

# Cisco DSL Router Configuration and Troubleshooting Guide – Step-by-Step Configuration of RFC1483 Routing with a Block of Static IP Addresses

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## Introduction

### Prerequisites

- Requirements

- Components Used

- Conventions

### Configuration Procedures

- Connect the Cisco DSL Router and Your PC

- Start and Set Up HyperTerminal

- Clear Existing Configurations on the Cisco DSL Router

- Configure the Cisco DSL Router

- Configuration

### Verify

### Troubleshoot

### Related Information

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## Introduction

Your Internet Service Provider (ISP) has assigned a static public IP address to your Cisco Digital Subscriber Line (DSL) Router.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This document is not restricted to specific software and hardware versions.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Configuration Procedures

**Important:** Before you begin, close all programs on the PC that might be monitoring your COM port. Devices such as PDAs and digital cameras often place programs in the system tray that render your COM port unusable for the configuration of your Cisco DSL Router.

## Connect the Cisco DSL Router and Your PC

A console connection is made with a rolled cable and connects the console port of the Cisco DSL Router to a COM port on a PC. The console cable that is included with the Cisco DSL Router is a flat light blue cable. For more information on the pinouts of a rolled cable, or the pinouts of an RJ-45 to DB9 converter, refer to Cabling Guide for Console and AUX Ports.

1. Connect the RJ-45 connector on one end of a Cisco console cable to the console port of the Cisco DSL Router.
2. Connect the RJ-45 connector at the other end of the console cable to an RJ-45 to DB9 converter.
3. Connect the DB9 connector to an open COM port on your PC.

## Start and Set Up HyperTerminal

Complete these steps:

1. Start the HyperTerminal program on the PC.
2. Set up your HyperTerminal session.
  - a. Assign a name to your session and click **OK**.
  - b. In the Connect To window, click **Cancel**.
  - c. Choose **File > Properties**.
  - d. From the Properties window, go to the Connect Using list and select the COM port where you connect the DB9 end of the console cable.
  - e. From the Properties window click **Configure** and fill in these values:
    - ◇ Bits per second: **9600**
    - ◇ Data bits: **8**
    - ◇ Parity: **None**
    - ◇ Stop bits: **1**
    - ◇ Flow Control: **None**
  - f. Click **OK**.
  - g. From the Call menu, click **Disconnect**.
  - h. From the Call menu, click **Call**.
  - i. Press **Enter** until you see a router prompt on your HyperTerminal window.

## Clear Existing Configurations on the Cisco DSL Router

Complete these steps:

1. Type **enable** at the router prompt in order to enter privileged mode.

```
Router>enable
Router#
```

*!--- The # symbol indicates that you are in privileged mode.*

2. Clear existing configurations on the router.

```
Router#write erase
```

3. Reload the router so that it boots with a blank startup configuration.

```
Router#reload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]yes
```

*!--- The router reload can take a few minutes.*

4. After the router has reloaded, enter enable mode again.

```
Router>enable
Router#
```

## Configure the Cisco DSL Router

Complete these steps:

1. Configure **service timestamp** to properly log and display **debug** output in the troubleshooting section.

```
Router#configure terminal
Router(config)#service timestamps debug datetime msec
Router(config)#service timestamps log datetime msec
Router(config)#end
```

2. Disable the logging console on your Cisco DSL Router in order to suppress console messages that might be triggered while you configure the router.

```
Router#configure terminal
Router(config)#no logging console
Router(config)#end
```

3. Configure **ip routing**, **ip subnet-zero**, and **ip classless** in order to provide flexibility in routing configuration options.

```
Router#configure terminal
Router(config)#ip routing
Router(config)#ip subnet-zero
Router(config)#ip classless
Router(config)#end
```

4. Configure an IP address and subnet mask on the Cisco DSL Router Ethernet interface.

```
Router#configure terminal
Router(config)#interface ethernet 0
Router(config-if)#ip address <ip address> <subnet mask>
Router(config-if)#no shut
Router(config-if)#end
```

5. Configure the ATM interface of your Cisco DSL Router with the **no shut** command in order to bring up the interface.

```
Router#configure terminal
Router(config)#interface atm 0
Router(config-if)#no shut
Router(config-if)#end
```

6. Configure the ATM subinterface of your Cisco DSL Router with an ATM permanent virtual circuit (PVC), encapsulation type, and unnumbered Ethernet0 IP address.

```
Router#configure terminal
Router(config)#interface atm 0.1 point-to-point
Router(config-subif)#ip unnumbered ethernet0
Router(config-subif)#pvc <vpi/vci>
Router(config-subif-atm-vc)#encapsulation aal5snap
Router(config-subif-atm-vc)#end
```

7. Configure a default route using ATM0.1 as the outbound interface.

```
Router#configure terminal
Router(config)#ip route 0.0.0.0 0.0.0.0 atm0.1
```

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

8. **For Dynamic Host Configuration Protocol (DHCP):** (Optional) Configure the Cisco DSL Router as a DHCP server with a pool of IP addresses to assign to hosts connected to the Ethernet interface of the Cisco DSL Router. The DHCP server dynamically assigns an IP address, Domain Name Server (DNS), and the default gateway IP address to your hosts.

```
Router#configure terminal
Router(config)#ip dhcp excluded-address <ip address of ethernet0>
Router(config)#ip dhcp pool <dhcp pool name>
Router(dhcp-config)#network <ip network address of ethernet0> <subnet mask>
Router(dhcp-config)#default-router <ip address of ethernet0>
Router(dhcp-config)#dns-server <ip address of primary dns server>
<ip address of secondary dns server>
Router(dhcp-config)#end
```

9. Enable the logging console on the Cisco DSL Router, and write all the changes to memory.

```
Router#configure terminal
Router(config)#logging console
Router(config)#end
*Jan 1 00:00:00.100: %SYS-5-CONFIG_I: Configured from console by console
Router#write memory
Building configuration... [OK]
Router#
```

## Configuration

This is the configuration that is built after you have completed the procedures in the Configuration Procedures section of this document.

### Cisco DSL Router with a Block of Static IP Addresses

```
!--- Comments contain explanations and additional information.

service timestamps debug datetime msec
service timestamps log datetime msec
ip subnet-zero
!

!--- For DHCP:

ip dhcp excluded-address <ip address of ethernet0>
ip dhcp pool <dhcp pool name>
  network <ip network address of ethernet0> <subnet mask>
  default-router <ip address of ethernet0>
  dns-server <ip address of dns server>
!
interface ethernet0
  no shut
  ip address <ip address> <subnet mask>
  no ip directed-broadcast
!
interface atm0
  no shut
  no ip address
  no ip directed-broadcast
  no atm ilmi-keepalive
!
interface atm0.1 point-to-point
  ip unnumbered ethernet0
  pvc <vpi/vci>
  encapsulation aal5snap
```

```
!--- Common PVC values supported by ISPs are 0/35 or 8/35.
!--- Confirm your PVC values with your ISP.

!
!
ip classless
ip route 0.0.0.0 0.0.0.0 <default gateway to isp>
ip route <default gateway to isp> 255.255.255.255 atm0.1
!
end
```

## Verify

Your Cisco DSL Router is now operational for Asymmetric Digital Subscriber Line (ADSL) service. You can issue a **show run** command in order to see the configuration.

```
Router#show run
Building configuration...
```

The Output Interpreter Tool ( registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

## Troubleshoot

Refer to Troubleshooting RFC1483 Routing if your ADSL service does not work properly.

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## Related Information

- [RFC1483 Routing with a Block of Static IP Addresses](#)
  - [Cisco DSL Router Configuration and Troubleshooting Guide](#)
  - [Technical Support & Documentation – Cisco Systems](#)
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