

# ***SpeedStream***

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## **5800 Series**

### **Business Class Routers Quick Start Guide**



***Efficient Networks, Inc.***<sup>®</sup>

**P/N: 222-00803-02**



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Dallas, TX 75244  
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## Introduction

This Quick Start Guide covers basic installation and setup of the SpeedStream 5800 Series Business Class Routers including:

- 5851 Symmetric Digital Subscriber Line router (SDSL)
- 5861 Asymmetric DSL / Discrete Multi Tone router (DMT)
- 5865 Asymmetric DSL / DMT (international) router
- 5871 Integrated Services Digital Network DSL router (IDSL)

## Installation Requirements

### PC Requirements

- CD-ROM Drive
- Ethernet network interface card
- 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, from one of the following:

- PPP (Point-to-Point Protocol, requires a user name and password)
- RFC 1483 (SNAP encapsulation), RFC1490 if frame relay
- RFC 1483 MER (MAC Encapsulated Routing, requiring a WAN gateway address)

## **Network Options**

Bridging and/or

- IP Routing (requires a WAN IP address and subnet mask)
- VPI/VCI (PVC) numbers, or DLCI for frame relay
- 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 5800 Series Business Class 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) - (5861 + 5865 only)
- 1 power cord
- Customer Release Notes with the newest information

## Connecting Your Router

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

Connect your PC directly to any of the router's four Ethernet ports using a straight through cable (red label). Later you may connect 1 to 3 additional Ethernet devices to the router's built-in Ethernet hub.

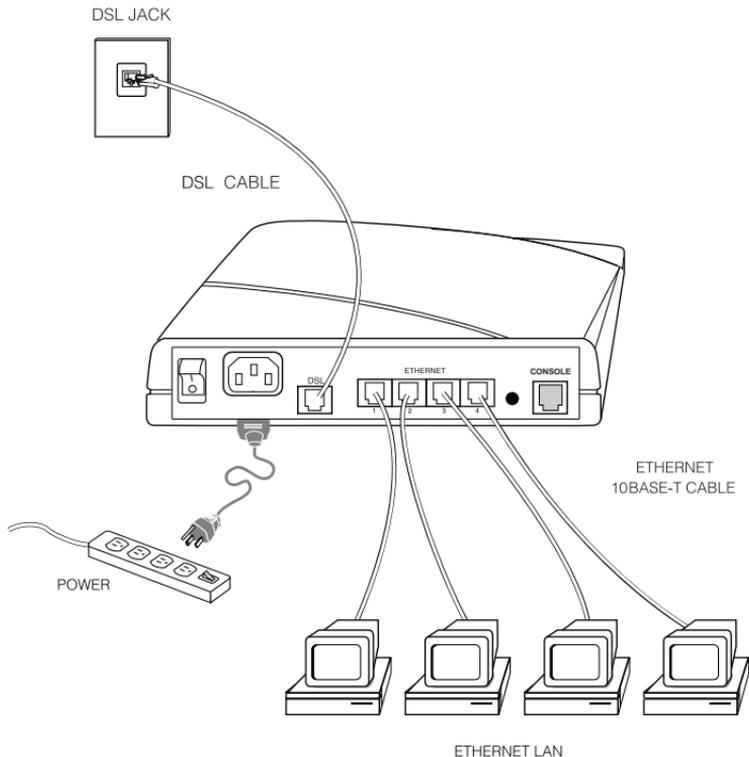
Switch on the power for the router.



**Caution:** To reduce the risk of fire, use only no. 26 AWG or larger telecommunications line cord. This cord is used to connect your router's DSL port to your DSL jack, as shown in the following illustration:

## SpeedStream 5800 Business Class Routers

The following diagram shows the router when connected:



## Configuring Your Router

Your computer will be obtaining IP addresses automatically from the router. Configure the TCP/IP stack on your PC to obtain an IP address automatically. To do so with a PC running Windows 9x or NT, select **Start > Settings > Control Panel >** and click on **Network**.

Select TCP/IP from the list of components and select Properties. Select the IP Address tab and verify the selection to Obtain an IP Address Automatically. Click OK as needed.

Using your web browser, enter the following default router address into the address field of your browser: **http://192.168.254.254/**

## Administration

At the login prompt, make the following entries:

User Name: **login**

Password: **admin**

### Change Password

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

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



## Web User Interface

Your SpeedStream 5800 Series Router includes a Web User Interface to provide you with easy-to-use controls and information. The Web User Interface consists of simple, linked forms that together provide clear views of your router settings and status. You can use these forms to understand and control essential router functions.

### Router Configuration Page

The first page in the Web User Interface is the Router Configuration Page. This page displays basic router information and router configuration settings. It also provides links to other router setup and control forms. On the Router Configuration page, the following information is presented:

**Router Information** - Includes the model number, software version number and options that have been enabled.

**Router Configuration** - Displays router configuration details such as IP address, data PVC settings, protocol settings, bridging or routing settings, and WAN settings.

**Router Configuration - Netscape**

File Edit View Go Window Help

 **SpeedStream**  
Efficient Networks, Inc.

- [Easy Setup](#)
- [Change Access](#)
- [Control](#)
- [Feature Activation](#)
- [Set Router Clock](#)
- [Reboot Router](#)

### ROUTER INFORMATION

Product Description	SpeedStream 5861 DMT Router (120-5861-006)
Hardware Description	Revision: 47-03 [SAN:315578]
Software Version	v4.0.0
Options:	DMT, RFC1483, IP ROUTING, IP FILTERING, WEB, - IPSEC, - 3DES, - L2TP, - ENCRYPT, BRIDGE, IPX

### ROUTER CONFIGURATION

LAN IP Address	192.168.254.254
WAN Data PVC	not set
WAN Protocol	PPP
Bridging	disabled
IP Routing	disabled
WAN IP Address	0.0.0.0
WAN Gateway	
Address Translation	disabled

Document: Done

## Easy Setup

Easy Setup is a set of web forms designed to provide a quick and easy setup of your router. Easy Setup is a permanent feature, accessible from any computer platform with a web browser.

Easy Setup can assist you in getting your router up and running with a basic configuration. The choices you make in the Easy Setup forms are based on information about your LAN (Local Area Network) and information from your Network Service Provider.

Once you have used Easy Setup to establish a basic configuration with the minimum settings needed for essential router functions, additional configuration can be performed to utilize the many advanced features included with your router. Advanced configuration is performed using the Command Line Interface (CLI). The CLI is available for advanced network technicians who require direct access to all the commands and features available with your router.

Click on the Easy Setup link to access the Easy Setup forms.

## Wide Area Network Interface

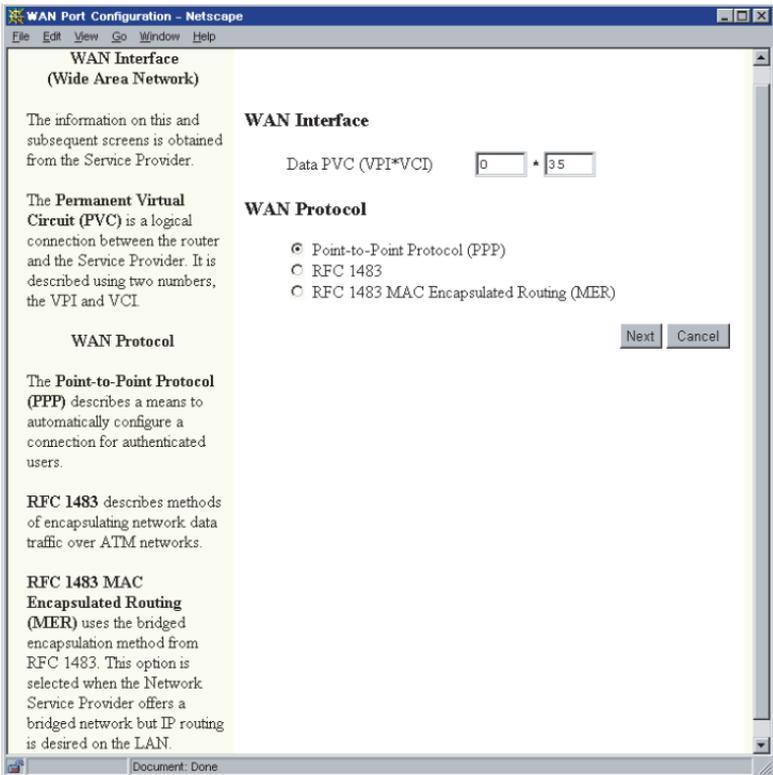
The first Easy Setup screen is for entering and reviewing information about Wide Area Network (WAN) settings. Your Network Service Provider can provide you with the information needed to correctly complete these WAN settings.

If your interface is ATM-based, enter the VPI/VCI numbers.

If your interface is Frame Relay based, enter the DLCI numbers.

Your router supports any one of three available WAN protocols; PPP, RFC 1483, or RFC 1483 MER (RFC 1490 or RFC 1490 MER if you use frame relay). Your Network Service Provider should specify a WAN protocol, and VPI/VCI or DLCI settings for you to use. To make your selection, click on the button shown next to the appropriate protocol.

Click on the Next button to continue Easy Setup.



## Point-to-Point Protocol

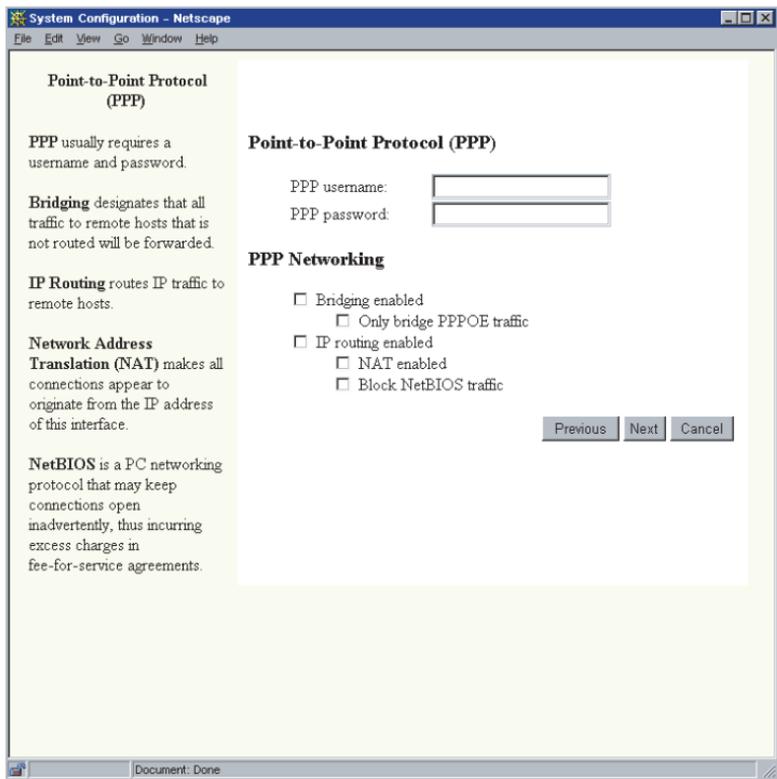
If you have selected PPP as your WAN protocol, you will see a screen requesting a PPP User Name and PPP Password. Enter this information in the fields provided.

### PPP Networking

**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, public IP address. All outgoing traffic appears to originate from the router's IP address.
- **NetBIOS** is a PC networking protocol that can keep connections open inadvertently. To avoid excess connection charges, such traffic should be blocked on any metered network service.

Click on the [Next](#) button to continue Easy Setup.



## **RFC 1483 or 1490 Networking**

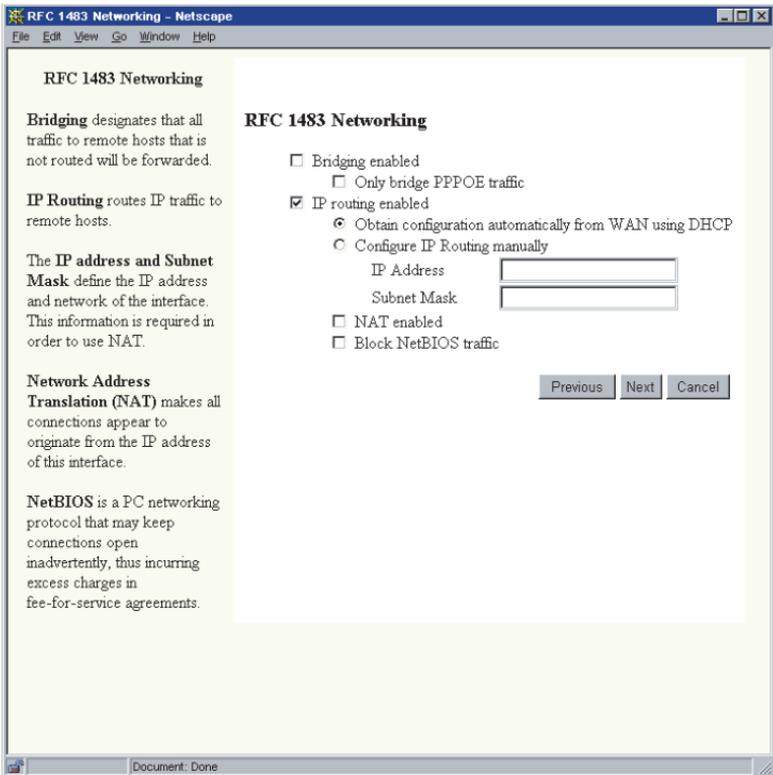
If you have selected RFC 1483 (or RFC 1490 for frame relay) as your WAN protocol, you will see a screen for selecting networking options, and for setting IP routing configurations.

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. The information is required in order to use Network Address Translation.

If your Network Service Provider has not provided specifics for these settings, choose IP routing, configure automatically from WAN, and NAT.

Click on the [Next](#) button to continue Easy Setup.



## **RFC 1483 or 1490 MER**

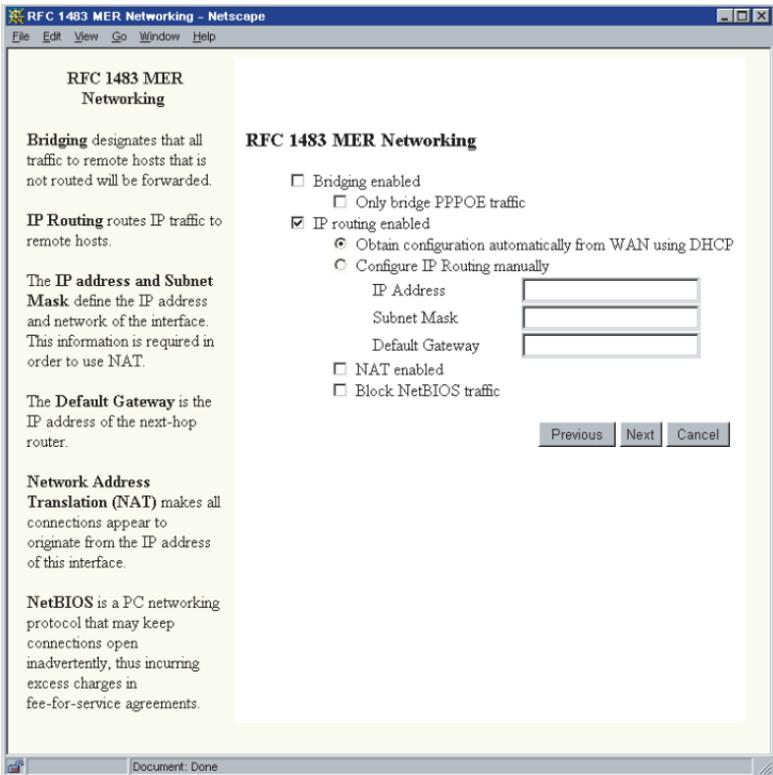
If you have selected RFC 1483 (or 1490 for frame relay) MER as your WAN protocol, you will see a screen for selecting networking options, and for setting IP routing configurations.

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 Network Service Provider 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.



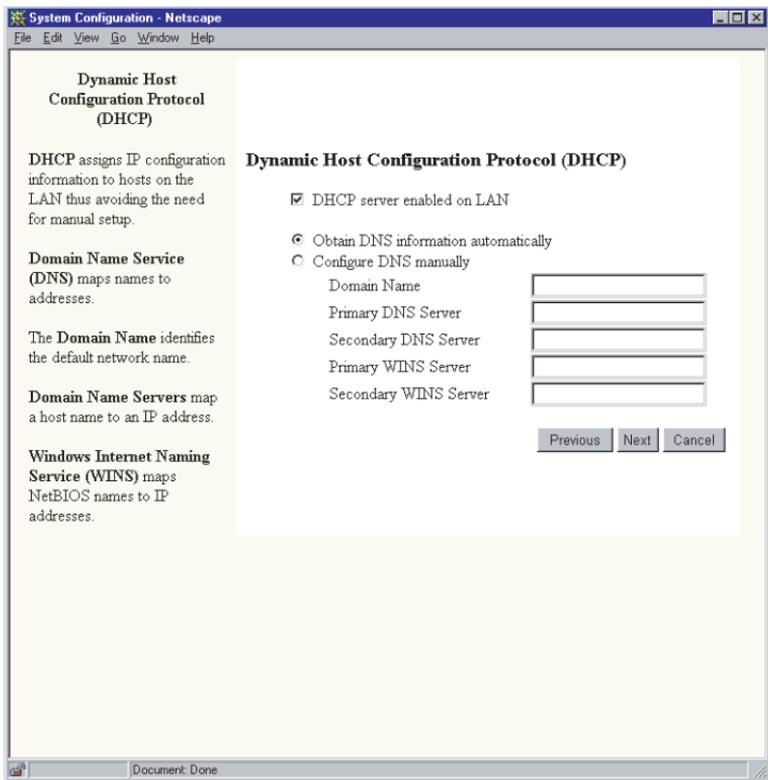
## Dynamic Host Configuration Protocol

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 Net BIOS names to IP addresses.

Click on the Next button to continue Easy Setup.



## **Local Area Network Configuration**

The final screen in Easy Setup is for Local Area Network (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 if specific LAN IP traffic should be forwarded to the WAN.

**LAN IP Configuration**

The **IP Address** is the network address of the router. This address must be globally unique unless NAT is enabled.

**Subnet Mask** is used along with the IP address to determine whether or not the local IP traffic should be forwarded.

**LAN IP Configuration**

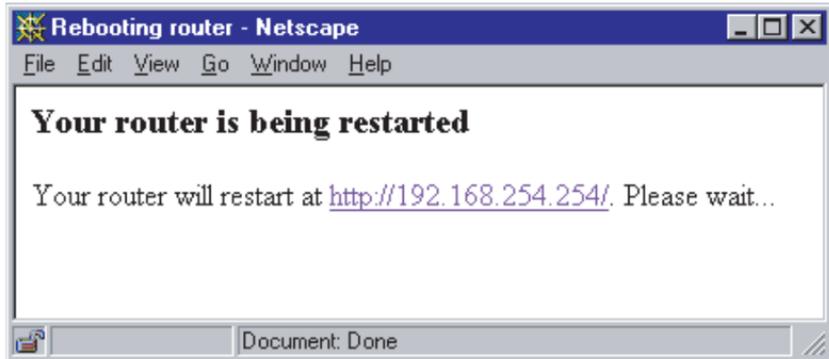
IP Address

Subnet Mask

Document: Done

## SpeedStream 5800 Business Class Routers

Click Save and Reboot to save your settings in Easy Setup. Your router will reboot with the new configuration settings.

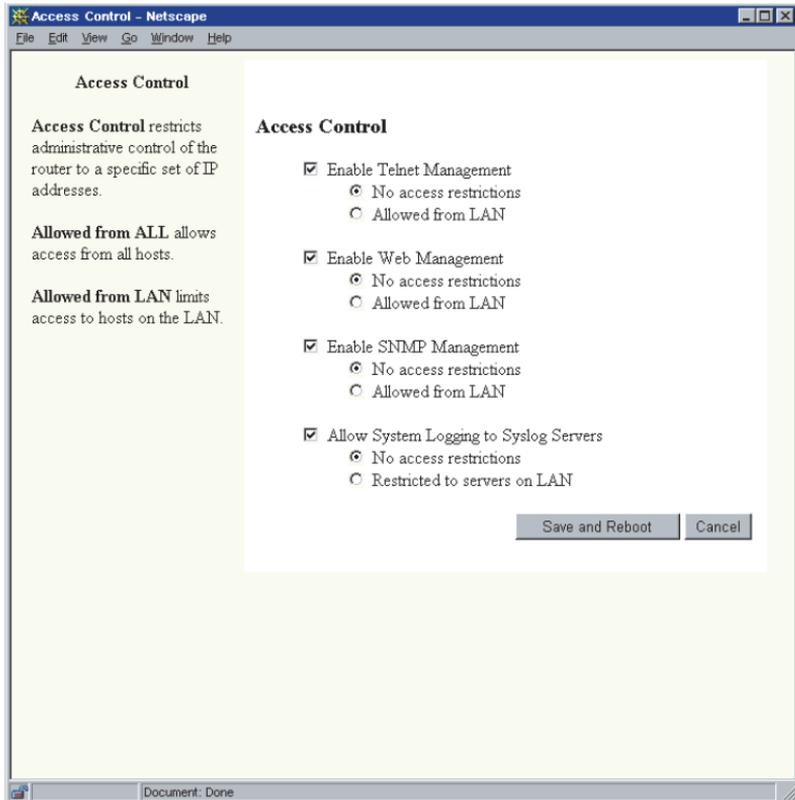


## Access Control

This feature restricts administrative access and control of the router to a select group of hosts. In this form, you can select which router services can be accessed from PCs. For each selected service, you can restrict the hosts that can manage the service remotely. Your options for each service are:

- Enable or disable host access to the service
- Enable only hosts on the LAN to manage the service
- Allow all hosts to manage the service (default)

If you are unsure of how to configure Access Control, leave the factory default settings. These settings can always be changed later by returning to this Access Control form.



## Feature Activation

There are several optional software features available for your router, such as L2TP, IPSec, DES encryption, and 3DES encryption. These features can be purchased from the Efficient Networks web site ([www.efficient.com](http://www.efficient.com)). For each optional feature purchased, you will be emailed a feature activation key.

Feature activation keys are used to enable additional features on your router. Features that are not activated on your router are marked with a dash (-) as shown on the screen to the right. Feature activation keys are long strings in the following format:

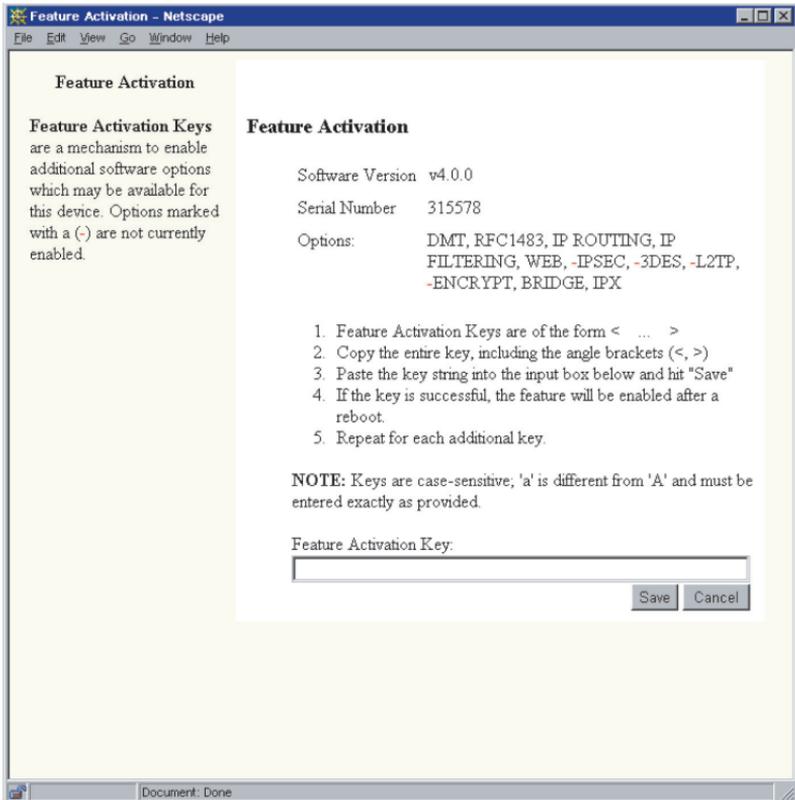
< 1234 . . . >

To input a feature activation key:

1. Copy the entire key, including the brackets, from the email.
2. Paste the key into the input box on this form.
3. Press the Save button at the bottom of this form.

Repeat these steps for each Feature Activation Key you have to input.

Reboot your router. New features will be active once the router is rebooted, provided that the feature activation key(s) are correctly entered.



## Change Password

Changing your administration password is easy. Simply type your new password into each of the fields. The new password is also required in the second field for verification.

Once the passwords are entered in both fields, click the Save button. Your new password is now effective.

**Administration Password**

The **Administration Password** controls access to the router configuration. The new password must be entered correctly twice in order to change it.

**Administration Password**

Enter New Password:

New Password (again):

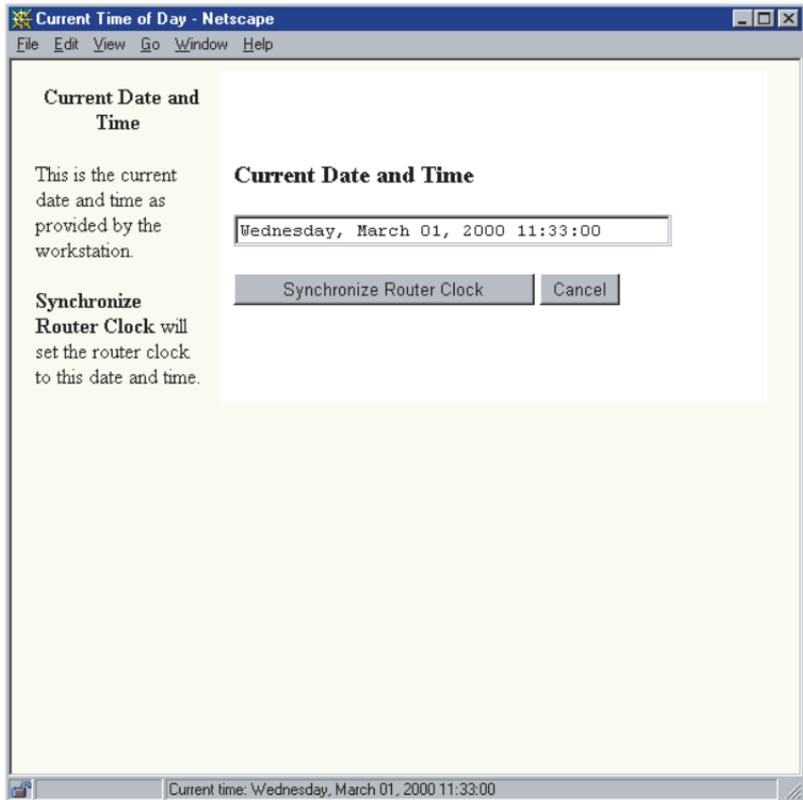
Document: Done

## Setting The Date and Time

This feature enables you to set the date and time on your router.

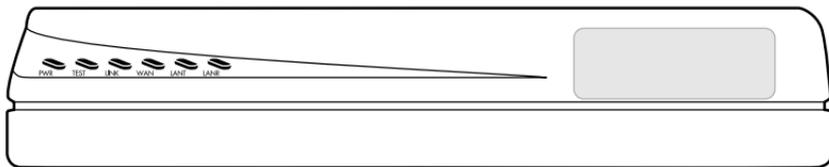
The current date and time from your workstation is displayed in the field labeled **Current Date and Time**.

To synchronize the router date and time with the current date and time displayed, click on the **Synchronize Router Clock** button.



## Panel Descriptions

### Front Panel

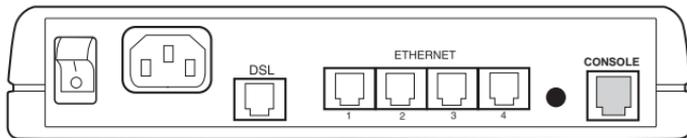


Six lights appear on the front left panel of the router. Reading from left to right, these lights indicate the following conditions:

**Table 1: Front Light Indications**

Light	Indications
PWR	Green:Power is on Off:Power is off
TEST	Amber:Running Power On Self Test Green:Router Power On Self Test successful Off:Router is shut down
LINK	Amber:Establishing DSL modem link Green:DSL Modem Link Successful Off:DSL modem link is shut down
WAN	Green flashing:WAN transmissions detected Off:No WAN transmissions detected
LANT	Green flashing:Transmitting LAN traffic Off:Not transmitting LAN traffic
LANR	Green flashing:Receiving LAN traffic Off:Not receiving LAN traffic

## Back Panel



From left to right, back panel connections are as follows:

**Table 2: Back Panel Connections**

Connection	Function
Power	Uses an on/off power switch and a standard AC power cord.
DSL WAN Connection	A 6 pin, RJ-14 or RJ-45 port connects DSL.
Ethernet Ports	Four Ethernet 10Base-T ports (8 pin, RJ-45) are in a built-in hub.
Reset Pin	This is rarely needed and should only be used as instructed by Technical Support.
Console Connection	This 8 pin, RJ-45 port provides asynchronous RS232 connectivity.

## Hardware Specifications

### 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.

### Operational Environment

- Temperature: 40°F to 105°F / 5°C to 40°C

### Power Requirements

- AC Voltage: 100 to 120V AC or 220 to 240V AC
- Frequency: 50/60 Hz
- Consumption: 10W maximum
- Built-in Power Supply, On/Off Switch

### Processor

- Motorola® 32 MHz MPC850
- 1MB Flash Memory
- 4MB DRAM

## **LAN Interface**

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

## **WAN Interface**

- One Digital Subscriber Line interface (RJ-14 for models 586X) RJ-14 Line A / Line B Pinning 2/5 or 3/4 or RJ-45

## **Agency Approvals**

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

## **Modem Specifications**

### **DMT/ADSL**

- 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
- Co-exists with active ISDN circuit (model 5865)

### **IDSL**

- 2B1Q modulation
- Data rates: 64, 128 or 144Kbps

### **SDSL**

- 2B1Q modulation
- Data rates ranging from 160 to 2,300 Kbps

## Port Specifications

**Table 3: Ethernet & Console**

<b>Pin</b>	<b>Ethernet Port</b>	<b>Console Port</b>
1	Twisted pair transmit +	Receive data
2	Twisted pair transmit -	Request to send
3	Twisted pair receive +	Not connected
4	Ground	Transmit data
5	Ground	Ground
6	Twisted pair receive -	Clear to send
7	Ground	Not connected
8	Ground	Ring indicator

**Table 4: WAN Port - Most Models (RJ-45)**

<b>Pin</b>	<b>Most Models</b>
1	Not connected
2	Not connected
3	Not connected
4	Tip or Line A
5	Ring or Line B
6	Not connected
7	Not connected
8	Not connected

**Table 5: WAN Port - Models 586X DMT Routers (RJ-14)**

<b>Pin</b>	<b>120-5861-001</b>	<b>120-5861-002 120-5865-001</b>
1	Not connected	Not connected
2	Tip or Line A	Not connected
3	Not connected	Tip or Line A
4	Not connected	Ring or Line B
5	Ring or Line B	Not connected
6	Not connected	Not connected

## Software Specifications

### 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)

## **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
- 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

## SpeedStream 5800 Business Class Routers

- HTTP/SNMP/Telnet/Syslog access control list
- Firewall (IP filtering)
- Optional VPN software (L2TP, IPSec, IKE, DES, 3DES)

## Support

For specific product support, contact the organization that provided or sold the equipment to you. If you need to contact your NSP for technical support, please have the following information ready:

- Router model number (on the bottom of the router)
- Router software version (displayed in the Web interface)
- Date of purchase
- OS Type (e.g. Windows 95, 98, 2000, NT, 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.**

## Compliances

### **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.

