Configuring Backup Data Lines and Remote Management

Cisco 3900 series, Cisco 2900 series, and Cisco 1900 series integrated services routers (ISRs) support remote management and backup data connectivity by means of ISDN.

The following sections describe how to configure backup data lines and remote management:

- Configuring Backup Interfaces, page 97
- Configuring Dial Backup and Remote Management Through the Console Port or Auxiliary Port, page 109
- Configuring Data Line Backup and Remote Management Through the ISDN S/T Port, page 116
- Configuring Third-Party SFPs, page 121

Configuring Backup Interfaces

This section contains the following topics:

- Configuring the Backup Interface, page 97
- Configuring Gigabit Ethernet Failover Media, page 99
- Configuring Cellular Dial-on-Demand Routing Backup, page 101

Configuring the Backup Interface

When the router receives an indication that the primary interface is down, the backup interface is enabled. After the primary connection is restored for a specified period, the backup interface is disabled.

**Note**

For dial-on-demand routing (DDR) backup, even if the backup interface comes out of standby mode, the router does not enable the backup interface unless the router receives the traffic specified for that backup interface.

To configure the router with a backup interface, follow these steps, beginning in global configuration mode.
Chapter 18: Configuring Backup Data Lines and Remote Management

Configuring Backup Interfaces

SUMMARY STEPS

1. interface type number
2. backup interface interface-type interface-number
3. backup delay enable-delay disable-delay
4. exit

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Command</strong></td>
</tr>
<tr>
<td>interface type number</td>
<td>Enters interface configuration mode for the interface for which you want to configure backup.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config)# interface atm 0/0/0</td>
</tr>
<tr>
<td></td>
<td>Router(config-if)#</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>backup interface interface-type interface-number</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# backup interface bri 0/0/1</td>
</tr>
<tr>
<td></td>
<td>Router(config-if)#</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>backup delay enable-delay disable-delay</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# backup delay enable delay</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>exit</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# exit</td>
</tr>
<tr>
<td></td>
<td>Router(config)#</td>
</tr>
</tbody>
</table>
Configuring Gigabit Ethernet Failover Media

Cisco 2921, Cisco 2951, and Cisco 3900 Series routers provide a Gigabit Ethernet (GE) small-form-factor pluggable (SFP) port that supports copper and fiber concurrent connections. Media can be configured for failover redundancy when the network goes down.

**Note**
Do not connect back-to-back Cisco 2921, Cisco 2951, or Cisco 3900 Series routers with failover or as auto-detect configured. This is not a supported configuration and the behavior is unpredictable.

Assigning Primary and Secondary Failover Media

To assign primary and secondary failover media on the GE-SFP port, follow these steps, beginning in EXEC mode.

**SUMMARY STEPS**

1. configure terminal
2. interface gigabitethernet slot/port
3. media-type sfp
4. media-type sfp auto-failover
5. end

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Enters global configuration mode, when using the console port.</td>
</tr>
<tr>
<td>configure terminal</td>
<td>Use the following commands to connect to the router with a remote terminal: telnet router name or address Login: login id Password: ********* Router&gt; enable</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Enters interface configuration mode.</td>
</tr>
<tr>
<td>Router&gt; enable</td>
<td></td>
</tr>
<tr>
<td>Router# configure terminal</td>
<td></td>
</tr>
<tr>
<td>Router(config)#</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td>interface gigabitethernet slot/port</td>
<td>Enters interface configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>Router(config)# interface gigabitethernet 0/1</td>
<td></td>
</tr>
<tr>
<td>Router(config-if)#</td>
<td></td>
</tr>
</tbody>
</table>
### Enabling Auto-Detect

The Auto-Detect feature is enabled if media-type is not configured. This feature automatically detects which media is connected and links up. If both media are connected, whichever media comes up first is linked up.

**Note**

The Auto-Detect feature only works with 1 GigE SFPs. This feature does not detect 100M SFPs.

Use the `no media-type` command in interface configuration mode to enable the Auto-Detect feature.

To configure the Auto-Detect feature, follow these steps, beginning in global configuration mode.

**SUMMARY STEPS**

1. `configure terminal`
2. `interface gigabitethernet slot/port`
3. `no media-type`

---

**Command** | **Purpose**
---|---

### Configuring Backup Interfaces

<table>
<thead>
<tr>
<th>Step 3</th>
<th>media-type sfp</th>
</tr>
</thead>
</table>
| Example: | Router(config-if)# media-type sfp  
Router(config-if)# |
| Example: | Router(config-if)# media-type rj45  
Router(config-if)# |

### Step 4

<table>
<thead>
<tr>
<th>media-type sfp auto-failover</th>
</tr>
</thead>
</table>
| Example: | Router(config-if)# media-type sfp  
auto-failover  
Router(config-if)# |
| Example: | Router(config-if)# media-type rj45  
auto-failover  
Router(config-if)# |

### Step 5

<table>
<thead>
<tr>
<th>end</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exits to global configuration mode.</td>
</tr>
</tbody>
</table>
**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Step</th>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td><code>configure terminal</code></td>
<td>Enters global configuration mode.</td>
</tr>
</tbody>
</table>
| Example: | Router# configure terminal  
Router(config)# | |
| Step 2 | `interface gigabitethernet slot/port` | Enters interface configuration mode. |
| Example: | Router(config)# interface gigabitethernet 0/1  
Router(config-if)# | |
| Step 3 | `no media-type` | Enables Auto-Detect. If a 1 GigE SFP is plugged in, set the speed as 1000 and duplex as full. An RJ45 connection only works with speed as 1000 and duplex as full. If a SFP is not plugged in, all speeds and duplexes are available for the RJ45 media. |
| Example: | Router(config-if)# no media-type  
GigabitEthernet0/1: Changing media to UNKNOWN.  
You may need to update the speed and duplex settings for this interface. |

**Configuring Cellular Dial-on-Demand Routing Backup**

To monitor the primary connection and initiate the backup connection over the cellular interface when needed, the router can use one of the following methods:

- **Backup Interface**—Backup interface stays in standby mode until the primary interface line protocol is detected as down; then the backup interface is brought up. See the “Configuring Backup Interfaces” section on page 97.
- **Dialer Watch**—Dialer watch is a backup feature that integrates dial backup with routing capabilities. See the “Configuring DDR Backup Using Dialer Watch” section on page 102.
- **Floating Static Route**—Route through the backup interface has an administrative distance that is greater than the administrative distance of the primary connection route and therefore is not in the routing table until the primary interface goes down. When the primary interface goes down, the floating static route is used. See the “Configuring DDR Backup Using Floating Static Route” section on page 103.
- **Cellular Wireless Modem**—To configure the 3G wireless modem as backup with Network Address Translation (NAT) and IPSec on either Global System for Mobile Communications (GSM) or code division multiple access (CDMA) networks, see “Cellular Wireless Modem as Backup with NAT and IPSec Configuration” section on page 104.

**Note** You cannot configure a backup interface for the cellular interface or any other asynchronous serial interface.
Configuring DDR Backup Using Dialer Watch

To initiate dialer watch, you must configure the interface to perform dial-on-demand routing (DDR) and backup. Use traditional DDR configuration commands, such as `dialer map`, for DDR capabilities. To enable dialer watch on the backup interface and create a dialer list, use the following commands in interface configuration mode.

### SUMMARY STEPS

1. configure terminal
2. interface type number
3. dialer watch group group-number
4. dialer watch-list group-number ip ip-address address-mask
5. dialer-list dialer-group protocol protocol-name { permit | deny | list access-list-number | access-group }
6. ip access-list access list number permit ip source address
7. interface cellular 0
8. dialer string string

### DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong> interface type number</td>
<td>Specifies the interface.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router (config)# interface ATM 0</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong> dialer watch-group group-number</td>
<td>Enables dialer watch on the backup interface.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config-if)# dialer watch-group 2</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong> dialer watch-list group-number ip ip-address address-mask</td>
<td>Defines a list of all IP addresses to be watched.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config-if)# dialer watch-list 2 ip 10.4.0.254 255.255.0.0</td>
<td></td>
</tr>
<tr>
<td><strong>Step 5</strong> dialer-list dialer-group protocol protocol-name { permit</td>
<td>deny</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config)# dialer-list 2 protocol ip permit</td>
<td></td>
</tr>
</tbody>
</table>
### Configuring Backup Data Lines and Remote Management

#### Configuring Backup Interfaces

To configure a floating static default route on the secondary interface, use the following commands, beginning in global configuration mode.

**Note**
Make sure you have IP classless enabled on your router.

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td><code>ip access-list access-list-number permit ip-source-address</code></td>
<td>Defines traffic of interest. Do not use the <code>access list permit all</code> command to avoid sending traffic to the IP network. This may result in call termination.</td>
</tr>
<tr>
<td></td>
<td>Example: <code>Router(config)# access list 2 permit 10.4.0.0</code></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><code>interface cellular 0</code></td>
<td>Specifies the cellular interface.</td>
</tr>
<tr>
<td></td>
<td>Example: <code>Router (config)# interface cellular 0</code></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><code>dialer string string</code> or <code>dialer group dialer-group-number</code></td>
<td>CDMA only—<code>dialer string string</code> specifies the dialer script. (The dialer script is defined by using the <code>chat script</code> command). GSM only—<code>dialer group dialer-group-number</code> maps a dialer list to the dialer interface.</td>
</tr>
<tr>
<td></td>
<td>Example: <code>Router (config-if)# dialer string cdma *** cdma ***</code></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example: <code>Router (config-if)# dialer group 2 *** gsm ***</code></td>
<td></td>
</tr>
</tbody>
</table>

#### Configuring DDR Backup Using Floating Static Route

To configure a floating static default route on the secondary interface, use the following commands, beginning in global configuration mode.

**Note**
Make sure you have IP classless enabled on your router.

**SUMMARY STEPS**

1. configure terminal
2. `ip route network-number network-mask {ip address | interface} [administrative-distance] [name name]`
Chapter       Configuring Backup Data Lines and Remote Management

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td>configure terminal</td>
<td><strong>Enters global configuration mode from the terminal.</strong></td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Router# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>Establishes a floating static route with the configured administrative distance through the specified interface.</strong></td>
</tr>
<tr>
<td>ip route network-number network-mask {ip-address</td>
<td>interface} [administrative-distance] [name name]</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Router (config)# ip route 0.0.0.0 Dialer 2 track 234</td>
<td></td>
</tr>
</tbody>
</table>

Cellular Wireless Modem as Backup with NAT and IPSec Configuration

The following example shows how to configure the 3G wireless modem as backup with NAT and IPsec on either GSM or CDMA networks.

Note

The receive and transmit speeds cannot be configured. The actual throughput depends on the cellular network service.

Router# sh run
Building configuration...

Current configuration : 5833 bytes
!
! Last configuration change at 18:26:15 UTC Wed Sep 30 2009
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service internal
!
hostname Router
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
ip dhcp pool miercom
    network 10.1.0.0 255.255.0.0
    default-router 10.1.0.254
dns-server 10.1.0.254

ip dhcp pool wlan-clients
    network 10.9.0.0 255.255.0.0
    default-router 10.9.0.254
dns-server 10.9.0.254

multilink bundle-name authenticated

chat-script gsm "'atdt*99#' TIMEOUT 180 'CONNECT'"
chat-script cdma "'atdt#777' TIMEOUT 180 'CONNECT'"

license udi pid CISCO1941W-A/K9 sn FHH1249P016

archive
log config
hidekeys

redundancy

track 234 ip sla 1 reachability

interface Loopback0
    ip address 1.1.1.1 255.255.255.255

interface Wlan-GigabitEthernet0/0
    description Internal switch interface connecting to the embedded AP

interface GigabitEthernet0/0
    ip address dhcp
ip virtual-reassembly
load-interval 30
shutdown
duplex auto
speed auto

interface wlan-ap0
    description Service module interface to manage the embedded AP
    ip address 192.168.1.1 255.255.255.0
    arp timeout 0
    no mop enabled
    no mop sysid

interface GigabitEthernet0/1
    ip address 10.1.0.254 255.255.0.0
    ip nat inside
    ip virtual-reassembly
shutdown
duplex auto
speed auto
crypto ipsec client ezvpn hw-client-pri inside
crypto ipsec client ezvpn hw-client inside
!
!
interface Cellular0/0/0
no ip address
ip access-group 131 out
ip nat outside
ip virtual-reassembly
encapsulation ppp
load-interval 30
dialer in-band
dialer pool-member 1
dialer idle-timeout 0
dialer-group 1
no peer default ip address
async mode interactive
no ppp lcp fast-start
ppp ipcp dns request
ppp timeout retry 120
ppp timeout ncp 30
fair-queue 64 16 0
!
!
interface ATM0/1/0
no ip address
no atm ilmi-keepalive
no dsl bitswap
!
!
interface ATM0/1/0.1 point-to-point
ip virtual-reassembly
pvc 0/35
pppoe-client dial-pool-number 2
!
!
interface Vlan1
ip address 10.9.0.254 255.255.0.0
ip nat inside
ip virtual-reassembly
!
!
interface Dialer1
ip address negotiated
ip access-group 131 out
ip nat outside
ip virtual-reassembly
encapsulation ppp
load-interval 30
dialer pool 1
dialer idle-timeout 0
dialer string cdma
dialer persistent
dialer-group 1
no peer default ip address
no ppp lcp fast-start
ppp chap hostname nousername
ppp chap password 0 nopassword
ppp ipcp dns request
ppp timeout retry 120
ppp timeout ncp 30
fair-queue
crypto ipsec client ezvpn hw-client
!
interface Dialer2
  ip address negotiated
  ip mtu 1492
  ip nat outside
  ip virtual-reassembly
  encapsulation ppp
  load-interval 30
  dialer pool 2
  dialer idle-timeout 0
  dialer persistent
  dialer-group 2
  ppp authentication chap callin
  ppp chap hostname ciscoenzo2@sbcglobal.net
  ppp chap password 0 Enzo221
  ppp pap sent-username ciscoenzo2@sbcglobal.net password 0 Enzo221
  ppp ipcp dns request
  no cdp enable
  crypto ipsec client ezvpn hw-client-pri
!
  ip local policy route-map track-primary-if
  ip forward-protocol nd
!
  no ip http server
  no ip http secure-server
!
  ip dns server
  ip nat inside source route-map nat2cell interface Dialer1 overload
  ip nat inside source route-map nat2dsl interface Dialer2 overload
  ip route 0.0.0.0 0.0.0.0 Dialer2 track 234
  ip route 0.0.0.0 0.0.0.0 Dialer1 253
!
  ip sla 1
    icmp-echo 128.107.248.247 source-interface Dialer2
    frequency 5
  ip sla schedule 1 life forever start-time now
  access-list 1 permit any
  access-list 2 permit 10.1.0.0 0.0.255.255
  access-list 100 deny ip 10.1.0.0 0.0.0.255 10.4.0.0 0.0.0.255
  access-list 100 permit ip any any
  access-list 101 permit ip 10.0.0.0 0.255.255.255 any
  access-list 101 permit ip host 1.1.1.1 any
  access-list 102 permit ip host 128.107.248.247
  access-list 131 deny ip 10.0.0.0 0.255.255.255 any log-input
  access-list 131 permit ip any any
  dialer-list 1 protocol ip permit
  dialer-list 2 protocol ip permit
!
  no cdp run
!
!
route-map track-primary-if permit 10
  match ip address 102
  set interface Dialer2 Null0
!
route-map nat2dsl permit 10
  match ip address 101
  match interface Dialer2
! route-map nat2cell permit 10
  match ip address 101
  match interface Dialer1
!
!
control-plane
!
!
line con 0
  exec-timeout 0 0
line aux 0
line 0/0/0
  exec-timeout 0 0
  script dialer cdma
  login
  modem InOut
  no exec
  transport input all
  transport output all
  autoselect ppp
  rxspeed 3100000
  txspeed 1800000
line 67
  no activation-character
  no exec
  transport preferred none
  transport output all
  transport output pad telnet rlogin lapb-ta mop udp tn v120 ssh
line vty 0 4
  login

exception data-corruption buffer truncate
scheduler allocate 20000 1000
event manager applet pri_back
  event track 234 state any
  action 2.0 cli command "clear ip nat trans forced"
!
end

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

When customer premises equipment, such as a Cisco 3900 series ISR, is connected to an ISP, an IP address is dynamically assigned to the router, or the IP address is 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 3900 series ISRs can use the auxiliary port for dial backup and remote management.

Figure 1 shows the network configuration used for remote management access and for providing backup to the primary WAN line.

**Figure 1  Dial Backup and Remote Management Through the Auxiliary Port**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cisco 3900 series router</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>Modem</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>PC</td>
<td>C</td>
</tr>
</tbody>
</table>
To configure dial backup and remote management on Cisco 3900 series, Cisco 2900 series, and Cisco 1900 series ISRs, follow these steps, beginning in global configuration mode.

**SUMMARY STEPS**

1. `ip name-server server-address`
2. `ip dhcp pool name`
3. `exit`
4. `chat-script script-name expect-send`
5. `interface type number`
6. `exit`
7. `interface type number`
8. `dialer watch-group group-number`
9. `exit`
10. `ip nat inside source { list access-list-number } { interface type number | pool name } [overload]`
11. `ip route prefix mask { ip-address | interface-type interface-number [ip-address] }`
12. `access-list access-list-number { deny | permit } source [source-wildcard]`
13. `dialerwatch-list group-number { ip ip-address address-mask | delay route-check initial seconds }`
14. `line [aux | console | tty | vty] line-number [ending-line-number]`
15. `modem enable`
16. `exit`
17. `line [aux | console | tty | vty] line-number [ending-line-number]`
18. `flowcontrol { none | software [lock] [in | out] | hardware [in | out] }`

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Step</th>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><code>ip name-server server-address</code></td>
<td>Enters your ISP DNS IP address. <strong>Tip</strong> You may add multiple server addresses if available.</td>
</tr>
<tr>
<td></td>
<td><strong>Example:</strong> &lt;br&gt;Router(config)# ip name-server 192.168.28.12 &lt;br&gt;Router(config)#</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><code>ip dhcp pool name</code></td>
<td>Creates a DHCP address pool on the router and enters DHCP pool configuration mode. The <code>name</code> argument can be a string or an integer. Configure the DHCP address pool. For sample commands that you can use in DHCP pool configuration mode, see the “Example” section on page 113.</td>
</tr>
<tr>
<td></td>
<td><strong>Example:</strong> &lt;br&gt;Router(config)# ip dhcp pool 1 &lt;br&gt;Router(config-dhcp)#</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>Command</td>
<td>Purpose</td>
</tr>
<tr>
<td>--------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>exit</td>
<td>Exits DHCP pool configuration mode and enters global configuration mode.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config-dhcp)# exit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config)#</td>
</tr>
<tr>
<td>Step 4</td>
<td>chat-script</td>
<td>Configures a chat script for use in DDR to give commands for dialing a</td>
</tr>
<tr>
<td></td>
<td>script-name</td>
<td>modem and for logging in to remote systems. The defined script is used</td>
</tr>
<tr>
<td></td>
<td>expect-send</td>
<td>to place a call over a modem connected to the PSTN.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config)# chat-script Dialout ABORT ERROR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ABORT BUSY ** &quot;AT&quot; OK *ATDT 5555102 T&quot; TIMEOUT 45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONNECT \c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config)#</td>
</tr>
<tr>
<td>Step 5</td>
<td>interface</td>
<td>Creates asynchronous interface and enters configuration mode for the</td>
</tr>
<tr>
<td></td>
<td>type number</td>
<td>asynchronous interface. For configuration mode for the asynchronous</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config)# interface Async 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config-if)#</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creates asynchronous interface and enters configuration mode for the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dialer interface. For configuration mode for the dialer interface.</td>
</tr>
<tr>
<td>Step 6</td>
<td>exit</td>
<td>Exits interface configuration mode and enters global configuration mode.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config-if)# exit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config)#</td>
</tr>
<tr>
<td>Step 7</td>
<td>interface</td>
<td>Creates dialer interface and enters configuration mode for the dialer</td>
</tr>
<tr>
<td></td>
<td>type number</td>
<td>interface. For configuration mode for the dialer interface.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config)# interface Dialer 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config-if)#</td>
</tr>
<tr>
<td>Step 8</td>
<td>dialer watch-group</td>
<td>Specifies the group number for the dialer watch list.</td>
</tr>
<tr>
<td></td>
<td>group-number</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config-if)# dialer watch-group 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config-if)#</td>
</tr>
<tr>
<td></td>
<td>exit</td>
<td>Exits interface configuration mode and enters global configuration mode.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config-if)# exit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Router(config)#</td>
</tr>
<tr>
<td>Step 10</td>
<td>ip nat inside source</td>
<td>Enables dynamic translation of addresses on the inside interface.</td>
</tr>
<tr>
<td></td>
<td>interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>list access-list-number) {interface type number</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Router(config)# ip nat inside source list 101</td>
</tr>
<tr>
<td></td>
<td></td>
<td>interface Dialer 3 overload</td>
</tr>
</tbody>
</table>
### Command Purpose

| Step 11 | ip route prefix mask [ip-address | interface-type interface-number [ip-address]] | Sets the IP route to point to the dialer interface as a default gateway. |
|---------|------------------------------------------------------|------------------------------------------------------------------|
| Example: Router(config)# ip route 0.0.0.0 0.0.0.0 22.0.0.2 Router(config)# |
| Step 12 | access-list access-list-number {deny | permit} source [source-wildcard] | Defines an extended access list that indicates which addresses need translation. |
| Example: Router(config)# access-list 1 permit 192.168.0.0 0.0.255.255 any |
| Step 13 | dialerwatch-list group-number {ip ip-address address-mask | delay route-check initial seconds} | Evaluates the status of the primary link, based on the existence of routes to the peer. The address 22.0.0.2 is the peer IP address of the ISP. |
| Example: Router(config)# dialer watch-list 1 ip 22.0.0.2 255.255.255.255 Router(config)# |
| Step 14 | line [aux | console | tty | vty] line-number [ending-line-number] | Enters configuration mode for the line interface. |
| Example: Router(config)# line console 0 Router(config-line)# |
| Step 15 | modem enable | Switches the port from console port to auxiliary port function. |
| Example: Router(config-line)# modem enable Router(config-line)# |
| Step 16 | exit | Exits interface configuration mode. |
| Example: Router(config-line)# exit Router(config)# |
### Configuring Dial Backup and Remote Management Through the Console Port or Auxiliary Port

#### Example

The following configuration example specifies an IP address for the ATM interface through PPP and IP Control Protocol (IPCP) address negotiation and specifies dial backup over the console port.

```plaintext
! ip name-server 192.168.28.12
ip dhcp excluded-address 192.168.1.1
!
! Example:
modemcap entry MY-USER_MODEM:MSC=&F1S0=1
chat-script Dialout ABORT ERROR ABORT BUSY "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" \n
### Command Purpose

| Step 17 | line [aux | console | tty | vty ] line-number [ending-line-number] | Purpose |
|---------|-----------------------------------------------|---------|
| Enters configuration mode for the auxiliary interface. |

| Step 18 | flowcontrol { none | software [lock] [in | out] | hardware [in | out] } | Enables hardware signal flow control. |
|---------|-----------------------------------------------|---------|
| Enables hardware signal flow control. |

### Example

Example:

```
Router(config)# line aux 0
Router(config)#
```

Example:

```
Router(config)# flowcontrol hardware
Router(config)#
```

---

Cisco 3900 Series, Cisco 2900 Series, and Cisco 1900 Series Integrated Services Routers Generation 2 Software Configuration Guide
! 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-useraccount 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 mroutecache
dialer pool 3
dialer idle-timeout 60
dialer string 555102 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-useraccount 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 63.203.35.142 80
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.
Chapter Configuring Backup Data Lines and Remote Management

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

```
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-timedout 0 0
  modem enable
  stopbits 1
line aux 0
  exec-timedout 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-timedout 0 0
  password cisco
  login
!
scheduler max-task-time 5000
end
```

Starting from Cisco IOS Release 15.3(3)M, if the second core of the CPU was disabled, then you do not need to include `transport input all` command in line 2. If the second core was enabled, then the `transport input all` command is added to the configuration.

```
line 2
  no activation-character
  no exec
  transport preferred none
```
Configuring Data Line Backup and Remote Management Through the ISDN S/T Port

This section contains the following topics:

- Configuring ISDN Settings, page 117
- Example, page 120

Cisco 3900 series routers can use the ISDN S/T port for remote management. Figure 2 and Figure 3 show two typical network configurations that provide remote management access and backup for the primary WAN line.

Figure 2 shows a dial backup link that goes through a customer premises equipment (CPE) splitter, a digital subscriber line access multiplexer (DSLAM), and a central office (CO) splitter before connecting to the ISDN switch.

### Figure 2  Data Line Backup Through CPE Splitter, DSLAM, and CO Splitter

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cisco 3900 series router</td>
</tr>
<tr>
<td>2</td>
<td>DSLAM</td>
</tr>
<tr>
<td>3</td>
<td>ATM aggregator</td>
</tr>
<tr>
<td>4</td>
<td>ISDN switch</td>
</tr>
<tr>
<td>5</td>
<td>ISDN</td>
</tr>
<tr>
<td>6</td>
<td>ISDN peer router</td>
</tr>
<tr>
<td>7</td>
<td>Web server</td>
</tr>
<tr>
<td>8</td>
<td>Administrator</td>
</tr>
</tbody>
</table>

A: Primary DSL interface, FE interface (Cisco 3900 series router)
B: Dial backup and remote management through the ISDN interface (ISDN S/T port); serves as a failover link when the primary line goes down
C: Provides administrator with remote management capability through the ISDN interface when the primary DSL link is down; serves as dial-in access to allow changes or updates to Cisco IOS configuration
Figure 3 shows a dial backup link that goes directly from the router to the ISDN switch.

Figure 3  Data Line Backup Directly from Router to ISDN Switch

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PC</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>Cisco 3900 series ISR</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>DSLAM</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Aggregator</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ISDN switch</td>
<td>C</td>
</tr>
<tr>
<td>6</td>
<td>Web server</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Administrator</td>
<td></td>
</tr>
</tbody>
</table>

Configuring ISDN Settings

Note

Traffic of interest must be present in order to activate the backup ISDN line by means of the backup interface and floating static routes methods. Traffic of interest is not needed in order for the dialer watch to activate the backup ISDN line.

To configure your router ISDN interface for use as a backup interface, follow these steps, beginning in global configuration mode.

SUMMARY STEPS

1. `isdn switch-type switch-type`
2. `interface type number`
3. `encapsulation encapsulation-type`
4. `dialer pool-member number`
5. `isdn switch-type switch-type`
6. `exit`
## Chapter 7. Configuring Backup Data Lines and Remote Management Through the ISDN S/T Port

### Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td><code>isdn switch-type switch-type</code></td>
<td>Specifies the ISDN switch type.</td>
</tr>
<tr>
<td>Example:</td>
<td>The example specifies a switch type used in Australia, Europe, and the United Kingdom. For details on other supported switch types, see <em>Cisco IOS Dial Technologies Command Reference</em>.</td>
</tr>
<tr>
<td><code>Router(config)# isdn switch-type basic-net3</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config)#</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td><code>interface type number</code></td>
<td>Enters configuration mode for the ISDN BRI.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router(config)# interface bri 0</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)#</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
</tr>
<tr>
<td><code>encapsulation encapsulation-type</code></td>
<td>Sets the BRI0 interface encapsulation type.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)# encapsulation ppp</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)#</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td></td>
</tr>
<tr>
<td><code>dialer pool-member number</code></td>
<td>Specifies the dialer pool membership.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)# dialer pool-member 1</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)#</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td></td>
</tr>
<tr>
<td><code>isdn switch-type switch-type</code></td>
<td>Specifies the ISDN switch type.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)# isdn switch-type basic-net3</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)#</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 6</strong></td>
<td></td>
</tr>
<tr>
<td><code>exit</code></td>
<td>Exits interface configuration mode and enters global configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router(config-if)# exit</code></td>
<td></td>
</tr>
<tr>
<td><code>Router(config)#</code></td>
<td></td>
</tr>
</tbody>
</table>
### Command Purpose

<table>
<thead>
<tr>
<th>Step</th>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 7</strong></td>
<td><strong>interface dialer dialer-rotary-group-number</strong></td>
<td>Creates a dialer interface (numbered 0 to 255) and enters interface configuration mode.</td>
</tr>
</tbody>
</table>
| Example: | ```
Router(config)# interface dialer 0
Router(config-if)#
``` |  |
| **Step 8** | **ip address negotiated** | Specifies that the IP address for the interface is obtained through PPP/IPCP (IP Control Protocol) address negotiation. The IP address is obtained from the peer. |
| Example: | ```
Router(config-if)# ip address negotiated
Router(config-if)#
``` |  |
| **Step 9** | **encapsulation encapsulation-type** | Sets the encapsulation type for the interface. |
| Example: | ```
Router(config-if)# encapsulation ppp
Router(config-if)#
``` |  |
| **Step 10** | **dialer pool number** | Specifies the dialer pool to be used. |
| Example: | ```
Router(config-if)# dialer pool 1
Router(config-if)#
``` | In the example, the dialer pool 1 setting associates the dialer 0 interface with the BRI0 interface because the BRI0 dialer pool-member value is 1. |
| **Step 11** | **dialer string dial-string#[:isdn-subaddress]** | Specifies the telephone number to be dialed. |
| Example: | ```
Router(config-if)# dialer string 384040
Router(config-if)#
``` |  |
| **Step 12** | **dialer-group group-number** | Assigns the dialer interface to a dialer group (1–10). |
| Example: | ```
Router(config-if)# dialer-group 1
Router(config-if)#
``` |  |
| **Step 13** | **exit** | Exits dialer interface configuration mode and enters global configuration mode. |
| Example: | ```
Router(config-if)# exit
Router(config)#
``` |  |
| **Step 14** | **dialer-list dialer-group protocol protocol-name** {permit | deny | list access-list-number | access-group} | Creates a dialer list for packets of interest to be forwarded through the specified interface dialer group. |
| Example: | ```
Router(config)# dialer-list 1 protocol ip permit
Router(config)#
``` | In the example, dialer-list 1 corresponds to dialer-group 1. For details about this command and additional parameters that can be set, see *Cisco IOS Dial Technologies Command Reference.* |
Example

The following configuration example configures an aggregated and ISDN peer router.

The aggregator is typically a concentrator router where your Cisco router Asynchronous Transfer Mode (ATM) permanent virtual connection (PVC) terminates. In the following configuration example, the aggregator is configured as a PPP over Ethernet (PPPoE) server.

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.

```plaintext
! This portion of the example configures the aggregator.
vpdn enable
no vpdn logging
!
vpdn-group 1
  accept-dialin
  protocol pppoe
  virtual-template 1
  !
interface Ethernet3
  description "4700ref-1"
  ip address 40.1.1.1 255.255.255.0
  media-type 10BaseT
  !
interface Ethernet4
  ip address 30.1.1.1 255.255.255.0
  media-type 10BaseT
  !
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 limit-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
```
### Configuring Third-Party SFPs

Small Form-Factor Pluggables (SFPs) that are not Cisco certified are called third-party SFPs. Cisco approved means the SFPs have undergone rigorous testing with Cisco products and the SFPs are guaranteed to have 100% compatibility.

Third-party SFPs are manufactured by companies that are not on the Cisco-approved Vendor List (AVL). Currently, Cisco ISR G2 routers support only Cisco-approved SFPs. From Release 15.3(2)T, Cisco ISR G2 routers recognize third-party SFPs.

**Note**

Cisco does not provide any kind of support for the third-party SFPs because they are not validated by Cisco.

### Restrictions

- Supports only 100BASE SFPs and 1000BASE SFPs under two speed configurations:
  - 100 Mbps speed for 100BASE SFPs
  - 1000 Mbps speed for 1000BASE SFPs
- Only the following routers and modules support third-party SFPs:
  - Cisco 2921 Integrated Services Router
  - Cisco 2951 Integrated Services Router
  - Cisco 3900 Integrated Services Router
  - Cisco 3900E Series Integrated Services Routers
  - Cisco 892-F Gigabit Ethernet Security Router
  - Cisco 898-EA Gigabit Ethernet Security Router
  - EHWIC-1GE-SFP

### SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `service unsupported-transceiver`
4. `interface type slot/subslot/port number`
5. media-type sfp
6. speed *value*
7. shutdown
8. no shutdown
9. exit

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>enable</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router&gt; enable</td>
</tr>
<tr>
<td>Enables the privileged EXEC mode. Enter your password if prompted.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>configure terminal</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router# configure terminal</td>
</tr>
<tr>
<td>Enters the global configuration mode.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>service unsupported-transceiver</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config)# service unsupported-transceiver</td>
</tr>
<tr>
<td>Enables third-party SFP support.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>interface <em>type slot/subslot/port number</em></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config)# interface ethernet 0/3/0</td>
</tr>
<tr>
<td>Selects an interface to configure.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td>media-type sfp</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# media-type sfp</td>
</tr>
<tr>
<td>Changes media type to SFP.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 6</strong></td>
<td>speed <em>value</em></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# speed 100</td>
</tr>
<tr>
<td>Configures the speed of the interface. <strong>Note</strong> For 100BASE SFPs, configure the speed to 100 Mbps only. Similarly, for 1000BASE SFPs, configure the speed to 1000 Mbps only.</td>
<td></td>
</tr>
<tr>
<td><strong>Step 7</strong></td>
<td>shutdown</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-if)# shutdown</td>
</tr>
<tr>
<td>Disables the interface, changing its state from administratively UP to administratively DOWN.</td>
<td></td>
</tr>
</tbody>
</table>
Examples

This example shows how to configure a third-party SFP on a Cisco ISR G2 Series Router:

Router# configure terminal
Router(config-if)# service unsupported-transceiver
Router(config)# interface ethernet 0/3/0
Router(config-if)# media-type sfp
Router(config-if)# speed 100
Router(config-if)# shutdown
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# exit