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**User manual SMC 7904WBRB2**  
**User guide SMC 7904WBRB2**  
**Operating instructions SMC 7904WBRB2**  
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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 vi 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 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 V1.

6.1 (11-2004) EN 301 489-1 V1.5.1 (11-2004) EN 301 489-17 V1.2.

I (08-2002) EN 60950-1 : 2001 CSA Statement This unit is to be used with an external power adaptor of a Class 2 or level 3 type and Approved type suitable for use in the North America of equipment installation, having an output voltage rating of 12 V dc, and output current rating of 1.0A or equivalent. The external AC adapter must be complied with the requirements of LPS (Limited Power Sources). vii 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 the instructions, may cause harmful interference to radio communications. However, there is no guarantee that 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 of the following measures: . . . Reorient or relocate the receiving antenna.



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*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. 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 and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. IEEE 802.11b or 802.11g operation of this product in the U.*

*S.A. is firmware-limited to channels 1 through 11. viii 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 Netzanschlussteckdose 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.*

*b. c. d. Netzkabel oder Netzstecker sind beschädigt. Flüssigkeit ist in das Gerät eingedrungen. Das Gerät war Feuchtigkeit ausgesetzt. 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. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu verwenden. Für einen Nennstrom bis 6 A und einem Gerätegewicht größer 3 kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75 mm<sup>2</sup> einzusetzen. Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70 dB(A) oder weniger. ix COMPLIANCES x TABLE OF CONTENTS Introduction . . .*

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*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) VLAN and QoS (Quality of Service) support User-definable application sensing tunnel supports applications requiring multiple connections Easy setup through a web browser on any operating system that supports TCP/IP . . . 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.*



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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. 1-2 APPLICATIONS · 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. WEP (Wired Equivalent Privacy), SSID Broadcast disable, and MAC filtering provide security over the wireless network. Wi-Fi Protected Access (WPA and WPA2) are also supported. 1-3 INTRODUCTION 1-4 CHAPTER 2 INSTALLATION Before installing the ADSL2 Barricade™, verify that you have all the items listed under the Package Contents list. Also be sure that you have all the necessary cabling before installing the Barricade. After installing the Barricade, refer to "Configuring the 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 items: . . . . . SMC7904WBRB2 Barricade™ 54Mbps ADSL2+ router Power adapter One RJ-45 Ethernet cable Two RJ-11 cable for connecting ADSL modem to splitter/phone line One Splitter (for the Netherlands, UK and French versions only) Printed quick installation guide Documentation CD Warranty Registration Card 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. 2-1 INSTALLATION System Requirements You must meet the following minimum requirements: . . . ADSL Internet Service installed.

2.4 GHz Wireless adapter or Ethernet Adapter installed on each PC. TCP/IP network protocols installed on each PC that will access the Internet. A Java enabled web browser such as Internet Explorer 5.5 or above, Netscape 4.7 or above, Mozilla 1.7 or above and Firefox 1.0 or above. Hardware Description The Barricade contains an integrated ADSL modem and connects to the Internet or to a remote site using its RJ-45 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 1 Mbps upstream. G.lite (or splitterless) ADSL provides up to 1.5 Mbps downstream and 512 kbps upstream.

ADSL2+ provides up to 24 Mbps downstream and 1 Mbps 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 access point. 2-2 HARDWARE DESCRIPTION The Barricade includes an LED display on the top for system power and port indicators that simplify installation and network troubleshooting. It also provides the following ports on the rear panel: Figure 2-1. Rear Panel Item ADSL Port Power Inlet Description WAN port (RJ-45). Connect your ADSL line to this port. Connect the included power adapter to this inlet. Warning: Using the wrong type of power adapter may damage the Barricade. 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 4-82. Use this switch to turn the Barricade ON and OFF. Fast Ethernet ports (RJ-45). Connect devices on your local area network to these ports (i.e., a PC, hub, or switch). On/Off switch LAN Ports 2-3 INSTALLATION LED Indicators The power and port LED indicators on the top are illustrated by the following figure and table. Figure 2-2. Top View LED PWR Status On Off ADSL Sync On Flashing Off ADSL Data WLAN LAN1 to LAN4 Flashing Off Flashing On Flashing 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. Indicates ADSL port is sending or receiving data. No data is being transferred. The WLAN port is sending or receiving data. Ethernet connection is established. The indicated LAN port is sending or receiving data. There is no LAN connection on the port.

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 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. 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. Connecting the ADSL Line Connect the splitter to the phone line and the phone to the phone port of the splitter. Using the black RJ-45 cable provided connect the ADSL port of the Barricade to the ADSL port of the splitter. Refer to the below illustration. 2-5 INSTALLATION The splitter is required for connecting your Barricade and phone to the same phone line.



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If you have a dedicated phone line for ADSL connect the Barricade directly to the phone line.

Note: To prevent high frequency ADSL signals interfering with telephone calls, each phone must be connected to the same phone line through a splitter (also known as an ADSL microfilter). Connecting the network Using the grey RJ-45 cable provided connect LAN port of the Barricade to the network card of your computer or other network device, e.g., hub or switch. The corresponding LAN LED will illuminate green to indicate a good link.

2-6 CONNECT THE SYSTEM Connecting 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. 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. Wall Mounting There are 2 slots on the underside of the Barricade that can be used for wall mounting.

The distance between the 2 slots is 120 mm. You will need 2 suitable screws, of diameter 4.4 mm, to wall mount the Barricade. To wall mount the unit: 1. Determine where you want to mount the Barricade. 2. Drill two holes into the wall. Make sure the holes are 120 mm apart. 3. Insert a screw into each hole, and leave 5 mm of each head exposed.

4. Maneuver the Barricade so the wall-mount slots line up with the two screws. 5. Place the wall-mount slots over the screws and slide the Barricade down until the screws fit snugly into the wall-mount slots. Note: When wall mounting the unit, ensure that it is within reach of the power outlet. 2-7 INSTALLATION 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 98/Me" on page 3-2 "Windows NT 4.0" on page 3-7 "Windows 2000" on page 3-11 "Windows XP" on page 3-14 or "Configuring Your Macintosh Computer" on page 3-16 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 ADSL Router" on page 4-1 for instruction on configuring the Barricade.) Windows 98/Me You may find that the instructions in this section do not exactly match your version of Windows. This is because these steps and screen shots were created from Windows 98. Windows Millennium Edition is similar, but not identical, to Windows 98.

1. On the Windows desktop, click Start/Settings/Control Panel. 3-2 WINDOWS 98/ME 2. In Control Panel, double-click the Network icon. 3. In the Network window, under the Configuration tab, double-click the TCP/IP item listed for your network card. 4. In the TCP/IP window, select the IP Address tab. If "Obtain an IP address automatically" is already selected, your computer is already configured for DHCP. If not, select this option.

3-3 CONFIGURING CLIENT PC 5. Windows may need your Windows 98/Me CD to copy some files. After it finishes copying, it will prompt you to restart your system. Click Yes and your computer will restart. TCP/IP Configuration Setting Primary DNS Server Secondary DNS Server Default Gateway Host Name \_\_\_\_\_.

\_\_\_\_\_ 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. 2. Click the Stop button, then click Tools/Internet Options. 3-4 WINDOWS 98/ME 3. In the Internet Options window, click the Connections tab. Next, click the LAN Settings... button. 4.

Clear all the check boxes. 5. Click OK, and then click OK again to close the Internet Options window. 3-5 CONFIGURING CLIENT PC Obtain IP Settings from Your ADSL Router 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 also verify that you have configured your computer correctly. 1. On the Windows desktop, click Start/Run... 2.

Type "WINIPCFG" and click OK. It may take a second or two for the IP Configuration window to appear. 3. In the IP Configuration window, select your network card from the drop-down menu. Click Release and then click Renew.

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. Click OK to close the IP Configuration window. 3-6 WINDOWS NT 4.0 Windows NT 4.0 1.

On the Windows desktop, click Start/Settings/ Control Panel. 2. Double-click the Network icon. 3-7 CONFIGURING CLIENT PC 3. In the Network window, Select the Protocols tab. Double-click TCP/IP Protocol. 4. When the Microsoft TCP/IP Properties window open, select the IP Address tab. 5. In the Adapter drop-down list, be sure your Ethernet adapter is selected.

6. If "Obtain an IP address automatically" is already selected, your computer is already configured for DHCP. If not, select this option and click Apply. 7.

Click the DNS tab to see the primary and secondary DNS servers.

Record these values, and then click Remove. Click Apply, and then OK. 3-8 WINDOWS NT 4.0 8. Windows may copy some files, and will then prompt you to restart your system.

Click Yes and your computer will shut down and restart. TCP/IP Configuration Setting Default Gateway Primary DNS Server Secondary DNS Server Host Name \_\_\_\_\_.

\_\_\_\_\_ 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 will verify that you have configured your computer correctly. 1. On the Windows desktop, click Start/Programs/ Command Prompt.

3-9 CONFIGURING CLIENT PC 2. In the Command Prompt window, type "IPCONFIG /RELEASE" and press ENTER.



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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 192.168.2.1. These values confirm that your Barricade is functioning. 4. Close the Command Prompt window. Your computer is now configured to connect to the Barricade. 3-10 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.

3-11 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. 3-12 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.

1. These values confirm that your ADSL Router is functioning. 4. Close the Command Prompt window. Your computer is now configured to connect to the Barricade. 3-13 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. 1. On the Windows desktop, click Start/Programs/Accessories/ Command Prompt. 3-14 WINDOWS XP 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 192.168.2.1.

These values confirm that your ADSL router is functioning. 4. Close the Command Prompt window. Your computer is now configured to connect to the Barricade. 3-15 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.

3-16 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. 3-17 CONFIGURING CLIENT PC 3. Uncheck all check boxes and click OK. 3-18 CHAPTER 4 CONFIGURING THE ADSL ROUTER After you have configured TCP/IP on a client computer, you can configure the Barricade using your web browser. Internet Explorer 5.5 or above, Netscape Navigator, Mozilla, Firefox and Opera are supported. To access the 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 ADSL ROUTER Navigating the Management Interface On initial configuration the first screen is Country Selection. Select your country from drop down list. This configures the correct channels for the wireless AP. Note: The Country Selection screen only appears on initial configuration or when the Barricade is reset to factory defaults. You will then see the Status screen appear. For details of this screen, please refer to page 4-83 of the manual. 4-2 NAVIGATING THE MANAGEMENT INTERFACE The Setup Wizard is located on the top of the left hand side.

Use the Setup Wizard for quick and easy configuration of your Internet connection and basic wireless settings. Go to "Setup Wizard" on page 4-4 for details. MAKING CONFIGURATION CHANGES Configurable parameters have a dialog box or a drop-down menu. Once a configuration change has been made on a screen, click the APPLY, SAVE SETTINGS or NEXT button on the screen 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 ADSL ROUTER Setup Wizard TIME ZONE Click on SETUP WIZARD and NEXT, then you will see the Time Zone screen.



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Select your local time zone from the drop-down menu. This information is used for log entries and client filtering. @@Select the desired servers from the drop-down menu.

Click NEXT to continue. 4-4 SETUP WIZARD Wireless Settings This screen allows you to configure the SSID, wireless Mode and channel. Optionally you can disable broadcasting of SSID for added security. SSID is the name given to your wireless LAN. Wireless clients within the same network should be configured to use the same SSID. Parameter SSID SSID Broadcast Wireless Mode Description Service Set ID. The SSID 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 Click NEXT to continue. 4-5 CONFIGURING THE ADSL ROUTER ADSL Settings 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 screen, you will need to manually enter the settings. Go to "ADSL Settings Country or ISP Not Listed" on page 4-9 in the manual for details. If your ISP uses Protocols PPPoA or PPPoE you will need to enter the username and password 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.

Click NEXT to continue. 4-6 SETUP WIZARD Summary This screen shows a summary of the configuration parameters that you have made using the Setup Wizard. Parameter Wireless Parameters SSID SSID Broadcast Wireless Mode Channel Time Zone Parameters Time Zone NTP Primary Server Secondary Server Description This is the name of your wireless network. Broadcasting of your SSID is on/off. 802.

11b only, 802.11g only or mixed mode. The radio channel used for wireless communication. The time zone that you selected. Network Time Protocol is enabled/disabled.

The time server that you selected, when Automatic Time Server Maintenance is enabled. The time server that you selected, when Automatic Time Server Maintenance is enabled. 4-7 CONFIGURING THE ADSL ROUTER Parameter ADSL Operation Mode (WAN) ISP Protocol VPI/VCI The type of ISP you have selected. Indicates the protocol used. Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI). Description 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 DNS Server ISP Parameters Username Password The ISP assigned user name. The password (hidden). 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). The IP address of the DNS server. If the parameters are correct, click Finish 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 ADSL Settings - 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. After selecting "Others" you will need to select what Protocol your ISP uses from the drop-down menu. 4-9 CONFIGURING THE ADSL ROUTER PPPoE Parameter VPI/VCI Encapsulation Username Password Confirm Password Description Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu. Enter user name.

Enter password. Confirm password Click NEXT to continue. Go to "Summary" on page 4-7 in the manual for details about the settings. 4-10 SETUP WIZARD PPPoA Parameter VPI/VCI Encapsulation Username Password Confirm Password Description Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu.

Enter user name. Enter password. Confirm password Click NEXT to continue. Go to "Summary" on page 4-7 in the manual for details about the settings. 4-11 CONFIGURING THE ADSL ROUTER 1483 Bridging-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 here. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu. VPI/VCI Encapsulation Click NEXT to continue. Go to "Summary" on page 4-7 in the manual for details about the settings.

4-12 SETUP WIZARD 1483 Bridging-Static 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. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP.

Select the encapsulation used by your ISP from the drop-down menu. Click NEXT to continue. Go to "Summary" on page 4-7 in the manual for details about the settings. 4-13 CONFIGURING THE ADSL ROUTER 1483 Routing Parameter IP Address Subnet Mask Default Gateway DNS Server VPI/VCI Encapsulation 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. Enter the Domain Name Server address. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu. Click NEXT to continue.

Go to "Summary" on page 4-7 in the manual for details about the settings. 4-14 SETUP WIZARD Bridging Parameter Management IP Address VPI/VCI Encapsulation Description This is the management IP address of the Barricade. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu.



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Click NEXT to continue. Go to "Summary" on page 4-7 in the manual for details about the settings. 4-15 CONFIGURING THE ADSL ROUTER 1483 Routing-DHCP Parameter DNS Server VPI/VCI Encapsulation Description Enter the Domain Name Server address. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by your ISP from the drop-down menu. Click NEXT to continue.

Go to "Summary" on page 4-7 in the manual for details about the settings. 4-16 CONFIGURATION PARAMETERS Configuration Parameters The left-hand side displays the main menu and the right-hand side shows descriptive information. There are 14 main menu items as described in the following table. Menu System Description Sets the local time zone, the password for administrator access, and the IP address of a PC that will be allowed to manage the Barricade remotely. Specifies the Internet connection settings. @@@@Configures Address Mapping, virtual server and special applications. Sets the routing parameters and displays the current routing table. @@Community string and trap server settings. @@Sets the ADSL operation type and shows the ADSL status. Configures Dynamic DNS function.

@@@@@@@Select the start/end dates. @@@@@@The default password is "smcadmin". @@@@@@@@@@@@@@@@@@In most cases you ISP will provide a single VC. For single VC use VCI. @@Displays Encapsulation configured for corresponding VC.

@@LLC: Point-to-Point Protocol over ATM Logical Link Control (LLC) allows multiple protocols running over one virtual circuit (using slightly more overhead). VPI/VCI Encapsulation · Protocol Displays protocol configured for corresponding VC. 4-23 CONFIGURING THE ADSL ROUTER ATM Interface 1483 Bridging Enter the Bridging settings provided by your ISP. Parameter VLAN Description Select VLAN group from the drop-down menu. New VLAN groups can be created from the LAN menu.

Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by ISP from the drop-down menu. 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. VPI/VCI Encapsulation QoS Class PCR/SCR/MBS 4-24 CONFIGURATION PARAMETERS PPPoA Parameter VPI/VCI

Encapsulation QoS Class PCR/SCR/MBS IP assigned by ISP IP Address Subnet Mask Connect Type Description Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by ISP from the drop-down menu. ATM QoS classes including CBR, UBR and VBR. QoS Parameters - PCR, SCR and MBS are configurable. Select Yes if you have a dynamic IP address. Select No if you have a static IP address. Enter the IP address provided by your ISP.

For dynamic IP leave this field blank. Enter the subnet mask address provided by your ISP. For dynamic IP leave this field blank. Sets connection mode to Always connected, Auto-Triggered by traffic or Manual connection. For flat rate services use Always connected. Enter the maximum idle time for the Internet connection. After this time has been exceeded the connection will be terminated. This setting only applies when the Connect Type is set to Auto-Triggered by traffic. Enter the user name provided by your ISP. Enter the password provided by your ISP.

Idle Time (Minute) Username Password 4-25 CONFIGURING THE ADSL ROUTER Parameter Confirm Password MTU Description Confirm password. Leave the Maximum Transmission Unit (MTU) at the default value unless instructed by your ISP. 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.

Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by ISP from the drop-down menu. ATM QoS classes including CBR, UBR and VBR QoS Parameters - PCR, SCR and MBS are configurable. Check the box if your ISP assigns an IP address dynamically. 4-26 CONFIGURATION PARAMETERS PPPoE Parameter VPI/VCI Encapsulation QoS Class PCR/SCR/MBS IP assigned by ISP IP

Address Subnet Mask Connect Type Description Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by ISP from the drop-down menu. ATM QoS classes including CBR, UBR and VBR. QoS Parameters - PCR, SCR and MBS are configurable. Select Yes if you have a dynamic IP address. Select No if you have a static IP address. Enter the IP address provided by your ISP. For dynamic IP leave this field blank. Enter the Subnet Mask address provided by your ISP. For dynamic IP leave this field blank. Sets connection mode to Always connected, Auto-Triggered by traffic or Manual connection.

For flat rate services use Always connected. Enter the maximum idle time for the Internet connection. After this time has been exceeded the connection will be terminated. This setting only applies when the Connect Type is set to Auto-Triggered by traffic. Enter the user name provided by your ISP. Idle Time (Minute) Username 4-27 CONFIGURING THE ADSL ROUTER Parameter Password Confirm Password MTU Description Enter the password provided by your ISP.

Confirm password. Leave the Maximum Transmission Unit (MTU) at the default value unless instructed by your ISP. IP over RFC 1483 bridged 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. Enter the Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) supplied by your ISP. Select the encapsulation used by ISP from the drop-down menu. ATM QoS classes including CBR, UBR and VBR. QoS Parameters - PCR, SCR and MBS are configurable.

Check the box if your ISP assigns an IP address dynamically. 4-28 CONFIGURATION PARAMETERS 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 ADSL ROUTER 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 screen, and click SAVE SETTINGS.

4-30 CONFIGURATION PARAMETERS LAN Use the LAN menu to configure the LAN IP address, VLAN binding and to enable the DHCP server for dynamic client address allocation. Parameter LAN IP IP Address DHCP Server Description The IP address of the Barricade.



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Enable or Disable the DHCP server function. By default the DHCP server is enabled for automatic IP address assignment to client devices. IP Subnet Mask The subnet mask of the network. VLAN Binding LAN1 to LAN4 Select VLAN group for the corresponding LAN port. By default all ports members of the Default VLAN. Lease Time 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. 4-31 CONFIGURING THE ADSL ROUTER Parameter IP Address Pool Start IP Address Specify the start IP address of the DHCP pool. Do not include the IP 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.

Description VLAN VLANs are organized and controlled by VLAN Profiles. Up to 4 VLAN profiles can be created. Once a VLAN profile is created, you should add interfaces into the VLAN by changing the VLAN setting of that interface. Please note that only those interfaces of IEEE 802 bridging type (ex. LAN ports and 1483 Bridging PVCs) can be added to a VLAN. 4-32 CONFIGURATION PARAMETERS Click Add VLAN to setup the profile. . . . Description: enter a name or description for the VLAN. IP Address: enter the IP address. Subnet Mask: enter the subnet mask. NAT Domain: select private or public.

IGMP Snooping: Internet Group Management Protocol (IGMP) snooping is a method by which Layer 2 devices can "listen in" on IGMP conversations between hosts and routers. When a switch hears a group join message from a host, it notes which switch interface it heard the message on, and adds that interface to the group. Similarly, when a Layer 2 switch hears a group leave message or a response timer expires, the switch will remove that host's switch interface from the group. IGMP Querier: if the IGMP Querier is enabled, then the router will periodically query all multicast group members on the specified VLAN. . 4-33 CONFIGURING THE ADSL ROUTER 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 SSID, and the security options. Check Enable and click SAVE SETTINGS. 4-34 CONFIGURATION PARAMETERS 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 SSID Description Service Set ID (SSID) is the name given to the wireless network.

The SSID must be the same on the Barricade and all of its wireless clients. Enable or disable the broadcasting of the SSID. Disabling broadcasting of the SSID provides added security by hiding your wireless network. 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. SSID Broadcast Wireless Mode Channel 4-35 CONFIGURING THE ADSL ROUTER Access Control Using the Access Control functionality, you can restrict access based on MAC address. Each PC has a unique identifier known as a Medium Access Control (MAC) address.

With MAC filtering enabled, the computers whose MAC address you have listed in the filtering table will be able to connect (or will be denied access) to the Barricade. . . Enable MAC Filtering: select to turn on/off this feature. Access Rule for registered MAC address: select to allow/deny access for the registered MAC addresses. Selecting Allow means only MAC addresses registered here will be able to connect to the router. Selecting Deny means only the MAC addresses registered here will be denied access to the router. MAC Address Filtering List: you can use the drop-down menu to select and quickly copy the entry to the MAC Filtering table. . 4-36 CONFIGURATION PARAMETERS Security To make your wireless network safe, you should turn on the security function. The Barricade supports WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected) and WPA2 security mechanisms. Three options are available: . . . No WEP, No WPA WEP only WPA only 4-37 CONFIGURING THE ADSL ROUTER 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 Entry Method Key Provisioning Description Select 64-bit or 128-bit key to use for encryption.

Select Hex or ASCII to use for encryption key Select Static if there is only one fixed key for encryption. If you want to select Dynamic, you would need to enable 802.1X function first. You can automatically generate encryption keys using the passphrase or manually enter the keys. To generate the keys automatically enter a passphrase and click GENERATE. Select the default key from the drop-down menu and click SAVE SETTINGS. Note: Before saving settings the key is shown in clear text. If your wireless client does not have a passphrase utility make a note of the default 4-38 CONFIGURATION PARAMETERS key before saving settings. This is so you can configure your wireless client with the correct key. 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. Note: The passphrase can consist of up to 32 alphanumeric characters. 4-39 CONFIGURING THE ADSL ROUTER WPA Wi-Fi Protected Access (WPA) combines temporal key integrity protocol (TKIP) and 802.1X mechanisms.

It provides dynamic key encryption and 802.1X authentication service. The Barricade supports both WPA and WPA2. WPA/WPA2 is a security enhancement that strongly increases the level of data protection and access control for existing wireless LAN. Matching authentication and encryption methods must be set up on your Barricade and wireless client devices to use WPA/WPA2.

To use WPA, your wireless network cards must be equipped with software that supports WPA. A security patch from Microsoft is available for free download (for XP only). Parameter WPA mode Cypher suite Description Select WPA or WPA2 or mixed mode. The security mechanism used in WPA for encryption. 4-40 CONFIGURATION PARAMETERS Parameter Authentication Description Choose 802.



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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 Pre-shared Key Group Key Re\_Keying Select the key type to be used in the Pre-shared Key.

Type in the key here. The period of renewing broadcast/multicast key. 4-41 CONFIGURING THE ADSL ROUTER 802.IX If 802.IX is used in your network, then you should enable this function for the Barricade. Management access will be checked against the authentication database stored on the Barricade. If an authentication RADIUS server is used, you must specify the secret key of the Message-Authenticator attribute, i.e., Message Digest-5 (MD5), and the corresponding parameters in the RADIUS Server Parameters field for the remote authentication protocol. Parameter 802.

IX Authentication Session Idle Timeout Re-Authentication Period Quiet Period Server Type Description Enable or disable this authentication function. Defines a maximum period of time for which the connection is maintained during inactivity. Defines a maximum period of time for which the authentication server will dynamically re-assign a session key to a connected client. Defines a maximum period of time for which the Barricade will wait between failed authentications. Select RADIUS as the authentication server.

4-42 CONFIGURATION PARAMETERS Parameter Server IP Server Port Secret Key NAS-ID Description 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. RADIUS Server Parameters WDS The Wireless Distribution System (WDS) provides a means to extend the range of a Wireless Local Area Network (WLAN).

WDS allows an Access Point (AP) to establish a direct link to other APs and allows stations to roam freely within the area covered by the WDS. To refresh the list of available access points, Click Rescan. Available access points will show up on the AP MAC Address Table, check the box to add that particular access point to the WDS. 4-43 CONFIGURING THE ADSL ROUTER Advanced Setting To change the settings on this screen is recommended for experienced user only. It is advised to leave the parameters at the default value. · Beacon Interval: this represents the amount of time between beacon transmissions. Before a station enters power save mode, the station needs the beacon interval to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point). DTIM Interval: Delivery Traffic Indication Message, indicates when the DTIM occurs. A DTIM interval is a count of the number of beacon frames that must occur before the access point sends the buffered multicast frames. For example, a DTIM interval of one means that the multicast frames are sent after each beacon frame.

A DTIM interval of two indicates that multicast frames are sent after every two beacon frames, and so on. Because each beacon frame includes a field that identifies the DTIM interval, all stations know when to wake up and receive multicast frames if they are implementing power saving. · 4-44

CONFIGURATION PARAMETERS · Fragmentation Threshold: this is the maximum size for directed data packets transmitted. Larger frames fragment into several packets this size or smaller before transmission. The receiving station then reassembles the transmitted fragments. RTS Threshold: RTS stands for "Request to Send". This parameter controls what size data packet the low level RF protocol issues to an RTS packet. Using a small value causes RTS packets to be sent more often, consuming more of the available bandwidth, therefore reducing the apparent throughput of the network packet. However, the more RTS packets that are sent, the quicker the system can recover from interference or collisions. CTS Protection Mode: CTS stands for "Clear to Send".

If this value is set to Auto. The AP will automatically use CTS Protection Mode when the 802.11g products are experiencing severe problems and are not able to transmit to the AP in an environment with heavy 802.11b traffic. This function boosts the AP's ability to catch all 802.

11g transmissions but will decrease the performance. WMM Mode: Wireless Multimedia support. WMM prioritizes traffic according to 4 AC (Access Categories) - voice, video, best effort, and background. However, it does not provide guaranteed throughput. It is suitable for simple applications that require QoS, such as Wi-Fi Voice over IP (VoIP) phone.

· · · 4-45 CONFIGURING THE ADSL ROUTER NAT Network Address Translation allows multiple users to access the Internet sharing one public IP. 4-46 CONFIGURATION PARAMETERS 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. 4-47 CONFIGURING THE ADSL ROUTER 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>. 4-48 CONFIGURATION

PARAMETERS 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 screens to specify the additional public ports to be opened for each application. 4-49 CONFIGURING THE ADSL ROUTER NAT Mapping Table This screen displays the current NAT (Network Address Port Translation) address mappings. 4-50 CONFIGURATION PARAMETERS ROUTING These screens define routing related parameters, including static routes and RIP (Routing Information Protocol) parameters. Static Route Parameter Index Network Address Subnet Mask Gateway Description Check the box of the route you wish to delete or modify.



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