

Configuración de un Cisco AS5350 o AS5400 para llamadas de módem salientes y de ISDN.

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[Introducción](#)

Esta configuración tiene un Cisco AS5400 con una interfaz de la velocidad primaria (PRI) y el soporte para 23 llamadas del módem o llamadas ISDN, dependiendo del host que marca hacia fuera o adentro. Se configura con cuatro PRI para permitir el async y las conexiones salientes ISDN. Hemos configurado los Mapas de marcado estáticos en el lado de marcación para cada ISDN o conexión asíncrona. Estamos utilizando las Static IP rutas en los ambos extremos de la conexión para evitar la tara innecesaria de un Dynamic Routing Protocol. Agregar un lugar remoto requeriría la adición de un mapa de marcado, de Nombre de usuario, y de una Static ruta para el nuevo destino en el lado de marcación. Todos los nodos remotos tienen IP Address fijos.

Nota: Este documento no cubre el módem entrante y las llamadas ISDN en los as5350 o as5400 Series Router. Para más información sobre esto, refiera a [configurar un AS5350/AS5400 para la asíncrona entrante y las llamadas ISDN](#).

[prerrequisitos](#)

[Requisitos](#)

Antes de utilizar esta configuración, asegúrese de que cumple con estos requisitos:

- Asegúrese por favor de que los circuitos ISDN PRI sean aprovisionado por la compañía

telefónica para dialout-sincronicen y async.

Componentes Utilizados

La información que contiene este documento se basa en las siguientes versiones de software y hardware.

- AS5400 que funciona con el Software Release 12.2(6) de Cisco IOS®
- Un T1 PRI del active
- Módems NextPort que ejecutan el portware 0.6.108.0

Puesto que esta configuración está solamente para el básico análogo y el marcado de entrada de ISDN, cualquier versión del Cisco IOS Software soportó en el AS5350 y el AS5400 es suficiente. Para funcionar con las características adicionales, refiera a la herramienta Software Advisor para seleccionar la versión de IOS y al conjunto de características apropiados para sus necesidades.

La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si la red está funcionando, asegúrese de haber comprendido el impacto que puede tener cualquier comando.

Productos Relacionados

Esta configuración se puede también aplicar al servidor de acceso AS5350 o AS5400.

Esta configuración se puede modificar para el uso con los puertos del e1 PRI. Configure el controlador E1 con la codificación de línea, la alineación de trama y otras características físicas provistas por la compañía de telecomunicaciones. La configuración del canal D (interfaz serial x:15 para E1) es similar a la que se muestra aquí.

Esta configuración es muy similar a una configuración AS5200 o AS5300 para el acceso del dialout. Refiera al [Hacer una llamada hacia fuera con ISDN/Asíncrona \(DDR saliente\) del documento AS5300](#). El único cambio importante entre los dos es el comando dial-tdm-clock priority number t1_slot/port usado para asignar la prioridad del reloj T1 en el AS5350 o el AS5400.

Esta configuración se puede también modificar para soportar ambas llamadas entrante y saliente. Refiera al documento [que configura el dialin y el dialout en los mismos circuitos T1/E1 PRI](#) para más información

Convenciones

Para obtener más información sobre las convenciones del documento, consulte las [Convenciones de Consejos Técnicos de Cisco](#).

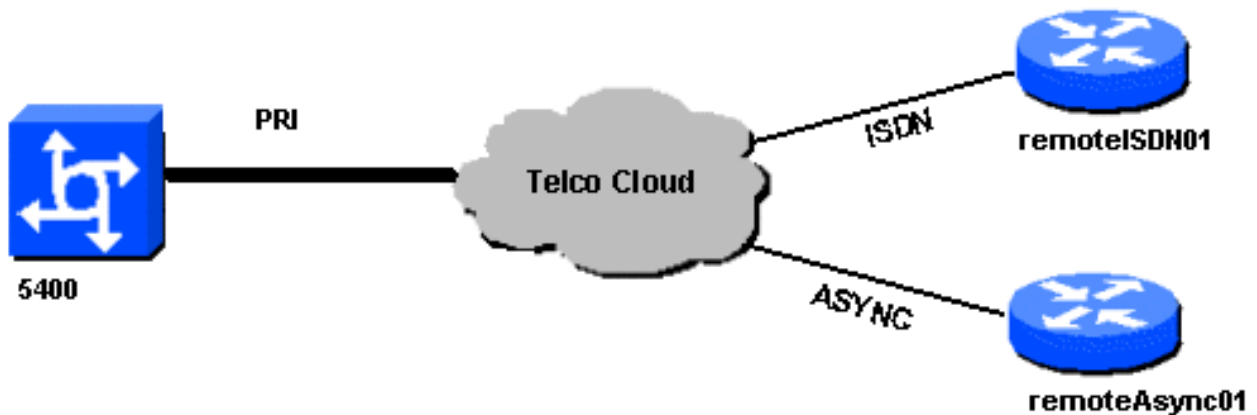
Configurar

En esta sección encontrará la información para configurar las funciones descritas en este documento.

Nota: Para obtener información adicional sobre los comandos que se utilizan en este documento, use la Command Lookup Tool (solo para clientes [registrados](#)).

Diagrama de la red

En este documento, se utiliza esta configuración de red:



Configuraciones

En este documento, se utilizan estas configuraciones:

5400

```
!  
version 12.2  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname 5400  
!  
no boot startup-test  
!  
username remoteISDN01 password open4u  
username remoteAsync01 password open4u  
!--- Usernames for remote routers and shared secret !---  
(used for CHAP authentication). !--- These usernames are  
for local authentication of the call. !--- The client  
presents the username/password and the NAS !---  
authenticates the peer. !! resource-pool disable ! ip  
subnet-zero ip cef no ip domain-lookup ! isdn switch-  
type primary-5ess ! fax interface-type fax-mail mta  
receive maximum-recipients 0 ! controller T1 7/0 !--- T1  
Physical interface controller configuration. !---  
Interfaces are addressed as controller slot/port.  
framing esf !--- Framing for this T1 is Extended Super  
Frame (ESF). !--- Obtain this information from the  
Telco. linecode b8zs !--- Linecoding for this T1. Obtain  
this information from the Telco. pri-group timeslots 1-  
24 !--- PRI T1 with 24 DSOs provided by the Telco. !---  
The PRI signaling is configured in global configuration  
or the !--- the serial 7/X:23 interface (d-channel). The  
signaling defined !--- under the d-channel takes  
precedence over the PRI signaling !--- defined in global  
configuration. ! !--- Unused T1 configuration omitted!  
interface FastEthernet0/0 ip address 172.68.186.54
```

```
255.255.255.240 duplex auto speed auto ! interface
FastEthernet0/1 no ip address shutdown duplex auto speed
auto ! interface Serial0/0 no ip address shutdown
clockrate 2000000 ! interface Serial0/1 no ip address
shutdown clockrate 2000000 ! interface Serial7/0:23 no
ip address encapsulation ppp dialer rotary-group 2 !---
The D-channel is added to rotary-group 2. Interface
Dialer 2 !--- provides the logical configuration for
this interface. dialer-group 1 isdn switch-type primary-
5ess isdn incoming-voice modem !--- This allows the PRI
circuits to accept and place async modem calls. !
interface Group-Async1 !--- This group-async interface
is the configuration template for all modems. !---
Individual async interface do not have to be configured
since they !--- can be cloned from one managed copy. no
ip address dialer in-band dialer rotary-group 1 !---
This command links this interface to logical interface
Dialer interface 1. !--- The Dialer 1 interface serves
as template for this interface. group-range 1/00 6/107
!--- Modems 1/00 through 6/107 belong to this group-
async interface. !--- Make sure you configure line 1/00
through 6/107 as well. !--- This command links all the
modem ranges listed to this interface. ! interface
Dialer1 !--- This interface is used for the modem DDR
dialout. !--- This dialer controls rotary-group 1
(configured under Group-Async 1). ! -- Remember that
this is a rotary and not a Dialer Profile ip address
10.1.1.1 255.255.255.192 encapsulation ppp dialer in-
band !--- Makes this interface DDR capable. !--- If you
do not configure a dialer idle-timeout, the default will
be 120 !--- seconds. dialer idle-timeout 600 !--- Sets
Idle timer to 600 seconds (10 minutes). dialer map ip
10.1.1.2 name remoteAsync01 broadcast 4724125 !---
Dialer map for the peer. !--- Note the ip address
matches the one configure on the peer. !--- The name
must also exactly match the one used to authenticate the
peer. dialer-group 1 !--- Apply interesting traffic
definition from dialer-list 1. !--- Note: The specified
dialer-group number must be the same as !--- the dialer-
list number; in this example, defined as "1". !---
Interesting traffic specifies the packets that should
reset the idle timer. ppp authentication chap !
```

```
interface Dialer2 !--- This interface will be used for
the ISDN DDR outbound calls. !--- This dialer controls
rotary-group 2 (configured under Serial 7/0:23). ! --
Remember that this is a rotary and not a Dialer Profile
ip address 10.1.1.65 255.255.255.192 encapsulation ppp
dialer in-band !--- If you do not configure a dialer
idle-timeout, the default will be 120 !--- seconds.
dialer idle-timeout 600 !--- Sets Idle timer to 600
seconds (10 minutes). dialer map ip 10.1.1.66 name
remoteISDN01 broadcast 6665800 dialer-group 1 !--- Apply
interesting traffic definition from dialer-list 1. !---
Note: The specified dialer-group number must be the same
as !--- the dialer-list number; in this example, defined
to be "1". !--- Interesting traffic specifies the
packets that should reset the idle timer. ppp
authentication chap ! ip classless ip route 10.1.200.0
255.255.255.0 10.1.1.2 !--- Static route for the
10.1.200.0/24 network. !--- Note the next hop IP address
is the peer router. !--- This also matches the ip
address in the dialer map !--- statement under int
Dialer 1. ip route 10.1.201.0 255.255.255.0 10.1.1.66 !-
-- Static route for the 10.1.201.0/24 network. !--- Note
```

```
the next hop IP address is the peer router. !--- This
also matches the ip address in the dialer map !---
statement under interface Dialer 2 no ip http server. !
dialer-list 1 protocol ip permit !--- Specifies all IP
traffic as interesting. Interesting traffic !---
specifies the packets that should reset the idle timer.
!--- This is applied to interface Group-Async 1 using
dialer-group 1. !--- Note: The specified dialer-list
number must be the same as the !--- dialer-group number;
in this example, defined to be "1". !! call rsvp-sync !
voice-port 7/0:D ! voice-port 7/1:D ! voice-port 7/2:D !
voice-port 7/3:D !! mgcp profile default !! line con 0
line aux 0 line vty 0 4 login line 1/00 1/107 !--- These
lines are linked to the modems. Note that this range
includes !--- the group-range configured under group-
async 1. modem InOut !--- Permit incoming and outgoing
calls on the modem. transport input all line 6/00 6/107
!--- These lines are linked to the modems. Note that
this line range is !--- included in the group-range
configured under group-async 1. modem InOut transport
input all ! scheduler allocate 10000 400 end
```

remoteAsync01

```
remoteAsync01
!
version 12.0
service timestamps debug datetime msec
service timestamps log datetime msec
!
hostname remoteAsync01
!
enable password <deleted>
!
username 5400 password open4u
!--- Username and password for the 5400. !--- The
shared secret password must be identical on both sides.
ip subnet-zero no ip domain-lookup ! interface Ethernet0
ip address 10.1.200.1 255.255.255.0 no ip directed-
broadcast ! interface Serial0 no ip address no ip
directed-broadcast shutdown ! interface Serial1 no ip
address no ip directed-broadcast shutdown ! interface
Async1 !--- Async interface for the incoming modem call.
ip address 10.1.1.2 255.255.255.192 !--- IP address for
this interface. !--- Note: this ip address is the same
as the one configured in the !--- dialer map on the 5400
Dialer 1. no ip directed-broadcast encapsulation ppp ppp
authentication chap ! no ip http server ip classless ip
route 0.0.0.0 0.0.0.0 10.1.1.1 !--- Default router with
next hop being the 5400's dialer 1 ip address. ! line
con 0 transport input none line 1 8 !--- Line number
range includes line 1(corresponding to interface
async1). modem InOut transport input all speed 38400
flowcontrol hardware line aux 0 line vty 0 4 ! end
```

remoteISDN01

```
!
version 12.0
service timestamps debug datetime msec
service timestamps log datetime msec
!
hostname remoteISDN01
!
enable secret <deleted>
!
```

```

username 5400 password open4u
  !--- Username and password for the 5400 router. !---
The shared secret password must be identical on both
sides. ip subnet-zero no ip domain-lookup ! isdn switch-
type basic-5ess ! interface Ethernet0 ip address
10.1.201.1 255.255.255.0 no ip directed-broadcast !
interface Serial0 no ip address no ip directed-broadcast
shutdown ! interface Serial1 no ip address no ip
directed-broadcast shutdown ! interface BRI0 !--- BRI
interface for incoming call. ip address 10.1.1.66
255.255.255.192 !--- IP address is the same as that
configured on the 5400 Dialer 2 !--- dialer map
statement. !--- A dialer map is not needed on this
router. A dynamic map will be created !--- for incoming
calls. If this router is to be used for outgoing calls
!--- then a dialer map is needed. no ip directed-
broadcast encapsulation ppp dialer-group 1 !---
Interesting traffic definition from dialer-list 1. isdn
switch-type basic-5ess ppp authentication chap ! no ip
http server ip classless ip route 0.0.0.0 0.0.0.0
10.1.1.65 !--- Default route points to ip address of
5400 dialer 2 interface. ! dialer-list 1 protocol ip
permit ! line con 0 transport input none line aux 0 line
vty 0 4 ! end

```

Verificación

En esta sección encontrará información que puede utilizar para confirmar que su configuración esté funcionando correctamente.

La herramienta [Output Interpreter](#) (sólo para clientes [registrados](#)) permite utilizar algunos comandos “show” y ver un análisis del resultado de estos comandos.

- **isdn status de la demostración** — El estatus debe ser: layer 1 = active layer 2 = MULTIPLE_FRAMES_ESTABLISHED Si el Layer 1 no es activo, el adaptador de cableado o el puerto puede ser malo o no enchufado. Si la capa 2 está en un estado del “TEI_ASSIGNED”, el router no está hablando con el Switch. Refiera al documento del [Troubleshooting de T1 PRI](#) para más información.
- **muestre el servicio isdn** — Para marcar el estatus de los canales B. Debe haber un canal ocupado para cada llamada.
- **llamador de la demostración** — Muestra los parámetros para el usuario determinado tal como la dirección IP asignada, protocolo punto a punto (PPP) y parámetros de agrupamiento PPP, y así sucesivamente. Si su versión del Cisco IOS Software no soporta este comando, utilice el comando **show user**.

Troubleshooting

En esta sección encontrará información que puede utilizar para solucionar problemas de configuración.

Comandos para resolución de problemas

La herramienta [Output Interpreter](#) (sólo para clientes [registrados](#)) permite utilizar algunos

comandos “show” y ver un análisis del resultado de estos comandos.

Nota: [Antes de ejecutar un comando de depuración, consulte Información importante sobre comandos de depuración.](#)

Configure los grupos fecha/hora en la configuración global como sigue:

```
service timestamps debug datetime msec
service timestamps log datetime msec
```

Utilice los siguientes comandos para resolver problemas:

- **debug dialer** — Cuando el Dial-on-Demand Routing (DDR) se habilita en la interfaz, esta información de las visualizaciones del comando referente a la causa de cualquier llamada (llamada la causa de marcación).
- **debug ISDN q931** — Para marcar se inician las conexiones ISDN como llamadas de salida.
- **negociación ppp del debug** — Para ver si un cliente está pasando la negociación PPP. Un número alto de negociaciones PPP simultáneas puede abrumar CPU del router.
- **debug ppp authentication** – Para ver si un cliente se autentica correctamente.
- **debug ppp error** — Para mostrar los errores de protocolo y las estadísticas de error relacionadas con la negociación y operación de conexiones PPP.

Para el troubleshooting del módem, utilice los siguientes comandos:

- **debug modem** — Para ver si el router está recibiendo las señales correctas del módem.
- **debug modem csm** — Para habilitar el modo del debug del Modem Management Call Switching Module (CS).

Para más información sobre los comandos nextport satisfaga refieren [manejo de los servicios de puerto en el Cisco AS5400 Universal Gateway.](#)

[Ejemplo de resultado del comando debug](#)

A continuación se muestran algunas salidas de los depuradores para llamadas exitosas. Preste atención a las secciones en negrita y a los comentarios proporcionados en los resultados. Compare el resultado obtenido con el resultado a continuación.

Llamada de módem de salida

```
Router#show debug General OS: Modem control/process activation debugging is on Dial on demand:
Dial on demand events debugging is on CSM Modem: Modem Management Call Switching Module
debugging is on PPP: PPP authentication debugging is on PPP protocol errors debugging is on PPP
protocol negotiation debugging is on ISDN: ISDN events debugging is on ISDN Q931 packets
debugging is on ISDN events debug DSLs. (On/Off/No DSL:1/0/-) DSL 0 --> 31 1 - - - - -
- - - - - ISDN Q931 packets debug DSLs. (On/Off/No DSL:1/0/-)
DSL 0 --> 31 1 - - - - - Router#ping
10.1.1.2 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 10.1.1.2, timeout is 2
seconds: *Jan 2 01:07:19.085: As1/107 DDR: rotor dialout [priority] *Jan 2 01:07:19.085: As1/107
DDR: Dialing cause ip (s=10.1.1.1, d=10.1.1.2) *Jan 2 01:07:19.085: As1/107 DDR: Attempting to
dial 4724125 !--- The DDR process has detected interesting traffic destined for a device off !--
- dialer 1's interface and is inticating a call. *Jan 2 01:07:19.085: CHAT1/107: Attempting
async line dialer script *Jan 2 01:07:19.085: CHAT1/107: no matching chat script found for
4724125 *Jan 2 01:07:19.085: CHAT1/107: Dialing using Modem script: d0efault-d0ials0cript &
System script: none *Jan 2 01:07:19.085: CHAT1/107: process started *Jan . 2 01:07:19.085:
CHAT1/107: Asserting DTR *Jan 2 01:07:19.085: CHAT1/107: Chat script d0efault-d0ials0cript
started *Jan 2 01:07:20.533: CSM DSPLIB(1/107): Rcvd Dial String (4724125) *Jan 2 01:07:20.533:
```


CSM_PROC_IDLE: CSM_EVENT_MODEM_OFFHOOK at slot 1, port 107 *Jan 2 01:07:20.537:
csm_get_signaling_channel csm_call_info->bchan_num 0xFFFFFFFF *Jan 2 01:07:20.537:
csm_get_signaling_channel dchan_index=16504,next_index=0, dchan_info=0x628C2BF0 *Jan 2
01:07:20.537: CSM_PROC_OC3_COLLECT_ALL_DIGIT: CSM_EVENT_GET_ALL_DIGITS at **slot 1, port 107** *Jan
2 01:07:20.537: CSM_PROC_OC3_COLLECT_ALL_DIGIT: called party num: (4724125) at **slot 1, port 107**
*!--- The Call Switch Module (CSM) is informed of the call. !--- The CSM allocates modem 1/107
for the outbound call.* *Jan 2 01:07:20.537: csm_get_signaling_channel csm_call_info->bchan_num
0xFFFFFFFF *Jan 2 01:07:20.537: csm_get_signaling_channel dchan_index=24935,next_index=0,
dchan_info=0x628C2BF0 *Jan 2 01:07:20.537: ISDN Se7/0:23: Outgoing call id = 0x800F, dsl 0 *Jan
2 01:07:20.537: CSM_PROC_OC3_COLLECT_ALL_DIGIT: csm_call_info->bchan_num 0xFFFFFFFF *Jan 2
01:07:20.537: ISDN Se7/0:23: VOICE_I.SDNCALL Event: call id 0x800F, bchan 65535, ces 0 *Jan 2
01:07:20.537: ISDN Se7/0:23: process_pri_call(): call id 0x800F, number 4724125, speed 64, call
type VOICE, redialed? f, csm call? t, pdata? f *Jan 2 01:07:20.537: trying to get callinf from
isdn_info *Jan 2 01:07:20.537: Don't know what calling number for later redial. *Jan 2
01:07:20.537: ISDN: Created entry call_id 0x800F, speed 64, remote 4724125, calling *Jan 2
01:07:20.537: called type/plan overridden by call_decode *Jan 2 01:07:20.537: didn't copy oct3a
reason: not CALLER_NUMBER_IE *Jan 2 01:07:20.537: building outgoing channel id for call nfas_int
is 0 len is 0 *Jan 2 01:07:20.537: ISDN Se7/0:23: **TX -> SETUP** pd = 8 callref = 0x000C *Jan 2
01:07:20.537: Bearer Capability i = 0x8090A2 *Jan 2 01:07:20.537: Channel ID i = 0xA98397 *Jan 2
01:07:20.537: Called Party Number i = 0xA1, '4724125', Plan:ISDN, Type:National *!--- Outgoing
Q.931 SETUP message. Indicates an outgoing call. !--- For more information on Q.931 refer to the
document: !--- Troubleshooting ISDN Layer 3 using the debug isdn q931 Command.* *Jan 2
01:07:20.617: ISDN Se7/0:23: **RX <- CALL_PROC** pd = 8 callref = 0x800C *Jan 2 01:07:20.617:
Channel. ID i = 0xA98397 *!--- The Call Proceeding Message is sent through the D-channel.* *Jan 2
01:07:20.617: ISDN Se7/0:23: LIF_EVENT: ces/callid 1/0x800F CALL_PROCEEDING *Jan 2 01:07:20.617:
ISDN Se7/0:23: CALL_PROCEEDING id 0x800F *Jan 2 01:07:20.617: ISDN Se7/0:23: PRI Event: 6, bchan
= 22, call type = VOICE *Jan 2 01:07:20.617: EVENT_FROM_ISDN: dchan_idb=0x62C31CC0,
call_id=0x800F, ces=0x1 bchan=0x16, event=0x3, cause=0x0 *Jan 2 01:07:20.617:
EVENT_FROM_ISDN:(800F): DEV_CALL_PROC at slot 1 and port 107, bchan 22 on Serial7/0:23 *Jan 2
01:07:20.617: CSM_PROC_OC4_DIALING: CSM_EVENT_ISDN_BCHAN_ASSIGNED at slot 1, port 107 *Jan 2
01:07:20.617: csm_connect_pri_vdev: TS allocated at bp_stream 0, bp_Ch 9, vdev_common 0x624BAD88
1/107 *Jan 2 01:07:20.617: CSM DSPLIB(1/107): np_dsplib_prepare_modem *Jan 2 01:07:20.625: CSM
DSPLIB(1/107):DSPLIB MODEM_INIT: Modem session transition to IDLE *Jan 2 01:07:20.717: ISDN
Se7/0:23: RX <- ALERTING pd = 8 callref = 0x800C *Jan 2 01:07:20.717: ISDN Se7/0:23: LIF_EVENT:
ces/callid 1/0x800F CALL_PROGRESS *Jan 2 01:07:20.717: ISDN Se7/0:23: event CA.LL_PROGRESS dsl 0
*Jan 2 01:07:20.797: ISDN Se7/0:23: **RX <- CONNECT** pd = 8 callref = 0x800C *!--- Received the
Q.931 CONNECT.* *Jan 2 01:07:20.797: ISDN Se7/0:23: LIF_EVENT: ces/callid 1/0x800F CALL_CONNECT
*Jan 2 01:07:20.797: ISDN Se7/0:23: Event CALL_CONNECT dsl 0 *Jan 2 01:07:20.797:
EVENT_FROM_ISDN: dchan_idb=0x62C31CC0, call_id=0x800F, ces=0x1 bchan=0x16, event=0x4, cause=0x0
*Jan 2 01:07:20.797: EVENT_FROM_ISDN:(800F): DEV_CONNECTED at slot 1 and port 107 *Jan 2
01:07:20.797: CSM_PROC_OC5_WAIT_FOR_CARRIER: CSM_EVENT_ISDN_CONNECTED at slot 1, port 107 *Jan 2
01:07:20.797: CSM DSPLIB(1/107): np_dsplib_call_accept *Jan 2 01:07:20.797: ISDN Se7/0:23:
LIF_EVENT: ces/callid 1/0x800F CALL_PROGRESS *Jan 2 01:07:20.797: ISDN Se7/0:23: event
CALL_PROGRESS dsl 0 *Jan 2 01:07:20.797: ISDN Se7/0:23: **TX -> CONNECT_ACK** pd = 8 callref =
0x000C *!--- D-channel transmits a CONNECT_ACK.* *Jan 2 01:07:20.801: CSM
DSPLIB(1/107):DSPLIB MODEM_WAIT_ACTIVE: Modem session transition to ACTIVE *Jan 2 01:07:20.801:
CSM DSPLIB(1/107): Modem state changed to (CONNECT_STATE) *Jan 2 01:07:26.797: %ISDN-6-CONNECT:
Interface Serial7/0:22 is now connected to 4724125 *Jan 2 01:07:26.893: CSM DSPLIB(1/107): Modem
state changed to (LINK_STATE) *Jan 2 01:07:29.837: CSM DSPLIB(1/107): Modem state changed to
(TRAINUP_STATE) *Jan 2 01:07:37.997: CSM DSPLIB(1/107): Modem state changed to
(EC_NEGOTIATING_STATE) *Jan 2 01:07:38.333: CSM DSPLIB(1/107): Modem state changed to
(STEADY_STATE) *!--- Modems have trained up and are in a steady state.* *Jan 2 01:07:38.333:
CHAT1/107: Chat script d0efault-d0ials0cript finished, status = Success *Jan 2 01:07:38.333:
TTY1/107: no timer type 1 to destroy *Jan 2 01:07:38.333: TTY1/107: no timer type 0 to destroy
*Jan 2 01:07:38.333: Di1 IPCP: Install route to 10.1.1.2 *Jan 2 01:07:40.333: %LINK-3-UPDOWN:
Interface Async1/107, changed state to up *Jan 2 01:07:40.333: As1/107 DDR: Dialer statechange
to up *Jan 2 01:07:40.333: As1/107 DDR: Dialer call has been placed *Jan 2 01:07:40.333: As1/107
PPP: Treating connection as a callout *Jan 2 01:07:40.333: As1/107 PPP: **Phase is ESTABLISHING,
Active Open [0 sess, 1 load] !--- LCP negotiation begins.** *Jan 2 01:07:42.469: As1/107 LCP: I
CONFREQ [REQsent] id 1 len 25 *Jan 2 01:07:42.469: As1/107 LCP: ACCM 0x000A0000 (0x0206000A0000)
*Jan 2 01:07:42.469: As1/107 LCP: AuthProto CHAP (0x0305C22305) *Jan 2 01:07:42.469: As1/107
LCP: MagicNumber 0x2862C096 (0x05062862C096) *Jan 2 01:07:42.469: As1/107 LCP: PFC (0x0702) *Jan
2 01:07:42.469: As1/107 LCP: ACFC (0x0802) *!--- Incoming LCP CONFREQ. !--- For more information
on interpreting PPP debugs refer to the document: !--- Dialup Technology: Troubleshooting*


```

Techniques *Jan 2 01:07:42.469: As1/107 LCP: O CONFACK [REQsent] id 1 len 25 *Jan 2
01:07:42.469: As1/107 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 2 01:07:42.469: As1/107 LCP:
AuthProto CHAP (0x0305C22305) *Jan 2 01:07:42.469: As1/107 LCP: MagicNumber 0x2862C096
(0x05062862C096) *Jan 2 01:07:42.469: As1/107 LCP: PFC (0x0702) *Jan 2 01:07:42.469: As1/107
LCP: ACFC (0x0802) *Jan 2 01:07:44.333: As1/107 LCP: O CONFREQ [ACKsent] id 29 len 25 *Jan 2
01:07:44.333: As1/107 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 2 01:07:44.333: As1/107 LCP:
AuthProto CHAP (0x0305C22305) *Jan 2 01:07:44.333: As1/107 LCP: MagicNumber 0x081D8CEC
(0x0506081D8CEC) *Jan 2 01:07:44.333: As1/107 LCP: PFC (0x0702) *Jan 2 01:07:44.333: As1/107
LCP: ACFC (0x0802) *Jan 2 01:07:44.461: As1/107 LCP: I CONFACK [ACKsent] id 29 len 25 *Jan 2
01:07:44.461: As1/107 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 2 01:07:44.461: As1/107 LCP:
AuthProto CHAP (0x0305C22305) *Jan 2 01:07:44.461: As1/107 LCP: MagicNumber 0x081D8CEC
(0x0506081D8CEC) *Jan 2 01:07:44.461: As1/107 LCP: PFC (0x0702) *Jan 2 01:07:44.461: As1/107
LCP: ACFC (0x0802) *Jan 2 01:07:44.461: As1/107 LCP: State is Open ! --- LCP negotiation is
complete. *Jan 2 01:07:44.461: As1/107 PPP: Phase is AUTHENTICATING, by both [0 sess, 1 load]
*Jan 2 01:07:44.461: As1/107 CHAP: O CHALLENGE id 16 len 27 from "Router" *Jan 2 01:07:44.477:
As1/107 CHAP: I CHALLENGE id 1 len 34 from "remoteAsync01" *Jan 2 01:07:44.477: As1/107 CHAP: O
RESPONSE id 1 len 27 from "Router" *Jan 2 01:07:44.581: As1/107 CHAP: I RESPONSE id 16 len 34
from "remoteAsync01" *Jan 2 01:07:44.581: As1/107 CHAP: O SUCCESS id 16 len 4 *Jan 2
01:07:44.601: As1/107 CHAP: I SUCCESS id 1 len 4 !--- CHAP authentication is successful. !--- If
this fails, verify that the username and password are correct. !--- Refer to Dialup Technology:
Troubleshooting Techniques. *Jan 2 01:07:44.601: As1/107 PPP: Phase is UP [0 sess, 1 load] *Jan
2 01:07:44.601: As1/107 IPCP: O CONFREQ [Closed] id 6 len 10 *Jan 2 01:07:44.601: As1/107 IPCP:
Address 10.1.1.1 (0x03060A010101) *Jan 2 01:07:44.601: As1/107 CDPCP: O CONFREQ [Closed] id 5
len 4 *Jan 2 01:07:44.701: As1/107 IPCP: I CONFREQ [REQsent] id 1 len 10 *Jan 2 01:07:44.701:
As1/107 IPCP: Address 10.1.1.2 (0x03060A010102) *Jan 2 01:07:44.701: As1/107 IPCP: O CONFACK
[REQsent] id 1 len 10 *Jan 2 01:07:44.701: As1/107 IPCP: Address 10.1.1.2 (0x03060A010102) *Jan
2 01:07:44.705: As1/107 CDPCP: I CONFREQ [REQsent] id 1 len 4 *Jan 2 01:07:44.705: As1/107
CDPCP: O CONFACK [REQsent] id 1 len 4 *Jan 2 01:07:44.733: As1/107 IPCP: I CONFACK [ACKsent] id
6 len 10 *Jan 2 01:07:44.733: As1/107 IPCP: Address 10.1.1.1 (0x03060A010101) *Jan 2
01:07:44.733: As1/107 IPCP: State is Open *Jan 2 01:07:44.733: As1/107 DDR: dialer protocol up
!--- The route has been successfully negotiated and installed in the routing table. *Jan 2
01:07:44.737: As1/107 CDPCP: I CONFACK [ACKsent] id 5 len 4 *Jan 2 01:07:44.737: As1/107 CDPCP:
State is Open *Jan 2 01:07:45.601: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1/107,
changed state to up *Jan 2 01:07:48.321: TTY0: timer type 1 expired *Jan 2 01:07:48.321: TTY0:
Exec timer (continued)

```

Llamada ISDN de salida

Abajo están algunas salidas de los debugs para la llamada de salida acertada ISDN. Preste atención a las secciones en negrita y a los comentarios proporcionados en los resultados. Compare el resultado obtenido con el resultado a continuación.

```

Router#show debug Dial on demand: Dial on demand events debugging is on PPP: PPP authentication
debugging is on PPP protocol errors debugging is on PPP protocol negotiation debugging is on
ISDN: ISDN events debugging is on ISDN Q931 packets debugging is on ISDN events debug DSLs.
(On/Off/No DSL:1/0/-) DSL 0 --> 31 1 - - - - -
- ISDN Q931 packets de ISDN Q931 packets debug DSLs. (On/Off/No DSL:1/0/-) DSL 0 --> 31 1 - - -
- - - - - Router#ping 10.1.1.66 Type escape
sequence to abort. Sending 5, 100-byte ICMP Echos to 10.1.1.66, timeout is 2 seconds: *Jan 2
02:00:59.937: Se7/0:23 DDR: rotor dialout [priority] *Jan 2 02:00:59.937: Se7/0:23 DDR: Dialing
cause ip (s=10.1.1.65, d=10.1.1.66) *Jan 2 02:00:59.937: Se7/0:23 DDR: Attempting to dial
6665800 !--- The DDR process has detected interesting traffic destined for a device off !---
dialer 1's interface and is inticating a call. *Jan 2 02:00:59.937: ISDN Se7/0:23: Outgoing call
id = 0x8016, dsl 0 *Jan 2 02:00:59.937: ISDN Se7/0:23: Event: Call to 4724125 at 64 Kb/s *Jan 2
02:00:59.937: ISDN Se7/0:23: process_pri_call(): call id 0x8016, number 6665800, speed 64, call
type DATA, redialed? f, csm call? f, pdata? f *Jan 2 02:00:59.937: called type/plan overridden
by call_decode *Jan 2 02:00:59.937: did't copy oct3a reason: not CALLER_NUMBER_IE *Jan 2
02:00:59.941: building outgoing channel id for call nfas_int is 0 len is 0 *Jan 2 02:00:59.941:
ISDN Se7/0:23: TX -> SETUP pd = 8 callref = 0x0013 *Jan 2 02:00:59.941: Bearer Capability i =
0x8890 *Jan 2 02:00:59.941: Channel ID i = 0xA98397 *Jan 2 02:00:59.941: Called Pa.rty Number i
= 0xA1, '6665800', Plan:ISDN, Type:National !--- Outgoing Q.931 SETUP message. Indicates an
outgoing call. !--- For more information on Q.931 refer to the document. !--- Troubleshooting
ISDN Layer 3 using the debug isdn q931 Command. *Jan 2 02:01:00.017: ISDN Se7/0:23: RX <-

```

CALL_PROC pd = 8 callref = 0x8013 *Jan 2 02:01:00.017: Channel ID i = 0xA98397 *!--- The Call Proceeding Message is sent through the D-channel.* *Jan 2 02:01:00.017: ISDN Se7/0:23: LIF_EVENT: ces/callid 1/0x8016 CALL_PROCEEDING *Jan 2 02:01:00.017: ISDN Se7/0:23: CALL_PROCEEDING id 0x8016 *Jan 2 02:01:00.021: ISDN Se7/0:23: PRI Event: 6, bchan = 22, call type = DATA *Jan 2 02:01:00.093: ISDN Se7/0:23: **RX** <- **CONNECT** pd = 8 callref = 0x8013 *!--- Received the Q.931 CONNECT.* *Jan 2 02:01:00.097: ISDN Se7/0:23: LIF_EVENT: ces/callid 1/0x8016 CALL_CONNECT *Jan 2 02:01:00.097: ISDN Se7/0:23: Event CALL_CONNECT dsl 0 *Jan 2 02:01:00.097: %LINK-3-UPDOWN: Interface Serial7/0:22, changed state to up *Jan 2 02:01:00.097: Se7/0:22 PPP: Treating connection as a callout *Jan 2 02:01:00.097: Se7/0:22 PPP: **Phase is ESTABLISHING, Active Open** [0 sess, 1 load] *!--- LCP negotiation begins.* *Jan 2 02:01:00.097: Se7/0:22 LCP: **O CONFREQ** [Closed] id 7 len 15 *Jan 2 02:01:00.097: Se7/0:22 LCP: AuthProto CHAP (0x0305C22305) *Jan 2 02:01:00.097: Se7/0:22 LCP: MagicNumber 0x084E600A (0x0506084E600A) *!--- Outgoing LCP CONFREQ. !--- For more information on interpreting PPP debugs refer to the document !--- Dialup Technology: Troubleshooting Techniques.* *Jan 2 02:01:00.097: ISDN Se7/0:23: LIF_EVENT: ces/callid 1/0x8016 CALL_PROGRESS *Jan 2 02:01:00.097: ISDN Se7/0:23: event CALL_PROGRESS dsl 0 *Jan 2 02:01:00.097: ISDN Se7/0:23: **TX** -> **CONNECT_ACK** pd = 8 callref = 0x0013 *!--- D-channel transmits a CONNECT_ACK.* *Jan 2 02:01:00.105: Se7/0:22 LCP: I CONFREQ [REQsent] id 30 len 15 *Jan 2 02:01:00.105: Se7/0:22 LCP: AuthProto CHAP (0x0305C22305) *Jan 2 02:01:00.105: Se7/0:22 LCP: MagicNumber 0x28938B8C (0x050628938B8C) *Jan 2 02:01:00.105: Se7/0:22 LCP: O CONFACK [REQsent] id 30 len 15 *Jan 2 02:01:00.105: Se7/0:22 LCP: AuthProto CHAP (0x0305C22305) *Jan 2 02:01:00.109: Se7/0:22 LCP: MagicNumber 0x28938B8C (0x050628938B8C) *Jan 2 02:01:00.109: Se7/0:22 LCP: I CONFACK [ACKsent] id 7 len 15 *Jan 2 02:01:00.109: Se7/0:22 LCP: AuthProto CHAP (0x0305C22305) *Jan 2 02:01:00.109: Se7/0:22 LCP: MagicNumber 0x084E600A (0x0506084E600A) *Jan 2 02:01:00.109: Se7/0:22 **LCP: State is Open ! --- LCP negotiation is complete.** *Jan 2 02:01:00.109: Se7/0:22 PPP: Phase is AUTHENTICATING, by both [0 sess, 1 load] *Jan 2 02:01:00.109: Se7/0:22 CHAP: O CHALLENGE id 7 len 27 from "Router" *Jan 2 02:01:00.121: Se7/0:22 CHAP: I CHALLENGE id 25 len 33 from "remoteISDN01" *Jan 2 02:01:00.121: Se7/0:22 CHAP: O RESPONSE id 25 len 27 from "Router" *Jan 2 02:01:00.129: Se7/0:22 CHAP: I SUCCESS id 25 len 4 *Jan 2 02:01:00.137: Se7/0:22 CHAP: I RESPONSE id 7 len 33 from "remoteISDN01" *Jan 2 02:01:00.137: Se7/0:22 CHAP: O SUCCESS id 7 len 4 *!--- CHAP authentication is successful. !--- If this fails verify that the username and password are correct. !--- Refer to Dialup Technology: Troubleshooting Techniques.* *Jan 2 02:01:00.137: Se7/0:22 PPP: Phase is UP [0 sess, 1 load] *Jan 2 02:01:00.137: Se7/0:22 IPCP: O CONFREQ [Closed] id 2 len 10 *Jan 2 02:01:00.137: Se7/0:22 IPCP: Address 10.1.1.65 (0x03060A010141) *Jan 2 02:01:00.145: Se7/0:22 IPCP: I CONFREQ [REQsent] id 3 len 10 *Jan 2 02:01:00.145: Se7/0:22 IPCP: Address 10.1.1.66 (0x03060A010142) *Jan 2 02:01:00.145: Se7/0:22 IPCP: O CONFACK [REQsent] id 3 len 10 *Jan 2 02:01:00.145: Se7/0:22 IPCP: Address 10.1.1.66 (0x03060A010142) *Jan 2 02:01:00.145: Se7/0:22 IPCP: I CONFACK [ACKsent] id 2 len 10 *Jan 2 02:01:00.145: Se7/0:22 IPCP: Address 10.1.1.65 (0x03060A010141) *Jan 2 02:01:00.145: Se7/0:22 IPCP: State is Open *Jan 2 02:01:00.145: Se7/0:22 DDR: dialer protocol up *Jan 2 02:01:00.145: Di2 IPCP: **Install route to 10.1.1.66 !--- The Route has been successfully negotiated and installed in the routing table.** *Jan 2 02:01:01.137: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial7/0:22, changed state to up *Jan 2 02:01:06.097: %ISDN-6-CONNECT: Interface Serial7/0:22 is now connected to 6665800 remoteISDN01

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