

Braille2000, LLC

6801 Southfork Cir, Lincoln, NE 68516
Phone: (402) 423-4782, Fax: (402) 423-5154
<http://www.braille2000.com>

Embossing to a ViewPlus® Tiger Embosser

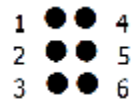
There are basically two embosser technologies. A “conventional” embosser (sometimes also called “legacy” embossing) is a character-oriented embossing printer that receives a stream of ASCII-braille characters (one per cell) and knows how to emboss them. Some embossers of this type can do embosser graphics as literary cells whose dots are squeezed close together. The ViewPlus line of embossers has models that can emulate the conventional/legacy behavior, but the normal approach is to emboss a tactile “image” usually on a fixed grid of twenty dot positions per inch. For the image embosser, an image of each page is printed to the embosser printer with black dots everywhere a dimple is to be raised.

The ViewPlus embosser is what I call a "raster" embosser... it embosses images. This kind of embosser will dimple any area that would print in black ink on a conventional printer, but note that the typical paper size is not conventional letter size (braille paper is often 11½ x 11).

On Windows, every printer has a “printer driver”... device-specific software that converts generalized abstract “drawing” into the (non-abstract) datastream that will cause the inking (or embossing) of that actual output on paper. For conventional embossers, the printer driver used is supplied by Braille2000 (why? because in years past most embosser manufacturers did not supply any driver). When using a ViewPlus “Tiger” embosser printer, the printer driver is supplied by ViewPlus.

When using Braille2000, you “Emboss” to a conventional embosser and you “Print” to a ViewPlus embosser.

With the typical Tiger embosser, dots can occur only at fixed positions on a grid of possible dot locations at 1/20th of an inch intervals (in both the horizontal and vertical directions). Each literary braille cell falls in a rectangle that is 5x8 positions on the grid. There is one blank spot between dots 1 and 4 (horizontal internal gap) and dots 1 and 2 (vertical internal gap), and two blank spots between dot 4 of one cell and dot 1 of the next cell. There are two blank spots between dot 3 of one cell and dot 1 of the cell on the line below. Each cell is thus 5/20” wide (a quarter of an inch) and 8/20” line to line (0.4” line spacing). This is approximately normal literary braille dimensions as defined by NLS Standard 800. (Tiger dots are smaller in diameter than the dots produced by a conventional embosser.)



Because the Tiger line of embossers takes images, an easy way to “draw” literary braille dots is to write to the page using a simbraille font (a font that renders a visual depiction of braille cells). That will do the job, but for satisfactory results, the size (scale) of the font needs to be “just right” so the dots in the inked braille cells land exactly on the 1/20th inch grid points (else “smearing” may result). ViewPlus provides such a font that is scaled to fit the grid perfectly. It is called “Braille29” and is meant to be drawn with a point size of 29. (Note that a few Tiger models use different grid

spacing and come with their own custom simbraille font.) Braille2000 knows how to print an image to a Tiger embosser using its custom simbraille font.

You use the “Print” command to output image data to a conventional printer (for proofreading) and to a Tiger embosser for tactile hardcopy braille. There is a special page style (“Print As” in the print dialog box) you need to use to prepare the output for a Tiger embosser (i.e., a drawing technique that uses the custom ViewPlus simbraille font). Typically you set “Print As” to “Tiger Braille29”. This “Print As” option exists only if the computer has ViewPlus fonts installed (they are required) and only for fonts named “Braille” followed by two digits and nothing additional, such as the font “Braille29”. (The font file must also have been provided by ViewPlus.)

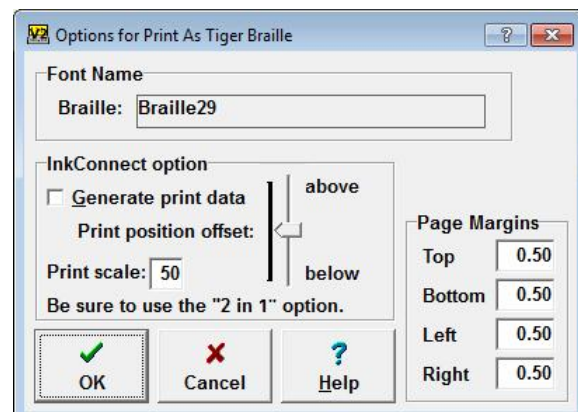
Embossing to a ViewPlus Tiger type of embosser

To use your Tiger embosser with Braille2000, install the embosser as indicated by the installation instructions that came with the embosser. Be sure to install the “Tiger fonts” on your system... they are a part of the Tiger Software Suite. The Tiger embosser will appear as a printer in the system’s Devices and Printers folder, and you can test the device by printing to it from WORD or WordPad (but remember that black items are dimpled on the paper rather than inked).



In Braille2000, click the Print button. The print dialog box will appear. Change the Print As selection to “Tiger Braille29” (There may be embosser models or situations when the number will be other than 29). The choice for Tiger printing derives from the availability of the custom ViewPlus Tiger font: if there is no “Tiger Braille#” choice for Print As, it means that the required font has not been installed—you must install the ViewPlus software. (For a Tiger embosser with some other grid spacing, the correct choice may show a different size number, such as “Tiger Braille17”).

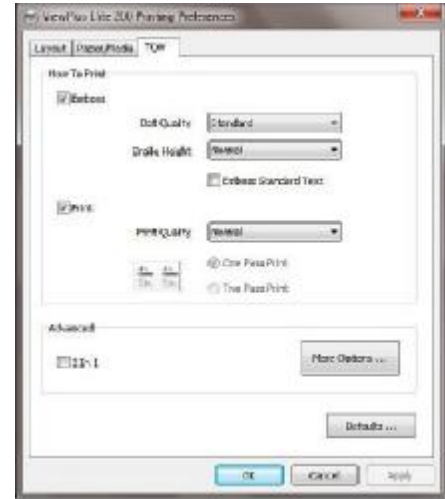
Configuration of the output is handled by two buttons: Options and Properties. The Options settings are controls on how Braille2000 prepares the page image. It is via Options you can adjust the page margins. The Properties settings are those of the ViewPlus printer driver and will vary depending on the embosser model you have. **Note that as of this writing, the ViewPlus driver (used by all “Tiger” models) does not conform to Windows “Type 3” printer driver standards; specifically, the Properties button does not work properly, and among other things, you cannot change paper size.** How to work around this limitation is discussed below.



The Options dialog contains settings for Page Margins (in inches). The margin is the amount of space at the edge of the paper that comprises a border around the embossed area. The default values (half an inch) are generally appropriate. You can move the embossed area left or right by adjusting the values of the Left and Right margin amounts.

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A few Tiger models (the Elite and the Premier embossers) have an add-on option known as InkConnect. This is an after-embossing ink jet printer that will add inked text to the embossed pages. Braille2000 can generate ink-print data for that feature. Put a checkmark at “Generate print data” (in Options in Braille2000) and then be sure to use the embosser’s “2 in 1” print option (see right, in the ViewPlus settings you reach via Properties). You can adjust “Print scale” (in Options) to change the size of the print (relative to the braille size): 50 denotes 50 percent. The position of the print lines, relative to the braille lines, can be adjusted using the slider. The middle position ink-prints right on top of the braille. Move the slider up to raise the print position, down to lower the print position. Remember that Options directs how Braille2000 prints (abstractly) to the printer, while Properties presents control panels managed by the ViewPlus printer driver to adjust printer behavior.



The “2 in 1” option of the embosser (only when the InkConnect option is installed), overprints page pairs, the first of which is tactile and the second of which is inked. When “Generate print data” is active, Braille2000 outputs such page pairs (thus, this setting is not appropriate unless you have the InkConnect feature on your embosser). You access the “2 in 1” embosser setting via the Properties button.

Shown above is the Properties dialog for the ViewPlus Elite 200 (the properties dialog comes from the ViewPlus print driver, not Braille2000). Click the Tiger tab and then put a checkmark at the “2 In 1” option in the Advanced section. Then click OK. Other models having “InkConnect” or the equivalent may be different.

What goes wrong with the ViewPlus embosser driver?

In today’s world, it seems that standards are considered “old fashioned” and novelty has taken precedence, e.g., the standard menus of Word2000 that are now iconic “ribbons” in Office365. The same thing has happened to the Print function. In the past, all applications made use of the standard Windows “Print” dialog box, one of the “Common Dialog Boxes” offered by Windows (others include Open and Save and Font). Windows provides each application the use of its “PrintDlg” function that (1) displays the standard Print dialog box, (2) manages user interaction with that dialog box, and (3) reports back the selected printer and its mode of operation. The mode of operation includes things like paper size (in mm and in pixels), and number of copies requested... all those settings you see in the print dialog box itself and when you click the Properties button.

Printer settings are organized into a data record known as the DevMode (record). By “record” we mean a group of values for the various settings, analogous to a database record. Each printer has a master DevMode record (stored in the Registry) containing the printer’s default settings. For each application using the PrintDlg function, that application gets a copy of the DevMode that is initially the printer’s default settings but is then modified when/if the user uses the Properties button to modify some settings. Modifying a DevMode via the Print dialog box does not change the default settings for the printer (you do that working on the Preferences setting for the printer via the Devices and Printers folder). The user-modified DevMode is local to the application and will persist in that application (only) until again changed by the user or the application terminates... different

applications, operating in parallel, can thus have different settings (different DevModes) for the same printer.

The ViewPlus printer driver (used by all of their embosser models) does not manage DevMode settings properly, in particular, it does not provide the local copy the application needs to print according to the user's wishes as expressed via the Properties button (that activates the printer driver to show its panels of user settings, from which it is supposed to craft a revised DevMode). Instead, the ViewPlus driver always updates the printer default settings (in the Registry), even when being manipulated within an application (when the settings are intended to be local to that application). The bad behaviors include (a) the PrintDlg function not returning the paper size for the ViewPlus printer (but rather for some other default printer), and (b) paper size just selected by the user, via Properties is not returned, but rather, the printer default paper size is returned. This often causes the PrintDlg function (a part of Windows) to return a DevMode record that says the paper width is 8.5 inches when the user has specified 11.5 x 11 inches (paper height is "wrong" too, but the bogus data is usually 11 inches and so it doesn't matter). Braille2000 uses the paper width provided in the DevMode and reports that the paper is too narrow to emboss 40 cells... a correct statement if the paper IS just 8.5 inches wide, but a "gotcha" when the user is doing everything they can to tell the driver they have loaded 11.5 inch paper.

With the current infatuation on novelty, many tools (e.g., Office) do not use the Windows PrintDlg function (that function is not deprecated and remains an official way to print), and it appears that the novel approaches either manipulate DevMode data themselves and/or ignore the paper size information. Thus, for reasons not fully known, the ViewPlus driver appears to work, for some applications.

The Work-around

The problem is in the management of DevMode data, by the ViewPlus driver. And the critical piece of information always seems to be paper width. This is because most ink printers have a paper width of 8.5 inches ("letter" paper) and if a regular printer is the system default printer, the PrintDlg function initially prepares the starting (local) DevMode for the system default printer and very often starts with a paper width of 8.5 inches. When you select a different printer, i.e., you select the Tiger printer, the driver is supposed to supply its DevMode... but it doesn't and the paper width remains at 8.5 inches. So one part of the work-around is to make the Tiger printer the system default printer, so that when PrintDlg initializes the DevMode data record, it will have Tiger data and not that of the laser printer.

A similar problem with DevMode data management happens when the user uses the Properties button to access printer-specific configuration data, e.g., to change paper size. The ViewPlus driver again does not update the local DevMode data (that PrintDlg will ultimately deliver to the application), but instead erroneously modifies printer default settings in the Registry (that should not change in this way). So the second part of the work-around is to avoid using the Properties button, meaning that the Tiger configuration you want must have been set as the printer default configuration, in Devices and Printers. But note that making that change often requires having "Administrator" access rights, that you may not have when working at a school where the computer is managed by Tech Support.