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**Manual abstract:**

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Under the limited lifetime warranty, internal and external power supplies, fans, and cables are covered by a standard one-year warranty from date of purchase. SMC Networks, Inc. 38 Tesla Irvine, CA 92618 **ii 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 **FCC Caution:**

To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. 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.



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· · · **IMPORTANT STATEMENT 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 a minimum distance of 20 cm (8 in) between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. FCC - Part 68 This equipment complies with Part 68 of the FCC rules. This equipment comes with a label attached to it that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company. This equipment uses the following USOC jacks: RJ-11C. iii COMPLIANCES The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0).

To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may make changes in its facilities, equipment, operations, or procedures that will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service. If trouble is experienced with this equipment, please contact our company at the numbers shown on back of this manual for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you to remove the equipment from the network until the problem is resolved. No repairs may be done by the customer. This equipment cannot be used on telephone company-provided coin service.

Connection to Party Line Service is subject to state tariffs.

When programming and/or making test calls to emergency numbers: · Remain on the line and briefly explain to the dispatcher the reason for the call. · Perform such activities in off-peak hours such as early morning or late evenings. The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. In order to program this information into your facsimile, refer to your communications software user manual. iv COMPLIANCES EC Conformance Declaration SMC contact for these products in Europe is: SMC Networks Europe, Edificio Conata II, Calle Fructuós Gelabert 6-8, 2o, 4a, 08970 - Sant Joan Despí, 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 v COMPLIANCES Safety Compliance 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 Netzanschlusßsteckdose 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 Netzanschlusßleitung 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-2 3-3 3-4 3-4 3-6 3-6 3-6 3-8 3-9 vii TABLE OF CONTENTS Configuring the Voice ADSL Router . . . . .

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... C-1 ix CHAPTER 1 INTRODUCTION Congratulations on your purchase of the Barricade™ g Voice ADSL Router, hereafter referred to as the "Barricade". 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. The VoIP Router also enables service providers to provide their residential and small office home office (SOHO) customers with high-quality VoIP service using traditional analog telephones and fax machines. About the Barricade The Barricade provides Internet access to multiple users by sharing a single-user account. Support is provided for both wired and wireless devices. This device also provides wireless security via Wired Equivalent Privacy (WEP) encryption and MAC address filtering. It is simple to configure and can be up and running in minutes. VoIP (Voice over IP) Using Voice over IP (VoIP), instead of making calls over the regular telephone network, calls are made over computer (IP) networks, either through your Internet Service Provider's connection or through your local network. Calls made to another Internet telephone, anywhere in the world, are generally free, while calls made to a regular telephone are generally much cheaper than traditional long distance calls. The basic steps involved in VoIP include the conversion of an analog voice signal to 1-1 INTRODUCTION digital, the encoding and then compression of the signal into Internet Protocol (IP) packets. The VoIP Router is equipped with a digital signal processor (DSP), which segments the voice signal into frames and stores them in voice packets.

Using the industry standard CODECs, G.711, G.723.3 and G.729, these packets are encoded. These IP packets are then transmitted in accordance with International Telecommunications Union specification H.323 over the Internet to their destination where the process is reversed. Features and Benefits . . . . .

· Internet connection to an ADSL modem via an RJ-11 ADSL port Local network connection via four 10/100 Mbps Ethernet ports On-board IEEE 802.11g wireless network adapter 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, e-mail, 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 · · · · 1-2 APPLICATIONS Applications Many advanced networking features are provided by the Barricade: · Wireless and Wired 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 DSL 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 access the Internet 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. 1-3 INTRODUCTION · 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. · Virtual Private Network (VPN) The Barricade supports three of the most commonly used VPN protocols -- PPTP, L2TP, and IPSec. These protocols allow remote users to establish a secure connection to their corporate network. If your service provider supports VPNs, then these protocols can be used to create an authenticated and encrypted tunnel for passing secure data over the Internet (i.e., a traditionally shared data network). 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. · · 1-4 CHAPTER 2 INSTALLATION Before installing the Barricade™ g Voice ADSL Router, verify that you have all the items listed under the Package Contents list. 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 Voice ADSL Router" 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 Voice ADSL Router (SMC7908VoWBRA) Power adapter One CAT-5 Ethernet cable (RJ-45) Telephone patch cable (RJ-11) Documentation CD Immediately inform your dealer in the event of any incorrect, missing, or damaged parts.



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If possible, please retain the carton and original packing materials in case there is a need to return the product. 2-1 INSTALLATION System Requirements You must meet the following minimum requirements: . . . ADSL line installed by your Internet Service Provider.

A PC using a dynamic or fixed IP address, as well as a gateway server address and DNS server address from your service provider. A computer equipped with a 10/100 Mbps network adapter, a USB-to-Ethernet converter or an IEEE 802.11g wireless network adapter. TCP/IP network protocols installed on each PC that will access the Internet. A Java-enabled web browser, such as Microsoft Internet Explorer 5.

5 or above installed on one PC at your site for configuring the Barricade. . . Hardware Description The Barricade contains an integrated ADSL modem and connects to the Internet or to a remote site using its RJ-11 WAN port. It can be connected directly to your PC or to a local area network using any of the four Fast Ethernet LAN ports. Access speed to the Internet depends on your service type. Full-rate ADSL provides up to 8 Mbps downstream and 640 kbps 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 ports and 54 Mbps over the built-in wireless network adapter. 2-2 HARDWARE DESCRIPTION The Barricade includes an LED display on the front panel for system power and port indications that simplifies installation and network troubleshooting. It also provides the following ports on the rear panel: Figure 2-1. Rear Panel Item Line Phone USB Reset Button Description Connect the telephone line directly to this port. Connect your regular telephone to this port. Connect your USB device to this port.

Use this button to reset the power and restore the default factory settings. To reset without losing configuration settings, see "Reset" on page 4-83. Connect the included power adapter to this inlet. Warning: Using the wrong type of power adapter may damage the Barricade. LAN Ports ADSL Port Fast Ethernet ports (RJ-45). Connect devices on your local area network to these ports (i.e., a PC, hub, or switch). WAN port (RJ-11). Connect your ADSL line to this port.

Power Inlet 2-3 INSTALLATION LED Indicators The power and port LED indicators on the front panel are illustrated by the following figure and table. Figure 2-2. Front Panel LED PWR Status On Off ADSL SYNC On Flashing Off WLAN USB Flashing On Off LAN (4 LEDs) On Flashing Off VoIP Line On Off Phone On Off Description The Barricade is receiving power. Normal operation. Power off or failure.

ADSL connection is functioning correctly. The Barricade is establishing an ADSL link. ADSL connection is not established. The WLAN port is sending or receiving data. USB device is connected to this port.

no connection. Ethernet connection is established. The indicated LAN port is sending or receiving data. There is no LAN connection on the port. The VoIP connection is up and connected. VoIP call in progress. No call in progress. VoIP call in progress. No call in progress. 2-4 ISP SETTINGS ISP Settings Please collect the following information from your ISP before setting up the Barricade: . . . . ISP account user name and password VoIP setting details 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 The Barricade can be positioned at any convenient location in your office or home.

It also can be wall-mounted. 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. Phone/FAX Connection Connect a standard telephone set or fax machine to the Phone (FXS) port on the rear panel. 2-5 INSTALLATION Connect the ADSL Line Connect the supplied RJ-11 cable from the ADSL Microfilter/Splitter to the ADSL port on your Barricade. When inserting an ADSL RJ-11 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated. Phone Line Configuration Installing a Full-Rate Connection If you are using a full-rate (G.dmt) connection, your service provider will attach the outside ADSL line to a data/voice splitter.

In this case you can connect your phones and computer directly to the splitter as shown below: Plain Old Telephone System (POTS) Voice Residential Connection Point [Network Interface Device (NID)] Voice & Data Filter Voice & Data Data ADSL Router or Ethernet hub or switch Figure 2-3. Installing with a Splitter 2-6 CONNECT THE SYSTEM Installing a Splitterless Connection If you are using a splitterless (G.lite) connection, then your service provider will attach the outside ADSL line directly to your phone system. In this case you can connect your phones and computer directly to the incoming ADSL line, but you will have to add low-pass filters to your phones as shown below: Plain Old Telephone System (POTS) Voice Residential Connection Point [Network Interface Device (NID)] Voice & Data Filter Voice & Data Data ADSL Router or Ethernet hub or switch Figure 2-4. Installing without a Splitter 2-7 INSTALLATION Attach to Your Network Using Ethernet Cabling 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.

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 rear of the Barricade, and the other end into a power outlet. Check the power indicator on the front panel is lit.



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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. 2-8 CHAPTER 3 CONFIGURING CLIENT PC After completing hardware setup by connecting all your network devices, you need to configure your computer to connect to the Barricade.

See: "Windows 2000" on page 3-3 "Windows XP" on page 3-6 or "Configuring Your Macintosh Computer" on page 3-8 depending on your operating system.

3-1 CONFIGURING CLIENT PC 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 IP 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 Voice ADSL Router" on page 4-1 for instruction on configuring the Barricade.

) 3-2 WINDOWS 2000 Windows 2000 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 this option. 3-3 CONFIGURING CLIENT PC Disable HTTP Proxy You need to verify that the "HTTP Proxy" feature of your web browser is disabled. This is so that your browser can view the Barricade's HTML configuration pages. Determine which browser you use and refer to "Internet Explorer" on page 3-4. 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. 3-4 WINDOWS 2000 3. Type "IPCONFIG /RENEW" and press the ENTER key. Verify that your IP Address is now 192.168.2.xxx, your Subnet Mask is 255.255.255.0 and your Default Gateway is 192.

168.2.254. These values confirm that your ADSL Router is functioning. 4.

Type "EXIT" and press the ENTER key to close the Command Prompt window. Your computer is now configured to connect to the Barricade. 3-5

CONFIGURING CLIENT PC Windows XP 1. On the Windows desktop, click Start/Control Panel. 2.

In the Control Panel window, click Network and Internet Connections. 3. The Network Connections window will open. Double-click the connection for this device. 4. On the connection status screen, click Properties. 5. Double-click Internet Protocol (TCP/IP). 6. 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 this option. Disable HTTP Proxy You need to verify that the "HTTP Proxy" feature of your web browser is disabled. This is so that your browser can view the Barricade's HTML configuration pages. Determine which browser you use and refer to "Internet Explorer" on page 3-4. 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. 3-6 WINDOWS XP 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.

3. Type "IPCONFIG /RENEW" and press the ENTER key. Verify that your IP Address is now 192.168.2.

xxx, your Subnet Mask is 255.255.255.0 and your Default Gateway is 192.168.

2.254. These values confirm that your ADSL router is functioning. Type "EXIT" and press the ENTER key to close the Command Prompt window. Your computer is now configured to connect to the Barricade. 3-7 CONFIGURING CLIENT PC Configuring Your Macintosh Computer You may find that the instructions here do not exactly match your operating system. This is because these steps and screenshots were created using Mac OS 10.2. Mac OS 7.x and above are similar, but may not be identical to Mac OS 10.

2. Follow these instructions: 1. Pull down the Apple Menu System Preferences. Click 2. Double-click the Network icon in the Systems Preferences window.

3-8 CONFIGURING YOUR MACINTOSH COMPUTER 3. If "Using DHCP Server" is already selected in the Configure field, your computer is already configured for DHCP. If not, select this Option. 4. Your new settings are shown on the TCP/IP tab.

Verify that your IP Address is now 192.168.2.xxx, your Subnet Mask is 255.255.

255.0 and your Default Gateway is 192.168.2.1.

These values confirm that your Barricade is functioning. 5. Close the Network window. Now your computer is configured to connect to the Barricade. Disable HTTP Proxy You need to verify that the "HTTP Proxy" feature of your web browser is disabled. This is so that your browser can view the Barricade's HTML configuration pages. The following steps are for Internet Explorer. Internet Explorer 1. Open Internet Explorer and click the Stop button. Click Explorer/Preferences.

2. In the Internet Explorer Preferences window, under Network, select Proxies. 3-9 CONFIGURING CLIENT PC 3. Uncheck all check boxes and click OK.

3-10 CHAPTER 4 CONFIGURING THE VOICE ADSL ROUTER After you have configured TCP/IP on a client computer, you can configure the Barricade using Internet Explorer 5.5 or above. To access the Barricade's management interface, enter the default IP address of the Barricade in your web browser: http://192.168.2.1.

Enter the default password: "smcadmin", and click "LOGIN". Note: Passwords can contain from 3~12 alphanumeric characters and are case sensitive. 4-1 CONFIGURING THE VOICE ADSL ROUTER Navigating the Management Interface The first page of the web management is Country Selection. You need to select your country before accessing the management interface. 4-2 NAVIGATING THE MANAGEMENT INTERFACE The Barricade's management interface consists of a Setup Wizard and an Advanced Setup section.

Setup Wizard: Use the Setup Wizard if you want to quickly set up the Barricade. Go to "SETUP WIZARD" on page 4. Advanced Setup: Advanced Setup supports more advanced functions like VoIP, Firewall, IP and MAC address filtering, virtual server setup, virtual DMZ host, as well as other functions.



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Go to "Advanced Setup" on page 4-16. Making Configuration Changes Configurable parameters have a dialog box or a drop-down list. Once a configuration change has been made on a page, click the "APPLY" "SAVE SETTINGS" or "NEXT" button at the bottom of the page to enable the new setting. Note: To ensure proper screen refresh after a command entry, be sure that Internet Explorer 5.5 is configured as follows: Under the menu Tools/Internet Options/General/Temporary Internet Files/Settings, the setting for "Check for newer versions of stored pages" should be "Every visit to the page." 4-3 CONFIGURING THE VOICE ADSL ROUTER SETUP WIZARD Channel and SSID Click on "SETUP WIZARD" and "NEXT", then you will see the Channel and SSID page. Parameter ESSID Description Extended Service Set ID. The ESSID must be the same on the Barricade and all of its wireless clients. This device supports both 11g and 11b wireless networks. Make your selection depending on the type of wireless network that you have. The radio channel used by the wireless router and its clients to communicate with each other. This channel must be the same on the Barricade and all of its wireless clients.

The Barricade will automatically assign itself a radio channel, or you may select one manually. ESSID Broadcast Enable or disable the broadcasting of the SSID. Wireless Mode Channel Click "NEXT" to continue. 4-4 SETUP WIZARD Time Zone Select your local time zone from the drop down list. @@Select your time zone from the drop down list. If you want to automatically synchronize the Voice ADSL router with a public time server, check the box to Enable Automatic Time Server Maintenance. Select the desired servers from the drop down menu. 4-5 CONFIGURING THE VOICE ADSL ROUTER Parameter Setting Select your Country and Internet Service Provider. This will automatically configure the Barricade with the correct Protocol, Encapsulation and VPI/VCI settings for your ISP. If your Country or Internet Service Provider is not listed in this page, you will need to manually enter settings.

Go to "Parameter Setting - Country or ISP Not Listed" on page 4-9 in the manual. If your ISP uses Protocols PPPoA or PPPoE you will need to enter the username, password and DNS Server address supplied by your ISP. If your ISP uses Protocol RFC1483 Routed you will need to enter the IP address, Subnet Mask, Default Gateway and DNS Server address supplied by your ISP. Note: By default 192.168.

2.1 is set for the DNS Server address, this needs to be changed to reflect your ISP's DNS Server address. Click "NEXT" to continue. 4-6 SETUP WIZARD Confirm The Confirm page shows a summary of the configuration parameters. Check ADSL operation mode (WAN), Network Layer Parameters (WAN) and ISP parameters are correct.

Parameter ADSL Operation Mode (WAN) ISP Protocol VPI/VCI Description The type of ISP you have selected. Indicates the protocol used. Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI). AAL5 Encapsulation Shows the packet encapsulation type. Go to page 4-23 for a detailed description. Network Layer Parameters (WAN) IP Address Subnet Mask Default Gateway WAN IP address (only displayed if you have static IP). WAN subnet mask (only displayed if you have static IP). WAN gateway (only displayed if you have static IP). 4-7 CONFIGURING THE VOICE ADSL ROUTER Parameter DNS Server ISP Parameters Username Password DHCP Parameters Function Default Gateway Subnet Mask Name Server 1 Name Server 2 Start IP Address Number of IP Shows the DHCP function is enabled or disabled. LAN IP address of the Barricade.

The network subnet mask. Primary DNS server IP address. Alternate DNS server IP address. Start IP address of DHCP assigned IP addresses. Number of IP addresses available for assignment by the DHCP server. The ISP assigned user name. The password (hidden). Description The IP address of the DNS server. If the parameters are correct, click "NEXT" to save these settings. Your Barricade is now set up.

Go to "Troubleshooting" on page A-1 if you cannot make a connection to the Internet. 4-8 SETUP WIZARD Parameter Setting - Country or ISP Not Listed If your Country or Internet Service Provider is not listed select "Others". This will allow you to manually configure your ISP settings. For manual configuration you will need to know the Protocol, DNS Server, Encapsulation and VPI/VCI settings used by your ISP. If you have a Static IP address you will also need to know the IP address, Subnet Mask and Gateway address.

Please contact your ISP for these details if you do not already have them. After selecting "Others" you will be required to select what Protocol your ISP uses from the "Internet Service Provider" drop down list. 4-9 CONFIGURING THE VOICE ADSL ROUTER ISP use Bridging Enter the Bridging settings provided by your ISP. Parameter Management IP Address VPI/VCI Encapsulation Description Enter the IP address provided by your ISP. (Default: 192.

168.2.1) @@@@Go to "Confirm" on page 4-7 in the manual for details about the "Confirm" settings page. 4-10 SETUP WIZARD ISP use 1483Bridging-DHCP Parameter DNS Server Description Domain Name Servers are used to map a domain name (e.g., www.somesite.com) to the equivalent numerical IP address. Your ISP should provide the IP address of a Domain Name Server. Enter the address on this page @@Select the encapsulation used by ISP from the drop down list.

VPI/VCI Encapsulation Click "NEXT" to continue to the "Confirm" settings page. Go to "Confirm" on page 4-7 in the manual for details about the "Confirm" settings page. 4-11 CONFIGURING THE VOICE ADSL ROUTER ISP use 1483Bridging-FixIP Parameter IP Address Subnet Mask Default Gateway DNS Server VPI/VCI Encapsulation Description Enter your ISP supplied static IP address here Enter the subnet mask address provided by your ISP. Enter the gateway address provided by your ISP. Enter the Domain Name Server address. @@@@Go to "Confirm" on page 4-7 in the manual for details about the "Confirm" settings page. 4-12 SETUP WIZARD ISP use PPPoE Parameter DNS Server VPI/VCI Encapsulation Username Password Confirm Password Description Enter the Domain Name Server address. @@Select the encapsulation used by ISP from the drop down list. Enter user name. Enter password. @@@@Select the encapsulation used by ISP from the drop down list. Enter user name. Enter password. @@@@Enter the subnet mask address provided by your ISP. Enter the gateway address provided by your ISP.

Enter the Domain Name Server address. @@@@Specifies the Internet connection settings. @@@@Configures Address Mapping, virtual server and special applications. Sets the routing parameters and displays the current routing table. @@Enables the Universal Plug and Play function.



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Sets the ADSL operation type and shows the ADSL status. Configures Dynamic DNS function. @@@@ Select your time zone from the drop down list. @@@@ The default password is "smcadmin". @@@@ (Default: 10 minutes) 4-19 CONFIGURING THE VOICE ADSL ROUTER Remote Management By default, management access is only available to users on your local network. However, you can also manage the Barricade from a remote host by entering the IP address of a remote computer on this screen. Check the Enabled check box, and enter the IP address of the Host Address and click "APPLY". Note: If you check Enable and specify an IP address of 0.0.0.

0, any remote host can manage the Barricade. For remote management via WAN IP address you need to connect using port 8080. Simply enter WAN IP address followed by :8080, for example, 211.20.16.1:8080. 4-20 ADVANCED SETUP DNS Domain Name Servers (DNS) are used to map a domain name (e.g., www.smc.com) with the IP address (e.g., 64.147.25.

20). Your ISP should provide the IP address of one or more Domain Name Servers. Enter those addresses on this page, and click "APPLY". 4-21 CONFIGURING THE VOICE ADSL ROUTER WAN Specify the WAN connection parameters provided by your Internet Service Provider (ISP). The Barricade can be connected to your ISP in one of the following ways: · ATM PVC · Clone MAC 4-22 ADVANCED SETUP ATM PVC Enter the ATM (Asynchronous Transfer Mode) virtual connection parameters here.

Parameter Description VPI/VCI Encapsulation Description Click on the VC to set the values for the connection. Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI). Specifies how to handle multiple protocols at the ATM transport layer. · VC-MUX: Point-to-Point Protocol over ATM Virtual Circuit Multiplexer (null encapsulation) allows only one protocol running per virtual circuit with less overhead. LLC: Point-to-Point Protocol over ATM Logical Link Control (LLC) allows multiple protocols running over one virtual circuit (using slightly more overhead). · Protocol Protocol used for the connection. 4-23 CONFIGURING THE VOICE ADSL ROUTER ATM Interface 1483 Bridging Enter the Bridging settings provided by your ISP. Parameter VPI/VCI

Description Data flows are broken up into fixed length cells, each of which contains a Virtual Path Identifier (VPI) that identifies the path between two nodes, and a Virtual Circuit Identifier (VCI) that identifies the data channel within that virtual path. Each virtual circuit maintains a constant flow of cells between the two end points. When there is no data to transmit, empty cells are sent.

When data needs to be transmitted, it is immediately inserted into the cell flows. Shows the packet encapsulation type. Packet encapsulation specifies how to handle multiple protocols at the ATM transport layer. · VC-MUX: Point-to-Point Protocol over ATM Virtual Circuit Multiplexer (null encapsulation) allows only one protocol running per virtual circuit with less overhead. · LLC: Point-to-Point Protocol over ATM Logical Link Control allows multiple protocols running over one virtual circuit (using slightly more overhead). Encapsulation QoS Class PCR/SCR/MBS ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR (Peak Cell Rate), SCR (Sustainable Cell Rate) and MBS (Maximum Burst Size) are configurable. 4-24 ADVANCED SETUP PPPoA Parameter VPI/VCI Encapsulation QoS Class PCR/SCR/MBS IP assigned by ISP IP Address Subnet Mask Connect Type Idle Time (Minute) Description @@@ Select the encapsulation used by ISP from the drop down list. ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR, SCR and MBS are configurable. Select Yes if the IP address was provided by your ISP Enter the IP address provided by your ISP. Enter the subnet mask address provided by your ISP.

Sets connection mode to always connected, automatic or manual connection. Enter the maximum idle time for the Internet connection. After this time has been exceeded the connection will be terminated. Enter user name. Enter password.

Confirm password Leave the Maximum Transmission Unit (MTU) at the default value (1500) unless you have a particular reason to change it. Username Password Confirm Password MTU 4-25 CONFIGURING THE VOICE ADSL ROUTER 1483 Routing Parameter IP Address Subnet Mask Default Gateway VPI/VCI Encapsulation QoS Class PCR/SCR/MBS DHCP Client Description Enter the IP address provided by your ISP. Enter the subnet mask address provided by your ISP. Enter the gateway address provided by your ISP. @@@ Select the encapsulation used by ISP from the drop down list.

ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR, SCR and MBS are configurable. Assigning an IP address dynamically 4-26 ADVANCED SETUP PPPoE Parameter IP Address Subnet Mask VPI/VCI Encapsulation QoS Class PCR/SCR/MBS Connect Type Idle Time (Minute) Description Enter the IP address provided by your ISP. Enter the subnet mask address provided by your ISP. @@@ Select the encapsulation used by ISP from the drop down list. ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR, SCR and MBS are configurable. Sets connection mode to always connected, automatic or manual connection. Enter the maximum idle time for the Internet connection. After this time has been exceeded the connection will be terminated. Enter user name. Enter password.

Confirm password Leave the Maximum Transmission Unit (MTU) at the default value (1500) unless you have a particular reason to change it. Username Password Confirm Password MTU 4-27 CONFIGURING THE VOICE ADSL ROUTER MAC Encapsulated Routing Parameter IP Address Subnet Mask Default Gateway VPI/VCI Encapsulation QoS Class PCR/SCR/MBS DHCP Client Description Enter the IP address provided by your ISP. Enter the subnet mask address provided by your ISP. Enter the gateway address provided by your ISP. @@@ Select the encapsulation used by ISP from the drop down list. ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR, SCR and MBS are configurable. Assigning an IP address dynamically 4-28 ADVANCED SETUP Clone MAC Address Some ISPs require you to register your MAC address with them. If this is the case, the MAC address of the Barricade must be changed to the MAC address that you have registered with your ISP. 4-29 CONFIGURING THE VOICE ADSL ROUTER LAN Use the LAN menu to configure the LAN IP address and to enable the DHCP server for dynamic client address allocation. Parameter LAN IP IP Address DHCP Server Lease Time Description The IP address of the Barricade.

The Barricade comes with the DHCP function. To dynamically assign an IP address to client PCs, enable this function. Set the IP lease time. For home networks this may be set to Forever, which means there is no time limit on the IP address lease. IP Subnet Mask The subnet mask of the network. IP Address Pool Start IP Address Specify the start IP address of the DHCP pool.



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Do not include the gateway address of the Barricade in the client address pool. If you change the pool range, make sure the first three octets match the gateway's IP address, i.e., 192.

168.2.xxx. End IP Address Specify the end IP address of the DHCP pool. Domain Name If your network uses a domain name, enter it here. Otherwise, leave this field blank. 4-30 ADVANCED SETUP WIRELESS The Barricade also operates as a wireless access point, allowing wireless computers to communicate with each other. To configure this function, all you need to do is enable the wireless function, define the radio channel, the domain identifier, and the security options. Check Enable and click "SAVE SETTINGS". 4-31 CONFIGURING THE VOICE ADSL ROUTER Channel and SSID You must specify a common radio channel and SSID (Service Set ID) to be used by the Barricade and all of its wireless clients.

Be sure you configure all of its clients to the same values. Parameter ESSID ESSID Broadcast Wireless Mode Description Extended Service Set ID. The ESSID must be the same on the Barricade and all of its wireless clients. Enable or disable the broadcasting of the SSID. This device supports both 11g and 11b wireless networks. Make your selection depending on the type of wireless network that you have. The radio channel used by the wireless router and its clients to communicate with each other. This channel must be the same on the Barricade and all of its wireless clients. The Barricade will automatically assign itself a radio channel, or you may select one manually. Channel 4-32 ADVANCED SETUP Access Control restrict access based on MAC address 4-33

CONFIGURING THE VOICE ADSL ROUTER Security To make your wireless network safe, you should turn on the security function.

The Barricade supports WEP (Wired Equivalent Privacy) and WPA (Wi-Fi Protected) security mechanisms. 4-34 ADVANCED SETUP WEP If you want to use WEP to protect your wireless network, you need to set the same parameters for the Barricade and all your wireless clients. Parameter WEP Mode Key Provisioning Description Select 64 bit or 128 bit key to use for encryption. Select Static if there is only one fixed key for encryption. If you want to select Dynamic, you would need to enable 802.

IX function first. Key Entry Method Select Hex or ASCII to use for encryption key You may automatically generate encryption keys or manually enter the keys. To generate the key automatically with passphrase, check the Passphrase box, enter a string of characters. Select the default key from the drop down menu. Click "SAVE SETTINGS".

Note: The passphrase can consist of up to 32 alphanumeric characters. 4-35 CONFIGURING THE VOICE ADSL ROUTER To manually configure the encryption key, enter five hexadecimal pairs of digits for each 64-bit key, or enter 13 pairs for the single 128-bit key. (A hexadecimal digit is a number or letter in the range 0-9 or A-F.) Note that WEP protects data transmitted between wireless nodes, but does not protect any transmissions over your wired network or over the Internet. WPA Wi-Fi Protected Access (WPA) combines temporal key integrity protocol (TKIP) and 802.IX mechanisms. It provides dynamic key encryption and 802.IX authentication service. Parameter Cypher suite Authentication Description The security mechanism used in WPA for encryption. Choose 802.

IX or Pre-shared Key to use as the authentication method. 802.IX: for the enterprise network with a RADIUS server. Pre-shared key: for the SOHO network environment without an authentication server. Pre-shared key type Select the key type to be used in the Pre-shared Key. 4-36 ADVANCED SETUP Parameter Pre-shared Key Group Key Re\_Keying Type in the key here. The period of renewing broadcast/multicast key. Description 802.IX If 802.IX is used in your network, then you should enable this function for the Barricade.

Parameter 802.IX Authentication Session Idle timeout Description Enable or disable this authentication function. Defines a maximum period of time for which the connection is maintained during inactivity. Re-Authentication Defines a maximum period of time for which the Period authentication server will dynamically re-assign a session key to a connected client. 4-37 CONFIGURING THE VOICE ADSL ROUTER Parameter Quiet Period Server Type RADIUS Server Parameters Server IP Server Port Secret Key NAS-ID The IP address of your authentication server.

The port used for the authentication service. The secret key shared between the authentication server and its clients. Defines the request identifier of the Network Access Server. Description Defines a maximum period of time for which the Barricade will wait between failed authentications. Select TINY or RADIUS as the authentication server.

4-38 ADVANCED SETUP NAT Network Address Translation allows multiple users to access the Internet sharing one public IP. 4-39 CONFIGURING THE VOICE ADSL ROUTER Address Mapping Allows one or more public IP addresses to be shared by multiple internal users. This also hides the internal network for increased privacy and security. Enter the Public IP address you wish to share into the Global IP field. Enter a range of internal IPs that will share the global IP into the "from" field. 4-40 ADVANCED SETUP Virtual Server If you configure the Barricade as a virtual server, remote users accessing services such as web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port number), the Barricade redirects the external service request to the appropriate server (located at another internal IP address). For example, if you set Type/Public Port to TCP/80 (HTTP or web) and the Private IP/Port to 192.168.2.

2/80, then all HTTP requests from outside users will be transferred to 192.168.2.2 on port 80. Therefore, by just entering the IP address provided by the ISP, Internet users can access the service they need at the local address to which you redirect them. The more common TCP service ports include: HTTP: 80, FTP: 21, Telnet: 23, and POP3: 110. A list of ports is maintained at the following link: <http://www.iana.org/assignments/port-numbers>. 4-41 CONFIGURING THE VOICE ADSL ROUTER Special Application Some applications require multiple connections, such as Internet gaming, video-conferencing, and Internet telephony.

These applications may not work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, use these pages to specify the additional public ports to be opened for each application. 4-42 ADVANCED SETUP NAT Mapping Table This page displays the current NAT (Network Address Port Translation) address mappings. 4-43 CONFIGURING THE VOICE ADSL ROUTER ROUTING These pages define routing related parameters, including static routes and RIP (Routing Information Protocol) parameters.



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Static Route Parameter Index Network Address Subnet Mask Gateway Description Check the box of the route you wish to delete or modify. Enter the IP address of the remote computer for which to set a static route. Enter the subnet mask of the remote network for which to set a static route. Enter the WAN IP address of the gateway to the remote network. Click "Add" to add a new static route to the list, or check the box of an already entered route and click "Modify". Clicking "Delete" will remove an entry from the list.

4-44 ADVANCED SETUP RIP Parameter General RIP Parameters RIP mode Auto summary Description Globally enables or disables RIP. If Auto summary is disabled, then RIP packets will include sub-network information from all subnetworks connected to the router. If enabled, this sub-network information will be summarized to one piece of information covering all subnetworks. Table of current Interface RIP parameter Interface Operation Mode The WAN interface to be configured. Disable: RIP disabled on this interface. Enable: RIP enabled on this interface. Silent: Listens for route broadcasts and updates its route table. It does not participate in sending route broadcasts. Version Sets the RIP (Routing Information Protocol) version to use on this interface. 4-45

CONFIGURING THE VOICE ADSL ROUTER Parameter Poison Reverse Authentication Required Description A method for preventing loops that would cause endless retransmission of data traffic.

· None: No authentication. Password: A password authentication key is included in the packet. If this does not match what is expected, the packet will be discarded. This method provides very little security as it is possible to learn the authentication key by watching RIP packets. MD5: An algorithm that is used to verify data integrity through the creation of a 128-bit message digest from data input (which may be a message of any length) that is claimed to be as unique to that specific data as a fingerprint is to a specific individual. Authentication Code Password or MD5 Authentication key. RIP sends routing-update messages at regular intervals and when the network topology changes. When a router receives a routing update that includes changes to an entry, it updates its routing table to reflect the new route. RIP routers maintain only the best route to a destination. After updating its routing table, the router immediately begins transmitting routing updates to inform other network routers of the change.

4-46 ADVANCED SETUP Routing Table Parameter Description Flags Indicates the route status: C = Direct connection on the same subnet. S = Static route. R = RIP (Routing Information Protocol) assigned route. I = ICMP (Internet Control Message Protocol) Redirect route. Network Address Netmask Destination IP address.

The subnetwork associated with the destination. This is a template that identifies the address bits in the destination address used for routing to specific subnets. Each bit that corresponds to a "1" is part of the subnet mask number; each bit that corresponds to "0" is part of the host number. Gateway Interface Metric The IP address of the router at the next hop to which frames are forwarded. The local interface through which the next hop of this route is reached.

When a router receives a routing update that contains a new or changed destination network entry, the router adds 1 to the metric value indicated in the update and enters the network in the routing table. 4-47 CONFIGURING THE VOICE ADSL ROUTER FIREWALL The Barricade Router's firewall inspects packets at the application layer, maintains TCP and UDP session information including time-outs and the number of active sessions, and provides the ability to detect and prevent certain types of network attacks. Network attacks that deny access to a network device are called Denial-of-Service (DoS) attacks. DoS attacks are aimed at devices and networks with a connection to the Internet. Their goal is not to steal information, but to disable a device or network so users no longer have access to network resources. The Barricade protects against the following DoS attacks: 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. (For details see page 4-55.) The firewall does not significantly affect system performance, so we advise leaving it enabled to protect your network. Select Enable and click the "SAVE SETTINGS" button to open the Firewall submenus. 4-48 ADVANCED SETUP Access Control Access Control allows users to define the outgoing traffic permitted or not-permitted through the WAN interface.

The default is to permit all outgoing traffic. The following items are on the Access Control screen: Parameter Enable Filtering Function Description Click Yes to turn on the filtering function. Normal Filtering Table Displays the IP address (or an IP address range) filtering table. 4-49 CONFIGURING THE VOICE ADSL ROUTER To add the PC to the filtering table: 1. Click "Add PC" on the Access Control screen. 2. Define the appropriate settings for client PC services. 3. Click "OK" and then click "SAVE SETTINGS" to save your settings. 4-50 ADVANCED SETUP MAC Filter The Barricade can also limit the access of hosts within the local area network (LAN).

The MAC Filtering Table allows the Barricade to enter up to 32 MAC addresses that are not allowed access to the WAN port. Click Yes to enable, or No to disable this function. Enter the MAC address in the space provided. 4-51 CONFIGURING THE VOICE ADSL ROUTER URL Blocking The Barricade allows the user to block access to web sites by entering either a full URL address or just a keyword. This feature can be used to protect children from accessing violent or pornographic web sites.

You can define up to 30 sites here. 4-52 ADVANCED SETUP Schedule Rule You may filter Internet access for local clients based on rules. Each access control rule may be activated at a scheduled time. Define the schedule on the Schedule Rule page, and apply the rule on the Access Control page. 4-53 CONFIGURING THE VOICE ADSL ROUTER Follow these steps to add a schedule rule: 1.

Click "Add Schedule Rule". 2. Define the appropriate settings for a schedule rule. 3. Click "OK" and then click "SAVE SETTINGS" to save your settings. 4-54 ADVANCED SETUP Intrusion Detection · Intrusion Detection Feature Stateful Packet Inspection (SPI) and Anti-DoS firewall protection (Default: Enabled) -- The Intrusion Detection Feature of the Barricade Router limits access for incoming traffic at the WAN port. When the SPI feature is turned on, all incoming packets will be blocked except for those types marked in the Stateful Packet Inspection section. RIP Defect (Default: Enabled) -- If an RIP request packet is not acknowledged to by the router, it will stay in the input queue and not be released.



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