Installation

The printer is easy to install and use. It is also flexible; you can connect and use it in many different ways. Most often, one printer is connected to one PC. However, two or more PCs can connect to and use one printer, or more than one printer can be attached to a PC.

The information in this section has two purposes:

- If you are not familiar with installing a printer on a PC, this section provides detailed steps and information to help you.
- If you want to understand the connection choices available to you, or if you want use another connection method, this section explains what the choices are and how to implement them.

Before you install

This section includes:

Installation audience

To perform the procedures in the installation section of this guide, you need the following skills:

- Ability to read and understand written and graphical instructions
- Experience and comfort installing hardware (such as a printer, scanner, expansion card, etc.) on a personal computer (PC) or on a network
- Experience with configuring applications and ports
- Experience installing and using Microsoft® Windows® XP, Windows Me, Windows 2000, Windows 98, or Windows NT. For Windows XP, 2000, and NT, the installer must have administrator access to the PC.
- Ability to perform simple troubleshooting using written and graphical instructions

If you do not feel comfortable with installing the printer, find a network support or other technical professional to install the printer. Datacard®-authorized service personnel also install printers.

Site requirements

The SP35 Printer Guide, SP55 Printer Guide, or SP75 Printer Guide describes site requirements for each printer.

Site guidelines

When choosing a site for the printer and its supplies, consider these guidelines:

- Keep all dust, dirt, food, liquids, etc. away from the printer at all times.
- Do not use supplies or cards that have been dropped on the floor or have otherwise become contaminated.
- Keep paper and foreign materials off the printer.
- Place the printer on a stable platform; keep it off the floor.
- Place the printer away from direct sunlight.
- Place the printer away from heating ducts, blowers, or other air vents.
- Do not use the printer for purposes other than its intended use.
- When cleaning around the printer, prevent debris from entering the printer.
- Place the printer in a clean office environment, protected from any type of construction.
- Store all supplies (ribbons, cards, etc.) in the original packaging until you load them in the printer. Keep the original packaging closed.
- Store all supplies in a clean, cool, dry location.

  For information about the storage environment for printer supplies, see Supplies and cards.

PC and software requirements

The printer must be used with a PC running a supported operating system. The PC also runs ID software that captures and organizes the data to appear on each card. These requirements do not apply to SP55 printers with the Open Card option. See the *SP Series Network Printer Guide* for information about requirements for the Open Card option.

To support the printing speed that the printer can deliver, the PC must meet the following requirements:

- Have a Pentium MMX-, Pentium II-, Pentium III-, or Pentium IV-compatible processor. Datacard® recommends a 500 MHz (or faster) processor.
- Have at least 128 MB of memory (RAM). Datacard® recommends 256 MB or more of memory.
- Have 80 MB or more of hard disk space available to store the printer driver and provide working space for preparing card data. (Additional components might require more space.) Datacard® recommends at least 200 MB of hard disk space before installing the printer driver.

  The PC, including processor speed, memory, operating system, applications running, and available hard disk space, can have a dramatic effect on card processing speed. The operating system or applications can require more or faster resources than the printer driver. Meet the most demanding requirements for the operating system, application, and drivers running on the PC.
- Have one or more of the following:
  - — USB port (all Windows operating systems except Windows NT)
    - — The PC might have more than one USB port, or USB devices already attached to the PC might provide USB ports to use.

    Datacard® recommends using the Windows XP or 2000 operating systems if you plan to connect more than one printer to a PC using USB ports or using a USB port and another connection method.
  - — A network connection to support printer sharing or direct networking. Direct networking is the only type of connection supported on Windows NT.
- Have a CD-ROM drive to install the printer driver
- Have one of the following supported and recommended operating systems:
  - — Windows XP with service pack 2
  - — Windows Millennium Edition (Me)

    Or one of the following supported operating systems:
  - — Windows 2000 with service pack 3 or 4
  - — Windows 98 Second Edition
  - — Windows NT 4.0 with service pack 6

  If your operating system is the Windows Server 2003, use information for the Windows 2000 and XP operating systems.

The PC must also have ID software that formats and prepares the card data. For the PC requirements of your ID software, see the application's documentation.

The Smart Driver™ cannot be used on a PC that also has an Express Class 1.x, Select Class 2.x or 3.x, Magna Class 2.x, or ImageCard IV 2.x printer driver installed on it. Delete the other printer driver, following the instructions that came with the driver, before installing the Smart Driver™.

ID system installation sequence

You might use this printer as part of an identification system (with a camera) or you might use it with existing data and applications. When you set up this printer along with other system components, install the printer driver after

setting up the PC and before installing the ID software and capture software and devices. Verify the success of each installation step before continuing.

Installation choices

Most users install one printer on a PC, using the CD-ROM shipped with the printer for installation. If you will install the printer in this way, see "Unpacking and connecting the printer".

After unpacking and powering on the printer, install the Smart Driver™ by following one of the following procedures:

- "Install the Smart Driver™ to a USB port on Windows XP or 2000"
- "Install the Smart Driver™ to a USB port on Windows Me or 98"
- "Install the Smart Driver™ on Windows NT".

More choices are available to meet the needs of a variety of users. Choices include:

- Installing a printer on a PC locally, using a USB cable.
- Installing a printer on a network, either using the Built-in Ethernet feature or using a print server, and then installing the driver on a PC on the network. (The driver is not required to send cards when the printer has the Open Card feature.) This method is called direct networking. See "Network installation" for information on installing and using a directly networked printer.
- Installing two printers to one PC using USB ports.

  USB allows devices to be connected to the PC through another USB device. USB also uses hubs to which multiple USB devices (including other hubs) can be connected (cascaded). Up to five hubs can be used between the printer and the PC. Every other hub must be powered. Datacard® printers do not contain a hub to support connecting other devices. If you need to connect two Datacard® printers to a PC with one USB port, obtain a USB hub to which both printers can be connected.

  See "Connecting more than one printer or more than one PC" for information about installing a printer using a USB port.
- Installing the printer using files downloaded from www.datacard.com. The printer driver for Datacard® SP Series printers is available from Datacard® web site at www.datacard.com. When downloading a driver, be sure to choose the Smart Driver™ for the SP Series printer and the correct operating system for the PC on which the driver will run. The driver to download does not include some of the files that are available on the CD-ROM, including the following. All of these can be downloaded from www.datacard.com:
  - This *SP Series Info Central*
  - Installation files for the Printer Diagnostic Utility, and the Cleanup Utility
  - Driver installation files for other PC operating systems
- Updating the printer driver. See "Updating the driver" for the steps to follow.
- Installing a printer on a client PC when the printer is connected to a host PC and both PCs are connected to a network (using Windows printer sharing). See "Printer sharing" for setup and operating information for both the host PC and the client PC.
- Installing printers using a combination of connection methods. For example, one or more printers can be directly connected to the PC and others can be connected through a network (using Windows printer sharing or direct networking). See "Network installation" for information on installing and using a networked printer.
- Using more than one printer installed to a PC as a printer pool, when the PC is running Windows XP or 2000. The operating system manages sending jobs to the printers so the next available printer receives the card. See "Printer pooling" for information on setting up and using printer pooling.

Unpacking and connecting the printer

This section includes:

Unpacking the printer

The printer is compact and easy to unpack.

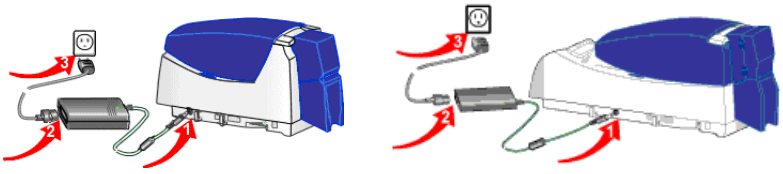
1. Open the shipping carton.
2. Remove the installation map. The top side shows the accessories shipped with the printer. If the printer includes optional items, the options are checked on the installation map.
3. The cables, Printer Guide, and other supplies are contained in the accessories tray. For SP35, lift out the accessories tray.
4. The printer is located between two shipping supports. Lift off the top shipping support and put it aside.
5. Lift out the printer and place it on a work surface.
6. For SP55 printers, remove the tape at the back of the printer that holds the duplex door closed.
7. For SP75 printers and SP55 printers with the Built-in Ethernet feature, attach the guide holder to the side of the printer and insert the *SP Series Network Printer Guide*.
8. After unpacking the printer, put the shipping carton, shipping supports, and accessories tray aside in case you need to ship the printer in the future.

If any items are missing, contact your dealer or reseller to inform them.

Powering on an SP35 or SP55 printer

For best results, load supplies before powering on the printer.

1. Plug the power supply cord into the printer (1). The power receptacle is located on the side of the printer.
2. Plug the power cord into the power supply (2).
3. Plug the other end of the power cord into a single-phase, 3-wire grounded receptacle with 90-130V AC or 195-254V AC at 50 or 60 Hz (3).



The printer power supply automatically adjusts to the voltage of the input power.

Powering on an SP75 printer

For best results, load supplies before powering on the printer.

1. Plug the power cord into the printer (1).

2 Plug the other end of the power cord into a single-phase, 3-wire grounded receptacle with 90-130V AC or 195-254V AC at 50 or 60 Hz (2).

3 Press | to power on the printer (3).

The printer automatically adjusts to the voltage of the input power.

Data cables

All SP Series printers have a USB data port, and some also have an Ethernet data port. Use only one data cable for the printer. See "Network installation" if you plan to use the Ethernet data port. Follow the steps in this section to use the USB data port.

If the printer is connected over a network using a print server, see "Network installation" for information about connecting the printer.

Tips for success

- A printer with a smart card module has one or two additional ports. Do not connect smart card ports at this time!
- Do not connect a USB cable when using the Windows NT operating system. The printer supports only a network connection to Windows NT. See "Network installation" for information about connecting the printer using the Ethernet port.
- The USB cable must be a type CM 30V cable, up to a maximum of 6.5 feet or 2 meters long. A longer cable might result in electrical interference.

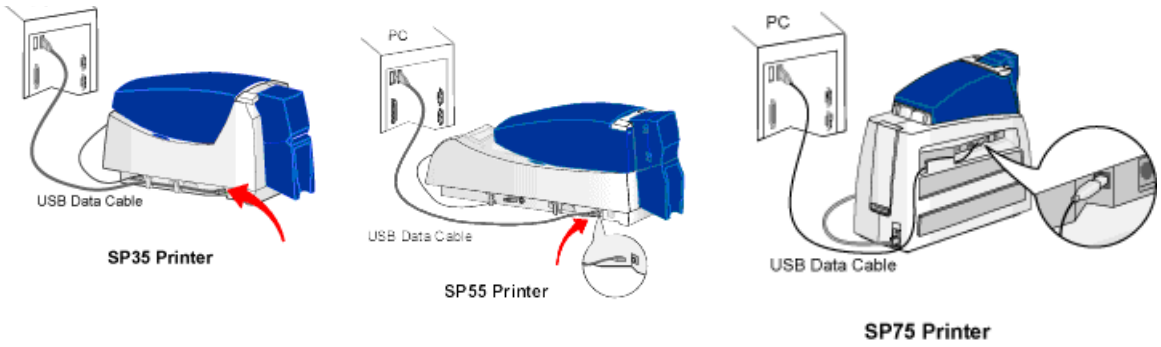
Connecting the printer using a USB cable

1 Attach the flat end of the USB cable to the USB data port on the PC (or to a device attached to the PC through a USB port).

— If you are installing the printer for the first time, *wait to connect the other end of the data cable*. You will be instructed to connect it during driver installation.

2 If you are connecting a printer that has been installed previously, you can plug in the other end of the USB cable now.

— After the printer is powered on and ready, attach the other end of the USB cable to the printer. *Do not* use the smart card USB port (if present).The smart card USB port is closer to the power receptacle.



Is the printer ready for driver installation?

Before installing the printer driver, do the following:

- Load cards in the input hopper. See the SP35 Printer Guide, SP55 Printer Guide, Network Printer Guide, SP75 Printer Guide, or the Installation Map.
- Install the print ribbon and continuous cleaning sleeve. See the SP35 Printer Guide, SP55 Printer Guide, Network Printer Guide, SP75 Printer Guide, or the Installation Map.
- Install the laminator supply material (SP75 only). See the SP75 Printer Guide.
- Power on the printer. See "Powering on an SP35 or SP55 printer" or "Powering on an SP75 printer". The printer should display a series of colors on the status light when it powers on. The printer status light becomes steady green when the printer is ready.
- Power on the PC or host computer. Make sure it is fully operational before connecting the printer.
- For a directly networked printer, make sure that the printer is ready before continuing. See "Network installation" for more information.
- For a shared printer, make sure that the printer is ready before installing the driver on the attached (host) PC. See "Printer sharing" for more information. You must install the driver on the host PC before installing the driver on any other PCs.

Installing the driver

This section includes:

The printer is shipped with a CD-ROM that contains the printer drivers for the supported Windows operating systems. The supported operating systems are:

- Windows XP with service pack 2 (recommended)
- Windows Millennium Edition (Me) (recommended)
- Windows 2000, with service pack 3 or 4
- Windows 98 Second Edition (SE)
- Windows NT 4.0 with service pack 6 (direct network connection only)

See "PC and software requirements" for details on operating system support and limitations.

If you use an SP55 printer with the Built-in Ethernet and Open Card option, you might need to install the Smart Driver™ to set up the printer before you use it to produce cards. With the Built-in Ethernet and Open Card option, you do not use the driver to send card data.

Installation choices

- You can directly connect the printer to a network. Depending on the options in the printer, you can use the Built-in Ethernet port or a print server. See "Network installation" for more information.
- If the PC does not have a CD-ROM drive, request diskettes from your service provider. (Service providers can obtain the driver as diskette images from the partner page.) You also can download the printer driver from www.datacard.com.
- If you have installed the printer driver and want to update to the most recent driver, follow the steps in "Updating the driver".
- Several other connection methods are available, including printer sharing over a network and installing multiple printers to a PC using the USB port. See "Connecting more than one printer or more than one PC" for information on these installation alternatives.
- See "Printer pooling" for information on printer pooling on the Windows XP and 2000 operating systems.
- If the printer includes a smart card module, do not connect it at this time. See Smart Card Setup for details.

Install the Smart Driver™ to a USB port on Windows XP or 2000

For Windows XP or 2000, make sure you are logged in as the Administrator when you install the printer driver.

1. Close all applications. Do not close Windows.
2. Make sure the printer is powered on.
3. With Windows running, insert the CD-ROM in the PC's drive.
4. The Smart Driver™ window opens.
5. Click “Install the Printer.” The installation program starts.
   - If the PC has an older version of Smart Driver™ installed, the installation program displays a message telling you to update the printer driver. See "Updating the driver" for the steps to follow.

6 If you are using files downloaded from the Web, extract the files to the PC's hard drive. The installation program will start automatically when the files have been extracted.The first page provides a choice:

— If the Smart Driver™ is installed on the PC, "Update the existing driver" is the default. See "Updating the driver" for the steps to follow.

— If the installation program does not detect an existing Smart Driver™, "Install the Printer" is the default. Click Next to continue.

7 Make sure "Local Printer (LPT or USB)" is chosen and then click Next.

8 A Windows message might appear.

— On Windows XP, the Windows Logo testing message appears. Click Continue Anyway to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "Logo signing" to change the security setting.

— On Windows 2000, the Digital Signature Not Found message appears. Click Yes to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "digital signature" to change the security setting.

— If installation is cancelled or cannot continue, see "Local (USB) installation troubleshooting" for steps to follow.

9 The dialog instructs you to install supplies, power on the printer, wait for one minute, and then connect the printer and PC. Follow the instructions and then click Next.

— In some cases the installation program will continue before you click Next. If this happens, follow the instructions on the screen.

— If the PC and printer cannot communicate, the next dialog page prompts you to choose the port to which the printer is connected. This occurs only when the PC cannot detect the printer. For the printer to work, you must solve the problem that prevents the PC and printer from communicating before continuing.

10 The printer is installed automatically. The Found New Hardware Wizard starts. (The wizard might take a few seconds to open.)

— For Windows XP, if you have service pack 2 installed, the first page of the Found New Hardware Wizard allows you to connect to Windows Update. Choose, "No, not this time" to speed up the installation process.

— In some cases, Windows will install the printer driver without opening the Found New Hardware Wizard. If this happens, go to step 13.

11 On the Found New Hardware Wizard, make sure "Install the software automatically (recommended)" is chosen and click Next.

12 A Windows message appears.

— On Windows XP, the Windows Logo testing message appears. Click Continue Anyway to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "Logo signing" to change the security setting.

— On Windows 2000, the Digital Signature Not Found message appears. Click Yes to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "digital signature" to change the security setting.

13 The installation program copies files to the PC and updates entries to enable the printer. The driver is installed.

— If you installed the driver from CD-ROM, the *SP Series Info Central* files and desktop icon are installed.

— If you installed the driver from downloaded files, a message appears indicating that the *SP Series Info Central* (or e-Guide) is not installed. Click Okay to close the message box. You can locate the download file for *SP Series Info Central and e-Guide* in the downloads area of www.datacard.com.

— If the firmware needs to be updated, you will be prompted to follow the instructions on the screen.

14 Click Finish to close the Smart Driver™ installation program. The Printing Preferences window is displayed.

15 In the Printer Preferences window, change settings as needed to match the supplies installed in the printer.

16 Double-click on the printer Printer Toolbox icon in the lower right corner of the desktop. The Printer Toolbox appears.

17 Click the Print Sample Card button to verify printer and driver installation.

If you will connect additional Datacard® printers, you can install e-Guides for the Magna Platinum AIT printer, the Select Platinum AIT printer, and the ImageCard IV printer. The procedure is slightly different for these e-Guides. See the User Guide for the printer for details.

Install the Smart Driver™ to a USB port on Windows Me or 98

1 Close all applications. Do not close Windows.

2 With Windows running, do one of the following:

- To install using the Smart Driver™ CD-ROM, insert the CD-ROM in the PC's drive. The Smart Driver™ window opens automatically. Do not click the “Install the Printer” button. Instead, follow these steps so Windows detects the printer.
- To install using downloaded files, download the files from www.datacard.com and then double-click the downloaded file to extract driver files. Click Cancel on the installation program that appears.

3 Make sure the printer is powered on and ready.

4 Connect the printer to the PC using the USB data cable. The operating system detects the printer and displays the Add New Hardware Wizard. (The wizard might take a minute or more to open.)

5 Use the Add New Hardware Wizard to start the driver installation process.

- For some Windows Me and 98 PCs, Windows finds USBPrint.inf and installs USB printing support. If this occurs, follow the prompts. The Add New Hardware Wizard appears again; continue. The Wizard to install USB printing can also appear as part of the next step.

6 On the Add New Hardware Wizard, do the following:

- On Windows Me, make sure that “Automatic search for a better driver (Recommended)” is checked and then click Next on the Wizard.
- On Windows 98, click Next on the Wizard and do the following:
  - Make sure that “Search for the best driver for my device (recommended).” is chosen.
  - Click Next.
  - If you are installing from CD-ROM, make sure that “CD-ROM drive” is the only choice checked and then click Next. The Wizard searches for the DSPNP.INF file. If it does not find it, go back to the previous dialog page, and follow the instructions in the next bullet.
  - If you are installing from files on the hard drive, click “Specify a location,” remove the default location displayed (usually A:), and click Browse. Navigate to the location of the DSPNP.INF file (usually C:\S7_0 or similar folder name), and click OK and Next as prompted.

7 Click Finish to close the Add New Hardware Wizard. (Click OK on the message box if it appears.)

8 The Smart Driver™ installation program copies files to the PC and updates entries to enable the printer.

- If you are installing the Smart Driver™ on the Windows 98 operating system, the installation program displays a message that recommends using a newer Windows operating system. Click OK to continue. (If you will be using advanced features, including connecting multiple Datacard® printers to one PC, you might not be satisfied with the performance. Consider upgrading the operating system.)

9 Click Finish to close the Smart Driver™ installation program and restart Windows. The Smart Driver™ installation program closes when you restart the PC.

- If you installed the driver from CD-ROM, the *SP Series Info Central* files and desktop icon are installed.

— If you installed the driver from downloaded files, a message appears indicating that the *SP Series Info Central* (or e-Guide) is not installed. Click Okay to close the message box. You can locate the download file for *SP Series Info Central and e-Guide* in the downloads area of www.datacard.com.

10 After the PC restarts, the Printer Toolbox is displayed.

— If the firmware needs to be updated, you will be prompted to follow the instructions on the screen.

11 Click the Print Sample Card button to verify printer and driver installation.

Install the Smart Driver™ on Windows NT

For Windows NT, make sure you are logged in as the Administrator when you install the printer driver.

The SP Series printer supports only a network connection when used with Windows NT.

1 Close all applications. Do not close Windows.

2 Make sure printer is powered on and ready, and connected to a network. See "Network installation" for more information.

3 With Windows running, insert the CD-ROM in the PC's drive. The Smart Driver™ window opens automatically.

4 Click “Install the Printer.” The Smart Driver™ installation program starts.

5 You will see a message that recommends using Windows XP or 2000. Click OK to continue.

6 Click Next on the first Smart Driver™ Setup dialog box.

7 Select the e-Guide(s) for your printer type. Click Next to copy driver files and to install the e-Guide(s) you selected.

8 Use the default name for the printer or enter a name of your choice. Click Next.

9 Select “Directly Networked.”

10 Select whether this printer should be the default printer.

— The small page size for cards might cause unexpected results with some applications if the card printer is the default.

11 Click Next to copy the files to the PC and update entries to enable the printer.

12 Click Finish to close the installation. The installation program restarts Windows when you click Finish.

13 After the PC restarts, the Printer Toolbox is displayed.

— If the firmware needs to be updated, you will be prompted to follow the instructions on the screen.

14 Click the Print Sample Card button to verify printer and driver installation.

Printing sample cards

The printer is shipped with one or more cards that are printed in the factory. You can also print a sample card, which looks like one of the factory-printed cards, using the Printer Toolbox.

Setup tips

Make sure that:

- The printer cover is closed and latched.
- Cards are loaded in the input hopper.
- The data cable is connected to the USB port of the printer and the corresponding port of the PC.
- The settings for the USB port (if used) are correct. See "PC port settings" for more information.
- Supplies are installed in all cartridges and cartridges are loaded correctly. See the SP35 Printer Guide, SP55 Printer Guide, Network Printer Guide, or SP75 Printer Guide for more information.
- The printer is ready to print. The status light on the printer should be steady green when you send a sample card. See Status Light for more information.
- Use the driver sample card, not a card from ID software, to verify that the printer and driver are working together.

1. Begin with the printer powered on and connected to the PC, supplies loaded, the printer driver installed, and Windows running.
2. Make sure the Printer Toolbox is open.
   - After the PC restarts, the Printer Toolbox is displayed.
   - The icon for the Printer Toolbox is located in the lower right corner of the Windows desktop. Double-click the icon to open it.
   - If the Printer Toolbox and its icon are not displayed, see the SP75 Printer Guide for steps to follow.
3. Click the Sample Card button.
   - The driver identifies the type of printer and whether it prints color or monochrome images, and then sends the appropriate sample card to print.
   - If the printer is a color printer and is using a monochrome (K) ribbon, printing will be black (or the color of the print ribbon), not full-color.
4. Compare the cards you printed with the cards shipped with the printer.
5. When you have printed the card, you can close the Printer Toolbox or leave it open.
6. Use the card to evaluate how well the printer is operating:
   - If you have just completed installation, use the comparison to complete the Installation Report and mail or fax the report to Datacard®.
   - If you are checking the operation of the printer, see Troubleshooting.

Setting printer permissions

This section includes:

Setting printer permissions with Windows XP or 2000

If the PC to which the printer is attached has other users and runs the Windows XP or 2000 operating system, set permissions that:

- Allow users to use all features of the printer and driver, including messages. (Messages inform users when they need to change the ribbon, load cards, and fix problems.)
- Prevent any access to the printer by unauthorized users.

1. From the Windows taskbar select Start, Settings, and then Printer (and Faxes). The Printers (and Faxes) window appears.
2. Highlight the Smart Driver™ icon by clicking on it once.
3. From the menu bar, select File and then Properties. The Properties window for the Smart Driver™ appears.
4. Select the Security tab.
5. Review the Names list. If the names for which you want to specify permissions do not appear in the list, add the names.
   a. Select the Add button to open the Users and Groups dialog box.
   b. Click on the name and click Add. Repeat for each name to add.
   c. When done adding names, click OK. The Users and Groups dialog box closes.
6. In the Names list, select the name for which you want to specify permissions.
7. From the Permissions list, select the access:
   - For a local user of a local printer and for a user of a directly networked printer:
     - To enable printing, select Allow for Print, Manage Printers, and Manage Documents.
     - For a user who should not print on the Smart Driver™ printer, select Deny for all permissions.
     - Single permissions, such as the Print permission, are not supported.
   - For a user of a shared printer:
     - For a local user of the printer on the PC connected to the printer, select Allow for Print, Manage Printers, and Manage Documents. The user will be able to see all messages. The user will also be able to perform other actions, such as deleting the printer driver. (Single permissions, such as Print, are not supported for local users of the printer driver.)
     - For a user who should not print on the printer, select Deny for all permissions.
     - For a user connected through a network using Printer Sharing, select Allow only for the Print permission. (Select Deny for Manage Printers and Manage Documents.)
8. Select Apply to save the change. Save changes for each name.
9. Repeat steps 5 through 8 to add other users or groups.
10. Select OK to close the Properties dialog box.

Setting printer permissions with Windows NT

If the PC to which the printer is attached has other users and runs the Windows NT operating system, set permissions that:

- Allow users to use all features of the printer and driver, including messages. (Messages inform users when they need to change the ribbon, load cards, and fix problems.)
- Prevent any access to the printer by unauthorized users.

1. From the Windows taskbar select Start, Settings, and then Printers. The Printers window appears.
2. Highlight the Smart Driver™ icon by clicking on it once.
3. From the menu bar, select File and then Properties. The Properties window for the Smart Driver™ appears.
4. Select the Security tab.
5. Click the Permissions button to open the Printer Permissions dialog box.
6. Select the Add button to open the Add Users and Groups dialog box.
7. Select the Show Users button.
8. From the Type of Access list, select the access:
   - For a local user of a local printer or for a user of a directly networked printer:
     - For a user connected to a directly networked printer, select Full Control.
     - For a local user of a printer, select Full Control.
     - For a user who should not print on the printer, select No Access.
     - Other user permissions, such as the Print permission, are not supported.
   - For a user of a shared printer:
     - For a user of the printer on the PC connected to the printer, select Full Control. The user will be able to see all messages. The user will also be able to perform other actions, such as deleting the printer driver. (Other user permissions, such as the Print permission, are not supported for local users of the printer driver.)
     - For a user who should not print on the printer, select No Access.
     - For a user connected through a network using Printer Sharing, select Print permission.
9. Select OK to save the change and close the Add Users and Groups window.
10. Repeat steps 6 through 10 to add other users or groups.
11. Select OK to save the changes and close the Printer Permissions window.

Changing user permissions in the Registry

A user might receive messages whenever they send cards. Follow these setps only if a user receives a message that identifies this procedure as the solution.

1. From the Windows taskbar select Run.
2. Type “regedt32” (do not include the quotation marks and note that there is no “i” in the file name).
3. In the Registry Editor, navigate to HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Control > Print > Printers > Smart Driver.
4. With the Smart Driver key selected, select Security > Permissions from the menu bar.

5 In the Registry Key Permissions dialog box, select Replace Permissions on Existing Subkeys. Then select Full Control from the Type of Access list.

6 Click OK to save the new permissions and answer Yes to the message that follows.

Changing the type of printer connected

The Smart Driver™ supports SP35 printers, SP55 printers, SP75 printers, Select printers (Platinum Series or with Advanced Imaging Technology), Magna printers (Platinum Series or with Advanced Imaging Technology), and ImageCard IV printers. Each of these groups is considered a printer type.

- After the printer and PC are communicating, the printer type will change automatically.
- If another printer is connected to a USB port, the operating system detects the new printer and starts the Add/Detected New Hardware wizard.
- On the Windows XP operating system, the operating system might detect the changed printer and display the Add/Detect New Hardware wizard. Follow the wizard. If the wizard displays a message indicating that it cannot find the ds.ppd file, browse the Windows\system32 directory on the hard disk to find the file.

This feature is designed for use in limited situations, such as connecting a backup printer when the main printer is out of service.

Operating tips for changing the type of printer

- The Properties or Printing Preferences dialog box includes a Printer Type setting. In addition, the Printer Toolbox displays the type of printer connected.
- You must set the Printer Type on the Client PC for a shared printer. The driver on a Client PC cannot communicate directly with the printer and so cannot determine the type of printer connected.

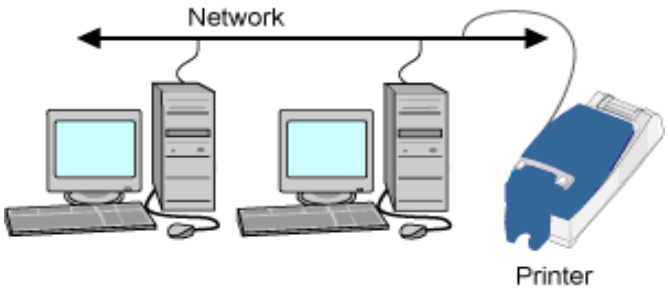
Network installation

This section includes:

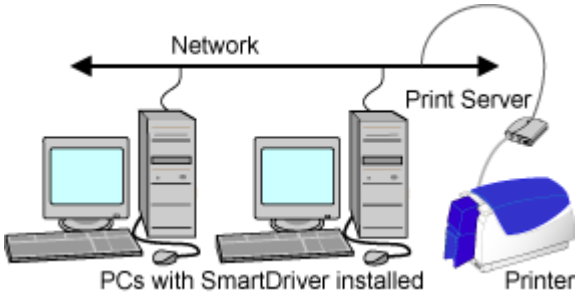
About network printing

A networked printer is connected to a network without a PC between the printer and network. Depending on printer options and your needs, the printer can be connected to a print server and then to the network. A PC can connect to several networked printers at a time, and several PCs can connect to one printer. All PCs with the Smart Driver™ installed (except client PCs for shared printers) receive status and message information from the printer. Several types of directly networked connections are possible:

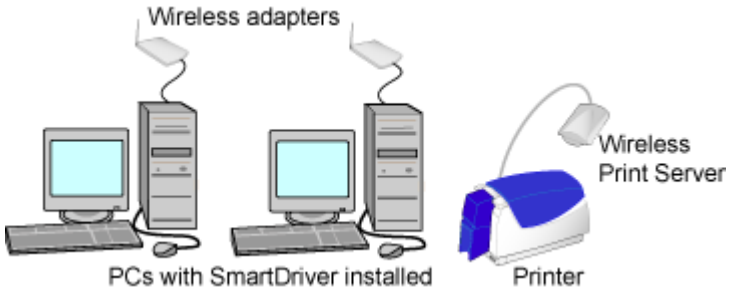
- An SP Series Card Printer with the Built-in Ethernet feature can be connected to a network.



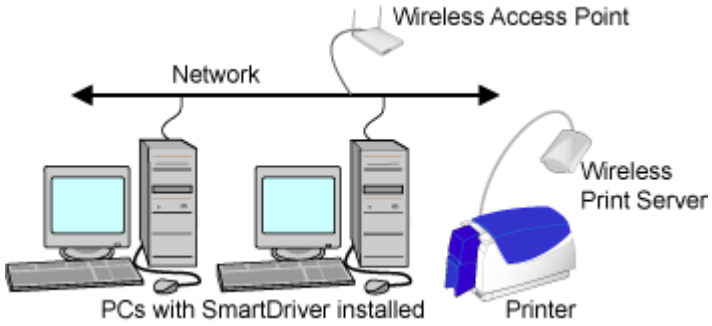
- The printer can be connected to a print server using a USB cable, and the print server can be connected (using a network cable) to an existing network.



- The printer can be connected to a wireless print server, which communicates with a PC using a wireless connection on the PC (ad hoc or peer-to-peer mode), creating a local wireless network.



- The printer can be connected to a wireless print server, which communicates to a wireless access point (WAP) on an existing network (infrastructure mode). The printer location is limited by the range and availability of WAPs.



To connect a printer to a network, you need the following:

- An Ethernet network that uses the TCP/IP protocol and can run at 10 megabits per second (also called 10base-T) or a faster network (such as 100 megabits per second) that automatically switches to the printer speed of 10 megabits per second. The print server, if used, is configured using the TCP/IP protocol. The printer or print server is attached to an available network port for a wired connection or uses a Wireless Access Point (WAP) for a wireless infrastructure connection. See the documentation for the print server for details about network requirements.
- An SP Series Card Printer with the Built-In Ethernet feature.

  OR

  A print server and an SP Series Card Printer.

  Print servers that have been tested are:

  — The HP Jetdirect 175x, revision C, print server uses a USB cable to connect to the printer and an RJ45 cable to connect to an available network port. It can be used with the SP Series printer.

  — The HP Jetdirect 380x, revision A, print server uses a USB cable to connect to the printer and the 802.11b wireless (WiFi) protocol to connect to a wireless access point (WAP) on the network. It can be used with the SP Series printer.

In addition, you need:

- For a wired connection, an Ethernet cable to connect the printer or print server to the network. You must provide the cable to connect to your network.

- For a wireless connection, a wireless network adapter for the PC.

  The wireless network adapter must use the same wireless protocol as the wireless print server (802.11.b.) One adapter is needed to configure the print server for both ad-hoc and infrastructure modes. If you plan to use ad-hoc mode, you also need a wireless network adapter for each PC that will use the printer.

- Network configuration utility

  The print servers are shipped with the appropriate CD-ROM that includes the print server software you will need to set up and administer a print server. Network support personnel use utilities to set up and monitor the network and devices on the network.

- Power supply and power cord for the print server

  The power supply and cord are shipped with the print server.

- USB cable to connect the printer and print server

  The USB cable is shipped with the print server.

- PC connected to and communicating with the network.

  — From the PC, you will set up the printer on the network and verify that the printer is connected to and communicating with the network. SP Series printers with the Open Card option were also tested with a PC running the Knoppix Linux Boot CD-ROM (version 3.3).

  — Some types of SP Series printers include an Open Card option. For printers without the Open Card option, you must send print jobs to the printer using the Smart Driver™. (If a previous version of the printer driver is currently installed on the PC, update the driver following the steps in "Updating the driver" before following these steps.)

  — If you use the Smart Driver™, the PC to run the printer driver must be an X86 MMX-compatible PC, running Windows XP or Windows Me (preferred) or Windows 2000, Windows 98SE, or Windows NT. (See "PC and software requirements" for service pack requirements.) For a wired or wireless infrastructure connection, the PC must be connected to and working on an Ethernet network.

  — More than one PC on the network can print to the printer. All PCs must send cards to a printer in the same way; either using the Smart Driver™ or using the optional Open Card data format. Datacard® recommends that one PC be used for administrative tasks, such as running the setup utility and, if needed, Diagnostics.

  — When setting up the printer using an operating system with permissions, such as Windows XP, 2000, or NT, make sure you are logged in as the Administrator. If networking is set up on the PC, log into the network.

  — When using the printer from an operating system with permissions, such as Windows XP, 2000, or NT, users must have the same permissions as for a locally attached printer. (Power users cannot perform all the tasks required.) See "Setting printer permissions" for information about permissions.

Prepare the printer for installation

Make sure you have done the following to prepare the printer:

1. Load print ribbon. See Loading print ribbon.
2. Load cards. See Loading cards.
3. Power on the printer. See Powering on the printer.

   — If the printer was previously installed on a network, it might take a few moments for the printer to initialize.

   — If you power on the printer with the Built-in Ethernet feature, the address mode is DHCP (dynamic host configuration protocol), and the printer is not connected to a network, the IP address will be blank. You can change the address mode to Static IP, or you can connect it to a DHCP network after power on and wait a moment while the printer obtains an IP address.
4. View the status light. When the printer has powered on correctly, the light displays steady green.
5. Make a printer test card. See “Making a printer test card”.

6 Work with network support personnel to understand whether the network uses DHCP or static IP addressing. If it uses static IP addressing, obtain the IP address, subnet mask, and gateway address from network support personnel. (In a printer with the Built-in Ethernet feature, you can also use the default IP address in the printer.) DHCP is the printer default.

When you have successfully completed these steps, continue with connecting the printer to a network.

Connect the printer to the network

To connect the printer to the network, use one of the following methods:

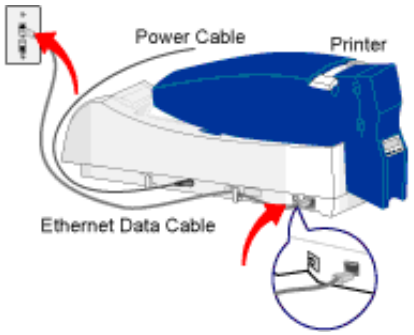
- Connect the printer using the Ethernet port (requires an SP Series Card Printer with the Built-in Ethernet feature).
- Connect the printer using the USB port and a wired print server.
- Connect the printer using the USB port and a wireless print server.

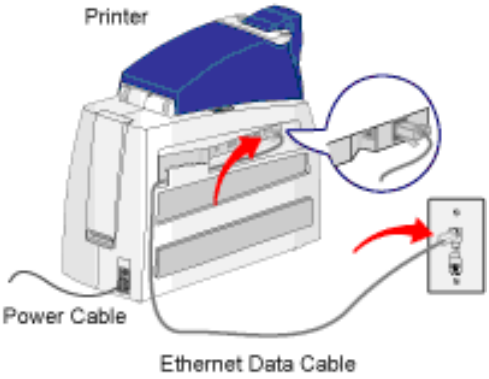
On operating systems with permissions, such as Windows XP, 2000, or NT, make sure you are logged in as the Administrator during setup. If networking is set up on the PC, log into the network.

Use the Ethernet port

1 Attach the Ethernet cable to the Ethernet port on the printer and to the port for the network.

2 Continue with "Set up the network printer".





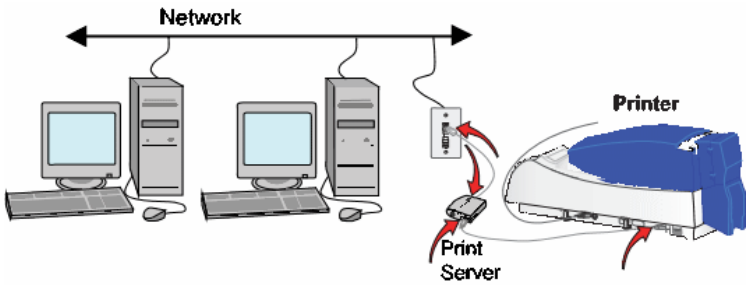
Use the USB port and a wired print server

1 Connect the print server to the printer using a USB cable. The HP Jetdirect 175x has been tested in this usage.

2 Connect the print server to the network using an Ethernet cable. See the setup information provided with the print server.

3 Follow the instructions provided with the print server to set it up on the network.

— Be sure to record the server name or IP address, which you will use when sending print jobs.



— If the printer is an SP55 Card Printer with the Built-in Ethernet feature, continue with "Set the Data Format". If you will use the Smart Driver™ to send print jobs to the printer, return to this procedure and continue with step 4.

4 On each PC that will send jobs to the printer, beginning with the Admin PC, install the Smart Driver™. See "Installing the driver" and follow these guidelines:

— Choose to install a directly networked printer.

— Make sure that each printer has a unique name on the PC. One PC can connect to multiple Datacard® printers on the network.

5 Configure the port to define the connection between the printer and PC.

a After installing the driver, open the printer Properties dialog box.

b In the Properties dialog:

— On Windows XP, 2000, or NT, make sure you are logged in as the Administrator. (Users and Power Users cannot complete this task successfully.) Select the Ports tab. Click the Configure Port button.

— On Windows Me and 98, select the Details tab. Click the Port Settings button.

c Enter the server name or IP address of the print server (from step 3). If your network uses DHCP, use the print server name (not the IP address, which the network changes).

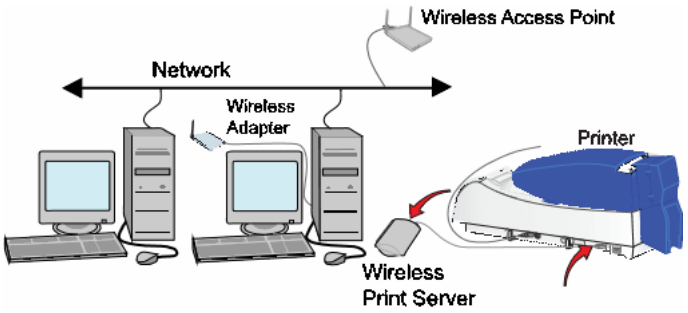
d Click OK to save the setting. Open the Enter Network Address dialog box again.

e Click the Test button to verify that the PC can communicate with the print server. If the PC does not communicate with the printer, see "Troubleshooting a network installation with a print server".

6 With the Properties dialog box open, select the General tab. Click the Print Test Page button to send a Windows test page to the printer. If the test page prints, the printer has been successfully installed. Continue with "SNMP Support".

Use the USB port and a wireless print server

1 Install the wireless network adapter, including the driver files, to a nearby PC. Follow the instructions provided with the adapter to install it.



2 Change settings in the utility for the wireless network adapter (if needed) to match the default settings for the wireless print server. Find the settings in the print server information.

3 Power on the wireless print server. Do not connect the print server to the printer at this time (this sequence might be different from the one the print server recommends). The power light on the print server will be on.

4 Insert the wireless print server CD-ROM in the PC with the wireless network adapter. The HP Jetdirect 380x has been tested in this usage. Follow the instructions provided with the print server to set it up on the network.

— Network support personnel can provide the network settings to use.

— Record the values you use so you can repeat the setup for other devices and to finish configuring the connection to the printer.

— If the printer is an SP55 Card Printer with the Open card option, continue with "Set the Data Format". If you will use the SmartDriver to send print jobs to the printer, return to this procedure and continue with step 5.

5 On each PC that will send jobs to the printer, install the Smart Driver™. See "Installing the driver" and follow these guidelines:

— Choose to install a directly networked printer.

— Make sure that each printer has a unique name on the PC. One PC can connect to multiple Datacard® printers on the network.

6 Configure the port to define the connection between the printer and PC.

a After installing the driver, open the printer Properties dialog box.

b In the Properties dialog:

— On Windows XP, 2000, or NT, make sure you are logged in as the Administrator. (Users and Power Users cannot complete this task successfully.) Select the Ports tab. Click the Configure Port button.

— On Windows Me and 98, select the Details tab. Click the Port Settings button.

c Enter the server name or IP address of the print server (from step 4). If your network uses DHCP, use the print server name (not the IP address, which the network changes).

d Click OK to save the setting. Open the Enter Network Address dialog box again.

e Click the Test button to verify that the PC can communicate with the print server. If the PC does not communicate with the printer, see "Troubleshooting a network installation with a print server".

7 Using the Smart Driver™ Toolbox, click the Sample Card button. If the sample page prints, the printer has been successfully installed. Continue with "SNMP Support" on page 45.

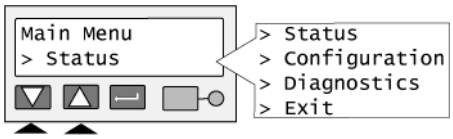
Set up the network printer

Set the SP Series Card Printer with the Built-in Ethernet feature for the type of network addressing you plan to use.

First, view the current mode of addressing:

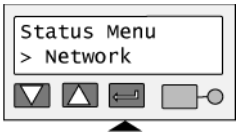
1 On the LCD panel, press the Enter key to enter the menu system.

— The available choices in the LCD menus depend on the type of printer you have.

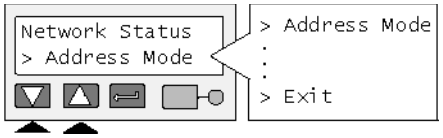


2 Make sure “Status” appears on the second line and press the Enter key.

3 Press the Up or Down Arrow key to scroll to “Network,” and then press the Enter key.

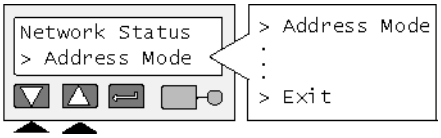


4 Press the Up or Down Arrow key if needed to scroll to “Address Mode,” and then press the Enter key.



5 The display shows the address mode, which can be DHCP (default) or Static IP.

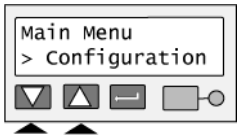
— If the address mode setting is the one you want to use, use the Network Status submenus to retrieve the IP address, subnet mask, gateway address, and, if needed, the MAC address values from the printer:



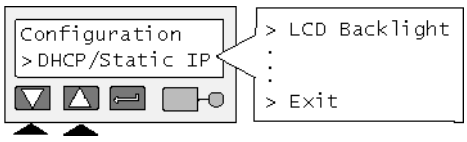
  — Press the Enter key to leave the current value.
  — Press the Up or Down Arrow key to scroll to a value and press Enter to view the value.
  — Exit to the Main Menu and continue with "Set the Data Format".

— If you need to change the address mode, continue with these steps.

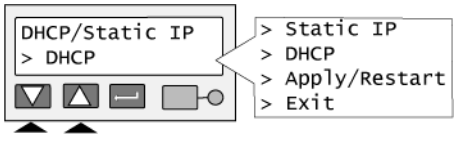
6 Exit from the Network Status menu and from the Status Menu to return to the Main Menu. Press the Up or Down Arrow key to scroll to “Configuration,” and then press the Enter key.



7 Press the Up or Down Arrow key to scroll to “DHCP/Static IP” and then press the Enter key.

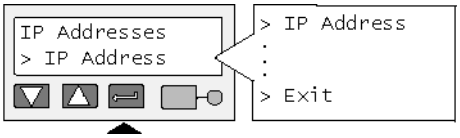


8 Press the Up or Down Arrow key to choose the address mode you want and then press the Enter key.



— If you choose DHCP, the display shows “Apply/Restart” on line 2. If you are not connected to a DHCP network, the IP address will be blank until you connect the printer to the network. Continue with step 9.

— If you choose Static IP, the second line of the LCD panel shows “IP Address.”



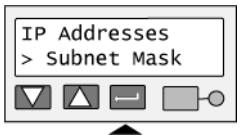
— Work with your network personnel to obtain the IP address, subnet mask, and gateway address. Enter these as described next.

— Press the Enter key to choose “IP Address.” The printer shows the current IP address and a cursor appears under the first byte of the address. (The address byte shows 3 digits when it can be changed and the cursor appears under the right-most digit.)

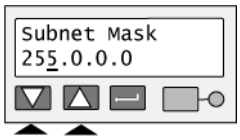
— Press the Up or Down Arrow key to change the address. (Press and hold the Up or Down Arrow key to change the value quickly.)

— When the first byte is correct, press the Enter key to move to the second byte.

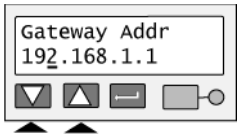
— Repeat for the third and fourth byte of the IP address. When you press the Enter key after the fourth byte of the address, “Subnet Mask” appears on the second line of the LCD panel.



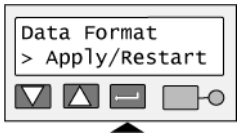
— Press the Enter key. The current value appears with the cursor under the first byte. Use the same process as for the IP address to set the subnet mask. When you press the Enter key after the fourth byte, “Gateway Addr” appears.



— Press the Enter key. The current value appears with the cursor under the first byte. Use the same process as for the IP address to set the gateway address. When you press the Enter key after the fourth byte of the gateway address, “Apply/Restart” appears.



9 Press the Enter key to apply the value(s) and restart the printer.



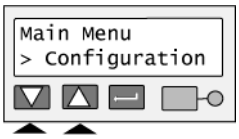
The Status light shows amber (yellow) and then blinks green. Internal printer components move and the LCD panel changes to show “Printer Ready” on the first line.

Set the Data Format

This section applies only to the SP55 printer with the Built-in Ethernet and Open Card features.

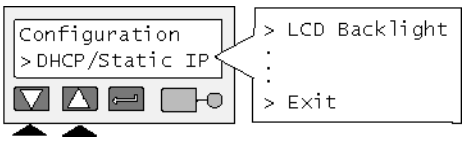
Before you send any data to the printer, set the data format so the printer can receive the data you send.

1 Press the Enter key to enter the menu system.

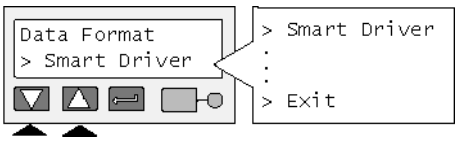


2 Press the Up or Down Arrow key to scroll to “Configuration” and press the Enter key.

3 Press the Up or Down Arrow key to scroll to “Data Format” and press the Enter key.



4 Press the Up or Down Arrow key to display the data format you want on the second line of the display and press the Enter key.



5 The “Apply/Restart” prompt appears on the second line of the display. Press the Enter key to confirm the data format choice and restart the printer.

6 You can choose Exit to leave without changing the data format. Press the Enter key repeatedly to leave the menu system.

Printer and Smart Driver setup

For printer and Smart Driver setup information, see the Setup e-guide.

To begin producing cards, see the Production e-guide.

SNMP Support

The SP Series Card Printer with the Built-in Ethernet feature supports the following SNMP (simple network management protocol) features:

- The printer has an SNMP agent which supports the printer MIB (management information block) and MIB-II. The agent supports SNMPv1 and SNMPv2c.
- If you connect the printer to the network using a print server, the print server can provide SNMP data about itself (if supported). You cannot obtain SNMP data about the printer through a print server. SNMP data about the printer is only available through the printer Ethernet port; if you require SNMP data about the printer and use a print server to send data, you must also connect the printer Ethernet port to the network to provide the SNMP data.
- The MIB-II is described in RFC (request for comment) 1213 and includes RFC 2233, the Interfaces Group MIB using SMI v2.
- The printer MIB is described in RFC 1759 (which requires inclusion of part of the Host Resources MIB, RFC 1514).
- For more information about SNMP standards, see the RFC pages of the Internet Engineering Task Force Web site at **http://www.ietf.org/rfc.html**.
- The SP Series printer without the Built-in Ethernet feature does not have SNMP support. If the printer is connected to the network, the print server must provide SNMP support.

Updating the driver

When a newer release of the Smart Driver™ becomes available, you might want to update the printer driver to take advantage of new features. The Printer Toolbox displays the version of the printer driver, which can help you to decide whether to update the driver. See the SP35 Printer Guide, SP55 Printer Guide, or SP75 Printer Guide if you need instructions on opening the Printer Toolbox.

The procedure to use depends on the operating system running on the PC. This section includes:

- "Updating the printer driver for Windows XP or 2000"
- "Updating the printer driver for Windows Me, 98 SE, or NT"

You can download the current printer driver from www.datacard.com. Go to the downloads area and click Printer Drivers. Be sure to download the correct printer driver for your operating system.

When you download the printer driver, Datacard® recommends that you download the newest *SP Series Info Central and e-Guide*.

Updating the printer driver for Windows XP or 2000

Tips for success

- These steps apply to printers attached through a USB port and to directly networked printers.
- Make sure you are logged in as the Administrator when you install or update the printer driver.
- To update the driver, do not remove the existing printer driver if the operating system is Windows XP or Windows 2000.
- On a PC running Windows 2000, use the printer driver only with service pack 3 or 4 installed.

1. Close all applications. Do not close Windows.
2. Start the Setup Program:
   - If the driver is on CD-ROM, insert the CD-ROM in the PC's drive.
   - If you are using files downloaded from the Web, extract the files to the PC's hard drive. The Smart Driver™ installation program will start automatically when the files have been extracted.
3. Click "Update the Smart Driver™" on the printer driver CD-ROM program or click "Update the Smart Driver™" and then Next on the printer driver installation program.
4. A Windows message appears.
   - On Windows XP, the Windows Logo Signing message appears. Click Yes to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "Logo signing" to change the security setting.
   - On Windows 2000, the Digital Signature Not Found message appears. Click Yes to continue with installation. Security on the PC might be set to prevent installation without a digital signature. See Windows help for "digital signature" to change the security setting.
5. The installation program copies files to the PC and updates entries to enable the printer. The driver is installed.
   - If you installed the driver from CD-ROM and *SP Series Info Central* was previously installed, the files are updated.
   - If you installed the driver from downloaded files, a message appears to inform you that the *SP Series Info Central* (or e-Guide) is not available.
   - If you downloaded the SP Series Info Central and e-Guide file, double-click on the downloaded file and follow the prompts to install or update current files.

6 You must restart the PC before the driver can work with the printer. Click Finish to close the installation and restart the PC.

7 Follow instructions to update the printer firmware if prompted. Make sure the printer is connected to the PC and powered on before running the Firmware update utility.

If you downloaded the driver from the Internet, you can delete the Smart Driver folder from your hard drive after installing the printer driver. You can also delete the downloaded SD_xxx.exe file (where xxx represents an abbreviation for the operating system and the release).

Updating the printer driver for Windows Me, 98 SE, or NT

To update the printer driver for Windows Me, 98 SE, or NT:

1 Remove the existing driver as described in "Removing the existing printer driver".

2 Install the printer, as described in "Install the Smart Driver™ to a USB port on Windows Me or 98" or "Install the Smart Driver™ on Windows NT".

If you are updating the driver on a client PC that shares a printer, see "Printer sharing".

Reinstalling the driver

This section includes:

If you have problems printing from a PC to the printer, you might need to remove the driver and install it again. Only perform the steps in this section if the following are true:

- Message help includes reinstalling the driver as a solution, and you have attempted all other solutions to the message without success
- Your service provider has asked you to remove and reinstall the driver as a solution to a problem

You can download the current printer driver from www.datacard.com. Go to the downloads area and click Printer Drivers. Be sure to download the correct printer driver for your operating system. When you download the printer driver, Datacard® recommends that you download the newest *SP Series Info Central and e-Guide*.

Removing the existing printer driver

Tips for success

- Make sure all jobs have been printed or deleted from the Print Manager before removing the existing printer driver. See Windows help to use the Print Manager.
- For Windows XP and 2000 only, the Administrator and users with Manage Printers permission can delete the printer driver.
- For Windows NT, the Administrator, users with Administrator rights, and users with Full Control permission can delete the printer driver.
- The printer name and printer settings are deleted when you delete the printer driver. If needed for an application or printer sharing, you can record the printer name and settings you use before you delete the driver.
- You can remove the driver if you will not use the printer from this PC again.

1. If the printer is connected to the PC using a USB cable, unplug the cable from the printer before deleting the printer driver. If you do not, the operating system might install the printer again.
2. Close all applications. Do not close Windows.
3. Select Settings and then Printers or Printers (and Faxes) from the Windows Start menu.
4. In the Printers window, click once on the Smart Driver™ icon to select it. Press the Delete key.
5. When the confirmation prompt appears, select Yes or OK to delete the printer driver. Follow any prompts that appear.
6. Close the Printers window and close all applications.
7. When the prompt to restart Windows appears, select Finish, Yes, or OK.
8. Restart Windows. For Windows XP, 2000, or NT, when prompted, make sure you have permission to restart Windows and then log in as the Administrator.
9. If you are reinstalling the printer driver, see "Installing the driver".

Running the Cleanup utility

Tips for success

- Download the Cleanup Utility from the downloads area of www.datacard.com.
- The cleanup utility is also available on the printer driver CD-ROM.
- If you have attempted to delete the printer and the icon remains, run the Cleanup utility as though the driver was deleted.

1. Begin with all Smart Driver™ printer drivers deleted from the PC. Make sure you have restarted Windows after deleting the drivers.
2. Start the Cleanup process:
   - If you downloaded the Cleanup Utility, double-click the Cleanup.exe file to extract and start the utility.
   - Insert the Smart Driver™ CD-ROM in the PC's drive. Select Driver Support Programs and then click Cleanup Utility.
3. Click OK and then Unzip to extract files and start the Cleanup Utility.
4. Click OK when files are extracted. The Cleanup Utility starts automatically.
5. Click Yes on the Question box to open the Cleanup.pdf file using Acrobat Reader. This file provides specific instructions on running the Cleanup utility. Follow the instructions carefully.
6. Exit the Smart Driver™ window and remove the CD-ROM if used.
7. When you run the Cleanup Utility, it removes the *SP Series Info Central and e-Guide* from the PC.

Installing the printer and driver again

The steps to follow to install the printer and driver depend on the operating system and how you will connect the printer and PC. See "Installation choices" for guidance.

Troubleshooting Installation Problems

This section describes some problems users have reported when installing the printer and provides solutions to those problems. This section includes:

- "Troubleshooting any installation"
- "Local (USB) installation troubleshooting"
- "Troubleshooting a network installation with a print server"
- "Troubleshooting an SP Series card printer with the Built-in Ethernet feature"
- "Removing a device from the Device Manager"

Troubleshooting any installation

The following problems might occur when installing the printer using any type of connection. Address the possible causes in the order listed.

Problem	Cause	Possible solution
For SP35 and SP55 printers, the light on the power supply does not come on within 30 seconds after plugging in the power supply.	The power outlet does not work.	Connect the power supply to another power source that you have verified, for example by connecting a lamp. If the other device works, assume the outlet functions correctly.
	The power strip, surge protector, or similar device is not powered on or is defective.	If you are using a power strip, surge protector, or similar device, make sure it is powered on and that other devices connected through it power on.
	The power supply or power cord does not work.	Request a replacement power supply or power cord from your dealer.
The light on the front of the printer does not come on within 2 minutes after plugging in the printer.	The printer is defective.	Contact your service provider for assistance.

Local (USB) installation troubleshooting

This section describes possible problems and their solutions when using a USB connection. Address the possible causes in the order listed.

Problem	Cause	Possible solution
Windows XP displays “USB device not recognized” when you power on the printer.	The printer status light was not steady green when the printer and PC were connected.	This is a short-term condition while all internal elements of the printer become functional. The message disappears by itself when the printer is ready.
The PC does not detect the printer when it is connected.	The printer is not powered on.	Remove one end of the USB cable. Power on the printer. When the printer Ready light is steady green, connect the USB cable.

Problem	Cause	Possible solution
	The USB cable is defective.	Use a different USB cable that is up to 6.5 feet or 2 meters long.
	The printer is connected through more than 5 hubs (or devices) or through 2 or more unpowered hubs (or devices).	Remove hubs until the printer is connected through 5 or fewer hubs (or devices) or directly to the PC. Make sure every other hub is powered.
	The printer is connected through a USB hub or device that is defective.	Replace the USB hub or, if the printer is connected through another device, connect both devices through a USB hub.
	The printer is connected with a cable that is longer than specified.	Use a USB cable that is up to 6.5 feet or 2 meters long. If the printer is connected through a USB hub or device, use a shorter cable between the PC and USB hub.
	The USB port on the PC is defective.	Replace the USB port on the PC.
	The operating system identified the printer but you cancelled the Add/Found New Hardware wizard.	Unplug the USB cable, remove the printer from the Device Manager and then try again.
	There is a communication problem.	See Communication Problems.
On Windows XP, the Detect New Hardware wizard does not identify the printer driver on the CD-ROM.	The operating system identified the printer but you cancelled the Found New Hardware wizard.	Unplug the USB cable, remove the printer from the Device Manager and then try again.
The Add/Found New Hardware wizard appears when the printer is connected or powered on, after the printer is installed.	Windows is associating the printer with its existing printer database.	The wizard closes. No action is necessary.
	The printer you just connected has a different serial number than the one previously connected.	The Wizard installs another copy of the printer driver. (Find the icon in the Printers Window.) This occurs because Windows tracks the serial number of each USB device connected.

Troubleshooting a network installation with a print server

The following problems might occur when installing the printer using a direct network connection that includes a print server. Address the possible causes in the order listed.

Problem	Cause	Possible solution

Test LED does not light up on power up the print server.	The power or network connection for the print server is not working.	Make sure that the print server is connected to a power source and that the network connection is good. See the guide for the print server.
On Windows XP or 2000, the DCNETn port does not appear in the Smart Driver Ports list when installing the printer.	The network port driver was not installed successfully.	Remove the Smart Driver™ and install the driver again. Make sure that you choose to install a network printer.
Port status is: The port mode has not been detected.	The network address or name of the printer has not been defined.	In the printer Properties dialog box, make sure the port is a Datacard® network port (DCNet_) and that the IP address or device name is configured for the port.
Port status is: Network not responding.	The print server is not responding to a query by the printer driver.	Check the power to the print server, and the connections from the printer, print server and network. Also verify the PC connection to the network.
Port status is: Communication with the printer is suspended.	The printer has been busy or the network has not responded for more than 30 seconds.	Resume the Printer Toolbox to see whether the printer is busy or the network is not responding. If the status remains, check the printer. Make sure it is powered on. See if another PC is displaying a message. Address the printer problem if possible.

Troubleshooting an SP Series card printer with the Built-in Ethernet feature

The following problems might occur when installing an SP Series printer with Built-in Ethernet feature. Address the possible causes in the order listed.

Problem	Cause	Possible solution
You installed the Smart Driver™ and specified the IP address of the printer, but could not connect to the printer.	The IP addresses are not correct.	Use the printer LCD panel to retrieve the IP addresses (IP address, subnet mask, and gateway address). Make sure you have selected the correct address mode (DHCP or Static IP). The address mode of the printer must match the addressing used on the network.
	On SP55 printers with the Open Card feature, the data format is not correct.	Make sure the data format (displayed on the LCD panel) is Smart Driver™. Change it if needed.
A card sent from a PC does not print.	On SP55 printers with the Open Card feature, the card used a data format that was not selected on the LCD panel.	Change the data format so the printer recognizes the data format sent.

You sent the card using an IP address that is not correct for the printer.	Use the LCD panel to retrieve the IP addresses (IP address, subnet mask, and gateway address). If IP addresses are not displayed, work with network support personnel to assign the correct IP addresses. Make sure you have selected the correct address mode (DHCP or Static IP). The address mode of the printer must match the addressing used on the network.
The printer is paused.	Press the Ready button on the LCD panel to un-pause the printer.
If you are using the Open Card format, the Start of Card Data (<) command is missing from the data stream, or the active card layout does not result in a printed card.	Make sure the data stream meets the requirements of the Open Card format. See the SP Series Data Formatting Guide for details.

Support for Direct Network Connections

If you need assistance with the installation or use of a print server and printer, do the following in the order listed:

- Read the installation information that came in your printer carton.
- Work with your network support personnel, who are familiar with connecting devices to and operating devices on the network.
- Closely review this Installation e-Guide to see if it addresses your issue.
- If you use a print server, read the guide(s) for the print server, which addresses many common situations not specifically covered in this e-Guide.
- Request assistance from your Datacard® service provider.

Removing a device from the Device Manager

Remove a device from the Device Manager if the Add/Detect New Hardware wizard was cancelled (or another installation problem occurred), or you want to reinstall the printer driver.

1. Disconnect the printer from the PC.
2. If the printer driver was installed, make sure the printer driver has been deleted and that you have rebooted the PC after deletion.
3. Select Start from the Windows task bar.
4. From the Windows Start menu, select Settings and then Control Panel. The Control Panel appears.
5. Double-click the System icon to open it. The System dialog box opens.
6. Open the Device Manager.
   - On Windows Me and Windows 98, click the Device Manager tab.
   - On Windows XP and Windows 2000, click the Hardware tab, and then click the Device Manager button.
7. Make sure “View devices by type” is selected.
   - On Windows XP and Windows 2000, select “View hidden devices” from the View menu.

8 Locate the device to delete. The device might be called “Unknown device” or “Smart Driver.” It is usually marked with a yellow question mark. If neither of these types of devices is displayed, go to step 10.

— On Windows Me and Windows 98, click on the device name or icon to select it, and then click the Remove button.

— On Windows XP and Windows 2000, click on the device name to select it, and then right-click to display a pop-up menu. Select Remove from the pop-up menu.

9 Click Yes or OK to confirm removal of the device.

10 Click OK to close the Device Manager. Close any other windows.

Connecting more than one printer or more than one PC

This section includes:

You have several choices for having more than one printer connected to a PC or for having more than one PC connected to a printer. Choices include:

- Installing two printers to one PC using USB ports See "Installing more than one printer using a USB connection" for details.
- Installing a printer on a client PC when the printer is connected to a host PC and both PCs are connected to a network (using Windows printer sharing). See "Printer sharing" for details.
- Installing a printer on a network using a print server and then installing the driver on a PC on the network. This method is called direct networking. See "Network installation" for details.
- Installing multiple printers to a PC using a combination of connection methods. For example, one or more printers can be directly connected to the PC and others can be connected through a network (using Windows printer sharing or direct networking).
- Using more than one printer installed to a PC as a printer pool, when the PC is running Windows XP or 2000. The operating system manages sending jobs to the printers so the next available printer receives the print job. See "Printer pooling" for details.

Installing more than one printer using a USB connection

Tips for success

- More than one USB-connected printer on a PC running Windows 98 (including SE) is not fully supported. Datacard® recommends using Windows XP, Me, or 2000 when using more than one printer on a PC.
- Connect and install one printer at a time. The PC cannot run two or more installation programs at the same time.
- The USB protocol allows devices to be connected to the PC through another USB device (daisy-chained). USB also uses hubs to which multiple USB devices (including other hubs) can be connected (cascaded). Up to five hubs can be used between the printer and the PC. Datacard® printers do not have ports to support daisy chaining. If you need to connect two Datacard® printers to a PC with one USB port, obtain a USB hub to which both printers can be connected.
- The printer must be powered on for the PC to detect it. It must remain powered on so the operating system can keep track of the printer if the printer is moved from one USB port or connection to another.

1. Begin with the PC powered on and running. Existing Datacard® printers can be powered on or powered off.
2. Exit the Printer Toolbox for existing printers. Right-click on the printer icon (in the lower right corner of the desktop) to display a pop-up menu. Select Exit from the pop-up menu.
3. Attach the flat end of the USB cable to the USB port on the PC or on a device connected to the PC.
4. Power on the printer and wait until it is ready (the printer light is steady green).
5. Attach the square end of the USB cable to the printer.
6. The operating system should detect the new device and display the Add/Detect New Hardware wizard. Follow the prompts.
   - If the operating system does not detect the printer and display the Add/Detect New Hardware wizard within a few minutes, check the Printers window to see if the icon for the new printer is displayed. At times, the

Wizard runs quickly and you might not notice it. If the Wizard does not appear and the icon is not present, see "Troubleshooting Installation Problems" for more information.

— For Windows Me and 98, the Add New Hardware wizard might appear twice; to install USB printer support and then to install the printer driver.

7 In most cases, the operating system will use the existing driver files to install the driver for this printer:

— On Windows Me, the Copying Files dialog box might appear. If it does, browse to the location on the hard disk for the Windows\System folder to continue.

— On Windows 98 and 98 SE, Windows might prompt you to insert the printer driver CD-ROM to complete installation.

Using more than one printer on a PC

When using more than one printer on a PC, keep the following in mind:

- Select the printer to use in the application. Card jobs will be sent to the selected printer even if more than one Datacard® printer is attached to the PC.
- When messages are displayed, the title bar of the message box displays the name of the printer causing the message. Keep track of which printer has which name.
- Each printer has its own icon in the Printers window, and each printer has a separate Properties or Printer Preferences dialog box. Settings are not shared among printers.
- A Printer Toolbox dialog box for each printer is displayed on the desktop (unless you minimize or exit from it).

Printer pooling

This section includes:

Printer pooling is a feature of the WIndows XP and Windows 2000 operating systems. A printer pool treats a group of printers as one printer and distributes print jobs among the available printers.

Requirements for a printer pool

To create a printer pool for Datacard® printers, you must:

- Install the printers (connect the printers and install the Smart Driver™) to the same PC. Your can use one or more of the following methods to install the printers:
  - Install the printer locally using a USB port
  - Install the printer using a direct network connection
- Use the Windows XP or Windows 2000 operating system on the PC. (Windows NT includes support for printer pooling; however the Datacard® Smart Driver™ does not support printer pooling on Windows NT.)
- All printers must have the same features to be part of the pool. Printers can be installed before or after the printer pool is set up and will be included in the pool. By default, all directly connected Datacard® printers are included in the pool, so all printers must support and use the same card features.

  For example, if the cards will have magnetic stripe data encoded, all printers must have the same type of magnetic stripe module.
- Use the Datacard® method for setting up printer pooling, not the Enable Printer Pooling check box on the Properties dialog box for the printer. Windows permits checking this box but does not permit displaying a message if the printer does not support it.
- Special features that require interactive mode, including reading magnetic stripe and programming smart cards, do not work with printer pooling. (The PC must communicate directly with the printer about a specific job, and this information is not available to the PC.)
- A printer pool that is installed without having an actual Datacard® printer and its driver installed will not print cards.
- Shared printers cannot be part of a printer pool.

Set up printer pooling

To set up a printer pool on a PC:

1. Install each printer and its driver on the PC. See "Unpacking and connecting the printer" and "Installing the driver" for steps to follow.
2. Set up each printer with the same settings, especially print ribbon type, print on both sides, magnetic stripe settings, and laminate “apply material.”
   - See Working with Properties and Printing Preferences if needed.
3. Verify the operation of each printer on its own.
4. Install the Smart Driver™ printer pool (described in the following procedure).
5. Set up the pool with the same values that each printer uses.
   - See Working with Properties and Printing Preferences if needed.
6. Verify the operation of the printer pool.

Install the Smart Driver™ printer pool

1. Begin with Windows running and all printers installed.
2. Start the installation program by doing one of the following:
   - Insert the Smart Driver™ CD-ROM. When the dialog box appears, click “Install the Printer”.
   - Double-click the SD-2K-XP-n_n.exe file to extract downloaded driver files and start the installation program (the n_n represents the version of the driver, such as 7_0).
3. On the dialog box, click “Install the Printer.”
4. Choose “Driver Printer Pool” from the list and click Next.
5. Respond to the Microsoft dialog box to complete installation:
   - For Windows XP, click Continue Anyway on the Windows Logo testing message.
   - For Windows 2000, click Yes on the Digital Signature Not Found message.
6. The installation program runs to install the printer pool.

Use a printer pool

Begin with the PC powered on and the driver and printer pool installed.

Tips for success

- To use the printer pool effectively, each card must be sent from the application as a separate job. Some applications, such as Datacard® ID Works, send each card in a batch as a separate job, while others send the batch as one job. Test the application you use to determine the best way to send multiple cards to the printer pool.
- If you do not want one or more printers to print cards as part of the pool, power off that printer. The printer pool will identify a printer as available even when the printer status is Suspended or Not Responding if the printer is powered on. If you need to use a printer separately from the printer pool, install it on another PC or contact your service provider for assistance.
- Some applications track card completion status, and this data is available for cards sent to the printer pool. The application can query the printer pool and obtain status for all cards processed through the pool. Card completion status does not indicate which printer actually printed the job.
- In the Printing Preferences dialog box for the printer pool, select SP35, SP55, or SP75 as the printer type.
- For magnetic stripe encoding, use the same coercivity and magnetic stripe format values for all printers and the printer pool. (If you select “Use printer settings,” make sure the settings in the printers are the same; use the Printer Diagnostics utility to view magnetic stripe values if needed.)

To use a printer pool:

1. In the application used to print cards, select the name assigned to the printer pool when it was installed.
2. Make sure that all printers you want to receive card data and print cards have the same type of supplies loaded and the same settings.
   - For example, to print color and encode magnetic stripe, load YMCKT ribbon in the printer and use high-coercivity magnetic stripe cards. Each printer identifies the ribbon type as YMCKT, but the pool cannot identify the Print Ribbon Type so you must set the Print Ribbon Type.
3. Make sure the printers are powered on and ready.
4. Select Print in the application. The application sends the cards to the printer pool, which randomly distributes the card jobs among the available Datacard® printers. When all printers are busy, the printer pool keeps the card jobs in a queue until the next printer is not busy. It will send the next card job as soon as any printer in the pool is available. A printer is available if:
   - The number of jobs active in the printer is less than the number of jobs supported for that printer type

- No jobs are pending in the spooler for that printer
- The printer is not paused
- The printer is not set to “work offline”
- The printer status is not “User Intervention Required”
- The Printer Toolbox is not in Advanced Setup mode

5 After a card is sent by the printer pool to a specific printer, it cannot be removed from that printer and assigned to another printer.

6 When a printer issues a message, the message appears on the PC with the name of the printer in the title bar of the message box. The printer will be unavailable to print cards until the situation causing the message is corrected. Other printers in the pool will continue to receive card jobs and print cards.

Printer sharing

This section includes:

This section describes how you can print to a printer over a network using Microsoft File and Printer Sharing. A shared printer is connected to a PC with the printer driver installed (host PC). Users at other PCs on the network (clients) can print to the shared printer over the network. Up to 10 client PCs can share the printer at one time. Users at client PCs do not have the same level of access to the printer driver as a user at the host PC.

The following operating system configurations are supported:

- Both the client and host PCs run Windows XP.
- Both the client and host PCs run Windows Me or Windows 98 (Second Edition).
- Both the client and host PCs run Windows 2000.
- Both the client and host PCs run Windows NT 4.0. (Network connection only between a printer and the host PC)

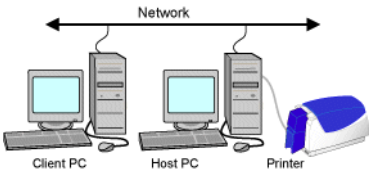
Requirements for local printer sharing

Before sharing a printer over the network, meet the following requirements:

- A network card is installed in and working on each PC to use the printer.
- The same Windows operating system is installed on and operating on each PC.
- If you are installing both a network card and a service pack or Windows upgrade, install the network card first and then install the service pack or upgrade. If you installed a service pack or upgrade before installing a network card, you might need to install the service pack or upgrade again.
- The printer must be enabled for sharing. See Windows help for information on enabling printer sharing.
- The PC with the printer attached must remain on, and the Windows operating system must be running. For Windows XP and 2000, a user with Print, Manage Printers, and Manage Documents permissions to the printer must be logged on at the host PC so that other users can print. For Windows NT, a user with Full Control permission to the printer must be logged on at the host PC so that other users can print.
- If more than one printer is connected to a PC and one is a shared printer, the printers must have different names.
- For Windows XP, 2000, and NT, you must set up permission for users at the client PC and permission for users at the host PC. See "Setting printer permissions" for more information.

Components

This section describes the components you need to use the SP Series printer with local printer sharing.



Network: A network must be set up and working before you begin. See "Network installation" for more information.

Host PC: The host PC has the printer attached to it. The host PC must be connected to the network. For Windows 2000, Windows XP, and Windows NT, you need to set up users and access.

Port connection: The printer can be connected to a USB port on the host PC, or can have a direct network connection to the host PC, in the same way as though you were using it just from the host PC.

Client PC: The client PC is connected to the host PC over the network.

Setting up printing sharing

To set up printer sharing, do the following:

1. Install the printer driver on the host PC. See the "Installing the driver" for more information.
2. With the printer power on, change settings to reflect your card design, including printer features such as ribbon type and magnetic stripe settings. Record the settings so you can also make those settings on the client PC.
3. Enable printer sharing. See Windows help for more information.
4. For Windows XP, Windows 2000, and Windows NT, set up an account for each user.
   - At the host PC set up accounts for users who log onto the host PC and for users who log onto the client PC(s).
   - At the client PC set up an account for the user who logs onto the client PC.
5. For Windows XP and Windows 2000, grant users' permission to the printer from the host PC, including:
   - Client PC users who have Print permission to the printer.
   - Host PC users who also have Print, Manage Printers, and Manage Documents permissions to the printer.
   - Host PC users (if any) who are denied permission to the printer.
6. For Windows NT, grant users' permission to the printer from the host PC, including:
   - Client PC users who have Print permission to the printer.
   - Host PC users who also have Full Control permission to the printer.
   - Host PC users who have No Access permission to the printer.
7. Make sure client PC users can access the host PC from the network.
8. Install the printer driver on the client PC. See the following procedure.
9. At the client PC, set the printer type in the Properties, Printing Preferences, or Default Document Properties dialog box.
10. Change driver settings on the client PC to match settings on the host PC.

Installing the printer driver on the client PC

Tips for success

- If an Express Class v1.x, Select Class v2.x or v3.x, Magna Class v2.x, or ImageCard IV printer driver is installed on the client PC, delete the printer driver and restart Windows before continuing.

- For Windows XP, Windows 2000, and Windows NT, log onto the client PC as a user with access rights to the host PC. You also need Print permission to the shared printer to open the Printing Preferences dialog box and to print test cards.
- A PC can have a locally connected (USB) Datacard® printer attached, a directly networked Datacard® printer attached, and be connected to a shared printer as a client PC. All printers connected to the PC must be supported by and use the current version of the Smart Driver™.
- If you use more than one connection method on a PC, install the locally and/or directly-network connected printer(s), and then follow the steps in this section to install the shared printer last. The shared printer must have a different name from the other printers.
- If you update the Smart Driver™ on the host PC, you need to remove the driver from the client PC. See "Removing the existing printer driver" to remove the existing driver. Follow the steps in this section and then restart Windows before printing from the PC.

1 Make sure that the printer and driver on the host PC are working properly before beginning this task.

2 Start Windows at the client PC and log onto the network.

3 Use Windows Explorer, Network Neighborhood, or My Computer to locate the host PC.

4 When you locate the host PC, click the icon for the host PC to display the Enter Network Password dialog box. Type your password and click OK to log on to the host PC. Keep the window open during printer driver installation.

5 In the Printers window, double-click the Add Printers icon.

6 In the Add Printers wizard, select the following choices:

a Choose the "Network printer" button, not the "My Computer" or “Local printer” button.

b Choose to browse for the printer. An expandable list of printers and/or PCs appears.

c If needed, double-click a server or PC name to see the names of printers attached.

d Choose the printer to which the user will print. The printer name appears in the Printer box.

e Change the name of the printer if needed so it is different from the name of other Datacard® printers attached to the PC.

f Continue to follow the prompts on the Add Printers Wizard.

g If you have not logged into the PC with the printer attached, you will receive a message. Return to step 3 and repeat the procedure.

h If you are prompted, choose "Replace existing driver," not "Keep existing driver (recommended)."

i If you are prompted to print a test page, click No. You must set values in the Properties, Printing Preferences, or Default Document Properties dialog box before printing.

7 When the printer has been installed on the client PC, change settings on the client PC to reflect the printer and your card design. Open Properties (Windows Me and 98), Printing Preferences (Windows XP or 2000), or Default Document Properties (Windows NT) to change settings.

— Set the printer type and click OK or Apply.

— Set the ribbon type to match the ribbon in the printer and the setting on the host PC.

— Change settings that apply to the printer, such as magnetic stripe, so they do not conflict with the host PC and printer features.

— Change settings to reflect your card design, such as portrait or landscape orientation. These settings can be different from the settings on the host PC.

8 From the Properties, Printing Preferences, or Default Document Properties dialog box for the shared printer, print a Windows test page from the client PC.

Performing management tasks at the host PC

The user at the host PC has more control over the printer and more information about the printer. This section describes some tasks performed at the host PC.

For Windows XP and 2000, the user must be logged in with Print, Manage Printers, and Manage Documents permissions. For Windows NT, the user must be logged in as a user with Full Control permission.

- Manage all jobs in the print queue. You can use Print Manager to view all jobs in the print queue and to pause or delete any jobs in the print queue, no matter who submitted the job. The job remains in the print queue until it has been sent to the printer. See Windows help for information on using Print Manager.
- See and respond to messages. If the printer is not able to process and print a card, the printer driver displays a message on the host PC, not the client PC. You can see the message and view help, which guides you in resolving the situation. Printing for all users is suspended until the situation is resolved.
- On Windows XP, 2000, and NT, set printer values, such as ribbon type, for all users. The values you set in the Printing Preferences or Default Document Properties dialog box apply to all users. Several values can be changed at client PCs, but those values apply only to the print jobs being sent. Values you set are used at client PCs after the client PC queries the host PC. Open the Printing Preferences or Default Document Properties dialog box at each client PC after setting values at the host PC to query the host PC. (You can close the dialog box at the client PC after viewing it.) If you do not open the Properties dialog box, the client PC does not query the host PC, the first card printed will not use the new settings, and you will need to send the card to print again.
- On Windows Me and 98, set or view values that control card processing for all users. Record the ribbon type so you can set it correctly at the client PC. The values you set for Mag Stripe encoding can affect all users.
- View printer status. The host PC runs the Printer Toolbox and all status functions. The Printer Toolbox is open by default. See Open the Printer Toolbox for details.
- Use all features of the Smart Driver™ Toolbox. The Printer Toolbox on the host PC provides access to settings, including edge to edge settings and color controls.
- Run the firmware update utility. The host PC displays a prompt when you need to run the firmware update utility. The utility works only from a PC with the printer directly connected to it.

Using the printer from the client PC

For Windows XP, 2000, and NT, users at the client PC must be logged into the host PC and must have Print permission to the printer. Users at the client PC can perform several actions, including:

- Print a card using an application at the client PC. At the client PC, you can use an application to print cards by selecting the printer in the application. See Card Production for details.
- Print a card using an application and magnetic stripe fonts from the client PC. When you print from an application such as Microsoft Word, you can type text and format it using fonts provided by the printer driver.
- For Windows Me and 98, set card design values. Select the same Ribbon Type as the Host PC. For other settings, such as Magnetic Stripe Encoding Format, the printer must support the setting you select but the setting can be different from the Host PC setting.
- For Windows XP, 2000, and NT, change card design settings, including settings such as landscape or portrait orientation. Many settings are read from the host PC and cannot be selected.
- Do not use the Restore Defaults feature on any operating system. The Restore Defaults function attempts to query the printer to verify its features and cannot access the printer over the network.
- Pause or delete print jobs you submitted from Print Manager at the client PC. The card job remains in the print queue until it is sent to the printer. See Windows help for information on using Print Manager.
- View status of the client PC. The Printer Toolbox dialog box is also available on the client PC. It displays the client status and a reminder that the host PC provides messages and additional status information.

- Use the Color Settings page of the Toolbox. The Printer Toolbox box on the client PC provides access to the Color Settings page. The color settings can be used to fine-tune the appearance of cards sent from the client PC.
- On Windows XP, 2000, and NT, view the Print Manager to see printer messages from the host PC. The card job remains in the print queue until it is sent to the printer. You can expand the Status column in the Print Manager dialog box to see the messages.

PC port settings

This section describes how to configure ports on the PC attached to the printer. For a local connection, the PC uses a USB port. If the printer includes a smart card module, that module connects to a USB or serial port on the PC. (This section does not address any network setup issues.)

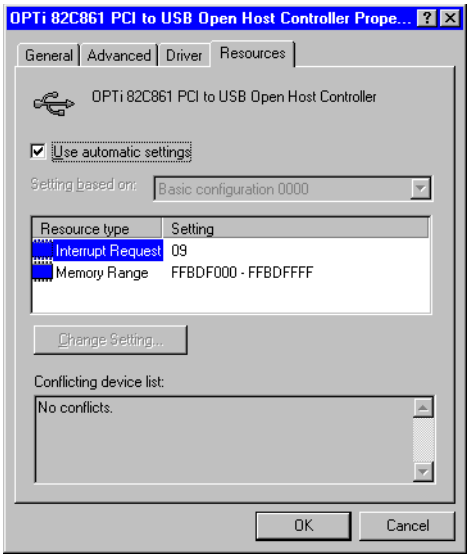
This section includes:

Set up a Universal Serial Bus (USB) port on all operating systems

These steps apply to the USB data port and to an optional smart card USB port. If the printer includes two USB ports, follow these steps for each port. The ports are not connected inside the printer to preserve the data security of the smart card port.

This section does not apply to Windows NT.

1. Right-click on the My Computer icon on the desktop and then choose Properties from the popup menu. The System Properties dialog box appears.
2. Click the Device Manager tab to view a list of devices. (On Windows XP and Windows 2000, click the Hardware tab and then click the Device Manager button.)
3. Choose “View devices by type” if needed.
4. Click the + next to Universal Serial Bus controllers to display the USB port controllers.
5. Click USB Root Hub, and then click the Properties button. (On Windows XP and Windows 2000, right-click USB Root Hub and then choose Properties from the pop-up menu.) The USB Root Hub Properties dialog box appears.
6. Make sure that the device is enabled.
   - For Windows Me and 98, make sure that “Disable this hardware profile” is not selected.
   - On Windows XP, make sure that "Use this device (enable)" is selected from the Device Usage drop-down menu.
7. Click OK to close the dialog box.
8. Click the other entry, which includes the name of the installed USB device and ends with “Host Controller,” and then click the Properties button. (On Windows XP and Windows 2000, right-click USB Host Controller and then choose Properties from the pop-up menu.) The Properties dialog box appears.
   - Make sure that the device is enabled:
     - For Windows Me and 98, make sure that “Disable this hardware profile” is not selected.
     - On Windows XP, make sure that "Use this device (enable)" is selected from the Device Usage drop-down menu.
   - Click the Resources tab. The “Conflicting device list” should show "No conflicts."
   - If the Resources tab shows conflicts, choose another configuration or change the settings for the port, following port instructions.



9 Click OK on the Properties dialog box and on the System Properties dialog box to save settings and close the dialog boxes.

Serial port settings

This section describes how to set serial port values. A serial port might be used with a smart card module.

For some smart card applications, you connect the PC to the serial port on the printer. The PC should be set to match the printer serial port settings.

If you use a contact station with the printer, see the information about the contact station for port settings.

Setting the serial port on Windows XP or 2000

1 From the Start menu, choose Settings and then Control Panel.

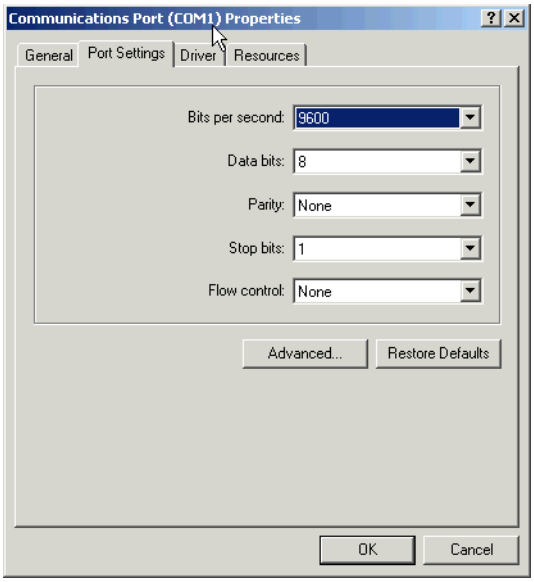
2 From the Control Panel, open System.

3 Select the Hardware tab, and then click the Device Manager button.

4 Press the "+" next to Ports and double click the Communications Port to open the Communications Port Properties dialog box.

5 Click the Port Settings tab.

— If the PC has more than one serial port, make sure you view the settings for the serial port to which the smart card module is attached.



6 Use the following settings:

Setting	Value
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

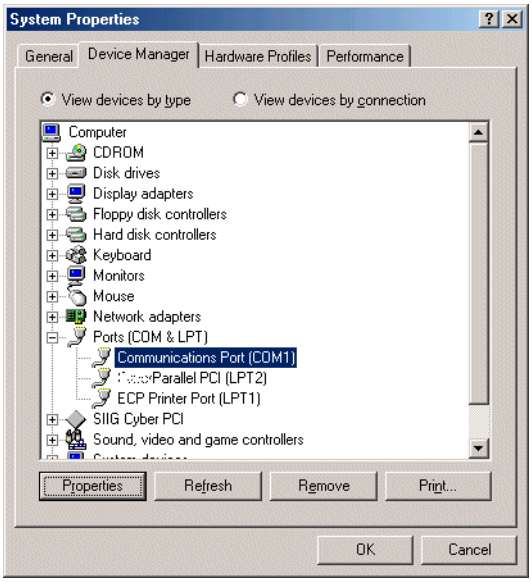
7 When the settings are correct, click OK to save settings and close the dialog box.

Setting a serial port for Windows Me or 98

1 From the Start menu, choose Settings and then Control Panel.

2 From the control panel, open System.

3 On the System Properties dialog box, click the Device Manager tab.



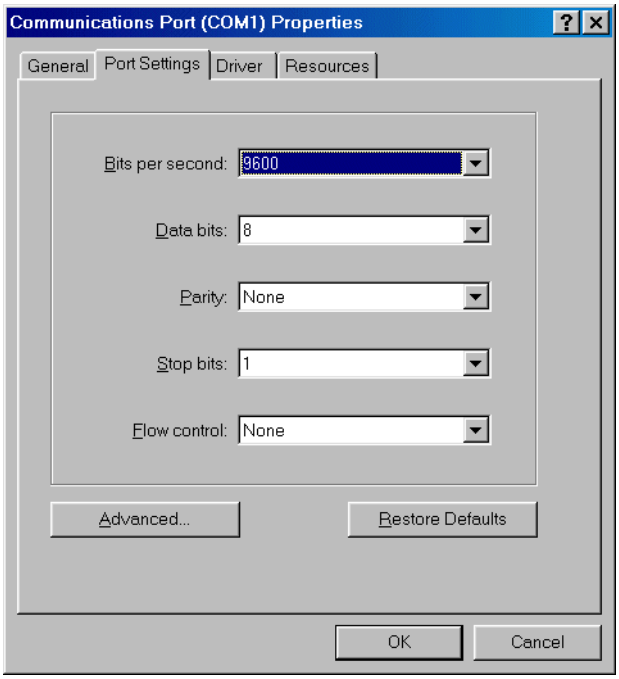
4 Press the "+" next to Ports (COM & LPT) to display a list of ports.

5 From the Ports list, choose the port, such as COM1 or COM2.

— If the PC has more than one serial port, make sure you view the settings for the serial port to which the smart card is attached.

6 Click the Properties button.

7 In the Communications Port Properties dialog box, click the Port Settings tab.



8 Use the following settings:

Setting	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

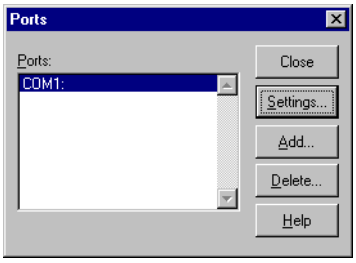
9 When the settings are correct, click OK to save settings and close the dialog box.

Setting the serial port on Windows NT

1 From the Start menu, choose Settings and then Control Panel.

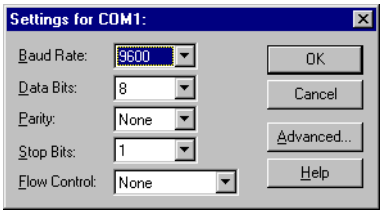
2 From the Control Panel, open Ports.

3 From the Ports dialog box, choose the port, such as COM1 or COM2.



4 Click the Settings button to display the port settings.

— If the PC has more than one serial port, make sure you view the settings for the serial port to which the smart card is attached.



5 Use the following settings:

Setting	Value
Baud rate	9600
Data bits	8
Parity	None

Stop bits	1
Flow control	None

6 When the settings are correct, click OK to save settings and close the dialog box.

On the CD-ROM

The printer is shipped with a CD-ROM that contains the printer driver (Smart Driver™), user information, and other utilities and files that you might want.

The following table lists the contents of the CD-ROM, the path, and the purpose of the program, file, or utility:

	Path	**Purpose**
Datacard® Smart Driver™ CD-ROM	D:\SETUP.exe#	User-friendly access to all of the applications on the CD-ROM
Printer driver for Windows XP and 2000	D:\DsPnp.inf#	Installation for Windows XP and 2000 that meets Microsoft Plug-and-Play requirements
Printer driver for Windows Me and 98	D:\Me-98\SETUP.exe#	Custom installation for Windows Me and Windows 98
Printer driver for Windows NT (supports networked printers)	D:\NT\ SETUP.exe#	Custom installation for Windows NT 4.0
e-Guide installation	D:\e-Guide\SP_e-Guide_*v*.exe#†	Installation program for *SP Series Info Centra*l.
e-Guide installation	D:\e-Guide\IC4_e-Guide_*v*.exe#†	Installation program for ImageCard IV e-Guide.
e-Guide installation	D:\e-Guide\Mag_e-Guide_*v*.exe#†	Installation program for Magna e-Guide.
e-Guide installation	D:\e-Guide\Sel_e-Guide_*v*.exe#†	Installation program for Select e-Guide.
e-Guides (use the e-Guide(s) that match the printer(s) installed on the PC)	D:\e-Guide\SP Series\ SP_Info_Central.chm# and other files with names in the xxx.chm format	*SP Series Info Central* and e-Guide files, which contain detailed information about the SP Series printers
	D:\e-Guide\ Magna Class with AIT\ DM-e-Guide.pdf# and other files with names in the M_xxx.pdf format	Magna e-Guide files, which contains error recovery procedures linked to help.
	D:\e-Guide\ Select Class with AIT\ DS-e-Guide.pdf# and other files with names in the S_xxx.pdf format	Select e-Guide files, which contains error recovery procedures linked to help.

	Path	Purpose
	D:\e-Guide\ ImageCard IV\ D4-e-Guide.pdf# and other files with names in the 4_xxx.pdf format	ImageCard IV e-Guide, which contains error recovery procedures linked to help.
Adobe Acrobat Reader installation	D:\Adobe\ AdbeRdr60_CHS.exe, AdbeRdr60_CHT.exe, AdbeRdr60_DEU.exe, AdbeRdr60_ENU.exe, AdbeRdr60_ESP.exe, AdbeRdr60_FRA.exe, AdbeRdr60_ITA.exe, AdbeRdr60_JPN.exe AdbeRdr60_PTB.exe#	Installation program for Adobe Acrobat Reader, Version 6.0. The Reader (version 3 or higher) is required to view the e-Guides for Select, Magna and ImageCard IV printers, part of the help system.
Printer Diagnostics Utility	D:\Support\Diagnostics\ Diagnostics_*vvv*.exe#†	Installation program for the Printer Diagnostics Utility, used to identify or fix printer problems
Cleanup Utility	D:\Support\Diagnostics\ CLEANUP_*vvv*.exe#†	Installation program for the Cleanup Utility, which is used after removing a version 1.x or 2.x driver.
Windows Color Profile for SP Series card printers	D:\Support\ SP_Prof.icc#	Color profile to use in Windows applications
Support files	D:\Support\YMCKT.prn# D:\Support\mono.prn#	Files used at the direction of service for troubleshooting.
Smart Driver™ SDK	D:\Support\SDK\ Smart Driver™ SDK.exe#	Self-extracting file for the Smart Driver™ SDK which is used to write applications that work with the printer.
Windows Base Smart Card Components	D:\Support\ SCBase.exe#†	Installation program for the Windows files needed to use a smart card reader.

Where D is the drive letter of the CD-ROM drive

† Where *v* is the version, such as C or 7.0

The printer drivers are updated from time to time to provide optimal functionality. You can obtain the most recent printer driver for the PC operating system you use from www.datacard.com. You also can request the newest release of the printer driver on CD-ROM. The part number changes with each release. The *e*-Guides are also updated from time to time and can be downloaded from the Datacard® web site at www.datacard.com.

Setting up for your card design

The driver provides settings that you can use to make sure that your cards print as you intend. These settings provide users of the printer with great flexibility in printing, encoding a magnetic stripe, or personalizing a smart card. This flexibility makes it very difficult to provide you with a step-by-step process for getting your cards to print as you intend. Instead, Datacard recommends that you do one of the following:

- Work with your value-added reseller or dealer to design cards and set up the printer to produce them.
- Understand the features of your card design, read information in this section to match features to printer settings, and change the settings to produce the cards.

Getting started

How do I create a card design?

- ID Works® and Preface ID™ software from Datacard® are designed to capture, format, and manage the data that often appears on cards. (Other applications can use the Smart Driver™ API or other driver features to handle card-specific data.) See www.datacard.com for more information about Datacard products and downloads.
- A PC application that can be used for many purposes, such as Word, Excel, or Paint Shop Pro, can be used to create a card design and format the data for the cards.
- This section focuses on the settings, not the application you use. When the application has an effect on the driver settings, this section will include that information.

What is a card design?

- Card design is the name given to the combined features of the cards you produce. Cards are useful only when all cards contain the same information: Name, photo, and so on.
- The card design includes the different types of data (name, ID number, and so on), images (logo, photo, and so on), and special features such as bar code, magnetic stripe, or smart card on the card.
- Card design also includes the way those components are arranged.
- Card design includes processes, such as applying topcoat either from the print ribbon or using a laminator (SP75 only), any blocking for printed topcoat, or applying a patch using a laminator (SP75 only) to improve card security or card life.
- Card design frequently includes quality guidelines. For example, corporate style guidelines might require that a specific shade of red be used for a logo.
- An organization might have more than one card design. For example, a health club is likely to produce member cards and employee cards.
- See "Card design checklist".

When should I perform setup tasks?

- **Initial setup:** When you obtain the printer and have the card design complete, perform setup tasks to get the printer to produce the cards you want.
- **Production changes:** If you make substantial changes to the way you produce cards, review setup tasks to make sure cards continue to have the quality you require. For example, if you purchase a new brand of (unprinted) cards, you might notice changes in the color of some images.
- **New card design:** If you change the design of your cards, or if you start producing an additional card design, review setup tasks to make sure each design prints as required. You might identify changes to your process to support printing of two different designs.

What do I use to set up the printer?

- **Properties dialog box:**
  On Windows 98 and Me, the Properties dialog box includes typical printer settings, such as landscape or portrait orientation, and settings for card printers, such magnetic stripe settings. See "Working with Properties and Printing Preferences" to change settings.

  The Windows 98 and Me Properties dialog box also includes port and communication settings. On Window XP, 2000 and NT, the Properties dialog box includes port and communication settings and permissions.

  See Network Installation to configure a network port.

  See Setting Printer Permissions to set user permissions.
- **Printing Preferences:**
  The Printing Preferences dialog box is displayed on Windows 2000 and XP to provide typical printer settings, such as landscape or portrait orientation. See "Working with Properties and Printing Preferences" to change settings.
- **Document Defaults:**
  The Default Document Properties dialog box is displayed on Windows NT to provide typical printer settings, such as landscape or portrait orientation. See "Working with Properties and Printing Preferences" to change settings.
- **Printer Toolbox:**
  The Printer Toolbox provides information about printer-driver communication, buttons for performing tasks such as running a cleaning card, and access to color settings and advanced setup. See Printer Toolbox help for more information.
- **Advanced Setup:**
  Advanced Setup is a special mode that allows you to view or change some settings in the printer. For SP Series printers, you can change where printing occurs on a card and the intensity for topcoat or monochrome (single-color) printing. For the SP75 printer, you can change where the laminator applies topcoat or patch. See "Changing settings in the printer" for more information.
- **Printer Diagnostics:**
  Printer Diagnostics is a separate application that you can install to perform tests on the printer with the guidance of your service provider. It also includes settings that might need to be changed for special-purpose cards.

Why are there several interfaces to set up the printer?

- Microsoft Windows provides a set of tools that other products (such as SP Series printers) can use for viewing and changing device settings (Properties or Printing Preferences dialog box). The functions available meet some but not all needs for setting up card printers. In addition the organization and functions available are different for Windows 98/ME and Windows 2000/XP. Because the printers can be used on several operating systems and include functions that cannot be managed through standard Windows tools, more than one interface is needed.
- As Datacard® printers have changed over time, the features needed in the driver have changed. In addition, some tasks are mutually exclusive. For example, you cannot change printhead settings at the same time as you are printing cards. The current interfaces are the result of efforts by Datacard to meet the needs of customers and dealers who use the printer. (The driver for SP Series printers can be used with other Datacard printers.)
- Some tasks are advanced, requiring a higher level of knowledge about the printer. These tasks are usually performed infrequently, and only by service providers or with the guidance of service providers, and so should not be easily available.

Card design checklist

Use this checklist to guide your selection of set up tasks to perform.

Before you print the design:

- Does the card include a smart card or magnetic stripe on the printed side of the card? If yes, set topcoat blocking to prevent application of topcoat over that feature. See "Working with Properties and Printing Preferences" to use the Printing Preferences, Properties, or Document Defaults dialog box.
- Does the card include additional features, such as a signature panel, that require print or topcoat blocking? Is the PC running the Windows XP or Windows 2000 operating system? If yes to both questions, see "Customizing blocking regions" for more information.
- Does the card include a custom image in the topcoat? Is the PC running the Windows XP or Windows 2000 operating system? If yes to both questions, see "Customizing blocking regions" for more information.
- Does the card include a magnetic stripe? If yes, see "Magnetic Stripe Setup" for more information.
- Does the card include a smart card? If yes, see "Smart card setup" for more information.
- If the printer is an SP75 printer, does the card include topcoat or patch applied using a laminator? If yes, see "Laminator Setup" for more information.
- Do you want to power off the printer when fixing problems, or is saving ribbon very important to you? The Ribbon Initialization setting determines whether the printer moves ribbon to the start of a panel set when it powers up. If saving ribbon is very important, leave this setting unchecked and fix any problems in the printer with the power on. If powering off the printer to fix problems is more important than saving ribbon, check this setting so cards printed after printer power-on will print correctly. See "Working with Properties and Printing Preferences" to use the Printing Preferences, Properties, or Document Defaults dialog box.

Make several cards using your card design and evaluate the quality of the card.

- Are you printing bar codes? If yes, check the cards in your bar code reader to make sure they are easy to read. If needed, change the printing intensity for K to improve bar code readability. See "Change printing intensity".
- Are you printing both photos and a logo in color? Use the following sequence to obtain the best color quality:
  - Check the color quality of the photos first.
  - Change the image capture system (If used) to get the best quality photos. For example, work with distance, lighting, and camera settings to obtain consistent, high quality photos. If your capture equipment provides a color profile, you can also install the color profile for the printer, named SP_Prof.icc and located in the Support folder of the driver CD-ROM.
  - After you optimize the image capture system, evaluate the quality of printed photos. If needed, change the Color Settings for optimal printing of photos. Color settings affect all colored areas of the card, but you can change other components to return them to optimal color. See "Color settings" for more information.
  - Next, evaluate the other colored areas of the card, such as text or logos.
  - You might want to use settings in the application to improve the printed color of text.
  - You might also want to use an image editing application (such as PhotoShop or PaintShopPro) to change the color of a logo file (bitmap) for optimal printing.
- If you print without a margin (the setting is edge-to-edge), observe whether the both long edges of the card appear evenly printed. If not, change the position of printing on the card. See "Fine-tune edge-to-edge printing" for steps to follow.

If you print with only one color (monochrome or K ribbon), decide whether to perform the following setup tasks:

- If you print photos:

  - — Select a dithering method (for Windows 98 or Me) to manage how color photos are printed using one color.
  - — Use the Brightness, Contrast, and Sharpness controls on the Color Settings page to obtain the best quality printed photos. See "Color settings" for more information.
- Adapt your card design to use the ribbon saver feature. See "Using Ribbon Saver" for details.
- Change the print intensity to optimize printing of features such as bar codes or small text. See "Changing the print intensity" for details.

Working with Properties and Printing Preferences

Printer driver settings and data are organized in a set of dialog boxes or pages where settings for the printer are displayed and can be changed. The dialog boxes are organized differently for Windows Me and 98, Windows 2000, Windows XP, and Windows NT. Use the section that applies to the operating system you use.

- "Properties for Windows Me & 98"
- "Properties & Printing Preferences for Windows 2000 & XP"
- "Properties and Default Document Properties for Windows NT"

The default printer name when the driver is installed is Smart Driver™. References in this guide to the printer driver refer to the Smart Driver™. The driver detects the type of printer attached and displays a status icon that matches the printer type.

Tips for Properties and Printing Preferences

- When it is installed, the Smart Driver™ printer driver uses default settings for the printer. Make sure that driver settings match printer features and supplies used.
- For settings that affect the printer, such as magnetic stripe settings, make sure that the printer and PC are connected so the value you select is sent to the printer and saved. (For settings that affect only the card format, such as landscape or portrait orientation, the printer does not need to be connected and powered on.)
- The Print Ribbon Type setting depends on the printer and cannot be changed for local USB and direct network connections. (For shared printers, you must set the Print Ribbon Type at the client PC.)
- The application you use might override driver settings. Also, you can access printer settings through the application's print feature. (Depending on the application and operating system, settings might apply only to the current document or session.)
- When the printer is installed, the default spool setting is "Spool printing so program finishes printing faster." Use this setting, not "Print directly to printer."
- When the printer is installed, "Enable bi-directional support" is selected. This setting is required to display messages, print test cards, and perform other functions.
- If the selections you want to use are not available (are grayed out), make sure the feature is available in the printer. Also make sure that the printer is powered on and connected to the PC and resume communication using the Printer Toolbox.

Properties for Windows Me & 98

The Properties dialog box includes the following settings or data:

- Card design settings, such as landscape or portrait orientation and print blocking pattern
- Print ribbon type
- Magnetic stripe encoding formats and coercivity
- Data about the printer, including the printer type
- Port to which the printer is attached
- Port settings for a directly networked printer

Use the Properties dialog box

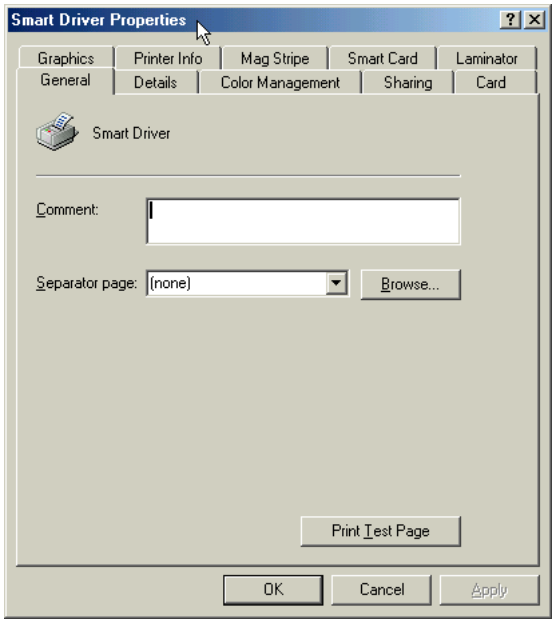
Make sure the printer power is on and the printer is connected to the PC.

1. Select Start from the Windows task bar.
2. From the Windows Start menu, select Settings and then Printers. The Printers window appears.

3 Click once on the Smart Driver™ icon. Smart Driver is the default name of the printer. The name of your printer might be different.

4 Select File from the Printers menu bar, and then select Properties. The Smart Driver™ Properties dialog box appears.

— If you have the Printer Toolbox open, you can click the Properties button on the Status page to open the Properties dialog box. The General, Details, Color Management, and Sharing tabs are not displayed when you open Properties from the Printer Toolbox.



5 Select the tab with the information to view or change.

— **General:** Shows the printer name and contains the Print Test Page button (sends a Windows test page)

— **Details:** Shows the port to which the printer is connected, and includes the Port Settings button for setting up a directly networked printer

— **Color Management:** Allows you to load a color profile for use in image editing applications. The printer has a color management system available through the Color Settings tab of the Printer Toolbox.

— **Sharing:** Allows you set up the printer for sharing over a network

— **Card:** Allows you to set the orientation, rotation, print blocking, print margin, and number of copies

— **Graphics:** Shows the print ribbon type and allows you to set ribbon initialization (For K ribbons, you can choose the type of dithering to use. See "Set up for monochrome printing" for details.)

— **Printer Info:** Shows the printer type and the resettable card count. Includes the Open Printer Toolbox button and the About Driver button.

— **Mag Stripe:** Shows whether a magnetic stripe option is included in the printer. If the printer includes a magnetic stripe module, you can set the Coercivity and Encoding Format. You can also enable Magnetic Stripe Escape Compatibility. (See "Magnetic Stripe Setup" for details.)

— **Smart Card:** Shows whether a smart card option is included in the printer. There are no settings. (See "Smart card setup" for details.)

— To view help for settings, click on the What's This help button and then click the setting.

6 If you make changes, click Apply to save the settings. When you are done, click OK to close the dialog box. If you do not want to make changes, click Cancel to close the Properties dialog box.

Properties & Printing Preferences for Windows 2000 & XP

The Properties dialog box includes the following:

- Port to which the printer is attached
- Port settings for a directly networked printer
- Permissions for other users of the PC

The Printing Preferences dialog box includes the following settings or data:

- Card design settings, such as landscape or portrait orientation and print blocking pattern
- Print ribbon type
- Whether to apply topcoat or patch material to the front of the card, back of the card, or both
- Magnetic stripe encoding formats and coercivity
- Data about the printer, including the printer type

Use the Properties dialog box

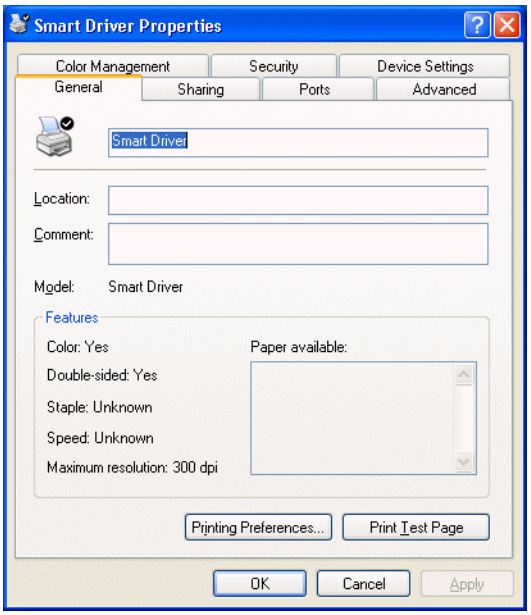
Make sure the printer power is on and the printer is connected to the PC.

1 Select Start from the Windows 2000 or XP task bar.

2 From the Windows Start menu, select Settings and then Printers (2000) or Printers and Faxes (XP). The Printers (and Faxes) window appears.

3 Click once on the Smart Driver™ icon.

4 Select File from the Printers menu bar, and then select Properties. The Properties dialog box appears.



— To view help for the Properties dialog box, click on the help icon and then click the setting. Microsoft provides help for Properties dialog box.

5 Select the tab that contains the information you want to view or change.

— **General:** Shows the printer name and contains the Print Test Page button (sends a Windows test page).

— **Sharing:** Allows you set up the printer for sharing over a network.

— **Ports:** Shows the port to which the printer is connected, and includes the Port Settings button for setting up a directly networked printer.

— **Advanced:** Contains the “Update Driver” button. Use the Datacard installation, not this button, to install a more recent printer driver

— **Color Management:** Allows you to load a color profile for use in image editing applications. The printer has a color management system available through the Color Settings tab of the Printer Toolbox.

— **Security:** Contains settings you use to grant or deny permissions to the printer for users of the PC.

— **Device Settings:** Contains a Windows control that does not affect the printer

6 If you make changes, click OK to save the settings and close the dialog box. If you do not want to make changes, click Cancel to close the Properties dialog box.

7 If you change the port or change the printer name, restart Windows before printing.

Use the Printing Preferences dialog box

Make sure the printer power is on and the printer is connected to the PC.

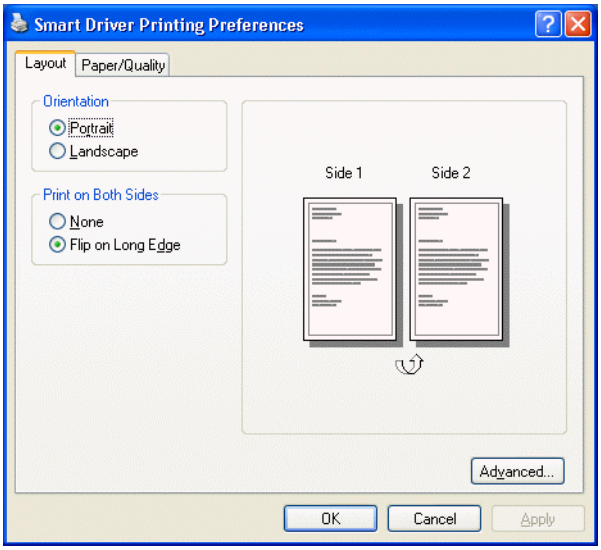
1 Select Start from the Windows 2000 or XP task bar.

2 From the Windows Start menu, select Settings and then Printers (2000) or Printers and Faxes (XP). The Printers (and Faxes) window appears.

3 Click once on the Smart Driver™ icon.

4 Select File from the Printers menu bar, and then select Printing Preferences. The Smart Driver™ Printing Preferences dialog box appears.

— If you have the Printer Toolbox open, you can click the Printing Preferences button on the Status page to open the Printing Preferences dialog box.



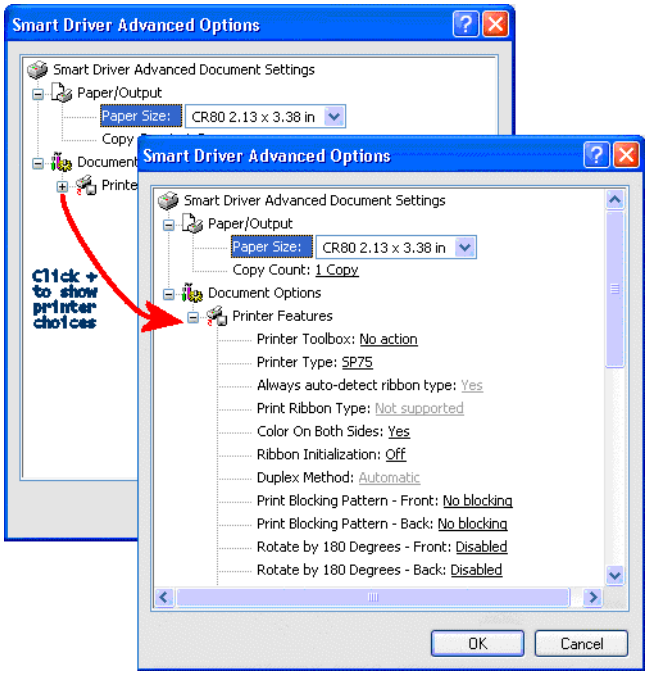
5 View or change settings.

— If the setting you want to change appears, select the setting.

— If the setting you want to change does not appear, click the Advanced button to display the Advanced Options dialog box.

— Click the plus sign (+) to see all selections available.

— When you click a selection, a list of choices appears next to the selection. Click the arrow on the box to see the selections available.



— If the selections you want to use are not available (are grayed out), make sure the feature is available in the printer. Also make sure that the printer is powered on and connected to the PC, and then resume communication using the Printer Toolbox.

— To view help for settings, click on the What's This help button and then click any setting in the Printer Features list. A list of settings is displayed. Select the setting for which you want help.

6 If you make changes, click OK on each dialog box to save the settings and close the dialog box. If you do not want to make changes, click Cancel to close the Advanced and Printing Preferences dialog boxes.

Properties and Default Document Properties for Windows NT

The Settings that control the non-printing operation of the printer are in the Properties dialog box for the printer. These settings include:

- Port to which the printer is attached
- Port settings for a direct network connection
- Permissions for other users of the PC
- Printer sharing

Settings that control the printing and personalization of the card are in the Default Document Properties dialog box for the printer. These settings include:

- Print on both sides (duplex printing)
- Print ribbon type

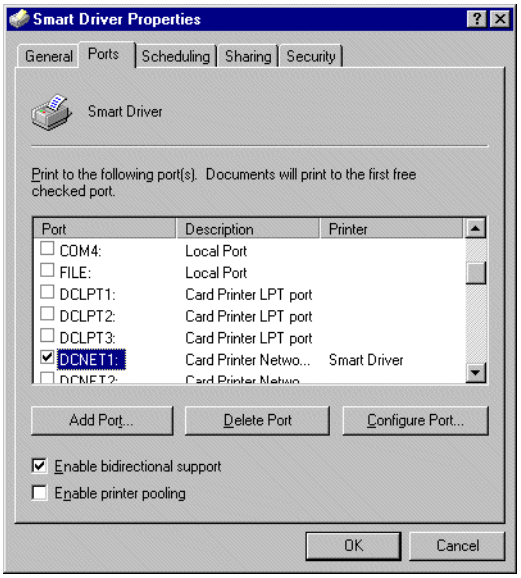
- Card design settings, such as landscape or portrait orientation
- Print blocking pattern
- Whether to apply topcoat or patch material to the front of the card, back of the card, or both
- Data about the printer, including the printer type
- Magnetic stripe encoding format and coercivity

A network connection is the only type of connection supported by Windows NT.

Use the Properties dialog box

Make sure the printer power is on and the printer is connected to the PC.

1. Select Start from the Windows NT task bar.
2. From the Windows NT Start menu, select Settings and then Printers. The Printers window appears.
3. Click once on the Smart Driver™ icon.
4. Select File from the Printers menu bar, and then select Properties. The Properties dialog box appears.



5. Select the tab that contains the information you want to view or change.
   - **General:** Shows the printer name and contains the Print Test Page button (sends a Windows test page).
   - **Ports:** Shows the port to which the printer is connected, and includes the Port Settings button for setting up a directly networked printer.
   - **Scheduling:** Allows you to schedule events.
   - **Sharing:** Allows you set up the printer for sharing over a network.
   - **Security:** Contains settings you use to grant or deny permissions to the printer for users of the PC.
6. If you make changes, click OK to save the settings and close the dialog box. If you do not want to make changes, click Cancel to close the Properties dialog box.
7. If you change the port, restart Windows and power cycle the printer.

Use the Default Document Properties dialog box

Make sure the printer power is on and the printer is connected to the PC.

1 Select Start from the Windows NT task bar.

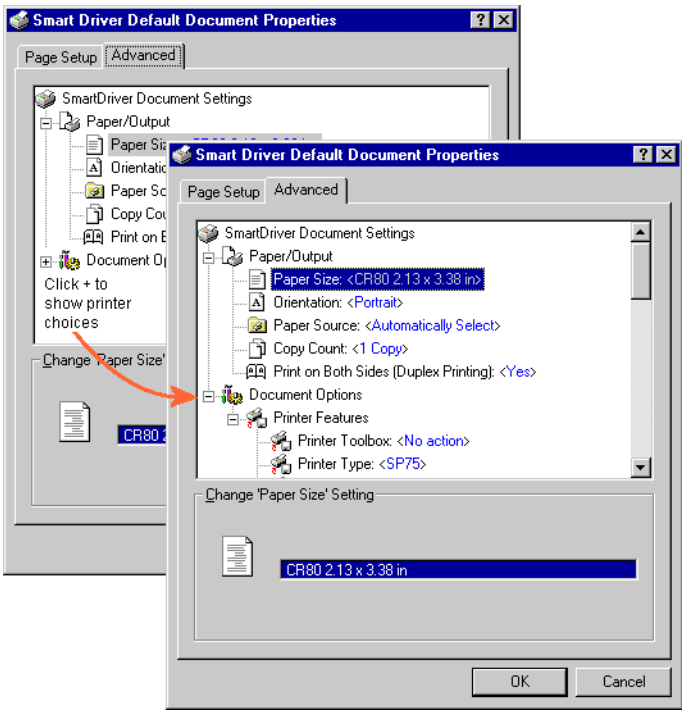
2 From the Windows NT Start menu, select Settings and then Printers. The Printers window appears.

3 Click once on the Smart Driver™ icon.

4 Select File from the Printers menu bar, and then select Document Defaults. The Default Document Properties dialog box appears.

— If you have the Printer Toolbox open, you can click the Document Properties button on the Status page to open the Default Document Properties dialog box.

5 Select the tab that contains the information you want to view or change. On the Advanced tab, click the plus sign (+) if needed to see all selections available. When you click a selection, choices appear in the "Change. . ." box. Click the value you want.



6 If you make changes, click OK to save the settings and close the dialog box.

Changing the type of print ribbon

You can easily use a different type of print ribbon in the printer. (For example, you can change a color printer from YMCKT to monochrome (K) ribbon.) To use a different type of ribbon, do the following:

1 Make sure all cards from PCs attached to the printer have finished printing.

2 With the printer power on and the printer communicating with the PC, open the printer cover.

3 Remove the ribbon cartridge and remove the existing ribbon from the cartridge.

4 Load the new type of ribbon on the cartridge. Make sure the ribbon is Datacard-approved for use in the SP Series card printer you are using.

5 Replace the ribbon cartridge in the printer and close the cover. When you close the cover, the printer reads the type of ribbon installed and changes settings to match the current type of ribbon.

6 At each PC connected to the printer, make sure the printer and PC are communicating, and then open the Properties or Printing Preferences dialog box. View the Ribbon Type setting. The driver communicates with the printer to obtain the new ribbon type and will display the Ribbon Type. Close the dialog box when you confirm that the PC shows the new Ribbon Type setting. (At the client PC for a shared printer, you must change the setting manually.)

7 The PC is ready to send cards to the printer. Cards will be formatted to print with the new type of ribbon.

Set up for monochrome printing

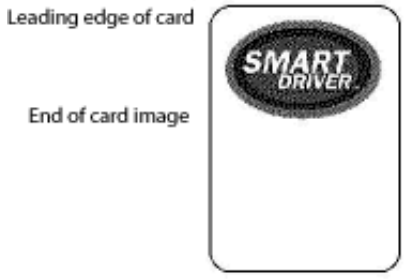
If you print with only one color, decide whether to perform the following setup tasks:

- Adapt your card design to use the ribbon saver feature
- Change the print intensity to optimize printing of features such as bar codes or small text.

Using Ribbon Saver

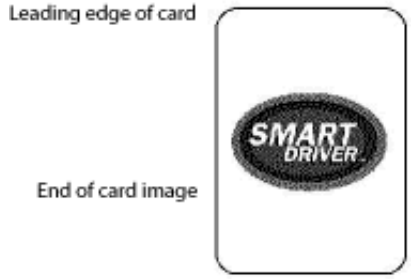
Several colors of monochrome (single-color) print ribbon are available for the SP Series printer. A roll of ribbon prints 1500 or more images. The Ribbon Saver feature is enabled by Datacard-certified monochrome ribbons. Ribbon Saver increases the number of cards printed with each roll of ribbon.

The printer begins using ribbon at a location that corresponds to the leading edge of the card. With Ribbon Saver, the printer continues to spool ribbon for the length of the image but no farther. (The printer leaves a small margin between each card to avoid image overlap.)



Without Ribbon Saver, the printer spools ribbon for the length of the card.

You can adapt your card design to take advantage of the Ribbon Saver feature. For example, the following card does not make best use of the ribbon saver feature while the card shown above saves more ribbon.



Changing the print intensity

When you use Datacard monochrome ribbons, the printer identifies the ribbon and changes internal values for optimal printing of a range of card features. (For example, the printer uses slightly different values to print with black ribbon than with red ribbon.) However, your card requirements might be different. For example, your card might include a bar code and you might want to change print intensity to produce the most readable bar codes.

Consider changing the print intensity in the following situations:

- You use infrared bar code readers. Bar codes often are most readable when printed with lower intensity.
- You print using a small font size. Small characters often print better when printed with higher intensity.
- The settings were changed previously and you want to return settings to the default.

See "Changing settings in the printer" for steps to follow.

Color settings

Use the Color Settings page to fine-tune the printed appearance of your cards. Color settings affect how the printer driver prepares card data to send to the printer, so the changes to color settings affect only the cards sent from the PC on which you make the changes.

Changing the color settings

Settings that you can change include brightness, contrast, sharpness, and the balance of red, green and blue. When you change color settings, all the colored features (such as photos, logos, and text) on the card change.

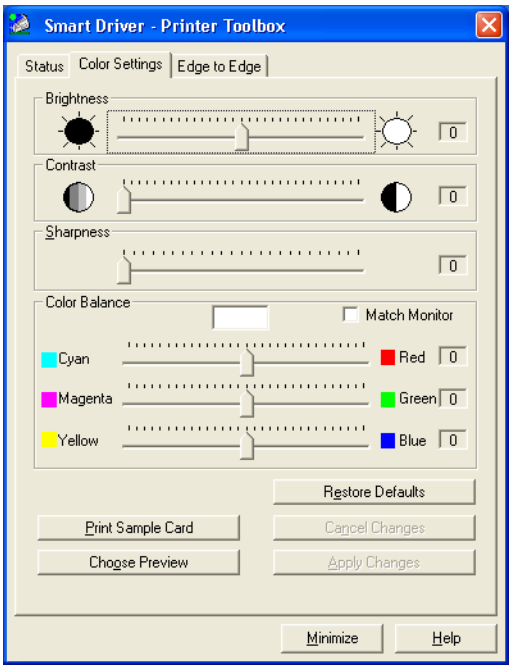
For some settings and operating systems, the brightness, contrast, and sharpness will affect dithered images. The following table indicates the operating systems and settings for which dithering can be affected:

Operating system	Dithering setting	Dithering affected?
Windows 98 or Me	Course	No
Windows 98 or Me	Error diffusion	Yes
Windows 2000 or XP	(not available)	Yes
Windows NT	(not available)	No

You must change color settings at the PC sending the card. If a PC is connected to the printer through a network, changing color settings at the administrative or host PC will not change color settings at any client or user PCs.

Open the Color Settings page

1. Double-click on the printer Printer Toolbox icon. The Printer Toolbox appears.
2. Click the Color Settings tab to display the Color Settings page and the color image preview.



The page displays the current settings. For all settings, a value of 0 (zero) is equal to no change.

What should I do before changing color settings?

1. Set up your card design, using your ID software. Make sure that you use all the data you plan to print in the design, such as a logo, a photo, text, and a bar code. You can use one sample card or a set (batch) of sample cards.
2. If you use photos, choose one or more photos that are similar to all the photos you plan to use.
3. Determine the priority and requirements for changing color settings. Color settings affect the complete card and cannot be used to change just one part of the card.
4. Consider the use of a graphics application to change one part of a card if needed. For example, if the color of the logo is not acceptable when the appearance of photos is best, consider changing the color of the logo using a graphics application.
5. Load the cards you plan to use in the card cartridge. Card stock can have a big impact on the appearance of printed cards.
6. Make one or more sample cards with the current settings. The card provides a way to record current settings and to evaluate the effect of changed settings. Do one of the following:
   - In the ID software, send the sample card(s) to print.
   - Click the Print Sample Card button.
7. Use a permanent marker to mark the back of the card(s) with a **1** and the date. If you printed the sample card from the Color Settings tab, the current settings are printed on the card. If you printed the sample card from the ID software, record all settings on the Color Settings page.

How do I change the preview image?

You must have a 24-bit-per-pixel bitmap image on your hard drive to use as the preview image. Use an image editing application to convert the image, if needed.

1. With the Color Settings page open, click the Choose Preview button.
2. The Open dialog box appears. “Files of Type” is set to .bmp and cannot be changed.
3. Browse for file you want to use for the color preview.
4. When you have found the image, click the file and then click the Open button.
5. The new image is scaled to fit the preview area.

Tips for success

- The color preview will change as you change settings.
- The driver displays a message if you select a bitmap that does not meet requirements.
- The current settings on the Color Settings page are printed on the card, along with the preview image you choose, when you click the Print Sample Card button on the Color Settings page.
- The color preview changes back to the default image when you leave the Color Settings page.
- The aspect ratio of the bitmap does not change and the bitmap cannot be rotated or scaled (in the preview popup).
- You can use a graphics editing program to make changes to the bitmap, if needed, to make it work as a color preview.

How do I choose the correct order for changing color settings?

1. First, decide whether you want to use the printer's automatically installed color profile. The printer's color profile assumes colors on the cards are adjusted from the input device to the Windows default profile, and adjusts from the Windows profile to the printer's color profile.

   To use the printer's color profile, choose Match Monitor. (Most monitors do not use a color profile.) If you do not use the color profile, the driver applies other settings to card data sent from the application.
2. Change the Brightness setting, if needed.
3. Change the Contrast setting, if needed.
4. Change the Sharpness setting, if needed.
5. Change the Color Balance settings, if needed.

How do I make photos brighter?

1. After making a sample card, click on the pointer in the Brightness box.
2. Drag the slider to the new position.
3. Wait a moment while the Color Image Preview changes to show the effect of the new setting.
4. If preview shows the change you want, click the Apply Changes button. If not, return to step 2.
5. Print a sample card, using the same method as you used in "What should I do before changing color settings?"
   - In the ID software, print one or more sample cards.
   - Click the Print Sample Card button to print a card.
6. Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).
   - If you printed the sample card from the Color Settings tab, the current settings are printed on the card.
   - If you printed the sample card from the ID software, record the new Brightness setting on the card.
7. Evaluate the appearance of the sample card(s).
   - If the brightness is decreased all the way, the white color in a card might become slightly darker.
8. Repeat these steps until the sample cards meet your requirements.

How do I change the contrast?

1. After making a sample card, click on the pointer in the Contrast box.
2. Drag the pointer to the new position. Move to the right to increase the contrast.
3. Wait a moment while the Color Image Preview changes to show the effect of the new setting.
4. If preview shows the change you want, click the Apply Changes button. If not, return to step 2.
5. Print a sample card. (Use the same method as you used in "What should I do before changing color settings?".)

- In the ID software, print one or more sample cards.
- Click the Print Sample Card button to print a card.

6 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).
- If you printed the sample card from the Color Settings tab, the current settings are printed on the card.
- If you printed the sample card from the ID software, record the new Contrast setting on the card.

7 Evaluate the appearance of the sample card(s).

8 Repeat these steps until the sample cards meet your requirements.

How do I make the dark colors darker and the light colors lighter?

1 After making a sample card, click on the pointer in the Contrast box.

2 Drag the slider to the new position. Move it to the right to increase the difference between light and dark colors.

3 Wait a moment while the Color Image Preview changes to show the effect of the new setting.

4 If preview shows the change you want, click the Apply Changes button. If not, return to step 2.

5 Print a sample card, using the same method as you used previously.
- In the ID software, print one or more sample cards.
- Click the Print Sample Card button to print a card.

6 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).
- If you printed the sample card from the Color Settings tab, the current settings are printed on the card.
- If you printed the sample card from the ID software, record the new Contrast setting on the card.

7 Evaluate the appearance of the sample card(s).

8 Repeat these steps until the sample cards meet your requirements.

How do I make the printed cards less fuzzy?

1 After making a sample card, click on the pointer in the Sharpness box.

2 Drag the slider to the new position. Drag the slider to the right to increase sharpness.

3 Wait a moment while the Color Image Preview changes to show the effect of the new setting.

4 If preview shows the change you want, click the Apply Changes button. If not, return to step 2.

5 Print a sample card, using the same method as you used previously.
- In the ID software, print one or more sample cards.
- Click the Print Sample Card button to print a card.

6 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).
- If you printed the sample card from the Color Settings tab, the current settings are printed on the card.
- If you printed the sample card from the ID software, record the new Sharpness setting on the card.

7 Evaluate the appearance of the sample card(s).

8 Repeat these steps until the sample cards meet your requirements.

How do I improve the color of my logo?

1 Evaluate the problem, such as “The logo has a yellow cast” or “The logo is reddish.”

If most of the card prints with the correct colors, consider using a graphics application to change the logo or other part of the card that needs color improvement.

2 After making a sample card, click on the pointer for the color that is a problem.

3 Drag the pointer to the new position.

4 If changing the color that appears to be a problem does not fix the situation, try changing the other two colors. For example, if the logo is too red, try changing green and blue to bring red into balance.

5 Wait a moment while the Color Image Preview changes to show the effect of the new setting.

6 If preview shows the change you want, click the Apply Changes button. If not, return to step 2.

7 Print a sample card, using the same method as you used previously.

— In the ID software, print one or more sample cards.

— Click the Print Sample Card button to print a card.

8 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).

— If you printed the sample card from the Color Settings tab, the current settings are printed on the card.

— If you printed the sample card from the ID software, record the new Color Balance settings on the card.

9 Evaluate the appearance of the sample card(s).

— If the color balance is increased all the way, the white color in a card might become slightly darker.

10 Repeat these steps until the sample cards meet your requirements.

How do I make my photo colors more lifelike?

1 After making a sample card, click on the pointer in the Contrast box.

2 Drag the slider to the new position.

3 Wait a moment while the Color Image Preview changes to show the effect of the new setting.

4 If preview shows the change you want, click the Apply Changes button. If not, return to step 2.

5 Print a sample card, using the same method as you used previously.

— In the ID software, print one or more sample cards.

— Click the Print Sample Card button to print a card.

6 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps).

— If you printed the sample card from the Color Settings tab, the current settings are printed on the card.

— If you printed the sample card from the ID software, record the new Contrast setting on the card.

7 Evaluate the appearance of the sample card(s).

8 Repeat these steps until the sample cards meet your requirements.

How do I undo color changes?

1 If you want to remove all color changes and set all controls to 0, click the Restore Defaults button.

2 Click the Apply changes button.

3 You will use the default color settings.

How do I use a different color profile?

You must have another color profile to use.

1 Make a sample card. The card provides a way to record current settings and to evaluate the effect of changed settings. Do one of the following:

— In the ID software, send the sample card(s) to print.

— Click the Print Sample Card button.

2 Open the Printer Toolbox.

3 Click the Color Settings tab and make sure the Match Monitor setting is clear.

4 Click the Apply Changes button, if necessary.

5 Print a sample card. (Use the same method as you used in step 1.)

— In the ID software, print one or more sample cards.

— Click the Print Sample Card button to print a card.

6 Use a permanent marker to mark the back of the card with a **2** (or the next number if repeating these steps) and clear the Match Monitor check box.

7 Use the Color Management Tab of the Printer Properties dialog box to load a color profile. See Windows Help for more information. The Smart Driver™ CD-ROM contains a color profile (SP_Prof.icc) for SP printers.

8 Continue with changing any other color settings.

Changing settings in the printer

This section describes the settings in the printer that you might want to change. These settings can be used to customize the performance of the printer to meet the demands of your card design. This section contains:

"Process for changing settings"

"Change printing intensity"

"Fine-tune edge-to-edge printing"

"Change laminator settings (SP75 only)"

Tips for success

- You must use a PC to which the printer is directly connected to change operational settings (locally attached or directly networked). You cannot change operational settings from a client PC using shared printing.
- Your service provider can guide you in making settings that will meet your specific needs.
- Printer settings should be changed only by someone familiar with the operation of the printer and with Windows. Allow enough time to perform all steps of the procedures to achieve the card quality desired.
- If this information does not result in the print quality that you want, contact your service provider for assistance.

You can work with the following settings:

- **Printing intensity:** You can fine-tune the appearance and function of cards you print by changing the intensity used to print black (K) and topcoat (T) panels. Intensity affects the thickness of letters and bar codes–higher intensity prints thicker letter or bar codes. Use the Printhead tab of the Printer Toolbox to change the printing intensity.
- **Fine-tune edge-to-edge printing:** You can change where the printing is positioned on the card. When you select “Edge to edge” as the Print Margin value, you should set the Leading Edge for best appearance and smooth operation. (Print Margin is set in the Printing Preferences, Properties, or Document Default Properties dialog box.) You can also change the position of printing to address card quality concerns. Use the Edge to edge tab of the Printer Toolbox to fine-tune where printing occurs on the card.
- **Laminator settings, for SP75:** You can change the laminator temperature and speed for applying topcoat or patch material to obtain the best results with your card stock and material. You can also change where the leading edge of the card and material meet to obtain the best results with your cards. Use the Laminator Advanced tab of the Printer Toolbox to fine-tune settings for the laminator.

Process for changing settings

This section contains several procedures which help you make specific changes to settings. All of the procedures use the following basic steps. This overview can help you prepare for the specific processes that follow.

Materials to use

- Print ribbon that you plan to use when producing cards.
- Blank cards, for making “test cards” before and after changing settings. If you will be making printer test cards and the printer includes a magnetic stripe module, make sure the magnetic stripe test cards and the printer have the same coercivity.
- For the SP75 printer, patch or topcoat material (or both) that you plan to use when producing cards.
- Permanent marker (for recording data on cards) or a pen (if you record data on paper).
- Paper and tape, if you want to create log pages. A log page has “test cards” taped to it with corresponding data (such as setting values) written on the page. Only one side of the card is visible when it is taped to the log page, but you can write more information on a log page than on a test card or sample card.

Suggested process

1. Make sure the printer is powered on and is directly connected to the PC.
2. Identify the setting to change and the result you want. (Stating the desired result in a measurable way can help you identify when you have met your goal.)
3. Make a test card (or sample card) and record the current values for the setting to change. Also record the date and sequence number (beginning with 1). Use the same test or sample card at each step.
4. Change the setting and apply the change.
5. Make another test or sample card. Record the new setting and sequence number.
6. Evaluate the result on the card.
   - If the result meets the goal, you have completed the process.
   - If the result does not meet the goal, return to step 4. Repeat steps 4, 5, and 6 until you meet the stated goal.
   - If you have repeated the steps several times but are not making progress toward the stated goal, consider whether the goal is possible and whether changing this setting will lead to the goal. Return to the settings recorded in step 1.

Change printing intensity

1. Make sure the Printer Toolbox is open. Double-click the icon in the system tray if needed.
2. Select the Advanced Setup button on the Printer Toolbox.
   - The printer driver changes from printing mode to Advanced Setup mode, and additional tabs appear on the Printer Toolbox.
3. Click the Printhead tab to display the Printhead page.
   - The driver obtains the values from the printer when the window opens. If the values were not available and the “Printer not responding” message appears, click the Retry button. The printhead values must be available to continue.
4. Click the Printer Test Card button to print a test card that serves as a baseline for the changes you make.
5. Mark the back of the test card with “1” and the intensity setting that you plan to change. For example, mark it “1-K 0” if you plan to change the intensity for black (K) and the current value is 0.
6. To change the printhead intensity:
   a. Select the Printing Power: Monochrome (K) for monochrome ribbon or panel; Topcoat for the topcoat panel.

      The slider moves to the location that matches the current value and the current value appears.

   b. Move the slider:
      - You can use the mouse or the arrow keys (← →) to move the slider.
      - Move to the right to increase the power. Printing on the card will appear darker. If you selected the topcoat panel type, the degree of coverage increases. If intensity is too high, the print ribbon will wrinkle or break (or both), especially at the end of a panel.
      - Move to the left to decrease the power. Printing on the card will appear lighter and ribbon is less likely to break.
      - Decrease the intensity for the topcoat only if the ribbon is melting when applying the topcoat. Decreasing the intensity reduces the degree of coverage of the topcoat. Topcoat can affect the durability of the image, and the degree of coverage can be difficult to detect.

   c. Select the Apply Changes button to make the values take effect in the printer, OR select the Cancel Changes button to return to the values displayed before you used the slider.
      - The “Changes saved to printer” message appears when the values have been saved to the printer.
7. Select the Printer Test Card button.

8 Mark the card on the back with a 2 (or the next sequence number if repeating these steps) and the new settings (such as K -20 for K intensity).

9 Evaluate the result as shown on the printed card.

— If the new setting has solved the problem, you can select another value to change or quit Advanced Setup.

— If the new setting has not solved the problem, return to step 5 and repeat the process.

— If the new setting has made the problem worse, return to step 6 and move the slider to the intensity value for the selected panel type written on card 1.

10 When you are done running Advanced Setup, choose the Status tab and then click the Quit Advanced Setup button to enable printing.

If you have entered Advanced Setup and selected the Close button in any tab of the Printer Toolbox, the driver quits Advanced Setup for you.

Fine-tune edge-to-edge printing

Tips for success

- Make small changes in settings to avoid breaking the print ribbon.
- You can use the mouse or the arrow keys (< >) to move the slider.
- If you have selected “Edge to edge” as the Print Margin value and you are changing the Leading Edge or Trailing Edge setting, watch for print ribbon break messages. If you change these settings too much, the print ribbon might break as a result. If so, return to a setting that does not break the ribbon.
- If you have changed both Leading Edge and Trailing Edge settings and the ribbon breaks, you can determine the setting that is probably causing the break by looking at where the ribbon is broken. Change the Leading edge setting if the break is at the beginning of a ribbon panel. Change the Trailing Edge setting if the break is near the end of a ribbon panel.
- If you install a new printhead, you can change the Long Edges setting to center printing on the card.

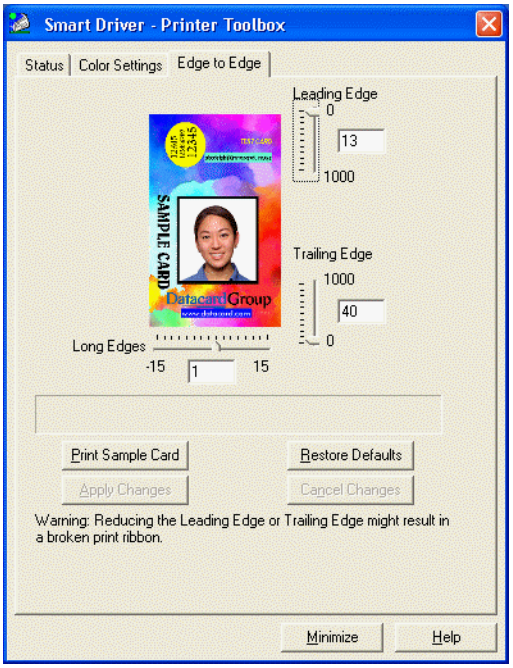
1 Make sure the Printer Toolbox is open. Double-click the icon in the system tray if needed.

2 Select the Edge To Edge tab on the Printer Toolbox.

3 Click the Print Sample Card button to print a card that serves as a baseline for the changes you make.

4 Mark the back of the card with “1.” Also mark the position change you plan to make. Finally, mark the current values, such as 13/50/-1 for the Leading Edge, Trailing Edge, and Long Edges values.

5 Select and move the slider for the setting you want to change.



6 Select the Apply Changes button to make the values take effect in the printer, OR select the Cancel Changes button to return to the values displayed before you used the slider.

— The “Changes saved to printer” message appears when the values have been saved to the printer.

7 Select the Print Sample Card button.

8 Mark the card on the back with a 2 (or the next sequence number if repeating these steps) and the new settings (such as 18/50/-1).

9 Evaluate the result as shown on the printed card.

— If the new setting has solved the problem, you can select another value to change or be done.

— If the new setting has not solved the problem, return to step 5 and repeat the process.

— If the new setting has made the problem worse, return to step 5 and move the slider to the value for the print position written on card 1.

Change laminator settings (SP75 only)

Change the temperature or speed used to apply patch or topcoat material to cards if needed to improve card quality. Change the Supply registration, Card registration, or Apply length to fine-tune the placement of material on the card.

Tips for success

- These steps apply only to an SP75 printer, which includes one or two laminators.
- Begin with the printer connected to the PC and powered on.
- Make small changes in settings to avoid breaking the laminator material.
- You can use the mouse or the arrow keys (><) to move the slider.
- Do not change laminator settings unless requested to do so by your Datacard®-authorized service provider.

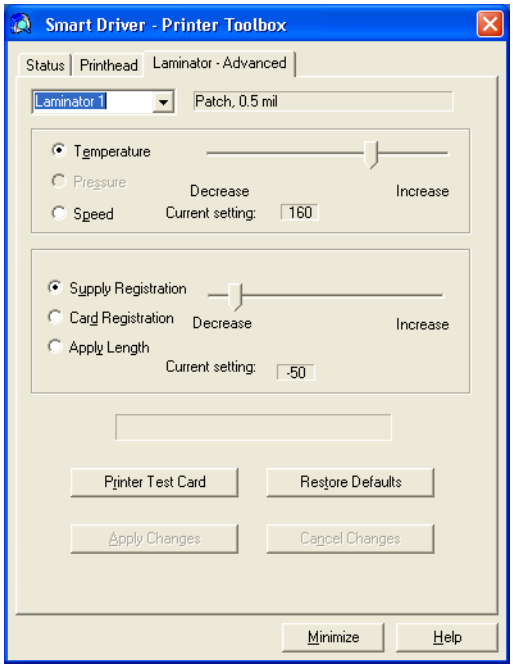
1 Make sure the Printer Toolbox is open. Double-click the icon in the system tray if needed.

2 Choose the Advanced Setup button on the Printer Toolbox.

3 The printer driver changes from printing mode to Advanced Setup mode and different tabs appear on the Printer Toolbox.

4 Click the Laminator–Advanced tab. A prompt reminds you to use this page only with the guidance of your Datacard-authorized service provider.

5 Click OK on the prompt to display the tab.



— The driver obtains the values from the printer when the window opens, which can require a minute or more. If the values were not available and the “Printer not responding” message appears, click the Retry button. The laminator values must be available to continue.

— The type of material loaded in the L1 laminator appears.

6 If the printer has two laminators, choose the location for which you want to make changes. If you choose Laminator 2, the type of material loaded in the L2 laminator appears.

7 Click the Printer Test Card button to print a test card that serves as a baseline for the changes you make.

8 Mark the back of the test card with “1.” Also mark the change you plan to make. Finally, mark the current option settings, such as Temp 160 and Speed 150.

9 Click the value to change. The slider moves to the position for the current setting and the current setting value appears.

— **Temperature:** Increase temperature to improve how well the material adheres to the card. Decrease the temperature if the cards frequently jam after the material is applied. Your Datacard®-authorized service provider can provide specific guidance for your situation.

— **Speed:** Decrease the speed to improve how well the material adheres to the card. Your Datacard®-authorized service provider can provide specific guidance for your situation.

For patch material and registered holographic topcoat material, the following also appears:

— **Supply Registration:** Move the slider to the right if the supply material (or holographic image) is too far from the leading edge of the card. Move the slider to the left if the supply material is too close or over the leading edge of the card.

— **Card Registration:** Move the slider to the right to move the leading edge of the card closer to the roller that applies the material. Move the slider to the left to move the leading edge of the card farther from the roller.

— **Apply Length:** Move the slider to the right to keep the roller in contact with the card and supply material for a longer distance or period of time. Move the slider to the left to shorten the distance (or time) the roller applies pressure to the card and material.

10 Move the slider for the value to the new position. The Current Setting box shows the new value.

— Make small changes to a setting. If the change does not fix the problem, repeat the steps to make an additional change.

11 Select the Apply Changes button to send the setting to the printer. Only the current setting is sent.

12 When the changes are saved, the "Changes saved to the printer" message appears.

13 Select the Printer Test Card button.

14 Mark the card on the back with a 2 (or the next sequence number if repeating these steps) and the new settings (such as Temp 164).

15 Evaluate the new test card. If the problem is fixed, continue with these steps. If the problem remains, return to step 10.

16 When you are done running Advanced Setup, click the Status tab and then click the Quit Advanced Setup button to enable printing.

— If you have entered Advanced Setup and click the Close button in any tab of the Printer Toolbox, the driver quits Advanced Setup for you.

Customizing blocking regions

You can customize blocking areas, which is useful if your software does not include this capability. A print blocking area prevents color and monochrome printing in the blocked area. A topcoat blocking area prevents the application of topcoat (applied using the printhead) in the blocked area. This feature is available on Windows 2000 and Windows XP only.

About customized blocking

The driver Printing Preferences dialog box provides specific blocking choices. The pre-defined blocking choices allow you to prevent topcoat from being applied to the full card, or to prevent printing and topcoat application over a smart card chip, 2-track magnetic stripe, 3-track magnetic stripe, or an NTT-format magnetic stripe. The same choices are available for the front and the back of the card. When you select one of these blocking choices, the driver removes the data from the area you select before sending card data to the printer.

For some card designs, you might want a blocking region that does not match an available choice. For example, you might want to avoid printing over a signature panel, you might want to block topcoat where you plan to apply scratch-off ribbon, or you might want to simulate a hologram by blocking topcoat using a graphic image (such as a logo). To permit you to select the blocking area you need, the driver includes a “User defined bitmap” choice. When you select this choice, the driver uses one or more bitmap files with a specific file name to block printing, topcoat, or both. You need to modify the correct file to customize the blocking area. This section includes instructions for selecting the correct file and for modifying the file using a graphics editing application.

Datacard strongly recommends that you do not create a bitmap for customized blocking. Instead, modify the Datacard-provided files to work with your card design. The file must meet very specific requirements, and starting with Datacard-provided files can more quickly result in success.

Blocking choices

To create customized blocking, you choose a “User-defined blocking ...” choice in Printing Preferences and modify one or more files that correspond to the card orientation and the blocking choice(s) you made. The size of a card is 3.37 inches (85.6 mm.) by 2.125 inches (53.98 mm.) with a 3/16 or 0.32 inch (8 mm.) corner radius. The printer prints at 300 dots per inch (dpi), and the bitmap has a resolution of 300 dpi. The dimensions of the card in dot per inch (pixels) are 1013 by 638.

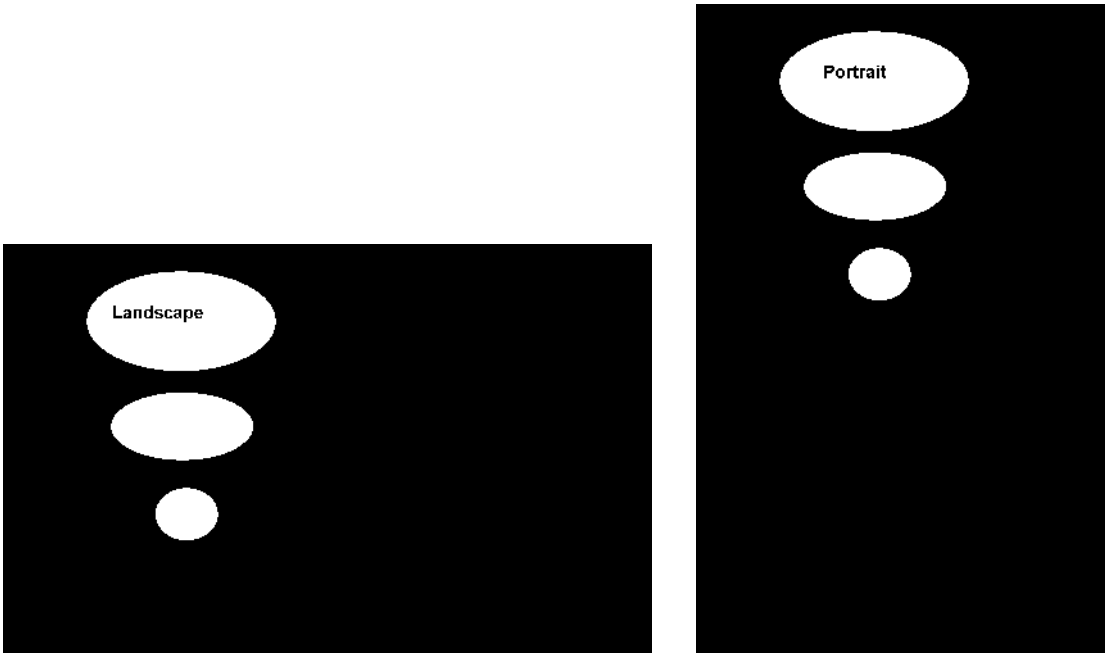
The bitmap is not a full-color bitmap; it is a one-bit-per-pixel black and white bitmap. (Only a black and white bitmap can be used; grayscale or color bitmaps will cause the card to print without blocking.) The white area(s) of the bitmap are the blocking areas and the black areas of the bitmap are where printing and/or topcoat application will occur.

The files are:

File name	Dimensions (Height by Width)	Comments
LandscapeBlockPrintFront.bmp	1013 by 638 pixels 3.37 by 2.125 inches 85.6 by 53.98 mm.	Blocks printing on the front of a card with landscape orientation.
LandscapeBlockPrintBack.bmp	1013 by 638 pixels 3.37 i by 2.125 inches 85.6 by 53.98 mm.	Blocks printing on the back of a card with landscape orientation.
LandscapeBlockTopcoatFront.bmp	1013 by 638 pixels 3.37 i by 2.125 inches 85.6 by 53.98 mm.	Blocks topcoat on the front of a card with landscape orientation.

File name	Dimensions (Height by Width)	Comments
LandscapeBlockTopcoatBack.bmp	1013 by 638 pixels 3.37 by 2.125 inches 85.6 by 53.98 mm.	Blocks topcoat on the back of a card with landscape orientation.
PortraitBlockPrintFront.bmp	638 by 1013 pixels 2.125 by 3.37 inches 53.98 by 85.6 mm.	Blocks printing on the front of a card with portrait orientation.
PortraitBlockPrintBack.bmp	638 by 1013 pixels 2.125 by 3.37 inches 53.98 by 85.6 mm.	Blocks printing on the back of a card with portrait orientation.
PortraitBlockTopcoatFront.bmp	638 by 1013 pixels 2.125 by 3.37 inches 53.98 by 85.6 mm.	Blocks topcoat on the front of a card with portrait orientation.
PortraitBlockTopcoatBack.bmp	638 by 1013 pixels 2.125 by 3.37 inches 53.98 by 85.6 mm.	Blocks topcoat on the back of a card with portrait orientation.

Each bitmap has a sample image, to help you understand the orientation when you open it. See "Setting a customized blocking area" for the steps to follow when changing one of these bitmaps.



If the side of the card for which you want customized blocking includes more than one blocking area, you need to create all blocking areas in the bitmap file. Datacard ID Works® ID software allows you to specify the following

blocking regions and you do not need to add them to the blocking bitmap. The following table provides the starting points and dimensions for the blocking areas of standard card features.

Feature	Starting point[a]	width[b]	height[c]
Smart Card Chip, Landscape Orientation	55, 158 pixels 0.18, 0.53 inch 4.6, 13.5 mm	236 pixels 0.79 inch 20.1 mm	225 pixels 0.75 inch 19.1 mm
Smart Card Chip, Portrait Orientation	255, 55 x pixels 0.85, 0.18 inch 21.6, 4.6 mm	225 pixels 0.75 inch 19.1 mm	236 pixels 0.79 inch 20.1 mm
3-track magnetic stripe, Landscape Orientation	0, 0 pixels 0.0 inch 0.0 mm	1013 pixels 3.37 inch 85.6 mm	198 pixels 0.66 inch 16.8 mm
2-track magnetic stripe, Landscape Orientation	0, 0 pixels 0.0 inch 0.0 mm	1013 pixels 3.37 inch 85.6 mm	162 pixels 0.55 inch 14.0 mm
NTT magnetic stripe, Landscape Orientation	0, 0 pixels 0.0 inch 0.0 mm	1013 pixels 3.37 inch 85.6 mm	156 pixels 0.52 inch 13.2 mm

a. From upper left corner of the card
b. Distance from starting point toward right edge of the card
c. Distance from starting point toward to lower edge of the card

Blocking typically extends 0.1 inch (2.5 mm) beyond the edges of a feature. When you create a customized blocking area, you must extend the blocking area for raised features (if you use them). The table of features includes the extended blocking region. For features that are not raised, such as an area for applying scratch-off ribbon, you will have more predictable results if you extend the blocking area.

Tips for success

- You should be familiar with editing graphics to modify the blocking bitmap. If you are not comfortable editing the graphic, obtain the assistance of your Datacard®-approved service provider or a graphics professional.
- To edit the graphic, you need to have write permission to hidden, operating system folders. Choose Control Panel and then Users to set permissions for the user. Search for “User permissions” in Windows help for details on setting permissions. The user must also be able to view hidden operating system folders and files. Choose Tools and then Folder Options in My Computer or Windows Explorer to change view options.
- The purpose of topcoat is to protect the printed image on the card. Any area with color printing will eventually fade if it lacks protection. Make sure that most printing is covered with topcoat. Do not leave large printed areas without topcoat unless you will be applying additional protection, such as a patch (using an SP75 printer with laminator).
- Plan to produce several test cards to verify that blocking works correctly on the range of cards you will produce.
- You might want to copy the Datacard-provided blocking bitmaps to a second location so you can start over with editing if needed. If you will include a graphic image, save the graphic image file with a new name before modifying it to work with a blocking bitmap. You can delete the extra files after you have successfully completed customization. Finally, you might want to save a copy of the completed blocking graphic in a second location in case you want to restore it at a later time.

- If you plan to include an existing graphic image in the blocking bitmap, make sure the graphics editing application can perform all the functions you need. Typically, begin with a file that includes the image, reduce the colors of the image to two colors, and scale the image to occupy that area of the card you have chosen.
- If you use Datacard ID Works® ID Software, the blocking you specify in the ID software is combined with user-defined blocking.

Setting a customized blocking area

1. Open the printer Printing Preferences dialog box.
2. Click the Advanced button.
3. Navigate to the Print Blocking settings.
4. From the Print Blocking Pattern-Front or Print Blocking Pattern-Back list, choose the “User Defined Bitmap” selection for your card design.
5. Click Apply to make the changes take effect.
6. Using a graphics program that can edit bitmaps, such as Microsoft Paint or Paint Shop Pro™, navigate to the Windows\System32 folder, such as C:\Windows\System32 or C:\Winnt\System32.
7. Using a graphics application, open the file to modify. Choose one or more of the following to modify, based on your card design:
   - LandscapeBlockPrintBack.bmp
   - LandscapeBlockTopcoatBack.bmp
   - LandscapeBlockTopcoatFront.bmp
   - LandscapeBlockPrintFront.bmp
   - PortraitBlockPrintBack.bmp
   - PortraitBlockTopcoatBack.bmp
   - PortraitBlockPrintFront.bmp
   - PortraitBlockTopcoatFront.bmp

   If you are unsure of the file to choose, see "Blocking choices".
8. Using the controls in the graphics editing application, create the blocking area by drawing a shape or by pasting a graphic. (Draw a black shape over the sample images to remove them.)

   The following example shows a possible scratch-off area. The area was created by drawing a white rectangle on the black bitmap. (This might be used for an area of scratch-off ribbon to cover an ID number.)

   The following example shows a possible graphic to simulate a hologram.

To prepare the image shown, do the following:

— Invert the colors (change the white background to black and the black image to white).

— Scale the image to occupy the appropriate area of the card.

— Copy the image and paste it in the blocking bitmap. (Do not specify “transparent” when pasting because the white image might disappear!)

9 Save the file with the same name and in the same location as you found it.

10 Print sample cards using the software to verify that print or topcoat blocking meets your needs.

Magnetic Stripe Setup

Do the following to set up the printer and driver to encode magnetic stripes on cards:

- Use cards with magnetic stripes when making a magnetic stripe test card.
- Identify the encoding format and how it will be formatted (by the application, using magnetic stripe fonts, or using escape codes).
- Set magnetic stripe settings using the printer driver. For more information, see "Working with Properties and Printing Preferences".
- Determine whether to send coercivity and encoding format data with each card or whether to set values in the printer. Choose the "Use printer settings" in the printer driver if you set values in the printer (using Printer Diagnostics).
- Determine the coercivity to use. Usually, the coercivity is a system-wide decision: The magnetic stripe readers which will read the cards encoded by the printer are likely to require a specific coercivity value. Card stock is purchased to match that coercivity type. Set the coercivity in the printer driver.
- Select the encoding format. If a custom format, such as Triple-IATA, is used, choose “Use Printer Coercivity” in the printer driver.
- Determine the order for encoding the magnetic stripe and printing. Typically, the magnetic stripe is encoded first and then the card is printed. In some cases, a card design works most efficiently when the magnetic stripe data is encoded, and then the reverse side of the card is printed (a duplex module is required to use this feature). The “Print and Encode Sequence” choices allow you to choose which way to process cards. If you choose to encode first, be sure to load cards with the magnetic stripe up and toward the right side of the printer.
- If you will encode cards only, choose the Mag Stripe Encode Only selection in the printer driver. Also make sure that you have not chosen duplex printing (print on both sides) and do not apply topcoat (using settings in Properties or Printing Preferences).
- The following table lists formatting choices available and provides information about setup:

Format	Printer Module	Data formatted by	Data verified by	Driver format setting	Use Diagnostics?
IAT	Three track (IAT)	ID Works	ID Works/Driver	No effect	Use printer settings
IAT	Three track (IAT)	Magnetic Stripe Fonts (includes Preface)	Printer	IAT	No
IAT	Three track (IAT)	Escape Codes	Printer	IAT	No
NTT	Single-track (NTT)	ID Works	ID Works/Driver	No effect	No
NTT	Single-track (NTT)	Magnetic Stripe Fonts (includes Preface)	Printer	NTT	Coercivity
Triple IATA	Three-Track (IAT) Single Track (NTT)	ID Works	ID Works/Driver	No effect	Yes
Triple IATA	Three-Track (IAT) Single Track (NTT)	Magnetic Stripe Fonts (includes Preface)	Printer	Use printer settings	Yes
Triple IATA	Three-Track (IAT) Single Track (NTT)	Some Escape Code Formats	Printer	Use printer settings	Yes

Format	Printer Module	Data formatted by	Data verified by	Driver format setting	Use Diagnostics?
Proprietary	Three-Track (IAT)	ID Works	Printer	Use printer settings	Yes
Proprietary	Three-Track (IAT)	Magnetic Stripe Fonts	Driver	Use printer settings	Yes
Proprietary	Three-Track (IAT)	Custom Application	Application	Use printer settings	Yes
Custom	Three-Track (IAT) Single Track (NTT)	Custom Application	Application	Binary or Use printer settings	Optional
Custom	Three-Track (IAT) Single Track (NTT)	Magnetic Stripe Fonts (includes Preface)	--	Binary or Use printer settings	Optional
Binary	Three-Track (IAT)	ID Works	ID Works	Binary	No
Binary	Three-Track (IAT)	Custom Application	Application	Binary	No

Tips for success

- If you plan to use a custom magnetic stripe format, your service provider or value-added reseller (VAR) must make changes to printer settings to set up a custom magnetic stripe format. Follow the guidance of your service provider or VAR when using a custom magnetic stripe format.
- Proprietary formats, used for applications such as driver's licenses or hotels, can be used with SP Series printers. Obtain the guidance of your service provider or value-added reseller (VAR) when using proprietary formats.
- On Windows 98 and Me, data formatted with magnetic stripe fonts or escape codes cannot be located in rotated fields.

Magnetic stripe escapes

Customers have the ability to use magnetic stripe escape codes with the Smart Driver, version 5.0 and higher, and the SP Series printer. Magnetic stripe escape codes are used by card printers from several other manufacturers. To support existing custom applications, Datacard has implemented magnetic stripe escapes. To use magnetic stripe escapes with the driver, a custom application must send data to the driver, not directly to the printer. Magnetic stripe escapes can also be used when an application cannot format magnetic stripe data and when the application does not allow you to select the driver's magnetic stripe fonts for formatting magnetic stripe data.

Magnetic stripe escapes are most commonly used for the IAT format, which encodes IATA (International Air Transport Association) data on Track 1, ABA (American Banker's Association) data on Track 2, and TTS (Thrift Third Shift) data on Track 3. Other card printer manufacturers sometimes refer to this format as ISO format. Using information in this section, you can also use magnetic stripe escapes to encode variations to the IAT format.

Enabling magnetic stripe escapes

The Printing Preferences, Properties, or Document Defaults dialog box includes a setting to enable magnetic stripe escapes. Enable magnetic stripe escapes on each PC that will use magnetic stripe escapes to send data to a printer. Also, enable magnetic stripe escapes for each printer attached to a PC if you will send magnetic stripe data to the printer.

To enable magnetic stripe escapes, do the following:

1. Make sure the printer power is on and the printer is connected to the PC. Also make sure that the driver is installed on the PC and communicates with the printer.
2. Select Start from the Windows task bar.
3. From the Windows Start menu, select Settings and then Printers. The Printers (or Printers and Faxes) window appears.
4. Click once on the Smart Driver icon.
5. Select File from the Printers menu bar, and then do the following (if you need help, see "Working with Properties and Printing Preferences"):
   - For Windows Me and 98, select Properties. The Smart Driver Properties dialog box appears.
   - For Windows XP and 2000, select Printing Preferences. On the Printing Preferences dialog box, click Advanced to display Advanced settings.
   - For Windows NT, select Default Document Properties. On the Document Defaults dialog box, click Advanced to display Advanced settings.
   - If you have the Printer Toolbox open, you can click the Properties (9x), Printing Preferences (2000 and XP) or Document Defaults (NT) button on the Status page to open the Properties, Printing Preferences Advanced, or Document Default Properties dialog box.
6. Locate the Mag Stripe Escape Compatibility setting.
   - On Windows 98 and Me, choose the Mag Stripe tab.
   - On Windows XP, 2000 and NT, scroll through the settings list to locate the Mag Stripe Escape Compatibility setting.
7. Choose Enabled for the setting.
8. Locate the Mag Stripe Encoding Format setting.
   - If you will encode IAT (ISO) format, choose IAT for the format.
   - If you will encode a variation to IAT (ISO) format, choose "Use printer settings" for the format and set using the Printer Diagnostics utility.
9. Click Apply or OK to save the settings and close the dialog box.

   You do not need to specify which syntax or manufacturer's escape sequence you will use. When you enable Mag Stripe Escape Compatibility, the Smart Driver will recognize any of the escape character sequences listed in this section.

Using magnetic stripe escapes

To use magnetic stripe escapes, do the following:

- Use an application in which you can enter and save text, and then edit it after saving.
- Before the magnetic stripe data, provide the escape sequence, such as ~1 or ~1% . The rest of the line of text will be encoded, up to an End Sentinel (if the syntax uses one).
- Use a Return or Enter keystroke to end a line.
- Do not allow text to wrap to two lines. The text on the second line will print on the card.
- You might be able to send two lines of text to one track. Each line of text must begin with the escape sequence. Test cards made with this method to see whether the lines are encoded in the order in which the lines appear on the page. Some applications do not support this method or produce unpredictable results.
- Text to print can be on the same line as data to encode, but must be located before the escape sequence.
- Only one track can be encoded per line of text.

- Magnetic stripe data will be converted to uppercase (capital) letters if necessary.
- If you include not-allowed characters within the magnetic stripe data, the printer will beep and a message will be displayed on the PC.
- The driver does not check the data you send. (The printer checks the data.) This is the same behavior as magnetic stripe fonts.

On Windows 98, 98 SE, and Me, data formatted with escape codes cannot be located in rotated fields.

Printer Manufacturer	Encoding Format	Syntax	Example
Eltron	IAT (ISO)	~<track#><data>	~1ENCODING WITH ESCAPES ~21234567890 ~31234567890
Atlantek	IAT (ISO)	~<track#>=<data>	~1=ENCODING WITH ESCAPES ~2=1234567890 ~3=1234567890
Fargo	IAT (ISO)	~<track#>(Start Sentinel><Data> <End Sentinel>	~1%ENCODING WITH ESCAPES? ~2;1234567890? ~3;1234567890?
Datacard HiFX	IAT (ISO)	~<track#>(Start Sentinel><Data> <End Sentinel>	~1%ENCODING WITH ESCAPES? ~2;1234567890?[a] ~3;1234567890?[a]
Victor Data Systems	IAT (ISO)	~<track#>(Start Sentinel><Data> <End Sentinel>	~1%ENCODING WITH ESCAPES? ~2;1234567890? [a] ~3;1234567890? [a]

a) Only the default start sentinel, a semicolon (;), is permitted.

For information about the characters allowed for each track format, see the following section. For more information about requirements for using escapes, see the documentation for the original printer.

IATA, ABA, and TTS character sets

The IAT encoding format selection for the SP35 printer encodes IATA data on track 1, ABA data on track 2, and TTS data on track 3. This meets the requirements of the ISO standard.

IATA (International Air Transport Association)

The maximum field length for IATA format is 76 characters. IATA allows spaces, upper case alphabetic characters, numeric characters, and the following special characters:

! # $ % ' ( ) * + , - . / ; : < @ > = ^] \ [" & _

ABA (American Bankers Association)

The maximum field length for ABA format is 37 characters. ABA allows numeric characters and the following special characters:

: ; < = >

TTS (Thrift Third Standard)

The maximum field length for TTS format is 104 characters. TTS allows numeric characters and the following special characters:

: ; < = >

NTT character set

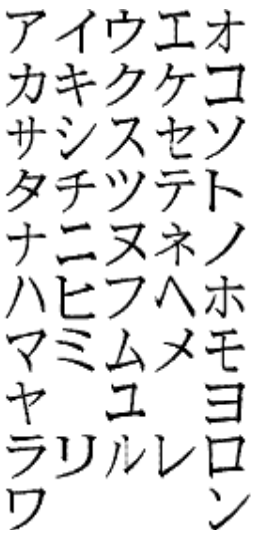
The maximum field length for NTT (Nippon Telephone & Telegraph) format is 69 characters. NTT allows spaces, numeric characters, upper case alphabetic characters, lower case alphabetic characters, and special characters. From a PC running a Japanese edition of a supported Windows operating system, NTT also supports 55 Katakana characters.

The special characters include:

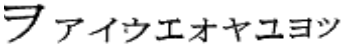
! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [ ] ^ _ ` { | } ~

and the following Japanese-language special characters: (a Japanese edition of a supported Windows operating system is required.)

The 55 Katakana characters include the following 45 Katakana characters:



and the following 10 Katakana characters:



Each time you start using Japanese-language characters, or stop using them, the driver adds a hidden character. Each hidden character reduces by one the number of characters you can encode.

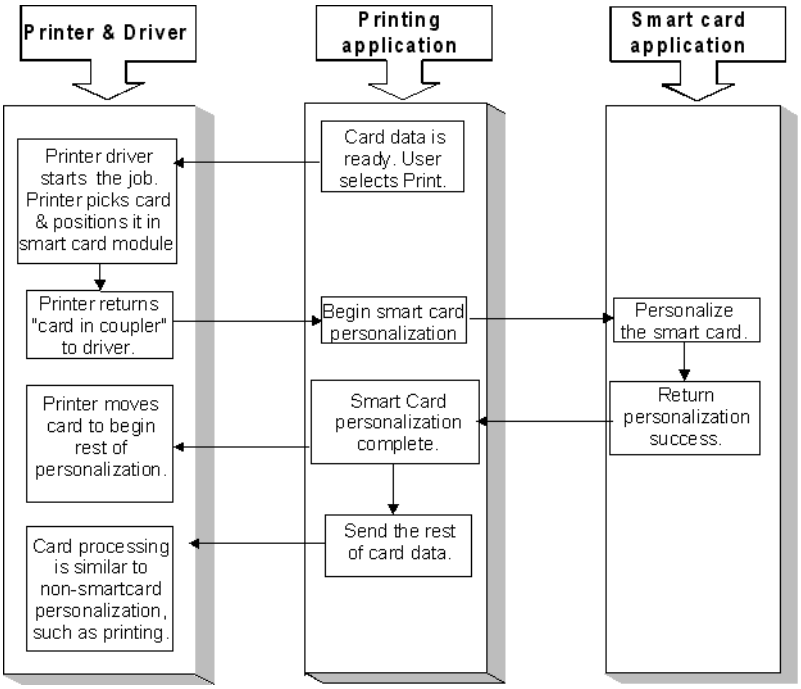
Magnetic Stripe settings used by the printer

The following table presents technical details that apply to encoding magnetic stripe data.

	IATA	ABA	TTS	NTT	Binary
Character Differential	32	48	48	0	0
Start Sentinel (SS) (ASCII character)	% (37)	; (59)	; (59)	127	None
End Sentinel (ES) (ASCII character)	? (63)	? (63)	? (63)	127	None
Lowest ASCII Character	space (32)	0 (48)	0 (48)	(1)	0
Highest ASCII Character	_ (95)	? (63)	? (63)	(126)	255
Character-level parity (VRC)	Odd	Odd	Odd	Even	None
Cumulative parity (LRC)	Even	Even	Even	Even	None
Density in bits per inch	210	75	210	210	210
Data bits per character	6	4	4	7	8
Maximum number of encodable characters (not including start and end sentinel or LRC)	76	37	104	69	33
Encoding direction	SS first	SS first	SS first	SS last	SS first

Smart card setup

This section presents information about how to set up a system if you are personalizing smart cards. Smart card processing is different from other types of personalization, because the “smart card” step of personalization is controlled by an application (or application module) that is different from the rest of card personalization.



The data for smart card personalization is sent from the smart card application using a separate smart card cable.

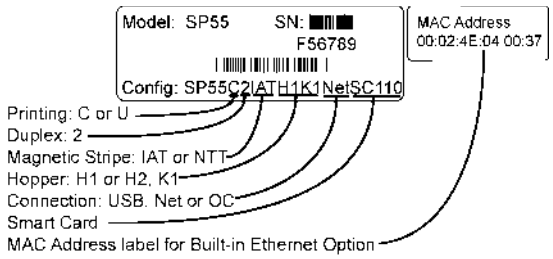
Requirements

To personalize a smart card, you need to obtain or create the following:

- A direct local connection between the printer and the PC
- Smart card reader (coupler) in the printer OR a contact station in the printer plus an external reader
- A smart card cable for each smart card port used
- Card application that is customized to work with the SP Series printer and the smart card application (using the Smart Driver™ SDK or an application such ID Works with the Smart Card Application Manager)
- Smart card application (which uses the SDK for the smart card and reader type)
- Smart cards that work with the reader in the printer

Smart card codes on the printer label

The printer label includes codes to identify the type and model of smart card module installed in the printer. The model(s) of reader available might change and additional models might become available. (SP35 printers might have identifiers that describe the reader, such as SC430.)



If the printer contains a smart card module, the printer label will include “SC” and three numbers. Each digit in the number represents a different part of the code. The following table lists the codes used on the printer label.

Code	Components
SC110	GemPC 430
SC120	GemPC USB
SC201	GemPlus 680
SC202	HID
SC203	Casi
SC204	Indala
SC205	iCLASS
SC321	GemPC USB and GemPlus 680
SC345	SCM DI331 (contact) & iCLASS (contactless)
SC347	SCM DI331 (contact and contactless)
SC400	Contact station

If the codes on your printer label do not match any codes presented in this section and you do not know the type of smart card reader installed in the printer, contact your service provider who can obtain the most recent codes from the Partner Page.

Obtaining smart card support files

Obtain files to support the smart card reader:

- Typically, the developer of the smart card application will download smart card support files and provide them as part of smart card installation and setup.
- Many driver files are delivered in a compressed ZIP file. If the files you download have a file extension of .ZIP and you do not have WinZip of a similar application to extract files, you must obtain it to continue. WinZip is available for download and purchase at www.download.com or www.downloads-zdnet.com.com.
- If the reader name includes SCM, obtain files from the Support/PC Security area of the SCM Microsystems Web site at scmmicro.com/support. Scroll through the Product Drivers list and download the Windows PC/SC drivers for RFID readers and the Windows PC/SC installer, which includes Windows Smart Card Base Components and an SCM utility for use with the SCM reader. (You must click “Accept” on the license

agreement popup before downloading is allowed. Enable pop-ups and cookies temporarily if needed to enable the license agreement popup.) Unzip the “Installer” file and install the utility before proceeding.

- If the reader name includes "GemPC," go to the Gemplus Web site at www.gemplus.com to obtain files. Choose the Support area of the Gemplus Web site, and then downloads for PC-Link readers. Choose the reader installed in your printer and the operating system used by the PC, and download the files. Also download or print the readme.txt file that applies to your reader and operating system. See "Hardware set up" for installation.
- You can also download the Gemplus SmartDiag utility at www.gemplus.com.
- If the reader is a GemPlus 680, files to support a contactless reader are available from the Downloads area of www.datacard.com on the Utilities page. The zip file you download will include instructions. On some PCs, you also need to install Windows Smart Card Base Components, which are available in the Support folder of the Smart Driver™ CD-ROM. See "Hardware set up" for installation.
- If the reader type is HID, Casi, iCLASS or Indala, the files to support the reader are installed by Windows. For Windows 2000, Me, and 98SE, use the Windows installation CD-ROM to install the files. (Windows XP includes the files on the PC.)

  Go to the RF IDeas Web site at www.rfideas.com/html/downloads.html to obtain the configuration utility to support your card reader. (Note: File names are subject to change.) Download the utility for your reader:

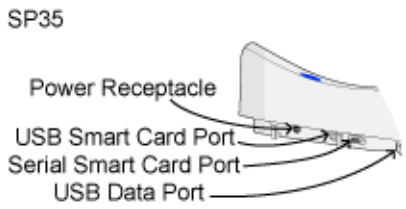
  — For HID®, CASI®, and Indala™ card readers, download the pcProxConfig.exe file.

  — For iCLASS™ card readers, download the RFID1356i-Config.exe file.
- If a contact station is installed, obtain driver files from the supplier or manufacturer of the external reader.
- If the printer has a combo smart card module, obtain files for each type of reader included.
- The PC must include Windows Smart Card Base Components, such as the system files winscard.dll and smclib.vxd. You can install the base components using the scbase.exe installation program located in the Support Folder of the Smart Driver CD-ROM.
- After the Windows Smart Card Base Components are installed, the smart card service must be configured to run automatically. See Windows Help for “configure service” for the steps to follow.

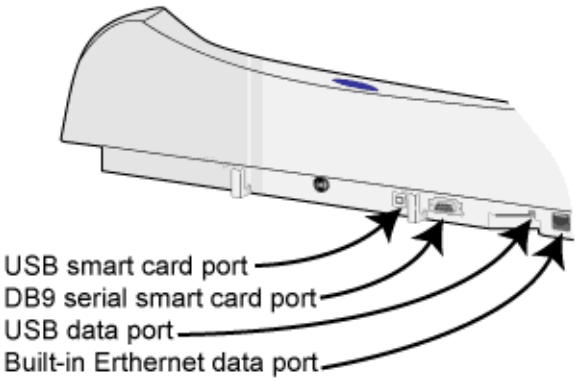
Hardware set up

Make sure the printer driver has been installed and that the printer produces a sample card before setting up the smart card module.

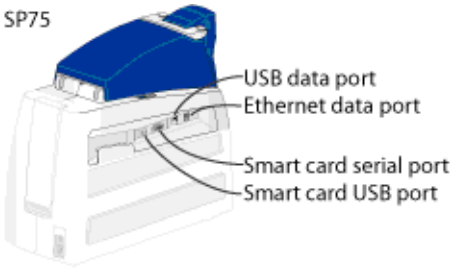
A printer with a smart card module has one or two additional ports.



SP55 and SP60



SP75



- If the printer has a USB smart card port, follow these guidelines:
  - The USB cable must be a type CM 30V cable, up to a maximum of 6.5 feet or 2 meters long. A longer cable might result in electrical interference.
  - For best security, connect the printer USB smart card port directly to the PC port without using other USB devices, which might permit access to the smart card data.
  - For SCM readers, do the following:
    - Make sure you have installed the utility from the “installer” zip file, which includes the Windows Smart Card Base Components (needed to permit driver installation.)
    - Right-click the SCR331DI_drv4.30s.zip file and choose “Extract All” from the popup list. Follow the wizard to extract all files. The wizard opens an explorer window showing two folders labeled by operating system.
    - At this time, connect the smart card USB port on the printer to a USB port on the PC.
    - The New Hardware wizard appears. (On some PCs two wizards might appear--one for the contact reader and one for the contactless reader. Choose the for the SCR331DI contact reader.
    - Choose to install files from a specific location and browse to the SCR331DI_drv4.30s folder and then the folder for your operating system. Choose the S331DI9X (For Windows 98, SE, and Me) or S331DI2K (for Windows XP or 2000) file and continue to follow the wizard to install the driver.
    - After installing the SCR331-DI USB smart card reader, Windows displays the New Hardware wizard for the SCR331-DI Contactless reader. Repeat the process for this reader, choosing the S331DICL file in the wizard.
  - The Windows XP operating system includes support for GemPC contact smart card readers and for HID, Casi, iCLASS and Indala contactless readers. The files will be installed automatically when you connect the

USB smart card port to the PC. More recent files for GemPC readers are available from Gemplus. Install the files from Gemplus after Windows installs the device.

— If you plug in the smart card USB port instead of the printer data port when installing the printer, the Add/Detected New Hardware wizard appears, naming the reader as the hardware it found. Allow the wizard to complete and then connect the USB data cable to the USB port closest to the input hopper to install the printer on the PC.

— For Windows Me and 98SE and HID, Casi, iCLASS, and Indala readers, use the Windows installation CD-ROM to install contactless readers that use a USB port.

— For Windows Me, 2000, and 98SE and GemPlus contact readers, use the downloaded files from Gemplus to install the drivers, not the Add/Detected New Hardware Wizard. Restart Windows before you use the reader.

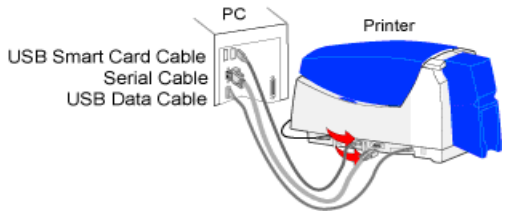
— If the printer includes two smart card readers that use a USB port, the port will be connected to an internal hub. Make sure you have the files (described above) for both devices before you connect the smart card USB port and the PC. When you connect the smart card USB port to the PC, the PC will identify two new devices and might display two Found New Hardware Wizards. Use only one wizard at a time and follow the guidelines above to install each type of reader.

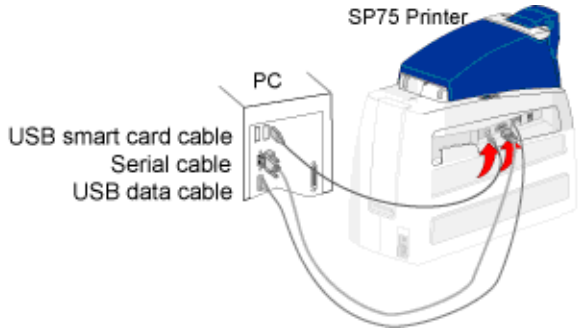
- If the printer has only a serial smart card port, you can connect the hardware before installing files to support the smart card.

  — The smart card serial cable must be a shielded DB9 serial cable, up to a maximum of 9.8 feet or 3 meters long.

  — For a 680 reader, double-click the downloaded file to view the files available. Follow the instructions in the downloaded file to install a reader on the PC. You do not need to install the complete API.

- If the printer includes both a smart card USB port and a smart card serial port, the printer includes both a contact reader and a 680 reader. Install files for both devices and use two smart card cables.





Verify Windows installation of a smart card reader

Verify that the driver files for the smart card reader(s) are installed correctly on the PC and that Windows can communicate with the reader:

- Check the Windows Device Manager to verify that the device is installed:
  - A contact smart card reader will appear as an entry under “Smart Card Reader.”
  - If the contact reader appears as an entry under “Other devices” the device is not installed correctly. For Windows Me and 98 SE, restart Windows to enable device installation.
  - A contactless smart card reader is likely to appear as a Keyboard or a Human Interface Device.
  - A 680 contactless reader does not appear in the Device Manager list.
- To verify the installation of SCM smart card driver files, use the SCM diagnostics utility.
  - open the utility and look in the Connected Readers folder to see the devices. When the drivers and reader are installing correctly, inserting the appropriate smart card will cause the “card status” to change to “inserted.”
- To verify the installation of Gemplus smart card driver files, use the Gemplus SmartDiag utility, which is available from the GemPlus web site.
- Printer Diagnostics, which you can install using the driver CD-ROM, include the ability to test some types of smart card readers.
- To verify the installation of HID, Casi, iCLASS or Indala readers, install and use the configuration utility from the RF IDeas Web site.

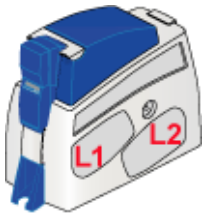
Tips for success

- Cards-per-hour ratings do not apply. The smart card personalization process requires dwell time that is controlled by the personalizing application, not the printer and driver.
- The Retry button on message boxes is not available. The personalizing application can control messages, and so some printer messages might not be displayed.

Laminator Setup

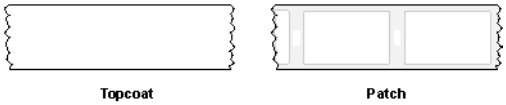
The information in this section applies only to SP75 printers.

All SP75 printers have one laminator, which is always in the L1 location, toward the front of the printer. Some SP75 printers have a second laminator in the L2 location, toward the back of the printer.

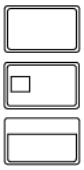


Laminator materials

The laminator applies topcoat or DuraGard® patch material to the card. The L1 and L2 laminators can apply either type of material. Topcoat is a continuous film and a DuraGard patch is a die-cut polyester shape.

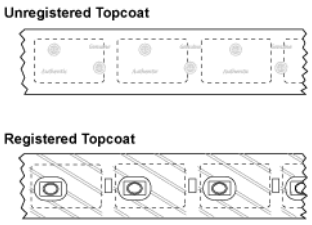


Patches can cover the complete card, can have a opening for a smart card chip, or can cover the card under the magnetic stripe.



Both DuraGard patches and topcoat can be clear or can have a hologram or similar transparent image on them. Such material is usually called holographic topcoat or holographic patch. Customers can order customized holographic material.

In addition, holographic topcoat or DuraGard patch can be designed so the image appears in the same location on each card.



See Laminator supplies for part numbers of supplies that are available.

Purposes

The reasons for applying material using a laminator include:

- To preserve the quality of the image on the card. Both Topcoat and DuraGard patch provide UV protection for the printing on the card.
- To improve the durability of the card. DuraGard patch is available in 0.5 clear, 0.6 mil holographic, and 1.0 mil thicknesses for durability.
- To improve security of the card. Holographic and other transparent images are tamper-evident and can be difficult to mimic. Users can purchase material with Datacard®-designed images or can develop a customized image and purchase custom material to meet specific security needs.
- Holographic Topcoat or DuraGard patch can be designed so the image appears in the same location on each card, further enhancing security. Topcoat material that places the image in the same location on each card is call registered topcoat. Custom DuraGard patch material is available with registered images.

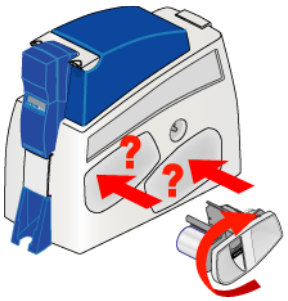
Card design issues

The card design must include a description of what type of laminator material is applied to each side of the card. When you set up the printer, you must set up the laminators so that the correct material is applied to the side of the card. Here are steps to consider:

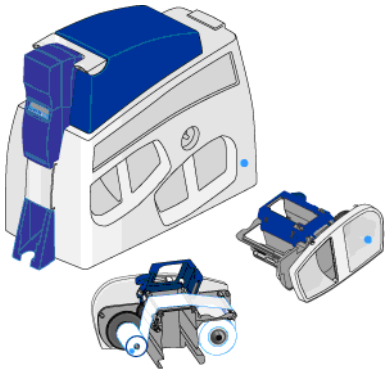
- If the printer has one laminator, apply the material to one or both sides of the card, and change driver settings to implement that. See "Working with Properties and Printing Preferences" to change settings.
- Supply packages are labeled with part numbers, but might not include all the details that printer operators must consider when choosing which supply to load in each laminator. If you use more than one type of laminator supply, clearly label each type of supply.
- For proximity cards, you normally set the Debow Laminator 1 (and, if present, Debow Laminator 2) settings to “No.” See "Working with Properties and Printing Preferences" to change settings. Print some test cards to make sure the settings work with the cards.

Two laminators

- If the printer has two laminators and you use different material in each laminator, you must choose which laminator will apply each material. The quickest way to process a card is to apply material in L1 to the front of the card and material in L2 to the back of the card. Then, you must change driver settings to implement your choice.
- If you are likely to have additional operators using the printer, it is important that you provide specific information about the correct driver settings and the material to load in each laminator. An operator can easily become confused about whether a specific cartridge should be inserted into the L1 or L2 location.



- Printers with two laminators are shipped with colored dots, which you can use to mark the laminator location, the cartridge, and supplies. (The dots shipped with your printer might have a different appearance than those shown in the illustration.)
- For best results, also sure to record the laminator location–L1 or L2–for each type of material and driver settings.



Verify setup

When setting up the printer, print several test cards to determine how well the laminator applies material to your card. You might need to print several cards before the laminator material is positioned correctly. The printer default settings should provide very good results. However, several factors including your cards, the design, and your environment can influence the appearance of cards.

- Consider the following:
  - The patch is completely on the card
  - The material adheres well to the edges of the card
  - The patch does not come off when the card is bent or twisted

  If any of these conditions are present, you might need to change settings to provide the best possible results. Ask your Datacard®-authorized service provider for guidance and then see "Change laminator settings (SP75 only)" for the steps to follow.

It can be helpful to establish card quality guidelines. One way to do this is to make sample cards and write the quality standards directly on the cards.

Card production and system maintenance

After the printer, driver, ID software, and capture system are set up, you are ready to produce cards. To assure that you produce cards that meet requirements, be familiar with how to make cards. In addition, invest small amount of time to care for the equipment you use to print cards.

Card Production

This section contains:

Tips for success

- Developers can write applications using the Smart Driver™ Software Developer's Kit. This kit can be downloaded from the Datacard website.
- If you use magnetic stripe fonts or escapes, keep data for one track in one line of text, and only have magnetic stripe data on the line. (Use a small font size if needed.)
- Do not use character formatting (such as kerning) or formatting characters (such as tabs) with data intended for magnetic stripe encoding.
- Whenever you encode magnetic stripe data or program smart cards, the card can include confidential data that you cannot see. In addition, used print ribbon contains negative images of data printed on cards. Handle used print ribbon and incomplete cards according to your policy for handling the confidential data that might be on the card.
- For the most current information about messages, see the online help for each message.

Printing cards using ID software

To use ID software, such as Datacard® ID Works™ or Preface™:

1. Follow instructions for the ID software to capture, format, and save the card data.
2. In the ID software, send cards to the printer (usually, use the Print button).
   - The printer driver receives and processes card data, places cards in a queue, and sends the next card to the printer.

Printing cards using a PC application

To use a PC application, such as Microsoft Word:

1. In the application, select the Smart Driver™ as the current printer. (Your printer might have a different name.)
2. Select the printer settings that correspond to the cards. For details, see Setting up for the card design.
3. In the application's page setup feature, set the paper size to CR80 Card 2.13" x 3.38" and set the margins to match the driver.
4. Format the text to print using TrueType fonts. Text formatted as Black will print using the K (solid black) ribbon panel. All other colors are printed using the color panels (if you use a color print ribbon).
5. To encode magnetic stripe data, do one of the following:
   - Type the magnetic stripe data on the front of the card and format the text using one of the following fonts:
     - Track 1—Magnetic Stripe
     - Track 2—Magnetic Stripe
     - Track 3—Magnetic Stripe
     - Track NTT—Magnetic Stripe (PC must run a Japanese language Windows operating system)
   - If your application does not allow you to select fonts, use magnetic stripe escapes to identify data. For details, see Magnetic Stripe Setup.

6 When the card data is ready, select Print to send the card to print. The printer driver receives and processes card data, places cards in a queue, and sends the next card to the printer.

Laminating only

This section applies only to the SP75 printer.

Tips for Success

- The Apply Material setting for the L1 Laminator (and L2 laminator, if present) in Printing Preferences, Properties, or Document Defaults determine the side(s) on which to apply material.
- If Apply Material is set to "Do Not Apply" and you choose Laminate Only, cards will be sent through the printer but nothing will be done to them.

If you have an SP75 printer, which includes an L1 laminator and an optional L2 laminator, you can laminate cards without printing on them. To laminate only:

1 In the Printer Toolbox, click the Laminate Only button to pick cards from the input hopper and apply material using the L1 laminator (and L2 laminator, if present).

2 Enter the number of cards, up to 255, that you want to laminate, then click Start.

Responding to messages

The printer and driver generate a message on the PC when a card cannot be processed. Usually, the message is displayed on the PC.

1. When a message is displayed on the PC, follow the suggested action. Click the Help button to see likely causes and possible solutions.
2. When the printer status light blinks amber, it is safe to open the printer to fix any problems.
3. Fix the problem, then close the printer cover and press to latch it.
4. The message box might disappear on its own or you might need to click a button.

   Buttons on the message box can be:

   Retry: Clears the card. The driver sends the card or cards to the printer again. If the problem is fixed, normal operation resumes.

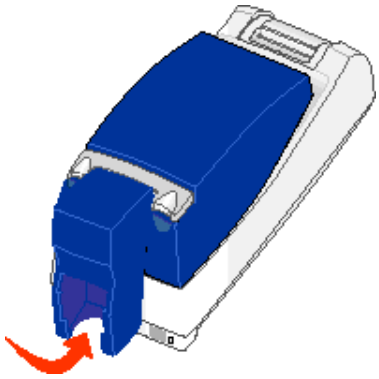
   Cancel: Clears the card. The driver does not send the card again. If the problem is fixed, normal operation resumes.

   OK: Used for a message that occurs when no card was being printed, a status message, or an equipment failure message. If the problem is corrected, normal operation resumes. (Power the printer off and on if operation does not resume.)

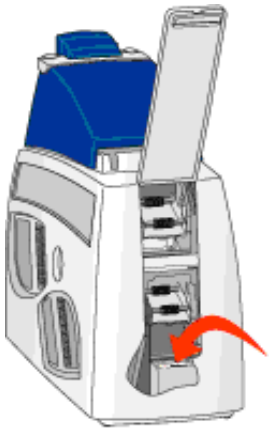
The printer might eject any cards in the printer.

Message Tips

- If the message box disappears automatically, you might need to return to the ID software to send the card to print again.
- If the printer beeps and the status light blinks amber but no message appears on the PC, try:
  - If you printed a test card and the printer beeps but no message appears on the PC, use a card with a magnetic stripe and make sure the stripe is oriented correctly.
  - Restart Windows to fix the problem.
- If a message appears repeatedly and you cannot reliably fix it, the printer might need service. Record the message and message number, the printer serial number, and the driver and firmware versions (see the Printer Toolbox). Call your service provider.
- On the SP35 and SP55 printer, rejected cards are placed in the output hopper.



On the SP75, rejected cards are placed in the reject bin.



Cleaning

This section contains:

See Site requirements for guidelines for a good printer environment, which can reduce the amount of cleaning required to produce high-quality cards.

Cleaning tips

- Run a printer cleaning card as the first step when cleaning the printer. The printer cleaning card can remove most contaminants from the printer. See Cleaning the printer for steps to follow.
- If you use StickiCards™, clean the card tracks after every 100 cards, or as needed. Run a cleaning card to clean the card track. The printer might also need additional cleaning. Use the cleaning pen to reach most areas of the card track. Use isopropanol and a swab (not included in the cleaning kit) to reach hidden areas of the card track.
- Some card features can require more frequent cleaning of the printer, especially if the cards are not high quality. Signature panels and magnetic stripes can deposit particles on rollers. You can run a cleaning card, replace the cleaning roller, and then clean the printer rollers to remove particles.
- If you have an SP75 printer, use holographic topcoat supply material, and see particles of topcoat on cards or in the printer, you need to use a laminator cleaning card to remove particles. See "Cleaning the laminator" for the procedure to follow.

Cleaning the printer rollers

The printer rollers move the card during printing or cleaning operations. Clean the rollers when problems occur such as:

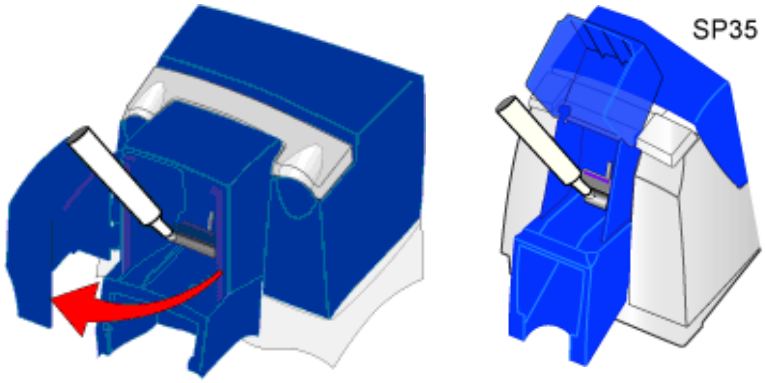
- Repeated card jams
- Cards are not being picked, repeatedly
- Colors are not aligned on the printed card

Use the cleaning pen to clean printer rollers.

Make sure that printing of cards is complete before cleaning the rollers.

1. Open the Printer Toolbox if needed by double-clicking the printer icon.
2. Clean the pick roller:
   a. Open the input hopper.
   b. Remove all cards from the input hopper.

c Remove the cap from the cleaning pen. Hold the end of the cleaning pen against the pick roller.



SP55 and SP75

d Click the Clean Printer button in the Printer Toolbox. Click OK on the prompt that appears. Do not insert a cleaning card! The driver sends a command to the printer to run the printer cleaning card. The printer moves rollers when it attempts to pick the card.

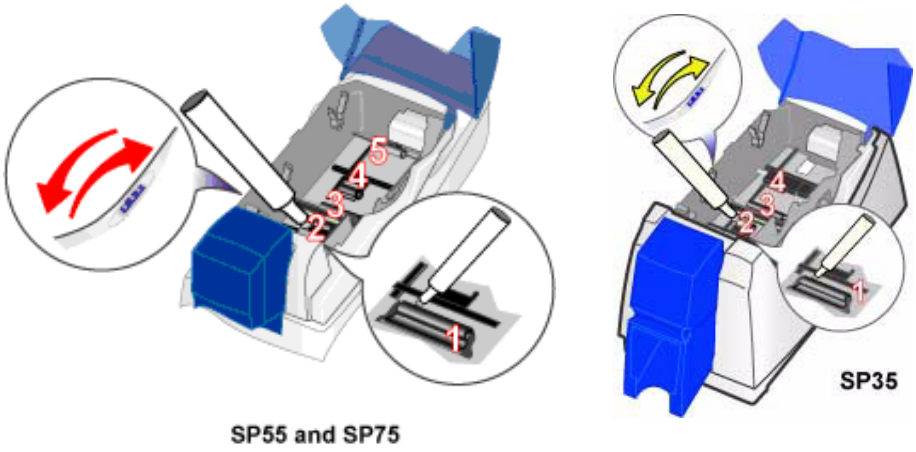
— For printers with the Built-in Ethernet feature, you can alternatively use the LCD panel to clean the printer rollers. See Cleaning the Printer (with LCD panel).

e Slowly move the pen over the surface of the pick roller.

f Lightly wipe any dirt from the end of the cleaning pen onto a clean cloth or paper. Move the cleaning pen to another area of the roller. (Click Cancel on the “Card not picked” message if it appears.)

g Repeat steps d through f until no more dirt appears on the pen.

3 Clean the permanent cleaning rollers if needed.



SP55 and SP75

a Open the printer cover and remove the print ribbon cartridge. Make sure cards are removed from the input hopper.

b Remove the replaceable cleaning roller.

c Observe the permanent cleaning rollers, especially the lower roller (location 1 in the illustration). If you observe ribbon or other debris on the rollers, clean the rollers using the cleaning pen. (If not, continue with step 4.)

d Do one of the following to turn the rollers in the printer.

— Click the Clean Printer button in the Printer Toolbox. Click OK on the prompt that appears. Do not insert a cleaning card! The driver sends a command to the printer to run the printer cleaning card. The printer moves rollers when it attempts to pick the card.

— Turn the card advance knob to move rollers by hand.

e Move the pen on the roller.

f Lightly wipe any dirt from the end of the cleaning pen onto a clean cloth or paper. Move the cleaning pen to another area of the roller. (Click Cancel on the “Card not picked” message if it appears.)

g Repeat steps d through f for the rollers at location 2 until no more dirt appears on the pen or cloth.

4 Clean the transport area rollers:

a Make sure the print ribbon cartridge and replaceable cleaning roller have been removed. Make sure cards are removed from the input hopper.

b Place the cleaning pen on top of the first transport roller (location 2 in the illustration). Do not place the pen next to the black transport base. The pen can get pinched between the roller and the transport base.

c Do one of the following to turn the rollers in the printer.

— Click the Clean Printer button in the Printer Toolbox. Click OK on the prompt that appears. Do not insert a cleaning card! The driver sends a command to the printer to run the printer cleaning card. The printer moves rollers when it attempts to pick the card.

— Turn the card advance knob to move rollers by hand.

d Move the pen on the roller.

e Lightly wipe any dirt from the end of the cleaning pen onto a clean cloth or paper. Move the cleaning pen to another area of the roller. (Click Cancel on the “Card not picked” message if it appears.)

f Repeat steps c through e for the roller at location 2 until no more dirt appears on the pen or cloth.

g Move the cleaning pen to location 3. Repeat steps c through e.

h Move the cleaning pen to location 4. Repeat steps c through e.

— If the printer has a magnetic stripe module, the roller is just visible below the black cover of the magnetic stripe module, on the left side of the printer.

— If the printer does not have a magnetic stripe module, clean the upper roller and the partly hidden lower roller, on the left side of the printer.

5 For SP55 and SP75 printers, clean the additional transport rollers:

a Make sure the print ribbon cartridge and replaceable cleaning roller have been removed. Make sure cards are removed from the input hopper.

b Place the cleaning pen on top of the last transport roller (location 5 in the illustration). It will be difficult to see this roller if there is a smart card module installed.

c Do one of the following to turn the rollers in the printer.

— Click the Clean Printer button in the Printer Toolbox. Click OK on the prompt that appears. Do not insert a cleaning card! The driver sends a command to the printer to run the printer cleaning card. The printer moves rollers when it attempts to pick the card.

— Turn the card advance knob to move rollers by hand.

d Move the pen on the roller.

e Lightly wipe any dirt from the end of the cleaning pen onto a clean cloth or paper. Move the cleaning pen to another area of the roller. (Click Cancel on the “Card not picked” message if it appears.)

f Repeat steps c through e for the roller at location 5 until no more dirt appears on the pen or cloth.

6 Replace the print ribbon cartridge and replaceable cleaning roller. Close the printer cover.

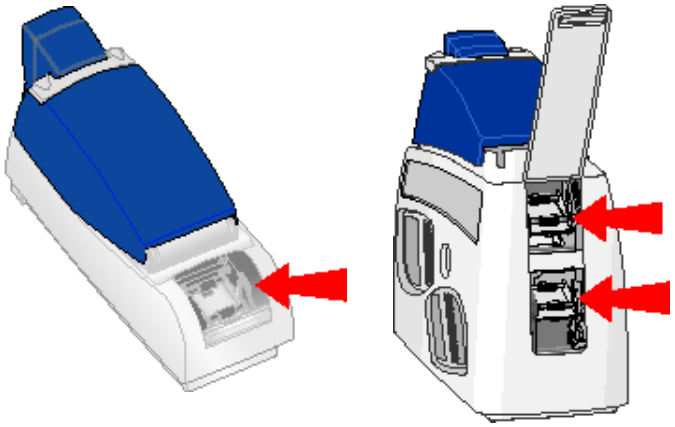
7 Replace cards in the input hopper.

8 Print a card to verify the quality of printing. You can print a printer test card, a sample card, or a card using your card creation application.

Cleaning the duplex module(s)

On SP55 printers with the optional duplex module, and on SP75 printers, clean the duplex rollers as described next.

1 Locate the duplex rollers:

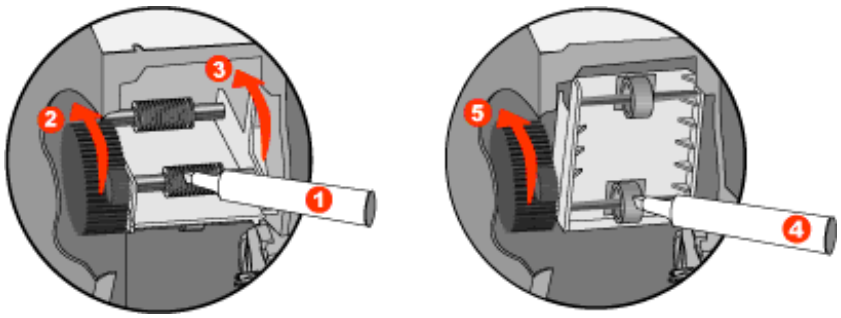


2 Clean the duplex rollers:

— Move the cleaning pen over the gray duplex rollers (1) while manually rotating the gear next to the rollers (2).

— Flip the duplex module by pushing the top away from you (3).

— Clean the black rollers (4) while manually rotating the gear next to the rollers (5)



3 On SP75 printers, clean the lower duplex rollers as described in the previous step.

Cleaning the printhead

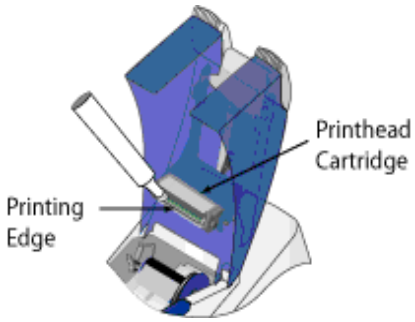
The printhead can have contamination stuck to it. You might notice it as unprinted lines on printed cards. Clean the printhead only when needed, such as:

- The printhead has been accidently touched, such as when changing supplies or clearing a card jam.
- You have replaced the printhead cartridge.
- Your observe problems with card appearance, as described in Card appearance problems.

Tips for success

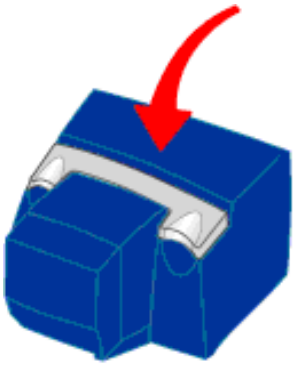
- Do not touch the printing edge of the printhead cartridge with your fingers. The oils on your fingers can damage the printhead.
- Do not bump the printing edge of the printhead cartridge with any sharp objects. Sharp objects can permanently damage the printhead.
- Use the cleaning pen to clean the printhead. Do not use a cotton swab. The fibers from the cotton can stick to the printhead.

1. Power off the printer by disconnecting it from the power source.
2. Open the printer cover.
3. Open the cleaning pen.
4. Using gentle pressure, move the cleaning pen back and forth along the full length of the printhead edge (see the following illustration). Be sure to clean the rounded edge of the printhead completely.

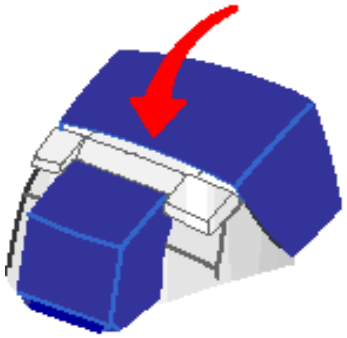


   — If the cleaning pen does not remove all contamination from the printhead, contact your service provider for additional assistance.

5. Close the printer cover. Push firmly on the edge to latch the cover.



SP55 and SP75



SP35

6 Connect the power cable to the power receptacle to power on the printer.

7 Print a card to verify the quality of printing. You can print a sample card or a card from your application.

Cleaning the laminator

This section applies only to the SP75 printer.

Using the laminator cleaning card

Use the laminator cleaning card when at least one laminator is loaded with holographic topcoat material and one or more of the following are true:

- Particles appear on the laminated cards
- Particles are visible inside the printer
- Patches are visible inside the printer on a roller

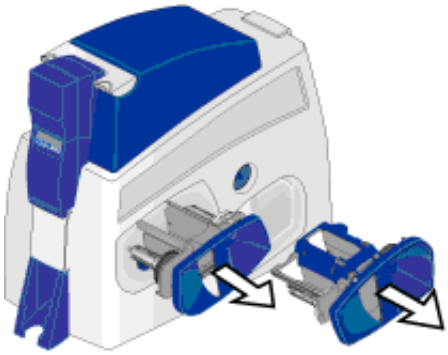
For examples of problems that require laminator cleaning, see Card appearance problems.

Have the following ready:

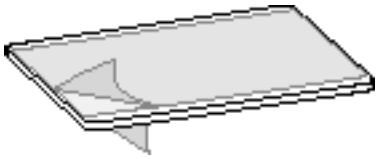
- The SP75 printer, installed and communicating properly
- Laminator cleaning card

To clean the laminator:

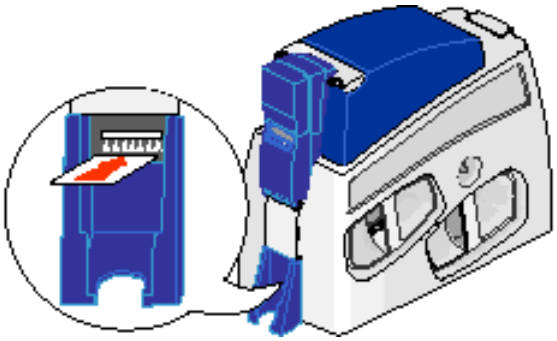
1. Remove the L1 and, if present, the L2 laminator cartridge(s).



2. Remove cards from the output hopper.
3. On the PC, open the Printer Toolbox, if needed, by double-clicking the printer icon. (You can alternatively use the LCD panel for cleaning. To do this, see LCD Settings.) If you have exited from the Printer Toolbox, open Properties, Printing Preferences, or Document Default Properties and choose to open the Printer Toolbox.
4. Click the Clean Laminator button.
5. Peel the protective paper from both sides of the cleaning card.



6. Insert the cleaning card in the output hopper, under the white stripe. The card must be under the white stripe and the brushes. When it is in the correct location and pushed in far enough, the card will stay in place.

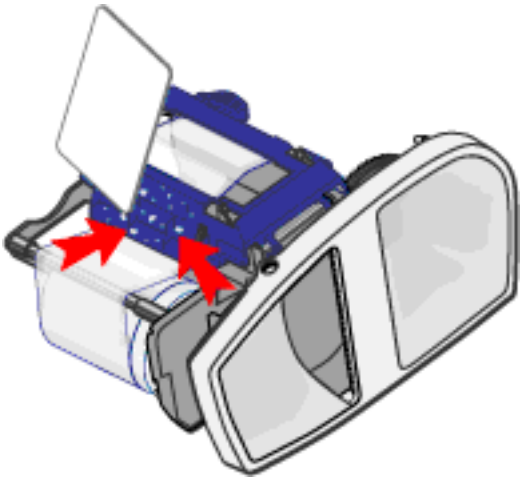


7 Click OK on the message box to begin running the laminator cleaning card.

8 When the process is complete, the printer ejects the laminator cleaning card in the output hopper.

9 Pull out the laminator cartridge and inspect for particles. If particles are present:

— Retrieve the laminator cleaning card from the output hopper and use it to remove the particles of topcoat from the cartridge, as shown.



— If particles still remain on the cartridge and inside of printer, use a vacuum cleaner with a small plastic hose attachment to carefully remove the particles. Also clean any remaining particles from the output hopper, reject bin, and back door of the printer.

Tips for Success

- If the cleaning card is not pushed into the printer far enough, you might see the message, "The card is stuck in the L2 Laminator. OP 01612" on the PC. Push the card in farther, then click the Clean Laminator button again.
- If the printer does not take any action after you click OK on the prompt and push the cleaning card in, the card is not in the correct location. The cleaning card must be pushed under the white stripe inside the output hopper. Look closely at the inside of the output hopper and the illustration in step 5.
- At the end of the laminator cleaning cycle, the card might stick to the rollers in the output hopper. Pull on the card to remove it.
- Discard the laminator cleaning card after one use.
- Avoid contact with the heated roller, which contains sensitive electronic components.
- If cleaning the laminator does not solve the problem, contact your service provider for assistance.

Replacing the printhead cartridge

The printer uses an operator-replaceable printhead cartridge. For more information about printhead cartridges, see Supplies.

This section contains:

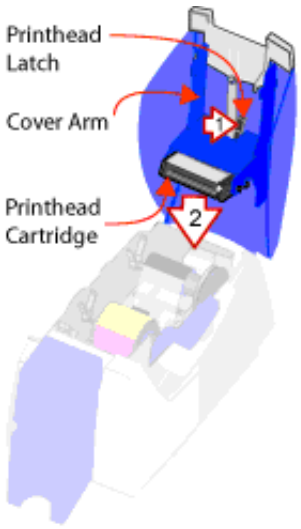
- "Remove the printhead cartridge"
- "Replace the printhead cartridge"

Remove the printhead cartridge

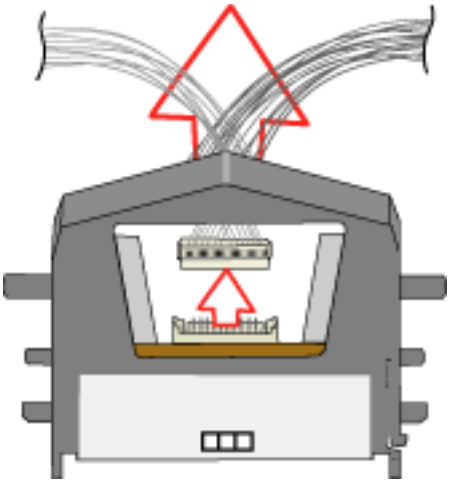
Do not touch the printing edge of the printhead cartridge. If you do, clean it using the cleaning pen, as described in "Cleaning the printhead".

Do not bump the printing edge of the printhead cartridge with any sharp objects. Sharp objects can permanently damage the printhead.

1. Power off the printer.
2. Open the printer cover.
3. Place your hand under the printhead cartridge because it will move down when released.
4. Press the printhead latch away from you (1) to release the printhead cartridge (2).

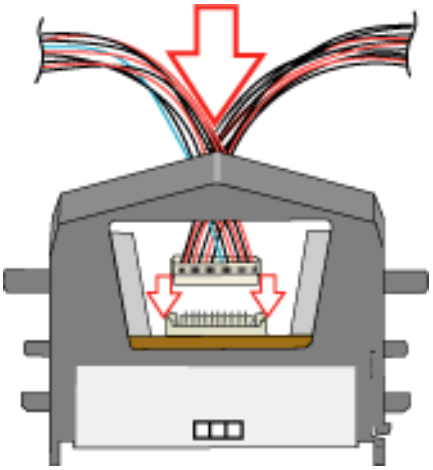


5. Pull on the connector and cables to remove the printhead cable.

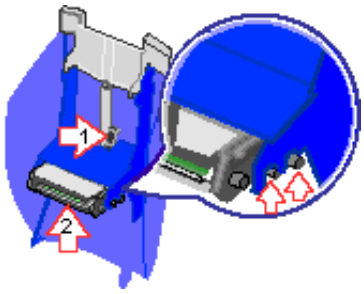


Replace the printhead cartridge

1. Position the printhead cartridge with the silver label toward you and on top. Place the printhead cable behind the cartridge so the plug is visible through the opening in the printhead cartridge.
2. Carefully align the plug with the receptacle on the printhead. Push the plug all the way onto the receptacle (see the following illustration).



3. Align the printhead cartridge pins with the printhead cartridge slots on the cover arm (see the following illustration).



4. Press in the printhead latch (step 1 in the illustration above) and push up on the printhead cartridge to seat it in the cradle. (step 2 in the illustration above). Release the printhead latch when the printhead cartridge is in place.
5. Clean the printhead. Move the cleaning pen back and forth along the length of the printhead edge. Be sure to completely clean the rounded edge of the printhead.
6. Close the printer cover, pressing down on the edge to latch it.
7. Power on the printer.
8. Print a card to verify the quality of printing. You can print a sample card or a card using your ID software.
9. If needed, fine tune edge to edge settings to center the printed image with the new printhead cartridge. For steps to follow, see Changing Settings in the Printer: Fine tune edge to edge printing.

Maintain the PC

Good PC operation contributes to good operation of the printer and driver. Problems on the PC can prevent efficient operation of the system that includes the PC and printer.

Perform PC hard disk maintenance on a regular basis or when the following occurs:

- The printer driver displays messages for which PC maintenance is a solution
- Applications display “Out of memory” messages
- The hard disk has less than 50 MB of space free
- Windows has shut down unexpectedly (crashed) (which can result in temp files remaining on the PC)
- The PC is used often to access the Internet

Tips for Success

- On the Windows 2000 and Windows XP operating systems, the Administrator must perform maintenance tasks.
- Perform maintenance tasks on each PC that prints cards.
- Follow the steps in Windows help or use the steps in this section.
- To access Windows help, select Help from the Start menu. In the Windows Help contents, select Troubleshooting.

1 Save all data in your open applications.

2 Close all applications, including resource monitors.

3 Exit from the Printer Toolbox. (Using the Minimize button on the Printer Toolbox does **not** have the same effect.)

- **a** Locate the System Tray in the right corner of the Windows taskbar.
- **b** Right-click on the icon for the Printer Toolbox.
- **c** From the popup menu that appears, select Exit.

4 Log off any network connections.

5 Run the Disk Cleanup program:

- **a** From the Windows task bar, select Start, Programs, Accessories, System Tools and then Disk Cleanup.
- **b** Select the drive to clean up, usually C:\.
- **c** Select the types of files to delete.
- **d** Select OK and then Yes on the message box. Disk Cleanup can require a minute or more to delete files.

6 For Windows Me and 98, run the ScanDisk program:

- **a** From the Windows task bar, select Start, Programs, Accessories, System Tools and then ScanDisk.
- **b** Select the drive to scan, usually C:\.
- **c** Select Standard test and Automatically fix errors.
- **d** Select OK. ScanDisk can require 5 minutes or more for a standard scan.
- **e** When ScanDisk is complete, follow any instructions and close the program.

7 Free up additional disk space:

- **a** From the Windows task bar, select Start, Programs and then Windows Explorer.
- **b** Open the C:\Temp, C:\Windows\Temp, C:\Winnt\Temp, or C:\Win2K\Temp folder. Delete any files not being used.
- **c** Open the C:\Windows\Temporary Internet Files, C:\Winnt\Temporary Internet Files folder. Delete any files not being used.
- **d** Open the Recycle Bin in Explorer. Delete all files from the Recycle Bin.

e Click the icon for drive C:\. The status line shows the available disk space, such as:
— 48.2MB (Disk free space: 302MB)

f Make sure the Disk free space is 40MB or greater.

g Remove additional files if needed.

8 Run the Disk Defragment program if one is installed on the PC:

a From the Windows task bar, select Start, Programs, Accessories, System Tools and then Disk Defragmenter.

b Select the drive to scan, usually C:\.

c Select OK to run the program.

d When the program completes, a message appears.

e Select OK to close the program.

9 With all applications closed, from the Windows task bar, select Start and then Shutdown.

10 From the Shut Down Windows box, select Restart the Computer and then Yes.

11 If you were printing cards, restart the ID software (such as Preface or ID Works) and send the card to print again.

Other PC problems

- On Windows 2000 and XP, the PC can appear to have maintenance problems when the user does not have the necessary permissions. To set permissions, see “Setting Printer Permissions” in Installing the Driver.
- If a Datacard® printer driver was installed on this PC and then removed, you can run the Cleanup Utility to remove any files that Windows does not remove. See the “Running the Cleanup Utility” in Reinstall the Printer Driver.
- If the print processor is not the correct one, the PC can appear to have problems. Make sure that the “Print Processor” or the “Print using the following driver” selection in Properties is Smart Driver™.

Troubleshooting

This e-Guide helps you to understand problems you might have when using an SP Series printer and how to address those problems.

Is it really trouble?

The following table provides a quick guide to help you get started troubleshooting. Pick the problem that is most like yours (or use the Contents to locate the section you are interested in).

Problem	Is it trouble?	Why? What do I do?
A message appears.	No.	Messages do not mean trouble–messages are expected during normal operation. See help for the message to address the condition.
The printer beeps and the status light flashes, but no message appears.	Probably not.	This problem can be the result of: • Changing the printer name or the printer port (restart Windows to fix the problem). • Pausing the printer when making a printer test card (power-on test card). Press the Ready key to resume printing. • Communication problems. See "Locating the problem" for steps to follow.
The same message (or series of messages) appears repeatedly, and the solutions listed in help do not fix it.	Yes, part of the printer might be broken.	You should call your service provider after you have tried all the solutions listed in help.
I send a card to print from the PC, but it does not print.	Maybe.	Communication problems can usually be fixed. Rarely, they are the result of a printer problem. See "Locating the problem" for steps to follow.
I installed the driver, but the printer does not print cards.	Probably not.	This is usually a result of communication problems and can often be fixed. See "Locating the problem" for steps to follow.
Cards have scratches.	Probably not.	You can fix this problem, because it is probably due to the card stock, the environment in which you print, or how you handle cards and supplies. See "Card appearance problems" for guidance.
The color on the cards is not right.	Probably not.	This is usually a setup problem. See "Card appearance problems" for guidance.
When I power on the printer, nothing happens, not even after 5 minutes!	Maybe.	See "Locating the problem", which gives you steps to follow to locate the problem.

How do I troubleshoot a problem?

When you experience problems using the printer, follow these guidelines:

- Keep notes on the problem, including:
  - The message text or message number and the solutions you attempt.

  - Communication method used to connect the printer and PC
- Obtain information about the supplies used, including:
  - Card stock and type (such as composite or PVC, three-track magnetic stripe, manufacturer, and so on). This information is located on the packaging for cards.
  - Type of ribbon (such as YMCKT) and the lot number used for personalizing cards. This information is located on the package of the ribbon.
  - For SP75, type of laminator material and the lot number.

If you need to call for service, this information will help your service provider address your concerns.

Locating the problem

When you think the printer is not working correctly, use the following procedure to locate the source of the problem.

The printer, printer driver, and card creation application work together to produce cards. If the system is not working as you expect and does not display messages, follow these steps to isolate the source of the problem before contacting your service provider.

1. Make a printer test card, following the steps in "Making a printer test card".
   - If the printer does not make a test card, make sure the printer is connected to a functioning power source.
     - Remove the printer power cord from the outlet and connect another device such as a light to the same outlet, to verify that the power source functions correctly.
   - If the power source works but you cannot create a printer test card, the printer is likely not working properly.
2. Print a sample card from the Printer Toolbox. See Printing sample cards for the steps to follow.
   - If the sample card does not print, but the printer test card prints, the printer driver or the PC are not set or operating properly, or there is a communication problem. See "Communication problems".
3. Make sure the printer is the selected printer in the ID software
4. Use the card creation application to print a card.
   - If the card creation application does not print the card as expected, but the test card and sample card print, the card creation application is likely not set or operating properly.

Making Test Cards

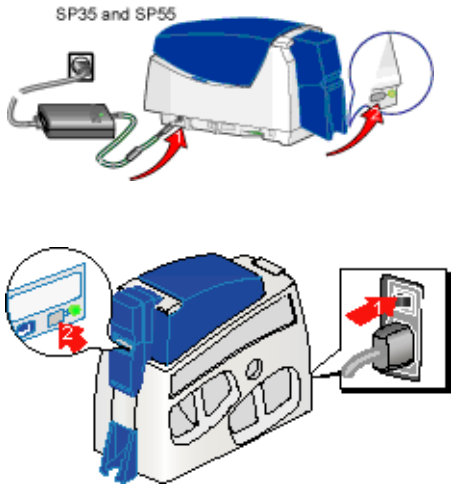
You can make the following types of test cards.

- Printer test cards verify the function of the printer. You print them using controls on the printer. The personalization of the card is determined by the printer, the print ribbon, and modules (such as magnetic stripe) installed in the printer.
- Printer magnetic stripe test cards, which verify that the driver sends magnetic stripe information to the printer and verifies that it is encoded. Use controls in the Printer Toolbox to print magnetic stripe test cards. See "Magnetic stripe test card" for steps to follow.
- Sample cards, which are made using files provided with the driver. Sample cards are made at installation to verify that the printer produces the same result at the factory and at your site.
  See Print a sample card for steps to follow.
- You can also make sample cards using the ID software to test print quality and card design. Do not make sample cards until you are sure the printer and driver work properly (by printing a printer test card).

Making a printer test card

The SP Series printer does not need to be connected to a PC to print this card.

1. Power off the printer.
2. Confirm that cards and print ribbon are loaded in the printer. See the *SP Printer Guide* if needed.
   - If the printer has a magnetic stripe module, the card for a printer test card must have a magnetic stripe.
   - If it is a three-track module, be sure to use blank cards with the correct coercivity (the default is high coercivity) which are shipped in the Starter Kit.
   - If the printer has been installed previously and has used a custom magnetic stripe format, you might need to set the printer to use the default encoding format for the module. See Magnetic stripe setup.
3. Power on the printer (1). Within 5 seconds, press and hold the Ready key (2), as shown in the illustration. Hold the Ready key firmly until the printer sounds three tones and displays “Printer Test Card” on the LCD panel, usually about 15 to 30 seconds.



4. Release the Ready key and observe the printer. You hear the internal components initialize and the printer starts processing the card.

5 After it is printed, remove the card from the output hopper. A printer test card is shown in "Printer test card".

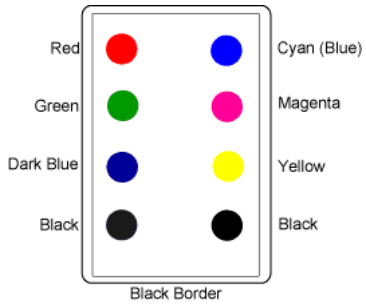
Tips for success

- Press the Ready key firmly. You might need to hold the printer in place as you keep the Ready key pressed.
- Allow 30 to 60 seconds for the printer to begin printing the test card.
- The status light will flash green while the printer is processing the data.
- If the status light is steady amber and the printer beeps, the printer is paused. Press the Ready key once to un-pause the printer.
- If the printer test card did not print successfully, try the procedure again, making sure you follow the instructions. If the test card does not print, or if the printer does not initialize, contact your service provider for assistance.

Printer test card

The printer test card is designed to perform most functions available in the printer.

- Check the following:



- The test card has the pattern shown on the front of the card. (The pattern will be monochrome dots, not colored dots, if the printer uses a monochrome ribbon.)
- If a magnetic stripe module is installed in the printer, the following data is encoded on the card:

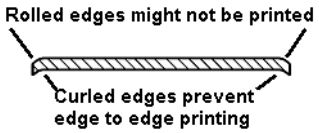
Track	Format	Data
Track 1	(IATA)	TEST PATTERN IATA CHARACTER SUBSET 0123456789
Track 2	(ABA)	01234567801234567890123456789
Track 3	(TTS)	0123456789=9876543210
Track 3	(NTT)	0123456789=9876543210

- The tracks available depend on the type of module installed.
- The magnetic stripe data on the printer test card is generated by the printer and does not test driver-to-printer communication.

Card appearance problems

Problems with card appearance can be the result of the following:

- Image capture tools, such as the camera
- The card creation application, which displays the image
- Limitations in technology, such as differences between how an image looks on the PC monitor and how it looks after it is printed
- Printer maintenance or settings
- Card quality, such as cards that are not flat from the die-cutting process



This section describes possible problems you might observe with the quality of cards you produce with the SP Series printer. To diagnose and fix card quality problems, find the symptom in the tables that follow. For each possible cause, attempt the solutions in the order listed.

The available topics are:

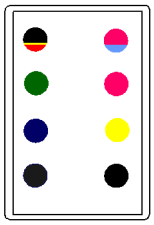
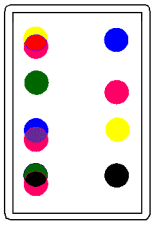
- "Printing appearance"
- "Monochrome printing"
- "Print Topcoat problems"
- "Laminator topcoat problems (SP75 printer only)"
- "Laminator patch problems (SP75 printer only)"

To find the topic that describes how to perform the procedure, do one of the following:

- Type an important word (such as clean or ribbon) in the Index or Search tabs
- Find the procedure in the Contents list for SP Series Info Central.

Printing appearance

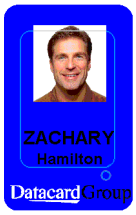
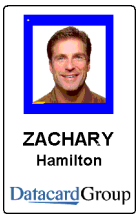
What you see	Possible causes	Solutions
One or more unprinted lines run the entire length of each card. 	The printhead might be dirty or damaged.	Clean the printhead. Print a sample card to confirm that the problem is fixed.
	The card was scratched after it was printed.	Run a cleaning card and then change the cleaning sleeve.
	The printer is positioned next to a device that emits radio waves in excess of regulations.	Move the printer away from the source of radio waves. If cleaning the printhead or moving the printer does not solve the problem, contact your service provider.
No image is printed on the card or the printing is very light. 	The ribbon is loaded incorrectly.	Remove and replace the ribbon.
	The printhead cable might be loose.	Power off the printer. Make sure the printhead cable is securely connected.
	Two cards were picked.	Fan cards before loading them.
	The printhead cable or printhead cartridge might be damaged.	Replace the printhead. If this does not solve the problem, contact your service provider.
	The driver or printer settings might not be correct.	Change values on the Color Settings tab of the Printer Toolbox. If needed, change printhead intensity. If the problem persists, contact your service provider.

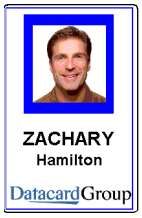
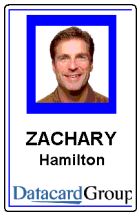
What you see	Possible causes	Solutions
Part of the printed card is not the expected color. 	The ribbon might have been moved while the printer power was off.	The next card will print correctly. If this happens frequently, change the Ribbon Initialization setting. See Card Design Checklist for more information.
	The transparent wheel on the print ribbon cartridge might be dirty.	Clean the wheel using the cleaning pen.
	The transparent wheel on the print ribbon cartridge might be damaged or out of position.	If another print ribbon cartridge is available, see if it fixes the problem. Obtain a new cartridge. If the problem persists, contact your service provider.
One color panel is not aligned correctly with other panels. 	Cards might be slipping in the card track.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	Two cards might have been picked.	Fan cards before loading them.
	The Leading Edge setting might be too close to the edge (a value close to 0).	Change the Leading Edge (edge-to-edge) setting.
	The card might be shorter or longer than specifications, or the card registration might be incorrect.	Change card settings with the guidance of your service provider. If the problem persists, contact your service provider.
Printed images (photos) look faded. 	The image capture system needs adjustment.	See the information for the image capture system.
	Color settings might not be optimal for the card design.	Change color settings.

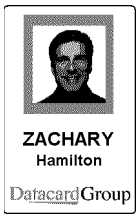
What you see	Possible causes	Solutions
Printed cards, including text, look faded. 	Print ribbon may have been stored improperly or damaged.	Change the print ribbon.
	Color settings might not be optimal for the card design.	Change color settings.
	The cards may not meet specifications.	Obtain and use a different supply of cards.
	The printhead may be dirty.	Clean the printhead.
	The card thickness or type of cards have changed.	Change the brightness setting. Change the intensity setting for monochrome (K) or topcoat.
	The power supply is not the one supplied with the printer from the factory.	Use the factory-supplied power supply (does not apply to SP75) or change the intensity settings.
	The printhead had been changed.	Change the intensity settings. If the problem persists, contact your service provider.
Text is missing from the printed card. 	Text to print on the card was formatted using a non-TrueType font.	Format text to print using only TrueType fonts (does not apply to magnetic stripe text).
The bottom of the card is partly printed. 	The Trailing Edge setting is too far from the edge of the card.	Change the Trailing Edge (edge-to-edge) setting. If the problem persists, contact your service provider.

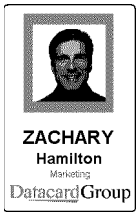
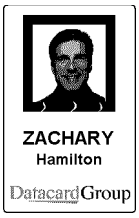
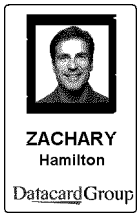
What you see	Possible causes	Solutions
The top of the card is partly printed. 	The Leading Edge setting is too far from the edge of the card.	Change the Leading Edge (edge-to-edge) setting. If the problem persists, contact your service provider.
Printed images (photos) are blurry. 	The image capture system needs adjustment.	See the information for the image capture system.
	The cards have a matte, not glossy, surface.	Use cards with a glossy surface to print sharp images.
	The image needs sharpening.	Change the Sharpness setting on the Color Settings tab.
Printed cards, including text, are blurry. 	The rollers may be dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	The cards may have a very slippery surface or they might not meet specifications.	Obtain and use a different supply of cards.
	The printhead might be dirty.	Clean the printhead. If the problem persists, contact your service provider.

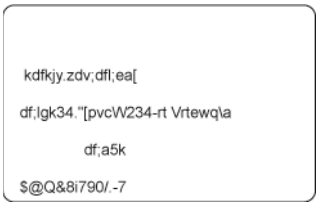
What you see	Possible causes	Solutions
Part of the printed image is discolored.  	Cards might have fingerprints or other dirt on them.	Handle cards without touching the surface to be printed. Wear gloves when handling unprinted cards.
	The cards might be contaminated or otherwise not meet specifications.	Obtain and use a different supply of cards.
	The rollers might be dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	A signature panel is located on the other side of the card.	Redesign the card to avoid printing photos over signature panel residue.
The card shows wrinkles in darkly colored areas of printing. 	The printhead intensity is too high.	Decrease the printhead intensity setting.
	Card stock is thin.	Change the Brightness setting.
	The card includes very dark areas.	Change the image to use lighter colors or smaller areas of dark colors.
	The printhead is not aligned correctly.	Contact your service provider.
A line appears from one long edge to the other. (A dot row is missing in one color panel.) 	The rollers are dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	The cards may have a very slippery surface or they might not meet specifications.	Obtain and use a different supply of cards. If the problem persists, contact your service provider.

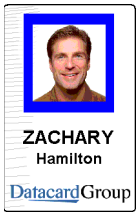
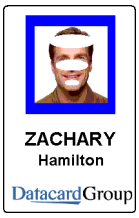
What you see	Possible causes	Solutions
A pattern is visible on the printed card when printing a smart card. 	You are printing on an RF (contactless) card and the card surface is uneven where the antenna and chip are located. (This problem can also occur on the back side of a contacted smart card chip.)	Change the card design to avoid placing a photo or other important feature over smart card components. See the card manufacturer's web site for details. Avoid solid-color and half-tone backgrounds, which can highlight the location of components. If most cards are defective, exchange this card stock for new card stock.
The printed card shows small unprinted spots.  	Unprinted cards include scratches or embedded particles, the card surface is uneven, or the card edge has burrs.	If the problem occurs frequently, obtain and use a different supply of cards.
	The rollers might be dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	Cards might have dirt or debris on them.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
The printed card shows wavy lines along the length of the card (woodgrain pattern or rainbows). 	The print ribbon is not loaded correctly.	Load the print ribbon again. Make sure the cartridge is firmly seated.
	Cards might not meet specifications.	Obtain and use a different supply of cards.
	The printhead might not be aligned correctly.	Contact your service provider.

What you see	Possible causes	Solutions
Part of the printed card is blank. 	Cards might not meet specifications.	Obtain and use a different supply of cards.
	Cards might be dirty.	Clean the printer more often.
	The printhead cartridge might not be installed properly.	Remove and reinstall the printhead cartridge.
All card data is positioned unevenly on the card. 	The Long Edges setting might be incorrect.	Change the Long Edges setting on the Edge to Edge tab of the Printer Toolbox. If the problem persists, contact your service provider.
One front-side margin (on a long edge) is larger than the other. This might appear as one edge of the card being unprinted. 	The print ribbon spools are not pushed completely onto the cartridge spindles.	Push each print ribbon spool onto its spindle until it clicks into place. If the problem persists, contact your service provider.
Printed cards are too dark. 	The power supply is not the one supplied with the printer from the factory.	Use the factory-supplied power supply (does not apply to SP75) or change the intensity settings.
	The printhead has been changed.	Change the brightness setting.
	The card thickness or type cards have changed.	Change the brightness setting. Change the intensity for monochrome (K) or topcoat.

What you see	Possible causes	Solutions
The card is printed upside down (the image is rotated 180 degrees). 	The card creation application has rotated the card.	See the information for the card creation application.
	The driver card rotation setting might be incorrect.	Set the card rotation using the Properties (98 and Me) or Printing Preferences (2000 or XP) dialog box.
The printed image on one or a few cards has high contrast. 	The card had topcoat printed on it and then an image was printed.	Do not re-use cards ejected from the printer.
	The cards might not meet specifications.	Obtain and use a different supply of cards.
Monochrome printing		
Black-and-white images are poorly dithered. 	The image capture system needs adjustment.	See the information for the image capture system.
	Brightness, contrast, or sharpness might not be set for the card design.	Change settings on the Color Settings tab in the Printer Toolbox. If this does not fix the problem, change the intensity setting.
	The card stock might not meet specifications.	Obtain and use a different supply of cards.

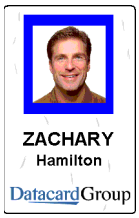
What you see	Possible causes	Solutions
Text printed on the card has broken (partly printed) characters. 	The intensity setting is balanced to print both bar codes and fine text.	If the card does not include a bar code, increase the intensity for monochrome printing. If the card includes a bar code, do one or more of the following to change the text: -Increase the font size -Make the text bold -Remove italic formatting -Change the font (Arial usually prints well)
	The text is formatted to print in color and the card is being printed with monochrome ribbon.	Format the text to print black so the text is not dithered.
Printing with monochrome ribbon has voids.  	You are using an HQ black ribbon (PN552954-601) on a monochrome printer, which can result in ribbon wrinkling.	HQ ribbon is intended for use with a color printer. Switch to regular black ribbon (PN552954-501) if you use a monochrome printer. To use the ribbon you have purchased, reduce the intensity setting for monochrome ribbon.
Printing with a monochrome color ribbon (such as green or red) is uneven, is spotty, or does not cover the card completely. 	The intensity setting is too low.	Increase the printing intensity. Be careful to find a balance between printing all card data and causing wrinkles.
	The card stock requires different settings.	Change card design to obtain the best result possible with the ribbon and card stock. Change the intensity setting if needed.
	You are printing dithered images with a monochrome ribbon.	Printing with light-colored ribbon on dark card stock will not cover the card completely. Print only text and line art with a colored monochrome ribbon.

What you see	Possible causes	Solutions
A card was printed unexpectedly and the text does not make sense.  	On an SP Series printer with the Built-In Ethernet and Open Card options, you have changed the Data Format from Smart Driver™ to Open Card while the driver was sending a card or was polling the printer.	If the Smart Driver™ is installed on a computer and connected to the printer (locally or through the network), suspend communication from the driver to the printer before changing settings on the printer LCD panel.
Print Topcoat problems		
The card shows irregular lighter or darker spots.  	The topcoat panel of print ribbon is wrinkling because the intensity setting is too high. The printhead might not be aligned correctly.	Lower the printhead intensity setting for topcoat. Contact your service provider.
A short edge of the topcoat does not stick to the card.  	The printhead intensity is too low. The card thickness or type of cards have changed. The printhead is not aligned correctly.	Increase the printhead intensity setting for topcoat. Change the brightness settings on the Color Settings tab in the Printer Toolbox. Change the printhead intensity for monochrome (K) or topcoat. Contact your service provider.
Random scratches appear in the topcoat of the printed card.  	The inside of the printer might be dirty. Supplies were mishandled.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers. Store supplies in a clean environment. Keep supplies in their packaging until loaded in the cartridge. If the problem persists, contact your service provider.

What you see	Possible causes	Solutions
A color panel is missing from the printed card. 	You have printed a card when the ribbon was moved after powering off the printer.	The next card will print correctly. If you move the ribbon often with the power off, change the Ribbon Initialization setting to on.
Fine lines appear in the topcoat, usually on one long edge of the card. 	The printhead intensity for topcoat is too high.	Lower the printhead intensity setting for topcoat.
	The card thickness or type of cards have changed.	Change the brightness setting. Change the intensity for monochrome (K) or topcoat.
	The printhead is not aligned correctly.	Contact your service provider.
The topcoat appears dull when the card is held to the light and turned. 	The printhead intensity for topcoat is too high.	Lower the printhead intensity setting for topcoat.
	The card thickness or type of cards have changed.	Change the brightness setting. Change the intensity for monochrome (K) or topcoat.
Oval areas of the topcoat or printing are missing.  	You have selected “User-defined bitmap” in the Print Blocking-Front or Print Blocking-Back setting in Printing Preferences, Properties, or Document Defaults dialog box.	Change the setting to use the correct type of blocking for your card.

Laminator topcoat problems (SP75 printer only)

This section describes problems that might originate when applying topcoat material using a laminator:

What you see	Possible causes	Solutions
Random scratches appear in the topcoat of the printed card. 	The inside of the printer is dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	Supplies were mishandled.	Store supplies in a clean environment. Keep supplies in their packaging until loaded in the cartridge.
Repeating marks appear in the topcoat of the printed card.  	The heated roller is dirty.	Run several cards to see if the problem corrects itself. If you are unable to resolve the problem, contact your service provider for assistance. If the problem persists, contact your service provider.
The holographic topcoat shows irregular darker areas. 	The temperature for applying the holographic topcoat is too high, causing topcoat particles (flash). These particles can become attached to a card.	Attempt to brush the particle off the card. The card might be usable. Run a laminator cleaning card and clean particles from the printer. Lower the laminator temperature for this material.
Particles of holographic topcoat appear beyond the trailing edge of the card. 	The temperature for applying the holographic topcoat is too high, causing excess topcoat particles (flash). These particles can move to a card. Note: Reducing temperature can lessen the number of particles; it will not eliminate them.	Attempt to brush the particle off the card. The card might be usable. Run a laminator cleaning card and clean particles from the printer. Lower the laminator temperature for this material.

What you see	Possible causes	Solutions
The topcoat shows wavy lines along the length of the card (woodgrain or clouds). 	The temperature for applying topcoat is too high.	Lower the laminator temperature for this material.
The topcoat shows opaque areas along a short edge of the card (clouds). 	The temperature for applying topcoat is too high.	Contact your service provider for guidance in correcting this problem.
The topcoat has a spotty appearance, especially on the leading edge of the card. 	The supply material was attached to the take-up spool and then wound in the wrong direction.	The next card should process correctly. If it does not, remove the cartridge and turn the take-up spool clockwise several turns. 

What you see	Possible causes	Solutions
The hologram of the topcoat does not appear on the card.	The Apply Material setting for the laminator is “Do not apply.”	Change the Apply Material setting for the laminator.
	Clear topcoat or patch material is installed in the cartridge.	Remove the cartridge and change the supply material to the desired type.
	The supply material was attached to the take-up spool and then wound in the wrong direction.	The next card should process correctly. If it does not, remove the cartridge and turn the take-up spool clockwise several turns. 
	The topcoat material is not loaded correctly in the cartridge.	Remove the cartridge. Load the topcoat supply in the cartridge again.

What you see	Possible causes	Solutions
A long edge of the topcoat does not stick to the card. (It might have a gray appearance.) 	The temperature of the heated roller is too low.	Increase the laminator temperature for this material.
	The card has a T panel applied as part of the print ribbon.	Holographic topcoat is not designed to be applied to cards with a printed topcoat (T panel). Stop using T panel, switch your ribbon type, or stop using holographic topcoat.
	The cards might not meet specifications.	Obtain and use a different supply of cards.
	The supply material was wound incorrectly to the take-up spool.	The next card should process correctly. If it does not, remove the cartridge and turn the take-up spool clockwise several turns. 
	There might be contamination on the heated roller.	Run several cards to see if the problem corrects itself. If you are unable to resolve the problem, contact your service provider for assistance.
	The heated roller is prevented from pivoting.	Remove cards from the printer. If this doesn't help solve the problem, contact your service provider.

Laminator patch problems (SP75 printer only)

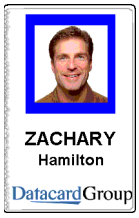
When you apply patch material, you might see problems. Use this topic to address problems you see with laminate (patch).

What you see	Possible causes	Solutions
Proximity cards do not work after laminate is applied.	Debowing is set to on.	Set debowing for the laminator to off.

What you see	Possible causes	Solutions
Cards are bowed (curved) too much. 	Debowing is set to off.	Set debowing for the laminator to on.
	Debow time is not set correctly.	Contact your service provider to change the debow time.
	Temperature is too high for the card stock.	Lower the laminator temperature for this material.
	Card stock does not work with laminator material.	If the material is 1.0-mil laminate and you are using all-PVC cards, switch to composite cards.
The laminate patch comes off the card when it is flexed. 	Temperature is too low for the material.	Increase the laminator temperature for this material.
		Make sure you are using approved card stock.
	A patch is stuck to the heated roller.	Run several cards to see if the problem corrects itself. If you are unable to resolve the problem, contact your service provider for assistance.
Random scratches appear under the laminate patch. 	The inside of the printer is dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	Supplies were mishandled.	Store supplies in a clean environment. Keep supplies in their packaging until loaded in the cartridge.
Repeating marks appear on the laminate patch. 	The heated roller is dirty.	Run several cards to see if the problem corrects itself. If you are unable to resolve the problem, contact your service provider for assistance.

What you see	Possible causes	Solutions
The laminate patch does not adhere to the trailing edge of the card. 	The supply material was attached to the take-up spool and then wound in the wrong direction.	The next card should process correctly. If it does not, remove the cartridge and turn the take-up spool clockwise several turns. 
The laminate patch is not centered between the long edges of the card. 	Supply material is not loaded correctly in the cartridge.	Load the laminator supply correctly.
	The laminator cartridge is not fully seated in the printer.	Push the laminator cartridge firmly to fully seat it.
	You replaced the laminator cartridge.	The laminator material is self-centering. Process several cards without removing the cartridge to allow the material to be centered. If the problem still exists, change the laminator supply advance.
	Supply material is wound unevenly on the supply roll.	Align edges of supply material on the take-up spool.
	The laminator cartridge is damaged.	Use a new laminator cartridge.
The laminate patch shows wavy lines along the length of the card (woodgrain). 	The temperature for applying the supply material is too high.	Lower the laminator temperature for this material.

What you see	Possible causes	Solutions
The laminate patch shows opaque areas at the leading edge of the card (clouds). 	The temperature for applying the supply material is too high.	Decrease the laminator card registration setting to reduce the impact of the temperature at the beginning of lamination.
Laminate patch extends beyond one of the short edges of the card.  	The rollers are dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	There was slack in the supply material.	Apply material on another card. If the problem repeats, go to the next solution.
	The supply material was wound incorrectly to the take-up spool.	The next card should process correctly. If it does not, remove the cartridge and turn the take-up spool clockwise several turns. 
	The card registration or foil registration settings are not correct for your current materials.	Contact your service provider for guidance in changing the laminator card or foil registration. If you cannot fix the problem, contact your service provider.

What you see	Possible causes	Solutions
Particles appear between card and laminate patch. 	The inside of the printer is dirty.	Run a cleaning card and then change the cleaning sleeve. Clean the printer rollers.
	The heated roller is dirty.	Run several cards to see if the problem corrects itself. If you are unable to resolve the problem, contact your service provider for assistance.
	The supplies were mishandled.	Store supplies in a clean environment. Keep supplies in packaging until loaded in the cartridge.
	The printer is being used in a dirty environment.	Move the printer to a clean environment or clean the environment.
The printed card shows wavy lines along the length of the card (woodgrain pattern or rainbows). 	The temperature setting for the laminator material is too high.	Change the laminator temperature setting.
	The heated roller is damaged.	Turn off the power to the printer. Contact your service representative.
	The card stock has features, such as a smart card chip, that interfere with flatness.	Obtain and use cards that meet specifications.
One edge of the laminate patch does not stick to the card and has a wavy appearance. 	The heated roller is prevented from pivoting.	Clean any cards or other objects from inside the laminator area. If you cannot fix the problem, contact your service provider.
	The cards may not meet specifications.	Obtain and use a different supply of cards.

What you see	Possible causes	Solutions
The laminate patch is missing.  	The supply spool is loaded in the cartridge incorrectly.	Load the laminator supply correctly and then send the card to print again.
	The supply was moved and the patch was used previously.	Advance the supply past the used area. If you cannot fix the problem, contact your service provider.

Communication problems

Communication between the printer and PC can be disrupted for many reasons. This section describes causes and possible solutions for the following situations

- "For locally attached printers"
- "For local or network-connected printers"
- "For network-connected printers"
- "Other problems"

For locally attached printers

Problem	Solution
The data cable is loose.	Reconnect the data cable to the port on the PC and the printer. Restart the printer. If the PC and printer still do not communicate, restart Windows.
The data cable is damaged or frayed.	Power off the printer. Replace the cable if you have a spare. Contact your service provider to order a new data cable.
Another electrical device is causing radio interference.	Move the printer away from the source of interference, such as a TV or PC monitor. Use the printer in an environment free of electromagnetic interference.
Another USB device is attached to the PC and the printer and other device do not work together.	Remove the other device and restart the printer and PC. If PC to printer communication resumes, use separate PCs for the printer and the other device. You will need to install the device that gets moved to another PC.
The data cable is too long, or unpowered USB hubs are used between the printer and PC.	See Troubleshooting Installation Problems for specific troubleshooting steps.
The printer was not installed as recommended and now is not connected to the original port.	If you do not allow the Windows Add/Detect New Hardware Wizard to install the printer, the PC can lose track of the printer if it is moved to a different USB connection. Connect the PC end of the USB cable to the same USB port it was originally attached OR remove the driver and install the printer again.
The system has a temporary communication problem.	Click Retry to attempt to print the card data again.
Windows USB components on the PC are not functioning properly.	On Windows 2000 and XP, begin with the printer connected to the PC and powered on. Open the Printers window and observe the printer icon; it should be dark blue when selected. Now, unplug the printer; the icon should change to light gray. If this occurs, the printer USB components and Windows components are operating correctly. On Windows 98 or ME, this test is not as reliable. Also, operating system USB components are not as robust. **Suggestions:** • Service packs and Windows Update, available from Microsoft, often include fixes for USB communication problems. Make sure the PC has the latest service pack installed and that Windows Update is current. • If these changes do not fix the problem, consider upgrading the operating system to Windows 2000 or XP.

Problem	Solution
The PC USB port does not communicate reliably with the printer USB port.	Power management on the PC has shut down USB communication. Open the Device Manager and the list of USB devices. Disable shutdown for each hub in the list. You might need to restart Windows to make the changes take effect. Hibernation on a laptop PC requires several moments to enable USB communication. Unplug the USB printer port and then connect it again. Replace the PC port or the PC. Contact your PC or port vendor if you need assistance.

For local or network-connected printers

Problem	Solution
Other applications on the PC might interfere with data communications.	Many applications that might run on a PC can interfere with communications, often by using all (or most) PC resources. For example, network-connected mail applications can poll a server to send or retrieve items. Depending on the application, network setup, and PC resources, polling can use all PC resources and prevent data transmission either locally or over the network. **Suggestions:** • Close other applications that are not needed. • Consider opening network-connected applications several times daily rather than keeping applications open at all times. • Consider increasing PC resources or using a separate PC for purposes other than printing cards.
Other hardware connected to the PC can interfere with communication.	An application on the PC, such as a card creation application, might use other equipment, such as a camera or a security key. The application must communicate with the device, such as when capturing a photo to be printed on the card. Depending on the application, equipment setup, and PC resources, communication with the device can use all PC resources and prevent data transmission either locally or over the network. **Suggestions:** • Adjust the timing for sending the card to print. Often, a second or two of waiting can correct the problem. • Consider increasing PC resources.
You have selected another printer in the application.	Many PCs have more than one printer installed. In the application you use, make sure that Smart Driver™ is the selected printer.

For network-connected printers

Problem	Solution
The data cable is loose.	Reconnect the data cable to the network port and the printer. Restart the printer.
The data cable is damaged or frayed.	Power off the printer. Replace the cable if you have a spare. Obtain a new Ethernet data cable.
Your network connection is not working properly.	Follow your network troubleshooting procedures to isolate and test each component of the computer-to-printer communication link. **Suggestions:** • The computer-to-network connection can be checked by accessing a network resource, such as a network drive. • The network administrator can check communication between a server and the printer. • Make sure the user is logged in to the network, even for an ad-hoc wireless connection.

The printer is not configured with the correct network address.	Make sure that you have entered the server name or IP address in the Port Settings or Configure Port dialog box on the computer. If your network uses DHCP, the IP address can change whenever the printer is disconnected or powered off. For details, see Network Installation: Set up the network printer.
Cards sent from a client PC are not printing.	The host PC used for shared printing can be disconnected or powered off. An authorized user must be logged on to the host PC for cards to print. Messages might be displayed on the host PC and need to be cleared before printing can resume. **Suggestions:** • Implement procedures to permit all users who need to print to do so. • Consider attaching the printer to the network using a print server to enable direct network printing.

Other problems

Also consider the following problems, which can seem similar to communication problems:

Problem	Solution
The printer is shared with another PC, and an interactive mode (smart card or read magnetic stripe) job was sent from the host PC.	Interactive mode jobs, including smart card jobs and read magnetic stripe jobs, are not supported for shared printers. Do not send interactive mode jobs to a shared printer.
The printer driver was upgraded, but you did not restart Windows before trying to print a card.	Restart Windows after upgrading the driver to enable printing cards.
On Windows XP and Windows 2000, the user does not have permission to the folder used to temporarily store the card data.	Show this topic to the Windows administrator and ask for assistance.
On Windows XP, 2000, and NT, the user does not have permissions to write to the registry.	Show this topic to the Windows administrator and ask for assistance. See Changing User Permissions to the Registry.
The Windows Print Manager is not operating correctly.	Close all applications and restart the PC. On Windows 2000 or XP, restart the Print spooler. See Windows 2000 or XP help for more information.

Magnetic stripe problems

This section helps you to troubleshoot magnetic stripe problems.

Magnetic stripe test card

If the printer includes a magnetic stripe module, you can print a magnetic stripe test card. The card uses the magnetic stripe settings in the Properties or Printing Preferences dialog box.

Use this card to verify that the printer encodes a card correctly.

Tips for success

- If the printer is set to print a custom magnetic stripe format, it will not print this test card successfully. The driver will display a message indicating that the data does not meet the requirements for the magnetic stripe track or that it cannot read the data.
- The printer must be connected to the PC with the driver installed, and both printer and PC must be running.

1. Make sure that the Printer Toolbox is open. If needed, double-click the printer icon in the system tray to open the Printer Toolbox.
2. Make sure that magnetic stripe cards are loaded in the card cartridge. The magnetic stripe must be oriented with the stripe down and toward the right side of the printer (toward the name label).
3. Click once on the Print Mag Stripe Card button in the Printer Toolbox. The printer driver formats card data for the type of module installed, as follows:
   - Three-track: IAT formatted data (IATA data on track 1, ABA data on track 2, and TTS data on track 3).
   - NTT track: NTT formatted data on the track.
   - See Magnetic Stripe Setup for more magnetic stripe information.
4. Remove the card from the card output tray.
5. Test the card by passing it through a card reader that will display the data encoded on the card. The encoded data should match the data printed on the test card.

Common magnetic stripe problems

This section lists some common problems that can occur when encoding magnetic stripe data and provides solutions.

Problem	Solution
Cards are not oriented correctly in the card tray.	Load cards correctly in the card tray.
Cards do not have a magnetic stripe.	Load magnetic stripe cards in the card cartridge. If the cards have a magnetic stripe, check the quality of the cards. Change card stock if needed.
The *card* has dirt or damage on the magnetic stripe.	Encode and print the card again. If the message appears again, run a cleaning card to clean the magnetic stripe head.
The magnetic stripe on the *card* is low coercivity material and the High Coercivity setting is selected.	To use the cards you have, select low coercivity encoding. To encode with high coercivity, obtain cards manufactured for high coercivity encoding.

Problem	Solution
The magnetic stripe on the *card* is high coercivity material and the Low Coercivity setting is selected.	To use the cards you have, select high coercivity encoding. To encode with low coercivity, obtain cards manufactured for low coercivity encoding.
The magnetic stripe *module* did not read the data encoded on the card successfully.	Run a cleaning card to clean the magnetic stripe head. If the message appears often, contact your service provider and inform them of the problem.
The *data* for this job has more characters than allowed by the magnetic stripe format selected for the track.	Cancel the current print job. Make sure you know what data is allowed on the track. (See the Administrator for your system to obtain information about the data allowed for each track.) Change the data to be encoded, and resend the print job.
The *data* for this job includes characters not allowed by the magnetic stripe format selected for the track.	Cancel the current print job. Make sure you know what data is allowed on the track. Change the data to be encoded, and resend the print job.
The magnetic stripe *data* was sent in an encoding format not supported by the track.	This problem most often occurs when the driver is set to “Use Printer Setting” for the Encoding Format. Check the encoding format setting for the tracks by using Printer Diagnostics. Make sure the application is using the selected encoding format for the track. If the application and track are set to the same format, and the message appears repeatedly, contact the application provider for assistance.
The *application* sent track data for a track not supported by the magnetic stripe module.	Check the type of magnetic stripe module in the printer. If the printer label indicates an IAT module, you can send data for tracks 1, 2, and 3. If the printer label indicates an NTT module, you can send data for track 3. The magnetic stripe module and cards must be capable of accepting and encoding each track of data the card creation program sends.

How to identify the track format

An authorized user can use Printer Diagnostics to identify the track format. On the Mag Stripe Configuration page, the track format is displayed for each track.

- If the format is Custom, your service provider should tell you what the track length and allowed characters are.
- If the format is Binary, your application controls the data. See information for the application for allowed characters and track length.

Obtaining service

This section contains:

For repair assistance, contact your service provider. Place the service call from a telephone close to the printer so that you can access the printer and the PC running the driver while talking to the customer support representative.

Your service provider should record information about how to contact them on the back cover of the Printer Guide shipped with the printer. If you do not know how to contact your service provider, contact Datacard, who can direct you to your service provider. See the inside of the front cover of the Printer Guide.

Before you call for service, make sure you have the information recorded during troubleshooting, as described in this e-Guide. Also, make sure you have the serial number of the printer. It is located on a label that is visible on the left side of the printer when you open the top cover of the printer.

When to obtain service

Perform the steps at the beginning of this chapter before obtaining service. Call for service if:

- A troubleshooting process instructs you to call service
- A troubleshooting process does not produce the expected result
- You experience a problem repeatedly

Packing the printer for shipping

When service asks you return the printer to a service center for repair, pack the printer for shipping. You might also need to pack the printer to send it to another location.

1. Turn off power to the printer.
2. Remove the power cord from the printer and power receptacle. Remove the data cable and any other cables attached to the printer.
   - If you are shipping the printer to use at another location, pack the power supply, power cord, data cable, and any other cables in the accessories tray.
   - If you are shipping the printer for service, do not ship cables with the printer unless asked to do so.
   - Service might ask you to ship cards or additional samples of your current supplies. If service requests cards or supply samples, place them in the accessory tray to prevent damage to the printer.
3. Remove all cards from the input hopper, output hopper, (reject bin for SP75), and printer. Do not ship cards unless asked to do so.
4. Remove the continuous cleaning roller from the printer unless asked to return it. Put the spindle with other accessories, such as the Printer Guide.
5. Make sure the input hopper door is firmly closed.
6. Close the top cover.
7. Use the original shipping carton, plastic bag, and foam shipping supports.
8. Place the plastic bag around the printer.
9. Make sure the bottom shipping support is in place.
10. Place the printer in the shipping carton, resting in the shipping supports.
11. Place the top shipping support in place.
12. For SP35, place the accessories tray in the shipping carton, on the top.

13 Close the shipping carton.

14 Secure the carton with shipping tape. Be sure to wrap around the shipping carton several times to secure it.

15 Put a shipping label on the carton. If you are returning the printer for service, use the address provided by service.

Installing Printer Diagnostics

Your service provider might ask you to use Printer Diagnostics to identify whether problems with the printer can be solved at your location or if it must be repaired at a repair depot.

You can obtain files to install Printer Diagnostics in one of the following ways:

- The printer driver CD-ROM includes Printer Diagnostics. Choose Driver Support Programs and then Printer Diagnostics to extract installation files.
- The downloads area of www.datacard.com includes files to install Printer Diagnostics. Choose the utilities area and then download the Printer Diagnostics file.

Tips for Success

- The printer driver must be installed and communicating with the printer to use Printer Diagnostics.
- If you update the driver, also update Printer Diagnostics.
- The Printer Diagnostics utility is intended for use by Datacard-authorized service providers, including depot and field engineers. Service providers must be certified to repair the printer on which this utility is used. This program is also for use by owners of Datacard printers working at the direction of their Datacard-authorized service provider.
- **Caution:** This utility provides access to values that, if changed, can disable printer operation. Printer owners use the Printer Diagnostics utility at their own risk.

1 Close all applications. Do not close Windows.

2 Start the installation program. Do one of the following:

- From CD-ROM:
  - **a** Insert the Smart Driver™ CD-ROM in the PC drive. the Smart Driver™ window opens.
  - **b** Click Printer Support. The Printer Support Programs window opens.
  - **c** Click Printer Diagnostics to start the installation wizard.
- From a downloaded file
  - **a** Use Windows Explorer or My Computer to browse to the location of the file.
  - **b** Double-click the file to open it and click OK and then Unzip to extract files.
  - **c** Click OK when complete. The installation wizard starts.

3 On the installation wizard, click Next

4 A Prompt appearing asking whether you would like to view the Read Me First file.

- **a** Click Next to display the file in Word Pad.
- **b** Close WordPad when you are done and ready to continue with installation.

5 Click Next to use the default location.

6 Keep the default Programs location or choose another location and then click Next to begin file copying.

7 Click Finish to close the installation wizard.

8 If you installed from CD-ROM, close the Smart Driver™ window and remove the CD-ROM.

9 If you installed from downloaded files, you can delete the C:\Diags folder (and the downloaded file) from the PC.

SP Series Supplies and Parts

The printer uses supplies, similar to a paper printer. The following describes how the supplies are similar and different.

- Where a paper printer uses paper that you can purchase at an office supply store, the SP Series printer uses cards that you purchase from a dealer.
- Similar to paper, there are different types of cards. For cards, you can use magnetic stripe cards, cards with a signature panel, or cards with a smart card feature. You can also use cards with more than one special feature.
- Also similar to paper, cards can be different quality. High quality cards are cleaner, smoother, more even, and more white. They result in better printer operation and the appearance of the printed cards is more pleasing.
- Paper printers can use an ink cartridge or a toner cartridge. Older dot-matrix printers use a print ribbon. The SP Series printer uses a print ribbon. The print ribbon can be a single color (monochrome) like a toner cartridge, or the print ribbon can have color panels, similar to a color ink jet cartridge. For the SP Series printer, color ribbons have panel sets (Y=yellow, M=magenta, C=cyan, K=black, F=fluorescent, and T=topcoat), which is different from many ink cartridges. For printers with the duplex option, you can use a color ribbon designed for two-sided printing (Y=yellow, M=magenta, C=cyan, K=black, T=topcoat on front, K=black and T=topcoat on back). Using different supplies for printing on two sides is also different from paper printing.
- Paper printers that use ink can have pages that are damaged by water or other contaminants. The color (YMC) applied to the card from the print ribbon can be damaged by ultraviolet light, solvents, and wear. To protect the printed card, the SP Series printer applies a topcoat (T panel) after printing the color and K panels. This protection is not available for paper pages.
- Some paper printers include cleaning tools, and recommend using them when you change the toner cartridge. The SP Series printers also uses cleaning supplies: a cleaning card that runs through the printer and a cleaning sleeve that stays in the printer. With the SP Series printers, you can also use a cleaning pen.
- Paper printers often have the ink or toner in a cartridge that also functions in applying the image to paper. The SP Series printers use a printhead cartridge, which is separate from the print ribbon. It is different from paper printers in this way. The printhead cartridge is replaceable.
- For security, paper can have embossing, water marks, or non-photocopy images. For cards, you can use the F (fluorescent) panel to provide a similar security feature. For SP Series printers with one or more laminators, holographic or similar images can be applied as part of a topcoat or patch.
- For durability, paper can be laminated with a thick plastic sheet that extends beyond the edge of the paper to seal the images and the paper. Plastic cards are durable without extra laminate. In addition, SP Series printers with one or more laminators can add durability to printed images by applying laminate material to the cards.

This section describes the supplies you use with the SP Series printer. It also describes replacement parts that you might want to order.

Supplies and cards

This section describes Datacard®-certified supplies for SP Series card printers. Specifications, part numbers, and storage tips are provided. This section contains:

Print ribbons

Ribbon kits contain a roll of print ribbon, a cleaning card, and a replaceable cleaning sleeve. Datacard® recommends that you run a cleaning card and replace the cleaning sleeve each time you change the print ribbon.

Color print ribbon

Color print ribbon for SP Series printers uses Advanced Imaging Technology™.

The following table shows the color ribbons available and the printer(s) in which each can be used:

Name	Part number	Images	SP35 printer?	SP55 printer?	SP60 printer?	SP75 printer?
YMCKT Color Ribbon Kit	552854-504	up to 500	Yes	Yes	No	Yes
YMCKT Color Ribbon Kit	552854-204	up to 250	Yes	Yes	No	Yes
YMCKT-KT Color Ribbon Kit	552854-506	up to 300	No	Yes	No	Yes
YMCKT Color Ribbon Kit	552854-604	up to 500	No	No	Yes	No
YMCKT-KT Color Ribbon Kit	552854-606	up to 300	No	No	Yes	No
YMCK Color Ribbon Kit	552854-502	up to 500	No	No	No	Yes
YMCK-K Color Ribbon Kit	552854-510	up to 500	No	No	No	Yes
YMCKF-KT Color Ribbon Kit	552854-514	up to 300	No	No	No	Yes

The SP Series printer features Datacard® proprietary ribbons designed specifically for the SP Series printer. When the printer recognizes that a Datacard® ribbon is installed, all enhanced product features are enabled and successful card printing can begin. The printer will only print color images when Datacard® proprietary color ribbons are installed. Datacard® is your exclusive source for proprietary ribbons for the SP Series printer.

Monochrome and Topcoat ribbon

Ribbon with alternating Monochrome (K) and Topcoat (T) panels is available for SP Series printers as part of the KT Color Ribbon Kit, part number 552854-509. A roll of ribbon prints up to 1000 images.

Monochrome print ribbon

Several colors of monochrome (single-color) print ribbon are available for SP Series printers. A roll of ribbon prints up to 1500 images (if ribbon-saver is not used).

Available colors include:

Color	Part number	SP35 printer?	SP55 printer?	SP60 printer?	SP75 printer?
Black	552954-501	Yes	Yes	Yes	Yes
Black HQ	552954-601	No	Yes	Yes	Yes
Dark Blue	552954-502	Yes	Yes	Yes	Yes
White	552954-503	Yes	Yes	Yes	Yes
Red	552954-504	Yes	Yes	Yes	Yes
Green	552954-506	No	Yes	Yes	Yes
Silver	552954-507	Yes	Yes	Yes	Yes
Gold	552954-508	No	Yes	Yes	Yes
Scratch-off	552954-513	Yes	Yes	Yes	Yes
Metallic Silver	552954-607	No	Yes	Yes	Yes
Metallic Gold	552954-608	No	Yes	Yes	Yes
Metallic Holographic Fleck	552954-609	No	Yes	Yes	Yes

When you use most monochrome-only print ribbons in SP35, SP55, and SP60 printers, use a printhead cartridge designed for monochrome printing for optimum results. For most card designs, you can print with a Black HQ ribbon using a color printhead. When you use a color ribbon that includes a K (monochrome or black) panel, use a color printhead cartridge. See "Printhead cartridge" for details.

Laminator material

This section applies only to the SP75 printer.

Datacard provides two types of materials for use in laminators:

- Datacard® Duragard® laminate, which has die-cut patches sized to fit on a card
- Topcoat, which is a continuous film

For more information about these materials, see Laminator Setup.

Available laminator material includes:

Name	Part number	Appearance	Type

DuraGard laminate	562750-001	Clear	0.5 Mil
DuraGard laminate	562751-001	Clear	0.5 Mil smart card
DuraGard laminate	562752-001	Clear	0.5 Mil magnetic stripe
DuraGard laminate	562753-001	Clear	1.0 Mil
DuraGard laminate	562754-001	Clear	1.0 Mil smart card
DuraGard laminate	562755-001	Clear	1.0 Mil magnetic stripe
DuraGard laminate	562756-001	Holographic	0.6 Mil
DuraGard laminate	562757-001	Holographic Registered	0.6 Mil
DuraGard laminate	562758-001	Holographic	0.6 Mil smart card
DuraGard laminate	562759-001	Holographic Registered	0.6 Mil smart card
DuraGard laminate	562760-001	Holographic	0.6 Mil magnetic stripe
DuraGard laminate	562761-001	Holographic Registered	0.6 Mil magnetic stripe
DuraGard laminate	562762-001	Holographic	1.0 Mil
DuraGard laminate	562763-001	Holographic Registered	1.0 Mil
DuraGard laminate	562764-001	Holographic	1.0 Mil smart card
DuraGard laminate	562765-001	Holographic Registered	1.0 Mil smart card
DuraGard laminate	562766-001	Holographic	1.0 Mil magnetic stripe
DuraGard laminate	562767-001	Holographic Registered	1.0 Mil magnetic stripe
Topcoat	562810-001	Clear	
Topcoat	562811-001	Holographic	
Topcoat	562812-001	Holographic Registered	

You might use custom materials similar to those listed above.

Supply roll storage guidelines

Follow these guidelines when storing supply rolls:

- The print ribbon maintains its quality for about one year. For optimal card quality, purchase and store quantities that you can use up in less than a year.
- The print ribbon and card stock might require secure storage and tracking. Follow your policy for storing and tracking the supplies used to make cards.
- Choose a location away from direct sunlight, with a temperature between 32° F and 77° F or between 0°C and 25° C. A humidity range from 40% to 60% (non-condensing) is recommended.
- Supply rolls should be at room temperature when they are installed in the printer and used. If supplies are stored in a cooler environment than the printer, allow supplies to reach room temperature before using.
- If the printer will not be used for an extended period of time, remove supplies from the printer and store them with new supplies.

Cards

This section describes specifications and quality guidelines for card stock to use with the SP Series printer. It also describes the environmental specifications for storage of card stock.

For best results with the SP Series printer, use high-quality card stock that meets the specifications and recommendations described in this section.

Card size

Use CR-80 size cards with the following nominal dimensions:

Length	3.37 inches	85.60 mm
Width	2.125 inches	53.98 mm
Thickness with smart card chip (contactless)	0.030 to 0.050 inches	0.762 to 1.27 mm
Thickness with smart card chip (contact)	0.030 to 0.040 inches	0.762 to 1.016 mm
Thickness with mag stripe, not laminated	0.020 to 0.040 inches	0.508 to 1.016 mm
Thickness with mag stripe, laminated	SP75 only: 0.030 to 0.040 inches	0.762 to 1.016 mm
Thickness for printing and laminating	SP75 only: 0.030 to 0.050 inches	0.762 to 1.27 mm
Thickness for printing only	SP35, SP55: 0.010 to 0.050 inches	0.254 to 1.27 mm
	SP75: 0.020 to 0.050 inches	0.508 to 1.27 mm

Actual card thickness can vary by up to ten percent from the sizes listed. Smart card chips can be raised slightly from the printing surface.

Typically, card bow must be less than the thickness of the card.

Card material

Use cards made of the following types of material:

- Glossy PVC surface, either 100% PVC cards or composite cards with a PVC surface.
- Cards with a magnetic stripe on one side of the card.
- Cards with a smart card chip on the top of the card. Depending on the module installed in the printer, contact-type, contactless, or both types of smart card chips can be programmed.

Embossed cards cannot be processed in the SP Series printer.

StickiCards

Datacard® StickiCard™ adhesive-backed cards, part number 597640-001, can be used. StickiCards are used to make personalized cards that can be adhered to proximity cards when the card surface is not flat enough to print. The printing surface of the StickiCard (white side) meets the material requirements for use in the printer.

When using StickiCards, follow these guidelines:

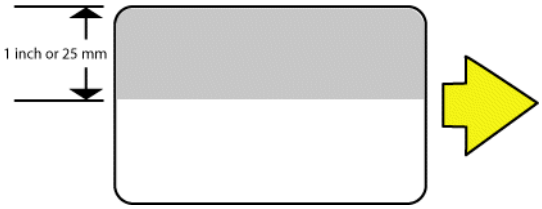
- Store cards in a cool place (such as a refrigerator) to avoid adhesive migration.
- Fan cards before loading them in the input hopper.
- Clean the printer's card tracks to remove any adhesive residue. Use the printhead cleaning pen or isopropanol and a swab to remove the residue.
- Use a print margin of 0.1 or 0.05 inch with StickiCards.
- Do not apply laminator material to Stickicards.

Contactless smart cards

Contactless smart cards are also called RF (radio frequency) cards and proximity cards. Contactless smart cards can have an irregular surface where the internal components of the card are located. You might modify the card design to avoid printing photos or other images over the internal components of the card.

Pre-punched cards

Datacard® recommends that you punch cards after printing them. However, you can use pre-punched cards with the SP Series printer as long as the hole is free of raised areas or burrs. In the following illustration, the gray area shows where punched areas are allowed.



- The cards can only have a punched area within 1.0 in (25.4 mm) of the left-hand edge, as the cards are loaded in the input hopper. (This dimension includes tolerance.)
- If the card has a magnetic stripe, the card cannot be punched anywhere in the stripe.

- Applying DuraGard patch to pre-punched cards is not recommended, unless you punch the card after laminating to remove the patch material.

New cards preferred

The SP Series printer is designed to print on new card stock. If you print on cards twice, be careful to avoid getting dirt, fingerprints, or other contamination on cards before the second printing. Previous printing can interfere with printing and result in cards that do not have the appearance you want. Printing on cards that have been issued might introduce substances that interfere with card printing or damage the printer. See Card appearance problems to address card appearance problems with pre-printed cards.

If a previously printed card has been printed with topcoat, the card cannot be printed a second time.

Card quality guidelines

Your cards must meet the following card quality guidelines for the printer to print high quality graphics on them successfully.

Card surface

- The card must be free of irregularities such as particles embedded in the surface.
- The card surface must be smooth and even. Surface irregularities can cause loss of contact, resulting in printing (or laminating) voids.
- The printing surface must be glossy. It cannot have a matte finish (see "Card material" for more information).
- Card edges must be free of raised burrs, which can cause unprinted (or unlaminated) areas on cards (printing voids). This is especially true when printing edge-to-edge.

Card handling

These guidelines apply to unprinted cards. Any debris or particles on an unprinted card's surface can reduce print quality and damage the printhead. Grease or oils, such as oils from your fingers, also reduce print quality.

- Keep cards completely clean.
- Do not touch the print surface of a card with your fingers or hands.
- Do not use a rubber band to bind blank cards together.
- If you drop a card on the floor, do not insert it into the printer.

Card storage

These guidelines apply to both printed and unprinted cards.

- Cards must be stacked so that they will not shift and rub against each other.
- When storing cards, make sure that no two cards contain images or blocks of color that will come in contact with each other.
- Make sure that the magnetic stripe on one card does not come in contact with the magnetic stripe on another card.
- Make sure that cards with magnetic stripes are stored away from magnets and other magnetic objects.

Card storage specifications

The cards should be stored in a cool, dry, and dark place. Excessive light can cause yellowing of cards on exposed edges. Keep cards in their original packaging.

Cards should be at room temperature when they are installed in the printer and used. If cards are stored in a cooler environment than the printer, allow them to reach room temperature before using.

Cleaning supplies

The printer uses the following cleaning supplies.

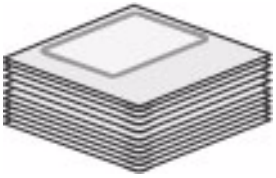
- Printer cleaning cards
- Replaceable cleaning sleeves
- Printhead cleaning pen
- Laminator cleaning cards (SP75 only)

The print ribbon kit includes a cleaning card and a replaceable cleaning sleeve. Datacard® recommends that you keep additional cleaning supplies on hand to address unusual situations.

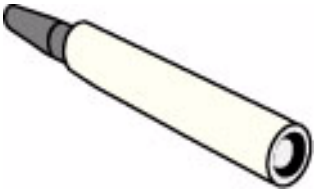
You can order:

- A package of 5 replaceable cleaning sleeves, part number is 549716-002.

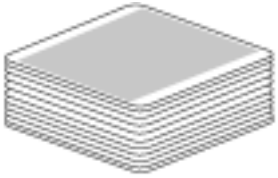
- A package of 10 printer cleaning cards, part number is 552141-002.



- A cleaning pen, part number is 557492-001, which can be used eight times, to clean the printhead or other internal parts of the printer.



For the SP75 printer only, a package of 10 laminator cleaning cards, part number 558436-001.



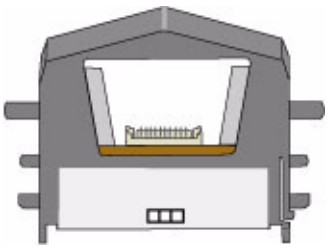
Printer components

This section describes the additional or replacement printer parts you can order. This section contains:

Printhead cartridge

The printer has a replaceable printhead cartridge. The printhead is subject to wear or damage and has a direct impact on print quality. The silver label on the printhead shows the printhead type. The following printheads are available.

Printhead type	Printhead label	Part number	SP35 printer?	SP55 printer?	SP60 printer?	SP75 printer?
Full color	YMC	551439-999	Yes	Yes	Yes	Yes
Monochrome	K	551439-998	Yes	Yes	Yes	No



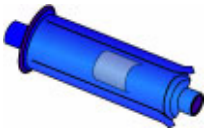
Do not touch the printing edge of the printhead in the printhead cartridge. If you do, use the cleaning pen to clean it. For steps to follow, see Cleaning the printhead.

Print ribbon cartridge

You can purchase an additional print ribbon cartridge.The print ribbon cartridge is part number 551516-999.

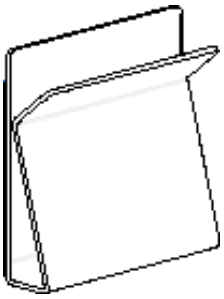
Cleaning roller spindle

The cleaning roller spindle holds the replaceable cleaning sleeve. The part number is 551148-001.



Printer Guide holder

The Printer Guide holder attaches to the printer to keep the Printer Guide available to users. The part number is 558359-001.



USB data cable

SP Series printers can use a USB data cable to connect the printer to the PC.

- SP55, SP60, and SP75 printers use a USB cable with part number 807614-001.

- The SP35 printer uses a USB cable with part number 807614-002

You must provide a network data cable if you use one.

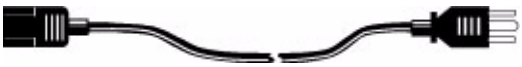
Power supply

SP35, SP55, and SP60 printers use a power supply rated at 100-240 VAC, 50-60 Hz. The power supply is part number 808403-001.

Power cable

The printer uses one of the following power cords:

- U.S. power cable (part number 804517-001)



- European power cable (part number 806842-001)
- Australian power cable (part number 806842-002)
- United Kingdom power cable (part number 806842-003)
- Danish power cable (part number 806842-004)
- Indian power cable (part number 806842-005)
- Israeli power cable (part number 806842-006)
- Italian power cable (part number 806842-007)
- Swiss power cable (part number 806842-008)
- Chinese power cable (part number 806842-009)
- Japanese power cable (part number 806913-001)

Smart card cable

If the printer has a smart card module, it uses a smart card cable to connect the smart card port and the PC. Use a cable that matches the port(s) installed in the printer. The following cables are available:

- Serial cable
- USB cable

Serial cable

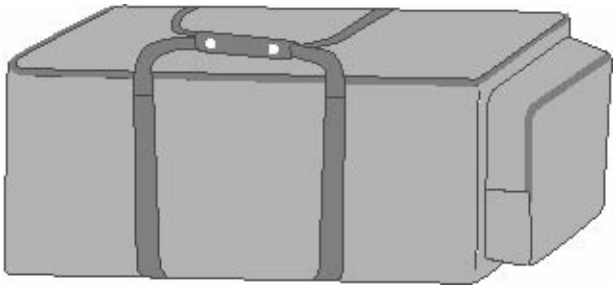
The smart card serial cable must be a shielded DB9 serial cable, up to 3 meters long maximum. The smart card serial cable is part number 805815-004.

USB cable

The USB cable must be a Type CM 30V, up to a maximum of 2 meters long. The smart card USB cable is part number 807614-001.

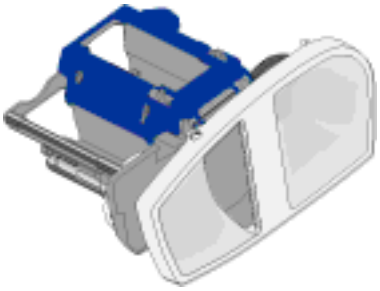
Carrying case

The carrying case for an SP35, SP55, and SP60 printer is part number 553950-002.



Laminator cartridge

For the SP75 printer only, the laminator cartridge is part number 558318-999.



High-capacity output hopper

For the SP75 printer only, the optional high-capacity output hopper kit is part number 564051-001. Holds up to 100 cards.

Related publications

This section describes publications for the printer.

- SP35 Printer Guide, part number 553772-003

  This manual provides basic information about using the printer and driver, and how to care for the printer. It also includes the warranty statement and the installation report.

- SP35 Installation Map, part number 539252-002

  This sheet provides a streamlined installation process for typical one-printer-to-a-PC installation. It also shows supplies and equipment shipped with the printer.

- SP55 Printer Guide, part number 554733-002

  This manual provides basic information about using the printer and driver, and how to care for the printer. It also includes the warranty statement and the installation report.

- SP55 Installation Map, part number 539336-001

  This sheet provides a streamlined installation process for typical one-printer-to-a-PC installation. It also shows supplies and equipment shipped with the printer.

- SP Series Network Printer Guide, part number 554733-002

  This manual provides basic information about using the SP55 printer with the built-in Ethernet and Open Card options and the SP60 printer, and how to care for the printer. It also includes the warranty statement and the installation report.

- SP Series Network Quick Install Guide, part number 539336-001

  This guide provides streamlined installation processes for local and network installation of the SP55 printer with the built-in Ethernet and Open Card options and the SP60 printer. It also shows supplies and equipment shipped with the printer.

- SP75 Quick Install Guide, part number 559455-001

  This manual provides basic information about using the printer and driver, and how to care for the printer. It also includes the warranty statement and the installation report.

- SP75 Installation Map, part number 539410-001

  This sheet provides a streamlined installation process for typical one-printer-to-a-PC installation. It also shows supplies and equipment shipped with the printer.

- SP Series Info Central, part number 539289-001

  The online e-Guide provides advanced information, such as how to connect two printers to one PC. Info Central collects all the online information under one desktop icon. It can be download from www.datacard.com or installed from the User Information area of the driver CD-ROM.

- Smart Driver™ API Software Developer's Manual, part number 526720-001

  This manual is part of the Smart Driver™ Software Developer's Kit (557214-001) and provides information to programmers who are developing applications to print to Datacard® printers, including the SP Series printers. This manual is available only as part of the kit.

- SP Series Service Library CD-ROM, part number 539445-001

  This CD provides information to service providers who maintain or repair SP series printers.