DEPARTMENT OF SPACE RESEARCH
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The GRAFIX Control Block

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1 Introduction

The GRAFIX Control Block (GCB) is a structure which can be appended to any ASTERIX binned dataset and which contains attributes which control the way the GRAFIX system plots the contents of that dataset. Applications are provided within ASTERIX to edit the attributes but they may also want to be set directly by user applications. For example an application that produces a frequency distribution may wish to set the appropriate attribute such that the dataset produced gets plotted by default in a histogram style. All manipulation of the attributes is done through subroutines and the following is a description of those subroutines. A description of the objects within the GCB is also provided but applications should not make direct reference to these as they may change in the future.

2 Subroutines

Three groups of subroutines are provided. The GCB_GETx routines obtain the current state and value of the attribute if set. The GCB_PUTx routines write values into the attributes , creating them first if necessary. The GCB_CANx routines cancel the attribute such that plotting applications pick their own default values. A list of all the routines followed by a more detailed description of their function is now given.

```
--------- routines still under development ----------
--------- details will be added later      ----------
```

3 Control Block contents

The attributes for individual graphs reside within the structure

```
dataset.MORE.ASTERIX.GRAFIX
```

and fall into the three groups that follow. Not all attributes or sub-attributes have to be present - absence is the equivalent of being in an unset or cancelled state.

Axis control:

```
XRANGE_LO          low edge of x-axis
XRANGE_HI          high edge of y-axis
YRANGE_LO          low edge of y-axis
YRANGE_HI          high edge of y-axis
XLOG               flag x-axis to be logarithmic
YLOG               flag y-axis to be logarithmic
```

Plotting style:

`POLYLINE`	`flag polyline to be drawn through points`
`POLYLINE_STYLE`	`linestyle`
`POLYLINE_WIDTH`	`linewidth`
`POLYLINE_COLOUR`	`colour index`
`STEPLINE`	`flag stepped line to be drawn through points`
`STEPLINE_STYLE`	`linestyle`
`STEPLINE_WIDTH`	`linewidth`
`STEPLINE_COLOUR`	`colour index`
`MARKER`	`PGPLOT marker number (0=none)`
`MARKER_SIZE`	`marker size`
`MARKER_BOLD`	`boldness`
`MARKER_COLOUR`	`colour index`
`ERRSYM`	`error symbol (0=none)`
`ERRSYM_WIDTH`	`linewidth`
`ERRSYM_COLOUR`	`colour index`
`PIXEL`	`flag pixel plot to be drawn`
`PIXEL_MIN`	`low cut-off`
`PIXEL_MAX`	`high cut-off`
`CONTOUR`	`contour plot to be drawn`
`CONTOUR_LEVELS(n)`	`levels`
`CONTOUR_STYLE(n)`	`linestyle for each level`
`CONTOUR_WIDTH(n)`	`linewidth for each level`
`CONTOUR_COLOUR(n)`	`colour index for each level`
`THREED`	`pseudo 3D plot to be drawn`
`THREED_BIAS`	`vertical bias of each row`
`THREED_OFFSET`	`horizontal offset of each row`

Text:

`XLABEL`	`text for x-axis label`
`XLABEL_SIZE`	`character size`
`XLABEL_FONT`	`character font`
`YLABEL`	`text for y-axis label`
`YLABEL_SIZE`	`character size`
`YLABEL_FONT`	`character font`
`LEGEND(n)`	`array containing details of each line of legend`
`  .TEXT`	`text`
`  .SIZE`	`character size`
`  .FONT`	`character font`
`  .JUST`	`text justification`
`ANNOTATION(n)`	`array containing details of each line of text`
`  .TEXT`	`text`
`  .SIZE`	`character size`
`  .FONT`	`character font`
`  .POSITION(2)`	`x-y position`
`  .ANGLE`	`orientation`
`  .JUST`	`text justification`

NOTE: this list is incomplete and liable to change