DIVE
DUMAND Interactive Visualising Explorer
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DIVE is an updating data analysis display program. Currently, up to 100 plots can be displayed at once, each with its own setup defined.

The option to update allows the user to see points being plotted as they are read into the program. Otherwise, the histograms and scatter plots will be filled first by reading the file until the end of the file is reached.

DIVE reads in one file at a time. Currently, the user must choose a data spigot file from the file menu. The program will eventually be revised so that the spigot file will be transparent to the user, and the user will only choose from a list of prespecified plots, and also will have the option of defining his or her own plots with the main menu.

The plot setup is defined in the main menu. The general procedure for making menu selections and entering values is to key in the menu selection value, followed by a comma, and then the desired menu item value (the convention M# will be used in this text to indicate Menu Item # value). For example, to set the number of plots to 24, enter:

1,24

LAYOUT - The total number of plots to be displayed and plot number to be setup is chosen here.
> **1 number of plots:** The total number of plots to be displayed on the screen. $.1 < M1 < 100$
> **2 plot number:** Define the setup for a particular plot number $M2$

TYPE - The type of plot, histogram or scatter plot, is chosen in this section.
> **3** $M3 - 1$ for a histogram
> $- 2$ for a scatter plot
> **4 no. bins or x,y pairs:**
> > -For a histogram, $M4$ indicates the number of bins/bin size for the plot.
> > -For a scatter plot, $M4$ indicates the number of points plotted at a time. i.e., this is the number of points passed to a buffer before they are plotted.

AXES - The abscissa and ordinate variables and limits are chosen here.
> **5 x word, yword:** Chose the x & y word number to be plotted. For a histogram, the variable which is to be counted would be entered here, and y word would be set to 0. To see a list of the number definitions for the words, just enter 5. A

new menu will appear, and the x & y word can be chosen there.

7 x lo, x up: Set the x-axis lower and upper liMts. x lo < x up. To define these liMts, perform the following keystrokes:

7,10,100	will give x lo - 10
	x up - 100
7,20	will give x lo - 20
	x up remains unchanged
8,120	will give x up - 120
	x lo remains unchanged

9 y lo, y up: Set the y-axis lower and upper liMts. To define the y liMts, follow the same method as for the x liMts, except to change the y upper liMt requires Menu Option 10, i.e.,

10, 75 sets the y upper liMt.

11 rescale y: For histograms, rescale on (M11-0) will rescale the y upper liMt to 2 × y upper liMt value (M10) when one of the bins' count value exceeds the y upper liMt value (M10).

12 x, y axes 0-lin, 1-log: The first value indicates whether or not the x-axis is on a linear (0) or logarithMc (0) scale. The second value indicates the y-axis scaling.

13 clear (yes-1, no-0): For scatter plots, turning clear on will clear the plot points from the screen after the maximum number of x,y pairs (M4) is reached.

CUTS - Cuts on the data can be performed. The cuts on specific words, and their low and high values are defined here.

15 number of cuts: M15 is the number of cuts currently being applied to this plot. If this value > 0, then one can view the defined cuts by selecting Menu Option 16.

Given that M15>0, if one changes the value of M15 to a value < M15, then the last *M15 - new M15* cuts will be erased.

16 set cuts: The already existing active cuts may be viewed, added, or modified.

Selecting 16 will bring up a new menu. The procedure for defining cuts is as follows:

Enter cut number (sequentially), word to be cut, the lower liMt, the upper liMt. <cr> to set the cut.

An optional feature of the cut menu is to set a particular cut for a number of plots. Giving values to n1 and n2 will set the cut number to plots numbered from n1 to n2.

After all cuts have been entered, enter -1 to save the cuts and to return to the main menu. A <cr> without entering -1 will delete all cuts.

SETUP - Perform quick setup of some menu options for all plots.

20 set all y upper equal to: All plots will have the y upper liMt, M10, set to M20.

21 use same setup as for plot number: Setting M21 will cause all other plots to have the same setup as plot number M21. The x word (M5), y word (M6), nor cuts (M16) will be universally set.

FILES - Plot setup values can be saved to a file and these plot setup values can be read in to define the plots at another time.

22 save present setup values to file: Selecting Menu Option 22 will call UPSAVE, which will ask for a filename to save the plot setup. The setup for the total number of plots will be saved.

23 read setup values from file: Menu Option 23 will call UPSAVE, which will ask for an existing filename to be read for plot setup values.

MSC - Miscellaneous menu options.

24 show all defined plots: Menu Option 24 will give a summary of all plot setup values:

N	Plot number	
x	x word	
y	y word	
T	plot type	-1 Histogram
		-2 Scatter plot
F	fiducials	
xlo	x lower limit	
xup	x upper limit	
ylo	y lower limit	
yup	y upper limit	
max	maximum number of point/bins plotted	

The values of the plotted points for a plot can be viewed by entering a plot number. If the file has not yet been read, no points will be displayed.

25 update: Toggle on (1) will give a continuous update of points/bins plotted. Toggle off (0) will plot only when histograms are filled and option 2 is chosen at the end menu, or only when scatter plot buffer has been filled.

<cr> Start plotting

<CTRL-C> Stops plotting. The end menu is displayed, where exiting or restarting can be chosen.

End Menu

-1   exit
2   Send points to the buffer and plot onto the screen.
5   Clear plots
10   Choose new spigot file and restart
<cr> Just go to the main menu