

# Configuring a Cisco SOHO77 Router to Support PPPoE Clients Terminating on a Cisco 6400 UAC

Document ID: 12924

---

## Introduction

### Prerequisites

Requirements

Components Used

Conventions

### Configure

Network Diagram

Configurations

### Verify

### Troubleshoot

[NetPro Discussion Forums – Featured Conversations](#)

### Related Information

---

## Introduction

This sample configuration shows you how to support a Point-to-Point Protocol over Ethernet (PPPoE) client when it is connected to the Ethernet interface of a Cisco SOHO77 Digital Subscriber Line (DSL) Router.

The Cisco SOHO77 is configured with RFC1483 bridging. It terminates on a Cisco 6400 Universal Access Concentrator (UAC) that is configured to support PPPoE using a multipoint ATM subinterface.

The PPPoE feature allows you to initiate a PPP session on a simple bridging Ethernet connected client. The session is transported over the Asynchronous Transfer Mode (ATM) link through encapsulated Ethernet-bridged frames. The session can be terminated at either a local exchange carrier central office or an Internet Service Provider (ISP) point of presence.

PPPoE is a client-initiated connection. On the customer premises equipment (CPE) side, a PC with an Ethernet network interface card (NIC) and the PPPoE client code are established. This PC and other PCs are connected to the SOHO77 Ethernet segment.

The SOHO77 ATM interface is connected to a Cisco 6130 Digital Subscriber Line Access Multiplexer (DSLAM) and terminates on a Cisco 6400 UAC.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

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

- Cisco SOHO77 customer premises equipment (CPE) IOS® Software Release 12.1(3)XP2
- 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 presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

## Conventions

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

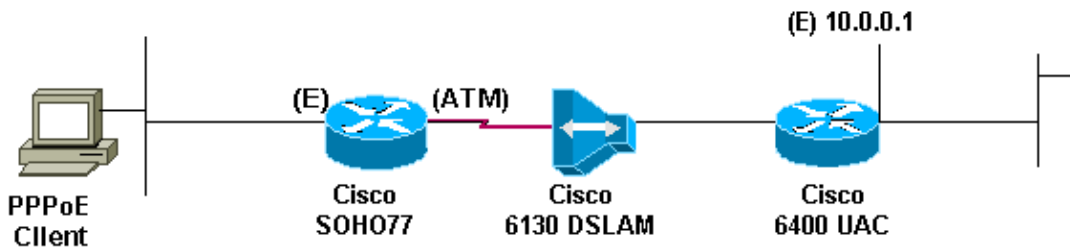
## Configure

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

This document uses these configurations:

- Cisco SOHO77
- Cisco 6400 NRP

**Note:** In the Cisco 6400 NRP configuration, set the maximum transmission unit (MTU). For more information about changing the MTU size, refer to Troubleshooting MTU Size in PPPoE Dialin Connectivity.

Cisco SOHO77
<pre> Current configuration: ! version 12.1 no service pad service timestamps debug datetime msec service timestamps log datetime msec no service password-encryption ! hostname R1 ! ip subnet-zero no ip routing ! </pre>

```

interface Ethernet0
no ip address
no ip directed-broadcast
bridge-group 1
!
interface ATM0
no ip address
no ip directed-broadcast
no ip mroute-cache
no atm ilmi-keepalive
pvc 3/100
encapsulation aal5snap
!
bundle-enable
bridge-group 1
hold-queue 224 in
!
ip classless
no ip http server
!
bridge 1 protocol ieee
!

line con 0
end

```

### Cisco 6400 NRP

```

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname NRP1
!
username
<username>
password
<password>

!--- Username/password must match client username/password.

!
redundancy
main-cpu
auto-sync standard
no secondary console enable
ip subnet-zero
ip cef
!
vpdn enable
!
vpdn-group 1
accept-dialin
protocol pppoe
virtual-template 1
pppoe limit per-mac 101
pppoe limit per-vc 102
!
interface ATM0/0/0
no ip address
no ip directed-broadcast

```

```

no ip mroute-cache
no atm ilmi-keepalive
!
interface ATM0/0/0.1 multipoint
  no ip directed-broadcast
pvc 3/100
encapsulation aal5snap
protocol pppoe
!
interface Ethernet0/0/1
ip address 10.0.0.1 255.0.0.0
no ip directed-broadcast
!
interface Ethernet0/0/0
no ip address
no ip directed-broadcast
shutdown
!
interface FastEthernet0/0/0
no ip address
no ip directed-broadcast
half-duplex
!
interface Virtual-Template1

!---- Do not use a static IP assignment within a virtual template.
!---- Routing problems can occur.

ip mtu 1492
ip unnumbered Ethernet0/0/1

!---- Always use the ip unnumbered command when you configure
!---- a virtual template.

no ip directed-broadcast
ip mroute-cache
peer default ip address pool
<pool name>

ppp authentication chap
!
ip local pool
<pool name>
  10.0.0.2 10.0.0.12
ip classless
no ip http server
!
line con 0
!
end

```

## Verify

This section provides the information to confirm that your configuration works properly.

Certain **show** commands are supported by the Output Interpreter Tool ( registered customers only) . This allows you to view an analysis of **show** command output.

To verify that your configuration works, launch a PPPoE session from the client and see if you are able to browse the Internet.

# Troubleshoot

This section provides the information to troubleshoot your configuration.

If you are unable to browse the Internet, verify your configuration on the SOHO77. If the configuration looks correct, look at the aggregation device as the SOHO77 is configured as a bridge. No debugs can be run on it to troubleshoot the PPP issue. There are various commands that are issued in the aggregation device. In this case, the 6400 NRP to help troubleshoot the issue. If you do not have access to the aggregation device, contact your ISP to assist you to troubleshoot.. If you have access into the aggregation device, begin the troubleshooting process by reviewing Cisco 6400 NRP Configuration and Troubleshooting. In this document, it is PPP troubleshooting procedures for PPP aggregation.

## NetPro Discussion Forums – Featured Conversations

Networking Professionals Connection is a forum for networking professionals to share questions, suggestions, and information about networking solutions, products, and technologies. The featured links are some of the most recent conversations available in this technology.

NetPro Discussion Forums – Featured Conversations for DSL
Network Infrastructure: Remote Access
Service Providers: VPN Service Architectures

## Related Information

- **Configuring the Cisco 827 Router**
- **Cisco 6400 Software Setup Guide**
- **PPPoE on ATM**
- **Cisco DSL Product Support Information**
- **Cisco DSL Technical Support Information**
- **Network Scenarios for Cisco 826/827/828/831/837 and SOHO 76/77/78/91/96**
- **Advanced Configuration for Cisco 826/827/828/831/837 and SOHO 76/77/78/91/96**
- **Troubleshooting Cisco 826/827/828/831/837 and SOHO 76/77/78/91/96**
- **Technical Support – Cisco Systems**

All contents are Copyright © 2006–2007 Cisco Systems, Inc. All rights reserved. Important Notices and Privacy Statement.

Updated: Nov 23, 2007

Document ID: 12924