Cisco DSL Router Configuration and Troubleshooting Guide – RFC1483 Routing with a Single Static IP Address

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Introduction

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

Tip: Refer to Step−by−Step Configuration of RFC1483 Routing with a Single Static IP Address if you are not familiar with how to configure Cisco devices and would like to follow a step−by−step configuration.

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.

Tasks to Perform

- Design an IP addressing scheme for your private LAN.
- Manually configure an IP address and subnet mask on the Cisco DSL Router Ethernet interface.
- Configure the ATM interface (Asymetric Digital Subscriber Line (ADSL) interface) of the Cisco DSL Router with an ATM permanent virtual circuit (PVC), encapsulation, and an IP address.
- **For Network Address Translation (NAT):** Configure NAT on the Cisco DSL Router in order to

allow sharing of the static public IP address of the ATM interface.

- ♦ **Optional:** NAT Pool, if additional IP addresses have been provided by your ISP.
- ♦ **Optional:** Static NAT, if Internet users require access to internal servers.
- • Configure each host PC with an IP address, subnet mask, default gateway, and Domain Name System (DNS) server(s).

For Dynamic Host Configuration Protocol (DHCP): Alternatively, if you want the Cisco DSL Router to assign your PC clients dynamic IP addresses, configure each PC to obtain an IP address and DNS server(s) automatically via DHCP.

Configure

In this section, you are presented with the information to configure the features described in this document.

Note: Use the Command Lookup Tool (registered customers only) to find more information on the commands used in this document.

Configuration

Tip: Refer to Step−by−Step Configuration of RFC1483 Routing with a Single Static IP Address if you are not familiar with how to configure Cisco devices and would like to follow a step−by−step configuration.

Cisco DSL Router with Static IP Address and NAT

```
!--- 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>
 ip nat inside
 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 address <ip address> <subnet mask>

!--- For NAT:

 ip nat outside
```

```
 pvc <vpi/vci>
  encapsulation aal5snap

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

 !
!

!--- For NAT:

ip nat inside source list 1 interface atm0.1 overload

!--- If you have a pool (a range) of public IP addresses provided
!--- by your ISP, you can use a NAT Pool. Replace
!--- ip nat inside source list 1 interface atm0.1 overload




!--- with these two configuration statements:
!--- ip nat inside source list 1 pool <nat pool name> overload
!--- ip nat pool <nat pool name> <first ip address> <last ip address>
!---  netmask <subnet mask>




!--- If Internet users require access to an internal server, you can
!--- add this static NAT configuration statement:
!--- ip nat inside source static tcp <inside ip address of server> {80 or 25}
!--- <outside well-known ip address of server> {80 or 25} extendable
!--- Note: TCP port 80 (HTTP/web) and TCP port 25 (SMTP/mail) are used
!--- for this example. You can open other TCP or UDP ports, if needed.

!
ip classless
ip route 0.0.0.0 0.0.0.0 <default gateway to isp>

!--- For NAT:

access-list 1 permit <ip network address of ethernet0> <wildcard mask>

!--- In this configuration, access-list 1 defines a standard access list
!--- that permits the addresses that NAT translates. For example, if
!--- your private IP network is 10.10.10.0, configure
!--- access-list 1 permit 10.10.10.0 0.0.0.255 in order to allow NAT to translate
!--- packets with source addresses between 10.10.10.0 and 10.10.10.255.

!
end
```

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

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

Related Information

- **RFC1483 Routing Implementation Options**
- **Cisco DSL Router Configuration and Troubleshooting Guide**
- **Technical Support & Documentation – Cisco Systems**

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