

# 使用 PPP 半桥连接路由和桥接网络

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## 简介

本文档提供了使用PPP半桥连接路由网络和桥接网络的配置示例。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档中的信息基于以下软件和硬件版本：

- 思科IOS®软件版本12.2(7b)。
- 两台Cisco 2500系列路由器。每个都至少有一个ISDN BRI接口。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

## 相关产品

此配置也可用于以下硬件和软件版本：

- 任何串行接口，如串行接口、基本速率接口(BRI)、主速率接口(PRI)等。
- Cisco IOS 软件版本 11.2.
- 运行上述Cisco IOS软件的任何路由器，以及至少一个ISDN-BRI端口。但是，半桥功能可用于具有串行接口的路由器。

## 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 背景信息

网桥将网桥数据包发送到PPP半桥，PPP半桥将其转换为路由数据包并将其转发到其他路由器进程。同样，PPP半桥将路由数据包转换为以太网网桥数据包，并将其发送到同一以太网子网上的网桥。

**注意：**此配置不覆盖两端的完整网桥。有关此类配置，请参阅[跨ISDN桥接](#)文档。

请注意，ISDN连接上的桥接往往会使连接保持非常长的活动状态（如果不是永久的）。如果电信公司根据连接时间对ISDN收费，则可能会产生非常大的费用。因此，建议使用无限使用ISDN线路的用户使用此场景。

**注意：**接口不能同时用作半桥和网桥。Cisco IOS软件支持每个以太网子网不超过一个PPP半桥。

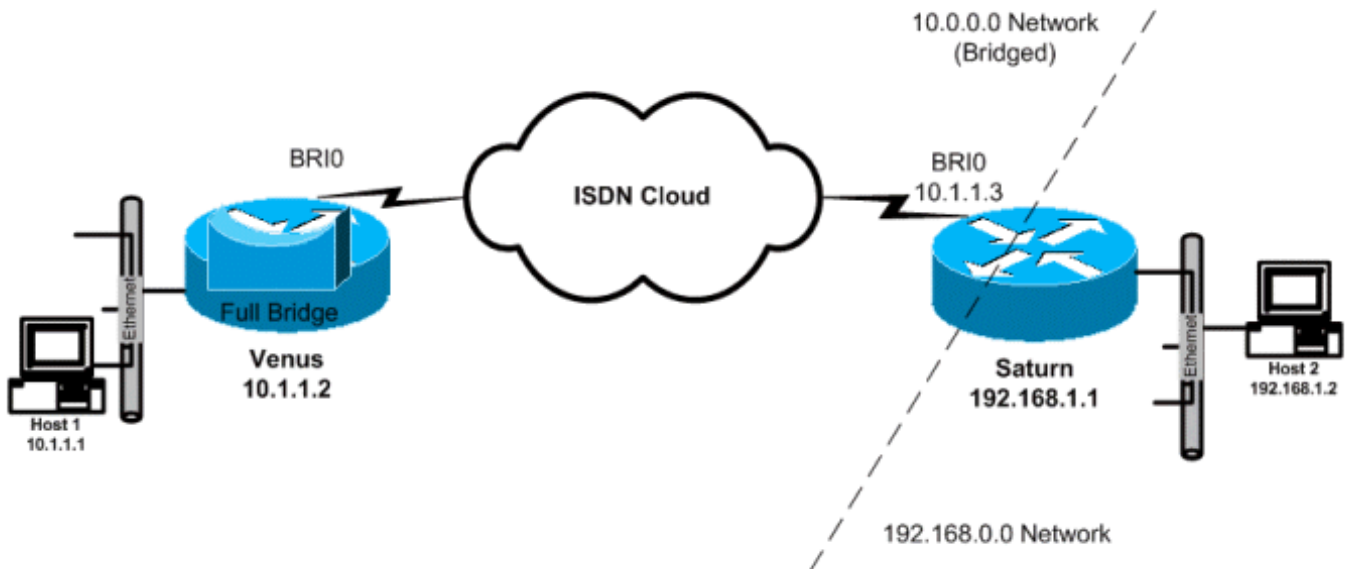
## 配置

本部分提供有关如何配置本文档所述功能的信息。

**注：**要查找有关本文档中使用的命令的其他信息，请使用命令[查找工具](#)([仅注册客户](#))。

## 网络图

本文档使用以下网络设置：



## 配置

本文档使用以下配置：

- **金星**此路由器配置为全网桥，禁用IP路由。当任何桥接流量到达时，设备会拨号。
- **土星**此路由器已配置为半桥。请注意，**拨号器字符串**、**拨号器组**和**拨号器列表**命令在此端未配置。因此，此路由器不会拨号，但会接受来电。这会阻止路由器拨打远程路由器。我们已打开IP路由。此路由器上未配置完整的桥接软件。PPP半网桥在BRI接口上运行，因此**show bridge**和**show spanning-tree**等命令不会在此路由器上产生任何输出。

### 金星

```
Venus#show running-config
!
version 12.2
!
hostname Venus
!
username Saturn password 0 same
!--- Required for PPP CHAP authentication during dialup
ip subnet-zero no ip routing !--- Turn off routing no ip
domain-lookup ! isdn switch-type basic-5ess !--- The
ISDN switchtype for this circuit. Obtain this
information from the !--- Telco. This ISDN switch type
is USA specific and could be changed !--- depending on
the country and TELCO requirements ! interface Ethernet0
ip address 10.1.1.2 255.0.0.0 !--- This is for
management purpose only no ip route-cache no ip mroute-
cache bridge-group 1 !--- Assign this interface to
Bridge Group 1 !--- Frames are bridged only among
interfaces in the same group !--- Note: the dialer1
interface is also in this bridge-group 1 interface BRI0
no ip address no ip route-cache no ip mroute-cache
dialer pool-member 1 !--- Dialer profiles configured
with same dialer pool # !--- (in this case, dialer1)
will bind to this interface isdn switch-type basic-5ess
!--- Check with your Telco for the correct values !
interface Dialer1 !--- Configure the Dialer profile
description ISDN to Saturn ip address 10.1.1.2 255.0.0.0
```

```

encapsulation ppp dialer pool 1 !--- Use physical
interfaces configured with same pool # !--- (in this
case, bri0) during dialup dialer remote-name Saturn !---
Specifies remote CHAP name dialer string 5552000 !---
Specifies the number to dial when interesting traffic
arrives dialer-group 1 !--- Defines the interesting
traffic as configured in the dialer-list ppp
authentication chap !--- Use CHAP as the authentication
method bridge-group 1 !--- Assign this interface to
Bridge Group 1. !--- Frames are bridged only among
interfaces in the same group. !--- Note: the Ethernet
interface 0 is also in this bridge-group 1 ip default-
gateway 10.1.1.3 !--- All default traffic from Venus
should go through Saturn dialer-list 1 protocol bridge
permit !--- Defines the interesting traffic. In this
case, all bridged traffic bridge 1 protocol ieee !---
Define the type of Spanning-Tree Protocol used for the
interface in !--- bridge-group 1. Here we use the IEEE
spanning tree protocol. The IEEE 802.1D !--- Spanning-
Tree Protocol is the preferred way of running the
bridge. !

```

## 土星

```

Saturn#show running-config
!
version 12.2
!
hostname Saturn
!
username Venus password 0 same
!--- Required for PPP CHAP authentication during dialup
ip subnet-zero no ip domain-lookup ! isdn switch-type
basic-5ess !--- The ISDN switchtype for this circuit.
Obtain this information from the !--- Telco. This ISDN
switch type is USA specific and could be changed !---
depending on the country and Telco requirements !
interface Ethernet0 ip address 192.168.1.1 255.255.0.0 !
interface BRI0 no ip address no ip mroute-cache dialer
pool-member 1 !--- Dialer profiles configured with same
dialer pool # !--- (in this case, dialer1) will bind to
this interface isdn switch-type basic-5ess ! interface
Dialer1 !--- Configure the Dialer profile description
ISDN to Venus ip address 10.1.1.3 255.0.0.0 !--- IP
address is required to route the bridged traffic from
Venus !--- This ip address MUST be in the same subnet as
the remote bridge network encapsulation ppp dialer pool
1 !--- Use physical interfaces configured with same pool
# !--- (in this case, bri0) during dialup dialer remote-
name Venus pulse-time 0 ppp bridge ip !--- Configures
half bridge ppp authentication chap !--- Use CHAP as the
authentication method !

```

## 验证

本部分所提供的信息可用于确认您的配置是否正常工作。

[命令输出解释程序工具 \( 仅限注册用户 \) 支持某些 show 命令](#)，使用此工具可以查看对 show 命令输出的分析。

- **show isdn status** — 显示ISDN接口的L1、L2和L3状态。
- **show dialer** — 显示拨号器的状态和ISDN信道的单个状态。
- **show bridge** — 在特权EXEC模式下显示网桥转发数据库中条目的类。
- **show interface** — 显示各种接口的状态，包括串行接口和BRI接口。
- **show arp** — 检查ARP映射。ARP是用于将第2层地址（MAC地址）映射到第3层地址（IP地址）的协议。
- **show spanning-tree** — 显示路由器已知的生成树拓扑。

## 拨入 Saturn 后 Venus 的 Show 命令

```
Venus#show isdn status
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
    dsl 0, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 107, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
    Layer 3 Status:
        1 Active Layer 3 Call(s)
        CCB:callid=800E, sapi=0, ces=1, B-chan=2, calltype=DATA
Active dsl 0 CCBs = 1
    The Free Channel Mask:
    0x80000001
    Number of L2 Discards = 0, L2 Session ID = 17
    Total Allocated ISDN CCBs = 1
```

```
Venus#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.
```

```
BRI0:1 - 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
```

```
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 data link layer up
    Dial reason: bridge (0x0800)
    Interface bound to profile Di1
    Time until disconnect 90 secs
    Current call connected 00:00:31
```

```
Di1 - dialer type = DIALER PROFILE
    Idle timer (120 secs), Fast idle timer (20 secs)
    Wait for carrier (30 secs), Re-enable (15 secs)
    Dialer state is data link layer up
    Number of active calls = 1
    Dial String Successes Failures Last DNIS Last status
    5552000 5 1 00:00:34 Successful Default
```

Venus#show interface bri0:2

BRI0:2 is up, line protocol is up  
Hardware is BRI  
MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec,  
reliability 255/255, txload 1/255, rxload 1/255  
Encapsulation PPP, loopback not set  
Keepalive set (10 sec)  
Time to interface disconnect: idle 00:01:18  
Interface is bound to Dil (Encapsulation PPP)  
LCP Open  
Closed: IPCP  
Open: **BRIDGECP, CDPCP**

*!--- Bridge Control Protocol is open* Last input 00:00:42, output 00:00:00, output hang never  
Last clearing of "show interface" counters never Input queue: 0/75/0/0 (size/max/drops/flushes);  
Total output drops: 0 Queueing strategy: fifo Output queue :0/40 (size/max) 5 minute input rate  
0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 161 packets input, 9796  
bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 0 input errors, 0 CRC,  
0 frame, 0 overrun, 0 ignored, 0 abort 328 packets output, 16659 bytes, 0 underruns 0 output  
errors, 0 collisions, 7 interface resets 0 output buffer failures, 0 output buffers swapped out  
16 carrier transitions

Venus#show bridge

Total of 300 station blocks, 298 free  
Codes: P - permanent, S - self

Bridge Group 1:

Address	Action	Interface	Age	RX count	TX count
00d0.58ad.ae13	forward	Ethernet0	0	74	58
<b>0060.5cf4.a955</b>	<b>forward</b>	<b>Dialer1</b>	<b>0</b>	<b>58</b>	<b>72</b>

Venus#show arp

Protocol	Address	Age (min)	Hardware	Addr	Type	Interface
Internet	10.1.1.2	-	0060.5cf4.a9a8	ARPA	Ethernet0	
<b>Internet</b>	<b>10.1.1.3</b>	<b>0</b>	<b>0060.5cf4.a955</b>	<b>ARPA</b>	<b>Dialer1</b>	

Venus#show spanning-tree

Bridge group 1 is executing the ieee compatible Spanning Tree protocol

Bridge Identifier has priority 32768, address 0060.5cf4.a9a8  
Configured hello time 2, max age 20, forward delay 15  
Current root has priority 32768, address 0009.7c2e.ba00  
Root port is 2 (Ethernet0), cost of root path is 100  
Topology change flag not set, detected flag not set  
Number of topology changes 1 last change occurred 22:09:28 ago  
from Ethernet0  
Times: hold 1, topology change 35, notification 2  
hello 2, max age 20, forward delay 15  
Timers: hello 0, topology change 0, notification 0, aging 300

Port 2 (Ethernet0) of Bridge group 1 is forwarding

Port path cost 100, Port priority 128, Port Identifier 128.2.  
Designated root has priority 32768, address 0009.7c2e.ba00  
Designated bridge has priority 32768, address 0009.7c2e.ba00  
Designated port id is 128.13, designated path cost 0  
Timers: message age 2, forward delay 0, hold 0  
Number of transitions to forwarding state: 1  
BPDU: sent 1, received 39911

**Port 8 (Dialer1) of Bridge group 1 is forwarding**

Port path cost 17857, Port priority 128, Port Identifier 128.8.  
Designated root has priority 32768, address 0009.7c2e.ba00  
Designated bridge has priority 32768, address 0060.5cf4.a9a8

```
Designated port id is 128.8, designated path cost 100
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
BPDU: sent 39879, received 0
```

## Venus 拨入后 Saturn 上的 Show 命令

Saturn#**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.
```

```
BRI0:1 - 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
```

```
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 data link layer up
Interface bound to profile Dil
Time until disconnect 45 secs
Connected to
```

```
Dil - dialer type = DIALER PROFILE
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is data link layer up   Number of active calls = 1
```

```
Dial String Successes Failures Last DNIS Last status
```

Saturn#**show isdn status**

```
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
dsl 0, interface ISDN Switchtype = basic-5ess
Layer 1 Status:
ACTIVE
Layer 2 Status:
TEI = 105, 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=2B, sapi=0, ces=1, B-chan=2, calltype=DATA
Active dsl 0 CCBS = 1
The Free Channel Mask: 0x80000001
Number of L2 Discards = 0, L2 Session ID = 37
Total Allocated ISDN CCBS = 1
```

Saturn#**show arp**

```
Protocol Address Age (min) Hardware Addr Type Interface
Internet 10.1.1.2 27 0060.5cf4.a9a8 ARPA Dialer1
Internet 10.1.1.1 63 00d0.58ad.ae13 ARPA Dialer1
Internet 192.168.1.1 - 0060.5cf4.a955 ARPA Ethernet0
Internet 192.168.1.2 53 0000.0c76.2882 ARPA Ethernet0
```

```
Saturn#show spanning-tree
No spanning tree instances exist.
!--- This router does not run full bridge, !--- so spanning tree does not run on this router
Saturn#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
C 10.0.0.0/8 is directly connected, Dialer1
C 192.168.0.0/16 is directly connected, Ethernet0
```

## 故障排除

本部分提供的信息可用于对配置进行故障排除。

### 故障排除资源

拨号技术中介绍了传入和传出ISDN呼叫的故障排除步骤：[故障排除技术文档](#)。有关如何排除ISDN第1层、第2层和第3层故障的其他信息，请参阅[使用show isdn status命令排除BRI故障](#)和[使用debug isdn q931命令排除ISDN BRI第3层故障](#)。

### 故障排除命令

[命令输出解释程序工具（仅限注册用户）支持某些 show 命令](#)，使用此工具可以查看对 show 命令输出的分析。

**注意：**在发出debug命令之前，请[参阅有关Debug命令的重要信息](#)。

- **debug dialer** — 指示何时检测到相关流量以及何时启动拨号。
- **debug isdn event** — 表示在ISDN接口的用户端发生的ISDN活动，与debug isdn q931类似。
- **debug isdn q931** — 提供有关本地路由器（用户端）和网络之间ISDN网络连接（第3层）的呼叫建立和拆卸的信息。
- **debug isdn q921** — 显示在其ISDN接口的D信道(LAPD)上的路由器上发生的数据链路层（第2层）接入过程。
- **debug ppp negotiation** — 执行PPP选项和网络控制协议(NCP)参数的协商。
- **debug ppp authentication** — 允许交换质询身份验证协议(CHAP)和密码身份验证协议(PAP)数据包。

### 当相关流量到达时Venus上的debug命令

```
Venus#
*Mar 1 22:00:14.838: BR0 DDR: rotor dialout [priority]
*Mar 1 22:00:14.838: BR0 DDR: Dialing cause bridge (0x0800)
*Mar 1 22:00:14.842: BR0 DDR: Attempting to dial 5552000
*Mar 1 22:00:14.846: ISDN BR0: Outgoing call id = 0x8006, dsl 0
*Mar 1 22:00:14.846: ISDN BR0: Event: Call to 5552000 at 64 Kb/s
*Mar 1 22:00:14.850: ISDN BR0: process_bri_call(): call id 0x8006,
called_number 5552000, speed 64, call type DATA
```



```
*Mar 1 22:00:14.854: CCBRI_Go Fr Host InPkgInfo (Len=22) :
*Mar 1 22:00:14.858: 1 0 1 80 6 0 4 2 88 90 18 1 83 2C 7 35 35 35 32 30 30 30
*Mar 1 22:00:14.866:
*Mar 1 22:00:14.870: CC_CHAN_GetIdleChanbri: dsl 0
*Mar 1 22:00:14.870: Found idle channel B1
*Mar 1 22:00:14.886: ISDN BR0: TX -> INFOc sapi=0 tei=106 ns=0 nr=0
i=0x08010605040288901801832C0735353532303030
*Mar 1 22:00:14.906: SETUP pd = 8 callref = 0x06
*Mar 1 22:00:14.914: Bearer Capability i = 0x8890
*Mar 1 22:00:14.918: Channel ID i = 0x83
*Mar 1 22:00:14.92Venus#6: Keypad Facility i = '5552000'
*Mar 1 22:00:15.190: ISDN BR0: RX <- INFOc sapi=0 tei=106 ns=0 nr=1
i=0x0801860218018A
*Mar 1 22:00:15.198: CALL_PROC pd = 8 callref = 0x86
*Mar 1 22:00:15.206: Channel ID i = 0x8A
*Mar 1 22:00:15.222: ISDN BR0: TX -> RRr sapi=0 tei=106 nr=1
*Mar 1 22:00:15.230: CCBRI_Go Fr L3 pkt (Len=7) :
*Mar 1 22:00:15.230: 2 1 6 98 18 1 8A
*Mar 1 22:00:15.234:
*Mar 1 22:00:15.238: ISDN BR0: LIF_EVENT: ces/callid 1/0x8006
HOST_PROCEEDING
*Mar 1 22:00:15.238: ISDN BR0: HOST_PROCEEDING
*Mar 1 22:00:15.242: ISDN BR0: HOST_MORE_INFO
*Mar 1 22:00:15.658: ISDN BR0: RX <- INFOc sapi=0 tei=106 ns=1
nr=1 i=0x08018607
*Mar 1 22:00:15.666: CONNECT pd = 8 callref = 0x86
*Mar 1 22:00:15.678: ISDN BR0: TX -> RRr sapi=0 tei=106 nr=2
*Mar 1 22:00:15.686: CCBRI_Go Fr L3 pkt (Len=4) :
*Mar 1 22:00:15.690: 7 1 6 91
*Mar 1 22:00:15.690:
*Mar 1 22:00:15.694: ISDN BR0: LIF_EVENT: ces/callid 1/0x8006 HOST_CONNECT
22:00:15: %LINK-3-UPDOWN: Interface BRI0:2, changed state to up
*Mar 1 22:00:15.702: BR0:2 PPP: Phase is DOWN, Setup [0 sess, 0 load]
*Mar 1 22:00:15.706: BR0:2 PPP: No remote authentication for call-out
*Mar 1 22:00:15.710: BR0:2 PPP: Phase is ESTABLISHING [0 sess, 0 load]
*Mar 1 22:00:15.710: BR0:2 PPP: Treating connection as a callout
*Mar 1 22:00:15.714: BR0:2 PPP: No remote authentication for call-out
*Mar 1 22:00:15.718: BR0:2 LCP: O CONFREQ [Closed] id 1 len 10
*Mar 1 22:00:15.722: BR0:2 LCP: MagicNumber 0x6515B12A (0x05066515B12A)
*Mar 1 22:00:15.722: BR0:2: interface must be fifo queue, force fifo
22:00:15: %DIALER-6-BIND: Interface BR0:2 bound to profile D11
*Mar 1 22:00:15.742: ISDN: get_isdn_service_state(): idb 0x1A2DBC bchan 3
is_isdn 1 Not a Pri
*Mar 1 22:00:15.746: BR0:2 PPP: Treating connection as a callout
*Mar 1 22:00:15.746: ISDN BR0: Event: Connected to 5552000 on B2 at 64 Kb/s
*Mar 1 22:00:15.762: ISDN BR0: TX -> INFOc sapi=0 tei=106 ns=1 nr=2 i=0x0801060F
*Mar 1 22:00:15.766: CONNECT_ACK pd = 8 callref = 0x06
*Mar 1 22:00:15.774: BR0:2 LCP: I CONFREQ [REQsent] id 1 len 15
*Mar 1 22:00:15.778: BR0:2 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 22:00:15.782: BR0:2 LCP: MagicNumber 0x788C6F8F (0x0506788C6F8F)
*Mar 1 22:00:15.786: BR0:2 LCP: O CONFACK [REQsent] id 1 len 15
*Mar 1 22:00:15.790: BR0:2 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 22:00:15.790: BR0:2 LCP: MagicNumber 0x788C6F8F (0x0506788C6F8F)
*Mar 1 22:00:15.798: BR0:2 LCP: I CONFACK [ACKsent] id 1 len 10
*Mar 1 22:00:15.798: BR0:2 LCP: MagicNumber 0x6515B12A (0x05066515B12A)
*Mar 1 22:00:15.802: BR0:2 LCP: State is Open
*Mar 1 22:00:15.806: BR0:2 PPP: Phase is AUTHENTICATING, by the peer
[0 sess, 1 load]
*Mar 1 22:00:15.870: ISDN BR0: RX <- RRr sapi=0 tei=106 nr=2
*Mar 1 22:00:15.882: BR0:2 CHAP: I CHALLENGE id 31 len 27 from "Saturn"
*Mar 1 22:00:15.890: BR0:2 CHAP: O RESPONSE id 31 len 26 from "Venus"
*Mar 1 22:00:15.914: BR0:2 CHAP: I SUCCESS id 31 len 4
*Mar 1 22:00:15.918: BR0:2 PPP: Phase is UP [0 sess, 1 load]
*Mar 1 22:00:15.922: BR0:2 BNCp: O CONFREQ [Closed] id 1 len 4
```

\*Mar 1 22:00:15.926: BR0:2 IPCP: O CONFREQ [Closed] id 1 len 10  
\*Mar 1 22:00:15.930: BR0:2 IPCP: Address 10.1.1.2 (0x03060A010102)  
\*Mar 1 22:00:15.934: BR0:2 CDPCP: O CONFREQ [Closed] id 1 len 4  
\*Mar 1 22:00:15.942: BR0:2 BNCP: I CONFREQ [REQsent] id 1 len 4  
\*Mar 1 22:00:15.946: BR0:2 BNCP: O CONFACK [REQsent] id 1 len 4  
\*Mar 1 22:00:15.950: BR0:2 CDPCP: I CONFREQ [REQsent] id 1 len 4  
\*Mar 1 22:00:15.954: BR0:2 CDPCP: O CONFACK [REQsent] id 1 len 4  
\*Mar 1 22:00:15.958: BR0:2 BNCP: I CONFACK [ACKsent] id 1 len 4  
\*Mar 1 22:00:15.958: BR0:2 BNCP: State is Open  
\*Mar 1 22:00:15.966: BR0:2 LCP: I PROTREJ [Open] id 2 len 16 protocol IPCP  
(0x80210101000A03060A010102)  
\*Mar 1 22:00:15.970: BR0:2 IPCP: State is Closed  
\*Mar 1 22:00:15.974: BR0:2 CDPCP: I CONFACK [ACKsent] id 1 len 4  
\*Mar 1 22:00:15.978: BR0:2 CDPCP: State is Open  
\*Mar 1 22:00:15.978: BR0:2 **DDR: dialer protocol up**  
22:00:16: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:2,  
changed state to up  
22:00:21: %ISDN-6-CONNECT: **Interface BRI0:2 is now connected to 5552000**  
Venus#

Saturn#

4d16h: ISDN BR0: RX <- UI c/r=1 sapi=0 tei=127  
i=0x080141050402889018018A7008C135353532303030  
4d16h: SETUP pd = 8 callref = 0x41  
4d16h: Bearer Capability i = 0x8890  
4d16h: Channel ID i = 0x8A  
4d16h: Called Party Number i = 0xC1, '5552000', Plan:ISDN,  
Type:Subscriber(local)  
4d16h: CCBRI\_Go Fr L3 pkt (Len=21) :  
4d16h: 5 1 C1 90 4 2 88 90 18 1 8A 70 8 C1 35 35 35 32 30 30 30  
4d16h:  
4d16h: ISDN BR0: Incoming call id = 0x002B, dsl 0  
4d16h: ISDN BR0: LIF\_EVENT: ces/callid 1/0x2B HOST\_INCOMING\_CALL  
4d16h: ISDN BR0: HOST\_INCOMING\_CALL: (non-POTS) DATA  
4d16h: ISDN BR0: HOST\_INCOMING\_CALL: (1) call\_type = DATA  
4d16h: ISDN BR0: HOST\_INCOMING\_CALL: voice\_answer\_data = FALSE call type is DATA  
4d16h: ISDN BR0: Event: **Received a DATA call from**  
  
4d16h: ISDN BR0: Event: Accepting the call id 0x2B  
4d16h: BR0:2 PPP: Phase is DOWN, Setup [0 sess, 1 load]  
4d16h: BR0:2 PPP: Phase is ESTABLISHING [0 sess, 1 load]  
4d16h: BR0:2: inteSurface must be fifo queue, force fifo  
**4d16h: %DIALER-6-BIND: Interface BR0:2 bound to profile Di1**  
4d16h: ISDN BR0: RM returned call\_type 0 resource type 0 response 1  
4d16h: CCBRI\_Go Fr Host InPkgInfo (Len=9) :  
4d16h: 7 0 1 0 2B 3 18 1 8A  
4d16h:  
4d16h: ISDN BR0: isdn\_send\_connect(): msg 4, call id 0x2B, ces 1 bchan 1, c  
all type DATA  
4d16h: %LINK-3-UPDOWN: Interface BRI0:2, changed state to up  
4d16h: ISDN: get\_isdn\_service\_state(): idb 0x1A2EAC bchan 3 is\_isdn 1 Not a Pri  
4d16h: BR0:2 PPP: Treating connection as a callin  
4d16h: BR0:2 LCP: State is Listen  
4d16h: CCBRI\_Go Fr Host InPkgInfo (Len=6) :  
4d16h: 4 0 1 0 2B 0  
4d16h:  
4d16h: ISDN BR0: TX -> INFOc sapi=0 tei=105 ns=7 nr=5 i=0x0801C10218018A  
4d16h: CALL\_PROC pd = 8 callref = 0xC1

```
4d16h:          Channel ID i = 0x8A
4d16h: ISDN BR0: RX <- RRr sapi=0 tei=105 nr=8
4d16h: ISDN BR0: TX -> INFOc sapi=0 tei=105 ns=8 nr=5 i=0x0801C107
4d16h:          CONNECT pd = 8  callref = 0xC1
4d16h: ISDN BR0: RX <- INFOc sapi=0 tei=105 ns=5 nr=9 i=0x0801410F
4d16h:          CONNECT_ACK pd = 8  callref = 0x41
4d16h: ISDN BR0: TX -> RRr sapi=0 tei=105 nr=6
4d16h: CCBRI_Go Fr L3 pkt (Len=4) :
4d16h: F 1 C1 92
4d16h:
4d16h: ISDN BR0: LIF_EVENT: ces/callid 1/0x2B HOST_CONNECT
4d16h: ISDN BR0: Event: Connected to <unknown> on B2 at 64 Kb/s
4d16h: BR0:2 LCP: I CONFREQ [Listen] id 1 len 10
4d16h: BR0:2 LCP:   MagicNumber 0x6515B12A (0x05066515B12A)
4d16h: BR0:2 LCP: O CONFREQ [Listen] id 1 len 15
4d16h: BR0:2 LCP:   AuthProto CHAP (0x0305C22305)
4d16h: BR0:2 LCP:   MagicNumber 0x788C6F8F (0x0506788C6F8F)
4d16h: BR0:2 LCP: O CONFACK [Listen] id 1 len 10
4d16h: BR0:2 LCP:   MagicNumber 0x6515B12A (0x05066515B12A)
4d16h: BR0:2 LCP: I CONFACK [ACKsent] id 1 len 15
4d16h: BR0:2 LCP:   AuthProto CHAP (0x0305C22305)
4d16h: BR0:2 LCP:   MagicNumber 0x788C6F8F (0x0506788C6F8F)
4d16h: BR0:2 LCP: State is Open
4d16h: BR0:2 PPP: Phase is AUTHENTICATING, by this end [0 sess, 0 load]
4d16h: BR0:2 CHAP: O CHALLENGE id 31 len 27 from "Saturn"
4d16h: BR0:2 CHAP: I RESPONSE id 31 len 26 from "Venus"
4d16h: BR0:2 CHAP: O SUCCESS id 31 len 4
4d16h: BR0:2 PPP: Phase is UP [0 sess, 0 load]
4d16h: BR0:2 BNCP: O CONFREQ [Closed] id 1 len 4
4d16h: BR0:2 CDPCP: O CONFREQ [Closed] id 1 len 4
4d16h: BR0:2 BNCP: I CONFREQ [REQsent] id 1 len 4
4d16h: BR0:2 BNCP: O CONFACK [REQsent] id 1 len 4: BR0:2 IPCP: I CONFREQ
[Not negotiated] id 1 len 10
4d16h: BR0:2 IPCP:   Address 10.1.1.2 (0x03060A010102)
4d16h: BR0:2 LCP: O PROTREJ [Open] id 2 len 16 protocol IPCP
(0x80210101000A03060A010102)
4d16h: BR0:2 CDPCP: I
4d16h CONFREQ [REQsent] id 1 len 4
4d16h: BR0:2 CDPCP: O CONFACK [REQsent] id 1 len 4
4d16h: BR0:2 BNCP: I CONFACK [ACKsent] id 1 len 4
4d16h: BR0:2 BNCP: State is Open
4d16h: BR0:2 CDPCP: I CONFACK [ACKsent] id 1 len 4
4d16h: BR0:2 CDPCP: State is Open
4d16h: BR0:2 DDR: dialer protocol up
4d16h: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:2, changed state to up
4d16h: %ISDN-6-CONNECT: Interface BRI0:2 is now connected to
<unknown phone number> Venus
!--- Unknown phone number because of no dialer string on Saturn Saturn#
```

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