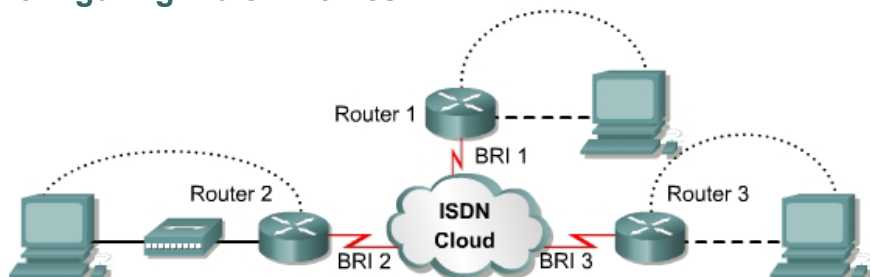


Lab 4.3.7 Configuring Dialer Profiles



Router Designation	Router Name	Enable Secret Password	Passwords	FastEthernet 0 Address/Subnet Mask
Router 1	Tokyo	class	cisco	192.168.1.1/24
Router 2	Moscow	class	cisco	192.168.2.1/24
Router 3	Sydney	class	cisco	192.168.3.1/24

Router Designation	Router Name	SPID Numbers	Phone Numbers	Adtran Connection
Router 1	Tokyo	51055510000001 51055510010001	5551000 5551001	BRI 1
Router 2	Moscow	51055520000001 51055520010001	5552000 5552001	BRI 2
Router 3	Sydney	51055530000001 51055530010001	5553000 5553001	BRI 3

Straight-through cable	—————	Console (rollover)	
Serial cable	————— Z	Crossover cable	-----

Objective

- Configure ISDN Dialer Profiles on the routers enabling a dial-on-demand routing (DDR) call to be made from two remote routers simultaneously into a central ISDN BRI router.

Background/Preparation

In this lab, 3 ISDN routers are required. If ISDN routers are not available, review the lab to become familiar with the process. An Adtran Atlas550 ISDN emulator is used to simulate the switch/ISDN cloud.

Cable a network similar to the one in the diagram above. Any router that meets the interface requirements displayed on the above diagram may be used. This includes the following and any of their possible combinations:

- 800 series routers
- 1600 series routers
- 1700 series routers
- 2500 series routers
- 2600 series routers

Please refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce slightly different output. Conduct the following steps on each router unless specifically instructed otherwise.

Start a HyperTerminal session.

Note: Refer to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

Step 1 Configure the router

Configure the following according to the chart:

- The hostname
- The console
- The virtual terminal
- The enable passwords

If problems occur during this configuration, refer to Lab 1.1.4a Configuring NAT.

Step 2 Define switch type and spid numbers

To configure the switch type and spid numbers use the following commands.

```
Router(config)#hostname Tokyo
Tokyo(config)#enable secret class
Tokyo(config)#isdn switch-type basic-ni
Tokyo(config)#interface fastethernet 0
Tokyo(config-if)#ip address 192.168.1.1 255.255.255.0
Tokyo(config-if)#no shutdown
Tokyo(config-if)#exit
Tokyo(config)#interface bri 0
Tokyo(config-if)#isdn spid1 51055510000001 5551000
Tokyo(config-if)#isdn spid2 51055510010001 5551001
Tokyo(config-if)#no shutdown
```

```
Router(config)#hostname Moscow
Moscow(config)#enable secret class
Moscow(config)#isdn switch-type basic-ni
Moscow(config)#interface fastethernet 0
Moscow(config-if)#ip address 192.168.2.1 255.255.255.0
Moscow(config-if)#no shutdown
Moscow(config-if)#exit
Moscow(config)#interface bri 0
Moscow(config-if)#isdn spid1 51055520000001 5552000
Moscow(config-if)#isdn spid2 51055520010001 5552001
Moscow(config-if)#no shutdown
```

```
Router(config)#hostname Sydney
Sydney(config)#enable secret class
Sydney(config)#isdn switch-type basic-ni
Sydney(config)#interface fastethernet 0
Sydney(config-if)#ip address 192.168.3.1 255.255.255.0
Sydney(config-if)#no shutdown
Sydney(config-if)#exit
Sydney(config)#interface bri 0
Sydney(config-if)#isdn spid1 51055530000001 5553000
Sydney(config-if)#isdn spid2 51055530010001 5553001
Sydney(config-if)#no shutdown
```

Step 3 Defining static routes for DDR

Use static and default routes instead of dynamic routing, in order to reduce the cost of the dialup connection. To configure a static route, the network address of the network that is going to be reached must be known. The IP address of the next router on the path to this destination must be known as well.

```
Moscow#configure terminal
Moscow(config)#ip route 0.0.0.0 0.0.0.0 192.168.253.1

Sydney#configure terminal
Sydney(config)#ip route 0.0.0.0 0.0.0.0 192.168.254.1

Tokyo#configure terminal
Tokyo(config)#ip route 192.168.2.0 255.255.255.0 192.168.253.2
Tokyo(config)#ip route 192.168.3.0 255.255.255.0 192.168.254.2
```

Step 4 Specifying interesting traffic for DDR

Traffic must be defined as 'interesting' to cause the DDR interface to dialup the remote router. For the moment, declare that all IP traffic is interesting using the `dialer-list` command.

```
Moscow(config)#dialer-list 1 protocol ip permit
Moscow(config)#interface dialer 0
Moscow(config-if)#dialer-group 1

Sydney(config)#dialer-list 1 protocol ip permit
Sydney(config)#interface dialer 0
Sydney(config-if)#dialer-group 1

Tokyo#configure terminal
Tokyo(config)#dialer-list 1 protocol ip permit
Tokyo(config)#interface dialer 1
Tokyo(config-if)#description The Profile for the Moscow router
Tokyo(config-if)#dialer-group 1
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#description The Profile for the Sydney router
Tokyo(config-if)#dialer-group 1
```

Step 5 Configuring DDR dialer information

Configure the correct dialer information so that the dialer profile and dialer interface function correctly. This includes all of the following:

- IP address information
- PPP configuration
- Name
- Passwords
- Dial number

```

Tokyo(config)#interface dialer 1
Tokyo(config-if)#ip address 192.168.253.1 255.255.255.0
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#ip address 192.168.254.1 255.255.255.0
Tokyo(config-if)#interface bri 0
Tokyo(config-if)#encapsulation ppp
Tokyo(config-if)#ppp authentication chap
Tokyo(config-if)#interface dialer 1
Tokyo(config-if)#encapsulation ppp
Tokyo(config-if)#ppp authentication chap
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#encapsulation ppp
Tokyo(config-if)#ppp authentication chap
Tokyo(config-if)#exit
Tokyo(config)#username Moscow password class
Tokyo(config)#username Sydney password class

Moscow(config)#interface dialer 0
Moscow(config-if)#ip address 192.168.253.2 255.255.255.0
Moscow(config-if)#interface bri 0
Moscow(config-if)#encapsulation ppp
Moscow(config-if)#ppp authentication chap
Moscow(config-if)#interface dialer 0
Moscow(config-if)#encapsulation ppp
Moscow(config-if)#ppp authentication chap
Moscow(config-if)#no shutdown
Moscow(config-if)#exit
Moscow(config)#username Tokyo password class

Sydney(config)#interface dialer 0
Sydney(config-if)#ip address 192.168.254.2 255.255.255.0
Sydney(config-if)#interface bri 0
Sydney(config-if)#encapsulation ppp
Sydney(config-if)#ppp authentication chap
Sydney(config-if)#interface dialer 0
Sydney(config-if)#encapsulation ppp
Sydney(config-if)#ppp authentication chap
Sydney(config-if)#no shutdown
Sydney(config-if)#exit
Sydney(config)#username Tokyo password class

```

Step 6 Configure dialer information

- a. Next, the dial information must be configured to specify the remote name of the remote router in the Dialer Profile. The dial string, or phone number to use to contact this remote device must also be specified. Use the following commands to do this:

```

Tokyo(config)#interface dialer 1
Tokyo(config-if)#dialer remote-name Moscow
Tokyo(config-if)#dialer string 5552000
Tokyo(config-if)#dialer string 5552001
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#dialer remote-name Sydney
Tokyo(config-if)#dialer string 5553000
Tokyo(config-if)#dialer string 5553001

```

- b. To configure the dial information on Moscow, use the following:

```
Moscow(config-if)#interface dialer 0
Moscow(config-if)#dialer remote-name Tokyo
Moscow(config-if)#dialer string 5551000
Moscow(config-if)#dialer string 5551001
```

- c. To configure the dial information on Sydney, use the following:

```
Sydney(config-if)#interface dialer 0
Sydney(config-if)#dialer remote-name Tokyo
Sydney(config-if)#dialer string 5551000
Sydney(config-if)#dialer string 5551001
```

Step 7 Associate dialer profiles

- a. Finally, associate the Dialer Profiles with the Dialer Interfaces that will be used, when needed. Create a Dialer Pool, and put the interfaces and the associated Dialer Profiles in a common pool. The commands for doing this are as follows:

```
Tokyo(config-if)#interface bri 0
Tokyo(config-if)#dialer pool-member 1
Tokyo(config-if)#interface dialer 1
Tokyo(config-if)#dialer pool 1
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#dialer pool 1
```

- b. On Moscow, the commands issued would be as follows:

```
Moscow(config-if)#interface bri 0
Moscow(config-if)#dialer pool-member 1
Moscow(config-if)#interface dialer 0
Moscow(config-if)#dialer pool 1
```

- c. Use the same commands to configure the Sydney router.

Step 8 Configure dialer timeouts

- a. Configure a **dialer idle-timeout** of 60 seconds for each of the dialer interfaces:

```
Tokyo(config)#interface dialer 1
Tokyo(config-if)#dialer idle-timeout 60
Tokyo(config-if)#interface dialer 2
Tokyo(config-if)#dialer idle-timeout 60
```

- b. Repeat these commands on Moscow and Sydney.

Step 9 View the Tokyo router configuration

- a. To view the configuration, use the `show running-config` command:

```
Tokyo#show running-config
```

- b. How many username statements are there?
-

- c. What authentication type is being used for PPP?
-

- d. Which sections of the configuration list the authentication type?
-

- e. What are the dialer strings on the Tokyo router?
-

Step 10 Verifying the DDR Configuration

- a. Now, generate some interesting traffic across the DDR link from Moscow and Sydney to verify that connections are made correctly and the dialer profiles are functioning:

```
Moscow#ping 192.168.1.1
```

- b. Were the pings successful?
-

- c. If not troubleshoot the router configurations.

- d. What other information was displayed when the ping was issued?
-

```
Sydney#ping 192.168.1.1
```

- e. Were the pings successful?
-

- f. If the pings were not successful troubleshoot the router configurations.

- g. Use the `show dialer` command to see the reason for the call. This information is shown for each channel:

```
Tokyo#show dialer
```

- h. Which dialer strings are associated with Dialer1? _____

- i. What is the last status for dial string 5553000 in the Dialer2 readout? _____

- j. Use the `show interface` command and note that the output shows that the interface is spoofing. This provides a mechanism for the interface to simulate an active state for internal processes, such as routing, on the router. The `show interface` command can also be used to display information about the B channel:

```
Tokyo#show interface bri 0
```

Upon completion of the previous steps, finish the lab by doing the following:

- Logoff by typing `exit`
- Turn the router off
- Remove and store the cables and adapter

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class** (if that does not work, ask the instructor).

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue? [confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router(config)#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

Now the router is ready for the assigned lab to be performed.

Router Interface Summary				
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)		
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)
In order to find out exactly how the router is configured, look at the interfaces. This will identify what type and how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in an IOS command to represent the interface.				