

Cisco – X.25 Back-to-Back Connections

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X.25 Back-to-Back Connections

Introduction

This document provides a sample configuration for X.25 back-to-back connections. You can use it to verify that your connections and hardware are working properly.

Hardware and Software Versions

- This configuration is applicable to all Cisco IOS Software Releases.
- The DCE side is connected with a WAN DCE cable.
- The DTE side is connected with a WAN DTE cable.

For more information on WAN DCE and DTE cables please click [here](#).

Network Diagram

This document is based on the following configuration:



In this configuration, Prasit acts as the DCE and Spicey is the DTE.

Configurations

Prasit

```
interface Serial0
  ip address 5.0.2.1 255.255.255.0
  encapsulation x25 dce
  x25 address 7890
  x25 map ip 5.0.2.2 1234
  clockrate 64000
  no cdp enable
```

Spicey

```
interface Serial1
  ip address 5.0.2.2 255.255.255.0
  encapsulation x25
  x25 address 1234
```

```
x25 map ip 5.0.2.1 7890
no cdp enable
```

show Commands

Use the following show commands to test that your network is operating properly:

- **show controllers**
- **ping**
- **show x25 vc**
- **show interfaces**

The output shown below is a result of entering these commands on the devices we are using in this sample configuration.

We can use the **show controllers** command to show that Prasit is the DCE and Spicey is the DTE. This command gives you information on whether the physical layer is working and what type of cable is connected.

```
prasit#show controllers serial 0
HD unit 0, idb = 0x1D3A2C, driver structure at 0x1DAFE8
buffer size 1524 HD unit 0, V.35 DCE cable, clockrate 64000

spicey#show controllers serial 1
HD unit 1, idb = 0x153E94, driver structure at 0x15A1F8
buffer size 1524 HD unit 1, V.35 DTE cable
```

Prasit

First try to ping from the DCE (in our example, this is Prasit) to the DTE. In this case, we are using SVC1, the lowest one configured.

```
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 = 36/38/48 ms

prasit#show x25 vc
SVC 1, State: D1, Interface: Serial0
  Started 00:00:07, last input 00:00:07, output 00:00:07
  Connects 1234 ip 5.0.2.2
  Call PID cisco, Data PID none
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 5 ACK: 4 Remote PR: 5 RCNT: 1 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 500/500 packets 5/5 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0

prasit#show interfaces serial 0
Serial0 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,
```

```

reliability 255/255, txload 1/255, rxload 1/255
Encapsulation X25, loopback not set
X.25 DCE, address 7890, state R1, modulo 8, timer 0
  Defaults: idle VC timeout 0
    cisco encapsulation
      input/output window sizes 2/2, packet sizes 128/128
    Timers: T10 60, T11 180, T12 60, T13 60
    Channels: Incoming-only none, Two-way 1-1024, Outgoing-only none
    RESTARTs 1/0 CALLs 2+0/0+0/0+0 DIAGs 0/0
LAPB DCE, state CONNECT, modulo 8, k 7, N1 12056, N2 20
  T1 3000, T2 0, interface outage (partial T3) 0, T4 0
  VS 5, VR 5, tx NR 5, Remote VR 5, Retransmissions 0
  Queues: U/S frames 0, I frames 0, unack. 0, reTx 0
  IFRAMES 29/29 RNRs 0/0 REJs 0/0 SABM/Es 0/1 FRMRs 0/0 DISCs 0/0
Last input 00:00:13, output 00:00:13, output hang never
Last clearing of "show interface" counters 00:22:38
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  33 packets input, 2679 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
  42 packets output, 2693 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
  DCD=up DSR=up DTR=up RTS=up CTS=up
prasit#

```

Spicey

```
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 = 32/32/36 ms
spicey#

```

```
spicey#show x25 vc
```

```

SVC 1, State: D1, Interface: Serial1
  Started 00:01:03, lastinput 00:01:03, output 00:01:03
  Connects 7890 ip 5.0.2.1
  Call PID ietf, Data PID none
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 5 ACK: 5 Remote PR: 4 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 500/500 packets 5/5 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0

```

```
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 X25, loopback not set
  X.25 DTE, address 1234, state R1, modulo 8, timer 0
  Defaults: idle VC timeout 0

```

```

        cisco encapsulation
        input/output window sizes 2/2, packet sizes 128/128
        Timers: T20 180, T21 200, T22 180, T23 180
        Channels: Incoming-only none, Two-way 1-1024, Outgoing-only none
        RESTARTs 1/1 CALLs 0+0/2+0/0+0 DIAGs 0/0
LAPB DTE, state CONNECT, modulo 8, k 7, N1 12056, N2 20
        T1 3000, T2 0, interface outage (partial T3) 0, T4 0
        VS 5, VR 5, tx NR 5, Remote VR 5, Retransmissions 0
        Queues: U/S frames 0, I frames 0, unack. 0, reTx 0
        IFRAMEs 29/29 RNRs 0/0 REJs 0/0 SABM/Es 1/0 FRMRs 0/0 DISCs 0/0
Last input 00:01:10, output 00:01:10, output hang never
Last clearing of "show interface" counters 00:23:59
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    42 packets input, 2693 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
    32 packets output, 2657 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 output buffer failures, 0 output buffers swapped out
    2 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

```

Clear the X.25 Connection

Now use the following command to clear the X.25 connection on serial 1:

```

spicey#clear x25 serial 1
Force Restart [confirm]

```

Spicey

After clearing the X.25 connection, try to ping from the DTE (in our example, this is Spicey) to the DCE. In this case, we are using SVC1024 (the highest one configured).

```

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 = 32/36/44 ms

spicey#show x25 vc
SVC 1024, State: D1, Interface: Serial1
  Started 00:00:04, last input 00:00:04, output 00:00:04
  Connects 7890 ip 5.0.2.1
  Call PID cisco, Data PID none
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 5 ACK: 4 Remote PR: 5 RCNT: 1 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 500/500 packets 5/5 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0

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 X25, loopback not set
X.25 DTE, address 1234, state R1, modulo 8, timer 0
  Defaults: idle VC timeout 0
    cisco encapsulation
      input/output window sizes 2/2, packet sizes 128/128
    Timers: T20 180, T21 200, T22 180, T23 180
    Channels: Incoming-only none, Two-way 1-1024, Outgoing-only none
    RESTARTs 2/1 CALLs 1+0/2+0/0+0 DIAGs 0/0
LAPB DTE, state CONNECT, modulo 8, k 7, N1 12056, N2 20
  T1 3000, T2 0, interface outage (partial T3) 0, T4 0
  VS 1, VR 2, tx NR 2, Remote VR 1, Retransmissions 0
  Queues: U/S frames 0, I frames 0, unack. 0, reTx 0
  IFRAMES 41/42 RNRs 0/0 REJs 0/0 SABM/Es 1/0 FRMRs 0/0 DISCs 0/0
Last input 00:00:11, output 00:00:11, output hang never
Last clearing of "show interface" counters 00:25:46
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  55 packets input, 3758 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
  48 packets output, 3737 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 output buffer failures, 0 output buffers swapped out
  2 carrier transitions
  DCD=up DSR=up DTR=up RTS=up CTS=up
spicey#

```

Prasit

Now use the same commands again on Prasit:

```

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 = 32/34/36 ms

prasit#show x25 vc
SVC 1024, State: D1, Interface: Serial0
  Started 00:01:34, last input 00:01:34, output 00:01:34
  Connects 1234 ip 5.0.2.2
  Call PID ietf, Data PID none
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 5 ACK: 5 Remote PR: 4 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 500/500 packets 5/5 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0

prasit#show interfaces serial 0
Serial0 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,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation X25, loopback not set
  X.25 DCE, address 7890, state R1, modulo 8, timer 0

```

```
Defaults: idle VC timeout 0
         cisco encapsulation
         input/output window sizes 2/2, packet sizes 128/128
Timers: T10 60, T11 180, T12 60, T13 60
Channels: Incoming-only none, Two-way 1-1024, Outgoing-only none
RESTARTs 1/1 CALLs 2+0/1+0/0+0 DIAGs 0/0
LAPB DCE, state CONNECT, modulo 8, k 7, N1 12056, N2 20
T1 3000, T2 0, interface outage (partial T3) 0, T4 0
VS 7, VR 7, tx NR 7, Remote VR 7, Retransmissions 0
Queues: U/S frames 0, I frames 0, unack. 0, reTx 0
IFRAMEs 47/47 RNRs 0/0 REJs 0/0 SABM/Es 0/1 FRMRs 0/0 DISCs 0/0
Last input 00:00:03, output 00:00:03, output hang never
Last clearing of "show interface" counters 00:26:53
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 1 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 56 packets input, 4291 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
63 packets output, 4289 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 output buffer failures, 0 output buffers swapped out
 0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
prasit#
```

Related Information

- [More WAN Technical Tips](#)
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