

## **Chapter 6 - GFPRINT Reference**

GFLOW1, by itself, provides only onscreen graphics and allows the use of the DOS GRAPHICS command to perform screen dumps. The GFPRINT program allows the user greater flexibility in terms of choices for output, but maintaining the appearance of the screen output at all times. GFPRINT is a postprocessor which may be easily scheduled from any graphics screen in GFLOW1 or run from DOS as a standalone program.

All GFPRINT commands are executed by the use of function keys. The program allows the user to position his output on the page with user-settable margins, rotate the picture to landscape orientation, and preview the output picture. Once the user is satisfied with the appearance, the figure can be sent to any one of hundreds of supported printers (including vector images using PostScript printers), nicely formatted on the screen for creation of slides or PCX files or to a DXF file for importation into a drafting program or GIS. Color output is supported on hardcopy devices which support color (including color PostScript).

### **How it Works**

When the user presses the <F7> key at any GFLOW1 graphics screen, GFLOW1 uses its internal graphics library to create a specially-formatted Encapsulated PostScript file, GFLOW1.EPS in the user's current working directory. Although GFLOW1.EPS can, in principle, be copied directly to a PostScript printer, proper line type and color interpretations are obtained only by processing GFLOW1.EPS with GFPRINT and selecting PostScript output. In addition to PostScript, GFPRINT supports over one hundred printer drivers, PCX files and DXF files. The goal of the developers is that the user can easily transfer the GFLOW1 screen image to a printer or into another document and have the final image as similar to the screen image as possible. Since the file GFLOW1.EPS is rewritten each time the <F7> key is pressed, GFPRINT provides a facility for archiving GFLOW1 images for later processing.

### **Starting GFPRINT from GFLOW1**

To schedule GFPRINT from inside the GFLOW1 program, simply press the <F7> key from any graphics display. GFLOW1 will generate a temporary file and schedule GFPRINT immediately. The GFPRINT main screen will appear. When GFPRINT is exited using the <F10> or <ESC> key, control returns to GFLOW1 and the previous GFLOW1 graphic screen is restored.

**Starting GFPRINT from DOS**

GFPRINT provides the ability to save a figure in an EPS (Encapsulated PostScript) file for future use. If the user uses the SAVE command in GFPRINT, the image can be reprocessed outside GFLOW1 if desired. To start GFPRINT from the DOS command line, enter the command:

```
C:\> GFPRINT (FILE) <CR>
```

Where FILE.EPS is the name of the saved EPS file; GFPRINT will append the .EPS extension. Normal GFPRINT processing may now be performed and when GFPRINT is exited, control returns to DOS.

**GFPRINT Command Reference**

The remainder of this manual describes the operation of GFPRINT's commands in detail.

*GFPRINT Menu*

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F1-Help   F2-View   F3-Print   F4-New     F5-Archive   <F1> for help
F6-Device F7-Path   F8-Margins F9-Orient  F10-Mode     <ESC> to exit

Input File: GFLOW1.EPS
Device:      PostScript          Path: LPT1
Orientation: Portrait            Mode: Monochrome
Margins: [Left] 0.5 [Right] 0.5 [Top] 0.5 [Bottom] 0.5 Line Width: 1

```

```

GFPRINT v1.0 - Printing Postprocessor for GFLOW1
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*Figure 6.1 - GFPRINT Menu*

The GFPRINT menu (Figure 6.1) controls all of the GFPRINT functions. All current settings are displayed at all times during GFPRINT usage.

**Commands**

- Help           <F1> Displays a help screen.
- View           <F2> Previews the output page.
- Print          <F3> Prepares the page for output and sends it to the output path.
- New            <F4> Reads a different GFLOW1 graphic (.EPS) file.
- Archive        <F5> Writes the contents of the current GFLOW1 graphic file (GFLOW1.EPS) to a new file on disk (.EPS format).
- Device         <F6> Sets the device type.
- Path           <F7> Sets the output device path to a device or file.
- Margins        <F8> Sets the margins on the output page.
- Orient         <F9> Sets the output orientation (portrait or landscape).
- Mode           <F10> Overrides the automatic "color" setting for the output device.
- Quit           <ESC> Leaves GFPRINT, returns to GFLOW1 or DOS.

**<F1> Help**

**Command Description**

Displays the GFPRINT help screen. All GFPRINT commands are briefly described. Press any key to return from the help screen to return to the GFPRINT menu.

*GFPRINT Menu*

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**<F2> View**

**Command Description**

Previews the output on the user's screen. The perimeter of the available page area is shown as a dotted green line and the perimeter of the current printing area (page size less margins) is shown as a dotted cyan line. The display appears in monochrome or color, depending on the (<F9> command) setting.

To return to GFPRINT, press any key at the graphics display.

**Note**

The available page area depends on the hardcopy device. Since this area is variable, GFPRINT scales all devices to the 8 x 11 inch area available to PCL printers (HP Laserjet family).

## **<F3> Print**

### **Command Description**

Sends the image to the selected printer device at the specified resolution. If the Mode (<F9> command) is set to COLOR, and the selected printer is a black-and-white device, the colors will be simulated by dithering. If the Mode (<F9> command) is set to MONO, colors will be replaced by a predefined scheme of dashed and dotted lines.

### **Printer Devices**

For printer devices, GFPRINT will first process the image into an internal buffer and then flush the image from the internal buffer to the output path as a raster image.

### **PostScript Devices**

For PostScript devices, the output will be sent directly to the output path as a vector image.

### **Slides**

For slides output, the image will be displayed on screen; press <P> to create a PCX file or <ESC> to return to the GFPRINT menu.

### **DXF Files**

For DXF file output, the image will be processed and sent to the appropriate file.

*GFPRINT Menu*

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**<F4> New**

**Command Description**

Reads a GFLOW1 graphic image file, replacing the one already in use. GFPRINT prompts for the name of the desired EPS file and scans it for new window settings. The net effect is the same as that of leaving GFPRINT to DOS and re-starting GFPRINT with the new file.

**Example**

To change to the previously archived EPS file FIGURE1.EPS, use the New command:

<F4>

EPS FILE TO BE LOADED: FIGURE1 <CR>

GFPRINT will scan the new file and return to the GFPRINT menu.

## **<F5> Archive**

### **Command Description**

Sends the current image file to a new file name. The new file can be reprocessed at a later time, for example, when producing a report. This allows time-consuming output (such as complex color plots) to be produced outside the GFLOW1 environment. GFPRINT will create a new image file under a name specified by the user.

### **Example**

- To save the current image into the file `FIGURE1.EPS`, use the `<F4>` command.

`<F4>`

`ENTER NAME OF NEW EPS FILE: FIGURE1 <CR>`

The new image file will be created, and the current image store there.



*GFPRINT Menu*

## <F6> Device

### Command Description

Allows the user to select an output device type. The output device types are:

Printer (Raster Devices)  
PostScript  
Slides  
DXF Files

### Printer Devices

- If the device type selected is type 0 (printers), a menu of printer choices is displayed. GFPRINT supports well over 100 different printer models. Use the space bar to page through the printer options and enter the number of the desired printer device. The Mode (<F9> command) will be set automatically to COLOR or MONO, depending on the driver selected.
- If a PostScript device is chosen using the type 0 (printer) setting, a raster plot will be sent to the device. This is generally undesirable, unless raster PostScript is desired. See the discussion of PostScript support (below).

### PostScript Devices

- If the device type selected is type 1 (PostScript), output will go to a PostScript file or printer as vectors. This option results in the most desirable output quality if a PostScript device is available.

#### Note

PostScript output should be generated by use of this option only. Do not attempt to copy the file GFLOW1.EPS (or any graphic file archived by use of the <F5> key) directly to a PostScript device. Improper line types and no colors will result.

### Slides

- If the device type selected is type 2 (slides), images will be produced on the computer screen, centered for making slides by photographing the screen using a camera and hood. The user may select a black, white or blue background for slides.
- When a slide image is displayed on the computer screen, a PCX-format file may be produced by pressing the P key. The output path specification (<F7>

command) will receive the PCX output (the extension will be forced to .PCX).  
PCX files may not be sent to devices (LPTx, COMx, etc.)

**DXF Output**

- The processed output will be sent to a DXF file for export to a CAD or GIS system which supports the DXF file format.
- The user may select whether the output file should be created in world coordinates (GFLOW1 and GAEP maintain the necessary information to perform the conversion) or in inches based upon the output page settings.

**<F7> Path****Command Description**

Selects the output path for the Print command (<F3>). The output path may be set to any output device or filename. If a device is specified (LPTx, COMx, etc.), GFPRINT sends output directly to the device. If a non-device filename is specified, GFPRINT will apply an extension to the file name depending upon the output device setting:

- .PRN                      Raster printer output file, typically used by laser (non-PostScript) and dot-matrix printers. To send this file to the printer, a binary mode copy command must be used. Use the command `COPY/B file.PRN LPT1`.
- .PS                        PostScript output file. Useful for PostScript devices or for inclusion in other documents, such as word processors. To send this file to the printer, an ASCII mode copy command must be used. Use the command `COPY file.PRN LPT1`.
- .PCX                      PCX format file, typically used by paint programs and for importation into word processors and other programs. This is a color bitmapped image 640x480 pixels in size. A PCX file is created if the output device is SLIDES. The PCX file will be an exact image of the slide image shown on screen. NOTE: PCX files may not be sent to devices; if a device name is specified, GFPRINT will request that a new output path be specified.
- .DXF                      DXF format file, typically used by CAD programs and GIS systems. This is a vector file, and can be scaled by GFPRINT for either an 8 x 11 inch (printer size) page with margins, in local GFLOW1 coordinates, or in world coordinates (UTM for example) if possible. NOTE: DXF files may not be sent to devices; if a device name is specified, GFPRINT will request that a new output path be specified.

**Examples**

- The user has selected his printer driver. The printer is connected to device LPT1. To instruct GFPRINT to send output to LPT1, use the <F7> command:  
    <F7>

OUTPUT\_PATH: LPT1 <CR>

- To send output to the file PICTURE .PRN, use the <F7> command:

<F7>

OUTPUT\_PATH: PICTURE <CR>

GFPRINT will add the extension .PRN.

## <F8> Margins

### Command Description

Sets the margins for the printed page and the line width to be used for the hardcopy output. When invoked, this command requests that the user set all the margin settings, one at a time. The current setting (default) is shown in brackets [ ]; to retain it, press <CR>.

### Note

The line width setting is intended for use when making color output for transparencies, though it will have other applications as well. The line width is understood to be in pixels on raster devices. For example, if the output device has a resolution of 100x100 dpi, a line width of 2 will give lines approximately 0.02 inches wide.

### Example

- To set the left and right margins to 1.0 inches and top and bottom margins to 1.5 inches with a line width of 1, use the <F5> command.

<F5>

ENTER MARGINS:

LEFT [ 1.0 ]: <CR>

RIGHT [ 1.5 ]: 1.0 <CR>

TOP [ 1.0 ]: 1.5 <CR>

BOTTOM [ 1.5 ]: <CR>

LINE WIDTH [ 1 ]: <CR>

- This command does nothing if the output device is SLIDES.

## **<F9> Orientation**

### **Command Description**

Selects the orientation for the output picture (PORTRAIT or LANDSCAPE mode). The current setting for the output orientation is displayed on the GFPRINT Menu.

### **Note**

- GFPRINT processes the image internally, and supports both portrait and landscape modes on all devices, even dot-matrix printers which do not support a landscape mode.
- This command does nothing if the output device is SLIDES.

*GFPRINT Menu*

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**<F10> Mode**

**Command Description**

Selects COLOR or MONOCHROME mode for the output device. Normally, this option is set when the output device type is specified, and this command need not be selected. This command allows the user to override the default setting. If the COLOR mode is selected for a black-and-white printer, a dithered output style will result.

*GFPRINT Menu*

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**<ESC> Quit**

**Command Description**

Exits GFPRINT and returns to GFLOW1 or to DOS, depending on how the user entered GFPRINT. The <ESC> key may be used, as well. All current GFPRINT settings will be saved to the file GFPRINT.INI in the current directory for use by future GFPRINT runs.