



# Configuring Dial Backup and Remote Management

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The Cisco 800 series access routers support dial-in (for remote management) and dial-out (for dial backup) capabilities. By allowing you to configure a backup modem line connection, the Cisco 800 series access routers provide protection against WAN downtime. Dial backup is inactive by default, and must be configured to be active.

Dial backup functions can be configured as follows:

- Through the auxiliary port on any Cisco 870 series router
- Through the ISDN S/T port on a Cisco 876 with an advanced enterprise (c870-adventerprisek9-mz) image

Remote management functions can be configured as follows:

- Through the auxiliary port on any Cisco 850 or Cisco 870 series router
- Through the ISDN S/T port on the Cisco 876 and Cisco 878 routers



**Note**

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The console port and the auxiliary port in the Cisco IOS software configuration are on the same physical RJ-45 port; therefore, both ports cannot be activated simultaneously, and the command-line interface (CLI) must be used to enable the desired function.

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This chapter contains the following topics:

[Dial Backup Feature Activation Methods](#)

[Dial Backup Feature Limitations](#)

[Configuring Dial Backup and Remote Management Through the Console or Auxiliary Port](#)

[Configuring Dial Backup and Remote Management Through the ISDN S/T Port](#)

## Dial Backup Feature Activation Methods

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## Backup Interfaces

You can configure the backup interface to go down once the primary connection has been restored for a specified period.

This is accomplished using dial-on-demand routing (DDR). When this is configured, a backup call is triggered by specified traffic.



### Note

Even if the backup interface comes out of standby mode (is brought up), the router does not trigger the backup call unless it receives the specified traffic for that backup interface.

## Configuring Backup Interfaces

	Command	Purpose
Step 1	<b>interface</b> <i>type number</i>  <b>Example:</b> Router (config) # <b>interface atm 0</b> Router (config-if) #	
Step 2	<b>backup interface</b> <i>interface-type interface-number</i>  <b>backup interface bri 0</b>	interface. For example, a serial 1 interface could be configured to back up a serial 0 interface. The example shows a Basic Rate Interface configured as the backup interface for the ATM 0 interface.
Step 3	<b>exit</b>  <b>exit</b>	

## Floating Static Routes



## Configuring Floating Static Routes

	Command	Purpose
Step 1	<pre>ip route <i>prefix mask {ip-address  </i>     [<i> </i> ]}  22.0.0.2      ip route 0.0.0.0 0.0.0.0</pre>	
	<pre>192.168.2.2 150 ip route 0.0.0.0 0.0.0.0</pre>	value for the backup interface route. 192.168.2.2 is the peer IP address of the backup interface.
	<pre>router rip</pre>	Enables RIP routing.
Step 4	<pre>network  network 22.0.0.0</pre>	
Step 5	<p><b>Example:</b></p>	



## Dialer Watch

The dialer watch method only supports the Extended Interior Gateway Routing Protocol (EIGRP) link-state dynamic routing protocols.

### Configuring Dialer Watch

	Command	Purpose
Step 1	<b>Example:</b>  <code>interface dialer 2</code>	
	<code>dialerwatch-group group-number</code>  <code>dialer watch-group 2</code>	
	  <code>exit</code>	
	  <code>ip route 0.0.0.0 0.0.0.0 22.0.0.2</code>	

<p><b>Step 5</b></p> <p><b>Example:</b></p>	<pre> { } [ ] [ ] </pre>	<p>Assigns the lower routing administrative distance value for the backup interface route. 192.168.2.2 is the peer IP address of the backup interface.</p>
<p><b>Step 6</b></p>	<pre> dialerwatch-list ip delay route-check initial  dialer watch-list 2 ip 22.0.0.2 255.255.255.255 </pre>	

## Dial Backup Feature Limitations

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Table 13-1 summarizes dial backup support and limitations for the Cisco 800 series access routers.

**Table 13-1 Dial Backup Feature Support and Limitations Summary**

WAN Encapsulation Type	Dial Backup Possible?	Dial Backup Method	Limitations
<b>Cisco 851 or 871</b>			
			work properly. If a lease time obtained by DHCP is not set short enough (1 or 2 minutes), dial backup will not be supported.

### Dial Backup Feature Support and Limitations Summary (continued)

<b>Cisco 876, 877, or 878</b>			
SNAP, and MUX)	Yes	Backup interfaces Floating static routes Dialer watch	If bridging is done through the WAN interface, it is not supported across the auxiliary port.

## Configuration Example

### Example 13-1 Configuring Dial Backup Using Backup Interfaces

```
!  
vpdn enable  
!  
vpdn-group 1  
  accept-dialin  
  protocol pppoe  
!  
! Specifies the ISDN switch type  
isdn switch-type basic-net3  
!  
interface vlan 1  
  ip address 192.168.1.1 255.255.255.0  
  hold-queue 100 out  
!  
! ISDN interface to be used as a backup interface  
interface BRI0  
  no ip address  
  encapsulation ppp  
  dialer pool-member 1  
  isdn switch-type basic-net3  
!  
interface ATM0  
  backup interface BRI0  
  no ip address  
  no atm ilmi-keepalive  
  pvc 1/40  
  encapsulation aal5snap  
  pppoe-client dial-pool-number 2
```

```
! Dial backup interface, associated with physical BRI0 interface.
! Dialer pool 1 associates it with BRI0's dialer pool member 1.
interface Dialer0
  ip address negotiated
  encapsulation ppp
  dialer pool 1
  dialer idle-timeout 30
  dialer string 384040
  dialer-group 1
!
! Primary interface associated with physical ATM0's interface.
! Dialer pool 2 associates it with ATM0's dial-pool-number2.
interface Dialer2
  ip address negotiated
  ip mtu 1492
  encapsulation ppp
  dialer pool 2
  dialer-group 2
  no cdp enable
!
ip classless
! Primary and backup interface are given route metric
ip route 0.0.0.0 0.0.0.0 22.0.0.2
ip route 0.0.0.0 0.0.0.0 192.168.2.2 80
ip http server
!
! Specifies interesting traffic to trigger backup ISDN traffic.
dialer-list 1 protocol ip permit
```

**Example 13-2 Configuring Dial Backup Using Floating Static Routes**

```
! Primary and backup interface are given route metric. (This example uses static routes,  
! thus atm0 line protocol must be brought down for backup interface to function.)  
ip route 0.0.0.0 0.0.0.0 22.0.0.2  
ip route 0.0.0.0 0.0.0.0 192.168.2.2 150  
ip http server  
!  
! Specifies interesting traffic to trigger backup ISDN traffic.  
dialer-list 1 protocol ip permit
```

### ***Configuring Dial Backup Using Dialer Watch***

```
interface Ethernet0  
  ip address 192.168.1.1 255.255.255.0  
  hold-queue 100 out  
!  
! ISDN interface to be used as a backup interface.  
interface BRI0  
  no ip address  
  encapsulation ppp  
  dialer pool-member 1  
  isdn switch-type basic-net3  
!  
interface ATM0  
  no ip address  
  no atm ilmi-keepalive  
  pvc 1/40  
  encapsulation aal5snap  
  pppoe-client dial-pool-number 2
```

```

! Note "dialer watch-group 1" associates a watch list with corresponding
! "dialer watch-list" command.
interface Dialer0
  ip address negotiated
  encapsulation ppp
  dialer pool 1
  dialer idle-timeout 30
  dialer string 384040
  dialer watch-group 1
  dialer-group 1
!
! Primary interface associated with physical ATM0 interface.
! Dialer pool 2 associates it with ATM0's dial-pool-number2.
interface Dialer2
  ip address negotiated
  ip mtu 1492
  encapsulation ppp
  dialer pool 2
  dialer-group 2
  no cdp enable
!
ip classless
!
! Primary and backup interface are given route metric.
ip route 0.0.0.0 0.0.0.0 22.0.0.2
ip route 0.0.0.0 0.0.0.0 192.168.2.2 80
ip http server
!
! Watch for interesting traffic.
dialer watch-list 1 ip 22.0.0.2 255.255.255.255

! Specifies interesting traffic to trigger backup ISDN traffic.
dialer-list 1 protocol ip permit
!

```

## Configuring Dial Backup and Remote Management Through the Console or Auxiliary Port

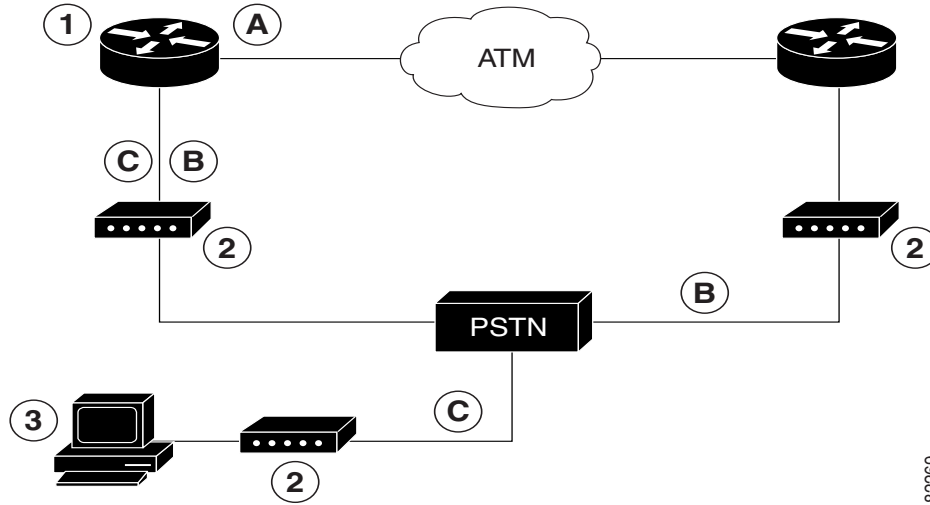
When customer premises equipment, such as a Cisco 850 or Cisco 870 series router is connected to an ISP, an IP address is dynamically assigned to the router, or the IP address may be assigned by the router peer through the centrally managed function. The dial backup feature can be added to provide a failover route in case the primary line fails. Cisco 850 and Cisco 870 routers can use the auxiliary port for dial backup and remote management.



### Note

The cable modem environment is currently not supported.

**Dial Backup and Remote Management Through the Auxiliary Port**



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1		A	
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**Configuration Tasks**

Step 2	<pre>ip name-server server-address</pre> <pre>ip name-server 192.168.28.12</pre>	<p><b>Tip</b></p>
	<p><b>Example:</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">“Configuration Example” section on page 13-13.</a></li> </ul>

Command	Purpose
	Enters global configuration mode.
<pre>chat-script Dialout ABORT ERROR ABORT BUSY "" "AT" OK "ATDT 5555102 T" TIMEOUT 45 CONNECT \c</pre>	
<pre>interface Async 1</pre>	
<pre>exit</pre>	
<pre>interface Dialer 3</pre>	
<pre>dialer watch-group 1</pre>	
<p><b>Step 9</b></p> <p><b>Example:</b></p> <pre>exit</pre>	

Step 10

*access-list-number*  
*type number | name*

*source-wildcard*

*group-number ip-address*  
*address-mask*  
*seconds*

*line-number*  
*ending-line-number*

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

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

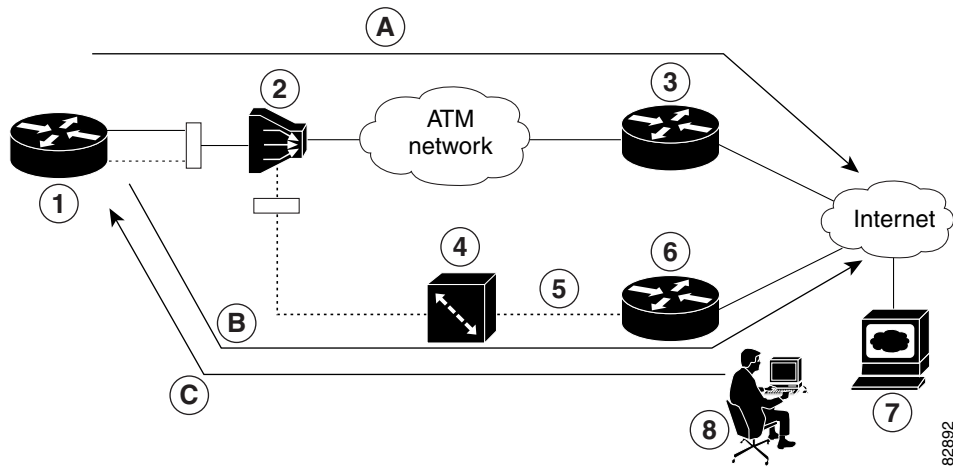
```
modemcap entry MY-USER_MODEM:MSC=&F1S0=1
chat-script Dialout ABORT ERROR ABORT BUSY "" "AT" OK "ATDT 5555102\T"
TIMEOUT 45 CONNECT \c
!
!
!
!
interface vlan 1
 ip address 192.168.1.1 255.255.255.0
 ip nat inside
 ip tcp adjust-mss 1452
 hold-queue 100 out
!
! Dial backup and remote management physical interface.
interface Async1
 no ip address
 encapsulation ppp
 dialer in-band
 dialer pool-member 3
 async default routing
 async dynamic routing
 async mode dedicated
 ppp authentication pap callin
!
```

```
interface ATM0
  mtu 1492
  no ip address
  no atm ilmi-keepalive
  pvc 0/35
  pppoe-client dial-pool-number 1
!
dsl operating-mode auto
!
! Primary WAN link.
interface Dialer1
  ip address negotiated
  ip nat outside
  encapsulation ppp
  dialer pool 1
  ppp authentication pap callin
  ppp pap sent-username account password 7 pass
  ppp ipcp dns request
  ppp ipcp wins request
  ppp ipcp mask request
!
! Dialer backup logical interface.
interface Dialer3
  ip address negotiated
  ip nat outside
  encapsulation ppp
  no ip route-cache
  no ip mroute-cache
  dialer pool 3
  dialer idle-timeout 60
  dialer string 5555102 modem-script Dialout
  dialer watch-group 1
!
! Remote management PC IP address.
peer default ip address 192.168.2.2
no cdp enable
!
! Need to use your own ISP account and password.
ppp pap sent-username account password 7 pass
ppp ipcp dns request
ppp ipcp wins request
ppp ipcp mask request
!
! IP NAT over Dialer interface using route-map.
ip nat inside source route-map main interface Dialer1 overload
ip nat inside source route-map secondary interface Dialer3 overload
ip classless
!
! When primary link is up again, distance 50 will override 80 if dial backup
! has not timed out. Use multiple routes because peer IP addresses are alternated
! among them when the CPE is connected.
ip route 0.0.0.0 0.0.0.0 64.161.31.254 50
ip route 0.0.0.0 0.0.0.0 66.125.91.254 50
ip route 0.0.0.0 0.0.0.0 64.174.91.254 50
ip route 0.0.0.0 0.0.0.0 63.203.35.136 80
ip route 0.0.0.0 0.0.0.0 63.203.35.137 80
ip route 0.0.0.0 0.0.0.0 63.203.35.138 80
ip route 0.0.0.0 0.0.0.0 63.203.35.139 80
ip route 0.0.0.0 0.0.0.0 63.203.35.140 80
ip route 0.0.0.0 0.0.0.0 63.203.35.141 80
ip route 0.0.0.0 0.0.0.0 Dialer1 150
no ip http server
ip pim bidir-enable
!
```

```
! PC IP address behind CPE.
access-list 101 permit ip 192.168.0.0 0.0.255.255 any
access-list 103 permit ip 192.168.0.0 0.0.255.255 any
!
! Watch multiple IP addresses because peers are alternated
! among them when the CPE is connected.
dialer watch-list 1 ip 64.161.31.254 255.255.255.255
dialer watch-list 1 ip 64.174.91.254 255.255.255.255
dialer watch-list 1 ip 64.125.91.254 255.255.255.255
!
! Dial backup will kick in if primary link is not available
! 5 minutes after CPE starts up.
dialer watch-list 1 delay route-check initial 300
dialer-list 1 protocol ip permit
!
! Direct traffic to an interface only if the dialer is assigned an IP address.
route-map main permit 10
  match ip address 101
  match interface Dialer1
!
route-map secondary permit 10
  match ip address 103
  match interface Dialer3
!
! Change console to aux function.
line con 0
  exec-timeout 0 0
  modem enable
  stopbits 1
line aux 0
  exec-timeout 0 0
  ! To enable and communicate with the external modem properly.
  script dialer Dialout
  modem InOut
  modem autoconfigure discovery
  transport input all
  stopbits 1
  speed 115200
  flowcontrol hardware
line vty 0 4
  exec-timeout 0 0
  password cisco
  login
!
scheduler max-task-time 5000
end
```

# Configuring Dial Backup and Remote Management Through the ISDN S/T Port

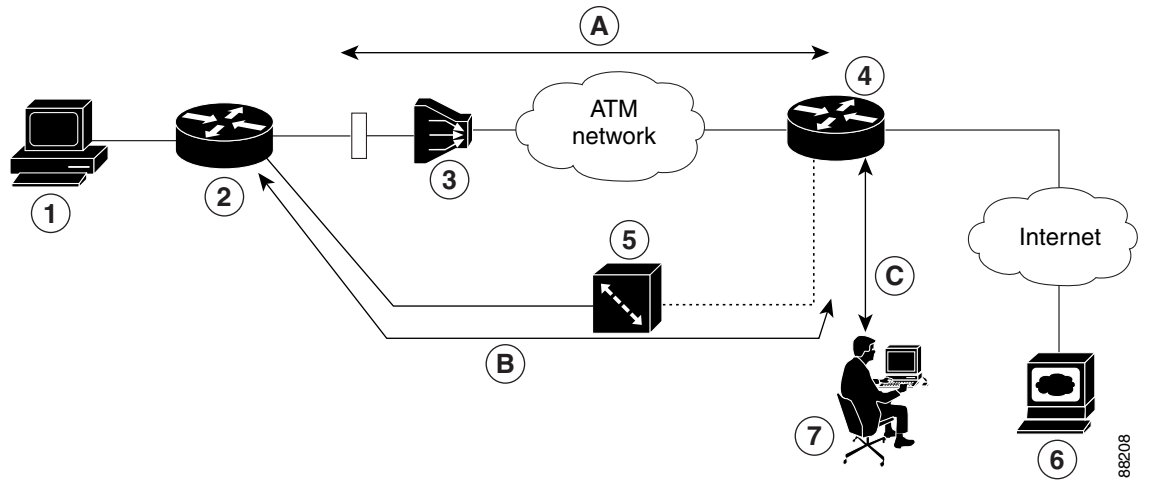
*Dial Backup Through CPE Splitter, DSLAM, and CO Splitter*



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4			
5		<b>C</b>	
6			
7			
8			

*Dial Backup Directly from Router to ISDN Switch*



1		A	
2		B	
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**Configure ISDN Settings**

  
Note

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<i>switch-type</i>	Australia, Europe, and the United Kingdom. For details on other switch types supported, see the <a href="#">Cisco IOS Dial Technologies Command Reference</a> .
<i>type number</i>	
<i>encapsulation-type</i>	
<i>number</i>	
<i>switch-type</i>	
<i>dialer-rotary-group-number</i>	Creates a dialer interface (numbered 0–255) and enters interface configuration mode.



## Configure the Aggregator and ISDN Peer Router

The aggregator is typically a concentrator router where your Cisco router ATM PVC terminates. In the configuration example shown below, the aggregator is configured as a PPPoE server to correspond with the Cisco 876 router configuration example that is given in this chapter.

The ISDN peer router is any router that has an ISDN interface and can communicate through a public ISDN network to reach your Cisco router ISDN interface. The ISDN peer router provides Internet access for your Cisco router during the ATM network downtime.

```
interface Virtual-Template1
 ip address 22.0.0.2 255.255.255.0
 ip mtu 1492
 peer default ip address pool adsl
!
interface ATM0
 no ip address
 pvc 1/40
 encapsulation aal5snap
 protocol pppoe
!
 no atm limi-keepalive
!
 ip local pool adsl 22.0.0.1
 ip classless
 ip route 0.0.0.0 0.0.0.0 22.0.0.1 50
 ip route 0.0.0.0 0.0.0.0 30.1.1.2.80

! This portion of the example configures the ISDN peer.
 isdn switch-type basic-net3
!
 interface Ethernet0
 ip address 30.1.1.2 255.0.0.0
!
 interface BRI0
 description "to 836-dialbackup"
 no ip address
 encapsulation ppp
 dialer pool-member 1
 isdn switch-type basic-net3
!
```

```
interface Dialer0
 ip address 192.168.2.2 255.255.255.0
 encapsulation ppp
 dialer pool 1
 dialer string 384020
 dialer-group 1
 peer default ip address pool isdn
 !
 ip local pool isdn 192.168.2.1
 ip http server
 ip classless
 ip route 0.0.0.0 0.0.0.0 192.168.2.1
 ip route 40.0.0.0 255.0.0.0 30.1.1.1
 !
 dialer-list 1 protocol ip permit
 !
```

