

Configuring a Cisco 1700/2600/3600 ADSL WIC and a Cisco 6400 in RBE Mode Using RFC1483 Bridging

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Introduction

The Cisco 1700, 2600, and 3600 Series Routers support the asymmetric digital subscriber line (ADSL) WAN interface card (WIC). All three platforms are configured in the same way. However, there are differences in hardware and in the Cisco IOS® Software Release required for each one. Throughout this document the Cisco 1700/2600/3600 is called the "Cisco ADSL WIC."

This sample configuration shows a Cisco ADSL WIC connected to a Cisco 6130 digital subscriber line access multiplexer (DSLAM). It terminates on a Cisco 6400 Universal Access Concentrator (UAC).

The Cisco ADSL WIC is configured with RFC 1483 Bridging. The Cisco 6400 is configured with routed bridge encapsulation (RBE).

The ATM RBE feature in the Cisco 6400 node route processor (NRP) routes IP over bridged RFC 1483 Ethernet traffic from a stub-bridged LAN.

Bridged IP packets received on an ATM interface configured in route-bridge mode are routed through an IP header. The interface takes advantage of the characteristics of a stub LAN topology commonly used for DSL access. It offers increased performance and flexibility over integrated routing and bridging (IRB).

Prerequisites

Requirements

Before you attempt this configuration, ensure that you meet these prerequisites. To support the ADSL WIC, at least these Cisco IOS Software Releases are required:

- Cisco IOS Software Release 12.1(5)YB (Plus versions only) on the Cisco 2600/3600.
- Cisco IOS Software Release IOS 12.1(3)XJ or later (Plus versions or ADSL feature set only) on the Cisco 1700. The ADSL feature set is identified by "y7" in the image name; for example,

c1700-sy7-mz.121-3.XJ.bin.

When you download the image for the Cisco 1700, make sure you select the image name of 1700. Do not download a 1720 or a 1750 image. The features do not support the ADSL WIC.

To support the ADSL WIC on the Cisco 2600/3600, these hardware versions are required:

- **2600:** Chassis WIC slots, NM-2W.
- **3600:** NM-1FE1R2W, NM-1FE2W, NM-2FE2W, NM-2W.

Note: For the Cisco 3600, the NM-1E1R2W, NM-1E2W, and NM-2E2W do not support the ADSL WIC .

Components Used

The information in this document is based on these software and hardware versions:

- Cisco 6400 UAC-NRP IOS Software Release 12.1(3)DC1
- Cisco 6400 UAC-NSP IOS Software Release 12.1(3)DB
- Cisco 6130 DSLAM-NI2 IOS Software Release 12.1(5)DA

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to Cisco Technical Tips Conventions.

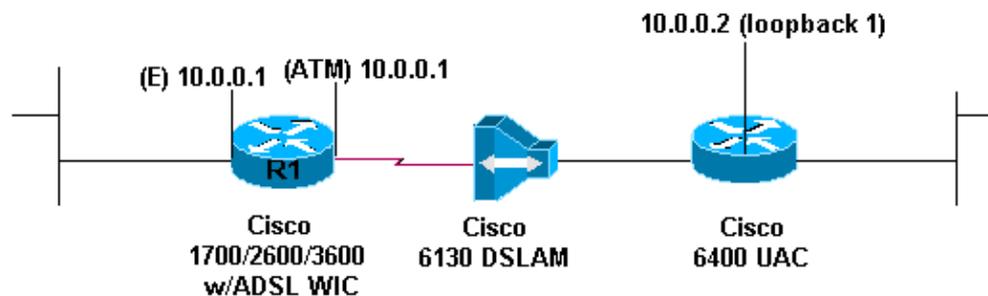
Configure

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

Note: To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only) .

Network Diagram

This document uses the network setup shown in this diagram:



Configurations

To Telnet to (or ping) the Cisco ADSL WIC from the Internet, configure an IP address and a MAC address on the ATM interface. For the IP address, configure the same IP address on the ATM interface that you configured on the Ethernet interface. For the MAC address, issue the **show interface eth0** command. Note the MAC address and configure this same MAC address on the ATM interface.

When the Cisco ADSL WIC bridges the IP on the Ethernet and ATM interfaces, both interfaces have the same IP address.

Note the **no ip routing** command in the configuration.

Cisco ADSL WIC (R1)

```
Current configuration:
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
!
hostname R1
!
ip subnet-zero
no ip routing
!
interface FastEthernet0
 ip address 10.0.0.1 255.0.0.0

!--- When the router is in bridge mode, the FastEthernet
!--- and ATM interfaces can have the same IP address.

no ip directed-broadcast
bridge-group 1
!
interface ATM0
 mac-address 0030.96f8.45bd

!--- This is the MAC address of interface FastEthernet0.
!--- Use the IOS command show interface fastethernet 0
!--- to get the MAC address.

ip address 10.0.0.1 255.0.0.0
no ip directed-broadcast
no ip mroute-cache
no atm ilmi-keepalive
pvc 4/100
 encapsulation aal5snap
!
bundle-enable
bridge-group 1
hold-queue 224 in
!
ip classless
no ip http server
!
bridge 1 protocol ieee
!
end
```

Cisco 6400 NRP

```
Current configuration:
```

```
!  
version 12.0  
no service pad  
service timestamps debug datetime msec  
service timestamps log datetime msec  
!  
hostname NRP  
!  
redundancy  
  main-cpu  
    no auto-sync standard  
    no secondary console enable  
ip subnet-zero  
!  
interface Loopback1  
  ip address 10.0.0.2 255.0.0.0  
  no ip directed-broadcast  
!  
interface ATM0/0/0  
  no ip address  
  no ip directed-broadcast  
  no ip mroute-cache  
  no atm ilmi-keepalive  
!  
interface ATM0/0/0.4 point-to-point  
  ip unnumbered Loopback1  
  no ip directed-broadcast  
  atm route-bridged ip  
  pvc 4/100  
    encapsulation aal5snap  
!  
!  
interface Ethernet0/0/1  
  no ip address  
  no ip directed-broadcast  
!  
interface Ethernet0/0/0  
  no ip directed-broadcast  
!  
interface FastEthernet0/0/0  
  no ip address  
  no ip directed-broadcast  
  full-duplex  
!  
ip classless  
ip route 10.0.0.1 255.255.255.255 ATM0/0/0.4  
!  
end
```

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [Cisco DSL Technical Support](#)
- [Routed Bridged Encapsulation Baseline Architecture](#)

- **ATM Routed Bridge Encapsulation**
 - **Configuring the Cisco 6400**
 - **Cisco ADSL Technical Support**
 - **Technical Support – Cisco Systems**
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