



SMCWBR14-G2

BARRICADE™ G 54Mbps

Wireless Broadband Router

USER GUIDE





# Wireless Broadband Router User's Guide

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From SMC's line of award-winning connectivity solutions

**SMC**<sup>®</sup>

**Networks**

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Warranty terms may differ according to geographic region. For complete details please consult your country's support section of the SMC web site, <http://www.smc.com>

# COMPLIANCES

## **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## **IMPORTANT NOTE:**

### **FCC Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

## Industry Canada Statement

Operation is subject to the following two conditions:

1. this device may not cause interference and
2. this device must accept any interference, including interference that may cause undesired operation of the device

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

This device has been designed to operate with an antenna having a maximum gain of 1.5 dBi.

Any antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

## EC Declaration of Conformity

SMC contact for these products in Europe is:

SMC Networks Europe,  
Edificio Conata II,  
Calle Fructuos Gelabert 6-8, 2o, 4a,  
08970 - Sant Joan Despi,  
Barcelona, Spain.

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:

EN 300 328-1 December 2001 V1.3.1  
EN 300 328-2 December 2001 V1.2.1  
EN 301 489-1 September 2001 V1.4.1  
EN 301 489-17 September 2000 V1.2.1  
EN 60950 January 2000



## Countries of Operation & Conditions of Use in the European Community

This device is intended to be operated in all countries of the European Community. Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

**Note:** The user must use the configuration utility provided with this product to ensure the channels of operation are in conformance with the spectrum usage rules for European Community countries as described below.

- This device requires that the user or installer properly enter the current country of operation in the command line interface as described in the user guide, before operating this device.
- This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other system. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions and license requirements for each European Community country as described in this document.
- This device may be operated *indoors or outdoors* in all countries of the European Community using the 2.4 GHz band: Channels 1 - 13.

## Declaration of Conformity in Languages of the European Community

English	Hereby, SMC Networks, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Valmistaja SMC Networks vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart SMC Networks dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG  Bij deze SMC Networks dat deze Radio LAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente SMC Networks déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE

## COMPLIANCES

Swedish	Härmed intygar SMC Networks att denna Radio LAN device står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede SMC Networks erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF
German	Hiermit erklärt SMC Networks, dass sich dieser/diese/dieses Radio LAN device in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)  Hiermit erklärt SMC Networks die Übereinstimmung des Gerätes Radio LAN device mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	Με την παρουσία smc networks δηλώνει ότι radio LAN device συμμορφώνεται προς τις ουσιαστικές απαιτήσεις και τις λοιπές σχετικές διατάξεις της οδηγίας 1999/5/εκ
Italian	Con la presente SMC Networks dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente SMC Networks declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Portuguese	SMC Networks declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

## Safety Compliance

### Underwriters Laboratories Compliance Statement

**Important!** Before making connections, make sure you have the correct cord set. Check it (read the label on the cable) against the following:

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
240 Volts (Europe only)	Parallel blade, grounding type attachment plug rated 15 A, 125 V
	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm <sup>2</sup>
	IEC-320 receptacle
	Male plug rated 10 A, 250 V

The unit automatically matches the connected input voltage. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the power adapter.

### Information for Power Source



This unit is to be used with a class 2 or level 3 external power adapter, approved suitable for use in North American equipment installation, having an output voltage rating of 12 V DC, and output current rating of 1.0 A or equivalent.

## Wichtige Sicherheitshinweise (Germany)

1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine flüssigoder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlus Bsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Die Belüftungsöffnungen dienen der Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
  - a. Netzkabel oder Netzstecker sind beschädigt.
  - b. Flüssigkeit ist in das Gerät eingedrungen.
  - c. Das Gerät war Feuchtigkeit ausgesetzt.
  - d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
  - e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
  - f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. Stellen Sie sicher, daß die Stromversorgung dieses Gerätes nach der EN 60950 geprüft ist. Ausgangswerte der Stromversorgung sollten die Werte von AC 7,5-8 V, 50-60 Hz nicht über oder unterschreiten sowie den minimalen Strom von 1 A nicht unterschreiten. Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70 dB(A) oder weniger.

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# CHAPTER 1

## INTRODUCTION

---

Congratulations on your purchase of the Barricade g 54Mbps Wireless Broadband Router (SMCWBR14-G2). We are proud to provide you with a powerful yet simple communication device for connecting your local area network (LAN) to the Internet. For those who want to surf the Internet in the most secure way, this router provides a convenient and powerful solution.

### **About the Barricade**

The Barricade provides Internet access to multiple users by sharing a single-user account. This new technology provides many secure and cost-effective functions. It is simple to configure and can be up and running in minutes.

## **Features and Benefits**

- Local network connection via a 10/100 Mbps Ethernet port
- DHCP for dynamic IP configuration, and DNS for domain name mapping
- Firewall with Stateful Packet Inspection, client privileges, intrusion detection, and NAT
- NAT also enables multi-user Internet access via a single user account, and virtual server functionality (providing protected access to Internet services such as web, FTP, email, and Telnet)
- VPN pass-through (IPSec-ESP Tunnel mode, L2TP, PPTP)
- User-definable application sensing tunnel supports applications requiring multiple connections
- Easy setup through a web browser on any operating system that supports TCP/IP
- Compatible with all popular Internet applications

# Applications

Many advanced networking features are provided by this Barricade:

- **Wired and Wireless LAN**

The Barricade provides connectivity to 10/100 Mbps devices, and wireless IEEE 802.11g compatible devices, making it easy to create a network in small offices or homes.

- **Internet Access**

This device supports Internet access through an ADSL connection. Since many ADSL providers use PPPoE or PPPoA to establish communications with end users, the Barricade includes built-in clients for these protocols, eliminating the need to install these services on your computer.

- **Shared IP Address**

The Barricade provides Internet access for up to 253 users via a single shared IP address. Using only one ISP account, multiple users on your network can browse the web at the same time.

- **Virtual Server**

If you have a fixed IP address, you can set the Barricade to act as a virtual host for network address translation. Remote users access various services at your site using a constant IP address. Then, depending on the requested service (or port number), the Barricade can route the request to the appropriate server (at another internal IP address). This secures your network from direct attack by hackers, and provides more flexible management by allowing you to change internal IP addresses without affecting outside access to your network.

- **DMZ Host Support**

Allows a networked computer to be fully exposed to the Internet. This function is used when NAT and firewall security prevent an Internet application from functioning correctly.

- **Security**

The Barricade supports security features that deny Internet access to specified users, or filter all requests for specific services that the administrator does not want to serve. The Barricade's firewall also blocks common hacker attacks, including IP Spoofing, Land Attack, Ping of Death, IP with zero length, Smurf Attack, UDP port loopback, Snork Attack, TCP null scan, and TCP SYN flooding. WPA/WPA2, WEP, SSID, and MAC filtering provide security over the wireless network.

- **Virtual Private Network (VPN Pass-through)**

The Barricade supports three of the most commonly used VPN protocols – PPTP, L2TP, and IPSec. The VPN protocols supported by the Barricade are briefly described below.

- Point-to-Point Tunneling Protocol – Provides a secure tunnel for remote client access to a PPTP security gateway. PPTP includes provisions for call origination and flow control required by ISPs.
- L2TP merges the best features of PPTP and L2F – Like PPTP, L2TP requires that the ISP's routers support the protocol.
- IP Security – Provides IP network-layer encryption. IPSec can support large encryption networks (such as the Internet) by using digital certificates for device authentication.

# CHAPTER 2

# INSTALLATION

---

Before installing the Barricade, verify that you have all the items listed under “Package Contents.” If any of the items are missing or damaged, contact your local distributor. Also be sure that you have all the necessary cabling before installing the Barricade. After installing the Barricade, refer to “Configuring the Barricade” on page 4-1.

## Package Contents

After unpacking the Barricade, check the contents of the box to be sure you have received the following components:

- Barricade g 54Mbps Wireless Broadband Router (SMCWBR14-G2)
- Power adapter
- One CAT-5 Ethernet cable (RJ-45)
- One documentation CD
- Quick Install Guide

Immediately inform your dealer in the event of any incorrect, missing, or damaged parts. If possible, please retain the carton and original packing materials in case there is a need to return the product.

## System Requirements

You must meet the following minimum requirements:

- Internet access from your local telephone company or Internet Service Provider (ISP) using a DSL modem or cable modem.
- A computer with a CD-ROM drive
- Windows (98 or later), MacOS (9.x)
- An up to date web browser:
  - Internet Explorer 5.5 or later
  - Mozilla 1.7/Firefox 1.0 or later

## Hardware Description

The Barricade connects to the Internet or to a remote site using its WAN RJ-45 port linked to a modem. It also can be connected directly to your PC or to a local area network using the Fast Ethernet LAN port.

Access speed to the Internet depends on your service type. Full-rate ADSL provides up to 8 Mbps downstream and 1 Mbps upstream. G.lite (or splitterless) ADSL provides up to 1.5 Mbps downstream and 512 kbps upstream. However, you should note that the actual rate provided by specific service providers may vary dramatically from these upper limits.

Data passing between devices connected to your local area network can run at up to 100 Mbps over the Fast Ethernet port and 54 Mbps over the built-in wireless network adapter.

The Barricade includes an LED display on the front panel for system power and port indications that simplifies installation and network troubleshooting.



**Figure 2-1. Front LED indicators**

The power and port LED indicators on the front panel are illustrated by the following table.

LED	Status	Description
Power	On	The Barricade is receiving power. Normal operation.
	Off	Power off or failure.
WAN	On	WAN link.
	Off	No WAN link.
PPPoE/DSL	On	PPPoE/DSL connection is functioning correctly.
	Flashing	The Barricade is sending or receiving data via PPPoE/DSL link.
	Off	PPPoE/DSL connection is not established.
WLAN	On	WLAN link.
	Flashing	The Barricade is sending or receiving data via WLAN.
	Off	No WLAN link.

LED	Status	Description
LAN 1~4	On	Ethernet link.
	Flashing	The LAN port is sending or receiving data.
	Off	No Ethernet link.

The following figure and table shows the rear panel of the Barricade.

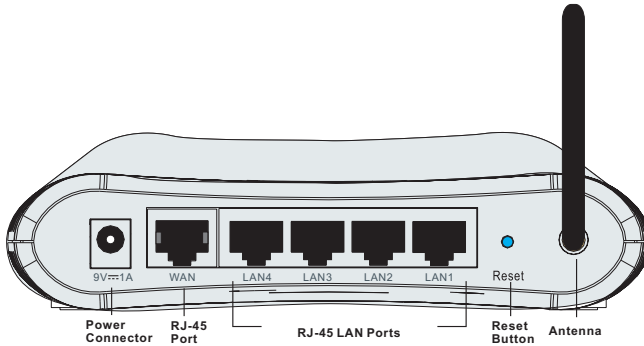


Figure 2-2. Rear Panel

Item	Description
Power Inlet	Connect the included power adapter to this inlet. <b>Warning:</b> Using the wrong type of power adapter may cause damage.
WAN Port	WAN port (RJ-45). Connect your WAN line to this port.
LAN Ports	Fast Ethernet ports (RJ-45). Connect devices on your local area network to these ports (i.e., a PC, hub, switch or IP set top box).
Reset Button	Use this button to reset the power and restore the default factory settings. To reset without losing configuration settings, see “Reset” on page 4-60.
Antenna	Fixed antenna is connected here.



## **ISP Settings**

Please collect the following information from your ISP before setting up the Barricade:

- ISP account user name and password
- Protocol, encapsulation and VPI/VCI circuit numbers
- DNS server address
- IP address, subnet mask and default gateway (for fixed IP users only)

## **Connect the System**

### **Desktop Installation**

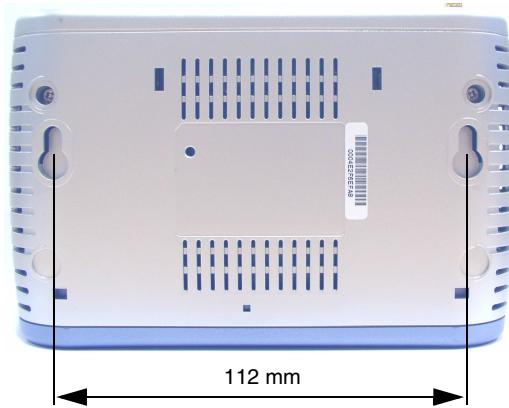
The Barricade can be positioned on any convenient flat surface in your office or home. No special wiring or cooling requirements are needed. You should, however, comply with the following guidelines:

- Keep the Barricade away from any heating devices.
- Do not place the Barricade in a dusty or wet environment.

You should also remember to turn off the power, remove the power cord from the outlet, and keep your hands dry when you install the Barricade.

## Wall-Mount Installation

There are two wall-mount holes at the bottom of the Barricade. Before drilling two holes into the wall, make sure the holes are 112 mm apart.



1. Choose a suitable location for the Barricade.

**Note:** It should be accessible for installing, cabling and maintaining the device.

2. Measure the distance of the two wall-mount holes.
3. Drill two holes into the wall.
4. Insert a screw into each hole.

**Note:** Leave 5 mm exposed of the screw head.

5. Attach the Barricade to the wall with two wall-mount slots, and then slide the device down until the screws fit firmly into the slots of the device.

## Connecting the Barricade to your LAN

The four LAN ports on the Barricade auto-negotiate the connection speed to 10 Mbps Ethernet or 100 Mbps Fast Ethernet, as well as the transmission mode to half duplex or full duplex.

Use RJ-45 cables to connect any of the four LAN ports on the Barricade to an Ethernet adapter on your PC. Otherwise, cascade any of the LAN ports on the Barricade to an Ethernet hub or switch, and then connect your PC or other network equipment to the hub or switch. When inserting an RJ-45 connector, be sure the tab on the connector clicks into position to ensure that it is properly seated.

**Warning:** Do not plug a phone jack connector into an RJ-45 port. This may damage the Barricade. Instead, use only twisted-pair cables with RJ-45 connectors that conform with FCC standards.

- Notes:**
1. Use 100-ohm shielded or unshielded twisted-pair cable with RJ-45 connectors for all Ethernet ports. Use Category 3, 4, or 5 for connections that operate at 10 Mbps, and Category 5 for connections that operate at 100 Mbps.
  2. Make sure each twisted-pair cable length does not exceed 100 meters (328 feet).

## Connect the Power Adapter

Plug the power adapter into the power socket on the side panel of the Barricade, and the other end into a power outlet.

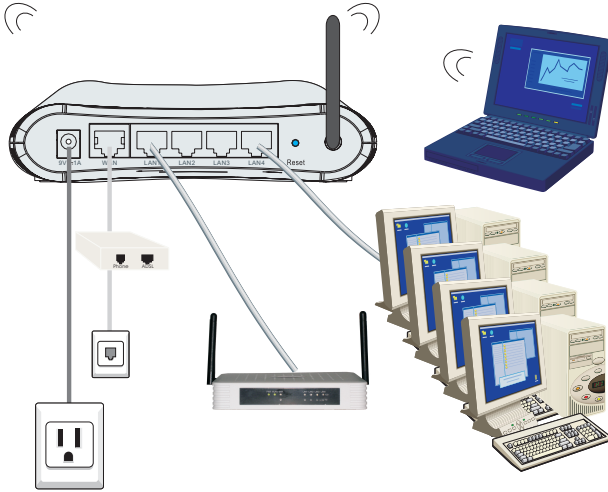
Check the power indicator on the front panel is lit. If the power indicator is not lit, refer to “Troubleshooting” on page A-1.

In case of a power input failure, the Barricade will automatically restart and begin to operate once the input power is restored.

If the Barricade is properly configured, it will take about 30 seconds to establish a connection with the ADSL service provider after powering up.

# Application Example

The following diagram shows a typical network application.



# CHAPTER 3

## CONFIGURING THE CLIENT PC

---

After completing hardware setup by connecting all your network devices, you need to configure your computer to connect to the Barricade. You can either configure your computer to automatically obtain IP settings (DHCP) or manually configure IP address settings (Static IP).

Depending on your operating system see:

“Windows 2000” on page 3-3,

“Windows XP” on page 3-9,

or

“Configuring Your Macintosh Computer” on page 3-15.

## **TCP/IP Configuration**

To access the Internet through the Barricade, you must configure the network settings of the computers on your LAN to use the same IP subnet as the Barricade. The default network settings for the Barricade are:

IP Address: 192.168.2.1

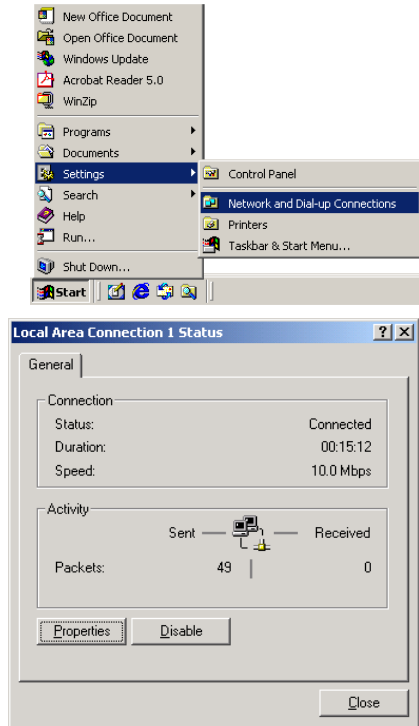
Subnet Mask: 255.255.255.0

**Note:** These settings can be changed to fit your network requirements, but you must first configure at least one computer to access the Barricade's web configuration interface in order to make the required changes. (See "Configuring the Barricade" on page 4-1 for instructions on configuring the Barricade.)

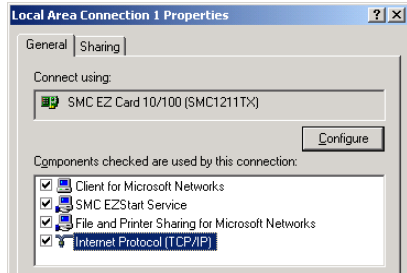
## Windows 2000

### DHCP IP Configuration

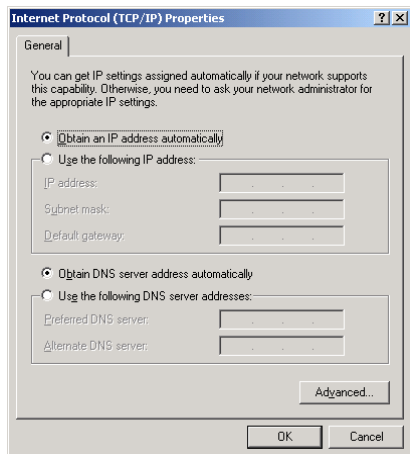
1. On the Windows desktop, click **Start/Settings/Network and Dial-Up Connections**.
2. Click the icon that corresponds to the connection to your Barricade.
3. The connection status screen will open. Click **Properties**.



4. Double-click **Internet Protocol (TCP/IP)**.



5. If **Obtain an IP address automatically** and **Obtain DNS server address automatically** are already selected, your computer is already configured for DHCP. If not, select these options now and click **OK**.

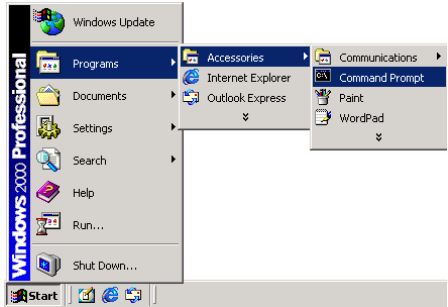




## Obtain IP Settings From Your Barricade

Now that you have configured your computer to connect to your Barricade, it needs to obtain new network settings. By releasing old DHCP IP settings and renewing them with settings from your Barricade, you can verify that you have configured your computer correctly.

1. On the Windows desktop, click **Start/Programs/Accessories/Command Prompt**.



2. In the Command Prompt window, type “**IPCONFIG /RELEASE**” and press the **Enter** key.

```

Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\Documents and Settings\laurence>IPCONFIG /RELEASE

Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 2"

C:\Documents and Settings\laurence>
    
```