



Special ISDN Signaling Commands

This chapter describes the commands available to configure special ISDN signaling for dial-up solutions on your router. These signaling features are supported:

- ISDN Advice of Charge (AOC)
- ISDN Non-Facility Associated Signaling (NFAS)
- ISDN semipermanent connections
- Automatic detection of encapsulation type

For information about configuring ISDN special signaling features, see the “Configuring ISDN Special Signaling” chapter of the *Dial Solutions Configuration Guide*.

autodetect encapsulation

To enable automatic detection of the encapsulation types in operation over a point-to-point link to a specified serial or ISDN interface, use the **autodetect encapsulation** interface configuration command. To disable automatic, dynamic detection of the encapsulation types in operation on a link, use the **no** form of this command.

autodetect encapsulation *encapsulation-type*
no autodetect encapsulation

Syntax Description

encapsulation-type One or both of the encapsulation keywords **v120** and **ppp**.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

At least one encapsulation type is required in the command, but you can specify additional encapsulation types.

Use this command to enable the specified serial or ISDN interface to accept calls and dynamically change the encapsulation in effect on the interface when the remote device does not signal the call type. For example, if an ISDN call does not identify the call type in the Lower Layer Compatibility fields and is using an encapsulation that is different from the one configured on the interface, the interface can change its encapsulation type dynamically.

This command enables interoperability with ISDN terminal adapters that use V.120 encapsulation but do not signal V.120 in the call setup message. An ISDN interface that by default answers a call as synchronous serial with PPP encapsulation can change its encapsulation and answer such calls.

Automatic detection is attempted for the first 10 seconds after the link is established or the first five packets exchanged over the link, whichever is first.

Example

The following command line enables automatic detection of V.120 encapsulation.

```
autodetect encapsulation v120
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

encapsulation

cpp authentication

To enable negotiation of authentication with a router or bridge that supports the Combinet Proprietary Protocol (CPP) and that is calling in to this router, use the **cpp authentication** interface configuration command. To disable negotiation of CPP authentication, use the **no** form of this command.

cpp authentication
no cpp authentication

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 11.2.

Use this command for authenticating the device that is calling in to this router.

Use this command to communicate over an ISDN interface with Combinet devices that do not support Point-to-Point Protocol (PPP) but do support the Combinet Proprietary Protocol (CPP).

Currently, most Combinet devices *do* support PPP. Cisco routers can communicate over ISDN with these devices by using PPP encapsulation, which supports both routing and fast switching.

This command is supported on ISDN and dialer interfaces.

This command uses names and passwords from the **username password** command. It does not support the Terminal Access Controller Access Control System (TACACS).

Example

The following example configures a Basic Rate Interface (BRI) to communicate with a Combinet bridge that does not support PPP:

```
interface bri 0
 encapsulation cpp
 cpp callback accept
 cpp authentication
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cpp callback accept
encapsulation cpp
username password

cpp callback accept

To enable the router to accept callback from a Combinet router or bridge that supports the Combinet Proprietary Protocol (CPP), use the **cpp callback accept** interface configuration command.

cpp callback accept

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 11.2.

Use this command to communicate over an ISDN interface with Combinet devices that do not support PPP but do support CPP.

Currently, most Combinet devices *do* support PPP. Cisco routers can communicate over ISDN with these devices by using PPP encapsulation, which supports both routing and fast switching.

This command is supported on ISDN and dialer interfaces.

Example

The following example configures BRI 0 to communicate with a Combinet router or bridge that does not support PPP:

```
interface bri 0
encapsulation cpp
cpp callback accept
cpp authentication
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cpp authentication
encapsulation cpp

dialer isdn short-hold

To configure the router to disconnect a call at the end of the current charging period if the line has been idle for at least the specified minimum period, use the **dialer isdn short-hold** map-class dialer configuration command. To reset the ISDN short-hold timer to the default period, use the **no** form of the command.

```
dialer isdn short-hold seconds  
no dialer isdn short-hold
```

Syntax Description

<i>seconds</i>	Minimum number of seconds of idle time on the line. Default is 120 seconds.
----------------	---

Default

Disabled; the router uses a static idle timeout. When this command is enabled, the default short-hold timeout is 120 seconds.

Command Mode

Map-class dialer configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

This command is used for configuring ISDN Advice of Charge (AOC) on Cisco routers.

Use the **dialer isdn short-hold** command if you subscribe to an ISDN AOC during-call service provided by the local ISDN network and want to use this option. The router uses the frequency at which the network sends the AOC-D message to determine the charging period. If the line has been idle for the short-hold timeout, the call disconnects at the end of the charging period. If the line has not been idle for at least that long, the call is maintained into the next charging period.

Example

The following partial example configures the dialer map class *Deutschland* with a static idle timeout for outgoing calls. The static idle timer is to be used if for any reason the network does not provide charging information. It also configures a short-hold timeout to allow the router to determine dynamically whether to disconnect or continue the call at the end of the charging period.

```
dialer map-class Deutschland  
  dialer idle-timeout 150  
  dialer isdn short-hold 120
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

- dialer idle-timeout (map-class dialer configuration)**
- dialer map (AOC)** (with the **class** keyword)
- dialer string (dialer profiles)**
- map-class dialer**

dialer map (AOC)

To configure an ISDN interface to place a call to multiple sites, to authenticate calls from multiple sites, and to identify the class name that configures the ISDN AOC short-hold idle timeout, use the following form of the **dialer map** interface configuration command:

```
dialer map protocol next-hop-address [name hostname] [spc] [speed 56 | 64] [broadcast]
  class class-name [dial-string[:isdn-subaddress]]
no dialer map protocol next-hop-address [name hostname] [spc] [speed 56 | 64] [broadcast]
  class class-name [dial-string[:isdn-subaddress]]
```

Syntax Description

<i>protocol</i>	Protocol keywords; one of the following: appletalk , bridge , clns , decnet , ip , ipx , novell , snapshot , vines , and xns .
<i>next-hop-address</i>	Protocol address used to match against addresses to which packets are destined. This argument is not used with the bridge protocol keyword.
name <i>hostname</i>	(Optional) Case-sensitive name or ID of the remote device (usually the host name). For routers with ISDN interfaces, if calling line identification—sometimes called <i>CLI</i> , but also known as <i>caller ID</i> and <i>automatic number identification</i> (ANI)—is provided, the <i>hostname</i> field can contain the number that the calling line ID provides.
spc	(Optional) Specifies a semipermanent connection between customer equipment and the exchange; used only in Germany to configure connections between an ISDN BRI and a 1TR6 ISDN switch type.
speed 56 64	(Optional) Line speed in kilobits per second to use. Used for ISDN only. The default speed is 64 kbps.
broadcast	(Optional) Indicates that broadcasts should be forwarded to this protocol address.
class <i>class-name</i>	Name of the class that configures the ISDN AOC static dialer timeout period or the short-hold timeout period or both.
<i>dial-string[:isdn-subaddress]</i>	(Optional) Telephone number and optional ISDN subaddress used for ISDN multipoint connections that are sent to the dialing device when it recognizes packets with the specified next hop address that matches the access lists defined. The dial string and ISDN subaddress, if used, must be the last item in the command line.

Defaults

No dialer map is configured. The default speed is 64 kbps. No default class name is provided.

Command Mode

Interface configuration

Usage Guidelines

A simple version of the **dialer map** command first appeared in Cisco IOS Release 9.1. This version of the **dialer map** command for AOC first appeared in Cisco IOS Release 11.3.

This form of the **dialer map** command is used for configuring ISDN Advice of Charge (AOC) on Cisco routers.

For ISDN interfaces, use the **dialer map** command with the **name** keyword in configurations in which remote sites are calling a central site, but the central site is not calling the remote site. With this command, the local device will authenticate the remote site using CHAP or PAP, which will transmit the remote site's host name to the central site. The central site will then use this name to authenticate the caller, and will use the next hop address to transmit packets to the remote site. Because there is no dialer string specified, the central site cannot call the remote router.

For ISDN interfaces only, you can specify an optional speed parameter for **dialer map** commands if you also specify a dial string. This option informs the ISDN software whether it should place a call at 56 or 64 kbps. If you omit the ISDN speed parameter, the default is 64 kbps.

For routers with ISDN interfaces, if calling line identification (CLI)—also known as *caller ID* and *ANI*—is provided, the *hostname* field may contain the number that calling line ID provides.

Use the **dialer map** command with the **class** keyword for outgoing calls when the network provides ISDN Advice of Charge (AOC) information. Use the **map-class dialer** global command to identify the class name, the **dialer idle-timeout** map-class command to define a static idle timeout period for outgoing calls to the class, and the **dialer isdn short-hold** map-class command to define the minimum idle time to wait before disconnecting calls at the end of the charging period.

Example

In the following legacy DDR example, a BRI interface is configured with dialer map classes to use for outgoing calls and a dialer idle timeout period to use for all incoming calls. All of the map classes are configured with dialer idle timeout periods that override the interface static dialer idle timeout for outgoing calls. Two map classes are also configured for an ISDN AOC short-hold idle timeout.

```
hostname A
!
username c2503isdn password 7 1511021F0725
username B password 7 110A1016141D29
username C password 7 1511021F072508
isdn switch-type basic-net3
!
interface bri 0
 ip address 10.0.0.35 255.0.0.0
 encapsulation ppp
 dialer idle-timeout 150
 dialer map ip 10.0.0.33 name c2503isdn class Iota 06966600050
 dialer map ip 10.0.0.40 name B class Beta 778578
 dialer map ip 10.0.0.45 name C class Kappa 778579
 ppp authentication chap
!
map-class dialer Kappa
 dialer idle-timeout 300
 dialer isdn short-hold 10
!
map-class dialer Iota
 dialer idle-timeout 300
```

dialer map (AOC)

```
!  
map-class dialer Beta  
  dialer idle-timeout 300  
  dialer isdn short-hold 10
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

dialer isdn short-hold
map-class dialer
ppp authentication chap
username

dialer map (SPC)

To set up network addressing on an ISDN BRI interface to support semipermanent connections (if the ISDN switch supports such connections), use the following form of the **dialer map** interface configuration command.

```
dialer map protocol next-hop-address [name hostname] [spc] [speed 56 | 64] [broadcast]
dial-string[:isdn-subaddress]
no dialer map protocol next-hop-address [name hostname] [spc] [speed 56 | 64] [broadcast]
dial-string[:isdn-subaddress]
```

Syntax Description

<i>protocol</i>	Protocol keywords; one of the following: appletalk , bridge , clns , decnet , ip , ipx , novell , snapshot , vines , and xns .
<i>next-hop-address</i>	Protocol address used to match against addresses to which packets are destined. This argument is not used with the bridge protocol keyword.
name <i>hostname</i>	(Optional) Case-sensitive name or ID of the remote device (usually the host name). For routers with ISDN interfaces, if calling line identification—sometimes called <i>CLI</i> , but also known as <i>caller ID</i> and <i>automatic number identification</i> (ANI)—is provided, the <i>hostname</i> field can contain the number that the calling line ID provides.
spc	(Optional) Specifies a semipermanent connection between customer equipment and the exchange; used only in Germany to configure connections between an ISDN BRI and a 1TR6 ISDN switch type.
speed 56 64	(Optional) Line speed in kilobits per second to use. Used for ISDN only. The default speed is 64 kbps.
broadcast	(Optional) Indicates that broadcasts should be forwarded to this protocol address.
<i>dial-string[:isdn-subaddress]</i>	(Optional) Telephone number and optional ISDN subaddress used for ISDN multipoint connections that are sent to the dialing device when it recognizes packets with the specified next hop address that matches the access lists defined. The dial string and ISDN subaddress, if used, must be the last item in the command line.

Defaults

No dialer map is configured. The default speed is 64 kbps. No default class name is provided.

Command Mode

Interface configuration

Usage Guidelines

A simple version of the **dialer map** command first appeared in Cisco IOS Release 9.1 for synchronous serial interfaces using V.25bis dialing.

Typically, this implementation is applicable for BRI in Germany only.

For ISDN interfaces, use the **dialer map** command with the **name** keyword in configurations in which remote sites are calling a central site, but the central site is not calling the remote site. With this command, the local device will authenticate the remote site using CHAP or PAP, which will transmit the remote site's host name to the central site. The central site will then use this name to authenticate the caller, and will use the next hop address to transmit packets to the remote site. If no dialer string specified, the central site cannot call the remote router.

For ISDN interfaces only, you can specify an optional speed parameter for **dialer map** commands if you also specify a dial string. This option informs the ISDN software whether it should place a call at 56 or 64 kbps. If you omit the ISDN speed parameter, the default is 64 kbps.

For routers with ISDN interfaces, if calling line identification (CLI)—also known as *caller ID* and *ANI*—is provided, the *hostname* field may contain the number that calling line ID provides.

Example

The following example configures the interface for semipermanent connections in Germany; the IP address and the phone number are provided.

```
dialer map ip 192.36.48.2 spc 49302345655:3789
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

dialer isdn short-hold
map-class dialer
ppp authentication chap
username

encapsulation cpp

To enable encapsulation for communication with routers or bridges using the Combinet Proprietary Protocol (CPP), use the **encapsulation cpp** interface configuration command. Use the **no** form of this command to disable CPP encapsulation.

encapsulation cpp
no encapsulation cpp

Syntax Description

This command has no keywords or arguments.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Use this command to communicate over an ISDN interface with Combinet devices that do not support PPP but do support CPP.

Currently, most Combinet devices *do* support PPP. Cisco routers can communicate over ISDN with these devices by using PPP encapsulation, which supports both routing and fast switching.

Combinet devices support only IP, IPX, and bridging. For AppleTalk, Cisco routers automatically perform half-bridging with Combinet devices.

This command is supported on ISDN BRIs and Primary Rate Interfaces (PRIs) only.

Example

The following example configures BRI 0 to communicate with a Combinet router or bridge that does not support PPP:

```
interface bri 0
  encapsulation cpp
  cpp callback accept
  cpp authentication
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cpp authentication
cpp callback accept

isdn flip-chan-flag

To invert the value of the extend bit (0x80) in the last octet of the channel ID information element, use the **isdn flip-chan-flag** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

```
isdn flip-chan-flag  
no isdn flip-chan-flag
```

Syntax Description

This command has no arguments or keywords.

Default

The last octet of the channel ID information element is not inverted.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

Use this command if you use a primary-DMS 100 switch type to ensure compatibility with a Setup or Call Proceeding message containing a channel ID information element. This command can be used only with ISDN PRI.

Example

The following example configures the router to invert the extended bit in the last octet of the channel ID information element:

```
isdn flip-chan-flag
```

isdn leased-line bri

To configure an ISDN BRI for leased-line service at 128 kbps, use the **isdn leased-line bri 128** global configuration command.

```
isdn leased-line bri number 128  
no isdn leased-line bri number 128
```

Syntax Description

number BRI interface number.

Default

Disabled

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2 F.

Use this command to aggregate two B channels into a single pipe at a speed of 128 kbps. This service is available only for ISDN BRI.

When you use an ISDN BRI interface for access over leased lines, configure the ISDN BRI as a synchronous serial interface. Do not configure ISDN calling and called numbers.

Examples

The following example configures the BRI 0 interface for leased-line access at 128 kbps in Japan. Because of the leased-line—not dialed—environment, configuration of ISDN called and calling numbers is not needed and not used. The BRI 0 interface is henceforth treated as a synchronous serial interface, with the default HDLC encapsulation.

```
isdn leased-line bri 0 128
```

The following example configures the BRI 0 interface for PPP encapsulation:

```
interface bri 0  
ip address 1.1.1.2 255.255.255.0  
encapsulation ppp  
bandwidth 128
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

isdn switch-type

isdn service

To take an individual B channel or an entire PRI interface out of service or set it to a different channel service state that is passed in to the switch, use the **isdn service** interface configuration command.

isdn service dsl number b_channel number state state-value
no isdn service dsl number b_channel number state state-value

Syntax Description

dsl number	Digital subscriber loop number; displayed with the show isdn status command.
b_channel number	B channel or range of B channels to be set with the passed-in state value. The b_channel 0 keyword sets the entire PRI interface to a specified state value. B channel numbers range from 1 to 24.
state state-value	Desired channel service state to be set on the channels. The following channel service state values are supported: 0—In service 1—Maintenance 2—Out of service

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

This command is used to configure the ISDN Non-Facility Associated Signaling (NFAS) feature on Cisco routers.

Use the **b_channel 0** keyword to set the entire PRI interface to the specified state value.

Use the **show isdn status** command to display the digital subscriber loop (DSL) value. Use the **show isdn service** command to display the service states that were set by the **isdn service** command.

Examples

The following example sets the entire PRI interface to maintenance state; the digital signal link value was displayed and then used in the command:

```
isdn service dsl 3 b_channel 0 state 1
```

The following example puts B channel 11 out of service; the DSL value was displayed and then used in the command:

```
isdn service dsl 3 b_channel 11 state 2
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show isdn service

show isdn status

pri-group timeslots nfas_d

To configure NFAS and specify the channels to be controlled by the primary NFAS D channel, use the **pri-group timeslots nfas_d** controller configuration command.

```
pri-group timeslots range nfas_d [primary | backup | none] nfas_int number
nfas_group group-id-number
```

Syntax Description

<i>range</i>	Channels in the range from 1 to 24. A range of channels is shown with a hyphen (-).
primary	(Optional) Function of channel 24: the primary NFAS D channel.
backup	(Optional) Function of channel 24: the backup NFAS D channel.
none	(Optional) Function of channel 24: B channel.
nfas_int <i>number</i>	Value in the range 0 to 9 assigned by the service provider to ensure unique identification of a PRI interface. The 0 interface number should be assigned to the primary NFAS D channel.
nfas_group <i>group-id-number</i>	Group identifier in the range from 1 to 24 that is unique on the router. Multiple NFAS groups can exist on the router.

Default

Disabled

Command Mode

Controller configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

NFAS allows a single D channel to control multiple PRI interfaces. Use of a single D channel to control multiple PRI interfaces frees one B channel on each interface to carry other traffic. A backup D channel can also be configured for use when the primary NFAS D channel fails. When a backup D channel is configured, any hard system failure causes a switch over to the backup D channel and currently connected calls remain connected.

NFAS is supported only with a channelized T1 controller and, as a result, must be ISDN PRI-capable. Once the channelized T1 controllers are configured for ISDN PRI, only the NFAS primary D channel must be configured; its configuration is distributed to all members of the associated NFAS group. Any configuration changes made to the primary D channel will be propagated to all NFAS group members. The primary D channel interface is the only interface shown after the configuration is written to memory.

The channelized T1 controllers on the router must also be configured for ISDN. The router must connect to either an AT&T 4ESS, Northern Telecom DMS-100 or DMS-250, or National ISDN switch type.

The ISDN switch must be provisioned for NFAS. The primary and backup D channels should be configured on separate T1 controllers. The primary, backup, and B-channel members on the respective controllers should be the same configuration as that configured on the router and ISDN switch. The interface ID assigned to the controllers must match that of the ISDN switch.

You can disable a specified channel or an entire PRI interface, thereby taking it out of service or placing it into one of the other states that is passed in to the switch using the **isdn service** interface configuration command.

In the event that a controller belonging to an NFAS group is shut down, all active B-channel calls on the controller that is shut down will be cleared (regardless of whether the controller is set to primary, backup, or none), and one of the following events will occur:

- If the controller that is shut down is configured as the primary and no backup is configured, all active calls on the group are cleared.
- If the controller that is shut down is configured as the primary, and the active (In service) D channel is the primary and a backup is configured, then the active D channel changes to the backup controller.
- If the controller that is shut down is configured as the primary, and the active D channel is the backup, then the active D channel remains as backup controller.
- If the controller that is shut down is configured as the backup, and the active D channel is the backup, then the active D channel changes to the primary controller.
- The active D channel changeover between primary and backup controllers happens only when one of the link fails and not when the link comes up. The T309 timer is triggered when the changeover takes place.

Example

The following example configures T1 controller 1/0 for PRI and for the NFAS primary D channel. This primary D channel controls all the B channels in NFAS group 1.

```
controller t1 1/0
  framing esf
  linecode b8zs
  pri-group timeslots 1-24 nfas_d primary nfas_int 0 nfas_group 1
```

Related Command

You can use the master indexes or search online to find documentation of related commands.

show isdn nfas group

show isdn

To display the information about memory, Layer 2 and Layer 3 timers, and the status of PRI channels, use the **show isdn** global configuration command.

show isdn { **active** | **history** | **memory** | **services** | **status** [*dsl* | *interface-type number*] | **timers** }

Syntax Description

active	Displays current call information, including called number, the time until the call is disconnected, AOC charging units used during the call, and whether the AOC information is provided during calls or at end of calls.
history	Displays historic and current call information, including the called number, the time until the call is disconnected, AOC charging time units used during the call, and whether the AOC information is provided during calls or at the end of calls.
memory	Displays memory pool statistics. This keyword is for use by technical development staff only.
services	Displays the status of PRI channels.
status [<i>dsl</i> <i>interface-type number</i>]	Displays the status of all ISDN interfaces or, optionally, a specific digital signal link (DSL) or a specific ISDN interface. Values of <i>dsl</i> range from 0 to 15. <i>Interface-type</i> can be bri or serial .
timers	Displays the values of Layer 2 and Layer 3 timers.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Sample Displays

The following is sample output from the **show isdn active** command:

```
Router# show isdn active

-----
                          ISDN ACTIVE CALLS
-----
History Table MaxLength = 320 entries
History Retain Timer = 15 Minutes
-----
Call Calling      Called      Duration  Remote   Time until  Recorded Charges
Type Number      Number      Seconds   Name     Disconnect  Units/Currency
-----
Out              9876543222  Active(10) idacom    11        u(E)
Out              9876543210  Active(34) idacom 115      5         u(D)
-----
```

The following is sample output from the **show isdn history** command:

```
Router# show isdn history

-----
                          ISDN CALL HISTORY
-----
History Table MaxLength = 320 entries
History Retain Timer = 15 Minutes
-----
Call Calling      Called      Duration  Remote   Time until  Recorded Charges
Type Number      Number      Seconds   Name     Disconnect  Units/Currency
-----
Out              47887654    240      blackcanary
In   67893         90        delorean
Out              56745678    Active(90) blackcanary  240    13    u(D)
-----
```

Table 59 describes the fields in the **show isdn active** and **show isdn history** output displays.

Table 59 Show ISDN Active and Show ISDN History Field Descriptions

Field	Description
History Table MaxLength	Maximum number of entries that can be retained in the Call History table.
History Retain Timer	Maximum number of seconds any entry can be retained in the Call History table.
Call Type	Type of call: incoming or outgoing.
Calling Number	For incoming calls, the number from which the call was received.
Called Number	For outgoing calls, the number to which the call was placed.
Duration Seconds	Number of seconds the call lasted. Indicates whether the call is still active, and how many seconds it has lasted so far.
Remote Name	Name of the host placing the call or the host called.
Time until Disconnect	Number of seconds before the call is configured to disconnect because of the static idle timer for the map class or the interface.
Recorded Charges Units/Currency	For outgoing calls, number of ISDN AOC charging units used or the currency cost of the call.

show isdn nfas group

To display all the members of a specified NFAS group or all NFAS groups, use the **show isdn nfas group** privileged EXEC command.

```
show isdn nfas group [id-number]
```

Syntax Description

id-number (Optional) Identifier number in the range from 1 to 24 of a specific NFAS group.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

Sample Display

The following is sample output from the **show isdn nfas group** command:

```
Router# show isdn nfas group 1

ISDN NFAS GROUP 1 ENTRIES:

The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.

There are 3 total nfas members.
There are 93 total available B channels.
The primary D-channel is DSL 0 in state INITIALIZED.
The backup D-channel is DSL 1 in state INITIALIZED.
The current active layer 2 DSL is 1.
```

The following three examples show the D-channel state changes when rollover occurs from the primary NFAS D channel to the backup D channel. The first example shows the output with the primary D channel in service and the backup D channel in standby.

```
Router# show isdn nfas group 0

ISDN NFAS GROUP 0 ENTRIES:

The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.

There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state IN SERVICE.
The backup D-channel is DSL 1 in state STANDBY.
The current active layer 2 DSL is 0.
```

The second example shows the output in the middle of rollover. The configured primary D channel is in maintenance busy state and the backup D channel is waiting.

```
Router# show isdn nfas group 0

ISDN NFAS GROUP 0 ENTRIES:

The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.

There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state MAINTENANCE BUSY.
The backup D-channel is DSL 1 in state WAIT.
The current active layer 2 DSL is 1.
```

The third example shows the output when rollover is complete. The configured primary D channel is now in standby and the backup D channel is in service.

```
Router# show isdn nfas group 0

ISDN NFAS GROUP 0 ENTRIES:

The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.

There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state STANDBY.
The backup D-channel is DSL 1 in state IN SERVICE.
The current active layer 2 DSL is 1.
```

Table 60 describes the fields in the sample output.

Table 60 Show ISDN NFAS Group Field Descriptions

Field	Description
The primary D is Serial1/0:23.	Identifies the primary D channel.
The backup D is Serial1/1:23.	Identifies the backup D channel.
The NFAS member is Serial2/0:23.	Identifies the NFAS group.
There are 3 total nfas members.	Number of member interfaces in the group.
There are 70 total available B channels.	Number of B channels in this NFAS group.
The primary D-channel is DSL 0 in state STANDBY.	Service state of the NFAS primary D channel; this D channel is in service.
The backup D-channel is DSL 1 in state IN SERVICE.	Service state of the NFAS backup D channel; this D channel is in service. The states are In service, Standby, Out of service, Maintenance, Wait, Initialized, and Busy.
The current active layer 2 DSL is 1.	Digital subscriber loop (DSL) identifier assigned by the service provider. If both D channels are out of service, the value displayed in this line is -1.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

pri-group timeslots nfas_d

show isdn service

To display the state and the service status of each ISDN channel, use the **show isdn service** privileged EXEC command.

show isdn service

Syntax Description

This command has no arguments or keywords.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

Sample Display

The following is sample output from the **show isdn service** command when PRI is configured on a T1 controller:

```
Router# show isdn service

PRI Channel Statistics:
ISDN Se0:15, Channel (1-31)
  Activated dsl 8
  State (0=Idle 1=Propose 2=Busy 3=Reserved 4=Restart 5=Maint)
  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  Channel (1-31) Service (0=Inservice 1=Maint 2=Outofservice)
  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

Table 61 describes the fields in this sample output.

Table 61 Show ISDN Service Field Descriptions

Field	Description
ISDN Se1/0:23	ISDN PRI interface corresponding to serial interface 1/0:23.
Channel (1-31)	Channel range "1-31" is a standard format for both T1 and E1 outputs, but the state value shown identifies whether the channel is used.
Activated dsl 0	The digital signal link (DSL) value is 0.
State (0=Idle 1=Propose 2=Busy 3=Reserved 4=Restart 5=Maint)	Current state of each channel. Channels 24 through 31 are marked as reserved when the output is from T1.
Channel (1-31) Service (0=Inservice 1=Maint 2=Outofservice)	Service state assigned to each channel. Channel 24 is marked as out of service. ¹

¹ If channel 24 (marked as out of service) is configured as the NFAS primary D channel, NFAS will roll over to the backup D channel if one is configured. If channel 24 is a B channel, calls will not be accepted to it.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

isdn service