EPSON®

EPSON STYLUS® COLOR 850N

User's Guide

Printed on recycled paper with at least 10% post-consumer content

CPD-6494
5/98

FCC Compliance Statement
For United States Users

This printer 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 or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and 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.

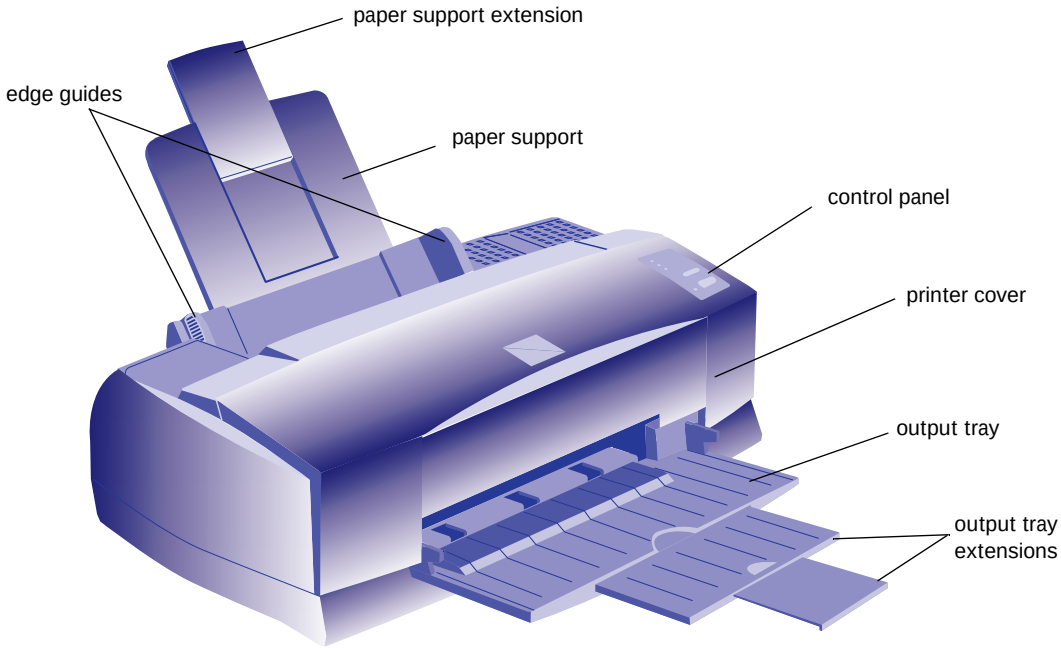
WARNING

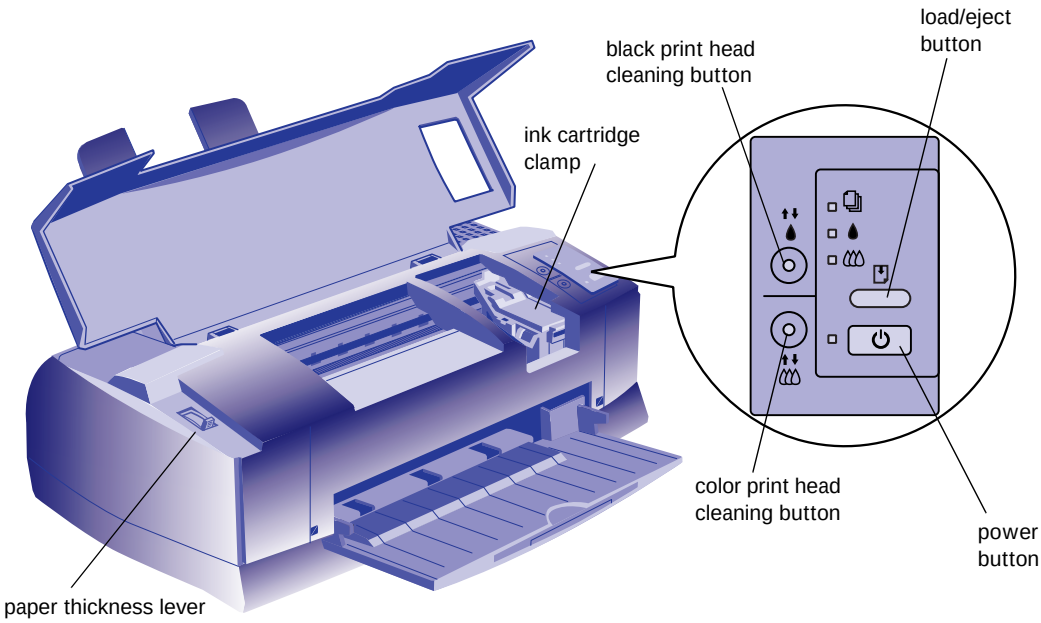
The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le materiel brouilleur du Canada.


paper support extension
edge guides
paper support
control panel
printer cover
output tray
output tray
extensions


load/eject
button
black print head
cleaning button
ink cartridge
clamp
color print head
cleaning button
power
button
paper thickness lever

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Introduction

Note:
Your EPSON Stylus COLOR 850N printer is identical to the EPSON Stylus COLOR 850 except for the added network capabilities. Therefore, this guide refers to the EPSON Stylus COLOR 850 printer driver software.

Your EPSON Stylus® COLOR 850N bundled printer/print server is the ideal shared output device for business graphics, layout proofs, digital photography, or any project created by users on your network. With resolutions up to 1440 by 720 dpi, you get amazingly realistic photographic images and vivid graphics in color, or razor-sharp black printing. All at the fastest speed of any EPSON ink jet printer.

The printer software for Microsoft® Windows® and Macintosh® provides advanced color management with adjustable levels of brightness, contrast, saturation, and ink colors. Support for ColorSync™ 2.01 and Windows ICM ensures printouts that closely match the colors on your monitor.

Your printer offers flexible resource sharing; you can use it with multiple types of operating systems and network operating systems. With an integrated Ethernet card for complete network connectivity, setup is fast and easy.

Windows System Requirements

To use your printer and its software with a PC, your system should have:

- An IBM® compatible PC with at least a 386/25 MHz (for Windows 3.1) or 486/25 (for Windows 95 or NT 4.0) or faster processor
- DOS, Microsoft Windows 3.1x, Windows 95, or Windows NT 4.0
- At least 16MB of RAM (20MB recommended)

- At least 50MB of free hard disk space for storing images (100MB or more is recommended)
- VGA, Super VGA, or better display adapter and monitor
- Double-speed CD-ROM drive (quad-speed or faster recommended) for installing the printer software
- Network connection to Ethernet
- A twisted-pair (10BASE-T) or thin coaxial (10BASE2) cable (with a 50 ohm terminator, if necessary) to connect the printer's Ethernet card to your network.

Macintosh System Requirements

To use your printer and its software with a Macintosh, your system should have:

- Any Macintosh or Power Macintosh model except the Macintosh +, Macintosh 512, Performa® 410, PowerBook® 100, and some early versions of the Macintosh, such as the II or Classic
- System 7.1 or later (7.5 or later recommended)
- At least 16MB of RAM (20MB or more is recommended)
- At least 50MB of free hard disk space for storing images (100MB or more is recommended)
- 13-inch RGB display or better
- Double-speed CD-ROM drive (quad-speed or faster recommended) for installing the printer software
- Network connection to Ethernet
- A twisted-pair (10BASE-T) or thin coaxial (10BASE2) cable (with a 50 ohm terminator, if necessary) to connect the printer's Ethernet card to your network.

Supported Network Protocols and Features

The EPSON Stylus COLOR 850N's Ethernet card supports the following network protocols:

Novell® NetWare®

- Supports NetWare 3.x and 4.x (Bindery Emulation Mode)
- Allows your printer to function as a print server or remote printer. Auto Print Server/Remote Printer mode automatically switches between print server and remote printer modes, depending on network conditions.

AppleTalk™

- Supports EtherTalk™ Phase I and Phase II communication.

Windows NT

- Supports Windows NT 4.x.
- Provides easy configuration of the IP address and other settings with the EPSON Net! utility when using TCP/IP.

UNIX®

- Supports most major commands, including lpd, ftp, and ping.
- Requires no setup utility. The IP address is assigned by sending the arp and ping commands.

Operating System/2®

- Supports IBM® OS/2 Warp and Warp Connect with or without an OS/2 LAN Server.®

Windows 95 Peer-to-Peer Network

- Requires EPSON TCP/IP Printing (included with Status Monitor 2). The IP address is assigned by sending the arp and ping commands.

How To Use Your Manuals

See the *Setup Guide* to set up your printer, install your software, and configure the card for the network. This *User's Guide* contains the following information:

Chapter 1 covers the basics of printing with Windows or Macintosh.

Chapter 2 gives guidelines for selecting the right paper or other media for your print job and instructions for loading it in your printer.

Chapter 3 tells you how to print special projects with custom settings for print quality, color management, and distinctive layouts.

Chapter 4 explains how to manage print jobs and check printer status while you're printing.

Chapter 5 gives instructions for replacing ink cartridges, cleaning and aligning the print heads, and cleaning and transporting the printer.

Chapter 6 provides information on the Ethernet card and network configurations not covered in the *Setup Guide*.

Chapter 7 provides solutions for any problems you may have.

Appendix A gives instructions for creating diskettes from the CD-ROM and using them to install the software.

Appendix B lists the EPSON accessories you can use with your printer.

Appendix C provides technical details on your printer, Ethernet card, ink cartridges, and media.

A **Glossary** and **Index** are included at the end of the book.

Warnings, Cautions, Notes, and Tips

You'll find this information throughout your manual:

Warnings must be followed carefully to avoid bodily injury.

Cautions must be observed to avoid damage to your equipment.

Notes contain important information about your printer.

Tips contain additional hints for great printing.

Where To Get Help

EPSON provides technical assistance through electronic support services and automated telephone services 24 hours a day. The following tables list the contact information:

Electronic support services

Service	Access
World Wide Web	From the Internet, you can reach EPSON's Home Page at **http://www.epson.com**.
EPSON Internet FTP Site	If you have Internet FTP capability, use your Web browser (or other software for FTP downloading) to log onto **ftp.epson.com** with the user name **anonymous** and your e-mail address as the password.
EPSON Download Service	You can call the EPSON Download Service at **(800) 442-2007**. Set your communications software to 8 data bits, 1 stop bit, no parity. Modem speed can be up to 28.8 Kbps.
EPSON Forum on CompuServe®	Members of CompuServe can type **GO EPSON** at the menu prompt to reach the Epson America Forum. For a free introductory CompuServe membership, call (800) 848-8199 and ask for representative #529.

Automated telephone services

Service	Access
EPSON SoundAdvice℠	For pre-recorded answers to commonly asked questions about EPSON products 24 hours a day, seven days a week, call **(800) 442-2110**.
EPSON FaxAdvice™	Access EPSON's technical information library by calling **(800) 442-2110**. You must provide a return fax number to use this service.
EPSON Referral Service	For the location of your nearest Authorized EPSON Reseller or Customer Care Center, call **(800) 442-2110**.

Note:
If you need help using another manufacturer's software with an EPSON product, see the documentation for that program for technical support information.

To speak to a technical support representative, dial (310) 787-6346 (U.S.) or (905) 709-2567 (Canada), 6 AM to 8 PM, Pacific Time, Monday through Friday and 7 AM to 4 PM, Saturday and Sunday. Toll or long distance charges may apply.

Before you call, please have the following information ready:

- Product name
- Product serial number
- Computer configuration
- Description of the problem

You can purchase ink cartridges, paper, manuals, and accessories from EPSON Accessories at (800) 873-7766 (U.S. sales only). In Canada, please call (800) 807-7766.

ENERGY STAR Compliance

As an ENERGY STAR Partner, EPSON has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

The EPA ENERGY STAR Office Equipment program is a voluntary partnership with the computer and office equipment industry to promote the introduction of energy-efficient personal computers, monitors, printers, fax machines, and copiers in an effort to reduce air pollution caused by power generation.

Year 2000 Ready

Your EPSON printer is *Year 2000 Ready*. However, be sure the other parts of your computer system are also ready for the year 2000.

Caution:
Always turn the printer off using the ⏻ power button. If you're using a power strip, do not switch it off or unplug the printer until the ⏻ power light is off.

Important Safety Instructions

Before using your printer, read the following safety instructions to make sure you use the printer safely and effectively:

- Turn off and unplug the printer before cleaning. Clean with a damp cloth only. Do not spill liquid on the printer.
- Do not place the printer on an unstable surface or near a radiator or heating vent.
- Do not block or cover the openings in the printer's cabinet or insert objects through the slots.
- Use only the type of power source indicated on the printer's label.
- Connect all equipment to properly grounded power outlets. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.
- Place the printer near a wall outlet where the plug can be easily unplugged.

  Placez l'imprimante près d'une prise de contacte où la fiche peut être débranchée facilement.
- Do not let the power cord become damaged or frayed.
- If you use an extension cord with the printer, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure the total ampere rating of all devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.
- Except as specifically explained in this *User's Guide*, do not attempt to service the printer yourself.

- Unplug the printer and refer servicing to qualified service personnel under the following conditions:

  If the power cord or plug is damaged; if liquid has entered the printer; if the printer has been dropped or the cabinet damaged; if the printer does not operate normally or exhibits a distinct change in performance. Adjust only those controls that are covered by the operating instructions.

- Do not put your hand inside the printer or touch the cartridge during printing.

- Under normal circumstances, ink will not come out of the cartridge. If it does get on your skin, wash it off with soap and water. If it gets in your eyes, flush them immediately with water.

- Keep ink cartridges out of the reach of children.

- Do not dismantle the ink cartridges or try to refill them. This could result in damage to the print head.

- Once you install an ink cartridge, do not open the clamp or remove the cartridge except to replace it with a new one. The cartridge may become unusable otherwise.

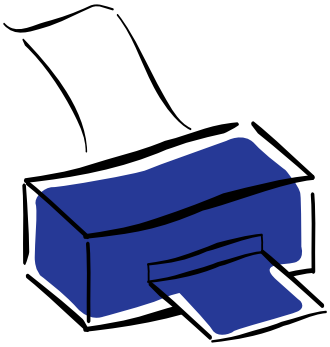
- Install the ink cartridge immediately after you remove it from its foil package. Leaving the cartridge unpacked for a long time before use may result in reduced print quality.

- Do not use an ink cartridge beyond the date printed on the cartridge carton. For best results, use up the ink cartridges within six months of installing them.

- Do not shake an ink cartridge; this can cause leakage.

- Always turn the printer off using the ⏻ power button. When you press this button, the ⏻ power light flashes briefly then goes out. Do not unplug the printer or turn off the power to the outlet until the ⏻ power light is off.

- Before transporting the printer, make sure the print head is capped in the far right position and the ink cartridges are in place.



1 Basic Printing

It's easy to print all your color and black-and-white documents with your EPSON Stylus COLOR 850N. First set up your printer, install the software, and configure the card on the network, following the instructions in the *Setup Guide*. Then read this chapter to find out about:

- Printing from Windows
- Printing from a Macintosh
- What to do when the printer lights flash

Note:
Setup instructions for EPSON Net! for NetWare DOS and EPSON Net! for OS/2 are in Chapter 6. Appendix C has DOS support information. For instructions on printing with NT and DLC, UNIX, or OS/2, see Chapter 6.

Printing from Windows

To print from a Windows application, you choose Print from the File menu. You can then choose which pages to print, the number of copies, and other options from your application's Print dialog box.

When you click a button in the Print dialog box, you select additional settings using your printer software, such as the media type you've loaded and the resolution you want to use.

The following sections tell you how to do the following:

- Select printer software settings and print from Windows applications
- Change the default printer software settings
- Check your printer's status while you print

Setting Printer Options from Windows Applications

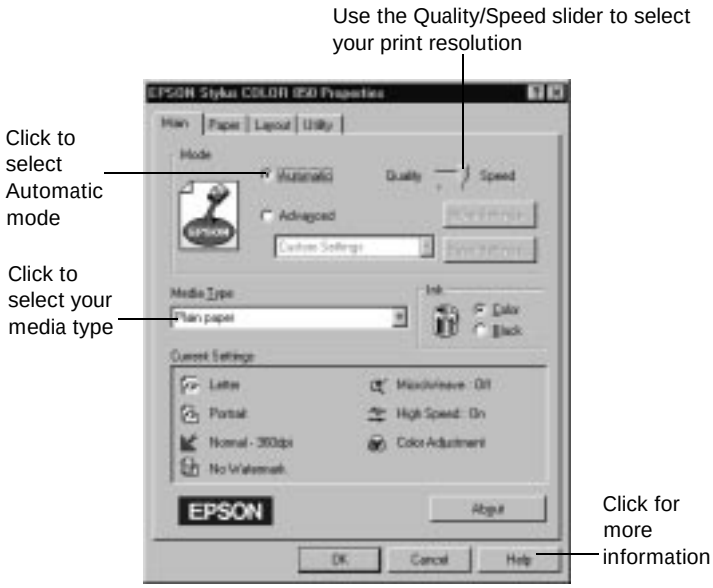
This section describes the settings you'll need to check for all your everyday printouts. See Chapter 3 for information about advanced settings for special print jobs.

Note:
You can also set printer options by clicking Print Setup in the File menu, then clicking the Printer, Setup, Properties, or Options button. However, in most applications you'll then have to select the Print option from the File menu to print using your changes.

1. Open your word processor or other Windows software application and open a file you want to print.

2. Choose Print from the File menu. You see the Print dialog box for your application.

3. Make sure your EPSON Stylus COLOR 850 printer is selected, and then click the Printer, Setup, Properties, or Options button. (You may have to click a sequence of buttons in different dialog boxes.) You then see the printer settings dialog box:



For more information about printer settings, click the Help button. In Windows 95 and Windows NT, you can right-click any item on the screen and then click What's This?

4. Click the Main tab if necessary and make sure the Mode option is set to Automatic. This is the easiest way to get good printing results for all kinds of documents, on all types of paper.

To print at the highest resolution (1440 dpi), you can use plain paper, Photo Paper, or one of the Photo Quality media. For the best printing at any resolution, always use EPSON media.

The Quality/Speed slider is not available for certain media types.

5. Choose the **Media Type** you want to print on from the following list:

   - Plain paper
   - 360 dpi Ink Jet Paper
   - Photo Quality Ink Jet Paper
   - Photo Paper
   - Photo Quality Glossy Film
   - Ink Jet Transparencies

   The type of paper or other media you choose determines the print quality (resolution) you can use. If you're not sure which setting to select for your media, see the table on page 2-1.

6. Choose **Color** or **Black** ink.

7. Set the slider to **Quality** or **Speed**. This lets you choose between the fastest printing or highest resolution for the media you're using. To use the highest resolution available for plain paper (1440 dpi), you need to access the More Settings dialog box; see page 3-4 for instructions.

8. Click the **Paper** tab and choose your paper size, number of copies, and orientation. See page 3-16 for instructions.

9. If you're using Windows 95 or Windows NT 4.0, click the **Layout** tab and check the proportional printing, page layout, and watermark options to make sure they're correct for your print job. See page 3-20 for details.

10. Click **OK** when you're finished checking your settings. The dialog box closes.

11. In the Print dialog box, click **OK** or **Print**. You may need to click a sequence of these buttons on different dialog boxes.

    While your document is printing, a dialog box appears showing the printer status and the progress of your print job. See "Checking Printer Status" on page 1-5 for more information.

Note:
If you're using Windows 95 or Windows NT and you installed Status Monitor 2 along with your printer software, you may want to click the Utility tab and open the Printer Status window. See page 4-2 for information on Status Monitor 2; see Chapter 5 for instructions on using the other utilities available on the Utility tab.

Note:
Some application settings override driver settings (such as Paper Size or Orientation), so it's a good idea to check the settings in your application before you print. See page 1-2 for instructions.

Setting Default Printer Options

When you change printer settings through your software application, the settings apply only to the application you're using. To adjust the default settings for **all** your Windows applications, access the settings through the Windows 95 or Windows NT 4.0 Printers utility or the Windows 3.1 Control Panel. (Close all your applications before you start. If you don't, you may have to close and reopen them to use the new default settings.)

Setting Default Options in Windows 95

1. Click Start, point to Settings, and select Printers.
2. Right-click the EPSON Stylus COLOR 850 icon.
3. Select Properties. You see the printer software dialog box, as shown on page 1-2.

Note:
You can access the default Windows NT printer software settings only if you have the appropriate network access privileges, such as Administrator or Power User.

Setting Default Options in Windows NT 4.0

1. Click Start, point to Settings, and select Printers.
2. Double-click the EPSON Stylus COLOR 850 icon.
3. Open the File menu and select Document Defaults. You see the printer software dialog box, as shown on page 1-2.

Setting Default Options in Windows 3.1

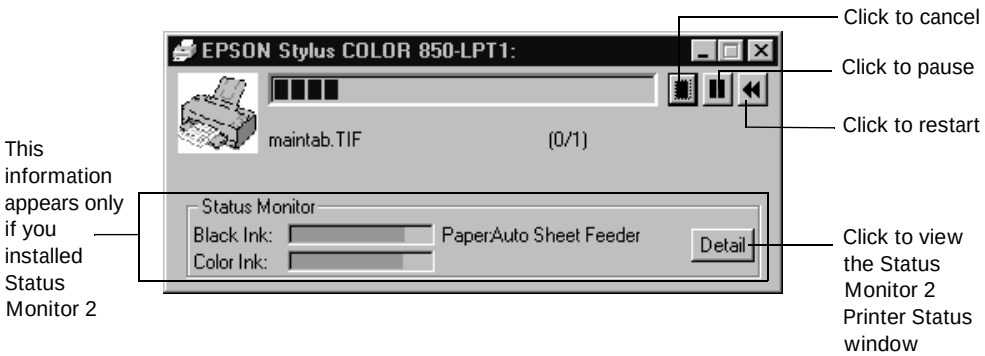
1. Double-click the Control Panel icon in the Main group.
2. Double-click the Printers icon.
3. Select EPSON Stylus COLOR 850 from the list of printers and click Setup. You see the printer software dialog box, as shown on page 1-2.

Checking Printer Status

While your document is printing, your printer software reports how the job is doing. See the section for your operating system below.

Windows 95

After you send a print job in Windows 95, the Progress Meter dialog box appears on your screen:



The Progress Meter shows the progress of your print job and the status of your printer. You can use the buttons to cancel, pause, or restart your print job. If you installed Status Monitor 2, you also see information about how much ink you have left and can view the Status Monitor 2 Printer Status window. See page 4-2 for more information about Status Monitor 2.

You can set up the way your printer software sends print jobs and select whether to display the Progress Meter dialog box or not; see page 4-10 for instructions.

Windows NT 4.0

If you installed Status Monitor 2, you see information about how much ink you have left and can view the Status Monitor 2 Printer Status window. See page 4-2 for more information.

Windows NT 4.0 servers and workstations also include a messenger service to alert you to printer errors or let you know when a print job is finished. If you have appropriate network access privileges or you're controlling printing from the server, you can also cancel, pause, or restart print jobs and set other options. See your Windows NT documentation for details.

Windows 3.1

After you send your print job, the EPSON Despooler dialog box appears on your screen:

This dialog box shows the progress of your print job and the status of your printer. If you run out of paper while printing, for example, the Despooler warns you. You can use the buttons to cancel, pause, or restart your print job.

Printing from a Macintosh

When you print with a Macintosh, you need to check the printer software settings for documents in each application you use. When you choose Page Setup or Print from the File menu, you see the printer software dialog boxes that let you choose the settings that describe your print job—such as the media type you've loaded and the resolution you want to use.

This section describes the settings you'll need to check for all your everyday printouts. See Chapter 3 for information about advanced settings for special print jobs.

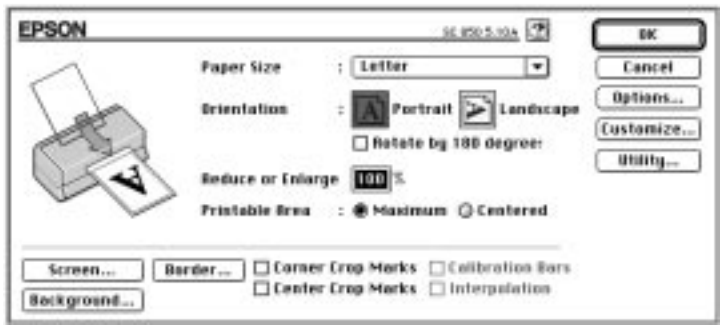
Note:
On the Macintosh, printer settings are saved with your document, but you can't save them from one application to another. You'll have to check your settings each time you open a new application. If you want to reuse settings, you can create document templates for your favorite applications.

You can also create custom setting groups in your printer software that you can select each time you open an application. See page 3-33 for details.

Follow these steps to print from a Macintosh:

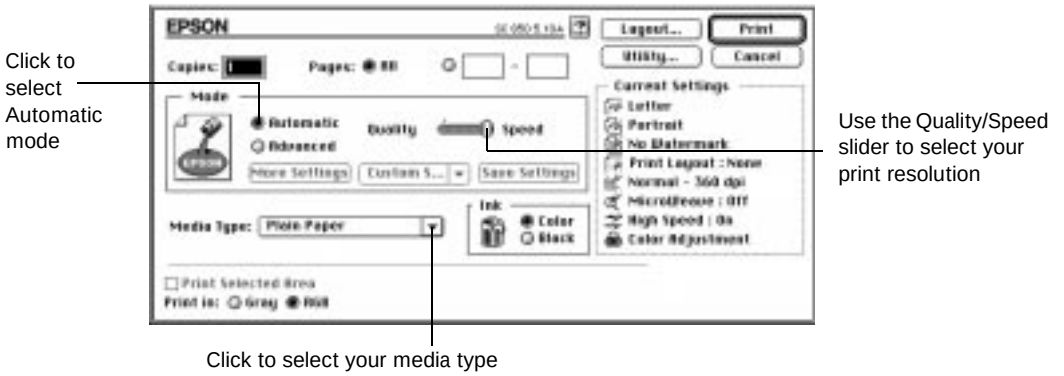
1. Open your word processor or other Macintosh software application and open a file you want to print.

2. Choose Page Setup from the File menu. You see the Page Setup dialog box:



3. Choose your paper size, orientation, and other options as described on page 3-15 and click OK.

4. Now choose Print from the File menu in your application. You see the printer settings dialog box:



5. Choose the number of copies and indicate which pages you want to print.

6. Make sure the Mode option is set to Automatic. This is the easiest way to get good printing results for all kinds of documents, on all types of paper.

7. Choose the Media Type you want to print on from the following list:

   - Plain Paper
   - 360 dpi Ink Jet Paper
   - Photo Quality Ink Jet Paper
   - Photo Paper
   - Photo Quality Glossy Film
   - Ink Jet Transparencies

   The type of paper or other media you choose determines the print quality or resolution you can use. If you're not sure which setting to select for your media, see the table on page 2-1.

8. Choose Color or Black ink.

Tip

For printing at the highest resolution (1440 dpi), you need to use plain paper, Photo Paper, or one of the Photo Quality media. For the best printing at any resolution, always use EPSON media.

Note:
The Quality/Speed slider is not available for certain media types.

You may want to click the Utility button and open the Status Monitor window. See page 4-5 for more information. See Chapter 5 for instructions on using the other utilities available in the Utility dialog box.

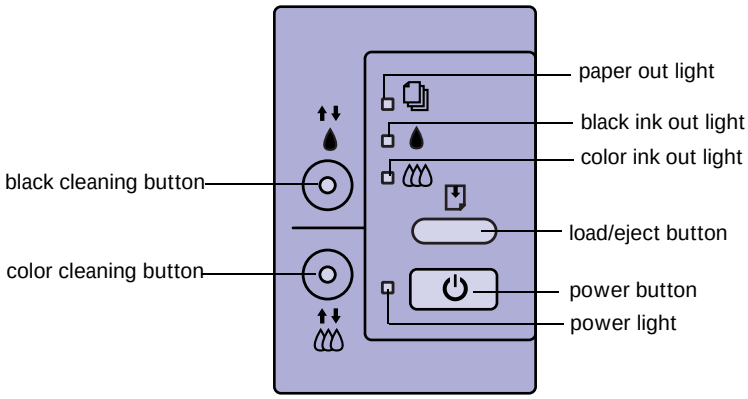
9. Set the slider to Quality or Speed. This lets you choose between the fastest printing or the highest resolution for the media you're using. To use the highest resolution available for plain paper (1440 dpi), you need to access the More Settings dialog box; see page 3-4 for instructions.

10. Click the Layout button and check the proportional printing, watermark, and page layout options to make sure they're correct for your print job. See page 3-20 for details. For information on the Print Order options, see page 3-19. Then click OK to return to the printer settings dialog box.

11. Click Print when you're finished checking your settings.

    If you chose background printing when you set up your printer, you can continue working while your document is printing. See "Using Monitor3" on page 4-17.

What To Do When the Printer Lights Flash



The four lights on your printer's control panel show the printer's status and alert you to problems like paper jams.

When the paper out light *flashes*, paper is jammed in the printer. Turn off the printer and gently pull out all jammed paper. Then press the load/eject button. See page 7-14 for more information.

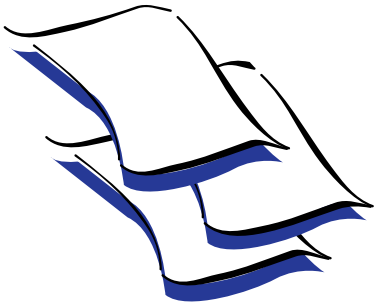
When the paper out light *comes on*, your paper ran out or is incorrectly loaded. Load paper in the feeder and then press the load/eject button.

When an ink out light *flashes*, your ink supply is low. Make sure you have a replacement cartridge.

When an ink out light *comes on*, you need to replace the ink cartridge. See Chapter 5 for instructions.

When the power light *flashes*, the printer is receiving a print job or performing a maintenance operation.

When two or more lights *flash*, your printer may have a problem. See page 7-9 for more information.



2 Printing on Special Paper

Your EPSON Stylus COLOR 850N lets you print on just about any kind of paper you want to use. You can get great results printing on various sizes of plain paper, letterhead, and envelopes, but you'll get even better results with specially coated ink jet paper.

Note:
Be careful when printing on special paper over the network. If anyone else sends a job to the printer, your paper may be wasted. Or, with smaller paper, ink may spray inside the printer.

For the best output, use EPSON's photo-quality media: ink jet paper, glossy paper, glossy film, index cards, and photo paper. For special projects, you can use a variety of EPSON media designed for ink jet printers, ranging from transparencies to iron-on transfer paper.

Using Special Paper and Media

When you print on special media, you need to be careful about choosing the correct Media Type and Paper Size settings in your printer software. The table below lists the available EPSON media and the corresponding Media Type setting for each one in your printer software.

EPSON ink jet media and their settings

Media name	Size	Part number	Media Type setting
EPSON 360 dpi Ink Jet Paper	Letter A4	S041060/S041028 S041059/S041025	360 dpi Ink Jet Paper
EPSON Iron-on Cool Peel Transfer Paper	Letter	S041153/S041155	
EPSON Special Coated Paper for 360 dpi Printing	Letter	S041060	

EPSON ink jet media and their settings

Media name	Size	Part number	Media Type setting
EPSON High Quality Ink Jet Paper	Letter A4	S041111 S041117	Photo Quality Ink Jet Paper
EPSON Photo Quality Ink Jet Paper	Letter A4 Legal	S041062/S041029 S041061/S041026 S041067/S041048	
EPSON Special Coated Paper for 720 dpi Printing	Letter	S041062	
EPSON Photo Quality Ink Jet Cards	4.1 × 5.8 (A6) 8 × 10	S041054 S041122	
EPSON 720 dpi Index Cards	4.1 × 5.8 (A6)	S041054	
EPSON Photo Quality Self Adhesive Sheets	A4	S041106	
EPSON Photo Quality Glossy Paper	Letter A4	S041124 S041126	Photo Paper
EPSON Photo Paper	4 × 6 Letter A4 Panoramic	S041134 S041141 S041104 S041145	
EPSON Photo Quality Glossy Film	Letter A4 4.1 × 5.8 (A6)	S041072 S041071 S041107	Photo Quality Glossy Film
EPSON High Quality Glossy Paper	Letter	S041072	
EPSON Photo Sticker Kit (CD-ROM and paper) EPSON Photo Stickers (refill)	4.1 × 5.8 (A6) 4.1 × 5.8 (A6)	S041144-KIT S041144	
EPSON Ink Jet Transparencies	Letter A4	S041064 S041063	Ink Jet Transparencies
EPSON Iron-On Transfer Paper	Letter	SE41001/SE41002	

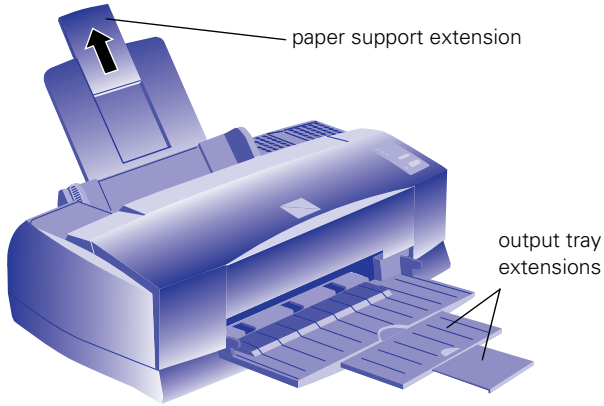
To order EPSON papers and other media, contact your dealer or call EPSON Accessories at **(800) 873-7766** (U.S. sales only). In Canada, call **(800) 807-7766**.

The type of paper or other media you use is one of the most important factors in determining the quality of your printed output. The following tips will help you get the best results on any type of paper or other media.

Note:
When you load paper, make sure the printable side is facing up. Some special media have a cut corner that you need to position in the upper right of the paper support. Also follow any instructions in the package. Always handle sheets by the edges, and don't touch the printable surface.

Letterhead, Preprinted Forms, and Legal-size Paper

Load the top edge first. When you load long paper, pull up the paper support extension and both output tray extensions.



Caution:
Don't use the cleaning sheets that may be included with your special media; they may jam inside the printer.

EPSON 360 dpi, High Quality, and Photo Quality Ink Jet Paper

You can load paper up to the arrow mark on the left edge guide. If you use legal-size ink jet paper, don't load it more than half way to the arrow mark.

EPSON Photo Quality Glossy Paper, Film, and Transparencies

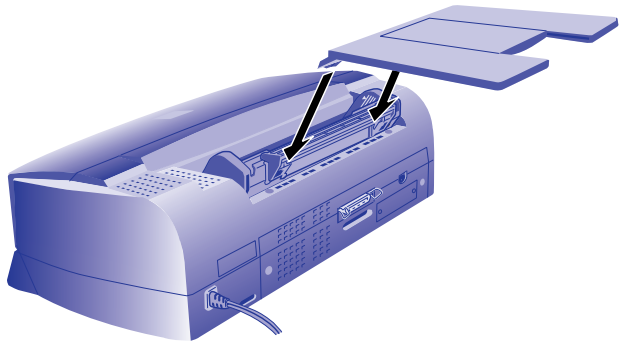
Before you load glossy film or transparencies, put a support sheet (packed with the media) or a plain paper sheet beneath the stack. (Don't use a support sheet with Photo Quality Glossy Paper.) You can load up to 20 sheets of glossy paper, up to 30 sheets of glossy film, or up to 10 transparencies.

Note:
Use ink jet papers within one year of purchase. Use glossy media and transparencies within six months. Return unused sheets and envelopes to their original package as soon as possible. See Appendix C for more storage information.

However, you may get better results by loading one sheet at a time. With multiple sheets loaded, the minimum top margin you can use is 1.2 inches (30 mm). If you want to use a smaller top margin, load and print one sheet at a time.

Remove each sheet from the output tray immediately after it's printed. Make sure each sheet is dry before stacking. If your media package included protective sheets, cover the printed side of your media with these sheets before stacking.

To print on transparencies, remove the paper support and reposition it in the slots at the back of the paper support holder:

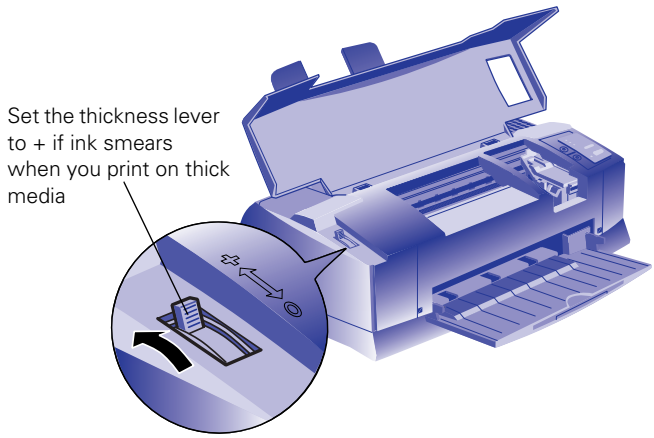


Envelopes

Note:
Load the envelopes flap edge first and printable side up. Also select the correct envelope size for the Paper Size setting in the printer software.

You can load up to 10 envelopes as shown below:

If ink smears when you print on envelopes or other thick media, set the paper thickness lever to the + position. Open the printer cover and position the lever as shown below. (Make sure you return the lever to the 0 position before you print on other media.)



Note:
To keep your printouts looking their best, store them in a resealable plastic bag or other airtight covering and protect them from heat, humidity, and direct sunlight.

Be sure to support your Panoramic Photo Paper as it ejects from the printer so it doesn't fall onto the floor.

EPSON Photo Paper

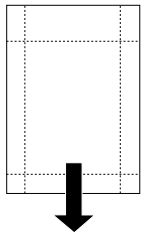
You can use EPSON Photo Paper to print photographs that look almost as good as the ones you get from film processing. 4 × 6-inch Photo Paper is perforated around the edges, so you can trim your printouts and "bleed" the photo—extend it to the edge of the paper—on all sides.

You can load up to 20 sheets of 4 × 6-inch, Letter-size, or A4-size Photo Paper or 1 sheet of Panoramic paper at a time. Make sure you place a support sheet beneath the paper if it is included in the paper package.

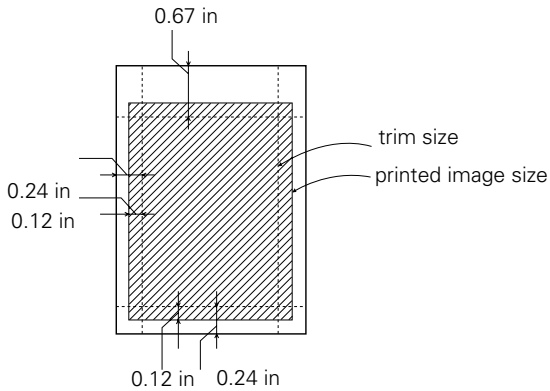
Keep the following in mind when using EPSON Photo Paper:

- Load the paper with the whiter side facing up.
- If you're loading Panoramic Photo Paper, pull up the paper support extension as shown on page 2-3. Then load the Panoramic paper and hold up its top edge while you press the load/eject button to feed it into the printer.

- If you're loading 4 × 6-inch Photo Paper, position the perforated margins as shown:



- When you create an image for printing on 4 × 6-inch Photo Paper in your application software, size it to 4.25 × 6.25 inches. For other sizes of Photo Paper, see Appendix C for the maximum printable area specifications.



You can use 4 × 6-inch EPSON Photo Paper like a postcard. Simply print your image on the glossy side of the paper using Photo Paper as the Media Type setting and let your image dry. Then print your message on the uncoated side of the paper using 360 dpi Ink Jet Paper as the Media Type setting.

- Choose these printer software settings for your size of Photo Paper:
  - Choose **Photo Paper** as the Media Type setting.
  - For 4 × 6-inch Photo Paper, select **EPSON Photo Paper 4 × 6 in** as the Paper Size setting and **Maximum** as the Printable Area setting. After you print, fold the paper back and forth along the perforations and carefully tear the margins off.
  - For Letter- or A4-size Photo Paper, select **Letter** or **A4** as your Paper Size setting.
  - For Panoramic Photo Paper, choose **Panoramic 210 × 594 mm** as the Paper Size setting.

EPSON Photo Quality Ink Jet Cards

You can load up to 30 cards at a time. Always place the included support sheet under the cards. When you're ready to print, use your software to set the Paper Size option for the size card you're using. Make sure you set the paper thickness lever to the + position as shown on page 2-5.

EPSON Photo Quality Self Adhesive Sheets

Use these sheets to print labels or stickers. You can load one sheet at a time. Make sure your adhesive sheets are fully adhered to their backing sheet before you load them.

Tip

For iron-on transfers, make sure you reverse your image before you print it, especially if it includes text. Then the text will read correctly when it's transferred. You can use the Flip Horizontal option in your printer software. See page 3-6 for more information.

EPSON Iron-On Transfer Paper

You can print photos, company logos, or anything else you want on this paper, and then transfer your images to T-shirts or other cloth items. Load one sheet of transfer paper at a time. After you print, follow the instructions that came with the paper to iron the image onto the shirt or other item.

Be sure to select Ink Jet Transparencies as the Media Type setting for the best results.

3 Custom Printing

When your presentation graphics, photographs, or other projects have special printing requirements, you can use the custom settings in your EPSON Stylus COLOR 850 software. You can choose predefined settings or adjust individual options like brightness, contrast, saturation, and halftoning. For professional-quality color accuracy, you can use Image Color Matching (ICM) under Windows 95 or ColorSync on the Macintosh.

If you're using Windows 95, Windows NT, or a Macintosh, your printer software's print layout options let you print almost any size image on your printer, proof multiple pages on one sheet of paper, and add watermarks.

This chapter includes the following information:

- Using predefined advanced settings
- Customizing print quality and special effects
- Customizing color settings
- Using ColorSync on the Macintosh
- Selecting paper size and orientation options
- Selecting print layout, page frame, and watermark options
- Saving custom settings

Using Predefined Advanced Settings

Predefined settings provide an easy way to fine-tune your printer's operation for special image types. Follow these steps to print with predefined settings:

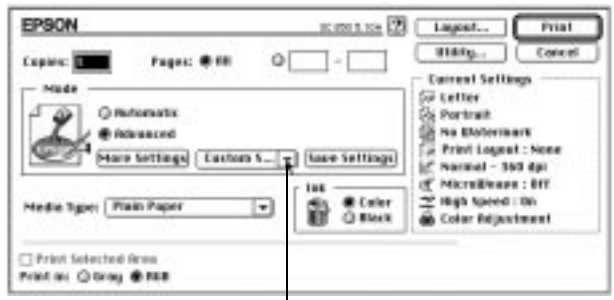
1. Create your image or document in your application software.

2. Access the printer settings dialog box as described on page 1-2 (Windows) or page 1-8 (Macintosh).

   You see one of the following dialog boxes:

Click Advanced, then click here to see a list of project types

Windows



Click Advanced, then click here to see a list of project types

Macintosh

3. Choose Color or Black ink.

4. Click Advanced, and then Custom Settings. You see the list of project types.

Note:
Always choose your Ink setting before you select a project from the Custom Settings list.

Selecting PhotoEnhance or PhotoEnhance2, ICM, or ColorSync automatically sets the Ink option to Color.

Printing with PhotoEnhance or PhotoEnhance2 may take longer, depending on your computer system and image.

Photo, PhotoEnhance, and PhotoEnhance2 have similar effects. However, PhotoEnhance and PhotoEnhance2 intelligently analyze your image data and their effect varies widely depending on your image. The Photo setting consistently increases the contrast. You may want to experiment to choose the best setting for your image.

5. Choose the right setting for your project following these guidelines:

   - Photo
     For printing scanned photographs. Increases contrast in the image.
   - Text/Graph
     For printing graphics-intensive documents like presentation pages with charts and graphs. Intensifies colors and lightens the midtones and highlights.
   - PhotoEnhance2 or PhotoEnhance (Windows 3.1 only)
     For printing images captured using a video camera, digital camera, or scanner. Produces sharper images and more vivid colors by automatically adjusting the contrast, saturation, and brightness. Corrects for overall under- and over-exposure of the original image.
   - Economy
     For rough drafts of text only, on plain paper. Saves ink.
   - ICM (Windows 95 only)
     Automatically adjusts printout colors to match the colors on your screen. Not available when printing on plain paper or Ink Jet Transparencies.
   - ColorSync (Macintosh only)
     Automatically adjusts printout colors to match the colors on your screen. Not available when printing on plain paper or Ink Jet Transparencies. For more information, see page 3-9.

6. Choose the Media Type you want to print on. (If you're not sure which setting to select, see the table on page 2-1.)

7. In Windows, click the Paper and Layout (not available on Windows 3.1) tabs to check or change any necessary settings, as described on page 3-11 and page 3-15.

   On a Macintosh, check or change any necessary settings on the Page Setup and the Layout dialog boxes as described on page 3-15 and page 3-27.

8. When you're finished, click Print (Macintosh) or OK (Windows). If you're using Windows, click any other buttons that your application uses for printing.

Tip

After you customize your print settings for a special project, you can save them as a group. Then you can reuse them whenever you print a similar project. See page 3-33 for instructions.

Customizing Print Quality and Special Effects

If you need the maximum control over your project, or you want to experiment with special effects, you can adjust individual settings in your printer software. Follow these steps:

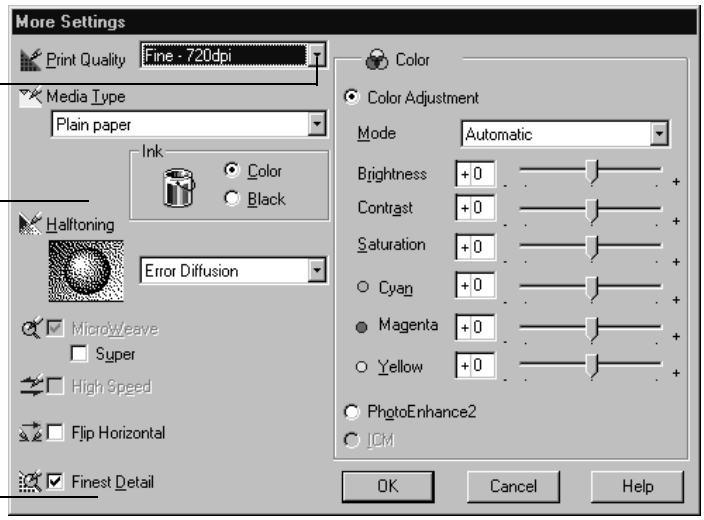
1. Create your document, image, or project in your application software.

2. Access the printer settings dialog box as described on page 1-2 (Windows) or page 1-8 (Macintosh).

3. Click Advanced, and then click More Settings. You see the More Settings dialog box:

Click here to change your Print Quality (resolution)

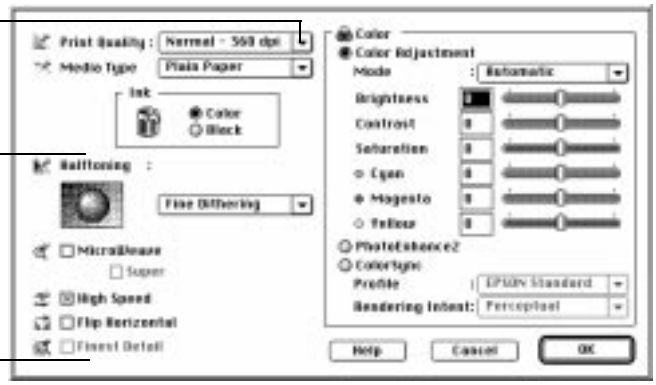
Some of these options are automatically set or disabled by other settings you choose



Windows

Click here to change your Print Quality (resolution)

Some of these options are automatically set or disabled by other settings you choose



Macintosh

Note:
The Print Quality is selected automatically depending on the current Media Type. If you choose a Print Quality setting that is not appropriate for your media, the driver changes the Media Type setting. Be sure to check both of these settings.

4. Choose one of the following Print Quality options:

   - Economy
     For low-resolution rough drafts on plain paper. Saves ink.
   - Normal - 360 dpi
     For most documents on plain paper, transparencies, or 360 dpi Ink Jet paper.
   - Fine - 720 dpi
     For high-resolution output on plain paper, Photo Paper, or Photo Quality media.
   - SuperFine - 1440 dpi
     For the highest-resolution output on plain paper, Photo Paper, or Photo Quality media.

5. Choose the Media Type and Ink settings you want to use, following the guidelines in Chapters 1 and 2.

Note:
In Automatic mode, the Halftoning setting is selected based on the data in your print job. In Advanced mode, Halftoning is preselected for each project type setting. No Halftoning is available only when you select Black as the Ink setting.

Some of the print options at the bottom left of the More Settings window are automatically selected or disabled by the Print Quality (resolution) you choose.

If vertical lines in your printout are misaligned when you use the High Speed setting, you may need to align the print heads. See Chapter 5 for instructions.

6. Choose one of the following Halftoning options:

   - No Halftoning
     For printing black text only.
   - Error Diffusion
     For printing photographic or video/digital camera images. Blends each color dot with the dots around it.
   - Fine Dithering, Coarse Dithering
     For printing graphs or other images that require precise, solid areas of bright colors. Use Coarse for images with more shading and less detail. Use Fine for images with more detail and less shading.

7. Choose any of the following print options.

   - MicroWeave
     For improved print quality. Prints graphic data in finer increments to eliminate unwanted banding effects (light horizontal lines). Always use for color printing.
   - Super MicroWeave
     Increases the MicroWeave function when you're printing with Fine - 720 dpi Print Quality on plain paper or using SuperFine - 1440 dpi with photo paper or one of the photo quality media.
   - High Speed
     For fast, bidirectional printing at lower quality.
   - Flip Horizontal
     Prints a mirror image of your document. Use for printing with iron-on transfer paper so your ironed-on printout will read correctly.
   - Finest Detail
     For printing text, graphics, and line art with very sharp edges. Slows print speed and increases your system memory requirements.

8. Click OK if you're ready to return to the printer settings dialog box, or see the next section if you want to adjust your printer's color settings.

Customizing Color Settings

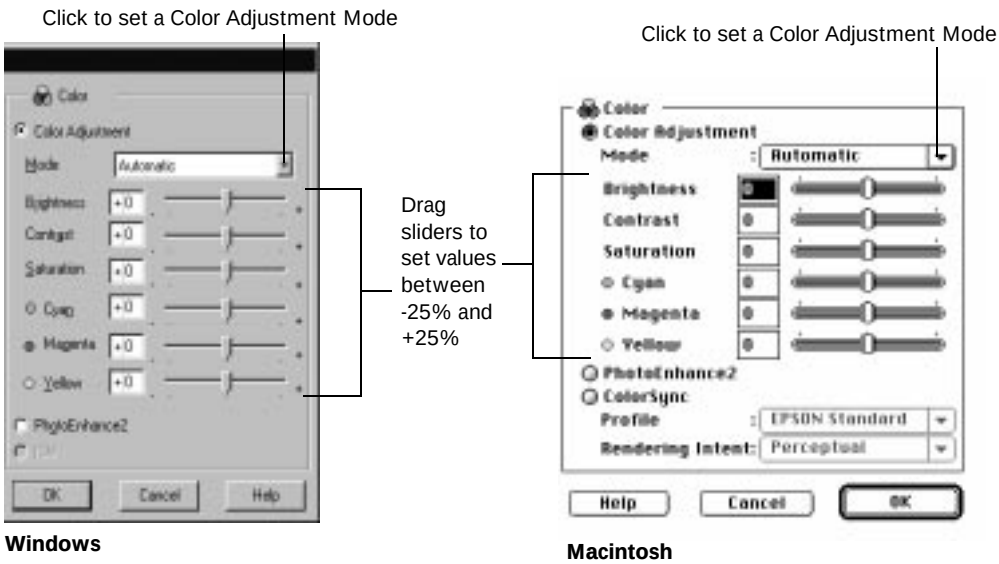
You can choose from several color adjustment modes or manually adjust brightness, contrast, saturation, and CMY color values. Or, to correct the colors and exposure of digital images, you can use PhotoEnhance2 (PhotoEnhance on Windows 3.1).

To achieve the maximum color accuracy, you can use Image Color Matching (ICM; Windows 95) or ColorSync (Macintosh).

Follow these steps to customize your color settings:

1. Access the More Settings dialog box as described on page 3-4.

   The color settings appear on the right side of the dialog box, as shown:



Windows **Macintosh**

2. Choose one of the following Color Adjustment Modes. (You don't need to select any of these options if you'll be using ICM [Windows 95] or ColorSync [Macintosh] as described in step 4.)

   - Automatic
     Analyzes the color information in your project and optimizes color correction accordingly.
   - Photo-realistic
     For printing color photographs.
   - Vivid
     For printing graphics-intensive documents like presentation pages with charts and graphs. Intensifies colors and lightens the midtones and highlights.
   - No Color Adjustment
     Disables the color adjustment features of the printer software so you can use a stand-alone color management utility.

3. If you want to specify individual color correction values, use the sliders to increase (drag right) or decrease (drag left) the settings listed below. (If you use one of the options described in step 4, you won't be able to specify individual color correction values.)

   - Brightness
     Makes your image lighter or darker.
   - Contrast
     Increases or decreases the difference between the bright or dark parts of an image.
   - Saturation
     Makes colors more vivid or less vivid.
   - Cyan, Magenta, Yellow
     Increases or decreases the amount of the three ink colors that combine to make a full-color picture. Use these sliders to fine-tune the color balance in your printout.

Note:
When you choose PhotoEnhance, PhotoEnhance2, ICM, ColorSync, or No Color Adjustment all the other color options are preset.

4. For even more fine-tuning, choose one of these color correction methods:

   - PhotoEnhance2 or PhotoEnhance (Windows 3.1 only)
     Produces sharper images and more vivid colors by automatically adjusting the contrast, saturation, and brightness. Corrects for overall under- and over-exposure of the original image.
   - ICM (Windows 95 only)
     Automatically adjusts printout colors to match colors on the screen.
   - ColorSync (Macintosh only)
     Automatically adjusts printout colors to match colors on the screen. See the next section for more information.

5. Click OK to return to the printer settings dialog box.

Using ColorSync on the Macintosh

Every device you use for producing or viewing colors—your monitor, scanner, and printer—employs a different color technology. That's why it's difficult to get printed colors to match the colors displayed on your monitor or other device. The Macintosh ColorSync system helps you control all your devices so their colors match your printer's as closely as possible.

ColorSync uses profile information from each device—including your EPSON Stylus COLOR 850N printer—to achieve accurate color matching. First you have to make sure your monitor's profile is set. Then you can use your printer software to specify the exact method of color matching you want to use.

Follow these steps to set your monitor's ColorSync profile and use your printer software's ColorSync features:

1. Open the ColorSync System Profile under Control Panels on the Apple menu.
2. Click the Set Profile button.
3. Select your monitor from the list, and then click Select.
4. Close ColorSync System Profile.
5. Access the More Settings dialog box as described on page 3-4.
6. Click ColorSync.
7. For Profile, choose EPSON Standard. This is the ColorSync profile created especially for your printer. **Don't choose any other printer profile you may have on your system.**
8. Choose one of the following options for Rendering Intent:
   - Perceptual
     For printing scanned photographs.
   - Saturation
     For printing graphics-intensive documents like presentation pages with charts and graphs.
   - Colorimetric
     For matching colors on your screen as exactly as possible. Reproduces colors the way your eye distinguishes them.
9. Click OK to return to the printer settings dialog box.

Selecting Paper Size and Orientation Options

Your printer can print on paper up to 9.5 inches wide and up to 44 inches long in either portrait or landscape orientation. If you print multiple page documents or multiple copies of documents, you can print the pages collated and in reverse order. You can even rotate the printed image by 180 degrees to make it closer to the bottom of the paper (not available with Windows 3.1).

Selecting Paper Options in Windows

Follow these steps to select paper options on the Paper tab:

1. Create your document, image, or project in your application software.

2. Access the printer software dialog box as described on page 1-2 (Windows) or page 1-8 (Macintosh).

3. Click the Paper tab. You see the Paper dialog box:

Click to select your Paper Size

Page graphics change to show Collate and Reverse Order settings

Printer graphic reflects changes to Orientation and Printable Area settings

Rotate by 180° is not available with Windows 3.1

Note:
If the Proportional Printing setting is set to Normal and you select one of the paper sizes to the right that is marked with an asterisk (*), you see a dialog box asking you to select a paper size that fits your printer. See page 3-20 for more information.

4. Click the Paper Size drop-down list to select the size of paper you loaded in the printer.

   The sizes marked with an asterisk (*) are not available with Windows 3.1. These sizes are larger than you can load in your printer and can be used only with the Proportional Printing setting on the Layout tab; see page 3-20 for more information.

   A4 210 × 297 mm
   B5 182 × 257 mm
   A5 148 × 210 mm
   Letter 8 1/2 × 11 in
   Legal 8 1/2 × 14 in
   Executive 7 1/4 × 10 1/2 in
   Half Letter 5 1/2 × 8 1/2 in
   A6 Index card 105 × 148 mm
   Index card 5 × 8 in
   Index card 8 × 10 in
   Envelope #10 4 1/8 × 9 1/2 in
   Envelope DL 110 × 220 mm
   Envelope C6 114 × 162 mm
   Photo Paper 4 × 6 in
   Panoramic 210 × 594 mm
   B4 257 × 364 mm *
   B3 364 × 514 mm *
   Ledger 11 × 17 in *
   A3 297 × 420 mm *
   Super A3/B 329 × 483 mm *
   A2 420 × 594 mm *
   US C 17 × 22 in *
   User Defined (See page 3-14 for instructions.)

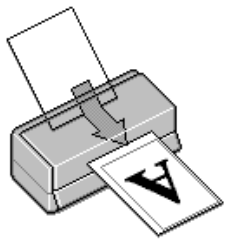
5. If you did not or cannot select the number of copies you want to print in your application program's Print dialog box, choose the number (from 1 to 99) in the Copies box. **Don't select the number of copies here and in your application's Print dialog box; you'll get twice the number of copies you want.**

6. If you're printing multiple copies of a multi-page document and you want the copies printed in sets, click the Collate checkbox. The page graphics change to show collated documents.

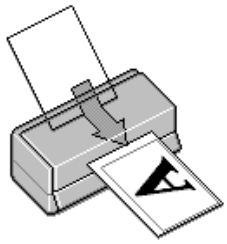
7. If you're printing a multi-page document and want the last page printed first so the pages come out without needing to be reordered, click the Reverse Order checkbox. The page graphics change to show later pages printing first.

8. Select the direction of printing on the page using the Orientation options. To print your document oriented as shown in one of the following printer graphics, select the options listed below it.

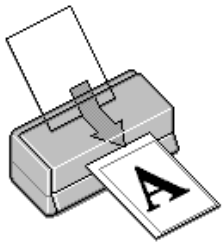
Note:
The Rotate by 180° setting lets you print the lower portion of a document first, with a bottom margin as small as 0.12 inch (3 mm) and a top margin as small as 0.55 inch (14 mm). This option is not available with Windows 3.1.



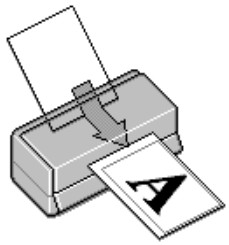
Portrait orientation



Landscape orientation



Portrait orientation
Rotate by 180°



Landscape orientation
Rotate by 180°

9. To use the maximum printable area of your selected paper size, set the Printable Area option to Maximum. To center your document on the page, select Centered.

10. Click a tab for the settings you want to check or change next, or click OK to print your document.

Creating User Defined Paper Sizes

You can create up to 10 custom paper sizes (only one in Windows 3.1) and add them to the Paper Size list using the User Defined option. This is useful if you're printing a custom size document, such as a banner. You can select any width from 3.94 to 9.5 inches, and any height (length) from 3.94 to 44 inches.

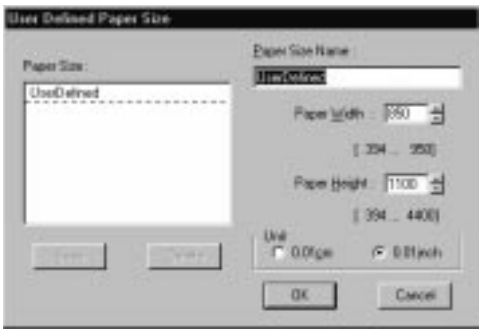
Note:
In Windows 95 and Windows NT, the Paper Width and Paper Height units are in hundredth of an inch (or centimeter) increments. For example, 850 equals 8.50 inches.

Follow these steps to create a custom paper size with the User Defined option:

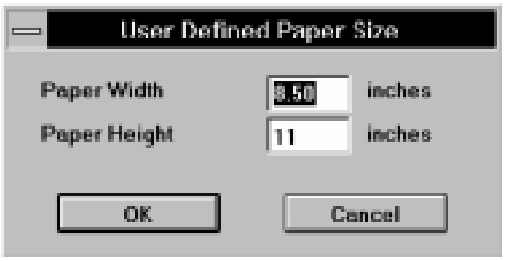
1. Follow the steps on page 3-11 to access the printer software and select the Paper tab.

2. Click the Paper Size list and scroll to the bottom of it using the arrows or scroll bar.

3. Click the User Defined option. You see one of the following dialog boxes:



Windows 95/Windows NT



Windows 3.1

4. **Windows 95 or Windows NT**
   Type a name (up to 24 characters) for your custom paper size in the Paper Size Name field. Then select a Paper Width and Paper Height for the paper. To use centimeters instead of inches, click the 0.01cm option. When you're finished, click Save. The paper size name appears in the Paper Size list in the dialog box. Add more sizes if you want, and click OK when you're done.

Windows 3.1
You can create only one User Defined paper size. Type the width in the Paper Width field and the length in the Paper Height field. Then click OK.

5. You see the Paper tab again. The paper size name you defined is added to the Paper Size list and selected as the current setting. (In Windows 3.1, the setting is named User Defined.)

6. To change or delete a custom paper size:

   Windows 95 or Windows NT
   Click User Defined in the Paper Size list. Then, on the User Defined Paper Size dialog box, select the custom paper name in the Paper Size list and click Delete or change Paper Width, Paper Height, and/or Unit settings as necessary. Click OK when you're done.

   Windows 3.1
   You can change the custom paper size, but cannot delete it. Click User Defined in the Paper Size list. Then, on the User Defined Paper Size dialog box, change Paper Width and Paper Height settings as necessary. Click OK when you're done.

Selecting Paper Options on a Macintosh

The Paper Size and Orientation options for your printer software are on the Page Setup dialog box. The options for collating and reversing the page order are on the Layout dialog box. Follow the steps in these sections for selecting the paper options:

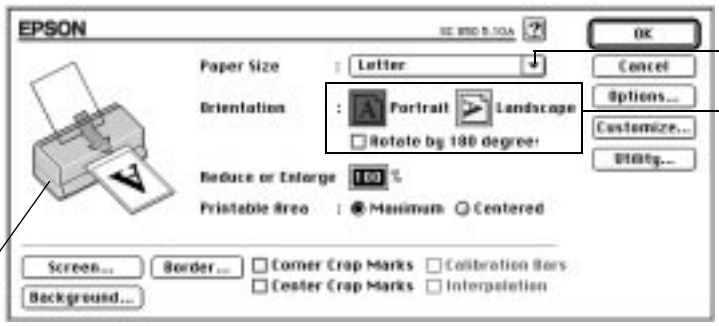
- Choosing paper size and orientation options
- Selecting print order options

Choosing Paper Size and Orientation Options

Follow these steps to select the Paper Size and Orientation options:

1. Create your image or document in your application.

2. Open the File menu and select Page Setup. You see the Page Setup dialog box:



Click to select your Paper Size

Click to select your Orientation options

Printer graphic reflects changes to Orientation and Printable Area settings

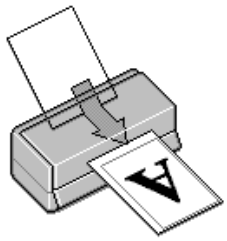
3. Click the Paper Size pop-up list to select the size of paper you loaded in the printer.

   A4
   B5
   A5
   Letter
   Legal
   Executive
   Half Letter
   Envelope #10
   Envelope C6
   Envelope DL
   A6 Index card
   Index card 5×8in
   Index card 8×10in
   EPSON Photo Paper 4×6in
   Panoramic 210×594mm

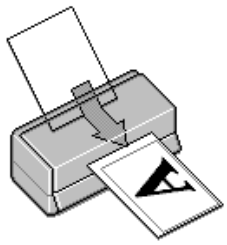
If you don't see the exact size you need in the list, you can create a custom paper size; see page 3-18 for instructions.

Note:
The Rotate by 180° setting lets you print the lower portion of a document first, with a bottom margin as small as 0.12 inch (3 mm) and a top margin as small as 0.55 inch (14 mm).

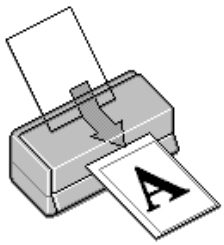
4. Select the direction of printing on the page using the Orientation options. To print your document oriented as shown in one of the following printer graphics, select the options listed below it.



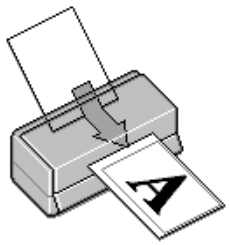
Portrait orientation



Landscape orientation



Portrait orientation
Rotate by 180°



Landscape orientation
Rotate by 180°

5. To use the maximum printable area of your selected paper size, set the Printable Area option to Maximum. To center your document on the page, select Centered.

6. If you want to collate multiple copies of a multi-page document or you want to reverse the order in which pages are printed, click OK. Then see page 3-19 for instructions.

   If you've finished selecting page size and orientation options, click OK to close the Page Setup dialog box. Then select Print from the File menu to select any other printer settings you may need and print your document.

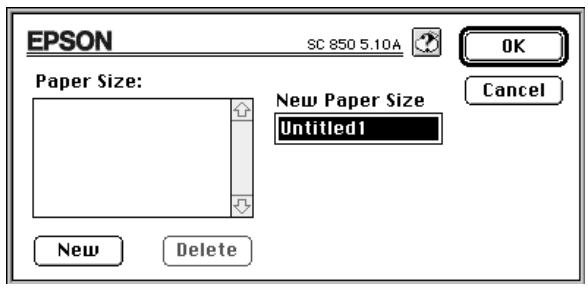
Creating custom paper sizes

You can create up to 8 custom paper sizes and add them to the Paper Size list. This is useful if you're printing a custom size document, such as a banner. You can select any width from 3.94 to 9.5 inches, and any height (length) from 3.94 to 44 inches.

Follow these steps to create a custom paper size:

1. Follow the steps on page 3-16 to access the Page Setup dialog box.

2. Click the Customize button. You see the following dialog box:



3. Click the New button. Width and Height fields and Inches and cm radio buttons appear on the screen.

4. Type the width and length of your custom paper in the Width and Height fields. If you need to change from inches to centimeters, click the correct radio button.

5. Type a name for your custom paper size in the New Paper Size field, then click OK. The name is added to the Paper Size list and selected as the current setting in the Page Setup dialog box.

6. To delete a custom paper size, click the Customize button. Then click the name of the custom paper size, and click Delete. Click OK to return to the Page Setup dialog box.

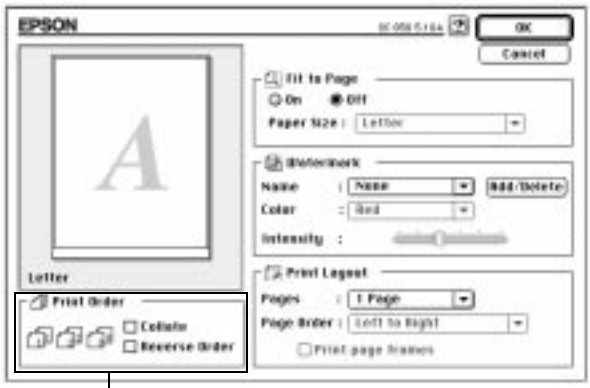
Selecting Print Order Options

Follow these steps to use the Collate and Reverse Order options:

1. Open your application program's File menu and select Print.

2. Click the Layout button. You see the Layout dialog box:

Note:
For information on the other settings on the Layout dialog box, see page 3-27.



Print Order options

3. If you're printing multiple copies of a multi-page document and you want the copies printed in sets, click the Collate checkbox. The page graphics change to show collated documents.

4. If you're printing a multi-page document and want the last page printed first so the pages come out without needing to be reordered, click the Reverse Order checkbox. The page graphics change to show later pages printing first.

5. Click OK to close the Layout dialog box.

Note:
Layout options are available only when you're using Windows 95, Windows NT, or a Macintosh.

Selecting Print Layout Options

Your printer software's print layout options let you reduce or enlarge almost any size document to print on your printer. You can also select options to proof multiple pages on one sheet of paper, add page frames, and add a predefined or custom watermark.

For Windows 95 and Windows NT instructions, see the next section. For Macintosh instructions, see page 3-27.

Choosing Print Layout Options in Windows

Follow the steps in these sections to use options in the Layout dialog box:

- Using proportional printing
- Using multiple print layouts and page frames
- Adding a watermark

Using Proportional Printing

When you want to make the printed size of a document different from its actual size, you can use your printer software's proportional printing features to reduce or enlarge it. You can proportion the document to fit in the maximum, centered area on a selected paper size. You can also choose to reduce or enlarge it to a selected percentage.

Follow these steps to use proportional printing:

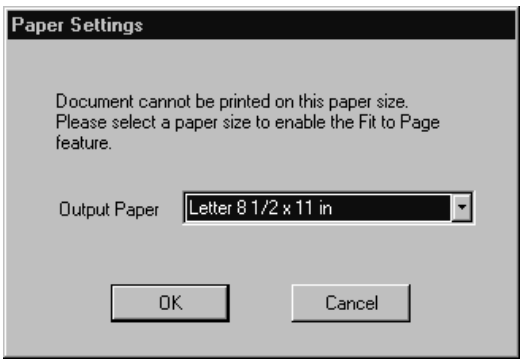
1. Follow the steps on page 3-11 to access the printer software and select the Paper tab.

2. Click the Paper Size list and select the actual size of the document you want to print.

For example, if your document size is 11 × 17 inches, select Ledger 11 × 17 in. This paper size is too large to fit in your printer, so you'll need to proportion it to fit on a **smaller** paper size (by **reducing** the document size). If your document size is 5 × 8 inches, but you want it to fit in the maximum area on Letter-size paper, you'll need to proportion it to fit on a **larger** paper size (by **enlarging** the document size).

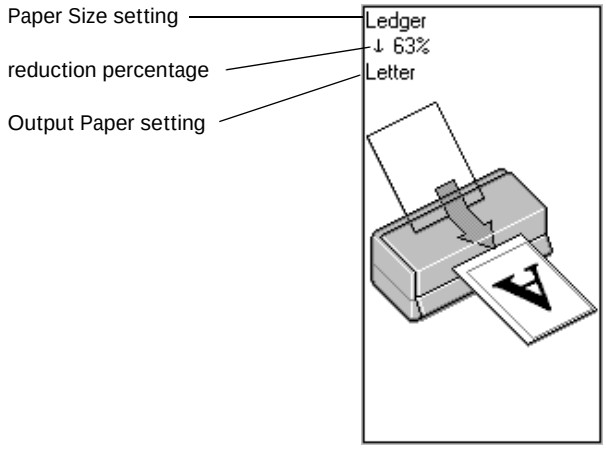
3. If the Paper Size setting you selected for your document is **within** the maximum paper size that can fit on your printer, but you want to **enlarge or reduce** the image, you need to select proportional printing manually. Go to step 5.

4. If the Paper Size setting you selected is **larger** than the maximum size that can be printed on your printer, you see the following dialog box:

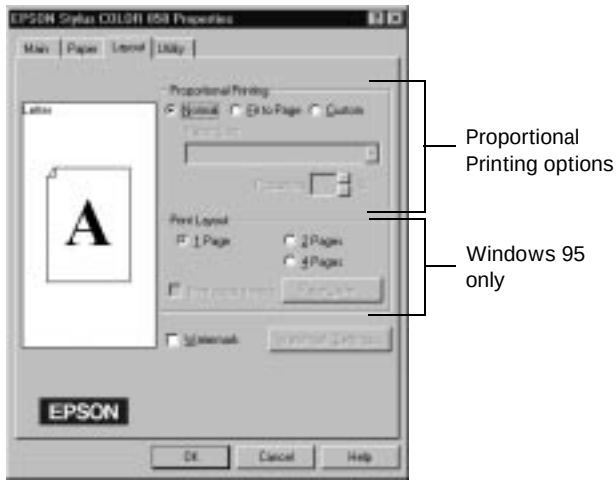


In the Output Paper list, select the actual size of the paper loaded in the printer and click OK. This automatically turns on proportional printing and sets the correct reduction percentage so the document fits into the maximum, centered printable area on the output paper you select.

The selected **Paper Size**, reduction percentage, and **Output Paper** settings now appear on the printer graphic. If you want to adjust the proportions or sizes, go to step 5. If you're ready to print, go to step 7.

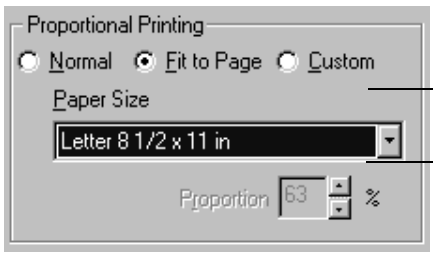


5. Click the **Layout** tab. You see the Layout dialog box:



Note:
If you previously selected a Paper Size setting that is larger than the maximum paper size for your printer and then choose Normal, the printer software changes the Paper Size to Letter 8 1/2 × 11 inches.

6. Select one of the following proportional printing options:
   - Select Normal to set the print proportion to 100%.
   - Select Fit to Page to automatically reduce or enlarge the document to fit on the paper size loaded in the printer. The Paper Size option beneath the Fit to Page option becomes active; select the size of paper loaded in the printer.



Select Fit to Page, then select the size of paper loaded in the printer here

   - Select Custom to reduce or enlarge the image by a specific percentage (10% to 400%).

7. If you're finished selecting Layout options, click OK.

   If you want to select more options, see the next sections.

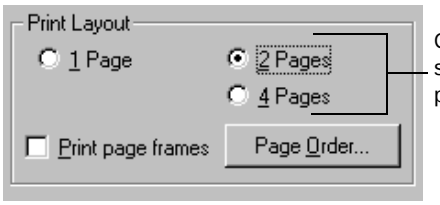
Note:
You can't select a multiple print layout option if you're using a proportional printing option (either Fit to Page or Custom).

Using Multiple Print Layouts and Page Frames (Windows 95 Only)

If you're printing a multiple page document, but you want a quick proof of the images on each page printed on one piece of paper, you can select Print Layout options in the printer software. You can choose the way the pages are placed on the paper and add a lined frame to each page, if you want.

Follow these steps to use the Print Layout options:

1. To print multiple pages of your document on one sheet of paper, select either the 2 Pages or 4 Pages radio button.



Click the button to select a multiple page print layout

Note:
You can select a page order only if it works with the proportion of your selected Paper Size and/or your current orientation setting, either Portrait or Landscape.

2. If the page order of the layout shown in the printer graphic is how you want your document printed, go to step 3.

   To change the page order, click the Page Order button. Then select the page order you want to use from the Print Layout dialog box that appears.

3. If you want to frame each page's contents with a black line, one dot wide, click the Print page frames checkbox.

4. If you're finished selecting Layout options, click OK.

   If you want to select more options, see the next section.

Adding a Watermark

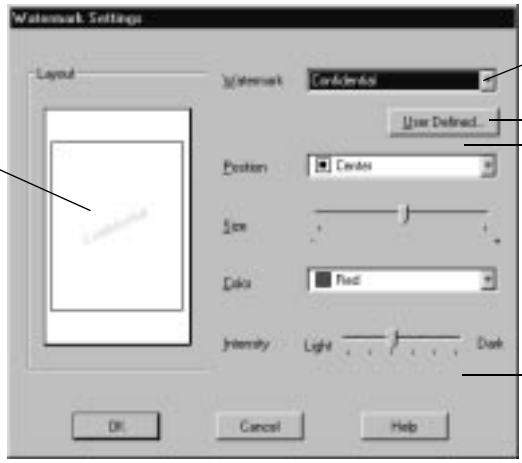
Note:
To add a custom watermark, you must first create the watermark as a bitmap in an application program that can create bitmap files. See your application's documentation for instructions.

You can add a watermark to each page in your document to emphasize its purpose or indicate how the document should be handled. For example, you may want to add a watermark of the word "Confidential" to documents you don't want distributed to other parties. Or you can add a custom bitmap of your company logo so your document looks like printed letterhead.

Follow the steps in the correct section below to add a predefined or custom watermark.

1. To turn on the watermark feature, click the Watermark checkbox.

2. The default watermark is Confidential. To change the watermark or specify how it appears, click the Watermark Settings button. You see the following dialog box:



See how your selections will look in the Layout graphic shown here

Click here to select a predefined watermark

Click here to load a custom watermark you've created

Specify how you want your watermark to appear using these options

Note:
If you selected a multiple page print layout option (as described on page 3-29), your watermark will appear on each page in the layout.

3. To select a different predefined watermark, click the arrow in the Watermark drop-down list and choose one of the following options:

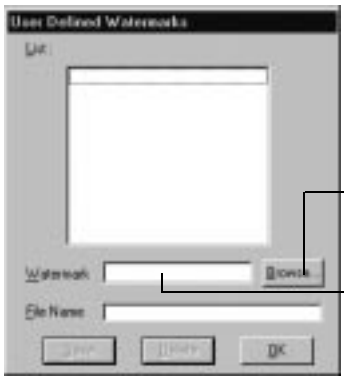
   Confidential
   Draft
   Urgent
   Priority
   Hot
   Do Not Copy
   For Your Eyes Only
   Review Copy
   Top Secret
   Duplicate

   Then go to step 5.

Note:
You can create up to 10 custom watermarks. In Windows 95, you can use any bitmap file up to 15MB in size. With Windows NT, the file can be any size.

To delete a custom watermark you've added to the list, click the User Defined button. Then select the watermark and click Delete. Click OK to close the dialog box.

4. To load a custom watermark you've created as a bitmap in an application program, click the User Defined button. You see the following dialog box:



Click Browse to select your bitmap file

Then type a name for your custom watermark here and click Save

Click the Browse button. You see the Select a bitmap file dialog box. Navigate to the folder containing the bitmap file you want to use, select the file, and click OK.

Type a name for the custom watermark (up to 24 characters long) in the Watermark field. Click the Save button to add it to the list, then click OK.

The custom watermark now appears as the selected watermark in the Watermark Settings dialog box and is shown in the Layout graphic.

Note:
If your monitor displays only 16 colors, the Intensity adjustments are not shown in the Layout graphic. If you choose the No Halftoning setting, the Intensity setting does not determine how your watermark is printed.

5. Now select the way you want the watermark to appear by choosing the following options. The Layout graphic changes to reflect all the settings you choose.

- Position selects where you want the watermark to appear on your page: Center, Top-Left, Top-Right, Bottom-Left, or Bottom-Right.
- Size adjusts the size of the watermark, either larger or smaller, as you move the slide bar.
- Color lets you choose a color for your predefined watermark: Red, Black, Blue, Aqua, Lime, Fuchsia, or Yellow. You cannot select a color for a custom watermark; it is printed in its original colors.

- Intensity sets the lightness or darkness of the watermark (from 5% to 100%) based on where you move the slide bar.

6. If you're finished changing Layout options, click OK to close the Layout dialog box.

Choosing Print Layout Options on a Macintosh

Follow the steps in these sections to use options in the Layout dialog box:

- Using the Fit to Page option
- Using multiple print layouts and page frames
- Adding a watermark

Using the Fit to Page Option

When you want to make the printed size of a document different from its actual size, you can use your printer software's Fit to Page option to proportion it to fit in the maximum, centered area on a selected paper size.

Follow these steps to use the Fit to Page option:

1. Create your image or document in your application software.

2. Open the File menu and select Page Setup. You see the Page Setup dialog box.

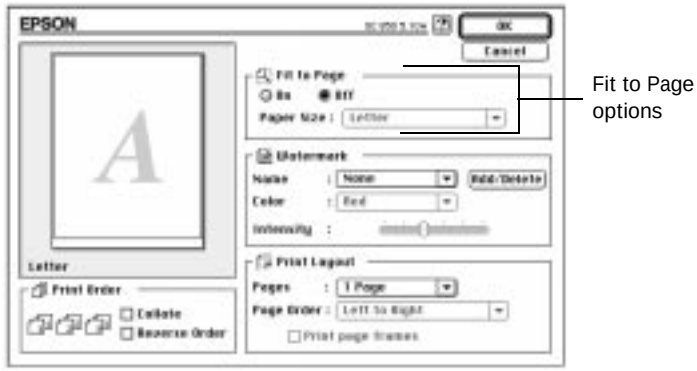
3. Click the Paper Size list and select the actual size of the document you want to print. For example, if your **document** size is 8 1/2 × 11 inches, select Letter for the Paper Size option.

If you want to print this document at the maximum size on 4 × 6-inch EPSON Photo Paper, you'll use the Fit to Page option to **reduce** the image to that size. If you want to print this image at the maximum size on Legal-size paper (8 1/2 × 14 inches), you'll use the Fit to Page option to **enlarge** the document to that size.

4. Click OK to close the Page Setup dialog box.

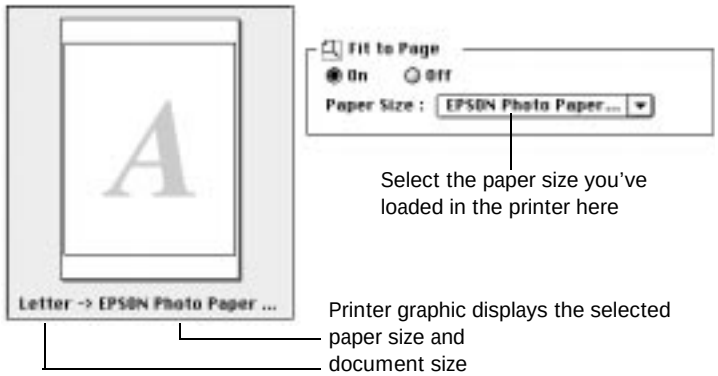
5. Now open the File menu and select Print.

6. Click the Layout button. You see the Layout dialog box:



7. Select one of the following Fit to Page options:

   - Select Off to set the print proportion to 100%.
   - Select On to automatically reduce or enlarge the document to fit on the paper size loaded in the printer. The Paper Size option beneath the Fit to Page option becomes active.



   Now select the size of the paper you've loaded in the printer. This automatically sets the correct reduction or enlargement percentage to fit the document into the maximum, centered area on the selected paper size. The selected document size and paper size settings now appear beneath the printer graphic.

8. If you're finished selecting Layout options, click OK.

   If you want to select more options, see the next sections.

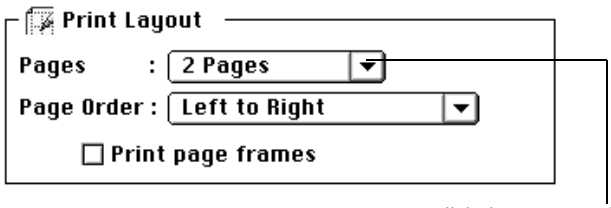
Using Multiple Print Layouts and Page Frames

Note:
You can't select a multiple print layout option if you're using the Fit to Page option.

If you're printing a multiple page document and you want a quick proof of the images on each page printed on one piece of paper, you can select Print Layout options in the printer software. You can choose the way the pages are placed on the paper and add a lined frame to each page, if you want.

Follow these steps to use the Print Layout options:

1. To print multiple pages of your document on one sheet of paper, select either 2 Pages or 4 Pages in the Pages pop-up list.



Click the arrow and select a multiple page print layout

Note:
You can select a page order only if it works with the proportion of your selected Paper Size and/or your current orientation setting, either Portrait or Landscape.

2. If the page order of the layout shown in the printer graphic is how you want your document printed, go to step 3.

   To change the page order, click the arrow in the Page Order pop-up list. Then select the page order you want to use.

3. If you want to frame each page's contents with a black line, one dot wide, click the Print page frames checkbox.

4. If you're finished selecting Layout options, click OK.

   If you want to select more options, see the next section.

Note:
To add a custom watermark, you must first create the watermark as a PICT file in an application program that can create PICT files. See your application's documentation for instructions.

Adding a Watermark

You can add a watermark to each page in your document to emphasize its purpose or indicate how the document should be handled. For example, you may want to add a watermark of the word "Confidential" to documents you don't want distributed to other parties. Or you can add a custom PICT file of your company logo so your document looks like printed letterhead.

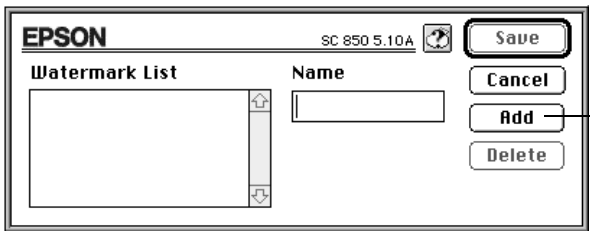
1. To use one of the predefined watermarks, click the arrow in the Name pop-up list in the Watermark box. Then choose one of the following options:

   Confidential
   Draft
   Urgent
   Priority
   Hot
   Do Not Copy
   For Your Eyes Only
   Review Copy
   Top Secret
   Duplicate

   Then go to step 3.

Note:
If you selected a multiple page print layout option (as described on page 3-29), your watermark will appear on each page in the layout.

2. To load a custom watermark you've created as a PICT file in an application program, click the Add/Delete button. You see the following dialog box:



Click the Add button to select a PICT file

Note:
You can create up to 10 custom watermarks from PICT files up to 1MB in size.

To delete a custom watermark you've added to the list, click the Add/Delete button. Then select the watermark and click Delete. Click Save to close the dialog box.

Click the Add button. You see a dialog box for selecting files. Navigate to the folder containing the PICT file you want to use, select the file, and click Open.

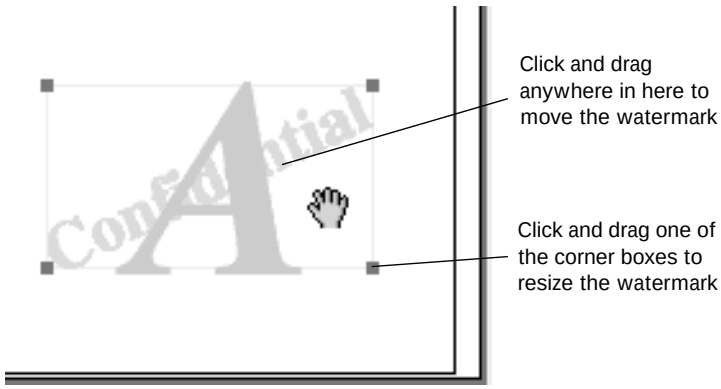
The name of your PICT file appears in the Name field and is added to the Watermark List. Click the Save button to close the dialog box.

The custom watermark now appears as the selected watermark in the Layout dialog box and is shown in the Layout graphic.

Note:
If your monitor displays only 16 colors, the Intensity adjustments are not shown in the Layout graphic. If you choose the No Halftoning setting, the Intensity setting does not determine how your watermark is printed.

3. Now select the way you want the watermark to appear by choosing the following options. The Layout graphic changes to reflect all the settings you choose.

   - Color lets you choose a color for your predefined watermark: Red, Black, Blue, Aqua, Lime, Fuchsia, or Yellow. You cannot select a color for a custom watermark; it is printed in its original colors.
   - Intensity sets the lightness or darkness of the watermark (from 5% to 100%) based on where you move the slidebar.
   - To adjust the size and position of the watermark, move the cursor over the Layout graphic. Four boxes appear in the corners of the graphic and the cursor changes to a hand.



   To move the watermark, click anywhere inside the graphic and drag it into one of five positions: center, upper-right, upper-left, lower-right, or lower-left.

   To resize the watermark, move the cursor over one of the corner boxes; the cursor changes to a pointing hand. Click and drag the box corner to reduce or enlarge the watermark.

4. If you're finished changing Layout options, click OK to close the Layout dialog box.

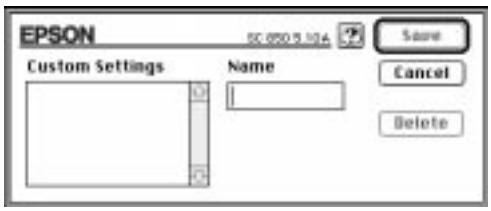
Saving Custom Settings

After you've fine-tuned your printer settings for a special project, you can save the settings as a group. Then you can quickly reuse them the next time you print a similar project. You can save up to 10 (Windows) or 8 (Macintosh) groups of settings. Follow these steps:

1. Customize your printer settings as described in this chapter.

2. Click the Save Settings button on the main printer software dialog box. You see one of the following:

Windows



Macintosh

Note:
If you change the Media Type or Ink setting when your customized setting is selected, the setting selected in the list changes to Custom Settings. This does not affect your customized setting. To return to your customized setting, simply reselect it.

3. Type a unique name for your settings (up to 16 characters) and click the Save button.

The name you choose will now be available on the printer settings dialog box. To use the settings, click Advanced. Then open the Custom Settings list and double-click the name you selected for your custom settings group.

To redefine or delete your custom settings, see the next sections.

Redefining Custom Settings

To change the options in a customized settings group but keep the same name for it, follow these steps:

1. Select Advanced mode. Then select the name of the custom settings group you want to redefine in the Custom Settings list.

2. Change the printer settings as necessary. (If you change the Media Type and Ink settings, the custom settings group name reverts to Custom Settings; this doesn't affect your customized setting.)

3. Click Save Settings. Then select the name of the custom settings group you're redefining in the Custom Settings box.

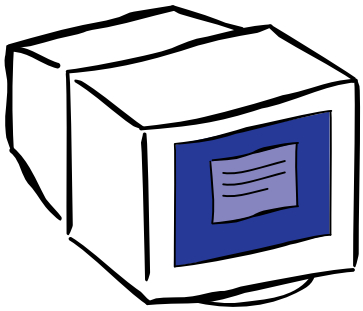
4. If you're using Windows, click Save. You see the Save As dialog box. Click OK to save your redefined settings. (Click Cancel to cancel your changes.)

   On a Macintosh, click the Redefine button. Then click Replace at the confirmation dialog box to save your redefined settings. (Click Cancel to cancel your changes.)

Deleting Custom Settings

1. Select Advanced mode. Then click Save Settings.

2. Select the custom settings group in the Custom Settings box, and click Delete. (You cannot delete any of the predefined document types.)



4 Managing Print Jobs

Your printer software includes several utilities for managing print jobs. You can use them to monitor your printer's status, schedule large jobs to print later, and handle network printing.

This chapter provides instructions for the following:

- Managing print jobs in Windows 95 and Windows NT 4.0
- Managing print jobs in Windows 3.1
- Managing print jobs on a Macintosh

Managing Print Jobs in Windows 95 and Windows NT 4.0

Note:
You can only monitor your printer if you installed both the network part and the printer-specific part of Status Monitor 2. See page 14 in the *Setup Guide*.

Your printer software offers several ways to manage and monitor your print jobs in Windows 95 and Windows NT:

- EPSON Status Monitor 2 (Windows 95 and NT), which provides a variety of print monitoring options, as described on page 4-2.
- Progress Meter (Windows 95), which appears each time you send a print job, as described on page 1-5. You can turn the Progress Meter on or off and select other printing options using the Speed & Progress button; see page 4-10 for details.
- Spool Manager (Windows 95), which appears in the Taskbar at the bottom of the screen each time you print, as described on page 4-13.

- Additional monitoring features for Windows NT 4.0, which are discussed briefly on page 4-14.

Using Status Monitor 2

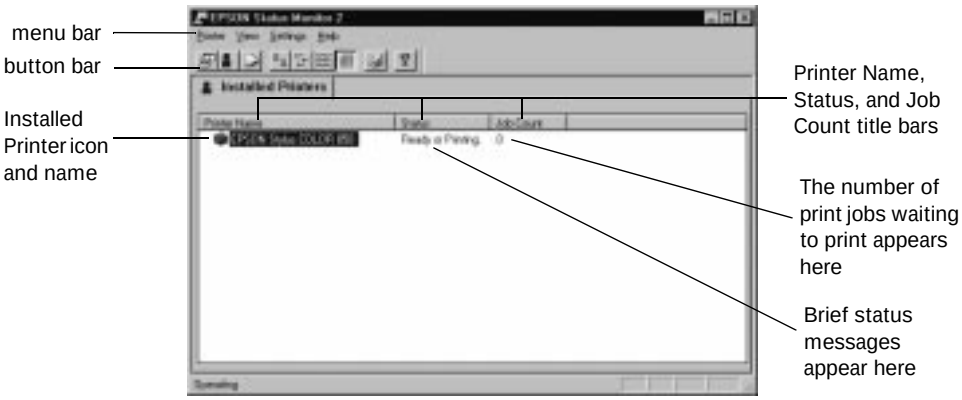
Status Monitor 2 lets you view detailed information about your print jobs and control how you want printing monitored. To control network traffic, you may need to limit the number of systems that monitor the printer.

Note:
The Status Monitor 2 icon appears on the taskbar only when background monitoring is enabled. See page 4-7 to enable background monitoring.

There are three ways to access Status Monitor 2:

- Click **Start**, point to **Programs**, click the **Epson** folder, and click **EPSON Status Monitor 2**.
- Double-click the icon (when background monitoring is enabled) on the taskbar in the bottom right corner of your screen.
- Access the printer software from your application or the Printers utility (see page 1-2 and page 1-4), click the **Utility** tab, and click the **EPSON Status Monitor 2** icon. (This method accesses the Printer Status window only; see page 4-5 for details.)

When you start Status Monitor 2, you see the main window:



If you have more than one printer you want to monitor, you can add them using the Add Printers option in the Settings menu. To save your computer memory and reduce network traffic, you may want to delete any printers from the Status Monitor 2 list that you don't need to monitor. To do this, click the printer in the Installed Printers list and select Delete Printer from the Settings menu.

You can customize the appearance of items on the Status Monitor 2 main window using the View menu options or options on the button bar.

If you're monitoring multiple printers, you can reorder them in the Installed Printers list by clicking in the Printer Name, Status, or Job Count title bar.

The color of the Installed Printer icon indicates the printer status as follows:

Installed Printer icon color	Status message
Green	Ready to print
Yellow	Paper and/or ink level is low
Red	Paper and/or ink is out, paper is jammed, or a print or communication error has occurred

Other options in Status Monitor 2 let you set up monitoring preferences, view more details on the printer or job status, and enable or disable background monitoring for each printer as described in the next sections.

Setting Up Monitoring Preferences

Note:
Background monitoring must be turned on to change the Background Monitoring and Status Alert preferences for individual printers in the Monitoring Preferences window. See page 4-7 for instructions.

You can select the way you want Status Monitor 2 to monitor each printer you use in the Monitoring Preferences window. There are several ways to open the window:

- Click the printer name in the Installed Printers list to highlight it and click the icon.
- Click the printer name in the Installed Printers list to highlight it and select Monitoring Preferences from the Settings menu.
- Right-click the printer name in the Installed Printers list and select Monitoring Preferences from the drop-down menu.

You see the Monitoring Preferences window:

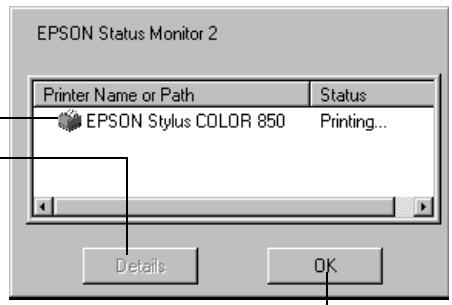
Set the length of the interval in which you want Status Monitor 2 to monitor your printer here (short intervals may cause some applications to run slowly)

Turn background monitoring on or off for the selected printer here

Select if and when to use the Status Alert dialog box: while printing, when errors occur, and/or when ink is low

If you turn on one or more of the Status Alert options, you'll see the Status Alert dialog box when the selected condition occurs. For example, if you turn on Show when errors occur, the dialog box will appear only if a printing error occurs. If you select all the options, the dialog box will appear whenever you print, encounter an error, or have low ink levels.

The color of the printer icon in the Status Alert dialog box indicates the type of error, as described on page 4-5.



Click the printer name to highlight it, then click Details to open the Printer Status window; see page 4-5 for more information

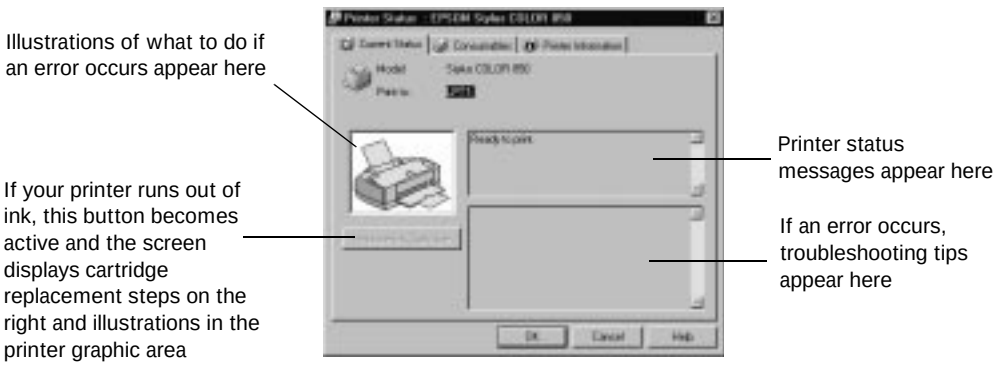
Click here to close the Status Alert dialog box

Using the Printer Status Window

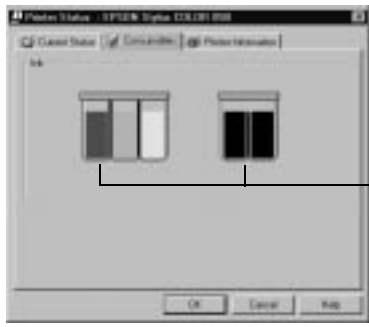
For more details on the status of your printer, you can use the Printer Status window. There are several ways to open the window:

- Double-click the printer name in the Installed Printers list.
- Click the printer name in the Installed Printers list to highlight it and click the icon or select Printer Status from the Printer menu.
- Right-click the printer name in the Installed Printers list and select Printer Status from the drop-down menu.
- If you're currently using the printer software, click the Utility tab, then click the EPSON Status Monitor 2 icon. (For instructions on accessing your printer software, see page 1-2 and page 1-4.)
- You can also access the Printer Status window by clicking the Details button on the Progress Meter (see page 1-5) or the Status Alert dialog box (see page 4-3).

You see the Printer Status window. The Current Status tab gives printing status and error correction information.



To check the amount of ink you have, click the Consumables tab.



These graphics indicate the amount of ink remaining in your cartridges

To view information about your printer's network connections and other printer resources, click the Printer Information tab.

Using the Job Status Window

Note:
The Job Status window is very similar to the Spool Manager window (Windows 95 only). Both allow you to pause, cancel, and restart print jobs. See page 4-13 for information on Spool Manager.

To view detailed information on the print jobs waiting to print, you can use the Job Status window. There are several ways to open the window:

- Click the printer name in the Installed Printers list to highlight it and click the icon or select Job Status from the Printer menu.
- Right-click the printer name in the Installed Printers list and select Job Status from the drop-down menu.

You see the Job Status window:

menu bar

Information on jobs currently printing or waiting to be printed appears here

Options in the Printer menu let you pause printing or purge all waiting print jobs, select or deselect the printer as your Windows default, and access the printer software to change default settings.

The Document menu options let you pause or cancel printing of individual print jobs. First click the print job you want to pause or cancel in the Document Name list to highlight it.

Enabling or Disabling Background Monitoring

You can enable background monitoring for your printer if you want Status Monitor 2 to alert you to any error conditions while you're working on other tasks. This lets you find out if paper runs out or if any other printing problem has occurred without opening Status Monitor 2. If you have trouble with network traffic or if you need to use EPSON Net!, you can disable background monitoring.

Note:
EPSON Net! will not work while Status Monitor 2 is running. Turn off background monitoring before using EPSON Net!.

To turn on or turn off background monitoring, follow these steps:

1. Open Status Monitor 2 using one of these methods:
   - Click Start, point to Programs, click the Epson folder, and click EPSON Status Monitor 2.
   - Double-click the icon on the Windows 95 Taskbar in the bottom right corner of your screen (when background monitoring is enabled).
2. Click the name of the printer you want to background monitor (or stop monitoring) in the Printer Name list. The printer name is highlighted.
3. Open the Settings menu and select Background Monitoring.

4. Select Monitor from restart (to begin background monitoring on the printer after your next system restart), Monitor now (to begin background monitoring right away), or Stop monitoring now (to stop background monitoring).

5. Now set your monitoring preferences for the printer as described on page 4-3.

Changing Status Monitor 2 Settings

You can run through the Setup program and change your settings without uninstalling and reinstalling Status Monitor 2. This procedure allows you to change any of the following settings:

- number of hops
- types of printers you can monitor
- EPSON TCP/IP printing

You can also run this program any time you install the printer software and Status Monitor 2 is unable to find the printer.

Note:
You may not see screens for all the steps here, depending on your computer's configuration.

Write down your settings in the spaces provided. You can refer to them if multiple systems are monitoring the printer.

Follow these steps to change your settings:

1. In Windows Explorer or My Computer, find the folder where your EPSON Status Monitor 2 files are located (ESM2 is the default) and double-click Setup.exe.

2. Close any open programs and click Next.

3. If you are using Windows 95 and you have TCP/IP installed, you see a screen asking you if you want to enable EPSON TCP/IP printing. Select Yes if you want to print with TCP/IP, and then click Next. If you are printing with Novell NetWare, select No.

   TCP/IP Printing: Yes_____ No_____

Caution:
If you have dial-up routers in a NetWare environment, they may automatically dial up the next hop and you may be charged for the line connection depending on the number of hops you set. To prevent this and to keep network traffic to a minimum, set hops carefully.

4. Select the type of printer(s) you want to monitor and click Next.

   Monitor:
   EPSON TCP/IP printers_____ LPR printers _____
   NetWare printers_____ local printers_____

5. Select Monitor to monitor EPSON network printers that do not have drivers on your computer. Select Do not monitor if network traffic is a problem. Then click Next.

   Printers: Monitor_____ Do not monitor_____

6. If you're using NetWare, set the number of hops (0 to 15) and click Next.

   Number of hops: _____

7. Check the current settings and click Next. Select Yes and click Finish to restart your computer.

Tips for Network Administrators

The following sections contain additional information about EPSON Status Monitor 2 that may be useful to network administrators.

Controlling packet traffic on the network

EPSON Status Monitor 2 communicates with the printer across the network. If too many computers are monitoring printers over the network, or if too many printers are being monitored, packet traffic can slow down the network significantly.

To limit the packet traffic on your network, you may want to designate one printer administrator to monitor all the printers on the network. Or you may want to allow users to monitor only the printer they use most often.

The monitoring interval also affects network traffic. Make the interval longer for printers at a greater distance on the network. See page 4-3 for instructions.

Monitoring printers beyond routers

When you monitor NetWare printers located beyond dial-up routers in a wide area network, you are likely to be charged for the line connection.

For example, if you set one or more hops for the NetWare network, the search packet travels beyond the routers. Even if there are no printers to be monitored beyond dial-up routers, it's likely that the dial-up line will be used and you will be charged for it. If you don't need to monitor printers beyond routers, set the number of hops to 0 during installation. To reset the number of hops, change your Status Monitor 2 settings as described on page 4-8.

About uninstalled network printers

The Uninstalled Network Printers menu shows network printers that don't have drivers installed on a computer. This option lets network administrators monitor printers without loading drivers on their computers. If you have already installed Status Monitor 2 and want to add this option, see page 4-8.

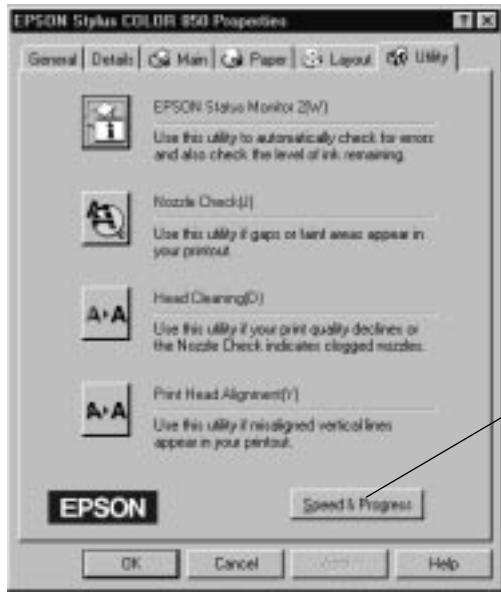
Selecting the Speed & Progress Options (Windows 95)

You can set up the way your printer software sends print jobs and select whether to display the Progress Meter using the Speed and Progress dialog box. To access the dialog box, open your printer software as described below.

1. Click Start, point to Settings, then click Printers.

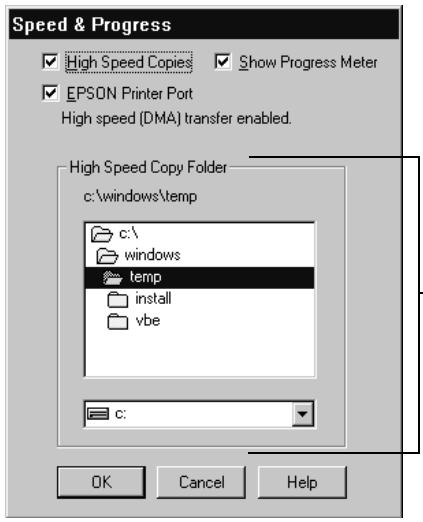
2. Right-click the EPSON Stylus COLOR 850 printer icon and select Properties from the drop-down menu. You see the printer settings dialog box.

3. Click the Utility tab. You see the Utility menu:



4. Click the Speed & Progress button.

You see this dialog box:



If you have more than one hard disk drive, you can select a folder for storing multiple copy print jobs here. You don't see this box if you have only one hard disk drive.

Select the following options:

- High Speed Copies speeds up printing of multiple copies of the same document by using your hard disk space as a cache.
- Show Progress Meter lets you control whether or not the Progress Meter is displayed when you send a print job. See page 1-5 for information on the Progress Meter.
- EPSON Printer Port lets you optimize the transfer rate of your printer port for EPSON printers instead of using the Windows default printer port. If you are printing over the network, ignore this option; it is for printing locally.

5. Click OK to close the Speed & Progress dialog box and return to the Utility menu. Then click OK again to exit your printer software.

Using the Spool Manager (Windows 95)

The Spool Manager creates a temporary print job file and stores it in the C:\TEMP or C:\WINDOWS\TEMP folder. The software then sends the file to your printer at the right time.

To open Spool Manager while you're printing, click the EPSON Stylus COLOR 850 icon that appears on the taskbar at the bottom of the screen.

You see the Spool Manager window:

The Spool Manager window displays the status of your print job files and lets you control them. To cancel, pause, resume, or restart a print job, click the job to highlight it; then click one of the command buttons on the bottom of the window.

Deleting a Stalled Print Job

If you're having trouble printing, it may be because of a stalled print job. Follow these steps to delete it and continue printing:

1. Click the EPSON Stylus COLOR 850 icon on the taskbar.
2. Click on any print jobs marked Held.
3. Click the Cancel button.
4. Exit Spool Manager and try printing again.

Additional Monitoring Options in Windows NT 4.0

Windows NT 4.0 servers and workstations include a messenger service to alert you to printer errors or let you know when a print job is finished. If you have appropriate network access privileges or you're controlling printing from the server, you can also cancel, pause, or restart print jobs and set the sharing, security, scheduling, and port options. See your Windows NT documentation for details.

Managing Print Jobs in Windows 3.1

Your Windows printer software includes two management utilities: the Spool Manager and Despooler.

- The Spool Manager starts automatically when you send a job to the printer. It allows you to print in the background while you continue to work on your computer and to hold jobs to print at a later time. It also handles multiple print jobs that come in from different computers on the network at the same time. See the next section for details.
- The Despooler also starts automatically when you send a job to the printer. It displays on your screen to alert you about printer status. See page 1-6 for more information on the Despooler.

Using the Spool Manager

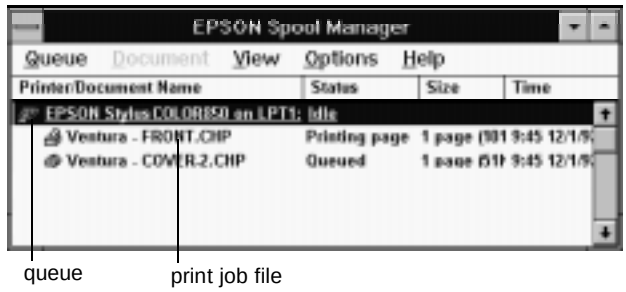
The Spool Manager works like the Windows Print Manager. When you send a job to your printer, your printer software creates a temporary print job file, stores it in the C:\TEMP or C:\WINDOWS\TEMP directory, and assigns it to a print queue. The software then sends the file to your printer at the right time.

Note:
You may not see the Spool Manager icon if Program Manager or the current window is maximized. Reduce the window size to see the Spool Manager icon.

To open Spool Manager, do one of the following:

- To open it while you're printing, click the EPSON Spool Manager icon at the bottom of your desktop.
- You can open Spool Manager at any time by double-clicking the Spool Manager4 icon in the EPSON program group.

You see the Spool Manager window:



The Spool Manager window displays the status of your print job files and lets you control them. You can also control print queues, display of the Despooler, and the default spool directory. Click Help in the Spool Manager menu bar for detailed information.

Deleting a Stalled Print Job

If you're having trouble printing, it may be because of a stalled print job. Follow these steps to delete it and continue printing:

1. Open the Spool Manager as described on page 4-14.
2. Click on any print jobs marked Held.
3. Open the Document menu and click Delete. Then click Yes.
4. Exit Spool Manager and try printing again.

Changing the Default Spool Directory

If you get an error message while printing, or printing is very slow, you can try changing your default spool directory.

1. Make a directory on your hard drive where you want Spool Manager to store print job files, for example, C:\SPLTEMP.
2. Open the Spool Manager as described on page 4-14.
3. Make sure EPSON Stylus COLOR 850 is selected, and then choose Setup from the Queue menu. The Queue Setup dialog box appears.
4. Change the spool directory to the one you created in step 1.
5. Make sure Use Print Manager for this port is checked. Then click OK.
6. Choose Default Spool Directory from the Options menu.
7. In the dialog box, change the spool directory to the one you created in step 1. Then click OK.
8. Close Spool Manager.

Managing Print Jobs on a Macintosh

Your Macintosh printer software includes two print job management utilities: Monitor3 and Status Monitor. It also includes a Configuration utility for setting up print monitoring options.

- If you're using background printing, Monitor3 starts automatically when you send a job to the printer. It handles printing while you continue to work on your Macintosh, lets you track documents that are waiting to be printed, and lets you set printing priorities for waiting print jobs.

- The Status Monitor alerts you to any problems that occur during printing. You can also use it at any time to see how much ink you have left.
- The Configuration utility lets you select how you want to be notified of printer errors and where you want print job files stored.

Using Monitor3

The Monitor3 utility lets you continue to work on your Macintosh while your document is printing (however, background printing is slower and may also slow down your system). You can then open the Monitor3 dialog box to check on your print jobs and cancel, pause, or restart them.

To use this utility, you need to turn on background printing and increase the memory allocation for Monitor3, as described in the next section.

Setting Up Monitor3

1. Open the Chooser from the Apple menu and select the SC 850(AT) icon. Then select the port or AppleTalk zone you're using.
2. Under Background Printing, click On and close the Chooser.
3. To increase the memory allocation, select EPSON Monitor3 in the Extensions folder in your System folder. Then choose Get Info from the File menu and set the Memory Requirements to 2000 or 3000, depending on your system's available RAM.

Monitoring Print Jobs with Monitor3

While you're printing, click the EPSON Monitor3 icon on the Application menu at the right end of the menu bar. You see the following dialog box:

Note:
If you see a stop sign icon and the message "Print queue on hold" in the EPSON Monitor3 dialog box, select Start print queue from the Printer menu to release the queue and resume printing.

You can track the printer's progress with the current job and select a job that is currently printing or waiting to print and cancel, pause, or restart it.

To set priorities for jobs waiting to print, click the job, then click the Show details arrow at the bottom of the window. The Priority list becomes active. Click the arrow and select Normal, Urgent, or Hold. The job moves up or down in the list of waiting print jobs.

Using the Macintosh Status Monitor

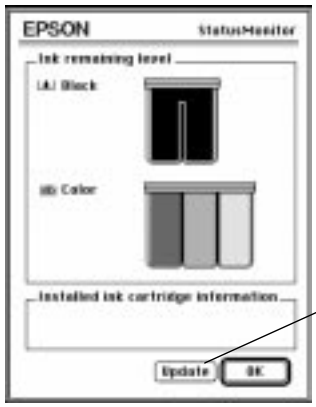
You can use the Status Monitor to check the level of ink in your printer. Follow these steps:

1. Choose Page Setup or Print from the File menu in your application. You see a printer settings dialog box.

2. Click the Utility button. You see the Utility menu:

For information about these utilities, see Chapter 5

3. Click the EPSON StatusMonitor icon. The software checks the amount of ink remaining in the printer and displays the Status Monitor window:



Click to recheck the ink level

4. To update the ink level check, click the Update button. To close the Status Monitor dialog box, click OK.

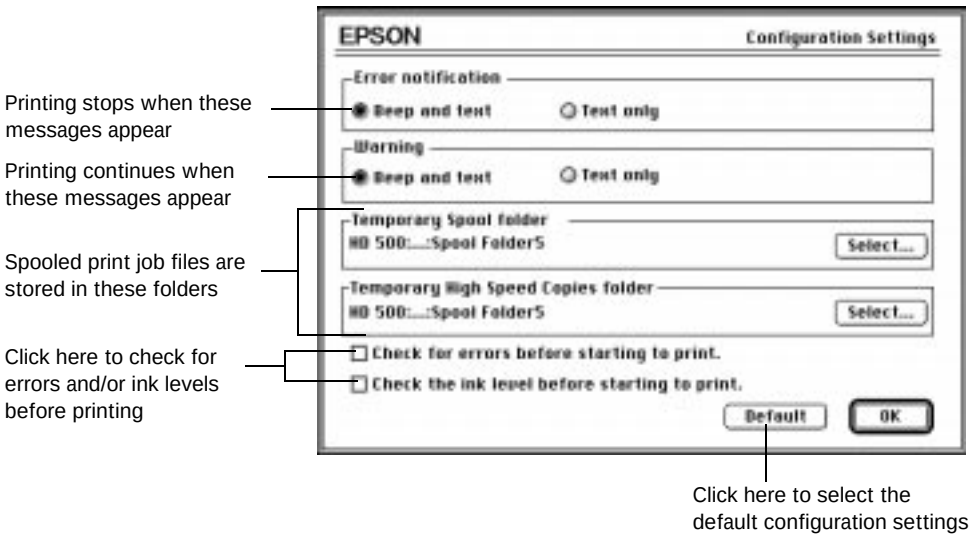
Selecting Configuration Options

You can configure the way you want the printer to handle error messages, warnings, ink level checks, and temporary spool folders in the Configuration Settings dialog box. Follow these steps:

1. Choose Page Setup or Print from the File menu in your application. You see a printer settings dialog box.

2. Click the Utility button. You see the Utility menu.

3. Click the Configuration button. You see the Configuration Settings dialog box:



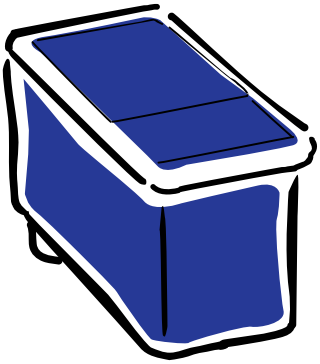
4. Select the configuration options you want as follows:

   - Error notification lets you select whether you want your system to beep and display error message text or just display text if your printer encounters an error.

   - Warning lets you choose whether warning messages beep and display text or display text only.

- Temporary Spool folder and Temporary High Speed Copies folder let you select the folders on your hard disk that store the temporary print job and high speed multiple-copy print job files created when you send a job to the printer. Click the Select button to change the folder from the default folder shown.
- Click the Check for errors before starting to print checkbox if you want your software to check for errors before starting your print job.
- Click the Check the ink level before starting to print checkbox if you want your software to check for a low ink condition before starting your print job.

5. When you're finishing changing your configuration options, click OK to return to the Utility menu.



5 Maintenance and Transportation

It's easy to keep your EPSON Stylus COLOR 850N printer working at its best. Just follow the simple instructions in this chapter for replacing ink cartridges, performing routine maintenance, and moving the printer in these sections:

- Replacing an ink cartridge
- Cleaning the print heads
- Aligning the print heads
- Cleaning the printer
- Transporting the printer

Tip

Warn users on your network that the printer will be unavailable when you perform maintenance on it, or any time you disconnect it from the network.

Replacing an Ink Cartridge

Caution:
To ensure good results, use genuine EPSON cartridges and do not refill them. Other products may cause damage to your printer not covered by EPSON's warranty.

When a black or color ink out light flashes, the indicated cartridge is low on ink. This is a good time to make sure you have a new cartridge. When the light stays on, the cartridge is empty and you need to replace it.

Use these EPSON ink cartridges within six months of installing them and before the expiration date on the package:

Black ink cartridge	S020108
Color ink cartridge	S020089

When you need new ink cartridges, contact your dealer or call EPSON Accessories at **(800) 873-7766** (U.S. only). In Canada, please call **(800) 807-7766**.

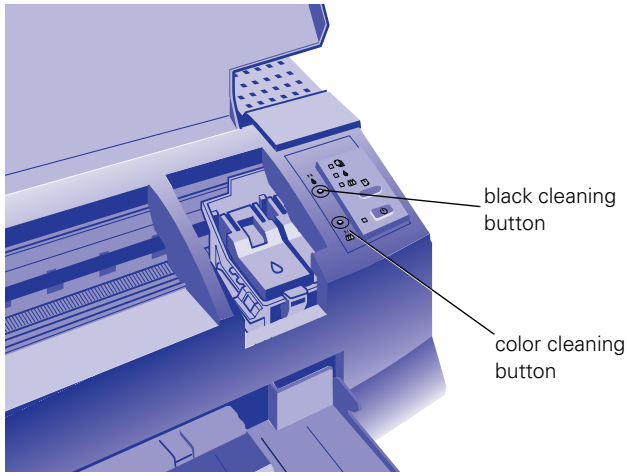
When the color ink out light comes on, you can continue to print with black ink. Simply turn the printer off and then back on again. When you print, make sure you choose Black as the Ink setting in your printer software.

Caution:
To avoid damaging the printer, never move the print heads by hand.

Removing an Empty Ink Cartridge

You can replace a cartridge when the black or color ink out light is either flashing or on. Follow these steps:

1. Make sure the printer is turned on and not printing.
2. Determine which cartridge needs to be replaced.
3. Lower the output tray and raise the printer cover. Then locate the black and color cleaning buttons next to the control panel under the printer's cover.



Caution:
If you press a cleaning button when its corresponding ink out light is off or not flashing, the printer cleans the print heads, as described on page 5-6. If you need to replace an ink cartridge before the lights flash (because the ink is too old, for example) follow the instructions on page 5-5.

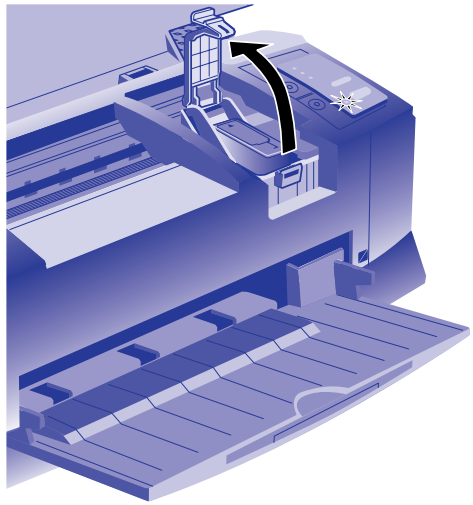
4. Press the black or color cleaning button and hold it for three seconds.

   The print heads move slightly left and the power light begins flashing. (The print heads return to their home position if you don't proceed to step 5 within 60 seconds.)

Caution:
Don't open the clamp or remove a cartridge except to replace it with a new one. Once you remove a cartridge, you can't reuse it, even if it contains ink.

Warning:
If ink gets on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.

5. Pull up the ink cartridge clamp. The cartridge rises up from its holder. (Although the illustration shows the black ink cartridge, the procedure is the same for replacing the color ink cartridge.)



6. Lift the cartridge out of the printer and dispose of it carefully.

7. Follow the steps in the next section to install the new ink cartridge.

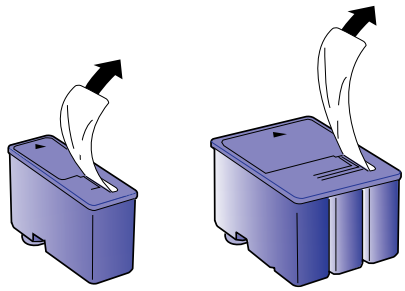
Installing the New Cartridge

Once you have removed the empty cartridge, you're ready to install the new one. Follow these steps:

1. Remove the new ink cartridge from its packaging.

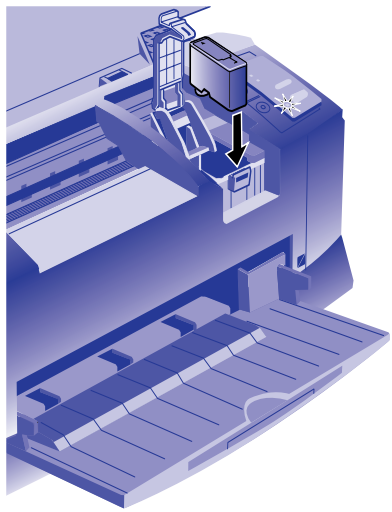
2. Remove **only** the yellow part of the tape seal on top as shown below. **Don't pull off the white portion or try to remove the clear seal underneath the cartridge**.

Caution:
You must remove the yellow tape from the top of the cartridge or you will permanently damage it. It's okay if the tape doesn't tear off completely at the dotted line. Do not remove the clear seal from the bottom of the cartridge; ink will leak out.



black cartridge color cartridge

3. Lower the ink cartridge into its holder with the label facing up and the arrow pointing to the back of the printer.



4. Press down the ink cartridge clamp until it locks in place.

5. If you need to replace the other ink cartridge, follow the steps under “Removing an Empty Ink Cartridge,” and then steps 1 through 4 under “Installing the New Cartridge.”

6. Press the load/eject button and close the printer cover.

   The printer moves the print heads and begins charging the ink delivery system. (Even if you don’t press the button, ink charging begins 60 seconds after you close the clamp.)

   The power light flashes, and the printer makes various sounds. Charging takes about three minutes. When it’s finished, you can print again.

Caution:
Never turn off the printer while the power light is flashing, unless the printer hasn’t moved or made any noise for more than 10 minutes.

Replacing an Outdated Ink Cartridge

If an ink cartridge is more than six months old, you may need to replace it. How can you tell? You may notice that your printouts don’t look as good as they used to. If print quality doesn’t improve after cleaning and aligning the print heads, you can replace one or both cartridges.

Follow these steps to replace an ink cartridge before the black or color ink out light is flashing or on:

1. Make sure the printer is turned on and not printing.

2. Lower the output tray and raise the printer cover.

3. Press **both** the black and color cleaning buttons and hold them down for a few seconds until the black print head moves to the left.

   - To replace the black ink cartridge, follow the instructions beginning with step 5 on page 5-3.
   - To replace the color ink cartridge, press the color cleaning button and hold it down for a few seconds. After the color ink cartridge moves to the left, follow the instructions beginning with step 5 on page 5-3.

Caution:
To avoid damaging the printer, never move the print heads by hand.

Cleaning the Print Heads

If your printed image is unexpectedly light or faint, or dots are missing from the image, you may need to clean the print heads. This unclogs the nozzles so they can deliver ink properly.

Cleaning the print heads uses ink, so clean them only if print quality declines. You can clean the print heads in either of the following ways:

- With the Head Cleaning utility in your printer software (when Status Monitor 2 is installed)
- From the printer's control panel buttons

Using the Head Cleaning Utility

Follow these steps to run the utility from a Windows computer or a Macintosh:

1. Make sure the printer is turned on but not printing, and the ♦ black and ♦ color ink out lights are off.
2. Access the printer settings dialog box as described in Chapter 1.
3. Click the Utility tab (Windows) or the Utility button (Macintosh). You see the Utility menu.
4. Click the Head Cleaning button.
5. Follow the instructions on the screen to clean one or both print heads. Cleaning both heads takes about four minutes, during which the printer makes some noise and the ⏻ power light flashes.

   When the power light stops flashing, you need to run a nozzle check to test the print quality and reset the cleaning cycle.

Caution:
Never turn off the printer while the ⏻ power light is flashing, unless the printer hasn't moved or made any noise for more than 10 minutes.

6. Make sure paper is loaded in the printer and click Print nozzle check pattern (Windows) or Confirmation (Macintosh). Then click Next. See page 5-8 for instructions on examining the nozzle check pattern.

If your print quality has not improved, repeat the steps above. If you don't notice any improvement after doing this two or three times, check the print quality solutions in Chapter 7.

Using the Control Panel

Follow these steps to clean the print heads:

1. Make sure the printer is turned on and not printing, and that the ♦ black and color ink out lights are off.

Caution:
Never turn off the printer while the ⏻ power light is flashing, unless the printer hasn't moved or made any noise for more than 10 minutes.

2. Open the printer cover, then press the black or color cleaning button and hold it down for three seconds. Cleaning takes about two minutes, during which the printer makes some noise and the ⏻ power light flashes.

3. When the ⏻ power light stops flashing, repeat step 2 for the other print head if necessary.

4. After you're finished cleaning and the ⏻ power light stops flashing, you need to print a page to test the print quality and reset the cleaning cycle. If you're connected directly to the printer, run a nozzle check. Go to step 5.

   If you're using DOS or you didn't install Status Monitor 2, open an application and print a document containing black and color data. Then go to step 7.

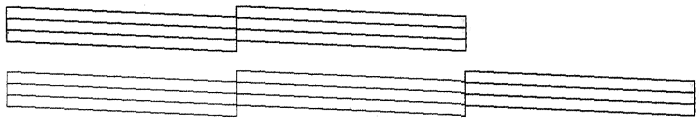
5. Access the printer settings dialog box as described in Chapter 1. Then click the Utility tab (Windows) or the Utility button (Macintosh). You see the Utility menu.

6. Click the Nozzle Check button, then click Next. See the next section for instructions on examining the nozzle check pattern.

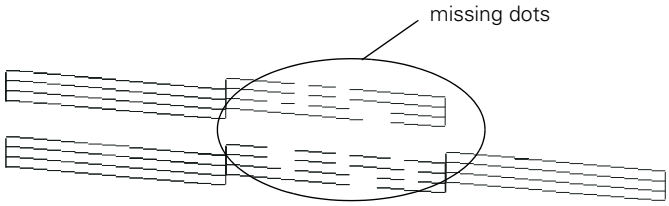
7. If your print quality has not improved, repeat the steps above. If you don't notice any improvement after doing this two or three times, check the print quality solutions in Chapter 7.

Examining the Nozzle Check Pattern

Examine the nozzle check pattern you print. It should look something like this, with the lower pattern colored cyan, magenta, and yellow:



Each staggered horizontal and straight vertical line should be complete, with no gaps in the dot pattern. If your printout looks okay, you're done. If any dots are missing, as shown below, clean the print heads again; see page 5-6 for instructions.



Note:
If you installed Status Monitor 2, you can use the Print Head Alignment utility.

Aligning the Print Heads

If your printouts contain misaligned vertical lines, you may need to align the print heads. You can align the print heads in either of the following two ways:

- With the print head alignment utility
- Using the printer's control panel buttons

Using the Print Head Alignment Utility

Follow these steps to run the utility (Windows or Macintosh):

1. Make sure the printer is turned on and paper is loaded.
2. Access the printer settings dialog box as described in Chapter 1.
3. Click the Utility tab (Windows) or the Utility button (Macintosh). You see the Utility menu.
4. Click the Print Head Alignment button.
5. Follow the instructions on the screen to print a test page and select the correct alignment.

Caution:
Load paper that's at least 8.27 inches (210 mm) wide. This prevents ink from spraying inside the printer and smudging your printouts.

For the best results, load EPSON ink jet paper in the printer whenever you check the print head alignment.

Using the Control Panel

Follow these steps to align the print heads:

1. Make sure the printer is turned off and paper is loaded. Then open the printer cover.
2. Hold down the load/eject button and the black cleaning button and turn on the printer. Then release the buttons. After a moment, the printer prints an instruction sheet telling you how to select a language for the alignment instructions.
3. Press the correct control panel buttons as instructed to select a language. The printer prints instructions for aligning the print heads.
4. Follow the instructions on the sheet to align the print heads. When you're finished, turn off the printer to exit the alignment mode.

Caution:
Don't touch the gears inside the printer.

Never use alcohol or thinner for cleaning; they can damage the printer components and case.

Don't use a hard or abrasive brush.

Don't get water on the printer components.

Don't spray lubricants or oils inside the printer.

Cleaning the Printer

To keep your printer working at its best, you should clean it several times a year, following these steps:

1. Turn off the printer, unplug the power cord, and disconnect the network cable.
2. Remove all the paper from the sheet feeder.
3. Clean the exterior of the printer with a soft, damp cloth. Keep the printer cover closed so water doesn't get inside.
4. Clean out the printer's interior with a soft, damp cloth.

Note:
If you move the printer to a new network, you need to initialize it and reconfigure it for that network.

Transporting the Printer

If you plan to transport your printer some distance, you'll need to repack it in its original box. Follow these steps:

1. Turn on the printer and wait until the print heads lock in the far right position. Then turn off the printer.
2. Unplug the power cord from the electrical outlet. Then disconnect the network cable from the printer.
3. Remove the paper support and any paper from the printer.
4. Push in the output tray extensions and close the tray.
5. Remove any T-connector from the Ethernet card.
6. Repack the printer and attachments in the original box using the protective materials that came with it. See the Notice Sheet that was packed with the printer.

Caution:
To avoid damage, always leave the ink cartridges installed when transporting the printer.

Be sure to keep the printer level as you transport it. If you notice a decline in print quality after transporting the printer, clean the print heads; if output is misaligned, align the print heads. See the instructions in this chapter.

6 Using the Ethernet Card

FCC Compliance Statement For United States Users

This Ethernet card has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

Using the Ethernet Card

Your EPSON Stylus COLOR 850N includes an EPSON Type B Ethernet interface card. This card allows you to connect your printer to a network using 10BASE-T or 10BASE2 cables.

If you have Windows 95, Windows NT 4.0, or Windows 3.1x with NetWare, Windows NT 4.0 or Windows 95 with TCP/IP, or Macintosh with AppleTalk, you can configure the card with the instructions in the *Setup Guide*. If you are using other operating systems and configurations, follow the instructions in this chapter.

Note:
See the *Setup Guide* for information on connecting the card to your network.

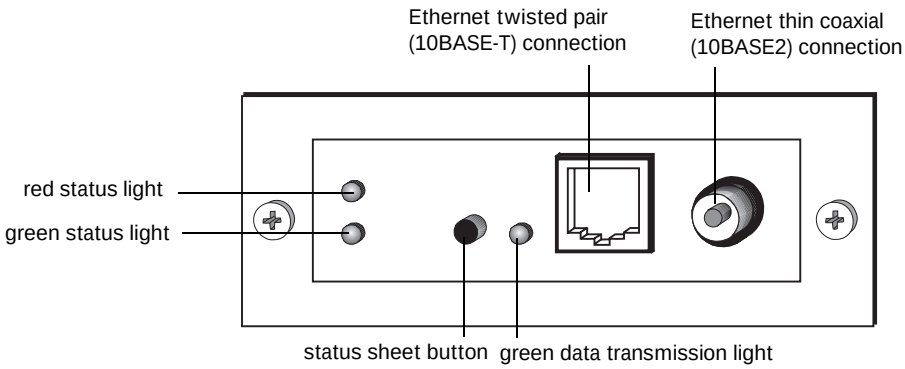
This chapter tells you about:

- Operating the Card
- Configuring for DLC on Windows NT 4.0
- Configuring for OS/2
- Configuring for UNIX
- Using Novell NetWare Modes
- Changing the Routing Protocol for NetWare 4.x
- Installing EPSON Net! for DOS
- Finding Additional Resources for Using TCP/IP

Operating the Card

The Type-B Ethernet interface card has connectors for either an Ethernet twisted pair (10BASE-T) or an Ethernet thin coaxial (10BASE2) network connection.

The LED lights help you monitor the Ethernet card. The status sheet button lets you print out detailed information about the card and its configuration on the network.



The following sections tell you how to use the card:

- Printing a Status Sheet
- Reading the Indicator Lights
- Resetting the Ethernet Card
- Initializing the Ethernet Card

Printing a Status Sheet

The status sheet gives you important information about your Ethernet card including the:

- Current configuration
- Serial number
- Hardware address (MAC address)
- DLC address
- NetWare name
- TCP/IP address

To print a status sheet, turn on the printer and then press the status sheet button.

Reading the Indicator Lights

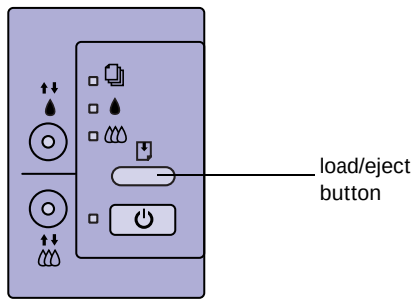
The indicator lights on the Ethernet card plate provide you with the basic printer and network status.

- The green data transmission light blinks when the Ethernet card is sending data.
- The red and green status lights indicate the following:

Red	Green	Status
Blink together		Printer and Ethernet card are initializing
Blink alternately		Ethernet card recognizes the network connection
Off	On	Normal ready status
On	On	Error status

Resetting the Ethernet Card

When the Ethernet card's indicator lights show an Error status condition, you may be able to correct it by resetting the printer memory. Press the load/eject button on the printer's control panel for about 30 seconds. Then press it again. Turn the printer off, wait a few seconds, and then turn it on.



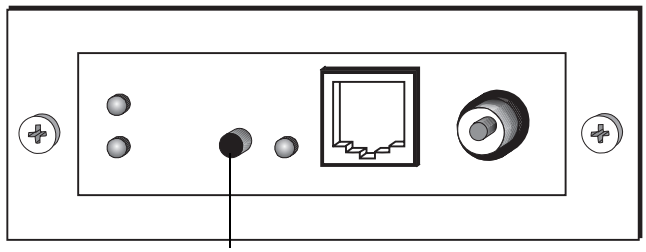
Initializing the Ethernet Card

You only need to initialize the card under the following conditions:

- The first time you connect the printer to a network.
- EPSON Net! cannot recognize the card because its settings are incorrect.
- You reinstall the card in a different printer.

Caution:
Don't use an outlet controlled by a wall switch or timer, or one that uses the same circuit as a large appliance. This may disrupt the power, which can erase memory or even damage the power supply.

To initialize the card, make sure the printer is turned off (the power button should be up) and plug the printer into a properly grounded outlet while pressing down the status sheet button for at least three seconds.



To reset all card configuration settings to their factory defaults, turn the printer on while pressing the status sheet button on the card plate.

Configuring for DLC on Windows NT 4.0

If you use Windows NT 4.0, the Ethernet card works with the DLC (Data Link Control) protocol provided in your operating system. Follow the instructions below to install DLC protocol and configure the Ethernet card to use it.

Installing the DLC Protocol

Note:
To verify that the DLC protocol is installed correctly, check the list of installed Network Software in the Network dialog box.

Make sure Windows NT is running, and follow these steps to install DLC:

1. Open the Control Panel.
2. Double-click the Network icon.
3. Click the Protocols tab and then click Add.
4. Select DLC Protocol from the Select Network Protocol list, and click OK.
5. Follow the instructions on the screen and reboot your system.

Configuring the Ethernet Card

After you have installed the DLC protocol, follow these steps to configure the card and your printer for Window NT 4.0:

1. Double-click My Computer, then double-click the Printers icon.
2. Double-click the Add Printer icon.
3. Select My Computer, then click Next.
4. Click Add Port.
5. Select whatever DLC network port setting you have on your system, then click New Port.

   If necessary, insert your Windows NT CD-ROM or diskette so Windows can copy the files.
6. Type a name for the port in the Name box. Make sure the name is not the same as an existing port, such as LPT1.

7. Select the target node address from the Card Address list. Make sure this address matches the one listed under Node Number on the status sheet.

8. Click the Timers button and select the Job Based option. Then click Close.

9. Click Next, then follow the instructions on the screen for the DLC printer driver installation.

Configuring for OS/2

To use EPSON Net! to configure the card, you must have OS/2 Warp Connect or Server with NetBEUI or NetBIOS over TCP/IP.

EPSON Net! for OS/2 provides the following programs:

NetBEUI
RPRINT3, RSTAT3—LPT redirection
REMPRT3, REMBEU, REMSTAT3—pipe support

TCP/IP
RPRINT, RSTAT—LPT redirection
REMPRT, REMSTAT—pipe support

Setting Up Redirection to the Printer

To redirect the workstation's ports to your printer, print a status sheet for the Ethernet card to obtain the card's serial number as described on page 6-3, then follow these steps:

1. Insert the EPSON Stylus COLOR 850N CD-ROM in your workstation's drive.

2. Open an OS/2 full screen command session.

3. Open the OS/2 directory on your CD-ROM drive and go to the REDIRECT directory for your network protocol:
   - For TCP/IP, type CD TCPIP\REDIRECT and press Enter.
   - For NetBEUI, type CD NETBEUI\REDIRECT and press Enter.
4. Copy the redirection files to your root directory.
   - For TCP/IP, copy RPRINT.EXE and RSTAT.EXE
   - For NetBEUI, copy RPRINT3.EXE and RSTAT3.EXE
5. Edit the STARTUP.CMD file in your root directory to include the RPRINT command as the last line in the file.
   - For TCP/IP, type the following:
     RPRINT <card serial number> </port name>
   - For NetBEUI, type the following:
     RPRINT3 <card serial number> </port name>
6. Repeat step 5 for each port you want to redirect.
7. Reboot the workstation.

Note:
If no port is designated for port name, the program assumes LPT1. If the printer is on a different port and no port name is given, the print files are sent to a nonexistant device with your card's serial number on LPT1.

All printed output spooled to the workstation is redirected to the EPSON Stylus COLOR 850 printer specified in the STARTUP.CMD entry.

Obtaining Printer Status for Redirected Ports

You can obtain printer status for each redirected port on your workstation by typing the RSTAT command appropriate to your network protocol at the OS/2 command line:

- For TCP/IP, type RSTAT
- For NetBEUI, type RSTAT3

If several ports are redirected, RSTAT returns a message similar to the following:

```
ITC Remote Print Servers active for LPT1—Printer Busy
ITC Remote Print Servers active for LPT2—Printer Ready
ITC Remote Print Servers active for LPT3—Printer Ready
```

Setting Up Piping to the Printer

To set up piping, you first need to copy the piping software to your computer, then configure the printer and check its status.

Copying the Piping Software

Print a status sheet following the instructions on page 6-3 to obtain the card serial number. Then follow these steps to copy the piping software to your computer:

1. Insert the EPSON CD-ROM or diskette into your workstation's drive.

2. Open an OS/2 full command session.

3. Create a remote print service directory by typing `MD C:\EPNET` at the command line.

4. Open the OS/2 directory on the CD-ROM or diskette and go to the PIPES directory for your network protocol.

   - For TCP/IP, type `CD TCPIP\PIPE` and press `Enter`.
   - For NetBEUI, type `CD NETBEUI\PIPE` and press `Enter`.

5. Copy all the files in the PIPES directory to the remote print service directory (substitute the CD-ROM or diskette drive letter for D):

   - For TCP/IP, type:
     COPY D:\OS2\TCPIP\PIPE*.* C:\EPNET
   - For NetBEUI, type:
     COPY D:\OS2\NETBEUI\PIPE*.* C:\EPNET

6. Type CD\EPNET to change to the remote print service directory.

Your remote print service directory now contains these files:

TCP/IP	NetBEUI	Description
ADDPORT.CMD	ADDPORT.CMD	Adds ports on the server
DELPORT.CMD	DELPORT.CMD	Removes ports from the server
PORTCHG.EXE	PORTCHG.EXE	Program used to add or remove ports
REMPRT.EXE	REMPRT3.EXE	Remote Print Service program
REMDRV.EXE	REMDRV3.EXE	Remote Print Service driver
REMSTAT.EXE	REMSTAT3.EXE	Printer status program

Note:
Choose a port name that identifies the printer, such as 850NPRN. You can use up to seven characters, but you can't use any of the following:
/ \ . [ ] : ; | > < + = ? * $ "

If you plan to use a shared print queue that receives print jobs from other workstations, install either the IBMNULL or MSNULL printer driver. To select the device to connect to, choose the port name entered in step 2.

Configuring the Printer for Remote Print Service

Follow these steps to set up remote print service:

1. Open an OS/2 full screen command session from the server.
2. Go to the remote print service directory CD\EPNET.
3. Use the ADDPORT <port name> command to define a port for the printer.
4. If necessary, install the printers and create queues attached to your workstation. See your OS/2 documentation for information.

5. Create an initialization file in the remote print service directory:
   - For TCP/IP, type:
     REMPRT <card serial number> <port name>
   - For NetBEUI, type:
     REMPRT3 <card serial number> <port name>
6. To ensure that remote print service is initialized each time you start your workstation, edit the STARTUP.CMD file in your root directory to include the initialization file on the last line:
   - For TCP/IP, type:
     \EPNET\REMPRT @ REMPRT.INI
   - For NetBEUI, type:
     \EPNET\REMPRT3 @ REMPRT3.INI
7. Use the LAN Server Administration program (NET ADMIN) to add newly configured printers to the list of shared resources. See your OS/2 documentation for more information.

Obtaining Printer Status for Piped Ports

You can obtain printer status for each piped port on your workstation by typing the REMSTAT command:

- For TCP/IP, type REMSTAT
- For NetBEUI, type REMSTAT3

After sending the REMSTAT command, your printer will return messages similar to these:

- ITC Remote Print Servers active for 850NPRN—Printer Busy
- ITC Remote Print Servers active for 850NPR2—Printer Ready

Sharing a Printer Among Several Workstations

To set up two or more IBM LANServer workstations, use piping to configure a unique port name for each workstation instead of for each printer by following these steps:

Note:
Remote print service uses the initialization file at startup to assign the printer to the workstations' port names. The file identifies the shared printer by the serial number of its Ethernet card, and identifies each workstation by the port names assigned in step 2.

The line in STARTUP.CMD ensures that the remote print service is initialized each time you start the workstation.

1. Complete the steps in "Copying the Piping Software" on page 6-9.

2. From your workstation's remote print service directory, send the ADDPORT <port name> command to configure a port for the first workstation and then any additional workstations.

3. Create an initialization file in the remote print service directory:

   - For TCP/IP, type:
     REMPRT <card serial number> <port name>
   - For NetBEUI, type:
     REMPRT3 <card serial number> <port name>

   An initialization file for a printer that is shared by two workstations might look like the following:

   REMPRT 100900416 PORTA PORTB

4. Edit STARTUP.CMD in your workstation's root directory to include the REMPRT command and the initialization file on the last line:

   - For TCP/IP, type:
     \EPNET\REMPRT @ REMPRT.INI
   - For NetBEUI, type:
     \EPNET\REMPRT @ REMPRT3.INI

5. If necessary, use the LAN Server Administration program (NET ADMIN) to add the printer to the list of shared resources. See your OS/2 documentation for information.

Configuring for UNIX

The printer's Ethernet card supports many standard UNIX commands and can be configured from any computer on the network without using the utility program.

The EPSON Stylus COLOR 850N functions as a remote printer for systems using TCP/IP Ethernet transfer with remote printing protocol (lpr) or standard file transfer protocol (ftp).

After the printer has been set up on the network, any computer on the network can send a print file to it, as long as the computer has the printer's name and IP address in its directory.

The following sections explain how to set up and use the printer with UNIX:

- Setting Up the Printer as a Network Device
- Setting Up the Printer as a Remote Printer
- Printing with Standard UNIX Systems
- Printing with Other UNIX Systems

Setting Up the Printer as a Network Device

Before you begin, make sure you:

- Set the printer's IP address
- Make sure the Ethernet card and the printer are on the same segment of the network as the computer you are using to configure them
- Find out the hardware address for the Ethernet card from a status sheet (see page 6-3)
- Find out the IP address for your computer and the IP address that you will assign to the Ethernet card.

Note:
If you don't know what IP address to use for the Ethernet card, ask your network administrator.

Then, follow these steps to set up the printer:

1. Add an entry in the ARP table that assigns an IP address to the hardware address of the Ethernet card, as follows:

   arp -s <IP address> <hardware address>

   For example, add an entry like this:
   arp -s 192.1.1.6 00-00-48-92-BD-9A

2. Start a continuous "ping" to the card, with the card IP addresss as follows:

   ping <IP address>

   For example, enter a command like this: ping 192.1.1.6

   You see a message similar to the following:

   Reply from 192.1.1.6: bytes=32 time<10ms TTL=30
   Reply from 192.1.1.6: bytes=32 time<10ms TTL=30
   Reply from 192.1.1.6: bytes=32 time<10ms TTL=30
   Reply from 192.1.1.6: bytes=32 time<10ms TTL=30

   This shows that the Ethernet card is set up correctly.

3. Edit the /etc/hosts file on the computer to include the new IP address and an Ethernet card name as follows:

   <IP address> <Ethernet card name>

   For example, include this command line:
   192.1.1.6 PrintrA

4. Use ping again to make sure the printer is responding. You can use either of the following:

   ping <printer name>
   ping <IP address>

If the card responds, you are ready to print. If not, print a status sheet (described on page 6-3) and check the IP address to make sure it is the same as the IP address in the /etc/hosts file. If you used the IP address to test the connection, make sure you entered it correctly.

Note:
If your UNIX system has an /etc/printcap file, use the procedure here. If not, see "Printing with Other UNIX Systems" on page 6-17.

Setting Up the Printer as a Remote Printer

After you set up the printer as a network device, you need to set it up as a remote printer. Follow these steps:

1. Edit the /etc/printcap file to include a remote printer name as follows:

   <remote printer name>:\

   For example, enter the following command: PRINTRA:\

2. On a new line in the /etc/printcap file, type a name for the local printer being redirected to the EPSON Stylus COLOR 850N, followed by the Ethernet card name, then the path to the printer.

   If you want to set up the printer to support different lpr filters (listed in the table below), enter the printer option.

   Remote printer options

LPR filter	Support options
lpb	Binary file (no filters)
lpa	ASCII file with carriage returns at line ends
lpbf	Binary file with form feed at file end
lpaf	ASCII file with form feed at line end

   Type in the information as follows:

   :<local printer> : rm = <Ethernet card name> : rp = <remote printer option> : sd = <path>/<remote printer name>:

For example, if you want to set up the EPSON Stylus COLOR 850N (with an Ethernet card name of Printer and redirected from local printer lp) as PRINTRA, which prints ASCII files with carriage returns, type the following:

:lp : rm = Printer : rp = lpa : sd = /var/spool/PRINTRA:

3. Repeat steps 1 and 2 for each remote printer option (a different one for each lpr filter) you want to add. Use a new remote printer name and local printer name for each.

Note:
Because lpr may strip control characters, you may prefer to print using ftp.

Printing with Standard UNIX Systems

Once you have set up the printer, you can use either lpr or ftp to send a print file from any workstation.

The EPSON Stylus COLOR 850N can handle many separate communications channels simultaneously. However, unless it is combined with a compatible spooling unit, the printer does not have any disk-spooling capability. Print jobs received while the printer is processing a job are stacked and printed in rotation.

The printer responds to a print query by sending back information on the status of the current print job and any stacked jobs. If it receives the query when all available connections are in use, it does not respond.

Using Ftp to Print

By default, ftp uses binary file transfer. If you want to include carriage returns at the end of lines, change to ASCII file transfer by typing ascii on the command line. To change back to binary file transfer, type binary on the command line.

You can also append a form feed to the end of a print job by naming the destination file FEED or feed.

Follow these steps to print using ftp:

1. Establish a connection to the EPSON Stylus COLOR 850N by typing:

   ```
   ftp open <printer name>
   ```

2. To send the print job, type the following command with any special commands or filters you want to use:

   ```
   send <filename>
   ```

   For example to use ftp to send a file named txtfile in ASCII mode with a form feed appended, type:

   ```
   ftp open PrintrA
   ascii
   send txtfile feed
   ```

Printing with Other UNIX Systems

Not all UNIX systems support the same printer functions. The sections below cover specific differences in setting up and printing with the various forms of UNIX.

Setting Up for SCO UNIX

SCO UNIX systems don't support lpr. The two scripts on the following pages allow you to print from within some applications using ftp, which is supported on most systems that have TCP/IP.

The original printer model scripts are in the following directory:

```
/usr/spool/lp/model
```

If you create a printer with the SCO administration program (SYSADMSH), the printer model scripts are copied to the following directory:

```
/usr/spool/lp/admins/lp/interfaces
```

You can place a script directly into your interface directory, or you can type the following:

```
/usr/lib/lpadmin-pPRINTER-v/dev/null-i/etc/
INTERFACESCRIPT
```

PRINTER is the printer name used in lpd printer and INTERFACESCRIPT is the file name containing the next ftp script.

Script 1

General interface program file:

```
NETPRINTER="basename $0"
copies=$4
shift;shift;shift;shift;shift;
file="$*"
i=1
while ($i-le $copies)
   do
   for file i n $files
                    do
                    echo binary > /tmp/ftp.$$
                    echo put $file >> /tmp/ftp.$$
                    echo quit >> /tmp/ftp.$$
                     /usr/bin/ftp -n $NETPRINTER < /tmp/ftp.$$
                    /bin/rm /tmp/ftp.$$
                   done
    i='expr $i+1'
    done
exit 0"
*end of script*"
```

Script 2

The following script should have the same name as the name you gave the printer.

```
TEMPFILE=/tmp/ftpprint.$$
printer='epsonprt'
/usr/spool/lp/model/standard "$@" >$TEMPFILE
ftp -n $printer <<EOF
send $TEMPFILE
quit
EOF
rm $TEMPFILE
exit
```

Script 2 intercepts the print command and runs another printer interface script. In this case, the printer "standard" script is sent, using the same options ($@) to redirect the output to a temporary file. The script then opens an ftp session with the printer, sets binary mode, and sends the temporary file to the printer. The temporary file is then removed.

Setting Up for IBM AIX Systems

AIX uses the lpr function, which you set up using the SMIT utility. Follow these steps:

1. Complete the steps in "Setting Up the Printer as a Network Device" on page 6-13 and "Setting Up the Printer as a Remote Printer" on page 6-15.

2. Invoke SMIT as a superuser and go to the Add Remote Queue menu. To access the Add Remote Queue menu, select menus and submenus in the following order:

   Devices
   Printer/Plotter
   Manage Remote Printer Subsystem
   Client Services
   Remote Printer Queues
   Add Remote Queue

3. When you see a screen requesting information similar to the entries below, fill in the required data. For example:

Name of queue	EPSON
Queuing discipline serve	first come first
Activate the queue	yes
Destination host	200.200.200.99
Pathname short filter	
Pathname long filter	
Name of queue for remote printer	C82331_PRT

4. Check the entry for your queue under Remote Printer Queue devices. It lists the queue name and printer capabilities.

5. Use MANAGE LOCAL PRINTER SUBSYSTEM and LOCAL PRINTER QUEUES to start the queue.

   The following example illustrates the /etc/qconfig file:

   ```
   epson:
       device=epsonprn
       up=true
       host=200.200.200.99
       rq=C82331_PRT
   epsonprn:
       backend=/usr/lp/rembak
   ```

6. If you want the printer to support lpr filters, include a line with the following format in the /etc/qconfig file:

   ```
   Remote Device=<printer option>
   ```

   For example, to support the lpaf filter, type:

   ```
   Remote Device=lpaf
   ```

Setting Up for HP-UX Systems

You can use either ftp or rlp (lpr) to print from an HP-UX system. You use the SAM utility to set up both. Before starting SAM, enter a unique IP address and host name in the /etc/hosts file. See "Setting Up the Printer as a Network Device" on page 6-13 for information on assigning an IP address and host name.

RLP setup

On the printer definition page of SAM, use the following settings:

Printer Name	Any name
Remote System Name	Use name in /etc/hosts
Remote Printer Name	Nothing or 'lps,' 'lpaf,' etc, if using filters
Remote Council Model	/bin/true
Remote Status Model	/bin/true
Make System Default	Enter as appropriate
Printer Class	Nothing
Restrict Council	Nothing
Remote Printer on BSD system	Nothing

To print, use either rlp or the following:

```
lpd -d <printer name>
```

Using FTP with HP-UX

Follow these steps to use ftp with HP-UX:

1. Type the following:

```
lpshut
lpadmin -p<spooler name> -m<modelscript> -v/dev/
null
accept <spooler name> enable <spooler name>
lpsched
```

2. Create a model script. For example, type:

   vi/usr/spool/lp/model/lan.model

3. Type the following:

```
MODEL=’basename $0’
REALMODEL=’echo $0 /sed -e “s%$MODEL
%model.lan/$MODEL%”’

#This variable may be initialized when the script is
installed in the spooler.

PERIPH= if (“$PERIPH”=” ”)
then
     PERIPH=$MODEL
fi
#Path for output of the original model
TMPPATH=/tmp/$MODEL.data

#Invoke original model and write to temporary file
$REALMODEL “$@”TMPPATH

#Log onto peripheral, switch to binary, and send the
temporary file

( echo user xx
echo binary
echo put $TMPPATH
echo bye
) ftp -i -n $PERIPH
ERRSTAT=$?
/bin/rm $TMPPATH
exit $ERRSTAT

*End of Script*
```

Using Novell NetWare Modes

You can use the card in one of three modes under Novell NetWare: Print Server mode, Remote Printer mode, or Auto Print Server/Remote Printer mode. This section offers an explanation of how these modes work. Setup for each of these modes is covered in the *Setup Guide*.

Using Print Server Mode

In Print Server mode, the Ethernet card in your printer performs all print server functions and can service up to 32 queues and eight file servers. No VAP (Value-Added Process) or NLM (NetWare Loadable Module®) is required. When you send a print job from your application, the file server assigns the print job to a print queue. When the corresponding printer is ready, the card, acting as the print server, sends the print job to the printer.

The Ethernet card operates like any Novell NetWare print server, servicing the print queues in a round robin fashion. In queues of the same priority, the Ethernet card services the first job in a queue before those in a lower priority queue. The card also supports encrypted passwords.

This mode provides the highest printing speed while retaining the control, security, and convenience of a NetWare print server.

Using Remote Printer Mode

As a remote printer, the Ethernet card emulates a workstation running Novell's RPRINTER program, and operates under the control of a Novell NetWare print server. The print server can be either a dedicated workstation running PSERVER or a file server.

At power-up, the interface card will attempt to attach to a print server (elsewhere on the network) and act as a particular printer of that print server. To do this, it needs to know which print server to attach to, and which printer of that print server to use. This is similar to specifying these parameters in the RPRINTER command line (or to interactively choose them from the RPRINTER program).

You can set up these parameters on the Ethernet card with the EPSON Net! utility. Once the interface card is set up, it stores these settings, which means that you normally only need to do

this once, at the time of installation. However, as with all Novell remote printers, the card's print speed is slower in Remote Printer mode than in Print Server mode.

The main advantage of Remote Printer mode is that connection to a file server is not required, making this mode desirable in installations with limited available file server connections. Each NetWare print server can support up to 16 printers and requires only one file server connection.

Using Auto Print Server/Remote Printer Mode

In Auto Print Server/Remote Printer mode, the Ethernet card provides automatic switching between print server and remote printer operation, depending on network conditions. If the Ethernet card has the same name as the main Novell print server on your network, it detects the presence of the print server and operates as a remote printer. If your primary print server is unavailable, the Ethernet card automatically switches modes to provide print server backup.

To use the Ethernet card as a print server/remote printer, you must set it up as both a print server and a remote printer. As a print server, the Ethernet card requires a connection to a file server. As a remote printer, the Ethernet card emulates a workstation running Novell's RPRINTER program.

Changing the Routing Protocol for NetWare 4.x

If you are using NetWare 4.x, you need to set the IPX routing protocol to RIP/SAP Only so the Ethernet card is able to log in to the server. Follow these steps:

1. Start the NetWare 4.x server.

2. At the server prompt, type `load install`.

3. From the Installation Options screen, select Product Options and press Enter.

4. From the Other Installation Items/Products list, select Configure Network Protocols and press Enter.

5. From the Internetworking Configuration list, select Protocols and press Enter.

6. From the Protocol Configuration list, select IPX and press Enter.

7. In the IPX Protocol Configuration dialog box, make sure the Routing Protocol is set to RIP/SAP Only. If it is not, select NLSP with RIP/SAP Compatibility and press Enter, then select RIP/SAP Only and press Enter.

Note:
This utility requires a minimum of 480 KB of conventional memory.

See Appendix A if you need to create diskettes and use them to install EPSON Net!.

Installing EPSON Net! for DOS

If you have Novell NetWare, you can install EPSON Net! on your DOS computer. Insert the EPSON Stylus COLOR 850N CD-ROM in your drive and use the DOS COPY command (COPY D:\FILENAME.*) to copy the following files to a network directory or to your hard drive:

D:\EPSONNET\DOS\EPNWDE.EXE
D:\EPSONNET\DOS\EPNWDE.DAT

See your *Setup Guide* to use EPSON Net! to configure the printer's Ethernet card.

Finding Additional Resources for Using TCP/IP

The following books provide information on setting up and using TCP/IP:

Microsoft Windows 95 Resource Kit (Redmond: Microsoft Press, 1995)
ISBN: 1-55615-678-2

Microsoft Windows NT Workstation Resource Kit (Redmond: Microsoft Press, 1996)
ISBN: 1-57231-343-9

Marshall Wilensky and Candace Leiden, *TCP/IP for Dummies* (Foster City: IDG Books Worldwide Inc., 1995)
ISBN: 1-26884-241-4

These Internet sites contain useful information on TCP/IP:

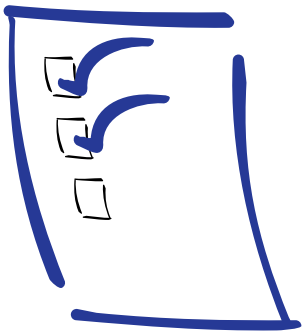
Mark Sproul's Open Transport Page (newest form of TCP/IP for Macintosh):
http://msproul.rutgers.edu/macintosh/OpenTpt.html

MacTCP:
http://www.math.niu.edu/~behr/comp/mactcp.html

Newsgroups (discussion groups):
comp.protocols.tcp-ip
comp.os.os2.networking.tcpip

Uri's TCP/IP Resources List:
http://www.qnx.com/~mphunter/tcpip_resources.html

Note:
Because the Internet is always changing, some of these sites may no longer be active when you read this *User's Guide*.



7 Troubleshooting

As you use your printer, you may occasionally experience a paper jam or other problem. The first thing you should do is diagnose the problem, following the guidelines in this chapter. Then try the most likely solutions until the problem is fixed.

This chapter covers the following problems and solutions:

- Diagnosing problems
- Improving print quality
- Solving printing problems
- Solving printer software problems
- Fixing paper jams and other paper problems
- Solving miscellaneous printout problems
- Solving network problems
- Uninstalling the software

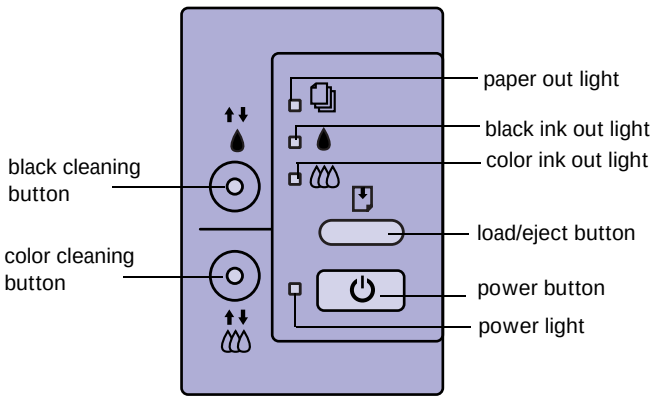
Diagnosing Problems

Your printer provides a number of ways to help you diagnose problems:

- To identify the most common problems, check the lights on the printer's control panel. See page 7-2 for details.
- You can also use the Status Monitor 2 utility to identify common problems. For instructions, see page 4-2 (Windows 95/NT 4.0) or page 4-18 (Macintosh).

- To determine whether the problem is caused by the printer itself, run a self test. See page 7-3 for instructions.
- You can use the printer's hex dump mode to pinpoint communication problems. See page 7-4 for instructions.
- For the latest information, check the Help programs and the ReadMe files in the Epson program group or folder.
- If any of the suggested solutions in this chapter tell you to uninstall and then reinstall your printer software, see page 7-20 for instructions.
- If none of the suggested solutions in this chapter solve your problem, contact EPSON as described under "Where to Get Help" in the Introduction.

Checking the Control Panel Lights



Follow these guidelines when the control panel lights come on or flash:

When the paper light *flashes*, paper is jammed in the printer. Turn off the printer and gently pull out all the paper. Then press the load/eject button. See page 7-14 for details.

When the paper light *comes on*, your paper ran out or is incorrectly loaded. Load paper in the feeder and then press the load/eject button.

When an ink light *flashes*, your ink supply is low. Make sure you have a replacement cartridge.

When an ink light *comes on*, you need to replace the ink cartridge. See Chapter 5 for instructions.

When the power light and paper out light *flash* and all the other lights are on, your printer has a carriage error. See page 7-9 for more information.

When all the lights *flash*, your printer may have an internal error. See page 7-10 for more information.

Running a Self Test

You can run a self test to determine whether the problem comes from the printer itself or some other source.

- If the results are satisfactory, the problem lies in your software settings, the interface cable, or your computer.
- If the self test does not print correctly, you have a problem with your printer. See the suggestions in this chapter for possible solutions.

Caution:
Load paper that's at least 8.27 inches (210 mm) wide. This prevents ink from spraying inside the printer and smudging your printouts.

1. Make sure both the printer and computer are turned off.
2. Disconnect the network cable from the printer.
3. Make sure paper is loaded in the printer.
4. Hold down the load/eject button (for a 360 dpi test) or the black cleaning button (for a 180 dpi test) and press the power button. Hold down the buttons until the power light starts to flash, then release them.

   The printer prints on the first and last lines of one sheet of paper, then prints a nozzle check pattern (shown on page 5-8) and samples of fonts and colors on the next sheet.
5. To end the test, turn off the printer. Then reconnect the network cable and turn on your printer and computer.

Using Hex Dump Mode

You can use the printer's hex dump mode to identify problems if you know how to interpret hex code. Or, you can fax the hex printout to a technical support representative. Follow these steps:

1. Make sure the printer is turned off and has paper loaded in it.
2. Open the cover.
3. Hold down the load/eject button **and** the color cleaning button and press the power button. The printer prints Hex Dump Mode at the top of a page and then stops.
4. Print one or more pages from an application as usual. The printer prints the exact code it receives in hexadecimal format.
5. Turn off the printer to exit hex dump mode.

Improving Print Quality

If you find that your print quality has been declining, you can often improve it by doing one or more of the following:

- Clean the print heads following the instructions in Chapter 5.
- Use higher quality paper appropriate for your print job. (See Chapter 2 for a list of EPSON papers.)
- Match the Media Type in the printer software to the type of paper you loaded in the printer. Then the printer software can automatically select other settings for the best quality. (See Chapter 1 for details.)
- Turn off High Speed mode in the More Settings dialog box, as described in Chapter 3.

- Make sure Economy mode is turned off in the printer software, as described in Chapter 3.
- Replace the ink cartridges as described in Chapter 5. (Check the status of the black and color ink out lights first.)

Here are some detailed solutions to specific print quality problems.

Printed image has horizontal banding.

Possible cause	Solution
The Media Type setting doesn't match the loaded paper.	Make sure the Media Type setting matches the paper you're using. See Chapter 1 for instructions.
The printable side of the paper is face down.	Remove the paper and reload it with the printable side face up. See Chapter 2 for instructions.
The print head nozzles are clogged.	Clean the print heads. See Chapter 5 for instructions.
The ink cartridges are low on ink.	Check the black and color ink out lights to see which cartridge you may need to replace. See Chapter 5.
The MicroWeave or Super MicroWeave option is not turned on.	Turn on MicroWeave or Super MicroWeave (if available) in the More Settings dialog box. See Chapter 3 for more information.

Vertical lines are misaligned or vertical banding appears.

Possible cause	Solution
The print head nozzles are clogged.	Clean the print heads. See Chapter 5 for instructions.
The High Speed setting is turned on.	Turn off the High Speed setting if vertical lines are misaligned. See Chapter 3 for information.
The print heads are misaligned.	Run the Print Head Alignment utility. See Chapter 5 for instructions.

The printed image has incorrect or missing colors.

Possible cause	Solution
The Ink option is set to Black.	Change the Ink setting to Color. See Chapter 1 for instructions.
The Media Type setting doesn't match the loaded paper.	Make sure the Media Type setting matches the paper you're using. See Chapter 1 for instructions.
The printable side of the paper is face down.	Remove the paper and reload it with the printable side face up. See Chapter 2 for instructions.
The Halftoning and Color Adjustment Mode options are set incorrectly for your document type.	Use the correct settings for the project you're printing, following the instructions in Chapter 3.
The ICM (Windows 95) or ColorSync (Macintosh) settings are incorrect for your document.	Use the Automatic mode setting or choose a different Rendering Intent setting (Macintosh). See Chapter 3 for more information.
The print head nozzles are clogged.	Clean the print heads. See Chapter 5 for instructions.
The ink cartridges are low on ink or one or more ink colors are empty.	Check the black and color ink out lights to see which cartridge you may need to replace. See Chapter 5 for instructions.
The colors displayed on your monitor don't match the printed colors.	Because your monitor and printer use different technologies to represent colors, your printed colors can't exactly match the colors you see on your monitor screen. Use the ICM (Windows 95) or ColorSync (Macintosh) settings to get as close a match as possible. See Chapter 3 for more information.
The color settings in your application software need adjustment.	You may be able to adjust various color settings in your application software. See your software documentation for more information.

The printed image is faint or has gaps.

Possible cause	Solution
The print head nozzles are clogged.	Clean the print heads. See Chapter 5 for instructions.
The Media Type setting doesn't match the loaded paper.	Make sure the Media Type setting matches the paper you're using. See Chapter 1 for instructions.

Possible cause	Solution
The loaded paper is damaged, old, or dirty.	Remove the paper and reload a new stack with the printable side face up. See Chapter 2 for instructions.
The ink cartridges are low on ink.	Check the ● black and ◆◆◆ color ink out lights to see which cartridge you may need to replace. See Chapter 5 for instructions.

The printed image is blurry or smeared.

Possible cause	Solution
The paper thickness lever is in the 0 position.	Set the paper thickness lever to the + position and try printing again. See Chapter 2 for instructions.
The paper is damp or the printable side is face down.	Remove the paper and reload a new stack with the printable side face up. See Chapter 2 for instructions.
You loaded special media without a support sheet.	Follow the special media loading instructions in Chapter 2 and on the paper packaging for media that require support sheets. Also try loading your media one sheet at a time.
You tried to print on cardboard or other non-recommended media.	Make sure your paper or media meets the specifications listed in Appendix C. If your printouts are still blurry after you change paper, clean the print heads as described in Chapter 5.
The Media Type setting doesn't match the loaded paper.	Make sure the Media Type setting matches the paper you're using. See Chapter 1 for instructions.
Ink has leaked inside the printer.	Clean carefully inside the printer to remove spilled ink. See Chapter 5 for instructions.
You're using the High Speed and MicroWeave settings with a misaligned print head.	Turn off High Speed following the instructions in Chapter 3. Run the Print Head Alignment utility following the instructions in Chapter 5.
The resolution of your image is too low.	If a photographic image looks grainy or rough, try using the PhotoEnhance 2 (PhotoEnhance on Windows 3.1) setting to improve the printed quality. See Chapter 3 for details. Increase the image resolution using your image editing software, or decrease the size of the image.

Solving Printing Problems

If the printer won't print, first check that:

- The printer is turned on and the ⏻ power light is on.
- Paper is loaded in the printer.
- The printer is plugged into a working electrical outlet that's not controlled by a switch or timer.
- The network cable is securely connected to the printer and the hub, and any relevant network cables are securely connected.

If you still can't print, check the following solutions.

All lights are off.

Possible cause	Solution
The printer is not receiving power.	Try these solutions: ◗ Make sure the printer is turned on. ◗ Turn off the power and plug in the power cord securely. ◗ Make sure the outlet is not controlled by a switch or timer and is operable.

Only the ⏻ power light is on, but nothing prints.

Possible cause	Solution
The interface cable is not connected securely.	Turn off your printer and computer. Then make sure the cable is connected securely and meets the printer's specifications.
The printer has an internal problem.	Turn off the printer and computer, disconnect the interface cable, and run a self test as described on page 7-3.
The printer or application software is installed incorrectly.	If the self test works, check your printer, network, and application software for correct installation.
Your computer doesn't have enough memory to handle the file you're printing.	Try one of the following: ◗ Reduce the resolution of your image. ◗ Select fewer colors or a lower resolution for your display or monitor. ◗ Add more memory to your computer.

Possible cause	Solution
Printing is stalled.	In Windows 95/3.1x, delete the stalled print jobs in Spool Manager; see Chapter 4 for instructions. In Windows NT, use the despooler. On a Macintosh, delete stalled print jobs using Monitor3 or open the Extensions folder, EPSON folder, and Spool folder; then delete any queued files.
The print heads are clogged or the ink cartridges are too old.	Clean the print heads; see Chapter 5 for instructions. If cleaning doesn't help, replace the cartridges. For information on cartridge life and replacement instructions, see Chapter 5.

The paper out light is flashing or on.

Possible cause	Solution
If flashing, paper is jammed.	Remove the paper and follow the guidelines for preventing jams as described on page 7-14.
If on, paper is used up or is loaded incorrectly.	Load paper or remove the stack and reload it as described in the *Setup Guide* and in Chapter 2. Then press the load/eject button to turn off the light and resume printing.

A black or color ink out light is flashing or on.

Possible cause	Solution
If flashing, the ink supply is getting low.	You need to replace the indicated ink cartridge soon; see Chapter 5 for instructions.
If on, the ink cartridge is empty.	You must replace the indicated ink cartridge now to be able to print; see Chapter 5 for instructions.

The and lights are flashing.

Possible cause	Solution
A carriage error has occurred.	Remove any paper in the printer. Press the load/eject button for about 30 seconds. Then press it again. Turn the printer off, wait a few seconds, and then turn it on and try printing again. If the error is not cleared, contact EPSON as described in the Introduction.

All the lights are flashing.

Possible cause	Solution
You haven't removed all the packing material from the printer.	Remove the packing material, following the instructions on the Notice Sheet in the box.
An internal error may have occurred.	Turn off your printer, wait a few seconds, and turn it on again. If the lights still flash or stay on, contact EPSON as described in the Introduction.

The printer has finished charging the ink cartridge, but the ⏻ power light is still flashing.

Possible cause	Solution
The ink cartridge clamp isn't locked down.	Press down on the clamp to lock it.
Packing material remains in the printer.	Remove all packing material, following the instructions on the Notice Sheet in the box.
The printer needs to initialize.	If the printer is not moving or making noise, but the light is still flashing for more than 10 minutes, turn the printer off. If the light is still flashing when you turn it back on, contact EPSON as described in the Introduction.

Solving Printer Software Problems

If you have trouble with your printer software, first check that your printer is selected as the default Windows printer or as the current printer in the Macintosh Chooser; see the *Setup Guide* for instructions.

If you still have problems with your printer software, check the following solutions.

The printer software installed with Windows 3.1 doesn't work correctly after you upgrade to Windows 95.

Possible cause	Solution
Your printer software is not set up correctly for Windows 95.	After installing Windows 95, uninstall the printer software as described on page 7-20, then reinstall the printer software, as described in the *Setup Guide*.

After you install your printer software, you see the Windows 95 New Hardware Found window.

Possible cause	Solution
An operating system error has occurred.	Click Do not install a driver, and then click OK. **Never select any other option on the New Hardware Found window**.

You see a spooling error message (Windows).

Possible cause	Solution
If you see error messages or printing is very slow, the problem may be caused by temporary files (Windows 3.1 only).	Change the Spool Manager default directory (Windows 3.1 only), following the instructions in Chapter 4.
Your hard drive is too full.	Delete unnecessary files to make room on the drive.
Your computer doesn't have enough memory for the file you're printing.	Try one of the following: ◗ Reduce the resolution of your image. ◗ Select fewer colors or a lower resolution for your display or monitor. ◗ Add more memory to your computer.

You see a memory error message (Macintosh).

Possible cause	Solution
You need to increase the memory allocation for your application, EPSON Monitor3, or both.	Choose Get Info from the File menu when the application is active or EPSON Monitor3 is selected and increase the memory requirements. See Chapter 4 for more information. If that doesn't work, turn off background printing if it's on (you won't be able to use Monitor3).

In Windows 95, the Status Monitor 2 window doesn't appear.

Possible cause	Solution
You may not have restarted your computer after installing Status Monitor 2.	Click Start, select Shut Down, click Restart the computer, and click Yes to restart your computer. Then try using Status Monitor 2.
You don't have both parts of Status Monitor 2 installed.	Status Monitor 2 comes in two parts: one that finds the printer on the network, and the other that recognizes your specific printer. Uninstall Status Monitor 2 and reinstall it as described in the *Setup Guide*.

Possible cause	Solution
You're using ScanDisk.	Before using ScanDisk, turn off background monitoring in Status Monitor 2. (See page 4-7 for instructions.) Then turn it back on when you're finished using ScanDisk.
The printer isn't in the list of monitored printers.	Make sure your printer has been added to the monitored printers list in Status Monitor 2. See page 4-2 for more information.

Printing is too slow.

Possible cause	Solution
Your printer software options are set incorrectly.	For the fastest printing, try the following: ◗ Set Print Quality to Economy. ◗ Turn MicroWeave off. ◗ Turn High Speed on. ◗ Choose Black ink. ◗ Choose No Halftoning. See Chapters 1 and 3 for more information.
Your system doesn't have enough resources.	To free up resources, try the following: ◗ Clear space on your hard disk or run a defragmentation utility. ◗ Don't run too many applications at the same time. ◗ Turn off virtual memory. ◗ Increase your system's memory (RAM) ◗ Upgrade your CPU.
You're using background printing on a Macintosh.	Select EPSON Monitor3 and choose Get Info from the File menu to increase the Memory Requirements for EPSON Monitor3. See Chapter 4 for more information. If that doesn't work, turn off background printing (you won't be able to use Monitor3).

Your printer icon doesn't appear in the Chooser (Macintosh).

Possible cause	Solution
Your Macintosh has extension conflicts. See also "Solving Network Problems" on page 7-17.	Disable Quick Draw GX in the Extensions Manager. Make sure EPSON Monitor3 and SC 850AT are enabled, and then restart your Macintosh.

The "SC 850AT cannot be used" message appears (Macintosh).

Possible cause	Solutions
The printer software has been corrupted.	Remove and reinstall the printer software as described on page 7-21. Then, in the Extensions Manager, disable Quick Draw GX, enable EPSON Monitor3 and SC 850AT, and restart your Macintosh.

Fixing Paper Problems

To avoid most paper handling problems, do the following:

- Use smooth, high-quality media designed for ink jet printers that meets the media specifications in Appendix C.
- Follow all loading and handling instructions included with the media.
- Load the media with the printable side face up as described in the *Setup Guide* and in Chapter 2.

If you have any paper problems, check here for solutions.

Paper doesn't feed.

Try this	Then do this
Remove the stack of paper from the printer.	Check that the paper isn't: ◗ Curled or creased. ◗ Too old. (See Chapter 2 or your paper packaging for more information.) ◗ Loaded above the arrow on the left edge guide. ◗ Jammed inside the printer. (If the paper out light is flashing, paper is jammed.) Then reload the paper as described in the *Setup Guide* and in Chapter 2, making sure the left edge guide is adjusted to fit the paper's width.

Multiple pages feed at the same time.

Try this	Then do this
Remove the stack of paper from the printer.	◗ Make sure the paper isn't too thin (see the paper specifications in Appendix C). ◗ Fan the edges of the stack of paper to separate the sheets. ◗ Reload the paper as described in the *Setup Guide* and in Chapter 2. ◗ If too many copies of a page or document are printing, check the Copies settings in both the printer software and your application program. See Chapter 1 for more information.

Paper jams inside the printer.

Try this	Then do this
Turn off your printer, open the cover, and remove all the paper that's inside, including any little pieces that may have torn off.	Load more paper in the printer, following the instructions in the *Setup Guide* and in Chapter 2. If your paper jams frequently, make sure you: ◗ Use smooth, high-quality paper, loaded printable side up. ◗ Fan the stack and then even the edges before loading it. ◗ Load paper beneath the arrow mark on the left edge guide. ◗ Adjust the left edge guide to fit the width of your paper.

Paper doesn't eject fully or is wrinkled.

Possible cause	Solution
If the paper doesn't eject fully, you may have set the wrong paper size.	Press the load/eject button to eject the paper. Then make sure you select the correct paper size in your printer software. See Chapter 3 for instructions.
If it's wrinkled when it comes out, the paper may be damp or too thin.	See the paper specifications in Appendix C for ranges of paper thicknesses you can print with, as well as environmental requirements for storage.

Solving Miscellaneous Printout Problems

If your printout results are not what you expected, try these solutions.

Characters are incorrect or garbled.

Possible cause	Solution
Your printer is not selected in your application or as the Windows default printer.	Select your printer in your application or select it as the default Windows printer. See your Windows documentation or online help for instructions.
Your printer is not selected in the Macintosh Chooser.	Select your printer in the Chooser as described in the *Setup Guide*.
Printing is stalled.	In Windows, delete the stalled print jobs in Spool Manager (in the spooler for Windows NT). On a Macintosh, select the stalled print jobs in Monitor3, or open the Extensions folder, EPSON folder, and Spool folder; then delete any queued files. See Chapter 4 for instructions.
The network cable is not securely connected.	Turn off your printer and computer. Then make sure the network cable is connected securely and meets the Ethernet card's specifications.
Your video driver may be conflicting with the EPSON printer driver.	Change to a standard VGA driver (see your computer or video card documentation for instructions). If your printout is correct, your video driver is interfering with the printer driver. Contact your computer or video card manufacturer for an updated driver.

The image is inverted as if viewed in a mirror.

Possible cause	Solution
You used a Flip Horizontal option.	Turn off the Flip Horizontal or mirror setting in your application software or the printer software. See Chapter 3 for instructions.

The image size or position is incorrect.

Possible cause	Solution
The paper and/or layout options are set incorrectly.	Check the paper settings and the settings on the Layout dialog box (Windows 95, NT, or Macintosh only). See Chapter 3 for instructions. Also check the paper and layout options in your application software.

The margins are incorrect.

Possible cause	Solution
Margins are set incorrectly in your application software.	Check your software documentation for instructions on selecting the correct margins for your paper size. Make sure the margins are within the printable area of the page. See Appendix C for printable area specifications.
Paper settings in the printer software are incorrect for your paper size.	Check the settings in the paper dialog box to make sure they're correct for your paper size. See Chapter 3 for more information.

A portion of your image doesn't print (Macintosh).

Possible cause	Solution
Your system doesn't have enough available memory.	Close any other applications you are running and turn off background printing.
You need to increase the memory allocation for your application, EPSON Monitor3, or both.	Choose Get Info from the File menu when the application is active and increase the memory requirements. See Chapter 4 for more information.

The printer prints blank pages.

Possible cause	Solution
Your printer is not selected in your application or as the Windows default printer.	Select your printer as the default Windows printer. See your Windows documentation or online help for instructions.
Your printer is not selected in the Macintosh Chooser.	Select your printer in the Chooser as described in the *Setup Guide*.
Paper settings in the printer software are incorrect for your paper size.	Check the settings in the paper dialog box to make sure they're correct for your paper size. See Chapter 3 for more information.
The print head nozzles are clogged.	Clean the print heads following the instructions in Chapter 5.

Solving Network Problems

If any computer on the network can't see the Ethernet card or the network, or isn't able to send print jobs, first check that:

- The printer is turned on and the ⏻ power light is on.
- All the computers (such as the print server), hubs, and gateways in the pathway from your computer to the printer are turned on and working correctly.
- All the cables are connected correctly for 10BASE2 and 10BASE-T cables and terminated correctly if you are using 10BASE2 cables.
- All the network software and protocols have been set up and are working correctly.

If you still have network problems, see the following solutions.

EPSON Net! doesn't see the Ethernet card.

Possible cause	Solution
The settings in the Ethernet card are incorrect.	Initialize the card. See page 6-5 for instructions.
The network is not set up correctly.	Make sure the network software settings are correct.
The cables are not connected correctly.	Check all the network cable connections and make sure they are connected and/or terminated correctly. Check the network with EPSON Net! or your network software (i.e., NetWare).
Wrong settings in the printer.	Try to print a status sheet, as described on page 6-3. If you can't, set the network interface mode on the printer's control panel to On. See page C-7 for instructions.

EPSON Net! does not start.

Possible cause	Solution
You added or deleted protocols after installing EPSON Net!.	Uninstall EPSON Net! as described on page 7-20. Then reinstall EPSON Net! as described in the *Setup Guide*.
The software did not install correctly.	Uninstall EPSON Net! as described on page 7-20. Then reinstall EPSON Net! as described in the the *Setup Guide*. Make sure you check the settings carefully during installation.

The IP addresses aren't working correctly on all the computers.

Possible cause	Solution
The IP addresses you set are conflicting or incorrect.	Check all the computers carefully to make sure they have different IP addresses and that they all have the same network ID (the first part of the IP address). Also make sure they have the correct subnet masks and are set up to use the correct gateway (if used).
The IP addresses don't work correctly on occasion and you are on a network that is connected directly to the Internet.	If you are directly connected to the Internet (not by a dial-up connection), be sure to obtain a range of IP addresses from the InterNIC. Otherwise, you may have conflicts with other computers on the Internet. If you don't have legitimate IP addresses, either disable TCP/IP or disable your connection to the Internet, and get the addresses from the InterNIC.

Pinging the card gives you no results (UNIX or Windows 95).

Possible cause	Solution
You typed the wrong address in the ping command.	Check and retype the command correctly.
The hardware is not connected correctly.	Check all the cables and make sure the printer and the Ethernet card are turned on and working correctly. If you have 10BASE2 cable (thin coaxial), make sure it is terminated correctly.
The IP addresses are not working correctly.	Check the previous table for solutions.

Your computer can't communicate with the Ethernet card.

Possible cause	Solution
The card is on a different segment of the network, and the gateway or subnet mask is set up incorrectly.	Check all the settings of the gateway and the subnet masks. When you are using EPSON Net!, you must use a computer that is on the same segment of the network as the printer to configure its Ethernet card.
You may have a hardware problem.	Make sure all the following are turned on, connected, terminated (if necessary), and working correctly: ◗ Your computer ◗ Printer ◗ Print server ◗ Server ◗ Ethernet card ◗ Routers ◗ Hubs ◗ All other equipment on the network between your computer and the printer

Windows NT clients can't print.

Possible cause	Solution
The client's permission to print was deleted or disabled.	Add the CREATOR OWNER status by clicking the Add button on the Printer Permissions dialog box, or set the CREATOR OWNER status to Manage Documents (the default setting).
You may need to use a different network path and printer port.	Select a different printer port in the printer's Properties window and enter the new network path to your printer at the DOS prompt. Then restart your computer. See your Windows NT documentation for instructions on changing the printer port and network path.

NetWare clients cannot print.

Possible cause	Solution
The clients may not be registered, or the Ethernet card may not be logged in to the NetWare server.	Make sure each client is a registered user of the print queue and print server. Also, make sure the Ethernet card is logged in to the NetWare server. If you need more information about using NetWare for printing, see pages 6-22 through 6-24, and your NetWare documentation.

You cannot monitor NetWare print servers beyond the routers.

Possible cause	Solution
The number of hops is set to 0.	Increase the number of hops by changing the setup of Status Monitor 2 as described on page 4-8.

Your printer icon doesn't appear in the Chooser (Macintosh).

Possible cause	Solution
EtherTalk is not selected in the Network Control Panel or in the AppleTalk Control Panel.	For models without Open Transport, make sure EtherTalk is selected in the Network Control Panel. For models with Open Transport, select EtherTalk in the AppleTalk Control Panel and make sure AppleTalk is active in the Chooser.

Uninstalling Printer Software

If any of the suggested solutions in this chapter tell you to uninstall and then reinstall your printer software, follow the steps in this section. To uninstall software in UNIX, OS/2, and DOS, see your operating system's documentation or your network administrator for instructions.

Caution:
If you uninstall and then reinstall the printer driver software in Windows 95 or NT, you must either run the setup program for Status Monitor 2 as described in "Changing Status Monitor 2 Settings" on page 4-8, or uninstall and reinstall it, so it can recognize your printer.

In Windows NT 4.0, you can't uninstall the printer software with the Add/Remove Programs utility. See your Windows NT documentation to remove printer drivers from your system.

Windows 95/NT 4.0 Instructions

1. Double-click the My Computer icon, then double-click the Control Panel icon.
2. Double-click Add/Remove Programs.
3. To uninstall the printer software (Windows 95 only), select EPSON Printer Software in the program list.

   To uninstall Status Monitor 2, select EPSON Status Monitor 2 in the program list.

   To uninstall EPSON Net!, select EPSON Net! in the program list.
4. Click the Add/Remove button. Follow the instructions on the screen to uninstall your software.
5. To reinstall your software, see the *Setup Guide*.

Windows 3.1 Printer Software Instructions

1. Double-click the Main program group icon, then double-click the Control Panel icon.
2. Double-click Printers.
3. Select EPSON Stylus COLOR 850 in the Installed Printers list and click the Remove button.
4. To reinstall your software, see the *Setup Guide*.

Windows 3.1 EPSON Net! Instructions

1. Double-click the File Manager icon.
2. Select the C:\EPNET folder (or wherever you installed your EPSON Net! files).
3. Select Delete from the File menu, click OK, and then click Yes.
4. In Program Manager, select the EPSON Net! icon. Then select Delete from the file menu and click Yes to delete the EPSON Net! group.

Macintosh Instructions

Note:
To remove EPSON Net! from a Macintosh system, find the EPSON Net! folder that you created and drag it to your Trash icon.

1. Insert the EPSON printer software CD-ROM in your drive.
2. Double-click the Installer icon. Then click Continue.
3. Click the arrow in the list at the top showing Easy Install, and select Remove from the list.
4. Click the Remove button on the bottom of the screen.
5. Follow the instructions on the screen to uninstall the printer software.
6. To reinstall your software, see the *Setup Guide*.

A Using Floppy Diskettes

Note:
To install the software using the CD-ROM, see your *Setup Guide*.

If you are using Windows, you can use the Make Floppy Diskettes utility on your CD-ROM if you don't have a CD-ROM drive on a computer that needs to use the printer. For Macintosh, OS/2, or DOS, you need to copy the files from the CD onto diskettes. (See the list of software and directories on page A-4.)

The following sections describe how to create and use floppy diskettes to install the software:

- Using the Disk Creation Utility
- Copying Files Manually
- Installing EPSON Net!
- Installing Status Monitor 2
- Installing the Printer Software (Driver) in Windows
- Installing the Printer Software (Driver) in Macintosh

Using the Disk Creation Utility

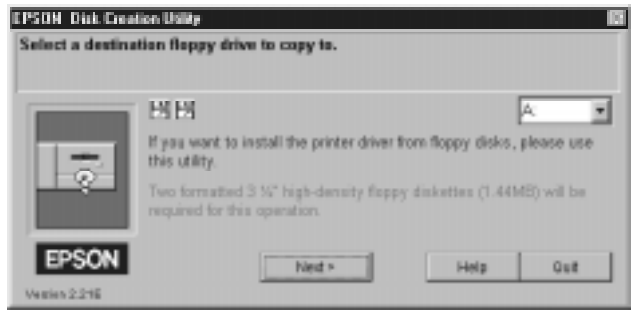
Make sure you have several formatted diskettes ready, then follow these steps to use the EPSON Driver Disk Creation Utility in Windows 95/3.1x/NT 4.0:

1. Insert the EPSON Stylus COLOR 850N CD-ROM in your drive and a blank, formatted diskette in the diskette drive.

You see the EPSON Installation Program screen:

If the screen does not appear, go to My Computer and double-click the Epson CD-ROM icon to start the EPSON Installation program.

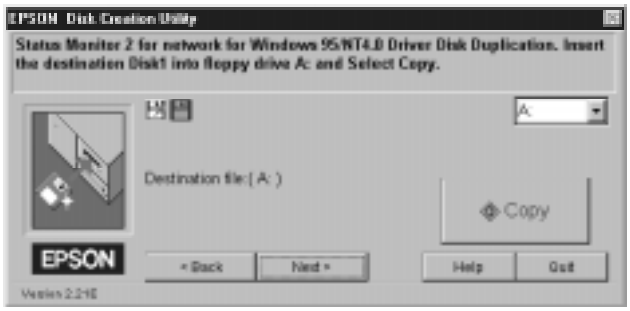
2. Select which program you want and click OK. You see a screen like the following:



The screen lists the number of diskettes you need and lets you change the floppy drive letter, if necessary.

3. Click Next.

You see a screen similar to the following:



Note:
If you are making Status Monitor 2 diskettes, make sure you label the diskettes for both parts carefully, so you do not mix up the network diskettes and the printer-specific diskettes.

4. Click Copy to copy the first diskette. You see a screen showing the progress as the files are copied to the diskette. For multiple diskettes, when the first diskette is finished, the installer prompts you to insert disk 2.

   Make sure you label each diskette in order as you create it: Status Monitor 2, network part, disk 1 of 2, etc.

5. If you have to create more than one disk, insert the next disk and click Copy. Repeat this step for a third disk if necessary.

6. When the diskettes have finished copying, click Quit and then click OK.

After you have created all the diskettes you need, you can install the software by reading the sections that start on page A-4.

Copying Files Manually

If you don't have a Windows computer and you need to create diskettes, see the table below to find the directory on the CD-ROM where your files are located:

Program	Directory*	Files
EPSON Net! for DOS	D:\EPSONNET\DOS	Epnwde.dat Epnwde.exe
EPSON Net! for OS/2 - NetBEUI (Pipes)	D:\EPSONNET\OS2\NETBEUI\PIPES	Addport.cmd, Delport.cmd, Portchg.exe, Rembeu.exe, Remprt3.exe, Remstat3.exe
EPSON Net! for OS/2 - NetBEUI (Redirection)	D:\EPSONNET\OS2\NETBEUI\REDIRECT	Rprint3.exe, Rstat3.exe
EPSON Net! for OS/2 - TCP/IP (Pipes)	D:\EPSONNET\OS2\TCPIP\PIPES	Addport.cmd, Delport.cmd, Portchg.exe, Remdrv.exe, Remprt.exe, Remstat.exe
EPSON Net! for OS/2 - TCP/IP (Redirection)	D:\EPSONNET\TCPIP\REDIRECT	Rprint.exe, Rstat.exe
EPSON Printer Software (Driver) and EPSON Net! for Macintosh	Drag the files from the CD-ROM folder to diskettes (1 per file).	EPSON Installer (printer driver) EPSON Net!

*Substitute your CD-ROM drive letter for D.

Installing EPSON Net!

If you have the following network configurations and operating systems, you should install EPSON Net! to configure the card:

- Windows 95, NT 4.0, or 3.1x with Novell NetWare
- Windows NT 4.0 with TCP/IP
- Macintosh with AppleTalk (EtherTalk)

Installing EPSON Net! in Windows

Note:
For peer-to-peer networks with both Windows NT and Windows 95, use EPSON Net! on a Windows NT system.

If you have a peer-to-peer network with only Windows 95, you use TCP/IP and EPSON TCP/IP (included with Status Monitor 2) to configure the Ethernet card and use the printer on the network. See the *Setup Guide*.

1. Insert the EPSON Net! diskette in your drive.
2. In Windows 95 or NT 4.0, click Start, then click Run.

   In Windows 3.1x, select Run from the File menu in Program Manager.
3. For NetWare, type A:\WINDOWS\INSTALL and click OK. (If your diskette drive is not A, substitute the correct letter.)

   For NT and TCP/IP, type A:\WNT\INSTALL and click OK. (If your diskette drive is not A, substitute the correct letter.)
4. Follow the instructions on the screen to complete the installation.

After you install EPSON Net!, you can use it to configure your printer for NetWare (on page 16 in your *Setup Guide*) or for NT and TCP/IP (on page 23 in your *Setup Guide*).

Installing EPSON Net! on a Macintosh

1. Create a folder for EPSON Net! on your hard disk.
2. Insert the EPSON Net! diskette in your drive.
3. Double-click the diskette to open it and copy EPSON Net! to the folder you created.

After you install EPSON Net!, you use it to configure your printer for AppleTalk, as described on page 23 in your *Setup Guide*.

Installing Status Monitor 2

EPSON Status Monitor 2 is a single utility that you install on your computer in two parts. For each system that will monitor the printer, make sure you install the network part and the EPSON Stylus COLOR 850 part of EPSON Status Monitor 2.

Note:
You may not see screens for all the steps here, depending on your computer's configuration.

If you are using Windows 95 on a peer-to-peer network, make sure you have TCP/IP installed on your system before installing Status Monitor 2 so you can enable EPSON TCP/IP printing.

Write down your settings in the spaces provided as you install the first part of Status Monitor 2. You need to select the same settings for the second part.

Follow these steps to install EPSON Status Monitor 2:

1. Insert Status Monitor 2 for Network, diskette 1 in your drive.

2. Click Start, then click Run.

3. Type A:\SETUP and click OK.

4. Close any open programs and click Next. A screen appears asking where you want to install Status Monitor 2.

5. Click Next to accept the default directory or choose a different directory and click Next.

6. If you are using Windows 95 and you have TCP/IP installed, you see a screen asking you if you want to enable EPSON TCP/IP printing. Select Yes if you want to print with TCP/IP, and then click Next. If you are printing with Novell NetWare, select No.

   TCP/IP Printing: Yes_____ No_____

7. Select the type of printer(s) you want to monitor and click Next.

   Monitor:
   EPSON TCP/IP printers_____ NetWare printers_____ local printers_____

8. Select Monitor to monitor EPSON network printers that do not have drivers installed in your computer. Select Do not monitor if network traffic is a problem. Then click Next.

   Printers: Monitor_____ Do not monitor_____

Caution:
If you have dial-up routers in a NetWare environment, they may automatically dial up the next hop and you may be charged for the line connection depending on the number of hops you set. To prevent this and to keep network traffic to a minimum, set hops carefully.

9. If you're using NetWare, set the number of hops (0 to 15) and click Next.

   Number of hops: _____

10. Check the current settings and click Next to install the software. When the installer prompts you, insert the second diskette.

11. When you see the Setup Complete screen, select No and click Finish.

12. Insert Status Monitor 2 for EPSON Stylus COLOR 850, diskette 1 in your drive.

13. Follow steps 2 to 10, using the same settings you used in those steps.

14. When the Setup Complete screen appears, select Yes and click Finish.

15. After you restart your computer, right-click the green background monitoring icon in your Startup group on the taskbar. Click stop monitoring now. This step turns off background monitoring, which may interfere with EPSON Net! when you configure the card. (See page 4-7 to turn on background monitoring.)

Note:
If you install Status Monitor 2 on additional workstations, or you are not using EPSON Net! you do not have to turn off background monitoring. You should limit the number of systems that monitor the printer, however, to prevent network traffic problems.

Note:
For instructions on using your printer software, see Chapter 1 in this *User's Guide.*

Installing the Printer Software (Driver) in Windows

Follow these steps to install your printer software:

1. Insert diskette 1 in your drive.

2. In Windows 95 or NT 4.0, click Start, then click Run.

   In Windows 3.1x, select Run from the File menu in Program Manager.

3. Click OK and follow the instructions on the screen to install your printer software.

   Your printer is automatically set to your local port, LPT1. You need to change it to follow the network path to your printer by adding a port as described on pages 27 and 29 of your *Setup Guide*.

Installing the Printer Software (Driver) in Macintosh

Follow these steps to install your printer software:

1. Turn on your printer and your Macintosh and turn off any virus protection programs you may have.

2. Insert the diskette in your drive and double-click the diskette icon that appears.

3. Double-click the Installer icon.

4. Follow the instructions on the screen and restart your computer.

   To use the printer, you need to select the EPSON Stylus COLOR 850 AT printer in the Chooser and make sure AppleTalk is on.

B EPSON Accessories

EPSON offers a variety of accessories for your EPSON Stylus COLOR 850N printer, from replacement ink cartridges to special ink jet paper and other creative media.

To purchase EPSON accessories, contact your local printer retailer. You can also purchase ink cartridges, EPSON media, and manuals from EPSON Accessories at **(800) 873-7766** (U.S. sales only). In Canada, please call **(800) 807-7766**.

When you order accessories, be sure to use the part numbers listed in this appendix.

Ink cartridges

Cartridge type	Part number
Black ink cartridge	S020108
Color ink cartridge	S020089

EPSON ink jet paper and other media

Media name	Size	Part number
EPSON 360 dpi Ink Jet Paper	Letter A4	S041060/S041028 S041059/S041025
EPSON High Quality Ink Jet Paper	Letter A4	S041111 S041117
EPSON Photo Quality Ink Jet Paper	Letter A4 Legal	S041062/S041029 S041061/S041026 S041067/S041048
EPSON Photo Quality Glossy Paper	Letter A4	S041124 S041126

EPSON ink jet paper and other media

Media name	Size	Part number
EPSON Photo Quality Glossy Film	Letter A4 4.1 × 5.8 (A6)	S041072 S041071 S041107
EPSON Photo Paper	4 × 6 Letter A4 Panoramic	S041134 S041141 S041104 S041145
EPSON Photo Sticker Kit (CD-ROM and paper) EPSON Photo Stickers (refill)	4.1 × 5.8 (A6) 4.1 × 5.8 (A6)	S041144-KIT S041144
EPSON Photo Quality Ink Jet Cards	4.1 × 5.8 (A6) 8 × 10	S041054 S041122
EPSON Ink Jet Transparencies	Letter A4	S041064 S041063
EPSON Photo Quality Self Adhesive Sheets	A4	S041106
EPSON Iron-On Transfer Paper	Letter	SE41001, SE41002
EPSON Iron-on Cool Peel Transfer Paper	Letter	S041153/S041155

C Technical Specifications

Printing

Printing method On-demand ink jet

Nozzle configuration 128 black nozzles (32 × 4, staggered)
64 color nozzles × 3 (cyan, magenta, yellow)

Printable columns and printing speed

Character pitch (characters per inch)	Printable columns	Printing speed (characters per second)	
		Draft	Normal
10	80	533	400
12	96	640	480
15	120	800	600
17 (10 condensed)	137	912	684
20 (12 condensed)	160	1067	800

Print quality	CR speed (inches per second)
180 dpi × 180 dpi	26.7
360 dpi × 360 dpi	20
720 dpi × 720 dpi	20
1440 dpi × 720 dpi	20

Resolution	Maximum 1440 × 720 dpi
Input buffer	32KB
Print direction	Bidirectional with logic seeking for text and graphics
Control code	ESC/P 2™ and expanded raster graphics code IBM X24E emulation code
Line spacing	1/6-inch (default) programmable in 1/8-inch or 1/360-inch increments
Paper feed speed	100 milliseconds per 1/3-inch line
Character tables	1 italic and 10 graphics character tables
Character sets	14 international character sets and 1 legal character set
Bitmap fonts	◗ EPSON Roman (proportional) ◗ EPSON Sans Serif (proportional) ◗ EPSON Courier ◗ EPSON Prestige ◗ EPSON Script All bitmap fonts are available in 10, 12, and 15 cpi. You can select other font/pitch combinations using ESC/P 2 commands.
Scalable fonts	◗ EPSON Roman ◗ EPSON Sans Serif ◗ EPSON Roman T ◗ EPSON Sans Serif H All scalable fonts are available in sizes from 8 to 32 points, in 2 point increments, and four styles: normal, bold, italic, and bold italic. The printer always uses the fonts you select with your software application. You need to use the printer's internal fonts only if your application doesn't allow you to select fonts.

Paper

Paper type	Size	Paper types	Thickness	Weight
Single sheets	Letter (8.5 × 11 inches) A4 (210 × 297 mm) A5 (148 × 210 mm) B5 (182 × 257 mm) Legal (8.5 × 14 inches) Half letter (5.5 × 8.5 inches) Executive (7.5 × 10 inches)	Plain paper and special ink jet papers distributed by EPSON	0.003 to 0.004 inch (0.08 to 0.11 mm)	17 to 24 lb (64 to 90 g/m^2)
Transparencies and glossy media	Letter (8.5 × 11 inches) A4 (210 × 297 mm) A6 (105 × 148 mm, glossy film only)	Transparencies, glossy paper, and glossy film distributed by EPSON	Glossy film and transparencies: 0.0051 to 0.0059 inch (0.13 to 0.15 mm) glossy paper: 0.0067 to 0.0071 inch (0.17 to 0.18 mm)	—
Photo Paper	4 × 6 inches (102 × 152 mm) Letter (8.5 × 11 inches) A4 (210 × 297 mm) Panoramic (8.27 × 23.4 inches)	Photo Paper distributed by EPSON	—	—
Self adhesive sheets and iron-on cool peel transfer paper	A4 (210 × 297 mm) Letter (8.5 × 11 inches; iron-on cool peel transfer paper only)	Self adhesive sheets and iron-on cool peel transfer paper distributed by EPSON	0.0079 inch (0.2 mm) maximum	—
Photo stickers	A6 (105 × 148 mm) with 16 frames	Photo stickers distributed by EPSON	—	—

Notes:
Since the quality of any particular brand or type of paper may be changed by the manufacturer at any time, EPSON cannot guarantee the use of any particular brand or type of paper. Always test samples of paper stock before purchasing large quantities or printing large jobs.

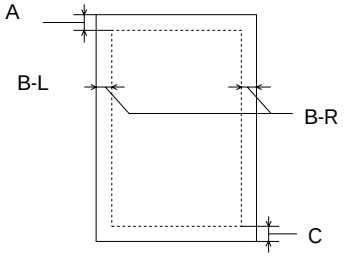
Poor quality paper may reduce print quality and cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.

Do not load curled or folded paper, envelopes, or transparencies.

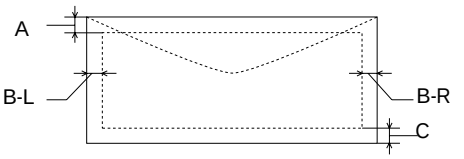
Print on ink jet papers and envelopes only under these conditions:
Temperature: 59 to 77°F (15 to 25°C)
Humidity: 40 to 60% RH

Store glossy media and self adhesive sheets under these conditions:
Temperature: 59 to 86°F (15 to 30°C)
Humidity: 20 to 60% RH

Printable area

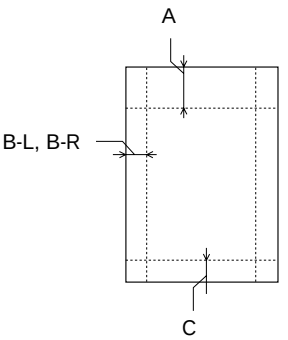


Single sheets and cards



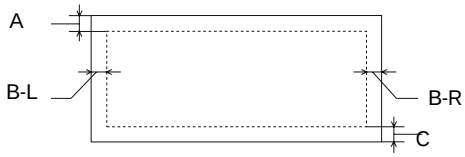
Envelope

A	The minimum top margin is 0.12 inch (3.0 mm). When printing multiple sheets of glossy media, the minimum top margin is 1.2 inches (30 mm).
BL	The minimum left margin is 0.12 inch (3.0 mm).
BR	The minimum right margin is: 0.35 inch (9.0 mm) for Letter and Legal 1.10 inches (28 mm) for #10 envelopes 0.28 inch (7 mm) for DL envelopes 0.12 inch (3.0 mm) for all other paper sizes.
C	The minimum bottom margin is 0.55 inch (14.0 mm).



EPSON 4 × 6-inch Photo Paper
(dotted lines indicate perforations)

A:	The maximum top margin is 0.67 inch (17.0 mm).
B–L, B–R:	The maximum left and right margin is 0.24 inch (6.1 mm).
C:	The maximum bottom margin is 0.24 inch (6.1 mm).



EPSON Panoramic Photo Paper

A: The minimum top margin is 0.12 inch (3.0 mm).

BL: The minimum left margin is 0.12 inch (3.0 mm).

BR: The minimum right margin is 0.54 inch (14.0 mm).

C: The minimum bottom margin is 0.12 inch (3.0 mm).

Note:
Always load paper into the sheet feeder short edge first except envelopes. Load envelopes long edge first.

Ink Cartridges

Specification	Black ink cartridge (S020108)	Color ink cartridge (S020089)
Color(s)	Black	Cyan, magenta, and yellow
Print capacity*	900 pages (A4 paper; text at Normal - 360 dpi) (ISO/IEC 10561 Letter Pattern)	300 pages (A4 paper; Normal - 360 dpi, 5% each color)
Cartridge life	2 years from production date and up to within 6 months after opening package at 77 °C (25 °F)	
Storage temperature	–4 to 104 °F (–20 to 40 °C) 1 month at 104 °F (40 °C)	
Transit temperature	–22 to 140 °C (–30 to 60 °F) 1 month at 104 °F (40 °C) 120 hours at 140 °F (60 °C)	
Freezing temperature**	–3.2 °F (16 °C)	–0.4 °F (–18 °C)
Dimensions	1.09 (W) × 2.1 (D) × 1.5 (H) inches 27.8 (W) × 52.7 (D) × 38.5 (H) mm	1.7 (W) × 2.1(D) × 1.5 (H) inches 42.9 (W) × 52.7 (D) × 38.5 (H) mm

* The print capacity may vary depending on how often you use the print head cleaning function. Also, if you print large graphics and dense text with little white space, you use ink faster.

** The ink thaws and is usable after approximately 3 hours at 77 °F (25 °C).

Caution:
To ensure good results, use genuine EPSON cartridges and do not refill them. Other products may cause damage to your printer not covered by EPSON's warranty.

Do not use an ink cartridge after the expiration date on the package.

Mechanical

Paper feed method Friction with auto sheet feeder, rear entry

Sheet feeder capacity Maximum 100 sheets of 17 lb (64 g/m^2) paper

Dimensions

Storage
Width: 18.7 inches (475 mm)
Depth: 10.7 inches (274 mm)
Height: 7.4 inches (177 mm)

Printing
Width: 18.7 inches (475 mm)
Depth: 24.0 inches (610 mm)
27.2 inches (692 mm, when loading transparencies)
Height: 12.4 inches (315 mm)
7.95 inches (202 mm, when loading transparencies)

Weight 14.3 lb (6.5 kg) without the ink cartridges

Electrical

Specification	120V model	240V model*
Input voltage range	103.5V to 132V	198V to 264V
Rated frequency range	50 to 60 Hz	
Input frequency range	49.5 to 60.5 Hz	
Rated current	0.4A	0.2A
Power consumption	Approx. 18 W (ISO/IEC 10561 Letter Pattern)	

* Also designed for IT power systems with Phase to Phase voltage 220–240V

Environmental

Temperature

Operation 50 to 95 °F (10 to 35 °C)
Storage* –4 to 140 °F (–20 to 60 °C)
1 month at 104 °F (40 °C)
120 hours at 140 °F (60 °C)

Humidity

Operation 20 to 80% RH
Storage* 5 to 85% RH
(without condensation)

* Stored in shipping container

Safety Approvals

Safety standards UL 1950 with D3, CSA 22.2 950 with D3

EMC

FCC part 15 subpart B class B
CSA C108.8 class B

DOS Support

If driver support for the EPSON Stylus COLOR 850N is not available from your software manufacturer, you can use one of the other EPSON ESC/P 2 printer drivers. Choose the first printer available from the following two lists:

Black printing only

- LQ-870/1170
- LQ-570(+)/1070(+)
- SQ-870/1070
- LQ-850
- LQ-500

Color and black printing

- EPSON Stylus PRO
- EPSON Stylus COLOR 500
- EPSON Stylus COLOR II
- LQ-860
- LQ-2550

Control Panel Settings

You can change the following default settings from the printer's control panel:

Setting	Options
Print direction	Auto, Bi-D, Uni-D
Font	Courier, Roman, Sans Serif, Prestige, Script, Roman T, Sans Serif H, Draft
Pitch	10 cpi, 12 cpi, 15 cpi, 17.1 cpi, 20 cpi, Proportional
I/F mode	Auto, Parallel, Serial, Option
Auto I/F wait time	10 seconds, 30 seconds
Software	ESC/P 2, IBM X24E
Auto CR (IBM mode only)	Off, On
AGM (IBM mode only)	Off, On
Character table	PC437, PC850, PC860, PC861, PC863, PC865, Abicomp, BRASCII, Roman 8, ISO Latin 1
International character set for italic table	Italic U.S.A., Italic France, Italic Germany, Italic U.K., Italic Denmark 1, Italic Sweden, Italic Italy, Italic Spain 1
Auto line feed	Off, On

Setting	Options
Network I/F mode	Off, On
Loading position	8.5 mm, 3 mm, Others
Economy	Off, On

Changing control panel settings

Follow these steps to change the settings listed above:

1. Make sure the printer is turned off and has paper loaded.
2. Hold down the color cleaning button and press the power button. The printer prints a summary of instructions for changing settings and choosing the language to use for additional instructions.
3. Press the color cleaning button to print a list of current settings and additional instructions.
4. After you make the changes you want, turn the printer off to save the settings. The settings remain in effect until you change them again.

Control Codes

ESC/P 2 control codes

See the *ESC/P® Reference Manual* for more information about these commands.

General operation:
ESC @, ESC U, ESC EM

Paper feeding:
CR, FF, LF, ESC 0, ESC 2, ESC 3, ESC +

Page format:
ESC (C, ESC C, ESC C 0, ESC Q, ESC l, ESC (c, ESC N, ESC O

Print position motion:
ESC $, ESC \, ESC (V, ESC (v, ESC D, HT, ESC B, ESC J, VT

Font selection:
ESC k, ESC x, ESC X, ESC P, ESC M, ESC g, ESC p, ESC 4, ESC 5, ESC E, ESC F, ESC !

Font enhancement:
ESC W, DC 4, SO, DC2, SI, ESC w, ESC G, ESC H, ESC T, ESC S, ESC -, ESC (-, ESC q

Spacing:
ESC Space, ESC c, ESC (U

Character handling:
ESC t, ESC (t, ESC R, ESC %, ESC &, ESC :, ESC 6, ESC 7, ESC (^

Bit image:
ESC *

Graphics:
ESC (G, ESC ., ESC (i, ESC (e, ESC (\, ESC (s

Color:
ESC r, ESC (r

Printing mode:
ESC (K

IBM X24E emulation control codes

This printer emulates the IBM Proprinter with the following commands. For detailed information, see IBM's X24E reference manual.

General operation:
NUL, DC3, ESC j, BEL, CAN, DC1, ESC Q, ESC [K, ESC U

Paper feeding:
FF, LF, ESC 5, ESC A, ESC A (AGM*), ESC 0, ESC 1, ESC 2, ESC 3, ESC 3 (AGM*), CR

Page format:
ESC C, ESC X, ESC N, ESC O, ESC 4

Print position motion:
ESC d, ESC R, ESC D, HT, ESC B, VT, ESC J, ESC J (AGM*)

Font selection:
DC2, ESC P, ESC :, ESC E, ESC F, ESC I

Font enhancement:
DC4, SO, ESC SO, ESC W, ESC [@, SI, ESC SI, ESC G, ESC H, ESC T, ESC S, ESC -, ESC _

Spacing:
BS, SP, ESC [\

Character handling:
ESC 6, ESC 7, ESC [T, ESC ^, ESC \

Bit image:
ESC K, ESC L, ESC Y, ESC Z, ESC [g, ESC * (AGM*)

* Alternate Graphics Mode

Character Tables

All character tables except Italic are the same as the PC437 table for hex codes 00 through 7F. Additional characters are available for hex codes 80 through FF. You can select the following character tables through the control panel or software commands:

- PC 437 (U.S./Standard Europe)
- PC850 (Multilingual)
- PC860 (Portuguese)
- PC861 (Icelandic)
- PC863 (Canadian-French)
- PC865 (Nordic)

- Abicomp
- BRASCII
- Roman 8
- ISO Latin 1
- Italic (no characters available for hex code 15)

International character sets

You can select a number of international character sets with the control panel or the ESC R command. Other sets can only be selected with the ESC R command. You can select additional characters with the ESC (^ command.

Ethernet Card

Interface type

Type B Interface

Ethernet network hardware connectors

IEEE 802.3 10BASE2 RG58A/U coaxial cable via BNC connector

IEEE 802.3 10BASE-T straight-through twisted pair modular cable via RJ45 connector

Network software

Novell NetWare 3.x or 4.x (Bindery Emulation Mode)

EtherTalk (AppleTalk)

DLC

TCP/IP protocol

Environmental

Temperature

Operation: 50 to 95 °F (10 to 35 °C)

Storage: -4 to 140 °F (-20 to 60 °C)

1 month at 104 °F (40 °C)

120 hours at 140 °F (60 °C)

Humidity

Operation: 20 to 80% RH

Storage*: 5 to 85% RH

*stored in shipping container

Safety Approvals

EMC

FCC part 15 class A

Reliability

MTFB

10,000 hours (power-on hours)

Glossary

10BASE-T See *twisted-pair cable*.

10BASE2 See *thin coaxial cable*.

address resolution protocol (arp) Network protocol that is part of the TCP/IP protocol suite. See also *TCP/IP*.

AppleTalk Macintosh networking protocol.

banding The horizontal lines that sometimes appear in a printed image. See also *MicroWeave*.

buffer The portion of the printer's memory used to store data before printing it.

character table A collection of letters, numbers, and symbols that provides you with the characters used in a particular language.

characters per inch (cpi) A measure of the size of text characters, sometimes referred to as pitch.

CMYK Cyan (blue-green), magenta, yellow, and black. These colored inks are used to create printed colors.

ColorSync Macintosh software that is designed to help you get WYSIWIG (what you see is what you get) output. This software prints colors as you see them on your screen.

configuration The setup of a client, server, or network.

configure To change the setup of a client, server, or network.

default A value or setting that takes effect when the equipment is turned on, reset, or initialized.

dithering A halftoning method in which dots are arranged in an orderly pattern. Dithering works best for printing images with solid colors, such as charts and graphs. See also *halftoning*.

dpi Dots per inch. The dpi measures the resolution (print quality). See also *resolution*.

driver A software program that sends instructions to a computer peripheral to tell it what to do. For example, your printer driver accepts print data from your word processing application and sends instructions to the printer on how to print this data.

Error Diffusion This halftoning setting smooths out edges by randomly placing dots of varying colors.

ESC/P Abbreviation for Epson Standard Code for Printers. This system of commands gives you control of your printer from your computer. It is standard for all EPSON printers and supported by most application programs for personal computers.

ESC/P 2 The enhanced version of the ESC/P printer command language. Commands in this language produce laser-like features, such as scalable fonts and enhanced graphics printing.

Ethernet Local area network technology that allows multiple transmissions to occur simultaneously.

EtherTalk Macintosh protocol for connecting to an Ethernet network.

file server A computer that holds files that other clients can access.

font A style of print designated by a name.

gateway A system connected to more than one network that receives and delivers information from one network to the other(s).

grayscale Shades of gray ranging from black to white. Grayscale is used to represent colors when you print with black ink only.

halftoning A method of using dot patterns to represent an image. Halftoning makes it possible to produce varying shades of gray using only black dots, or a nearly infinite array of colors using only a few colors of dots.

hub A physical network device that receives, routes, and sends information from computers or peripherals to the others on the network.

initialization Returns the printer to its defaults. This happens every time you turn on or reset the printer.

ink jet A method of printing in which each letter or symbol is formed by precisely spraying ink onto paper.

ips Inches per second. This scale is used to measure the print head speed.

IPX/SPX Network protocol used mostly by Novell NetWare.

LPR Printing protocol.

media Materials upon which data is printed, such as envelopes, plain paper, special paper, and transparency film.

MicroWeave Printing technology that produces images in fine increments to reduce the possibility of banding. See also *banding*.

node address The hardware address of any client, server, or peripheral on a network.

packet A unit of data that can be sent over a network.

parallel interface See *interface.*

peripheral A device such as a printer or a scanner that works with a computer.

ping A command that requests a response from a remote computer over a network.

print queue Print jobs that are sent to the printer while it is busy are stored in a waiting line, or print queue, until they can be printed.

print server A print server holds all the print information and performs all printing functions. The card can act as a print server when it is in print server mode, selectable through Novell NetWare.

printable area The area of a page on which the printer can print. It is smaller than the physical size of the page because of margins.

printer driver See *driver*.

proportional printing Printing in which the width of the character varies from character to character. For example, a capital *W* receives much more space than a lowercase *i*.

Also, a setting in the EPSON Printer Software that allows you to make the printed size of a document different from its actual size.

protocol A set of rules and formats that computers use to communicate to one another and to peripherals over networks.

remote printer A printer that is connected directly to the network and chooses a specified print server when it is turned on.

reset To return a printer to its defaults either by sending a command, an INIT signal, or by turning the printer off and then back on.

resolution The number of dots per inch used to represent an image. The higher the resolution or print quality, the more detailed and realistic the image.

router A device that connects multiple segments of a network and determines when and where to send information from each segment to the others.

scalable fonts Fonts that can be enlarged or reduced. Non-scalable fonts (bitmap fonts) can't change in size.

screen pattern This feature prints shaded areas as they appear on screen, instead of printing them as halftones.

serial interface See *interface*.

spool manager A software program that converts print data into codes that your printer understands.

status monitor A software program that allows you to check the printer's status, such as the amount of ink remaining before printing.

subnet mask A number used to separate different parts of a network, or subnets. The subnet mask can divide an IP network into smaller parts.

TCP/IP Transmission Control Protocol/Internet Protocol. A protocol suite made up of two parts (TCP and IP) that organizes and delivers data across a network.

terminator A device at the end of a network connection that stops the signal at the end of the network to prevent interference.

thin coaxial cable Also called 10BASE2. This cable is used in Ethernet networks.

twisted pair cable Also called 10BASE-T. This cable is used in Ethernet networks.

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