

Understanding Digital Images

The TROY Digital Images are typically stored onto a device (DIMM, SIMM, font card) that is physically installed into a TROY Security Printer or provided as a resource file for use in devices such as the TROY Secure Resource Bank. Each Digital Image: signature(s), logo(s), etc., are converted and stored individually as a non-scalable (fixed-size) font, not a graphic image. There are many benefits to storing these images in a font format: speed, ease of use and software application/platform independent. To better understand how Digital Images are used as fonts, review the following example:



The example shown above demonstrates a "signature" digitally created into a font. The Digital Image is broken up into fixed-size cells and then *each* cell is assigned to an ASCII character. Combining all the ASCII characters create the entire image. This pattern is called the *character matrix*. Note: The character matrix pattern may vary. For the specific pattern for each custom image, please refer to your *TROY Digital Image Data Sheet* documentation. This document was supplied with your order. The information on this document is very important and it is recommended to save the information in a secure place.

There are two methods to access the TROY Digital Images. For Microsoft Windows, refer to the section titled *Using TROY Digital Images with Microsoft Windows*. For programming outside the Microsoft Windows environment, refer to the section titled *Programming TROY Digital Images (non-Microsoft Windows)*.

Using TROY Digital Images with Microsoft® Windows™ (Hewlett-Packard Printers)

- The Hewlett-Packard PCL 5e printer driver must be installed on the host computer prior to loading the TROY Digital Image support files.
- Please have the TROY Digital Image Data Sheet available for this process. Information from this documentation will be needed to complete the installation.
- Before access to the TROY Digital Images is available, the following process must be completed. This process installs the necessary support files/resources required into the Microsoft Windows operating system environment. This process must be completed on each computer that requires access to the digital images.

Installing the TROY Digital Image Printer Fonts for Windows™ 98SE / ME

1. Close all applications before installing the TROY Digital Image support files.
2. Insert the TROY CD/floppy into your computer's CD-ROM/floppy drive. **NOTE:** If the support files were sent by email or downloaded from the <<http://www.troygroup.com>> website, extract the support files to a temporary folder and make a note of the location. When reference is made to access these files, navigate to the folder that contains the extracted support files.
3. From the **Start** menu, click on **Settings**, and then click on **Printers**.
4. Right-click on your printer icon, and then click on **Properties** from the pop-up menu. If multiple printers are installed, make sure the correct printer icon is selected. Remember the printer selected must be the PCL 5e language driver, not Postscript or other printer language.
5. Click on the **Configure** tab located at the top of the **Properties** window.
6. Within the **Other Options** category, click on the **More** button. Some printer driver versions may not display the **Other Options** category. If this is the case, simply skip to the next step.
7. Within the **Fonts** category, place a check mark in the **Font DIMMs** (or **Font Cards**) checkbox, and then click on the **Configure** button (with some printer driver software versions, the **Configure** button may already be "clicked"). A new window will open labeled **Configure Font DIMMs** (or **Configure Font Cards**).
8. Click on the **Add** button to open the **Add Font DIMM** (or **Add Font Card**) window.
9. Click on the **Browse** button to open a Windows Explorer-style window. Click on the down-arrow in the **Drives** box to select the CD-ROM drive on your computer. Double-click on the **Support Files** folder from the list of folders, double-click on the **HPD files** folder, and then double-click on the **Imaging** folder.
10. Refer to the **TROY Digital Image Data Sheet** for the section labeled **Windows Support Information** and note the **Font Metrics** section, which displays the Windows support file and point size (9, 12, or 72 point size) for your TROY Digital Image(s).
11. Double-click on the appropriate folder: **Image (9 points)**, **Image 12 points**, or **Image (72 points)**, and then click on the file in that folder (example: **72201210.hpd**), and then click on **ADD** to add the digital images. Windows can support up to ten digital images. If the Font Metrics section of the TROY Digital Image Data Sheet does not have a file name but states "Custom Metrics Required", contact the TROY Digital Imaging Department for information on obtaining Windows support files for special orders.
12. Click on **Open** or **OK** (the displayed window may vary depending on the operating system being used). With some printer drivers, the **Add Font DIMM** (or **Add Font Card**) window will appear. If this window appears, simply click on **OK** to close the window.

13. Within the *Configure Font DIMMs* (or *Configure Font Cards*) window, verify the installation by clicking on the font DIMM (or Font Card) name (**TROY Image Set...**) listed under *Installed DIMMs* (or *Installed Font Cards*). Within the *Fonts on DIMM* (or *Fonts on Card*) list, the **TROY Image... (Enabled)**, etc. will be listed. **NOTE:** Up to ten fonts will be listed, you may "Disable" each font name that will not be used. If correct, click on **OK**. If incorrect, delete the font DIMM (or Font Card) name and repeat from Step #8. Close all remaining open windows. The TROY Digital Image printer fonts are now installed. If the support file installed has the extension **.hpd**, continue to the next page to install special screen fonts required for hpd files. Otherwise, proceed to the section entitled "Using TROY Digital Image Fonts for Microsoft Windows".

Installing the TROY Digital Image Screen Fonts for Microsoft Windows 98SE / ME

IMPORTANT: Please refer to the TROY Digital Image Data Sheet for the section labeled "Windows Support Information". If the Font Metrics file extension is **.hpd**, then proceed with the procedures below. If the Font Metrics file extension is **.pcm**, then **DO NOT** proceed with the following procedures, but instead, continue on to the section entitled "Using TROY Digital Image Fonts for Microsoft Windows".

1. Close all applications before installing the TROY Digital Image Screen Fonts.
2. Insert the TROY CD-ROM into your computer. Note: If the support files were sent by email or downloaded from the <http://www.troygroup.com> website, extract the support files to a temporary folder and make a note of the location. When reference is made to access these files, navigate to the folder that contains the extracted support files.
3. From the *Start* menu, click on *Settings* and then click on *Control Panel*.
4. Double-click on the *Fonts* folder icon.
5. Click on *File* and then click on *Install New Font...* A new window labeled *Add Fonts* will open and then a Windows Explorer-style window will open.
6. Click on the down-arrow in the *Drives* box to select the drive that contains the support files. From the root folder, double-click on the *Support Files* folder from the list of folders, double-click on the *HPD Files* folder, double-click on the *Imaging* folder, and then double-click on the *Image (72 points)* folder.
7. A list of TROY Digital Image screen fonts will be listed within the *List of Fonts* section. Click on *Select All* to highlight all available fonts, and then click on **OK**. A processing window may appear while the installation process proceeds.
8. Close all remaining open windows. The TROY Digital Image screen fonts are now installed.

Installing the TROY Digital Image Printer Fonts™ 2000 / XP / Server 2003

1. Close all applications before installing the TROY Digital Image support files.
2. Insert the TROY CD/floppy into your computer's CD-ROM/floppy drive. **NOTE:** If the support files were sent by email or downloaded from the <<http://www.troygroup.com>> website, extract the support files to a temporary folder and make a note of the location. When reference is made to access these files, navigate to the folder that contains the extracted support files.
3. From the Microsoft Windows Start menu, click on **Settings**, and then click on **Printers**.
4. Right-click on your printer icon, and then click on **Properties** from the pull-down menu. If multiple printers are installed, make sure the correct printer icon is selected. Remember that the printer selected must be the PCL 5e language driver, not Postscript or other printer language.
5. Click on the **Device Settings** tab located at the top of the **Properties** window.
6. Click on **External Font** (under the **Font Substitution Table** category), and then click on the **Properties** button.
7. Click on the **Browse** button to open the drive selection window. Double-click on the appropriate drive letter to select the CD-ROM/floppy drive on your computer. From the root folder, double-click on the **Support Files** folder from the list of folders, double-click on the **PCM Files** folder, and then double-click on the **Imaging** folder.
8. Refer to the **TROY Digital Image Data Sheet** for the selection labeled **Windows Support Information** and note the **Font Metrics** section, which displays the Windows support file and point size (9, 12, or 72) for your TROY Digital Image(s).
9. Double-click on the appropriate folder: **Image (9 points)**, **Image (12 points)**, or **Image (72 points)**, and then click on the file in that folder (example: **72201210.pcm**), and then click on **ADD** to add the digital images. Windows can support up to ten digital images. If the Font Metrics section of the TROY Digital Image Data Sheet does not have a file name listed but states "Custom Metrics Required", contact the TROY Digital Imaging Department for information on obtaining Windows support files for special orders.
10. Close all remaining open windows.

Using TROY Digital Image Fonts for Microsoft Windows

The TROY Digital Image screen fonts are **not** displayed as the actual digital image. The screen fonts are displayed as text (a generic font is used). By entering the pattern of characters, supplied on the *TROY Digital Image Data Sheet*, the image is generated from within the printer's resident fonts. This feature was developed to prevent unauthorized printing using the digital image screen fonts on other Windows-installed printers. The pattern of characters can be used to simulate the size and spacing of the digital image.

1. Review the *TROY Digital Image Data Sheet* for the section labeled **Windows Support Information**, and note the **Font Name** and **Point Size**. Also, take note of the **pattern of characters**. Remember, this pattern is used to generate the Digital Image.
2. Launch a Windows-based application.
3. From the Windows application, access the font (typeface) list, and select the font name as noted from the *TROY Digital Image Data Sheet (Font Name)*.
4. Select the correct point size as noted from the *TROY Digital Image Data Sheet (Point Size)*.

NOTE: Using another point size will not increase/decrease the size of the digital image but will distort the image spacing (white gaps within the image will appear). Remember, the digital images are fixed in size and are **NOT** scalable.

5. Enter the **pattern of characters** found on the *TROY Digital Image Data Sheet*. Once again, this pattern is used to generate the digital image. Example: abcdef
6. Print the Windows document. Remember the image on the screen is displayed as text but the digital image will be generated when printed to the TROY Security Printer.

Programming TROY Digital Images (non-Microsoft Windows)

- Please have the TROY Digital Image Data Sheet available for this process. Information from this documentation will be needed to complete the installation.
- As explained above, the digital images are stored as a font (Hewlett Packard format); therefore, the images are selected in the same method as other printer-resident fonts. This requires some basic programming knowledge of HP PCL 5e (Hewlett Packard Printer Command Language). The programming information provided in this document will provide the necessary information for selecting, positioning, and printing the digital images. For further information on programming HP PCL 5e, please obtain the Hewlett Packard PCL / PJJ Technical Reference Bundle. This set of documentation can be purchased directly from Hewlett Packard.
- Commands within PCL begin with the non-printable escape character (ASCII 27 / HEX 1B). For this document, the escape will be represented as <esc>.

Using TROY Digital Image Fonts (non-Microsoft Windows)

1. Review the *TROY Digital Image Data Sheet* for the section labeled *PCL Image Selection Sequence*, and note the *pattern of characters*. This pattern is used to generate the digital image.
2. Send the *PCL Image Selection Sequence* to the printer. Remember to replace the <esc> character with the non-printable escape character (ASCII 27 / HEX 1B). This PCL command is a font selection command, which selects the digital image within the printer.
3. Position the printer's cursor (the printer has an invisible cursor, all dots addressable) to the desired area of the page. There are three methods for cursor positioning; decipoints, rows/columns, and PCL units (dots). PCL units are used for this example. The PCL units are usually defined at 300 DPI (Dots Per Inch) but may vary. Experimentation may be necessary for your application. To position the cursor, calculate the desired X (horizontal) and Y (vertical) position for the image placement. For this example, the values are in PCL units (dots); therefore, if the units are set to 300 DPI, 1 inch = 300 dots. The following PCL positioning command will move the cursor 6 inches horizontally from the left edge of the logical page ($6 \times 300 = 1800$) and 3 inches vertically ($3 \times 300 = 900$) on the page. The command is: <esc>*p1800x900Y.

A difference between horizontal and vertical positioning is the horizontal value originates from the left-edge of the logical page, but the vertical positioning value originates from the top margin, which can be adjusted. Therefore, if the top margin value is changed, the image will shift vertically. The printer also supports the print and space method of printing. This means the printer's cursor will move when it receives control codes such as a space bar, carriage return, line feed, etc. With this in mind, if you create a PCL positioning command, the text/data must immediately follow the command. If the positioning command is sent separately followed by a carriage return/line feed, the cursor has now moved to the next row and to the first column. The result would be loss of the desired position.

4. Enter the *pattern of characters* found on the *TROY Digital Image Data Sheet*. Once again, this pattern is used to generate the digital image. Example: abcdef. If the pattern of characters is more than one line, you must enter a separate position call for each line of characters.
5. Print the document. A standard form feed may be used, or send the PCL command <esc>&l0H (prints the current page).

Programming Example for TROY Digital Image Fonts (non-Microsoft Windows)

<esc>(201Q<esc>(s0p2h72v0s0b201T	' select the Digital Image.
<esc>*p1800x900Yabcdef	' cursor position followed by the pattern of characters.
<esc>&l0H	' print the current page.

Obtaining Technical Assistance

If you experience any difficulties with the installation process, please call TROY Technical Support at (800) 332-6427, between the hours of 8:00 AM and 8:00 PM, Monday through Friday, Eastern Standard Time. Customers outside the United States, please call (304) 232-0899.