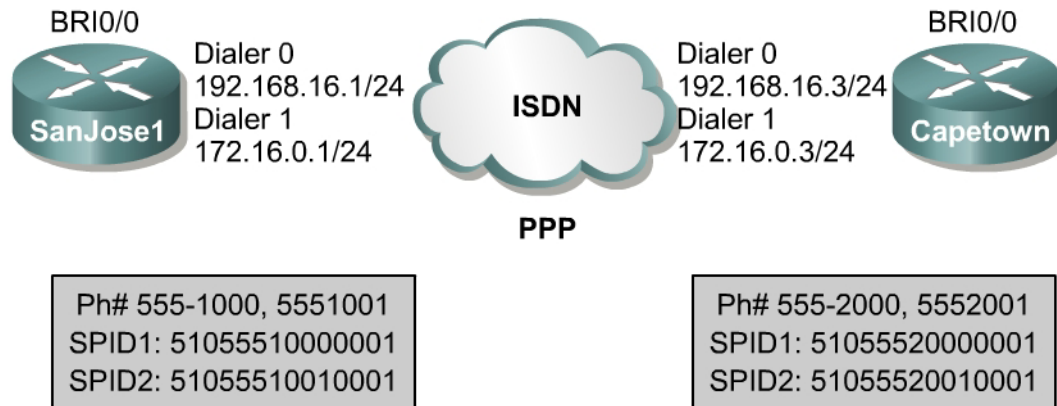


Lab 5.3.2 Using a Dialer Map-Class with Dialer Profiles



Objective

In this lab, the student will configure two Cisco routers for ISDN BRI using dialer profiles and a dialer map-class.

Scenario

The International Travel Agency wants an ISDN DDR connection configured between the corporate network router, SanJose1, and its remote office router in Capetown. They have asked that PPP encapsulation and CHAP authentication be configured over this link. Because the company plans to increase the number of ISDN connections at the central and remote sites, use dialer profiles to simplify future configurations.

The company has only one remote site connection at this time. However, two dialer profiles are to be configured in order to test its operation. Since router-to-router connectivity will be tested, the workstations will not need to be configured in this exercise.

Step 1

Before beginning this lab, it is recommended that the router be reloaded after erasing its startup configuration. This prevents problems that may be caused by residual configurations. Build the network according to the diagram, but do not configure the BRI interfaces on either router yet. Use the Adtran Atlas 550 or a similar device to simulate the ISDN cloud. If the Atlas 550 is used, be sure to use straight-through cables. Connect both routers to the BRI module ports of the Atlas 550, as labeled in the diagram.

Step 2

Configure both routers to use the appropriate ISDN switch type, National ISDN-1. PPP encapsulation and CHAP will be used on the B channels. For this reason, enter the case sensitive username and password information on both routers. Notice in the following, that this lab uses different passwords and username combinations than was done in previous labs:

```
SanJose1(config)#isdn switch-type basic-ni
SanJose1(config)#username Capetown password cisco
SanJose1(config)#username JULIET password cisco
```

```

SanJose1(config)#enable password cisco
SanJose1(config)#line vty 0 4
SanJose1(config-line)#password cisco
SanJose1(config-line)#login
Capetown(config)#isdn switch-type basic-ni
Capetown(config)#username SanJose1 password cisco
Capetown(config)#username ROMEO password cisco
Capetown(config)#enable password cisco
Capetown(config)#line vty 0 4
Capetown(config-line)#password cisco
Capetown(config-line)#login

```

Configure **dialer-list 5** on both routers to identify all IP traffic as “interesting”. The following is an example for SanJose1:

```
SanJose1(config)#dialer-list 5 protocol ip permit
```

Step 3

Configure the BRI on SanJose1 and Capetown to use dialer profiles. In this lab, configure both BRIs to be members of two dialer pools as follows:

Note: Remember, that the encapsulation configuration commands must be entered for both the physical interface, BRI 0/0, and the logical interface such as dialer0.

```

SanJose1(config)#interface bri0/0
SanJose1(config-if)#isdn spid1 51055510000001 5551000
SanJose1(config-if)#isdn spid2 51055510010001 5551001
SanJose1(config-if)#encapsulation ppp
SanJose1(config-if)#ppp authentication chap
SanJose1(config-if)#dialer pool-member 1
SanJose1(config-if)#no shutdown

Capetown(config)#interface bri0/0
Capetown(config-if)#isdn spid1 51055520000001 5552000
Capetown(config-if)#isdn spid2 51055520010001 5552001
Capetown(config-if)#encapsulation ppp
Capetown(config-if)#ppp authentication chap
Capetown(config-if)#dialer pool-member 1
Capetown(config-if)#no shutdown

```

Step 4

On both routers, create a map-class called AGGRESSIVE that can be used to apply multiple dialer configurations to a dialer string easily. Issue the following commands on both routers. The following is an example for SanJose1:

```

SanJose1(config)#map-class dialer AGGRESSIVE
SanJose1(config-map-class)#dialer idle-timeout 30
SanJose1(config-map-class)#dialer fast-idle 10
SanJose1(config-map-class)#dialer wait-for-carrier-time 25
SanJose1(config-map-class)#exit

```

1. Other than a dialer **map-class**, what other types of **map-class** can be configured?

Note: Use the Help feature to find the answer.

Step 5

Configure the dialer interfaces for both routers as follows, starting with SanJose1:

Note: The dialer interface receives the logical configuration that is applied to a physical interface.

```
SanJose1(config)#interface dialer 0
SanJose1(config-if)#ip address 192.168.16.1 255.255.255.0
SanJose1(config-if)#dialer pool 1
SanJose1(config-if)#encapsulation ppp
SanJose1(config-if)#ppp authentication chap
SanJose1(config-if)#dialer remote-name Capetown
SanJose1(config-if)#dialer-group 5
SanJose1(config-if)#dialer string 5552000 class AGGRESSIVE
SanJose1(config-if)#dialer string 5552001 class AGGRESSIVE

SanJose1(config)#interface dialer 1
SanJose1(config-if)#ip address 172.16.0.1 255.255.255.0
SanJose1(config-if)#dialer pool 1
SanJose1(config-if)#encapsulation ppp
SanJose1(config-if)#ppp authentication chap
SanJose1(config-if)#ppp chap hostname ROMEO
SanJose1(config-if)#dialer remote-name JULIET
SanJose1(config-if)#dialer-group 5
SanJose1(config-if)#dialer string 5552000 class AGGRESSIVE
SanJose1(config-if) #dialer string 5552001 class AGGRESSIVE
```

1. By applying the map-class AGGRESSIVE to each dialer string, which timers are being configured?

2. What does the command `ppp chap hostname ROMEO` do?

Now create the dialer profiles on Capetown as shown in the following:

```
Capetown(config)#interface dialer 0
Capetown(config-if)#ip address 192.168.16.3 255.255.255.0
Capetown(config-if)#dialer pool 1
Capetown(config-if)#encapsulation ppp
Capetown(config-if)#ppp authentication chap
Capetown(config-if)#dialer remote-name SanJose1
Capetown(config-if)#dialer-group 5
Capetown(config-if)#dialer string 5551000 class AGGRESSIVE
Capetown(config-if)#dialer string 5551001 class AGGRESSIVE
Capetown(config)#interface dialer 1
Capetown(config-if)#ip address 172.16.0.3 255.255.255.0

Capetown(config-if)#dialer pool 1
Capetown(config-if)#encapsulation ppp
Capetown(config-if)#ppp authentication chap
Capetown(config-if)#ppp chap hostname JULIET
Capetown(config-if)#dialer remote-name ROMEO
Capetown(config-if)#dialer-group 5
```

```
Capetown(config-if)#dialer string 5551000 class AGGRESSIVE
Capetown(config-if)#dialer string 5551001 class AGGRESSIVE
```

Step 6

To simplify testing, create hostname mappings on both routers:

```
SanJose1(config)#ip host Capetown 192.168.16.3
SanJose1(config)#ip host JULIET 172.16.0.3

Capetown(config)#ip host SanJose1 192.168.16.1
Capetown(config)#ip host ROMEO 172.16.0.1
```

Note: Make sure that the host names configured here exactly match the previously configured chap and dialer remote host names.

Step 7

Before connecting, issue the `show dialer` command.

1. According to the output of this command, what is the dialer idle timeout for BRI0/0:1 set to?

2. What is the fast idle timer for BRI0/0:1 set to?

Use the `show isdn status` command on both routers to check the ISDN Layer 2 and SPID status. Use the `clear interface bri0/0` command, multiple times if necessary, to enable a SPID status of established and valid.

Now test the dialer profile operation. Enter the `debug dialer` and `debug ppp authentication` commands. Ping Capetown, 192.168.16.3, from SanJose1 using the following command:

```
SanJose1#ping Capetown
```

SanJose1 should dial Capetown and connect. The pings should eventually be successful, as the following shows:

```
Sending 5, 100-byte ICMP Echos to 192.168.16.3, timeout is 2 seconds:
00:49:26: BRI0/0 DDR: rotor dialout [priority]
00:49:26: BRI0/0 DDR: Dialing cause ip (s=192.168.16.1, d=192.168.16.3)
00:49:26: BRI0/0 DDR: Attempting to dial 5552000
00:49:111669149728: %LINK-3-UPDOWN: Interface BRI0/0:1, changed state to up
00:49:113835732748: BRI0/0:1: interface must be fifo queue, force fifo
00:49:113835732564: %DIALER-6-BIND: Interface BRI0/0:1 bound to
profile Dialer0
00:49:115964116991: %ISDN-6-CONNECT: Interface BRI0/0:1 is now
connected to 5552000
00:49:111698112601: isdn_call_connect: Calling lineaction of BRI0/0:1.
00:49:28: BR0/0:1 DDR: Dialer protocol up
00:49:28: BRI0/0:1 DDR: dialer protocol up
00:49:28: Dialer0: dialer_ckt_swt_client_connect: incoming circuit
switched call.!!!
Success rate is 60 percent (3/5), round-trip min/avg/max = 32/32/32 ms
```

3. According to the output of the `debug dialer` command, what logical interface has been bound to interface BRI0/0:1?
-
-

Troubleshoot as necessary. With SanJose1 still connected to Capetown, reconnect if necessary, `ping` JULIET from SanJose1 using the following command:

```
SanJose1#ping JULIET
```

Again, the connection and pings should eventually be successful, using the second B Channel, BRI0/0:2. Troubleshoot as necessary.

4. According to the output of the `debug dialer` command, what logical interface has been bound to interface BRI0/0:2?
-
-

With both connections still active, issue the `show dialer` command on SanJose1. A partial sample output is shown as follows:

```
SanJose1#show dialer
<output omitted>
BRI0/0:1 - dialer type = ISDN
Idle timer (30 secs), Fast idle timer (10 secs)
Wait for carrier (25 secs), Re-enable (15 secs)
Dialer state is data link layer up
Dial reason: ip (s=192.168.16.1, d=192.168.16.3)
Interface bound to profile Dialer0
Time until disconnect 4 secs
Current call connected 00:00:29
Connected to 5552000 (Capetown)

BRI0/0:2 - dialer type = ISDN
Idle timer (30 secs), Fast idle timer (10 secs)
Wait for carrier (25 secs), Re-enable (15 secs)
Dialer state is data link layer up
Dial reason: ip (s=172.16.0.1, d=172.16.0.3)
Interface bound to profile Dialer1
Time until disconnect 19 secs
Current call connected 00:00:13
Connected to 5552001 (JULIET)

Dialer0 - 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 = 0
Number of active circuit switched calls = 0
<output omitted>
```

5. According to the output of the `show dialer` command, what phone number is BRI0/0:1 connected to? What is the hostname of that router?
-
-

6. What phone number is BRI0/0:2 connected to? What is the hostname of that router?
-
-

7. According to the output of the `show dialer` command, what is the idle timer for BRI0/0:1 set to?

8. What is the fast idle timer for BRI0/0:1 set to?

9. Why did these values change when SanJose1 connected to Capetown?

10. What is one advantage of using a dialer profile instead of a dedicated configuration on the BRI?

11. What is one advantage of using a dialer map-class?
