability of simultaneously transmitting data between a sending station and a receiving station.

Integrated Services Digital Network (ISDN)—A communication protocol, offered by telephone companies, that permits telephone networks to carry data, voice, and other source traffic.

Link Access Procedure on the D Channel (LAPD)—ISDN data link layer (Layer 2) protocol for the D (signaling) channel. LAPD was derived from the Link Access Procedure, Balanced (LAPB) Protocol and is designed primarily to satisfy the signaling requirements of ISDN basic access. It is defined by ITU-T Recommendations Q.920 and Q.921.

Management Information Base (MIB)—Database of network management information that is used and maintained by a network management protocol such as SNMP or CMIP. The value of a MIB object can be changed or retrieved using SNMP or CMIP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.

Network Management System (NMS)—A system responsible for managing at least part of a network. An NMS is generally a reasonably powerful and well-equipped computer, such as an engineering workstation. NMSs communicate with agents to help keep track of network statistics and resources.

Primary Rate Interface (PRI)—An ISDN interface to primary rate access. Primary rate access consists of a single 64-kbps D (signaling) channel plus 23 (T1) or 30 (E1) B channels for voice or data.

Request for Comments (RFC)—Document series used as the primary means for communicating information about the Internet. Some RFCs are designated by the Internet Architecture Board (IAB) as Internet standards. Most RFCs document protocol specifications such as Telnet and FTP, but some are humorous or historical. RFCs are available online from numerous sources.

Simple Network Management Protocol (SNMP)—Network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security.

Service Profile Identifier (SPID)—Number that some service providers use to define the services to which an ISDN device subscribes.

Terminal Endpoint Identifier (TEI)—A field in the LAPD address that identifies a device on an ISDN interface.

trap—Message sent by an SNMP agent to an NMS, console, or terminal to indicate a significant event, such as a specifically defined condition or a threshold being reached.

Restrictions

Physical interface information for PRIs is not part of the ISDN MIB RFC 2127. For information on these physical interfaces, refer to the DS1/E1 MIB.

Platforms

The ISDN MIB RFC 2127 is supported on these platforms:

- Cisco 1003 and 1004 routers
- Cisco 1600 series
- Cisco 2500 series
- Cisco 3600 series
- Cisco 4000-M series (Cisco 4000-M, 4500-M, 4700-M)
- Cisco 7200 series

- Cisco 7500 series
- Cisco AS5200 access servers
- Cisco AS5300 access servers

Prerequisites

Cisco routers need Cisco IOS Release 12.0 T software or later releases of 12.0 T to use the ISDN MIB RFC 2127.

Supported MIBs and RFCs

This feature supports the following MIBs and RFCs:

- RFC 2127
- Cisco's ISDN MIB

For descriptions and instructions on how to use supported MIBs, see the Cisco MIB website on Cisco Connection Online (CCO) at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

Functional Description

The ISDN MIB RFC 2127 is designed so that network management systems and agents on routers will work together to provide important data and statistics about the ISDN interfaces.

The implementation of the new ISDN MIB RFC 2127 does not remove the current support of Cisco's proprietary ISDN MIB.

The support for the ISDN MIB RFC 2127 needs to be bundled with Cisco's proprietary ISDN MIB because the MIB RFC 2127 uses the current MIB's trap generation.

Cisco's ISDN MIB and RFC 2127 work independently; therefore, one can be disabled while the other is enabled.

The ISDN MIB RFC 2127 consists of five groups:

- ISDN Physical Interface Group
- B (Bearer) Channel Group
- D (Signaling) Channel Group
- Terminal Endpoint Group
- Directory Number Group (optional)

ISDN Physical Interface Group

This group provides information regarding the physical BRIs. For PRI (E1 and T1 lines), the physical interfaces are managed by the DS1/E1 MIB, which is not a part of this feature.

B (Bearer) Channel Group

This group controls B (bearer) channels. It supports configuration parameters and statistical information related to B (bearer) channels.

D (Signaling) Channel Group

This group controls D (signaling) channels. There are three tables in this group:

- Signaling Table
- Signaling Statistics Table
- LAPD Table

Signaling Table

This table contains configuration and operational parameters of the ISDN D (signaling) channels.

Signaling Statistics Table

This table contains statistics information of the ISDN D (signaling) channels.

LAPD Table

This table contains configuration and statistics information for LAPD interfaces.

Terminal Endpoint Group

This group contains configuration information for the Terminal Endpoint Identifier (TEI) values and Service Profile Identifier (SPID) numbers associated with the ISDN D (signaling) channel.

Directory Number Group (optional)

This optional group can be used to specify a list of directory numbers for each D (signaling) channel. However, this group is not supported with the current release of this MIB.

Configuration Task

To enable ISDN call notification trap generation, perform the following task:

- Configure Trap Generation

Configure Trap Generation

The new **snmp trap isdn-calls** command allows you to configure ISDN call notification trap generation for individual D (signaling) channels. By default, ISDN call notification trap generation is disabled. To enable trap generation for a specific D (signaling) channel, use the following command in interface configuration mode:

Command	Purpose
snmp trap isdn-calls	Enable ISDN call notification trap generation for a D (signaling) channel.

Configuration Examples

The following example enables ISDN call notification trap generation for the serial 0:23 signaling channel, beginning in privileged EXEC mode.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z
Router(config)#
Router(config)# interface serial 0:23
Router(config-if)# snmp trap ?
    isdn-calls    Allow SNMP ISDN call-information traps
Router(config-if)# snmp trap isdn-calls
```

Command Reference

This section documents new or modified commands.

- **snmp trap isdn-calls**

snmp trap isdn-calls

To enable ISDN call notification trap generation for a D (signaling) channel, use the **snmp trap isdn-calls** interface configuration command. To disable call notification, use the **no** form of this command.

```
snmp trap isdn-calls  
no snmp trap isdn-calls
```

Syntax Description

This command has no arguments or keywords.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 12.0 T.

The **snmp enable traps isdn call-information** command is the system-wide **snmp** command for enabling and disabling trap generation for Cisco's ISDN MIB. But it is not used to generate the RFC 2127 call notification traps.

Example

The following example enables ISDN call notification trap generation for the serial 0:23 signaling channel, beginning in privileged EXEC mode.

```
Router# configure terminal  
Enter configuration commands, one per line. End with CNTL/Z  
Router(config)#  
Router(config)# interface serial 0:23  
Router(config-if)# snmp trap ?  
    isdn-calls      Allow SNMP ISDN call-information traps  
Router(config-if)# snmp trap isdn-calls
```

Related Commands

```
snmp enable traps isdn call-information  
snmp-server enable traps  
snmp-server host  
snmp-server queue-length  
snmp-server trap-source  
snmp-server trap-timeout
```