

## CGM

### PURPOSE

Direct graphical output to a CGM format metafile.

### DESCRIPTION

CGM is the ANSI standard for Computer Graphics Metafiles and was developed to allow different graphics packages to exchange graphics files in a standard format.

CGM supports three formats: binary, character, and clear text. The binary format is the most compact, but is not necessarily transferrable across networks and hosts. The character format is less compact than binary, but it is transferrable across networks and hosts. The clear text format is an ASCII text format. Although it is the least compact, it has the advantage that it can be read and edited with standard text editors. Currently, DATAPLOT only supports the clear text format.

The CGM files are typically used as input to a local post-processor program in order to generate plots on a device not supported by DATAPLOT. In addition, many word processors and text publishing programs can import CGM files.

### SYNTAX 1

CGM

This syntax directs the CGM output to the terminal screen. This form is rare since CGM output is usually sent to a file.

### SYNTAX 2

DEVICE <1/2/3> CGM

This form designates one of DATAPLOT's 3 devices (it will typically be device 2) to be a CGM device.

### EXAMPLES

DEVICE 2 CGM

DEVICE 3 CGM

### NOTE 1

Several SET commands are available to control the output produced by the metafiles. These control whether certain functions are performed by DATAPLOT or by the post-processor.

1. SET GENERAL REGION FILL [ON/OFF] - if OFF, region fills are generated with move and draw commands. If ON, a pattern identifier is specified and the post processor generates the region fill.
2. SET GENERAL PEN WIDTH [OFF/ON] - if OFF, a line width parameter is specified and the line is drawn once (i.e., the post processor draws the wide lines). If ON, the line is drawn multiple times when wide lines are requested.
3. SET GENERAL PEN THICKNESS [width] - sets the line width (in DATAPLOT 0 to 100 coordinates) to use when multiple lines are used to draw wide lines.

### NOTE 2

Be aware that many CGM based post processors accept only binary encoded CGM files. A binary CGM device driver is planned for a future release of DATAPLOT, but it is not available yet.

There is a public domain program called GPlot available from the University of Pittsburgh Super Computing Center that can convert clear text CGM files to binary CGM files. It is available for Unix and VAX/VMS machines and can be obtained from the anonymous ftp address 128.182.62.148. Sign-on as anonymous and go to the pub/gplot directory.

If your local post processor or text processor can only handle binary CGM files, you may also want to investigate whether it can handle HP-GL, Tektronix, or Postscript files instead (DATAPLOT can generate all of these formats).

### DEFAULT

Device 1 is a Tektronix 4014 terminal, device 2 is off, and device 3 is a Postscript printer.

### SYNONYMS

GENERAL CGM is a synonym for CGM.

## DEVICE NOTES

The following notes apply to how attributes are stored in the CGM file. Be aware that a post processor can do things differently when drawing the CGM file on a specific device (e.g., it may draw area fills in software even though the CGM file specifies a hardware fill).

1. **HARDWARE TEXT** - CGM hardware characters can be scaled to any size. Vertical strings are rotated 90 degrees.
2. **COLOR** - The CGM driver supports the full range of DATAPLOT colors.
3. **HARDWARE FILL** - The CGM file specifies the boundary points for the area and an index identifying the type of fill to use. See the NOTE 1 above on the SET GENERAL REGION FILL command for instructions on how to generate software fills directly in the CGM file.
4. **DASH PATTERNS** - The CGM file identifies the dash pattern with an index. There is a unique index for each dash pattern supported by DATAPLOT.
5. **LINE WIDTH** - The CGM device draws thick lines by drawing one line and specifying a width parameter. See the NOTE 1 above for instructions on how to draw thick lines by drawing multiple lines instead.
6. **GRAPHICS INPUT** - The CROSS HAIR command is ignored for this device.

## RELATED COMMANDS

POSTSCRIPT	=	Direct graphical output to a Postscript printer.
TEKTRONIX	=	Direct graphical output to a Tektronix device.
GENERAL	=	Direct graphical output to a DATAPLOT specific metafile.
HPGL	=	Direct graphical output to an HP-GL device.
DEVICE	=	Specify certain actions for the graphics output.
SET GENERAL REGION FILL	=	Specify whether region fills are done in hardware or software.
SET GENERAL PEN WIDTH	=	Specify whether wide lines are drawn in software or hardware.
SET GENERAL PEN THICKNESS	=	Specify the width of a single line when drawing wide lines.

## APPLICATIONS

Graphics metafile output

## IMPLEMENTATION DATE

90/3

## PROGRAM

```
DEVICE 2 CGM
PLOT SIN(X) FOR X = -6.28 0.01 6.28
QUIT
```

The CGM output will be saved in the file DPPL1F.DAT (the name may vary on some operating systems). The DPPL1F.DAT file is typically used as input to a local CGM translator or to some type of word processing program.