

HDLC Back-to-Back Connections

Document ID: 7927

Introduction

Before You Begin

Conventions

Prerequisites

Components Used

Configure

Network Diagram

Configurations

Verify

Troubleshoot

Related Information

Introduction

This document provides a sample configuration for High-Level Data Link Control (HDLC) back-to-back connections. You can use it to verify that your connections and hardware are working properly.

Before You Begin

Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

Prerequisites

There are no specific prerequisites for this document.

Components Used

The information in this document is based on the software and hardware versions below.

- All Cisco IOS® Software Releases
- WAN DCE cable
- WAN DTE cable

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

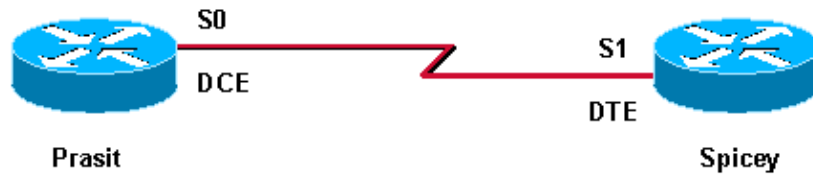
Configure

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

Note: To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only).

Network Diagram

This document uses the network setup shown in the diagram below.



The default serial encapsulation on Cisco routers is Cisco HDLC, so it does not need to be explicitly configured on the router. As a result, the encapsulation type is not displayed in the configuration.

With a back-to-back serial connection, the router connected to the DCE end of the cable provides the clock signal for the serial link. The **clockrate** command in the interface configuration mode enables the router at the DCE end of the cable (Prasit, in this example) to provide the clock signal for the serial link. Issue the **show controllers** command to determine which end of the cable is connected to the serial interface.

In this configuration, the DCE end of the cable is connected to Prasit (the **clockrate** command is issued), and the DTE end is connected to Spicey.

Configurations

This document uses the configurations shown below.

Prasit
<pre>interface Serial0 ip address 5.0.2.1 255.255.255.0 clockrate 64000 no cdp enable</pre>

Spicey
<pre>interface Serial1 ip address 5.0.2.2 255.255.255.0 no cdp enable</pre>

Verify

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only), which allows you to view an analysis of the **show** command output.

- **show controllers**
- **ping**
- **show interfaces**

The output shown below results when these commands are issued on the devices used in this sample configuration.

The **show controllers** command shows that the physical layer is working and what type of cable is connected. In the output below, Prasit is connected at the DCE end and Spicey at the DTE end.

```
prasit#  
show controllers serial 0  
  
HD unit 1, idb = 0xF22E4, driver structure at 0xF7778  
  
buffer size 1524 HD unit 0 1, V.35 DCE cable, clockrate 64000
```

!--- Output suppressed.

```
spicey#  
show controllers serial 1  
  
HD unit 1, idb = 0x24824C, driver structure at 0x24F828  
  
buffer size 1524 HD unit 1, V.35 DTE cable
```

!--- Output suppressed.

Prasit

On Prasit, issue the following commands:

```
prasit#ping 5.0.2.2  
  
Type escape sequence to abort.  
  
Sending 5, 100-byte ICMP Echos to 5.0.2.2, timeout is 2 seconds:!!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/31/32 ms
```

```
prasit#show interfaces serial 0  
  
Serial1 is up, line protocol is up  
Hardware is HD64570  
Internet address is 5.0.2.1/24  
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255  
Encapsulation HDLC, loopback not set, keepalive set (10 sec)  
Last input 00:00:01, output 00:00:04, output hang never  
Last clearing of "show interface" counters never  
Input queue: 0/75/0 (size/max/drops); Total output drops: 0  
Queueing strategy: weighted fair  
Output queue: 0/1000/64/0 (size/max total/threshold/drops)  
Conversations 0/1/256 (active/max active/max total)  
Reserved Conversations 0/0 (allocated/max allocated)  
5 minute input rate 0 bits/sec, 0 packets/sec  
5 minute output rate 0 bits/sec, 0 packets/sec  
205 packets input, 4920 bytes, 0 no buffer  
Received 33 broadcasts, 0 runts, 0 giants, 0 throttles  
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort  
590 packets output, 4570 bytes, 0 underruns  
0 output errors, 0 collisions, 87 interface resets  
0 output buffer failures, 0 output buffers swapped out
```

```
116 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
prasit#
```

Spicey

On Spicey, issue the following commands:

```
spicey#ping 5.0.2.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 5.0.2.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/32 ms

spicey#show interfaces serial 1

Serial1 is up, line protocol is up
Hardware is HD64570
Internet address is 5.0.2.2/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
Last input 00:00:08, output 00:00:05, 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: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
    Conversations 0/1/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
    Available Bandwidth 1158 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  591 packets input, 4592 bytes, 0 no buffer
  Received 43 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  210 packets output, 5030 bytes, 0 underruns
  0 output errors, 0 collisions, 61 interface resets
  0 output buffer failures, 0 output buffers swapped out
  180 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up spicey#
```

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [T1/E1 and T3/E3 Technical Support](#)
 - [Technical Support – IP Phones](#)
 - [Technical Support – Cisco Systems](#)
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