

# AppleTalk over ISDN with DDR

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## Introduction

This configuration is for a dial-on-demand routing (DDR) setup. The user needs to ping an AppleTalk node located at a remote site in order to bring up the link. Use the **dialer idle-timeout *number*** interface BRI0 command in order to control how long the link stays up without interesting traffic. In this example, the Cisco 2501 dials the Cisco AS5200 based on the AppleTalk static routes and dialer maps that have been configured. This allows the AppleTalk ping packets to reach the Ethernet node of the Cisco AS5200.

**Note:** IP has not been configured in this example.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This document is not restricted to specific software and hardware versions.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Configure

In this section, you are presented with the information to configure the features described in this document.

**Note:** Use the Command Lookup Tool ( registered customers only) to find more information on the commands

used in this document.

## Network Diagram

This document uses this network setup:



## Configurations

This document uses these configurations:

```
Cisco AS5200
Current configuration:
!
version 11.2
!
hostname isdn2-2
!
AppleTalk routing
AppleTalk route-redistribution
!
controller T1 0
 framing esf
 clock source line primary
 linecode b8zs
 pri-group timeslots 1-24
 description 5557528 pri
!
interface Ethernet0
 appletalk cable-range 2002-2002 2002.2
 appletalk zone as5200-ether
!
interface Serial0:23
 encapsulation ppp
 appletalk cable-range 4615-4615 4615.106
 appletalk zone SL
 no appletalk send-rtmps
 isdn incoming-voice modem
 dialer map appletalk 4615.34 name isdn-1 broadcast
 dialer-group 1
 no fair-queue
 no cdp enable
 ppp authentication pap
 ppp pap sent-username isdn2-2 password 7 13061E010803
 ppp multilink
!
interface Group-Async1
!
access-list 601 permit other-access broadcast-deny
dialer-list 1 protocol appletalk permit
!
line con 0
 exec-timeout 0 0
```

```
line 1-24
!
end

isdn2-2#
```

## Cisco 2501

Current configuration:

```
!
version 11.2
!
hostname isdn-1
!
no ip domain-lookup
appletalk routing
appletalk route-redistribution
isdn switch-type basic-5ess
!
interface Ethernet0
!
interface BRI0
encapsulation ppp
no ip mroute-cache
appletalk cable-range 4615-4615 4615.34
appletalk zone SL
no appletalk send-rtmps
dialer idle-timeout 600
dialer map appletalk 4615.106 name isdn2-2 broadcast 5557528
dialer load-threshold 2 outbound
dialer-group 1
no fair-queue
ppp authentication pap
ppp pap sent-username isdn-1 password 7 02050D480809
ppp multilink
!
access-list 601 permit other-access broadcast-deny
!
appletalk static cable-range 2002-2002 to 4615.106 zone AS5XXX
!
dialer-list 1 protocol appletalk list 601
!
line con 0
line aux 0
line vty 0 4
login
!
end

isdn-1#
```

## Verify

Use this section to confirm that your configuration works properly.

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

- **show apple zone** In order to see the AppleTalk zones
- **show apple route** In order to see the routing entries in the routing table

## Show Command Sample Output

This is the output of the **show dialer map** command for both routers:

```
isdn-1:
  Static dialer map appletalk 4615.106 name isdn2-2 (5557528) on BRI0

isdn2-2:
  Static dialer map appletalk 4615.34 name isdn-1 () on Serial0:23
```

This is the output of the **show apple zone** and **show apple route** commands for the Cisco 2501:

```
isdn-1#show apple zone
  Name
  Network(s)
  AS5XXX
  2002-2002
  SL
  4615-4615
  Total of 2 zones
isdn-1#show apple route
  Codes: R - RTMP derived, E - EIGRP derived, C - connected, A - AURP
         S - static P - proxy
  2 routes in internet

  The first zone listed for each entry is its default (primary) zone.

  S Net 2002-2002 [1/G] via 4615.106, 1142 sec, BRI0, zone AS5XXX
  C Net 4615-4615 directly connected, BRI0, zone SL
isdn-1#
```

This is the output of the **show apple zone** and **show apple route** commands for the Cisco AS5200:

```
isdn2-2#show apple zone
  Name
  Network(s)
  as5200-ether
  2002-2002
  SL
  4615-4615
  Total of 2 zones
isdn2-2#show apple route
  Codes: R - RTMP derived, E - EIGRP derived, C - connected, A - AURP
         S - static P - proxy
  2 routes in internet

  The first zone listed for each entry is its default (primary) zone.

  C Net 2002-2002 directly connected, Ethernet0, zone as5200-ether
  C Net 4615-4615 directly connected, Serial0:23, zone SL
isdn2-2#
```

## Troubleshoot

Use this section to troubleshoot your configuration.

### Troubleshooting Commands

**Note:** Refer to Important Information on Debug Commands before you use **debug** commands.

- **debug ppp negotiation** In order to see if a client is passing PPP negotiation; this is when you check for address negotiation.
- **debug ppp authentication** In order to see if a client is passing authentication
- **debug ppp error** In order to display protocol errors and error statistics associated with PPP connection negotiation and operation
- **debug isdn q931** In order to see ISDN Q.931 events and debugs

## Debug for the Cisco 2501

```

isdn-1#ping
  Protocol [ip]: appletalk
  Target AppleTalk address: 2002.2
  Repeat count [5]: 20
  Datagram size [100]:
  Timeout in seconds [2]:
  Verbose [n]:
  Sweep range of sizes [n]:
  Type escape sequence to abort.
  Sending 20, 100-byte AppleTalk Echos to 2002.2, timeout is 2 seconds:
  EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar  2 16:39:18.013: BR0:1 LCP: I CONFACK [ACKsent] id 56 len 27
*Mar  2 16:39:18.017: BR0:1 LCP:   AuthProto PAP (0x0304C023)
*Mar  2 16:39:18.017: BR0:1 LCP:   MagicNumber 0xE8D7F889 (0x0506E8D7F889)
*Mar  2 16:39:18.021: BR0:1 LCP:   MRRU 1524 (0x110405F4)
*Mar  2 16:39:18.025: BR0:1 LCP:   EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar  2 16:39:18.025: BR0:1 LCP: State is Open
*Mar  2 16:39:18.029: BR0:1 PPP: Phase is AUTHENTICATING, by both
*Mar  2 16:39:18.033: BR0:1 PAP: O AUTH-REQ id 15 len 17 from "isdn-1"
*Mar  2 16:39:18.077: BR0:1 PAP: I AUTH-REQ id 15 len 18 from "isdn2-2"
*Mar  2 16:39:18.081: BR0:1 PAP: Authenticating peer isdn2-2
*Mar  2 16:39:18.085: BR0:1 PAP: O AUTH-ACK id 15 len 5
*Mar  2 16:39:18.089: BR0:1 PAP: I AUTH-ACK id 15 len 5
*Mar  2 16:39:18.089: BR0:1 PPP: Phase is VIRTUALIZED
*Mar  2 16:39:18.413: Vi1 PPP: Phase is DOWN, Setup
*Mar  E!!!!!!!!!!!!!!!!!!!!2 16:39:18.429: %LINEPROTO-5-UPDOWN: Line protocol on Interface BR0/1 is down
*Mar  2 16:39:18.473: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
*Mar  2 16:39:18.477: Vi1 PPP: Treating connection as a callout
*Mar  2 16:39:18.481: Vi1 PPP: Phase is ESTABLISHING, Active Open
*Mar  2 16:39:18.485: Vi1 LCP: O CONFREQ [Closed] id 1 len 27
*Mar  2 16:39:18.485: Vi1 LCP:   AuthProto PAP (0x0304C023)
*Mar  2 16:39:18.489: Vi1 LCP:   MagicNumber 0xE8D7FAC2 (0x0506E8D7FAC2)
!!
Success rate is 85 percent (17/20), round-trip min/avg/max = 48/55/120 ms
isdn-1#
*Mar  2 16:39:18.489: Vi1 LCP:   MRRU 1524 (0x110405F4)
*Mar  2 16:39:18.493: Vi1 LCP:   EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar  2 16:39:18.501: BR0:1 ATCP: PPP phase is VIRTUALIZED, discarding packet
*Mar  2 16:39:18.505: Vi1 PPP: Phase is UP
*Mar  2 16:39:18.513: Vi1 CDPCP: O CONFREQ [Closed] id 1 len 4
*Mar  2 16:39:18.517: Vi1 ATCP: O CONFREQ [Closed] id 1 len 4
*Mar  2 16:39:18.553: BR0:1 LCP: I PROTREJ [Open] id 1 len 10 protocol CDPCP (0x82070101)
*Mar  2 16:39:18.553: Vi1 CDPCP: State is Closed
*Mar  2 16:39:18.557: Vi1 ATCP: I CONFACK [REQsent] id 1 len 4
*Mar  2 16:39:19.441: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up
*Mar  2 16:39:21.109: Vi1 ATCP: I CONFREQ [ACKrcvd] id 2 len 4
*Mar  2 16:39:21.109: Vi1 ATCP: O CONFACK [ACKrcvd] id 2 len 4
*Mar  2 16:39:21.113: Vi1 ATCP: State is Open
REM-REM-REM-----ATCP is now up
*Mar  2 16:39:24.669: %ISDN-6-CONNECT: Interface BRI0:1 is now connected to 5557528 isdn
*Mar  2 16:39:26.637: Vi1 PPP: Unsupported or un-negotiated protocol. Link = cdp
*Mar  2 16:39:26.637: Vi1 PPP: Trying to negotiate NCP for Link = cdp
*Mar  2 16:39:26.641: Vi1 CDPCP: State is Closed
*Mar  2 16:39:27.029: BRI0: Attempting to dial 5557528
*Mar  2 16:39:27.033: ISDN BR0: Event: Call to 5557528 at 64 Kb/s

```

```

*Mar 2 16:39:27.241: ISDN BR0: received HOST_PROCEEDING
*Mar 2 16:39:27.485: Vi1 CDPCP: TIMEOUT: Time = 0x8B960BD State = Closed
*Mar 2 16:39:27.489: Vi1 CDPCP: State is Listen
*Mar 2 16:39:28.213: ISDN BR0: received HOST_CONNECT
*Mar 2 16:39:28.213: %LINK-3-UPDOWN: Interface BRI0:2, changed state to up
*Mar 2 16:39:28.253: BR0:2 PPP: Treating connection as a callout
*Mar 2 16:39:28.257: BR0:2 PPP: Phase is ESTABLISHING, Active Open
*Mar 2 16:39:28.257: BR0:2 LCP: O CONFREQ [Closed] id 5 len 27
*Mar 2 16:39:28.261: BR0:2 LCP: AuthProto PAP (0x0304C023)
*Mar 2 16:39:28.265: BR0:2 LCP: MagicNumber 0xE8D820F3 (0x0506E8D820F3)
*Mar 2 16:39:28.265: BR0:2 LCP: MRRU 1524 (0x110405F4)
*Mar 2 16:39:28.269: BR0:2 LCP: EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 2 16:39:28.273: ISDN BR0: Event: Connected to 5557528 on B2 at 64 Kb/s
*Mar 2 16:39:28.321: BR0:2 LCP: I CONFREQ [REQsent] id 4 len 28
*Mar 2 16:39:28.321: BR0:2 LCP: AuthProto PAP (0x0304C023)
*Mar 2 16:39:28.325: BR0:2 LCP: MagicNumber 0x63B01501 (0x050663B01501)
*Mar 2 16:39:28.325: BR0:2 LCP: MRRU 1524 (0x110405F4)
*Mar 2 16:39:28.329: BR0:2 LCP: EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 2 16:39:28.333: BR0:2 LCP: O CONFACK [REQsent] id 4 len 28
*Mar 2 16:39:28.337: BR0:2 LCP: AuthProto PAP (0x0304C023)
*Mar 2 16:39:28.337: BR0:2 LCP: MagicNumber 0x63B01501 (0x050663B01501)
*Mar 2 16:39:28.341: BR0:2 LCP: MRRU 1524 (0x110405F4)
*Mar 2 16:39:28.345: BR0:2 LCP: EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 2 16:39:28.345: BR0:2 LCP: I CONFACK [ACKsent] id 5 len 27
*Mar 2 16:39:28.349: BR0:2 LCP: AuthProto PAP (0x0304C023)
*Mar 2 16:39:28.349: BR0:2 LCP: MagicNumber 0xE8D820F3 (0x0506E8D820F3)
*Mar 2 16:39:28.353: BR0:2 LCP: MRRU 1524 (0x110405F4)
*Mar 2 16:39:28.357: BR0:2 LCP: EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 2 16:39:28.357: BR0:2 LCP: State is Open
*Mar 2 16:39:28.361: BR0:2 PPP: Phase is AUTHENTICATING, by both
*Mar 2 16:39:28.365: BR0:2 PAP: O AUTH-REQ id 4 len 17 from "isdn-1"
*Mar 2 16:39:28.477: BR0:2 PAP: I AUTH-REQ id 4 len 18 from "isdn2-2"
*Mar 2 16:39:28.481: BR0:2 PAP: Authenticating peer isdn2-2
*Mar 2 16:39:28.481: BR0:2 PAP: O AUTH-ACK id 4 len 5
*Mar 2 16:39:28.485: BR0:2 PAP: I AUTH-ACK id 4 len 5
*Mar 2 16:39:28.489: BR0:2 PPP: Phase is VIRTUALIZED
*Mar 2 16:39:28.493: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:2, changed sta
*Mar 2 16:39:28.497: Vi1 PPP: Unsupported or un-negotiated protocol. Link = cdp
isdn-1#
*Mar 2 16:39:34.957: %ISDN-6-CONNECT: Interface BRI0:2 is now connected to 5557528 isdn
isdn-1#ping
Protocol [ip]: appletalk
Target AppleTalk address: 2002.2
Repeat count [5]: 10
Datagram size [100]:
Timeout in seconds [2]:
Verbose [n]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 10, 100-byte AppleTalk Echos to 2002.2, timeout is 2 seconds:
!!!!!!!!!!
Success rate is 100 percent (10/10), round-trip min/avg/max = 40/44/80 ms
isdn-1#deb pp multi events
Multilink events debugging is on
isdn-1#ping appletalk 2002.2
8/52 ms
isdn-1#
*Mar 2 16:40:41.113: BR0:1 MLP: I seq 8000003C size 38 <-----Multilink PPP pack
*Mar 2 16:40:41.113: BR0:2 MLP: I seq 4000003D size 40
*Mar 2 16:40:41.565: BR0:1 MLP: O seq 8000001E size 58
*Mar 2 16:40:41.565: BR0:2 MLP: O seq 4000001F size 60
*Mar 2 16:40:41.601: BR0:1 MLP: I seq 8000003E size 58
*Mar 2 16:40:41.605: BR0:2 MLP: I seq 4000003F size 60
*Mar 2 16:40:41.613: BR0:1 MLP: O seq 80000020 size 58
*Mar 2 16:40:41.617: BR0:2 MLP: O seq 40000021 size 60
*Mar 2 16:40:41.653: BR0:1 MLP: I seq 80000040 size 58

```

```

*Mar 2 16:40:41.653: BR0:2 MLP: I seq 40000041 size 60
*Mar 2 16:40:41.665: BR0:1 MLP: O seq 80000022 size 58
*Mar 2 16:40:41.669: BR0:2 MLP: O seq 40000023 size 60
*Mar 2 16:40:41.701: BR0:1 MLP: I seq 80000042 size 58
*Mar 2 16:40:41.705: BR0:2 MLP: I seq 40000043 size 60
*Mar 2 16:40:41.717: BR0:1 MLP: O seq 80000024 size 58
*Mar 2 16:40:41.717: BR0:2 MLP: O seq 40000025 size 60
*Mar 2 16:40:41.753: BR0:1 MLP: I seq 80000044 size 58
*Mar 2 16:40:41.757: BR0:2 MLP: I seq 40000045 size 60
*Mar 2 16:40:41.765: BR0:1 MLP: O seq 80000026 size 58
*Mar 2 16:40:41.769: BR0:2 MLP: O seq 40000027 size 60
*Mar 2 16:40:41.801: BR0:1 MLP: I seq 80000046 size 58
*Mar 2 16:40:41.805: BR0:2 MLP: I seq 40000047 size 60
*Mar 2 16:40:45.837: BR0:1 MLP: I seq 80000048 size 38
*Mar 2 16:40:45.841: BR0:2 MLP: I seq 40000049 size 40
*Mar 2 16:40:50.761: BR0:1 MLP: I seq 8000004A size 38
*Mar 2 16:40:50.765: BR0:2 MLP: I seq 4000004B size 40
*Mar 2 16:40:55.089: BR0:1 MLP: I seq 8000004C size 38
*Mar 2 16:40:55.093: BR0:2 MLP: I seq 4000004D size 40
*Mar 2 16:40:59.749: BR0:1 MLP: I seq 8000004E size 38
*Mar 2 16:40:59.753: BR0:2 MLP: I seq 4000004F size 40
*Mar 2 16:41:04.741: BR0:1 MLP: I seq 80000050 size 38
*Mar 2 16:41:04.745: BR0:2 MLP: I seq 40000051 size 40
isdn-1#un all
All possible debugging has been turned off
isdn-1#
*Mar 2 16:41:09.069: BR0:1 MLP: I seq 80000052 size 38
*Mar 2 16:41:09.073: BR0:2 MLP: I seq 40000053 size 40

```

## Debug for the Cisco AS5200

```

isdn2-2#
*Mar 1 16:02:15.268: ISDN Se0:23: Incoming call id = 0x5A
*Mar 1 16:02:15.276: ISDN Se0:23: received CALL_INCOMING
*Mar 1 16:02:15.276: ISDN Se0:23: Event: Received a call from 4085552836 on B19 at 64 K
%LINK-3-UPDOWN: Interface Serial0:18, changed state to up
*Mar 1 16:02:15.368: Se0:18 PPP: Treating connection as a callin
*Mar 1 16:02:15.372: Se0:18 PPP: Phase is ESTABLISHING, Passive Open
*Mar 1 16:02:15.372: Se0:18 LCP: State is Listen
*Mar 1 16:02:15.668: Se0:18 LCP: I CONFREQ [Listen] id 56 len 27
*Mar 1 16:02:15.668: Se0:18 LCP:   AuthProto PAP (0x0304C023)
*Mar 1 16:02:15.672: Se0:18 LCP:   MagicNumber 0xE8D7F889 (0x0506E8D7F889)
*Mar 1 16:02:15.676: Se0:18 LCP:   MRRU 1524 (0x110405F4)
*Mar 1 16:02:15.676: Se0:18 LCP:   EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 1 16:02:15.680: Se0:18 LCP: O CONFREQ [Listen] id 169 len 28
*Mar 1 16:02:15.684: Se0:18 LCP:   AuthProto PAP (0x0304C023)
*Mar 1 16:02:15.688: Se0:18 LCP:   MagicNumber 0x63AFECA2 (0x050663AFECA2)
*Mar 1 16:02:15.688: Se0:18 LCP:   MRRU 1524 (0x110405F4)
*Mar 1 16:02:15.692: Se0:18 LCP:   EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 1 16:02:15.696: Se0:18 LCP: O CONFACK [Listen] id 56 len 27
*Mar 1 16:02:15.700: Se0:18 LCP:   AuthProto PAP (0x0304C023)
*Mar 1 16:02:15.700: Se0:18 LCP:   MagicNumber 0xE8D7F889 (0x0506E8D7F889)
*Mar 1 16:02:15.704: Se0:18 LCP:   MRRU 1524 (0x110405F4)
*Mar 1 16:02:15.708: Se0:18 LCP:   EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 1 16:02:15.760: Se0:18 LCP: I CONFACK [ACKsent] id 169 len 28
*Mar 1 16:02:15.764: Se0:18 LCP:   AuthProto PAP (0x0304C023)
*Mar 1 16:02:15.768: Se0:18 LCP:   MagicNumber 0x63AFECA2 (0x050663AFECA2)
*Mar 1 16:02:15.768: Se0:18 LCP:   MRRU 1524 (0x110405F4)
*Mar 1 16:02:15.772: Se0:18 LCP:   EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 1 16:02:15.776: Se0:18 LCP: State is Open
*Mar 1 16:02:15.776: Se0:18 PPP: Phase is AUTHENTICATING, by both
*Mar 1 16:02:15.780: Se0:18 PAP: I AUTH-REQ id 15 len 17 from "isdn-1"
*Mar 1 16:02:15.784: Se0:18 PAP: O AUTH-REQ id 15 len 18 from "isdn-2"
*Mar 1 16:02:15.788: Se0:18 PAP: Authenticating peer isdn-1
*Mar 1 16:02:15.792: Se0:18 PAP: O AUTH-ACK id 15 len 5

```

```

*Mar 1 16:02:15.816: Se0:18 PAP: I AUTH-ACK id 15 len 5
*Mar 1 16:02:15.820: Se0:18 PPP: Phase is VIRTUALIZED
*Mar 1 16:02:16.132: Vi1 PPP: Phase is DOWN, Setup
%LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
*Mar 1 16:02:16.148: Vi1 PPP: Treating connection as a callin
*Mar 1 16:02:16.152: Vi1 PPP: Phase is ESTABLISHING, Passive Open
*Mar 1 16:02:16.152: Vi1 LCP: State is Listen
*Mar 1 16:02:16.156: Vi1 PPP: Phase is UP
*Mar 1 16:02:16.164: Vi1 ATCP: O CONFREQ [Closed] id 1 len 4
*Mar 1 16:02:16.252: Vi1 CDPCP: I CONFREQ [Not negotiated] id 1 len 4
*Mar 1 16:02:16.256: Vi1 LCP: O PROTREJ [Open] id 1 len 10 protocol CDPCP (0x8207010100)
*Mar 1 16:02:16.260: Vi1 ATCP: I CONFREQ [REQsent] id 1 len 4
*Mar 1 16:02:16.264: Vi1 ATCP: O CONFACK [REQsent] id 1 len 4
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0:18, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up
*Mar 1 16:02:18.800: Vi1 ATCP: TIMEOUT: Time 0x37103B8 State ACKsent
*Mar 1 16:02:18.804: Vi1 ATCP: O CONFREQ [ACKsent] id 2 len 4
*Mar 1 16:02:18.880: Vi1 ATCP: I CONFACK [ACKsent] id 2 len 4
*Mar 1 16:02:18.880: Vi1 ATCP: State is Open
REM-REM-REM ATCP is now up
%ISDN-6-CONNECT: Interface Serial0:18 is now connected to 4085552836 isdn-1
*Mar 1 16:02:25.568: ISDN Se0:23: Incoming call id = 0x5B
*Mar 1 16:02:25.576: ISDN Se0:23: received CALL_INCOMING
*Mar 1 16:02:25.576: ISDN Se0:23: Event: Received a call from 4085552836 on B20 at 64 K
%LINK-3-UPDOWN: Interface Serial0:19, changed state to up
*Mar 1 16:02:25.668: Se0:19 PPP: Treating connection as a callin
*Mar 1 16:02:25.672: Se0:19 PPP: Phase is ESTABLISHING, Passive Open
*Mar 1 16:02:25.676: Se0:19 LCP: State is Listen
*Mar 1 16:02:26.000: Se0:19 LCP: I CONFREQ [Listen] id 5 len 27
*Mar 1 16:02:26.000: Se0:19 LCP: AuthProto PAP (0x0304C023)
*Mar 1 16:02:26.004: Se0:19 LCP: MagicNumber 0xE8D820F3 (0x0506E8D820F3)
*Mar 1 16:02:26.008: Se0:19 LCP: MRRU 1524 (0x110405F4)
*Mar 1 16:02:26.008: Se0:19 LCP: EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 1 16:02:26.012: Se0:19 LCP: O CONFREQ [Listen] id 4 len 28
*Mar 1 16:02:26.016: Se0:19 LCP: AuthProto PAP (0x0304C023)
*Mar 1 16:02:26.016: Se0:19 LCP: MagicNumber 0x63B01501 (0x050663B01501)
*Mar 1 16:02:26.020: Se0:19 LCP: MRRU 1524 (0x110405F4)
*Mar 1 16:02:26.024: Se0:19 LCP: EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 1 16:02:26.028: Se0:19 LCP: O CONFACK [Listen] id 5 len 27
*Mar 1 16:02:26.032: Se0:19 LCP: AuthProto PAP (0x0304C023)
*Mar 1 16:02:26.032: Se0:19 LCP: MagicNumber 0xE8D820F3 (0x0506E8D820F3)
*Mar 1 16:02:26.036: Se0:19 LCP: MRRU 1524 (0x110405F4)
*Mar 1 16:02:26.040: Se0:19 LCP: EndpointDisc 1 Local (0x1309016973646E2D31)
*Mar 1 16:02:26.116: Se0:19 LCP: I CONFACK [ACKsent] id 4 len 28
*Mar 1 16:02:26.120: Se0:19 LCP: AuthProto PAP (0x0304C023)
*Mar 1 16:02:26.120: Se0:19 LCP: MagicNumber 0x63B01501 (0x050663B01501)
*Mar 1 16:02:26.124: Se0:19 LCP: MRRU 1524 (0x110405F4)
*Mar 1 16:02:26.128: Se0:19 LCP: EndpointDisc 1 Local (0x130A016973646E322D32)
*Mar 1 16:02:26.128: Se0:19 LCP: State is Open
*Mar 1 16:02:26.132: Se0:19 PPP: Phase is AUTHENTICATING, by both
*Mar 1 16:02:26.132: Se0:19 PAP: I AUTH-REQ id 4 len 17 from "isdn-1"
*Mar 1 16:02:26.180: Se0:19 PAP: O AUTH-REQ id 4 len 18 from "isdn2-2"
*Mar 1 16:02:26.184: Se0:19 PAP: Authenticating peer isdn-1
*Mar 1 16:02:26.188: Se0:19 PAP: O AUTH-ACK id 4 len 5
*Mar 1 16:02:26.212: Se0:19 PAP: I AUTH-ACK id 4 len 5
*Mar 1 16:02:26.216: Se0:19 PPP: Phase is VIRTUALIZED
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0:19, changed state to up
%ISDN-6-CONNECT: Interface Serial0:19 is now connected to 4085552836 isdn-1

```

```
isdn2-2#
```

```
isdn2-2#show users
```

```
Line User
```

```
Host(s)
```

```
Idle Location
```

```
* 0 con 0
idle
16:04:14
  Vil      isdn-1
Virtual PPP (Bundle) 00:00:03
  Se0:18   isdn-1   Sync
PPP
00:00:03
  Se0:19   isdn-1   Sync
PPP
00:00:03
```

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Networking Professionals Connection is a forum for networking professionals to share questions, suggestions, and information about networking solutions, products, and technologies. The featured links are some of the most recent conversations available in this technology.

NetPro Discussion Forums – Featured Conversations for LAN
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Network Infrastructure: LAN Routing and Switching
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Network Infrastructure: Getting Started with LANs
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## Related Information

- **Product Support**
- **Technical Support & Documentation – Cisco Systems**

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