



Leased and Switched BRI Interfaces for ETSI NET3

Feature History

Release	Modification
12.2(4)T	This feature was introduced on the Cisco 800 series routers.

This document describes the Leased and Switched BRI Interfaces for ETSI NET3 feature. It includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 2](#)
- [Supported Standards, MIBs, and RFCs, page 3](#)
- [Prerequisites, page 3](#)
- [Configuration Tasks, page 3](#)
- [Monitoring and Maintaining Leased and Switched BRI Interfaces for ETSI NET3, page 5](#)
- [Configuration Examples, page 5](#)
- [Command Reference, page 6](#)

Feature Overview

In most BRI configurations, both B channels of a leased-line service are used as point-to-point leased lines with the D channel disabled. Data transmission over the B channels is no different than data transmission over point-to-point leased lines.

A new feature available in Cisco IOS Release 12.2(4)T, Leased and Switched BRI Interfaces for ETSI NET3, allows one BRI B channel on a European Telecommunications Standards Institute (ETSI) NET3 switch to be configured as a leased line, and the second B channel to be configured as a standard ISDN or dial interface and used as a switched channel to the Public Switched Telephone Network (PSTN). When the Leased and Switched BRI Interfaces for ETSI NET3 feature is configured, one B channel functions as a point-to-point 64-kbps leased line and the other B channel functions as a circuit-switched channel using the D channel to provide the signaling features available for the ETSI NET3 signaling protocol.



Benefits

The Leased and Switched BRI Interfaces for ETSI NET3 feature allows Internet service providers to split one ISDN line into a leased-line interface and a dialer interface, thereby increasing connection capability without increasing cost.

Restrictions

The following restrictions apply to the Leased and Switched BRI Interfaces for ETSI NET3 feature:

- Only the ETSI NET3 signaling protocol is supported at a line speed of 64 kbps.
- Only one ISDN call can be active at any time, and the call must verify that the leased line is not used to bring up a second call.
- The ETSI NET3 switch cannot be configured for a leased line when the U interface is used instead of the S/T interface; doing so prevents the line protocol from coming up.

Related Documents

- *Cisco IOS Dial Technologies Command Reference*, Release 12.2
- *Cisco IOS Dial Technologies Configuration Guide*, “ISDN Configuration” part, Release 12.2

Supported Platforms

- Cisco 800 series

Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at <http://www.cisco.com/register>.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. As of May 2001, Feature Navigator supports M, T, E, S, and ST releases. You can access Feature Navigator at the following URL:

<http://www.cisco.com/go/fn>

Supported Standards, MIBs, and RFCs

Standards

None

MIBs

The `fillin_isdnBearerEntry() – isdnBearerTable` manipulation MIB function is supported. See the “RFCs” section for more information.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgt/cmtk/mibs.shtml>

RFCs

- RFC 2127, *ISDN Management Information Base using SMIPv2*

RFC 2127 states that the following be reported for the leased line B channel: The `isdnBearerTable` MIB entry for the leased line B channel will need to be altered, specifically the value of `isdnBearerChannelType` MIB will be set to `leased(2)`. This alteration involves a function in `isdn/sr_ietf_isdmib.c`, namely the `fillin_isdnBearerEntry() — isdnBearerTable` manipulation MIB function.

- RFC 1573, *Evolution of the Interfaces Group of MIB-II*

RFC 1573 makes no explicit mention of changes to the `ifEntry` for a B channel set to leased line. It is proposed that the `ifAdminStatus` and `ifOperStatus` functions remain in the `UP(1)` state.

Prerequisites

Before starting the configuration tasks in this document, review the chapter “Configuring ISDN BRI” and the section “Configuring ISDN BRI for Leased-Line Service,” for more complete details on configuring a BRI. This chapter is in the part “ISDN Configuration” in the *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2.

Configuration Tasks

See the following sections for configuration tasks for the Leased and Switched BRI Interfaces for ETSI NET3 feature. Each task in the list is identified as either required or optional:

- [Configuring Leased and Switched BRI Interfaces for ETSI NET3](#) (required)
- [Verifying Leased and Switched BRI Interfaces for ETSI NET3](#) (optional)

Configuring Leased and Switched BRI Interfaces for ETSI NET3

To configure a BRI for both an ISDN connection and leased-line service, use the following commands in global configuration mode:

	Command	Purpose
Step 1	Router(config)# isdn switch-type basic-net3	Configures the ETSI NET3 BRI switch type.
Step 2	Router(config)# isdn leased-line bri number/number {b1 b2}	Splits a line for both ISDN and 64-kbps leased-line service.

Verifying Leased and Switched BRI Interfaces for ETSI NET3



Note

In the following verification procedure, BRI channel B1 (the BRI0:1 interface) is configured for leased-line service and channel B2 (the BRI0:2 interface) is configured for ISDN.

To verify that each BRI channel is configured correctly, perform the following steps:

- Step 1** Enter the **show isdn status EXEC** command and check the value in The Free Channel Mask field to verify that only one channel has been allocated for ISDN. The Free Channel Mask field displays 0x80000000 when there is an active call. If no call is active, The Free Channel Mask field displays 0x80000001 and 0x80000002 for the B1 and B2 leased line configurations, respectively.

```
Router# show isdn status

Global ISDN Switchtype = basic-net3
ISDN BRI0 interface
    dsl 0, interface ISDN Switchtype = basic-net3
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 124, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
        I_Queue_Len 0, UI_Queue_Len 0
    Layer 3 Status:
        1 Active Layer 3 Call(s)
        CCB:callid=8001, sapi=0, ces=1, B-chan=2, calltype=DATA
    Active dsl 0 CCBs = 1
    The Free Channel Mask: 0x80000000
    Total Allocated ISDN CCBs = 1
```

- Step 2** Enter the **show dialer EXEC** command to display dialer interface statistics. Check that there is no entry for the BRI0:1 interface in the display:

```
Router# show dialer

BRI0 - dialer type = ISDN

Dial String      Successes  Failures  Last DNIS  Last status
0 incoming call(s) have been screened.
0 incoming call(s) rejected for callback.

BRI0:2 - dialer type = ISDN
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle

Di1 - dialer type = DIALER PROFILE
Idle timer (6000 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
```

Number of active calls = 0

Dial String	Successes	Failures	Last DNIS	Last status	Default
5552000	0	0	never	-	Default

Troubleshooting Tips

To test the BRI configurations, use the following commands in EXEC mode, as needed:

Command	Purpose
Router# show controllers bri number	Checks Layer 1 of the BRI.
Router# debug q921	Checks Layer 2 of the BRI.
Router# debug dialer	Checks dialer events on the BRI.
Router# debug isdn events	Checks call control events on the BRI.
Router# debug q931	Checks Layer 3 of the BRI.

Refer to the *Cisco IOS Debug Command Reference* for more information about the **debug** commands.

Monitoring and Maintaining Leased and Switched BRI Interfaces for ETSI NET3

To monitor and maintain the BRI configurations, use the following commands in EXEC mode, as needed:

Command	Purpose
Router# show isdn status	Displays Layer 1, Layer 2, and Layer 3 status of the D channel and channel mask information.
Router# show interfaces bri x:y status	Displays status of the ISDN BRI channel configured as either a leased line or dialer B-channel interface.
Router# show dialer	Displays status of the ISDN BRI channel configured as a dialer interface.

Configuration Examples

This section provides an example of how to configure the Leased and Switched BRI Interfaces for ETSI NET3 feature.

Leased and Switched BRI Interfaces for ETSI NET3 Example

The following example configures BRI channel B2 for 64-kbps leased-line service and channel B1 for ISDN service:

```
isdn leased-line bri0/0 b2
!
interface bri0/0
 ip address 10.1.1.1 255.255.255.0
 no ip address
 dialer pool-member 1

interface bri0/0:2
 ip address 10.1.1.2 255.255.255.0
 encapsulation ppp
 no ip address
```

Command Reference

The following commands are introduced or modified in the feature or features documented in this module. For information about these commands, see the *Cisco IOS Dial Technologies Command Reference* at http://www.cisco.com/en/US/docs/ios/dial/command/reference/dia_book.html. For information about all Cisco IOS commands, go to the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or to the *Cisco IOS Master Commands List*.

- **isdn leased-line bri**

Glossary

European Telecommunications Standards Institute—See ETSI.

ETSI—European Telecommunications Standards Institute. Organization created by European Post, Telephone, and Telegraph (PTT) groups and the European Community (EC) to propose telecommunications standards for Europe.

leased line—Transmission line reserved by a communications carrier for the private use of a customer.

switched—General term applied to an electronic or mechanical device that allows a connection to be established as necessary and terminated when there is no longer a session to support.

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