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# SpeedStream 5861

**ADSL Business Class Router  
Quick Start Guide**



*Efficient Networks, Inc.*®

**P/N 222-00803-01**



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- Returned Products will be tested upon receipt by ENI. Products that pass all functional tests will be labeled "No Problem Found" and will be returned to the end user at the end user's expense.
- Products found to be defective will be repaired or replaced at the election of ENI. ENI will return the repaired or replacement Product to the end user at the address provided by the end user at Efficient Network's expense. For Products shipped within the United States of America, Efficient will use reasonable efforts to ensure delivery within two-business days from the date sent by ENI. Expedited service is available at additional cost to the end user.

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Dallas, TX 75201  
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***SpeedStream 5861 ADSL Business Router***

## **Installation Requirements**

To successfully install the SpeedStream 5861 router, you will need the following:

### **PC Workstation Requirements:**

- CD-ROM drive
- Ethernet network interface card OR an Ethernet hub
- TCP/IP network protocol installed
- Web browser
- Terminal emulation software if you want to configure your router via your computer's serial port before placing it into service on a network.

### **Network Service Provider Requirements**

Your Network Service Provider (NSP) should provide the following information:

- Protocol to use:
- PPP (Point-to-Point Protocol, requires a user name and password)  
*or*
- RFC 1483 (SNAP encapsulation) *or*
- RFC 1483 MER (MAC Encapsulated Routing, requiring a
- WAN gateway address)

### ***Installation Requirements***

#### **Network options:**

- Bridging *and/or*
- IP Routing (requires a WAN IP address and subnet mask)
- VPI/VCI (PVC) numbers
- DNS address
- One or more LAN IP addresses and a subnet mask

#### **Package Contents:**

Your package should contain the items listed below. If you determine anything to be damaged or missing, please contact the dealer from whom the equipment was purchased.

1 SpeedStream 5861 router

1 Installation CD Package

1 Ethernet 10Base-T cable, RJ-45, red label (straight through or console)

1 Ethernet 10Base-T cable, RJ-45, yellow label (crossover)

1 RJ-45 to DB-9 serial port adapter (console)

1 DSL data cable, RJ-14, purple label (straight through)

1 power cord

Customer Release Notes with late-breaking information

*SpeedStream 5861 ADSL Business Router*

## **Setup Instructions**

### **Connecting Your Router**

Place your router in a location where it will be well ventilated. Do not stack it with other devices on carpet.

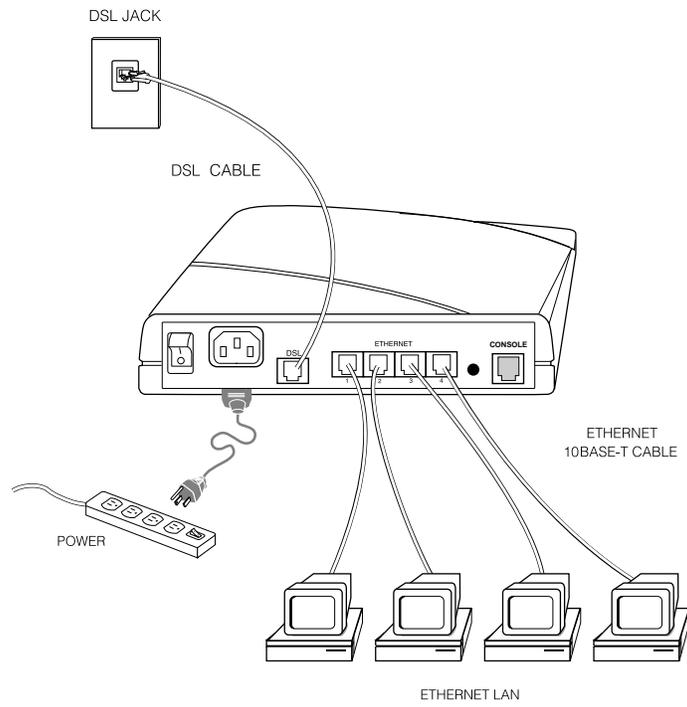
After ensuring that the power switch on the back of the router is switched *off*, connect the router to an AC power outlet using the power cord.

Use a straight-through cable (red label) to connect your PC to an Ethernet port on the router. You can also connect up to three additional LAN devices to the built-in Ethernet hub.

Switch the router power switch *on*.

The following diagram shows the router when connected.

**Setup Instructions**



*SpeedStream 5861 ADSL Business Router*

**Configuring Your Router**

Bridging Configuration

To use the router as a bridge, no configuration is needed. Simply establish your connection to the remote location (such as your NSP).

IP Routing Configuration

Your computer will be obtaining IP addresses dynamically from the router. Configure the TCP/IP stack on your PC to obtain an IP address automatically.

Point your web browser to the default address for the router:

192.168.254.254

At the login prompt, make the following entries:

User Name: **login**

Password: **admin**

*Setup Instructions*



After you have logged into the router, a dialog will appear, prompting you to change the default administration password to your router. Failure to change the password from the factory default creates a security risk. It is strongly recommended that you **change the default password** before exiting this program.

You can change your default administration password by clicking on OK at the prompt, or the [Change Password](#) link on the Router Configuration page.

***SpeedStream 5861 ADSL Business Router***

**Router Configuration Screen**

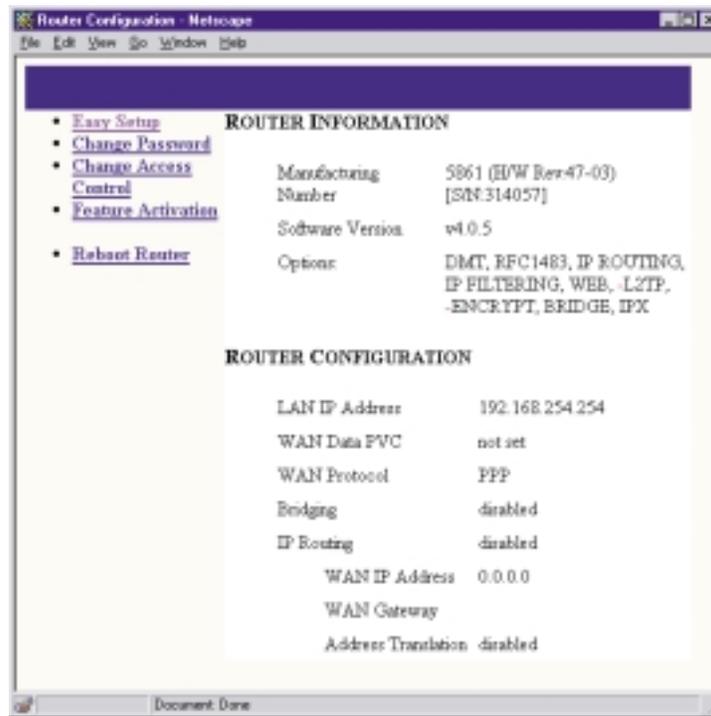
After you have cleared the password change prompt (and changed your password), you will see the Router Configuration page. This page displays basic Router Information and Router Configuration settings. It also provides links to router setup and control links. The first such link is to Easy Setup.

**Easy Setup**

Easy Setup is a set of web forms designed to facilitate the configuration of your router quickly and easily. Easy Setup is a permanent feature, accessible from any platform with a web browser.

Click on the [Easy Setup](#) link to access these forms.

**Setup Instructions**



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**WAN Interface (Wide Area Network)**

The first Easy Setup screen is for the configuration of Wide Area Network settings. The information on this and subsequent screens is obtained from your Network Service Provider (NSP).

The first required entry is for the Permanent Virtual Circuit (PVC). The PVC is a logical connection between the router and the NSP. It is described using two numbers; the Virtual Path Identifier (VPI) and the Virtual Channel Identifier (VCI). Enter these numbers into the WAN Interface fields as indicated.

Your router supports any one of three available WAN protocols; PPP, RFC 1483 or RFC 1483 MER. Your NSP should specify a WAN protocol for you to use. Click on the radio button to select your WAN protocol.

To read instructions for the PPP protocol, continue on page 18.

To read instructions for the RFC 1483 protocol, continue on page 20.

To read instructions for the RFC 1483 MER protocol, continue on page 22.

Click on the Next button to continue with Easy Setup.

**Setup Instructions**



***SpeedStream 5861 ADSL Business Router***

**Point-to-Point Protocol (PPP)**

If you have selected PPP as your WAN protocol, you will see a screen requesting a PPP User Name and PPP Password. Enter this information in the fields provided.

Your router supports these PPP networking options:

**Bridging** will forward all traffic to remote hosts that is not routed (non-IP) to the WAN.

**IP Routing** will route all IP packets for remote hosts to the WAN.

**Network Address Translation (NAT)** allows multiple workstations on your LAN to share a single, high-speed Internet connection. All outgoing traffic appears to originate from the router's IP address. NAT offers a measure of security "by obscurity", because external devices cannot see the NAT-assigned, non-routable addresses of your LAN.

**NetBIOS** is a PC networking protocol that can keep connections open inadvertently. To avoid excess charges, such traffic should be blocked on any metered network service.

Click on the Next button to continue Easy Setup.  
Setup instructions continue on page 24.

**Setup Instructions**



***SpeedStream 5861 ADSL Business Router***

**RFC 1483 Networking**

If you have selected RFC 1483 as your WAN protocol, you will see a screen for selecting networking options, and for setting IP routing configurations.

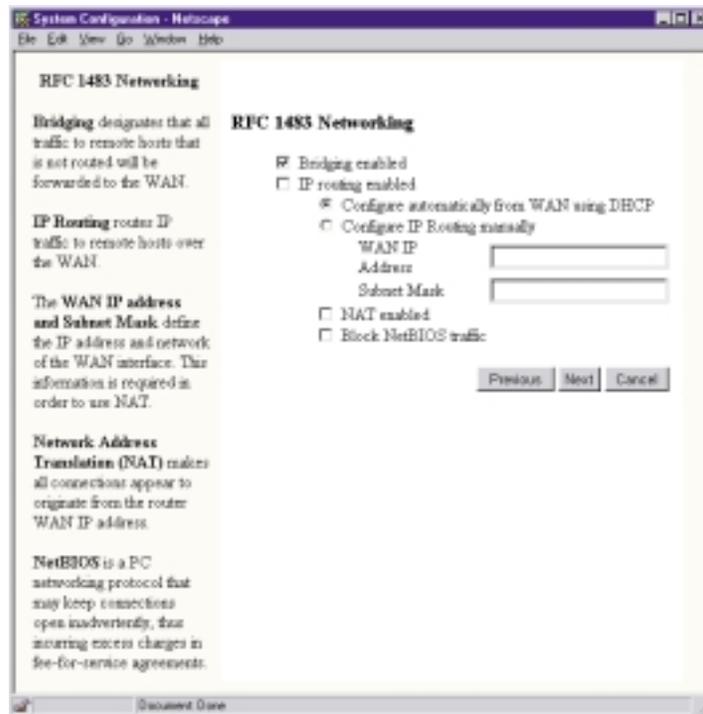
You can configure IP routing automatically using DHCP, or manually by providing a WAN IP address and subnet mask.

The WAN IP address and subnet mask define the IP address and network of the WAN interface. This information is required in order to use NAT.

If your NSP has not provided specifics for these settings, and you are unsure what is appropriate, choose IP routing, configure automatically from WAN using DHCP, and NAT enabled.

Click on the Next button to continue Easy Setup.  
Setup instructions continue on page 24.

**Setup Instructions**



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**RFC 1483 MER Networking**

If you selected RFC 1483 MER as your WAN protocol, you will see a screen for selecting networking options, and for setting IP routing configurations.

You can configure IP routing automatically using DHCP, or manually by providing the following information:

- WAN IP Address
- Subnet Mask
- Default WAN Gateway

If your NSP has not provided specifics for these settings, and you are unsure what is appropriate, choose IP routing, obtain configuration automatically from WAN, and NAT enabled.

Click on the Next button to continue Easy Setup.

## Setup Instructions

**System Configuration - Network**  
File Edit View Help Update Help

**RFC 1483 MER**  
Networking

**Bridging** designates that all traffic to remote hosts that is not routed will be forwarded to the WAN.

**IP Routing** routes IP traffic to remote hosts over the WAN.

The **WAN IP address and Subnet Mask** define the IP address and network of the WAN interface. This information is required in order to use NAT.

The **Default WAN Gateway** is the IP address of the next-hop router.

**Network Address Translation (NAT)** makes all connections appear to originate from the route WAN IP address.

**NetBIOS** is a PC networking protocol that may keep connections open inadvertently, thus incurring excess charges in fee-for-service agreements.

**RFC 1483 MER Networking**

Bridging enabled  
 IP routing enabled

Obtain configuration automatically from WAN  
 Configure IP Routing manually

WAN IP Address:   
Subnet Mask:   
Default WAN Gateway:

NAT enabled  
 Block NetBIOS traffic

Previous Next Cancel

Encountered Error

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**Dynamic Host Configuration Protocol (DHCP)**

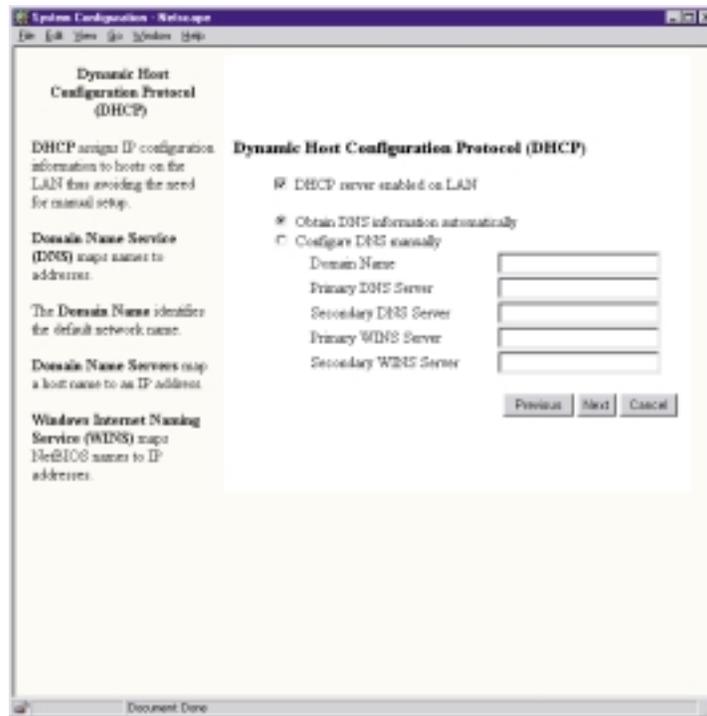
DHCP dynamically assigns IP configuration information to PCs on the LAN automatically, thus avoiding the need to set IP configuration for each PC manually. You can enable DHCP by clicking on the indicated checkbox.

**Domain Name Service (DNS)** maps host names to IP addresses. DNS is performed by **Domain Name Servers**. The **domain name** identifies the default name for the network. You can set the router to obtain DNS information automatically. You can also choose to configure DNS manually by making the required entries in the form. If you are configuring DNS manually, you must enter at least one DNS IP address.

The **Windows Internet Naming Service (WINS)** maps NetBIOS names to IP addresses.

Click on the Next button to continue Easy Setup.

**Setup Instructions**



***SpeedStream 5861 ADSL Business Router***

**LAN IP Configuration**

The final screen in Easy Setup is for LAN IP Configuration.

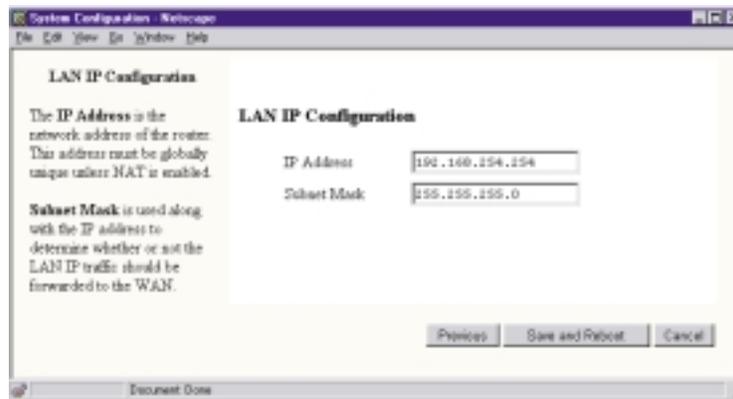
The IP address is the network address of your router. This address must be globally unique, unless NAT has been enabled.

The Subnet Mask is used along with the IP address to determine whether or not specific LAN IP traffic should be forwarded to the WAN.

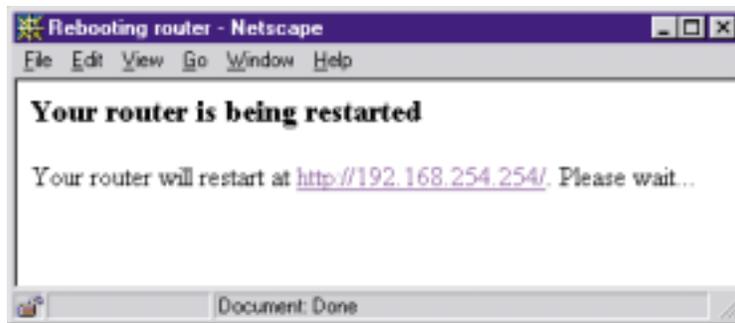
Both of these addresses are required. After these addresses are entered in their fields, click on Save and Reboot. Your configuration settings will be saved and your router will reboot with your new configuration.

At this point, your Easy Setup is complete.

### Setup Instructions



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## **Command Line Interface**

The Command Line Interface (CLI) is used for advanced router configuration. It can be accessed through a connection between your workstation and the console port of the router. Use a straight-through (red label) cable and a DB 9 adapter to connect your router to your PC serial port. Boot both systems and open a connection using your favorite VT 100 terminal emulation program. Use the following port settings:

Baud Rate: 9600  
Data Bits: 8  
Parity: None  
Stop Bits: 1  
Flow Control: Hardware

For specific configuration information, refer to the Command Line Interface Reference Manual included on your CD-ROM.

***SpeedStream 5861 ADSL Business Router***

## **Frequently Asked Questions**

### **Which cable do I use to connect a new LAN device to the router?**

If you are directly connecting your LAN device to one of the Ethernet ports, then use a straight-through (red) cable.

If you are connecting your router to another hub, then use a crossover (yellow) cable, *unless* your LAN hub has a built-in crossover or uplink port, in which case you must use a straight-through (red label) cable.

### **Can I connect the router to a 100Base-T hub?**

Yes, if the hub has a 10/100 switch. You need to set the switch to 10 for the router connection.

### **What is the router password?**

The default password is **admin**.

We strongly recommend that you change the router password from the default to your own password. If your NSP has changed the router password from the default, you need to call them for assistance.

### **Why can't I get an Ethernet connection on my PC to run the software?**

If your Ethernet adapter shows a green light, check your cables. Switch from using a straight-through cable to a crossover cable, or vice versa.

### ***SpeedStream 5861 ADSL Business Router***

Check your IP configuration. The IP address to your computer must be on the same subnet as your router.

#### **What security options do I have?**

Network Address Translation (NAT) can provide a level of security through “IP masquerading”, hiding the addresses of LAN devices behind the router’s single IP address, thereby blocking incoming connections. NAT provides a measure of security “by obscurity” that is acceptable to many users.

Further network security is available with the router’s IP filtering Firewall software. This Firewall can be accessed through the Command Line Interface (CLI) and customized with scripts for a “quick” firewall. A qualified technician should perform all Firewall configuration. Efficient Networks cannot be liable for vulnerabilities arising from inadequate Firewall configurations.

To provide secure connections across the Internet, consider purchasing the Virtual Private Network (VPN) software option. Additional information on NAT, Firewall or Secure VPN can be found in the CLI Reference Manual.

#### **Can I have a FTP, Mail or Web server and use NAT?**

Yes, but you need to configure the router appropriately using the CLI. By entering a remote or system addServer command, you can add FTP, Mail or Web servers to your LAN. These can then be accessed from

### ***Frequently Asked Questions***

another LAN or the Internet while NAT is enabled. The system command applies to all external traffic, while the remote command applies to only one remote profile.

#### **What is MER?**

MER (MAC Encapsulated Routing) allows your router to perform routing on the LAN side and bridging on the WAN side. MER is needed only when your NSP doesn't support routing. MER adds NAT functionality, thereby providing greater security and more IP addresses for your LAN than what is provided by your NSP.

#### **Why can't I get a response after entering a URL in my browser?**

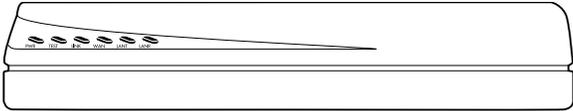
If you do not get a response, try pinging the address. If you get a response, your Domain Name Service (DNS) is probably failing. You should contact your NSP for DNS assistance. If you do not get a response, try pinging the WAN Gateway address to confirm that your router is able to connect with the NSP.

If pinging fails, check that the router's Ethernet and Link LEDs are green. Next, check your cable connections. If everything appears correct, check your IP configuration to ensure that the Gateway and LAN IP addresses match. If they do not, release all IP addresses and then renew IP addresses.

*SpeedStream 5861 ADSL Business Router*

*Front Panel LEDs*

**Front Panel LEDs**



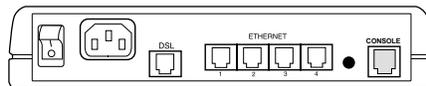
Six LEDs appear on the front left panel of the router.  
Reading from left to right, these LEDs indicate as follows:

| <b>LED</b>  | <b>Indications</b>  |
|-------------|---|
| <b>PWR</b>  | Green: Power is applied<br>Off: Power is not applied  |
| <b>TEST</b> | Amber: Running router power-on self-test<br>Green: Router power-on self-test successful<br>Off: Router is non-operational |
| <b>LINK</b> | Amber: Establishing DSL modem link<br>Green: DSL modem link successful<br>Off: DSL modem link is non-operational          |
| <b>WAN</b>  | Green flashing: WAN transmissions detected<br>Off: No WAN transmissions detected  |
| <b>LANT</b> | Green flashing: LAN outgoing transmissions detected<br>Off: No LAN outgoing transmissions detected                        |
| <b>LANR</b> | Green flashing: LAN incoming transmissions detected<br>Off: No LAN incoming transmissions detected                        |

**SpeedStream 5861 ADSL Business Router**

## Back Panel Connections

The rear panel has the console, DSL, Ethernet and power connections.



From left to right, these connections are as follows:

| Connection                | Function   |
|---------------------------|--|
| <b>Power</b>              | The router has an on/off power switch and uses a standard AC power cord.                   |
| <b>DSL WAN Connection</b> | This 6 pin, RJ-14 port provides DSL connectivity.  |
| <b>Ethernet Ports</b>     | A built-in hub provides 4 Ethernet 10Base-T ports (8 pin, RJ-45) for LAN devices.          |
| <b>Reset Pin</b>          | This is rarely needed and should only be used when instructed by Technical Support.        |
| <b>Console Connection</b> | This 8 pin, RJ-45 port provides asynchronous RS232 connectivity to a workstation or modem. |

## **Hardware Specifications**

### **SpeedStream 5861 ADSL-DMT Router**

**Physical Specifications:**

Dimensions: 8.4 W x 7.0 D x 1.7 H inches

21.3 W x 17.8 D x 4.3 H cm

Weight: 1.5 lbs.

.68 Kg.

**Operating Environment:**

Temperature: 40°F to 105°F

5°C to 40°C

**Power Requirements:**

AC Voltage: 100 to 120 VAC, 220 to 240 VAC

Frequency: 50/60 Hz

Power Consumption: 10 W maximum

Built-in Power Supply, On/Off Switch

**Processor:**

Motorola® 32 MHz MPC850

1 MB Flash Memory, 4 MB DRAM

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**ADSL Modem Specifications:**

Up to 8 Mbps downstream  
Up to 1 Mbps upstream  
Supports full rate G. DMT (G.992.1), G.lite (G.992.2), G. HS  
(G.994.1), mgmt(G.997.1) and ANSI T1.413 Issue 2  
Analog telephone line support  
Co-operation with an external splitter

**LAN Interface:**

Built-in 4 port Ethernet hub with 4 RJ-45 connectors  
LAN speed up to 10Mbps

**WAN Interface:**

One Asymmetrical Digital Subscriber Line (ADSL) interface (RJ-14) RJ-14 Line A/Line B Pinning: 2/5 or 3/4

**Agency Approvals:**

CE mark  
TUV  
Safety: UL 1950, CSA 22.2, EN60950  
Emmissions: FCC Part 15 Class B  
EN55022/CISPR22 Class B  
Immunity: EN50082-1  
Certifications per relevant ADSL standards

## Port Specifications

### ADSL-DMT Port

| <u>SpeedStream 5861-001</u> |                | <u>SpeedStream 5861-002</u> |                |
|-----------------------------|----------------|-----------------------------|----------------|
| Pin No.                     | Signal Name    | Pin No.                     | Signal Name    |
| 1                           | Not connected  | 1                           | Not connected  |
| 2                           | Tip or Line A  | 2                           | Not connected  |
| 3                           | Not connected  | 3                           | Tip or Line A  |
| 4                           | Not connected  | 4                           | Ring or Line B |
| 5                           | Ring or Line B | 5                           | Not connected  |
| 6                           | Not connected  | 6                           | Not connected  |

**SpeedStream 5861 ADSL Business Router**

| <b><u>Ethernet 10Base-T Port</u></b> |                         | <b><u>Console Port</u></b> |                    |
|--------------------------------------|-------------------------|----------------------------|--------------------|
| <b>Pin No.</b>                       | <b>Signal Name</b>      | <b>Pin No.</b>             | <b>Signal Name</b> |
| 1                                    | Twisted pair transmit + | 1                          | Receive data       |
| 2                                    | Twisted pair transmit - | 2                          | Request to send    |
| 3                                    | Twisted pair receive +  | 3                          | Not connected      |
| 4                                    | Ground                  | 4                          | Transmit data      |
| 5                                    | Ground                  | 5                          | Ground             |
| 6                                    | Twisted pair receive -  | 6                          | Clear to send      |
| 7                                    | Ground                  | 7                          | Not connected      |
| 8                                    | Ground                  | 8                          | Ring indicator     |

## **Software Specifications**

### **SpeedStream 5861 ADSL-DMT Router**

#### **Bridging:**

Transparent Bridging including Spanning Tree Protocol (IEEE 802.1D)  
Bridge filters

#### **Routing:**

TCP/IP with RIP 1 (RFC 1058), RIP 1 compatible and RIP 2 (RFC 1389), or static routing on the LAN and/or WAN  
Novell® IPX with RIP/SAP (RFC 1552)  
DHCP Server - Automatic assignment of IP address, mask, default gateway, and DNS server addresses to workstations (RFC 2131, RFC 2132)  
DHCP Client (RFC 2132)  
DHCP Relay Agent (RFC 1542)  
DNS Relay

#### **Point-to-Point Protocol (RFC 1661):**

Data compression up to 4:1 (STAC™ LZS) (RFC 1974)  
Van Jacobson header compression (RFC 1144)  
Automatic IP and DNS assignment (RFC 1877)  
Spoofing and filtering (IP-RIP, IPX-RIP, SAP, Watchdog, serialization)

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**IP Address Translation:**

Network renumbering (RFC 1631)  
Network Address Translation (NAT/PAT)  
LAN servers supported with NAT

**Configuration Management:**

Easy Setup with Web browser based graphical user interface  
Windows Quick Start program for easy setup  
Administration through HTTP, SNMP, Telnet or VT100 terminal  
TFTP download/upload of new software, configuration files, and scripts  
Performance monitor for Windows  
Dynamic event and history logging  
Windows configuration management through SNMP  
Network boot using a BootP server (RFC 2131, RFC 2132)  
Network Ping

**Analog Telephone Line Support:**

Co-operates with an external splitter

**Asynchronous Transfer Mode (ATM):**

Encapsulation (IP, bridging, and encapsulated routing) (RFC 1483)  
PPP over ATM (LCC and VC multiplexing) (RFC 2364)  
Classical IP (RFC 1577)  
AAL5

### **Software Specifications**

Multiple Virtual Circuits (VCs)  
Virtual Circuit (VC) traffic shaping (UBR, VBR, CBR)  
1.610 OAM F5 Loopback

#### **Protocol Interoperability Testing:**

RFC 1483 (Bay Networks™, Cabletron™, Cisco™, RedBack™)  
PPP over ATM (Escalate™, Cisco, RedBack) (RFC 2364)  
Supports full rate G. DMT (G.992.1), G.lite (G.992.2), G.HS (G.994.1),  
mgmt (G.997.1) and ANSI T1.413 Issue 2  
G.lite with Alcatel, Centillium, Cisco, Ericsson, Lucent, NEC, Nortel,  
Siemens

#### **Security:**

User authentication (PAP/CHAP) with PPP (RFC 1334, RFC 1994)  
Password control for Configuration Manager  
SNMP community name reassignment  
HTTP/SNMP/Telnet/Syslog port management  
HTTP/SNMP/Telnet/Syslog access control list  
Firewall (IP filtering)  
Optional VPN software (L2TP, IPSec, IKE, DES, 3DES)

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## **Technical Support**

**If you need to contact your NSP for technical support, please have the following information ready:**

Router model number (on bottom of router)

Router software version (displayed in the GUI)

Date of purchase

OS Type (Windows 95, 98, 2000, NT, for Workgroups; MacOS, or Unix)

Detailed description of the problem

### **Instructions for Trained Service Personnel Only**

**Caution: Danger of explosion if battery is incorrectly placed. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.**

### **FCC Part 15 CLASS B Statement**

#### **Section 15.105(b) of the Code of Federal Regulations:**

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant of 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 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.

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

#### **Canadian D.O.C. Notice**

This product conforms to Canadian Class B emissions regulations.  
Ce produit se conforme aux règlements d'émission canadienne classe B.