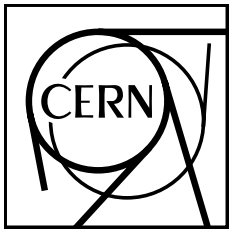

CERN Program Library Long Writeup Q121

PAW++

Physics Analysis Workstation

User's Guide

Version 2.02 (September 1993)

Application Software Group

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Related Manuals

This document can be complemented by the following manuals:

- PAW, Physics Analysis Workstation, The Complete Reference [1]
- COMIS, Compilation and Interpretation System [2]
- HBOOK User Guide — Version 4 [3]
- HIGZ — High level Interface to Graphics and ZEBRA [4]
- HPLOT User Guide — Version 5 [5]
- KUIP — Kit for a User Interface Package [6]
- MINUIT — Function Minimization and Error Analysis [7]
- ZEBRA — Data Structure Management System [8]

This document has been produced using LaTeX [9] with the `cernman` style option, developed at CERN. All pictures shown are produced with PAW and are included in PostScript [10] format in the manual.

A PostScript file `paw++.ps`, containing a complete printable version of this manual, can be obtained by anonymous ftp as follows (commands to be typed by the user are underlined):

```
ftp asis01.cern.ch
Trying 128.141.201.136...
Connected to asis01.cern.ch.
220 asis01 FTP server (Version 6.10 Mon Apr 13 15:59:17 MET DST 1992) ready.
Name (asis01:username):  anonymous
331 Guest login ok, send e-mail address as password.
Password:  your_mailaddress
ftp> cd cernlib/doc_ps.dir
ftp> get paw++.ps
ftp> quit
```

Table of Contents

Chapter 1: PAW++: A guided tour

PAW++ is a new and powerful OSF/Motif based Graphical User Interface to the popular Physics Analysis Workstation PAW. The graphical user interface makes the full and rich command set of PAW available to even the naive user. Simple point and click operations are enough to execute commands that were previously accessable only to expert users.

At present it is released on Unix workstations and VAX/VMS.

PAW++ has, in addition to the conventional command line and macro types of interface, the following dialogue modes:

Pull Down menus	They are useful to understand the command structure of the PAW system.
Command panels	They give a "panel representation" of the commands.
Object Browser	This is in many ways similar to the well-known browsers in the PC/MAC utilities or the visual tools on some workstations.
Direct graphics	One can click in the graphics area and identify automatically which object has been selected. A pop-up menu appears with a list of possible actions on this object. For example, by clicking with the right mouse button on a histogram, one can make directly a gaussian fit, a smoothing etc. Pop-up menus are available by clicking on the **Graphics Window** to automatically produce PostScript, Encapsulated PostScript, LaTeX files or print the picture on your local printer.
Histogram Style Panel	Buttons are available to change histogram attributes, colours, line styles, fonts, and axes representation. 2-D histograms can be rotated interactively. Zooming and rebinning can be performed interactivaly in real time.
Ntuple Viewer	Just click on the Ntuple column name to histogram the column.

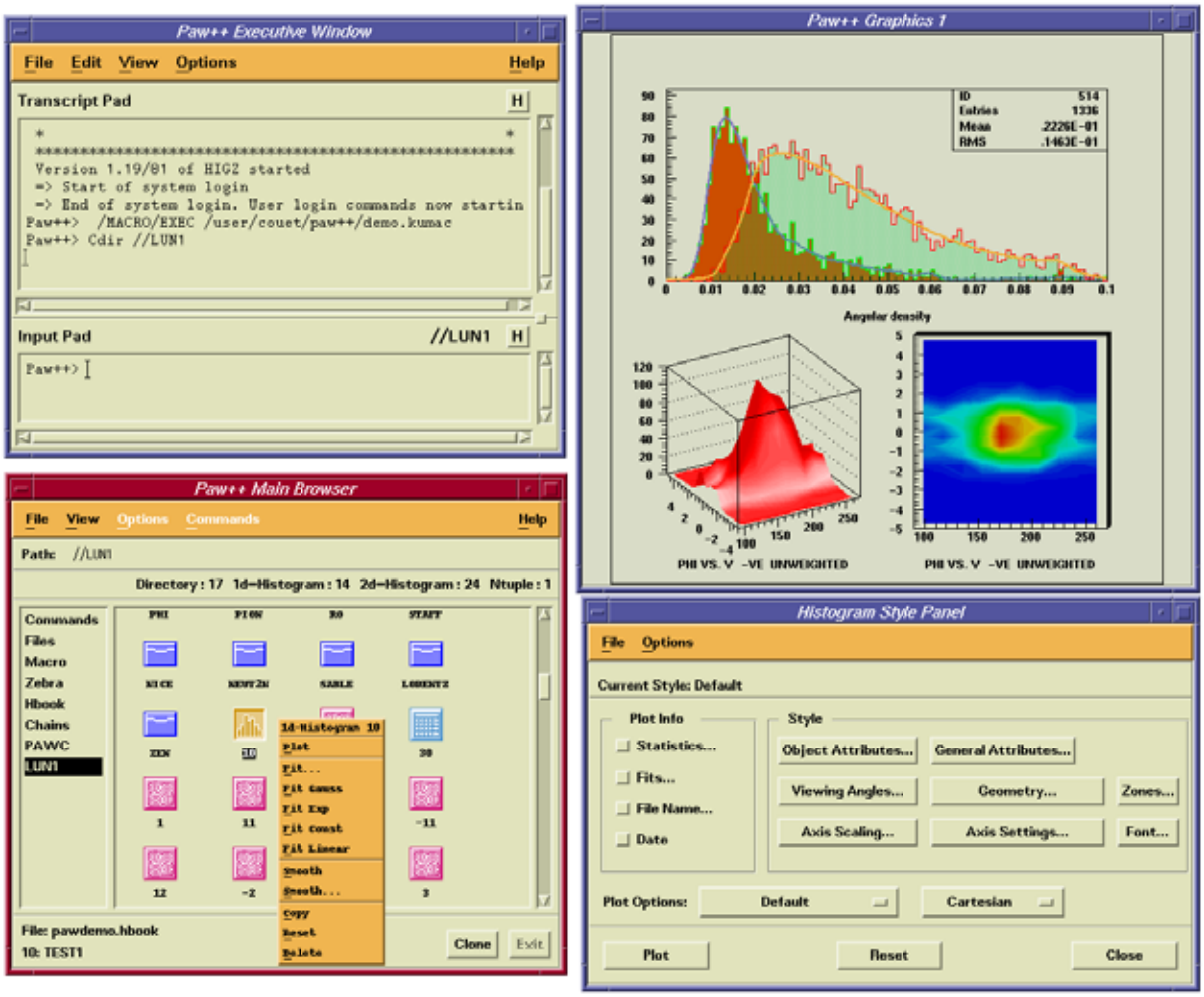
The new system is largely self-explanatory. Only a subset of PAW has been converted to this new user interface, but work is currently in progress to offer many new facilities in future releases.

On all system on which the CERNLIB is installed, it is enough to type `paw++` to enter the system.

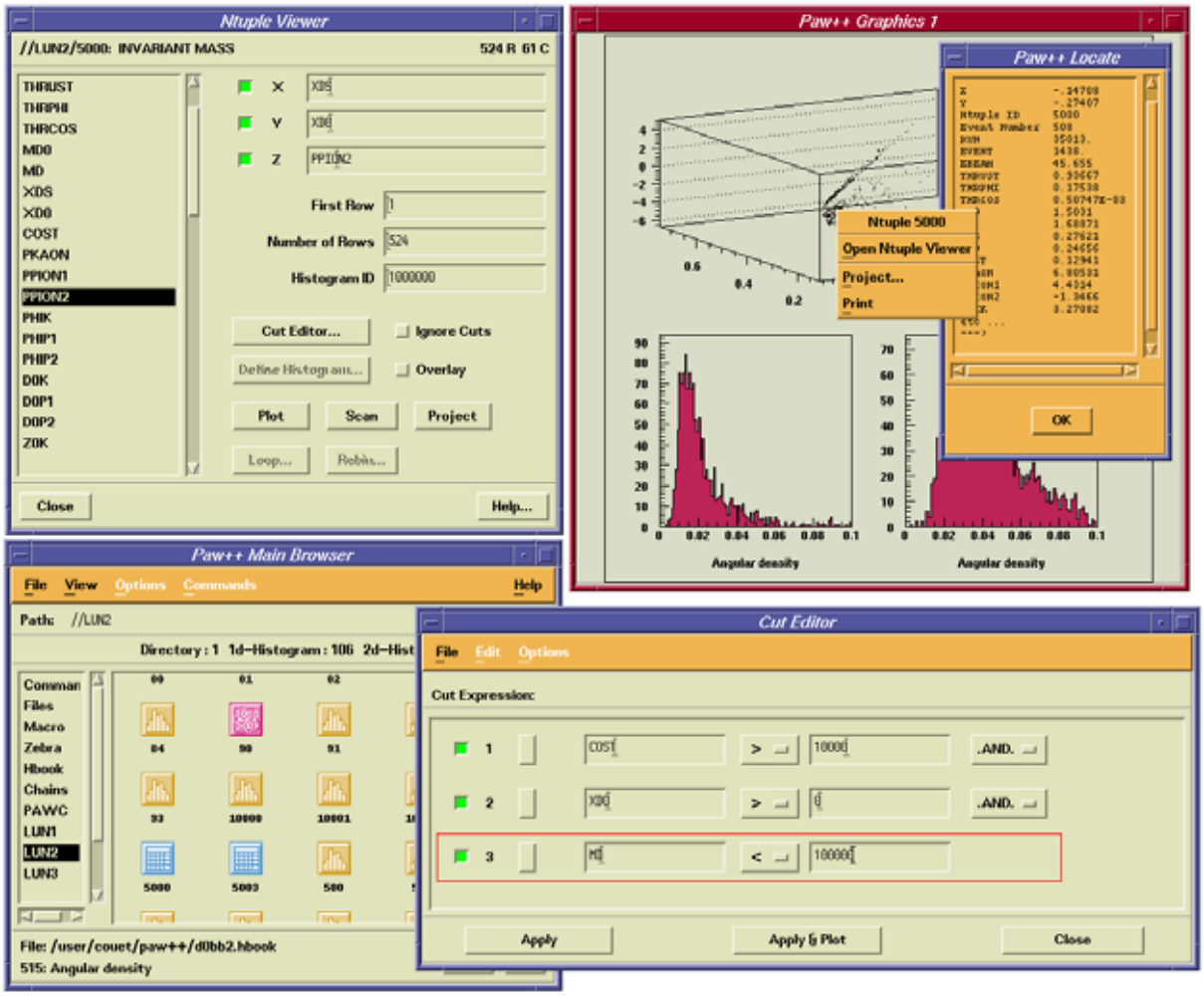
PAW++ starts up with three windows on the screen:

The "PAW++ Executive Window"	Which is compose with a menu bar, a **Transcript Pad**, a current working directory indicator and an **Input Pad**.
The "PAW++ Graphics 1"	window displays the graphics output from HIGZ/X11. Objects, e.g. histograms, displayed in the **Graphics Window** can be manipulated by pointing at them, pressing the right mouse button and selecting an operation from the popup menu. Pointing at the edge of the **Graphics Window** (between displayed object and window border) brings up a general popup menu. Up to 4 additional **Graphics Window** can be opened by selecting "Open New Window" from this menu.
The "PAW++ Main Browser"	displays all browsable classes and connected hbook files. Up to 4 additional browsers can be opened via the "View" menu of the "PAW++ **Executive Window**" or via the "Clone" button on the browsers. For more information on the browsers see the "Help" menus.

1.1 Overview

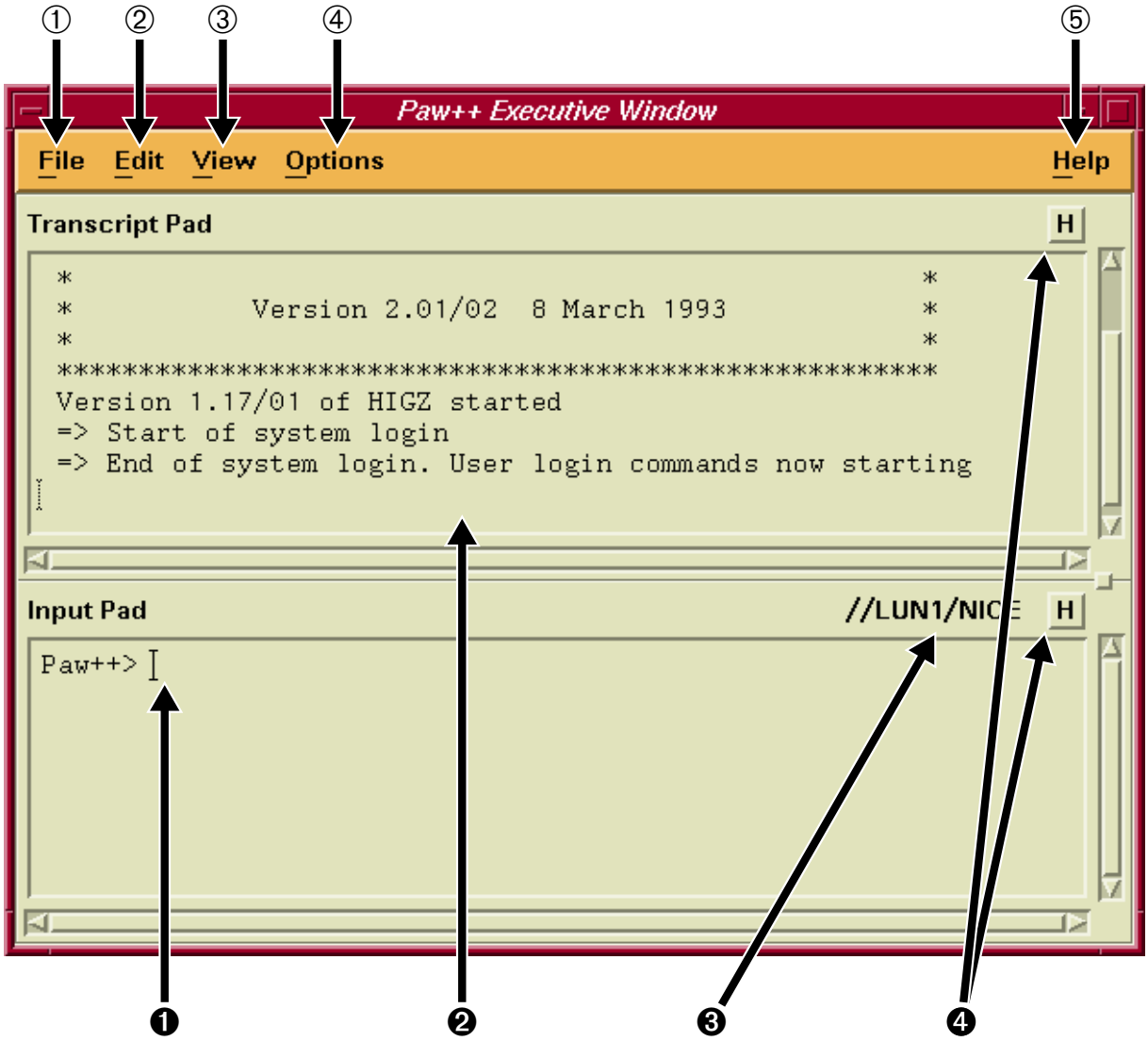


– The upper left corner is the PAW++ **Executive Window**, with its **Input Pad** at the bottom and the **Transcript Pad** at the top.
– The PAW++ Browser, where the various entities (pictures, 1-D and 2-D histograms and Ntuples) are all defined with their own symbol, is shown bottom left. A "pop-up" menu has been activated for the chosen 1-D histogram. Several actions like `Plot`, `Smooth`, `Fit` etc... can be performed via this menu.
– The **Graphics Window** is seen top right. A 1-D view of the data points and two 2-D views (a Surface-plot and a colored contour plot) are shown. On the 1-D view, two 1-D histograms are superimposed. The results of a "smoothing" type of fit to the data points is also drawn. Information about the data and the fit can be found in the inserted window.
– The **Histogram Style Panel** at the lower right allows graphics attributes of the histogram to be controlled.



– The upper left corner shows the **Ntuple Viewer**. The left window shows the name of the various variables, characterizing the selected Ntuple. Other windows and press-buttons specify which combinations of the various variables and which events have to be treated (plotted, scanned, . . .).
– The lower left contains the PAW++ Browser, with this time an Ntuple selected. A double on a Ntuple icon open automatically the **Ntuple Viewer** on the active Ntuple.
– The **Graphics Window** is seen top right and shows a 3-D view of the combination of three variables, whose cuts are specified with the **Cut Editor** (see below).
– Direct graphics interactions with Ntuple data are possible. Just by clicking on a point in the **Graphics Window**, the event description is displayed in the **PAW++ Locate** window.
– The **Cut Editor** panel, shown at the lower right, allows various combinations of cuts to be specified and applied.

1.2 The Executive Window



This window allows to type commands on the keyboard like in the normal PAW system. In fact this window is the `kxterm` program provide with the KUIP package.

This terminal emulator combines the best features from the (now defunct) Apollo DM pads (like: **Input Pad** and **Transcript Pad**, automatic file backup of **Transcript Pad**, string search in pads, etc.) and the Korn shell emacs-style command line editing and command line recall mechanism.

Commands are typed in the **Input Pad** ❶ behind the application prompt. Via the toggle buttons H ❹ the **Input Pad** and/or **Transcript Pad** can be placed in hold mode. In hold mode one can paste or type a number of commands into the **Input Pad** and edit them without sending the commands to the application. Releasing the hold button will causes `kxterm` to submit all lines, upto the line containing the cursor, to the application. To submit the lines below the cursor, just move the cursor down. In this way one can still edit the lines just before they are being submitted to the application.

❶ In the **Input Pad** one can type, retrieve and edit command line with the help of a Korn shell emacs-style command line editing mode. See in appendix the complete list of the editing keys.

❷ The **Transcript Pad** ❷ shows the executed commands and command output. When in hold mode ❹ the transcript pad does not scroll to make the new text visible. Mouse operations like "Copy Paste" are allowed in the transcript pad. It is also possible to search a character string (see the menu bar description).
❸ Every time the current directory is changed, the **Current working directory indicator** is updated. The current working directory can be changed by clicking on a item in the **PATH window** of the **Main Browser** or by clicking on a icon directory in the **Main Browser** itself.
❹ Hold buttons.

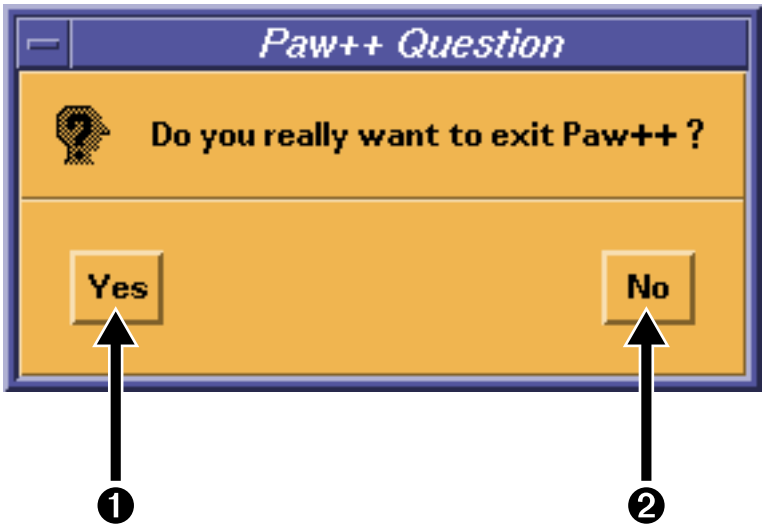
① Allows manipulation of the **Transcript Pad**.
② Allows character string seach, copy/paste in the **Transcript Pad**.
③ Allows to invoke other panel.
④ Some general settings are available in this menu.
⑤ Online help.

1.2.1 The Executive Window menu bar

In this section, is describe the full functionality of the pull down menu available in the Menu Bar of the **Executive Window**.

File

About Kxterm...	Displays version information about Kxterm.
About <Application>...	Displays version information about the application Kxterm is servicing.
Save Transcript	Write the contents of the transcript pad to the current file. If there is no current file a file selection box will appear.
Save Transcript As...	Write the contents of the transcript pad to a user-specified file.
Print...	Print the contents of the transcript pad (not yet implemented).
Kill	Send a SIGINT signal to the application to cause it to core dump. This is useful when the application is hanging or blocked. Use only in emergency situations.
Exit	Exit Kxterm and the application. When this option is selected or when `EXIT` is typed in the **Input Pad**, the following panel is displayed:

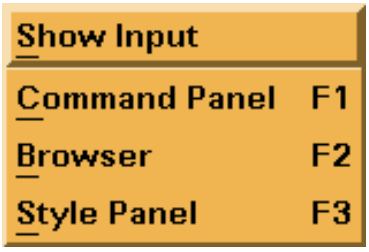


❶ The exit is performed.
❷ The exit procedure is canceled.

Edit

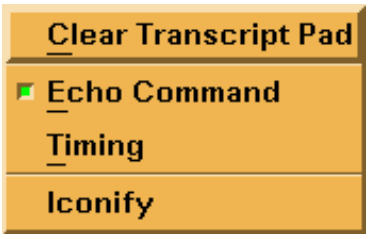
Cut	Remove the selected text. The selected text is written to the Cut and Paste buffer. Using the "Paste" function, it can be written to any X11program. In the transcript pad "Cut" defaults to the "Copy" function.
Copy	Copy the selected text. The selected text is written to the Cut and Paste buffer. Using the "Paste" function, it can be written to any X11program.
Paste	Insert text from the Cut and Paste buffer at the cursor location into the **Input Pad**.
Search...	Search for a text string in the transcript pad.

View



Show Input	Show in a window all commands entered via the **Input Pad**.
Command Panel	
Browser	
Style Panel	

Options



Clear Transcript Pad	Clear all text off of the top of the transcript pad.
Echo Command	Echo executed commands in transcript pad.
Timing	Report command execution time (real and CPU time).
Iconify	Iconify Kxterm and all windows of the application.

Help

On Kxterm	The help you are currently reading.
On Edit Keys	Help on the emacs-style edit key sequences.

1.3 The Main Browser

The KUIP/Motif Browser interface is a general tool to display and manipulate a tree structure of objects which are defined either by KUIP itself (commands, files, macros, etc.) or by the application.

The "Clone" button at the bottom creates a new independent browser window. The "Exit" button destroys the browser window. The **Main Browser** cannot be destroyed (only iconized).

The middle part of the browser is divided into two windows:

1. The left hand "class window" shows the list of all currently connected classes of objects. Some classes, e.g. the command tree and the file system, are predefined. Other classes allow to attach new files using the commands in the "File" menu. Clicking with the left mouse button on one of the items in the class window displays its content in the other window. Pressing the right mouse button inside the class window shows a popup menu of possible operations, e.g. creating a new object in the current directory.

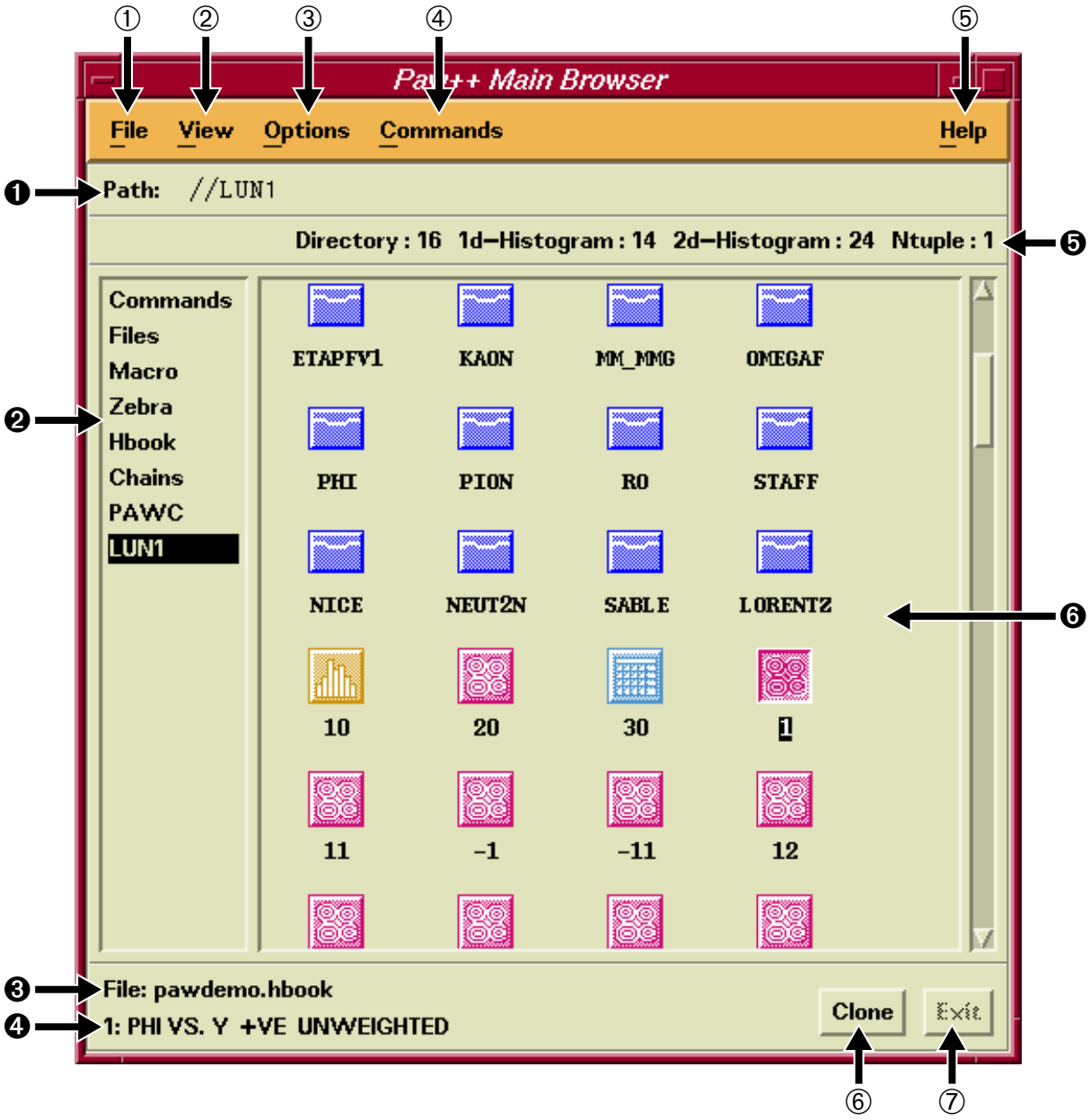
2. The right hand "object window" shows the content of the currently selected class directory. The "View" menu allows the change the way objects are displayed, i.e. to choose the icon size and the amount of information shown for each object. Objects are selected by clicking on them with the left mouse button. Pressing the right mouse button pops up a menu of possible operations depending on the object type.

An item in a popup menu is selected by pointing at the corresponding line and releasing the right mouse button. Double clicking with the left mouse button is equivalent to selecting the first menu item.

Each menu item executes a command sequence where the name of the selected object is filled into the appropriate place. By default the command is executed immediately whenever possible. The commands executed can be seen by selecting "Echo Commands" in the "Options" menu of the **Executive Window**. In case some mandatory parameters are missing a panel is displayed where the remaining arguments have to be filled in. The command is executed then by pressing the "OK" or "Execute" button in that panel. (If it is not the last one in the sequence of commands bound to the menu item the application is blocked until the "OK" or "Cancel" button is pressed.)

The immediate command execution can be inhibited by holding down the CTRL-key BEFORE pressing the right mouse button. Some popup menus also contain different menu item for immediate and delayed execution, e.g. "Execute" and "Execute..." for class "Commands"

The path of the currently selected directory is always displayed below the menu bar. The directory can be changed by pointing at the tail of the wanted subpath and clicking the left mouse button. Clicking a second time on the same path segment performs the directory change and updates the object window. To go downwards in the directory hierarchy double click on the subdirectory displayed in the object window.



❶ Current PATH (“PATH window”).
❷ Class window.
❸ Name of file currently selected in the class window.
❹ Name of the object currently selected in the object window.
❺ Number and type of object currenlty in the the object window.
❻ Object window.

① File menu.
② View menu.
③ Options menu.
④ Commands menu.
⑤ Help menu.
⑥ Clone button.
⑦ Exit button.

1.3.1 The objects in the “object window”

This section describes all the PAW++ object available in the **Main Browser**.

HBOOK **files**

Double click with the left mouse button on this icon, open the corresponfing HBOOK file with the command `HISTOGRAM/FILE`.

Select a HBOOK **files** icon with the left mouse button and press the right mouse button to obtain the following menu:

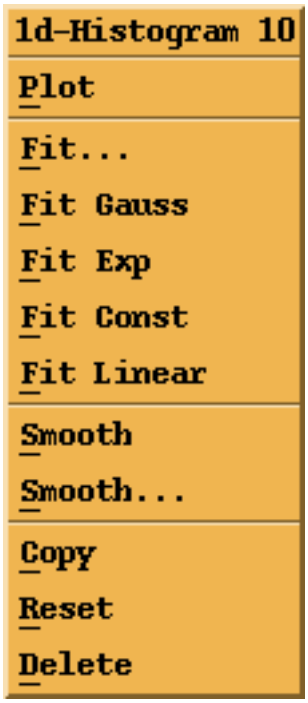
Open	Open the highlighted HBOOK file in read-only mode.
Open Update Mode	Open the highlighted HBOOK file in update mode.

Note that the HBOOK file name is displayed in the menu title.

1D histograms

Double click with the left mouse button on this icon, produce the plot of the corresponding histogram with the command `HISTOGRAM/PLOT`. The histogram becomes the current histogram for the **Histogram Style Panel**.

Select a **1D histograms** icon with the left mouse button and press the right mouse button to obtain the following menu:



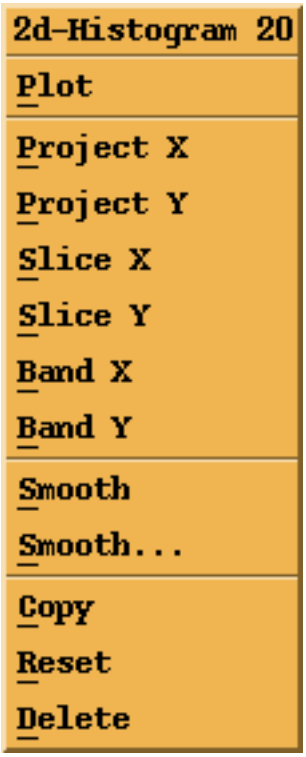
Plot	Plot the corresponding histogram (default action). The histogram becomes the current histogram for the **Histogram Style Panel**.
Fit...	Perform the command `Histo/Fit` on the corresponding histogram. The command panel is automatically displayed
Fit Gauss	Perfom a gaussian fit on the corresponding histogram.
Fit Exp	Perform an exponential fit on the corresponding histogram.
Fit Const	Perform a `P0` fit on the corresponding histogram.
Fit Linear	Perform a `P1` fit on the corresponding histogram.
Smooth	Smooth the corresponding histogram.
Smooth...	Perform the command `Smooth` on the corresponding histogram. The command panel is automatically invoked.
Copy	Copy corresponding histogram onto an other histogram. The command panel is automatically invoked.
Reset	Reset the corresponding histogram.
Delete	Delete the corresponding histogram.

Note that the histogram identifier is displayed in the menu title.

2D histograms

Double click with the left mouse button on this icon, produce the plot of the corresponding histogram with the command `HISTOGRAM/PLOT`. The histogram becomes the current histogram for the **Histogram Style Panel**.

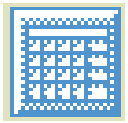
Select a **2D histograms** icon with the left mouse button and press the right mouse button to obtain the following menu:



Plot	Plot the corresponding histogram (default action). The histogram becomes the current histogram for the **Histogram Style Panel**.
Project X	Generate the `X` projection, perform the projection and plot the result (commands `ProX`, `Hi/Proj`, and `Hi/Plot`).
Project Y	Generate the `Y` projection, perform the projection and plot the result (commands `ProY`, `Hi/Proj`, and `Hi/Plot`).
Slice X	Generate the `X` slices, perform the projection and plot the first slice (commands `SliX`, `Hi/Proj`, and `Hi/Plot`).
Slice Y	Generate the `Y` slices, perform the projection and plot the first slice (commands `SliY`, `Hi/Proj`, and `Hi/Plot`).
Band X	Generate the `X` bands, perform the projection and plot the first band (commands `BanX`, `Hi/Proj`, and `Hi/Plot`).
Band Y	Generate the `Y` bands, perform the projection and plot the first band (commands `BanY`, `Hi/Proj`, and `Hi/Plot`).
Smooth	Smooth the corresponding histogram.
Smooth...	Perform the command `Smooth` on the corresponding histogram. The command panel is automatically invoked.
Copy	Copy corresponding histogram onto an other histogram. The command panel is automatically invoked.
Reset	Reset the corresponding histogram.
Delete	Delete the corresponding histogram.

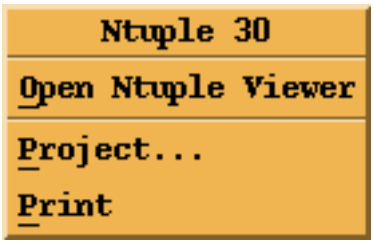
Note that the histogram identifier is displayed in the menu title.

Ntuples



Double click with the left mouse button on this icon, open the **Ntuple Viewer** on the corresponding Ntuple.

Select a **Ntuples** icon with the left mouse button and press the right mouse button to obtain the following menu:



Open Ntuple Viewer	Open Ntuple Viewer on the highlighted Ntuple.
Project...	Project the highlighted Ntuple. The Command panel `Ntuple/Proj` is automatically invoked.
Print	Print the highlighted Ntuple (Command `Ntuple/Print`).

Note that the ntuple identifier is displayed in the menu title.

PAW commands

Double click with the left mouse button on this icon, execute the corresponding PAW command.

Select a **PAW commands** icon with the left mouse button and press the right mouse button to obtain the following menu:

Execute	Execute the command with the default parameters. If a mandatory parameter is missing, the command panel is automatically invoked.

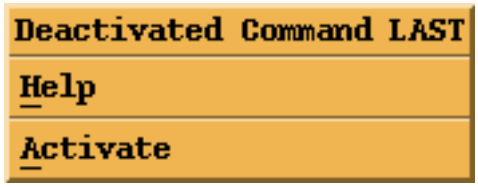
Execute...	Display the command panel.
Help	Display the help on the command.
Usage	Display the command usge in the **Transcript Pad** of the **Executive Window**.
Manual	Equivalent to `HELP`.
Set Command	This command becomes the one executed when a directive typed on the keyboard is not an existing PAW command.
Deactivate	The command is deactivated.

Note that the command name is displayed in the menu title.

Deactivated PAW commands

Double click with the left mouse button on this icon, execute the help on corresponding PAW command.

Select a **Deactivated PAW commands** icon with the left mouse button and press the right mouse button to obtain the following menu:



Help	Display the help on the command.
Activate	The command is activated.

Note that the deactivated command name is displayed in the menu title.

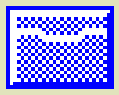
Up

Double click with the left mouse button on this icon, allow to go one level up in the directory tree. This icon is alway the first one of the **content window**.

Select a **Up** icon with the left mouse button and press the right mouse button to obtain the following menu:

List	Allow to go one level up in the directory tree.

Directory

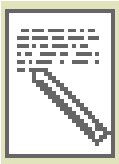


Double click with the left mouse button on this icon, change the current working directory.

Select a **Directory** icon with the left mouse button and press the right mouse button to obtain the following menu:

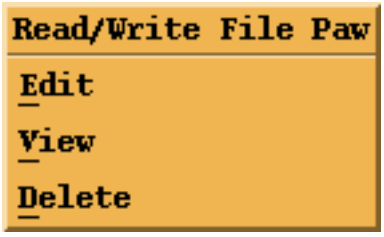
List	Change the current working directory.

Read-Write files



Double click with the left mouse button on this icon, invoke the editor on the corresponding file.

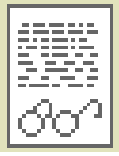
Select a **Read-Write files** icon with the left mouse button and press the right mouse button to obtain the following menu:



Edit	Edit the file.
View	Read the file.
Delete	Delete the file.

Note that the file name is displayed in the menu title.

Read-only files



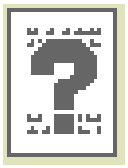
Double click with the left mouse button on this icon, invoke the editor in view mode on the corresponding file.

Select a **Read-only files** icon with the left mouse button and press the right mouse button to obtain the following menu:

View	Read the file.
Delete	Delete the file.

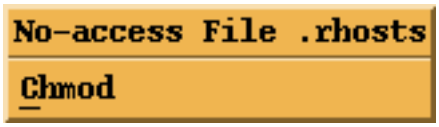
Note that the file name is displayed in the menu title.

No-access files



Double click with the left mouse button on this icon, invoke the shell command `chmod` on the corresponding file.

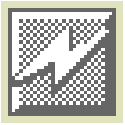
Select a **No-access files** icon with the left mouse button and press the right mouse button to obtain the following menu:



Chmod	Try to change the permissions of the file.

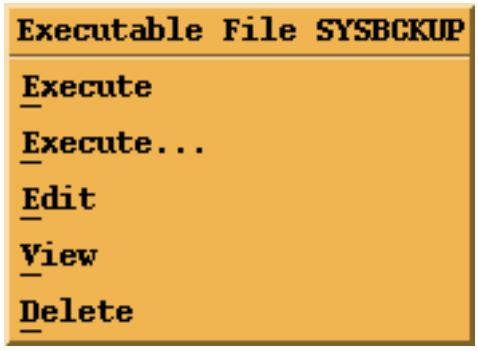
Note that the file name is displayed in the menu title.

Executable files



Double click with the left mouse button on this icon, invoke the command `SHELL` on the corresponding file.

Select a **Executable files** icon with the left mouse button and press the right mouse button to obtain the following menu:



Execute	Invoke the command `SHELL` on the file.

Execute...	Open the command panel `SHELL` with the file name.
Edit	Edit the file.
View	Read the file.
Delete	Delete the file.

Note that the file name is displayed in the menu title.

PAW Macros

Double click with the left mouse button on this icon, execute the corresponding macro.

Select a **PAW Macros** icon with the left mouse button and press the right mouse button to obtain the following menu:

Exec	Execute the macro.
Exec...	Open the command panel `EXEC` with the macro name. It is useful to give parameters to the macro.
Edit	Edit the macro.
View	Read the macro.
Delete	Delete the macro.

Note that the macro name is displayed in the menu title.

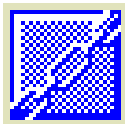
Pictures

Double click with the left mouse button on this icon, plot the corresponding picture.

Select a **Pictures** icon with the left mouse button and press the right mouse button to obtain the following menu:

Plot	Plot the highlighted picture.
Do PostScript	Produce the PostScript file `PNAME.ps`, where `PNAME` is the name of the highlighted picture.
Create	Create a new picture. The command panel `Picture/Create` is automatically invoked.
Rename	Rename the highlighted picture. The command panel `Picture/Rename` is automatically invoked.
Delete	Rename the highlighted picture.

Chains

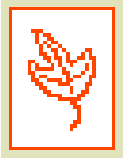


Double click with the left mouse button on this icon, allow to go one level deeper in the chain tree.

Select a **Chains** icon with the left mouse button and press the right mouse button to obtain the following menu:

List	.....
Show Tree	.....
Delete Chain	.....

Last chain level



Last chain element.

Select a **Last chain level** icon with the left mouse button and press the right mouse button to obtain the following menu:

List .....
Delete Chain Entry .....

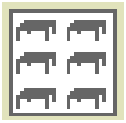
ZEBRA **Stores**

Double click with the left mouse button on this icon, allow to go inside the corresponding ZEBRA store.

Select a ZEBRA **Stores** icon with the left mouse button and press the right mouse button to obtain the following menu:

List Display divisions of the store
Show store DZSTOR Show parameters of the store (CALL DZSTOR)

ZEBRA **Divisions**



Double click with the left mouse button on this icon, allow to go inside the corresponding ZEBRA division.

Select a ZEBRA **Divisions** icon with the left mouse button and press the right mouse button to obtain the following menu:

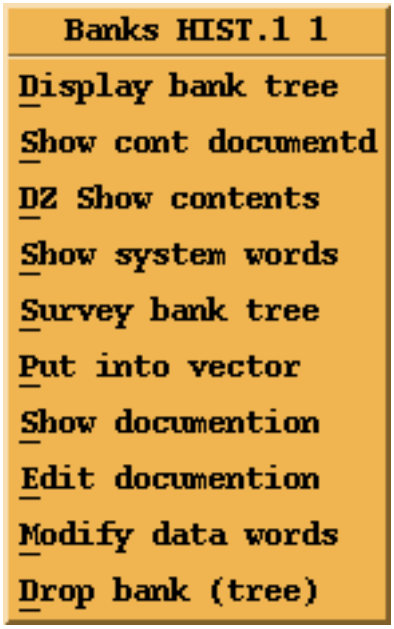
List Display banks of the division as icons.

Display division	Show layout of banks in divisions graphically.
Snap division	Show a snapshot of division parameters. (CALL DZSNAP).
Verify division	Verify division (CALL DZVERI).
Collect garbage	CALL MZGARB in selected division.
Set filter for banks	Allow to display only banks whose hollerith. identifiers match a wild card selection.

ZEBRA **Banks**

Double click with the left mouse button on this icon, draw the bank tree from the corresponding ZEBRA bank.

Select a ZEBRA **Banks** icon with the left mouse button and press the right mouse button to obtain the following menu:

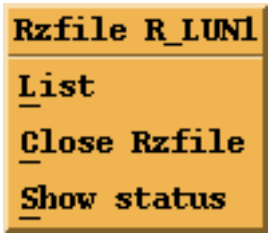


Display bank tree	Display graphically the structure below the selected bank (see picture banktree.eps).
Show cont documented	Display the data of the bank with their description if a documentation data base is provided (see CERN Q101).
DZ Show contents	CALL DZSHOW fore selected bank.
Show system words	List contents of the links and system words.
Survey bank tree	CALL DZSURV for selected bank
Put into vector	Put data contents of the bank into a KUIP vector.
Show documentation	Display the documentation for the bank (if provided).
Edit documentation	Edit a bank descriptor, if no available yet provide a template.
Modify data words	Self explaining.
Drop bank (tree)	Self explaining.

RZ Files

Double click with the left mouse button on this icon, allow to go inside the corresponding ZEBRA/RZ file.

Select a **RZ Files** icon with the left mouse button and press the right mouse button to obtain the following menu:

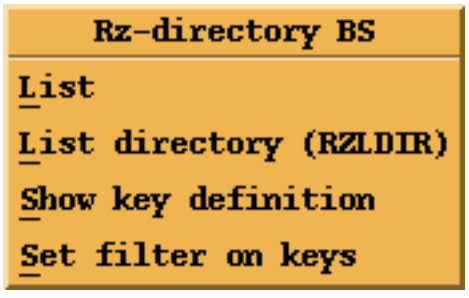


Close RZfile	Self explaining.
List	Display keys.
List directory	CALL RZLDIR.
Show key definition	self explaining.
Set filter on keys	Allow to display only entries whose key words match a wild card selection.
Show status	CALL RZSTAT.

RZ Directories

Double click with the left mouse button on this icon, allow to go inside the corresponding ZEBRA/RZ directory.

Select a **RZ Directories** icon with the left mouse button and press the right mouse button to obtain the following menu:

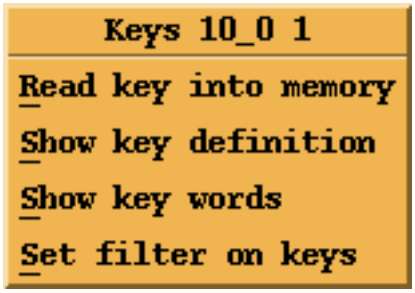


List	.....
List directory (RZLDIR)	.....
Show key definition	.....
Set filter on keys	.....

RZ Keys

Double click with the left mouse button on this icon, allow to read into memory the corresponding ZEBRA/RZ key.

Select a **RZ Keys** icon with the left mouse button and press the right mouse button to obtain the following menu:

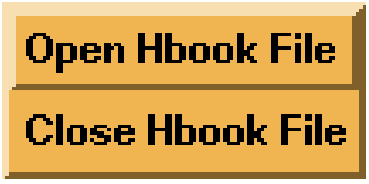


Read key into memory	Allow to inspect the data of a key.
Show key definition	Self explaining.
Show key words	Self explaining.
Set filter on keys	See above.

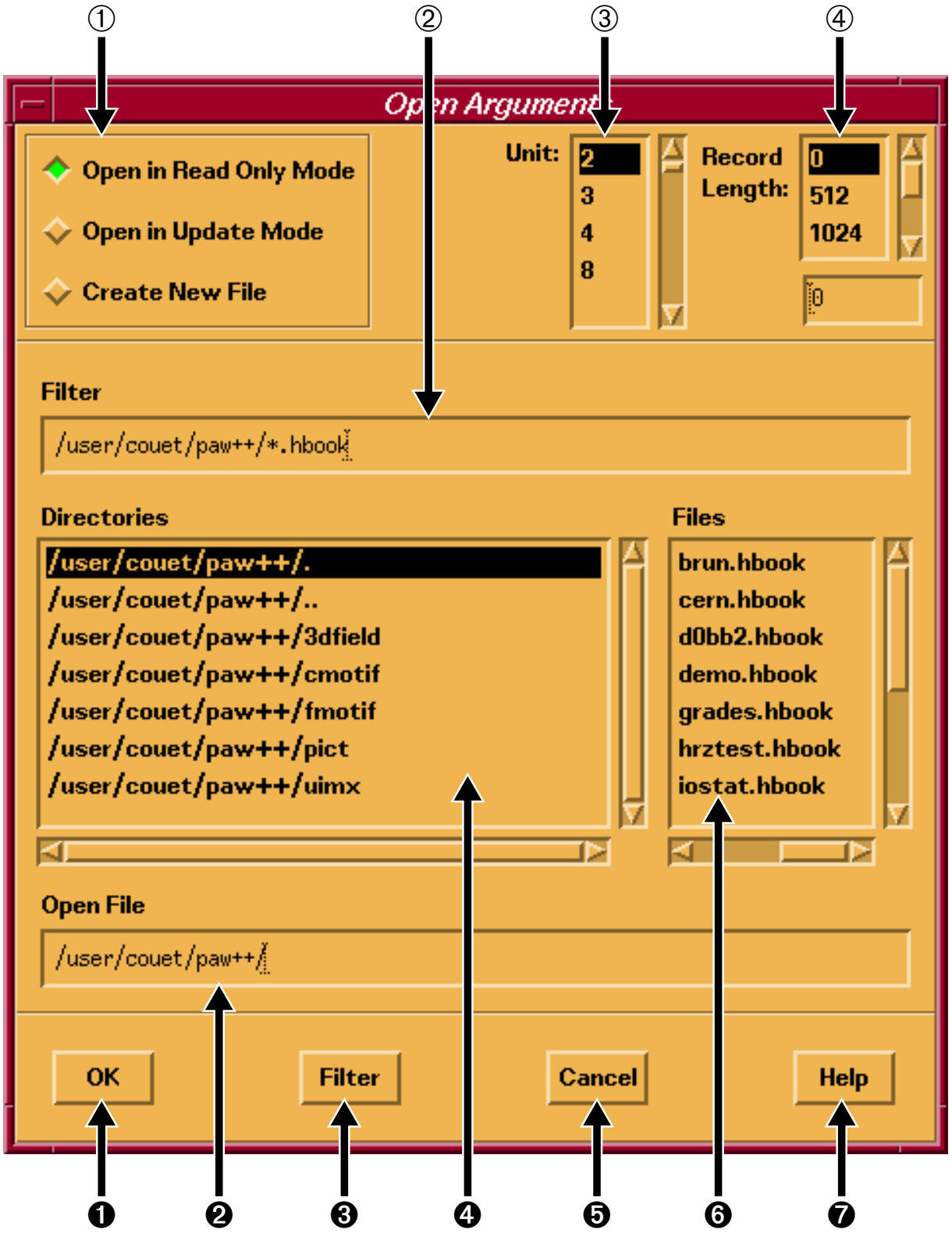
1.3.2 The Main Browser Menu Bar

In this section, is describe the full functionality of the pull down menu available in the Menu Bar of the **Main Browser**.

File



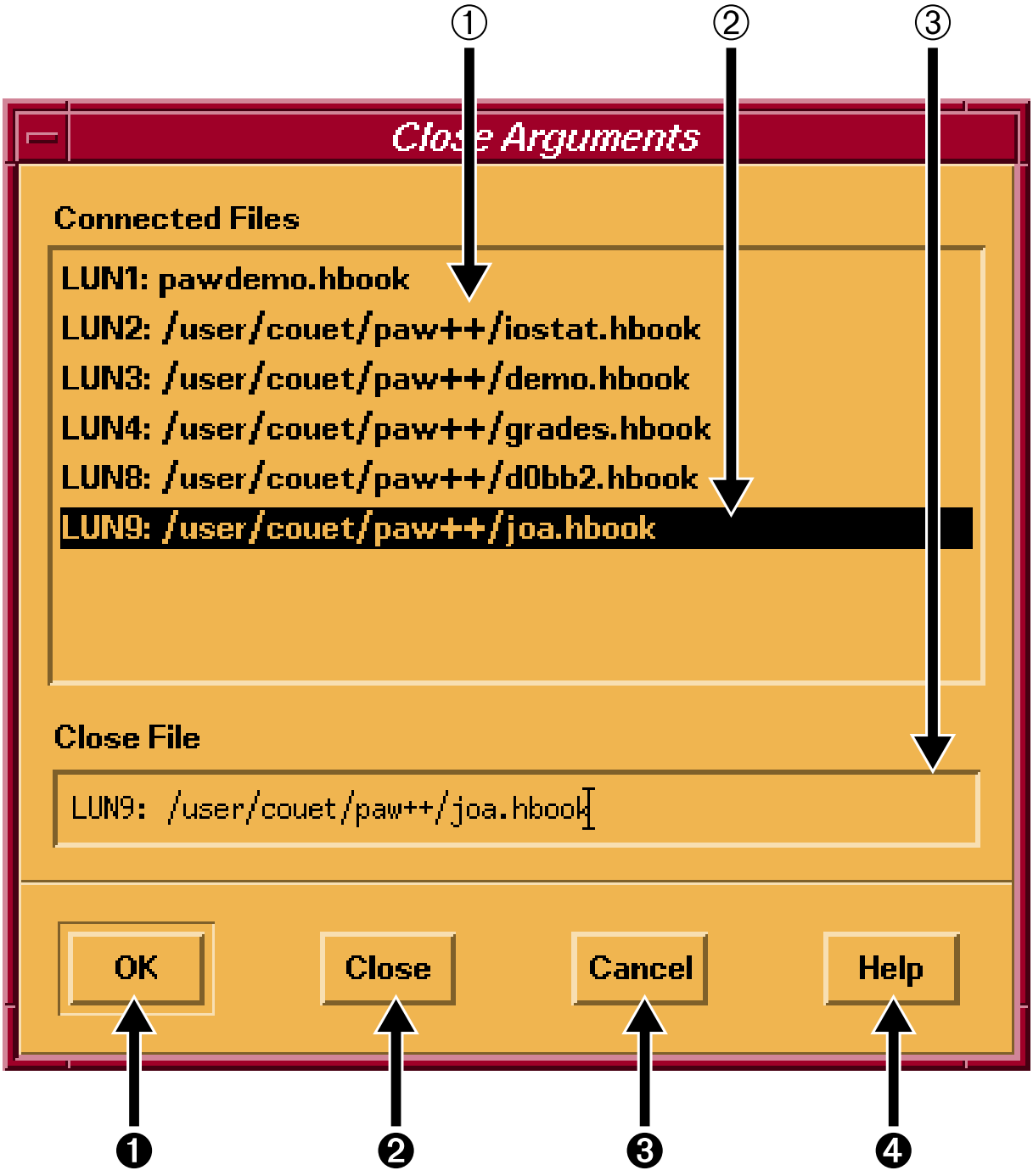
Open Hbook file	Display the **Open Arguments** panel (see after).
Close Hbook file	Display the **Close Arguments** panel (see after).


①
②
③
④
Open Argument
Open in Read Only Mode
Open in Update Mode
Create New File
Unit:
2
3
4
8
Record Length:
0
512
1024
0
Filter
/user/couet/paw++/*.hbook
Directories
/user/couet/paw++/.
/user/couet/paw++/..
/user/couet/paw++/3dfield
/user/couet/paw++/cmotif
/user/couet/paw++/fmotif
/user/couet/paw++/pict
/user/couet/paw++/uimx
Files
brun.hbook
cern.hbook
d0bb2.hbook
demo.hbook
grades.hbook
hrztest.hbook
iostat.hbook
Open File
/user/couet/paw++/
OK
Filter
Cancel
Help
❶
❷
❸
❹
❺
❻
❼

① Toggle buttons to choose the openning mode.
② Filter apply on the file list ❻.
③ Possible logical units. Only the free units are displayed. The next free unit is highlighted. Any other unit is invalid.
④ Possible record length. A record length of `0` means that the system will compute the correct one automatically.

❶ The file is open and this panel is closed.
❷ File name of the opened file.
❸ Apply the filter defined in ②.
❹ List of the subdirectories available. Double click on a directory name change the current directory.
❺ Cancel the current opened panel and clode it.
❻ List of the file in the current directory matching the filter.
❼ Help

Note that a double click with the left mouse button on a HBOOK file icon in the object window of the **Main Browser** open also the HBOOK file. This panel is usefull to specify a filter different form the default filter `*.hbook` used in the object window.


①
②
③
Close Arguments
Connected Files
LUN1: pawdemo.hbook
LUN2: /user/couet/paw++/iostat.hbook
LUN3: /user/couet/paw++/demo.hbook
LUN4: /user/couet/paw++/grades.hbook
LUN8: /user/couet/paw++/d0bb2.hbook
LUN9: /user/couet/paw++/joa.hbook
Close File
LUN9: /user/couet/paw++/joa.hbook
OK
Close
Cancel
Help
❶
❷
❸
❹

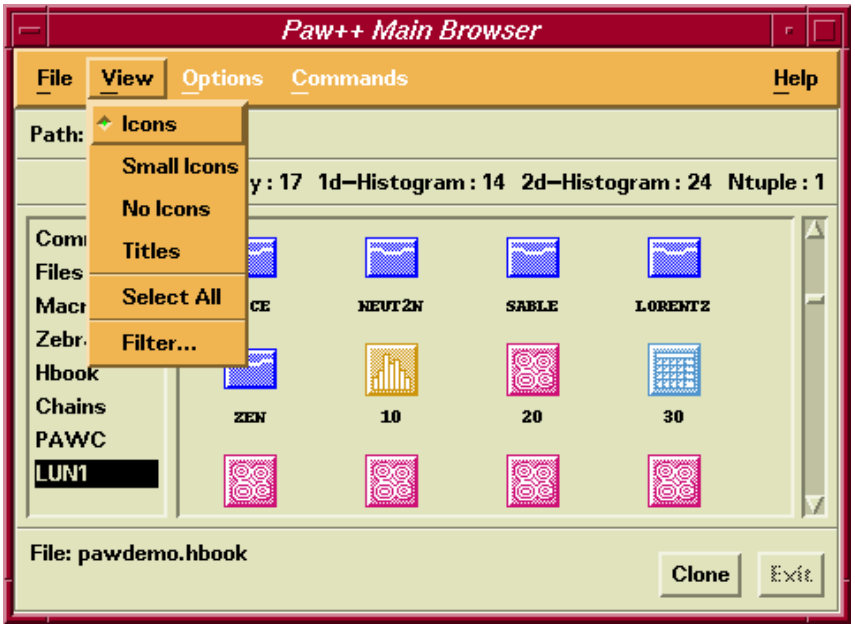
① List of the currently connected hbook files.
② A simple click with the left mouse button a file name in the connected files list, highlight the filename and put it in the **Close file** field ③.
③ Name of the file to be closed. This field can be filled directly by tipyng on the keyboard, or by a simple click with the left mouse button in the **Connected Files** list ①.

❶ When a file is selected, clicking on this button or typing `<CR>` allows to perform the action (close the file) and close the panel.
❷ Close the selcted file and leave the panel opened.
❸ Cancel the current operation and close the panel.
❹ Give some help.

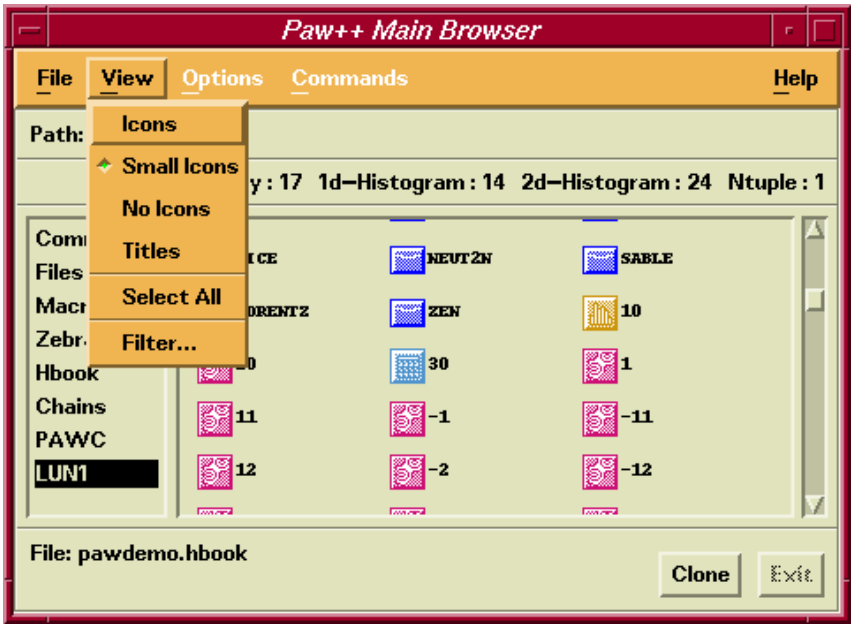
View

This pull down menu allows to define the "viewing" for the objects in the "object window" of the **Main Browser**.

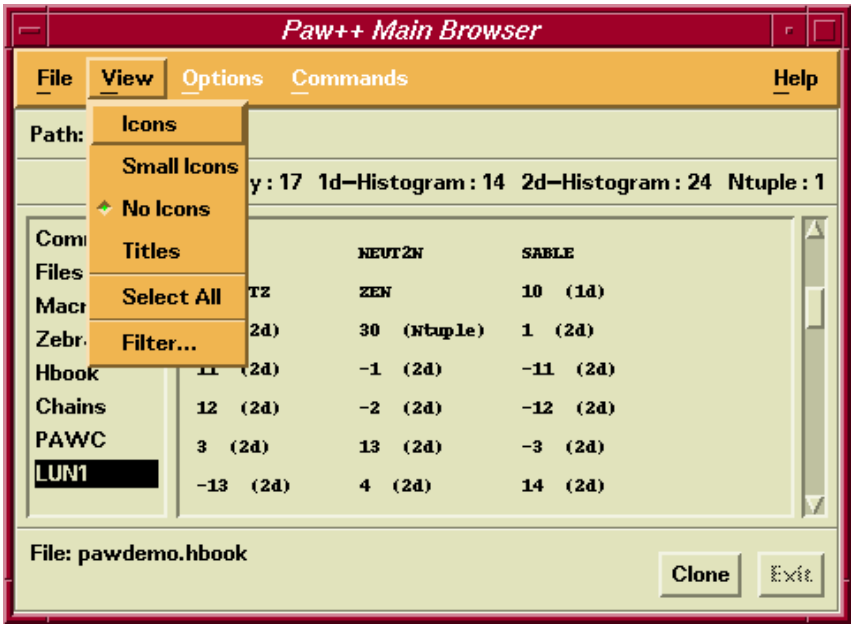
Icons .....
Small Icons .....
No Icons .....
Titles .....
Select All .....
Filter... .....



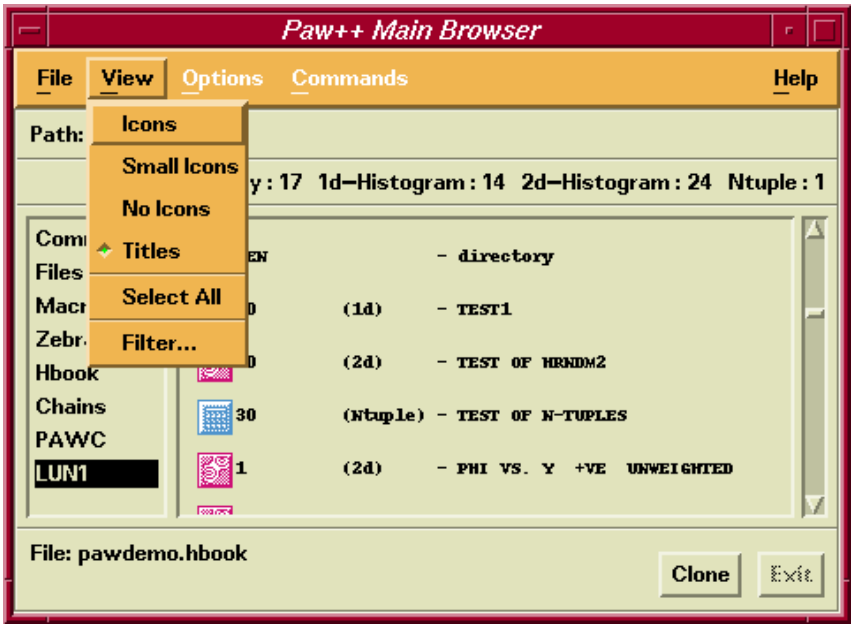
Icons: icons and the object identifiers are displayed.



Small Icons: small icons and the object identifiers are displayed.



No Icons : object identifiers and titles are displayed.



Titles : small icons and the object identifiers and titles are displayed.

Options

Raise Window .....
Command Panel... .....
Command Panel Help... .....

Commands

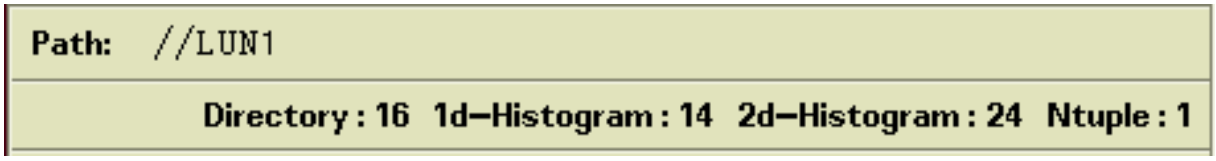
This menu allows to access the tree of the PAW commands. Only the top levels are describe in this section. Note the tree of the PAW commands can also be accessed via the item “Commands” in the “PATH Window” of the **Main Browser**.

Kuip	Command Processor commands.
Macro	Macro Processor commands.
Vector	Vector Processor commands.
Histogram	Manipulation of histograms, Ntuples.
Function	Operations with Functions. Creation and plotting.
Ntuple	Ntuple creation and related operations.
Graphics	Interface to the graphics packages HPLOT and HIGZ.
Picture	Creation and manipulation of HIGZ pictures.
Fortran	Interface to MINUIT, COMIS, SIGMA and FORTRAN Input/Output.
Network	To access files on remote computers.
Dzdoc	.....

Help

1.3.3 Information Windows

Top

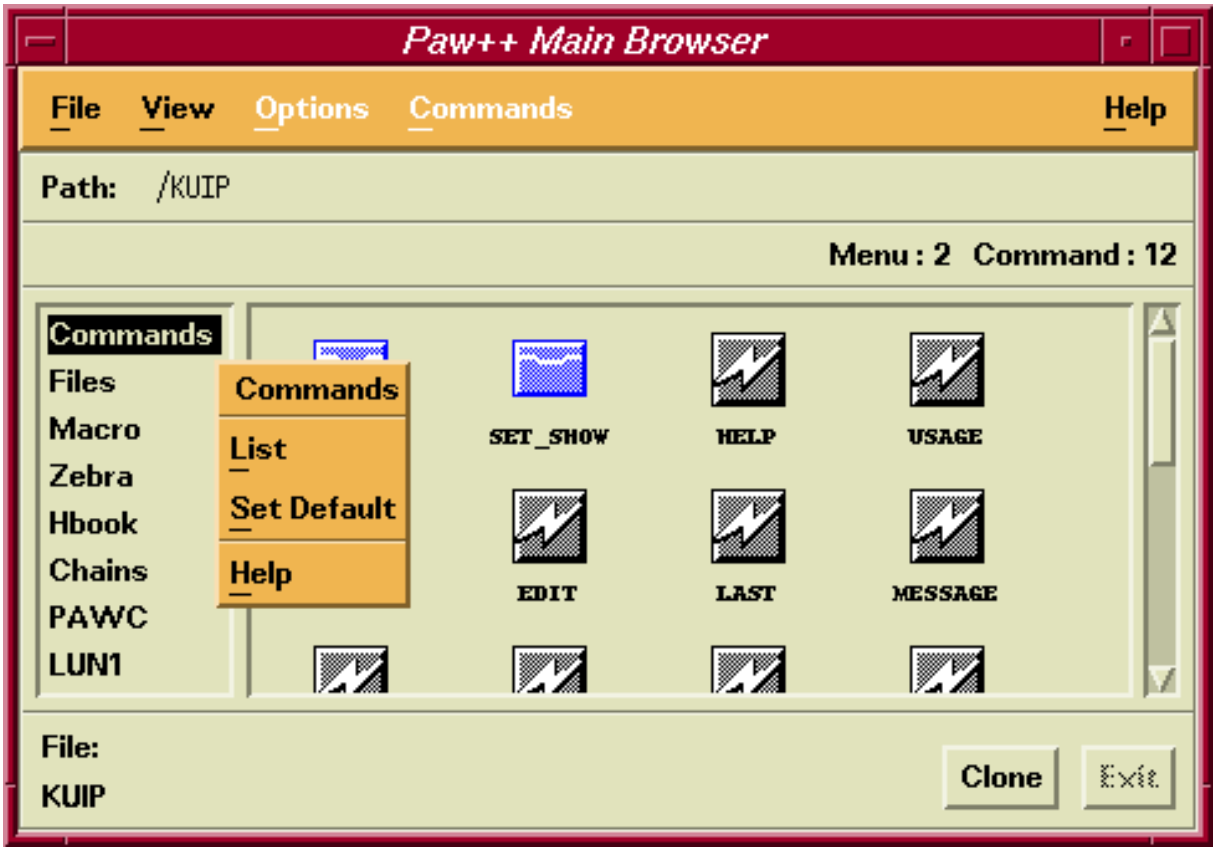


Bottom

1.3.4 Content Window

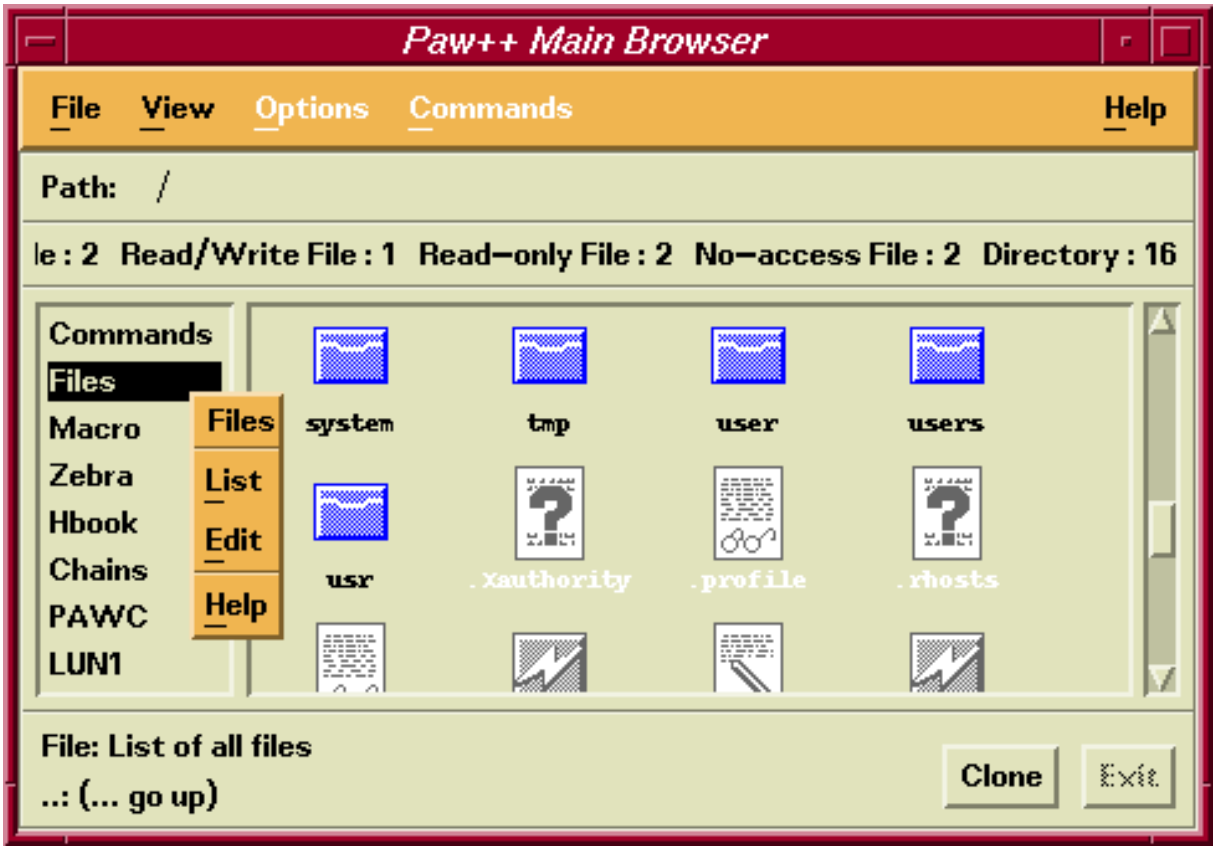
In this section are describe the different menu available in the “Content Window”.

Commands

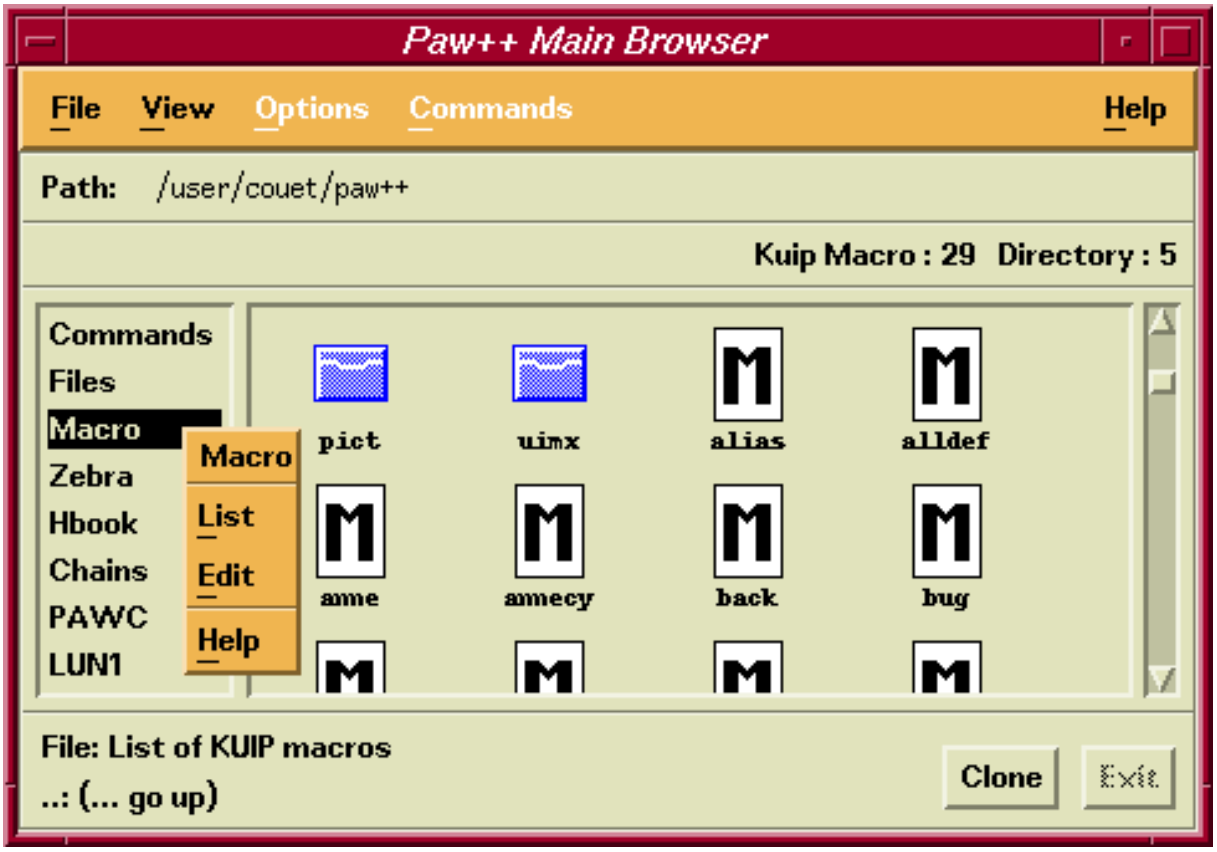


List .....
Set Default .....
Help .....

Files



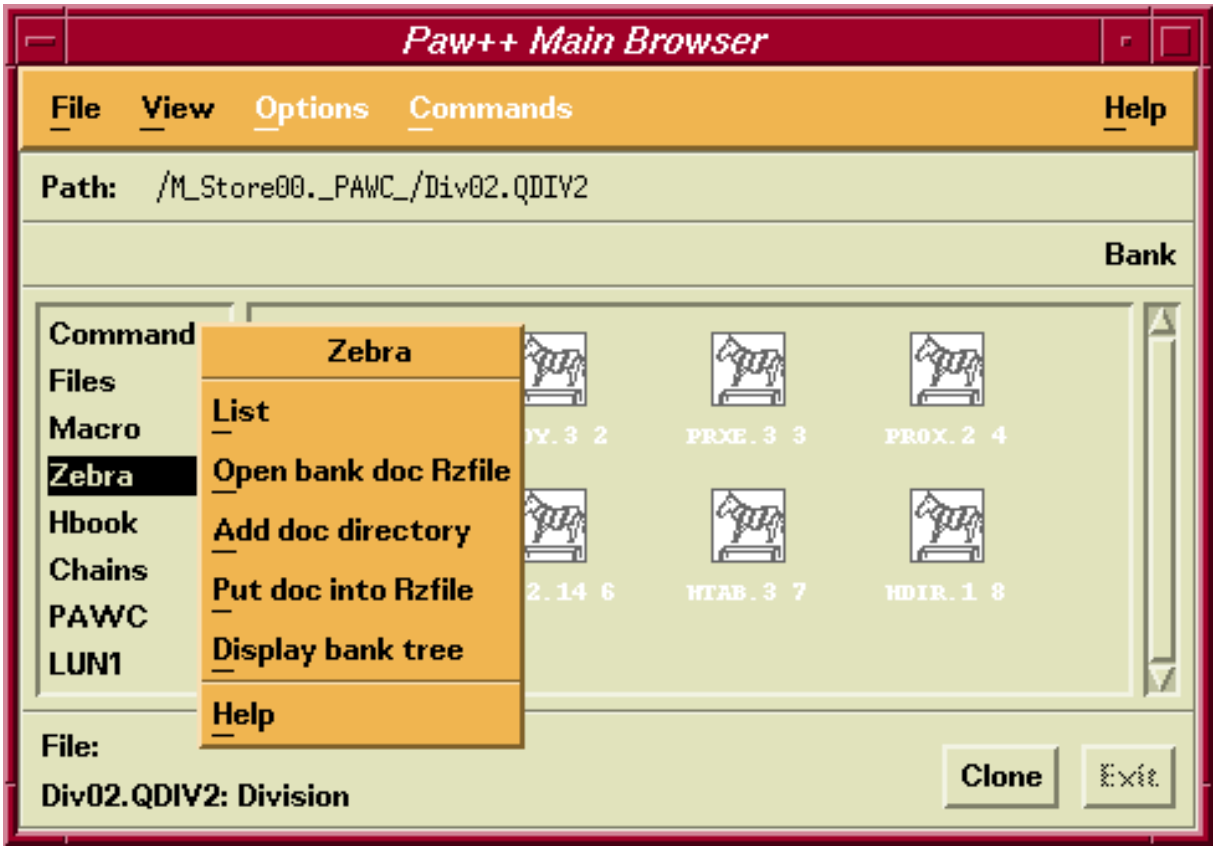
List .....
Edit .....
Help .....



Macro

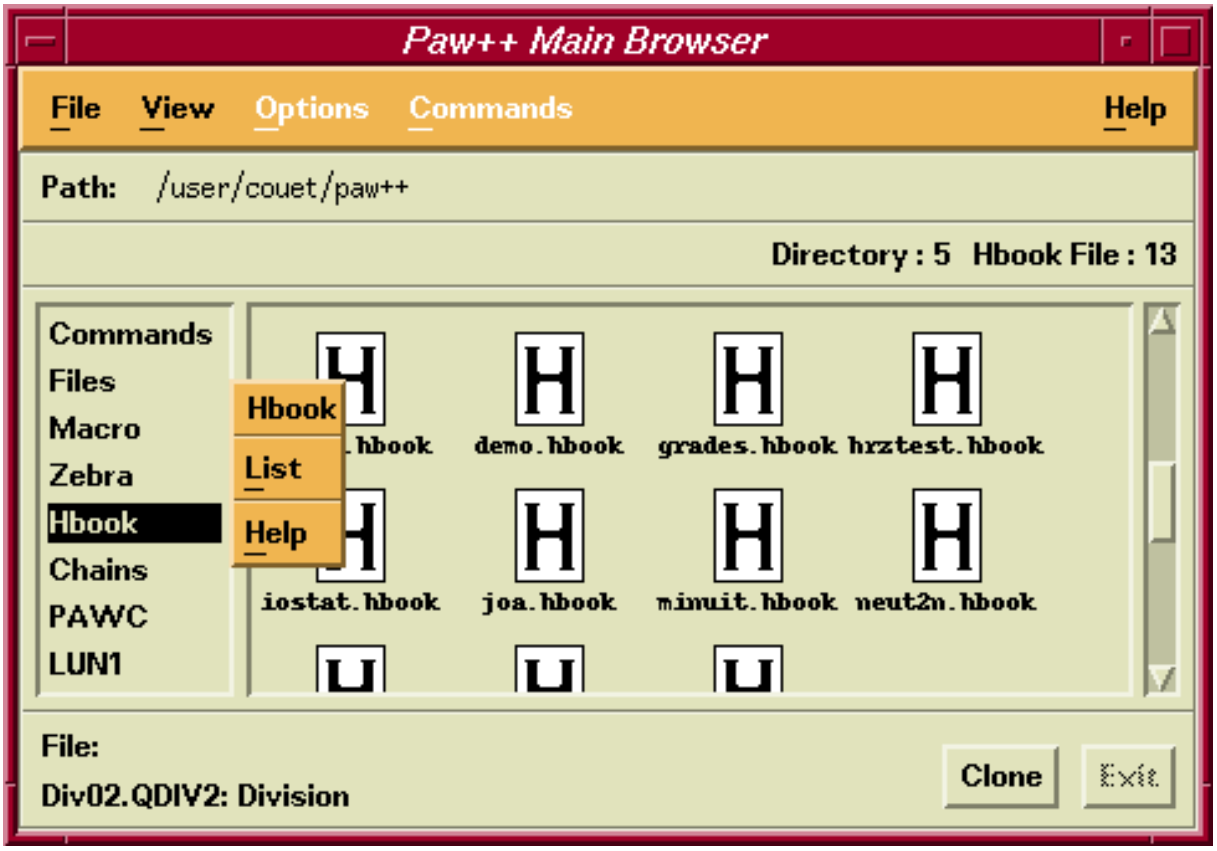
List .....
Edit .....
Help .....

Zebra



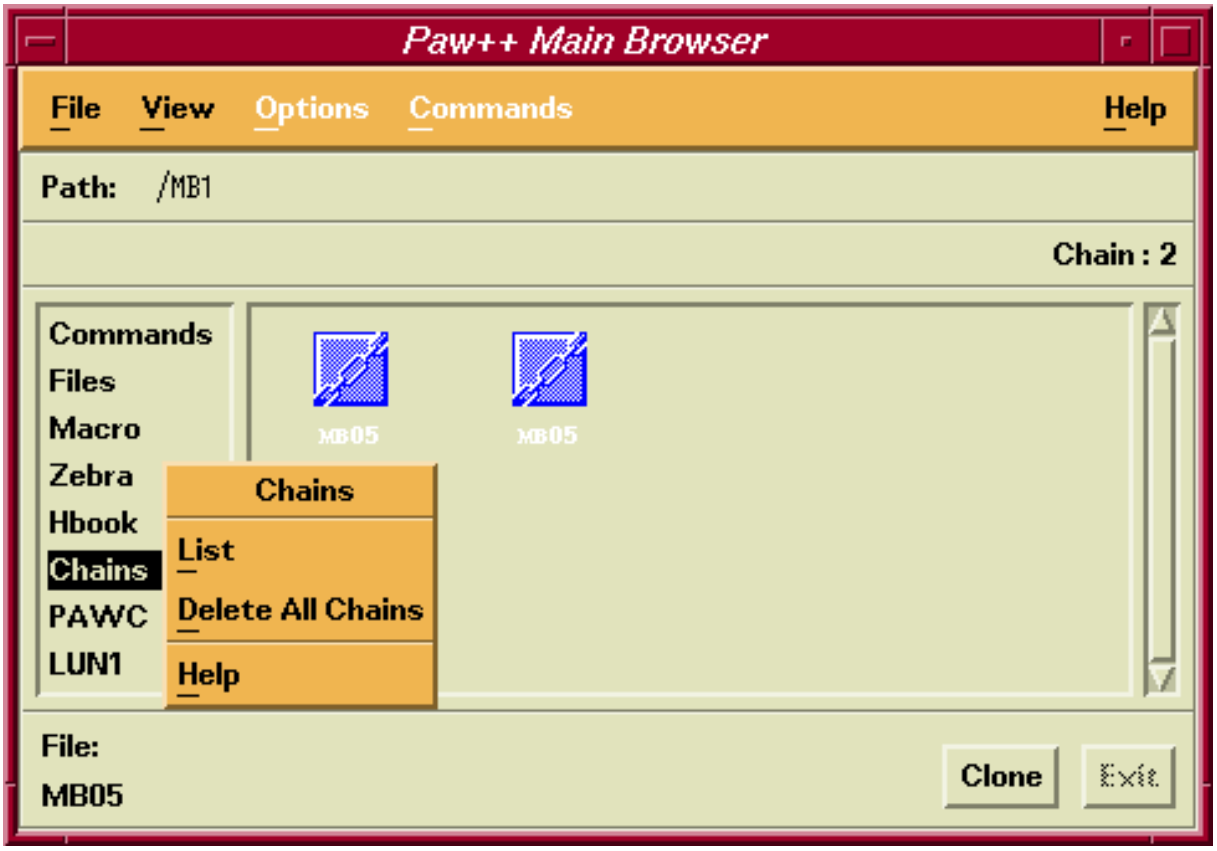
List .....
Open bank doc Rzfile .....
Add doc directory .....
Put doc into Rzfile .....
Display bak tree .....
Help .....

Hbook

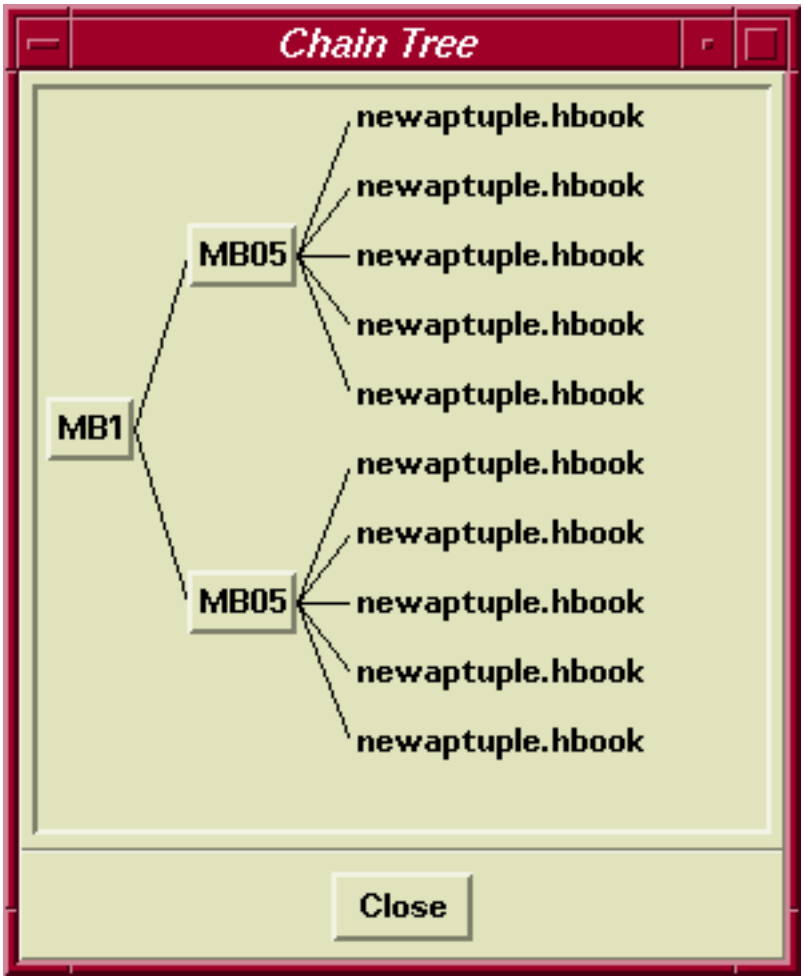


List .....
Help .....

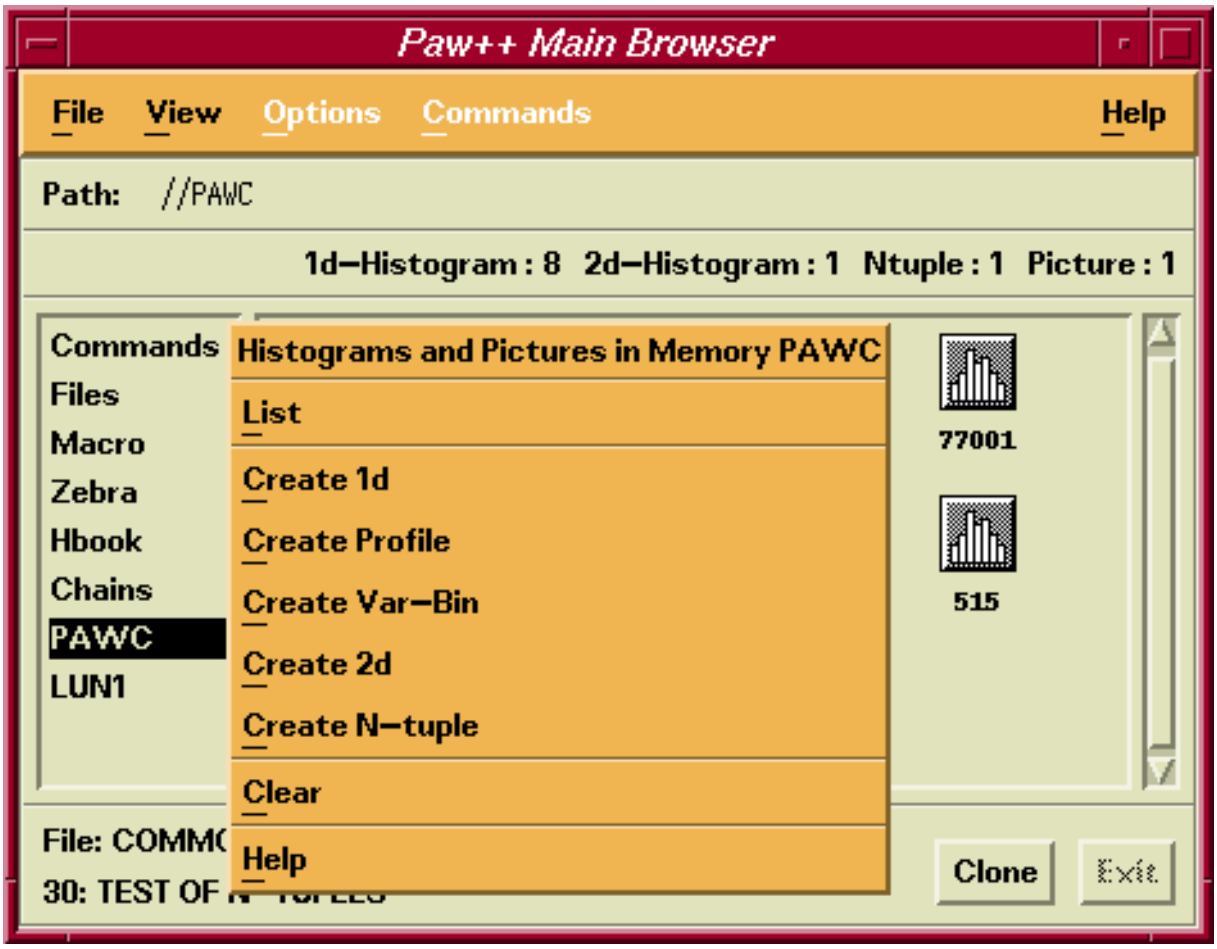
Chains



List .....
Delete All Chains .....
Help .....

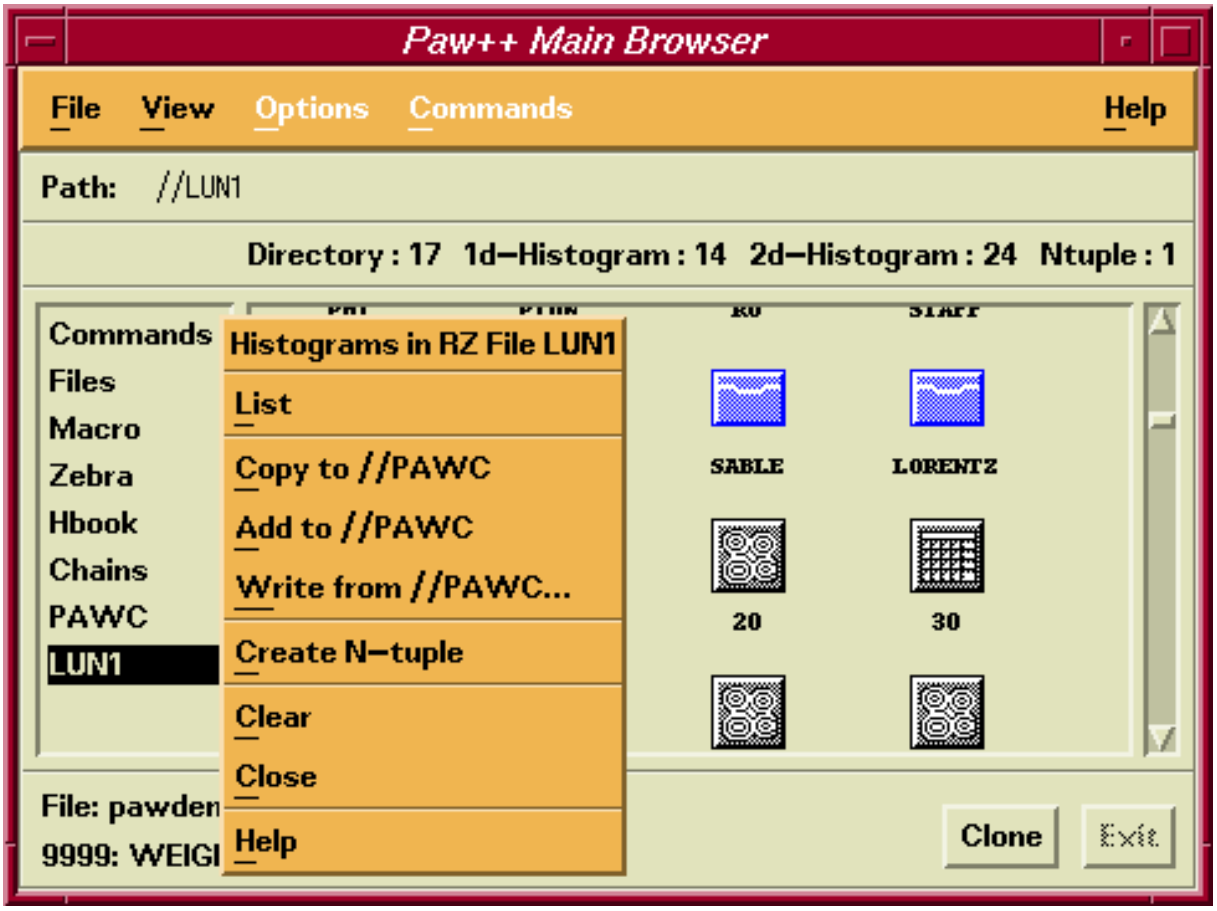

Chain Tree
MB1
MB05
MB05
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
newaptuple.hbook
Close

PAWC



List	.....
Create 1d	Create a 1d histogram.
Create Profile	Create a Profile histogram.
Create Var-Bin	Create a variable bin size histogram.
Create 2d	Create a 2d histogram.
Create N-tuple	Create a row wise Ntuple histogram.
Clear	.....
Help	.....

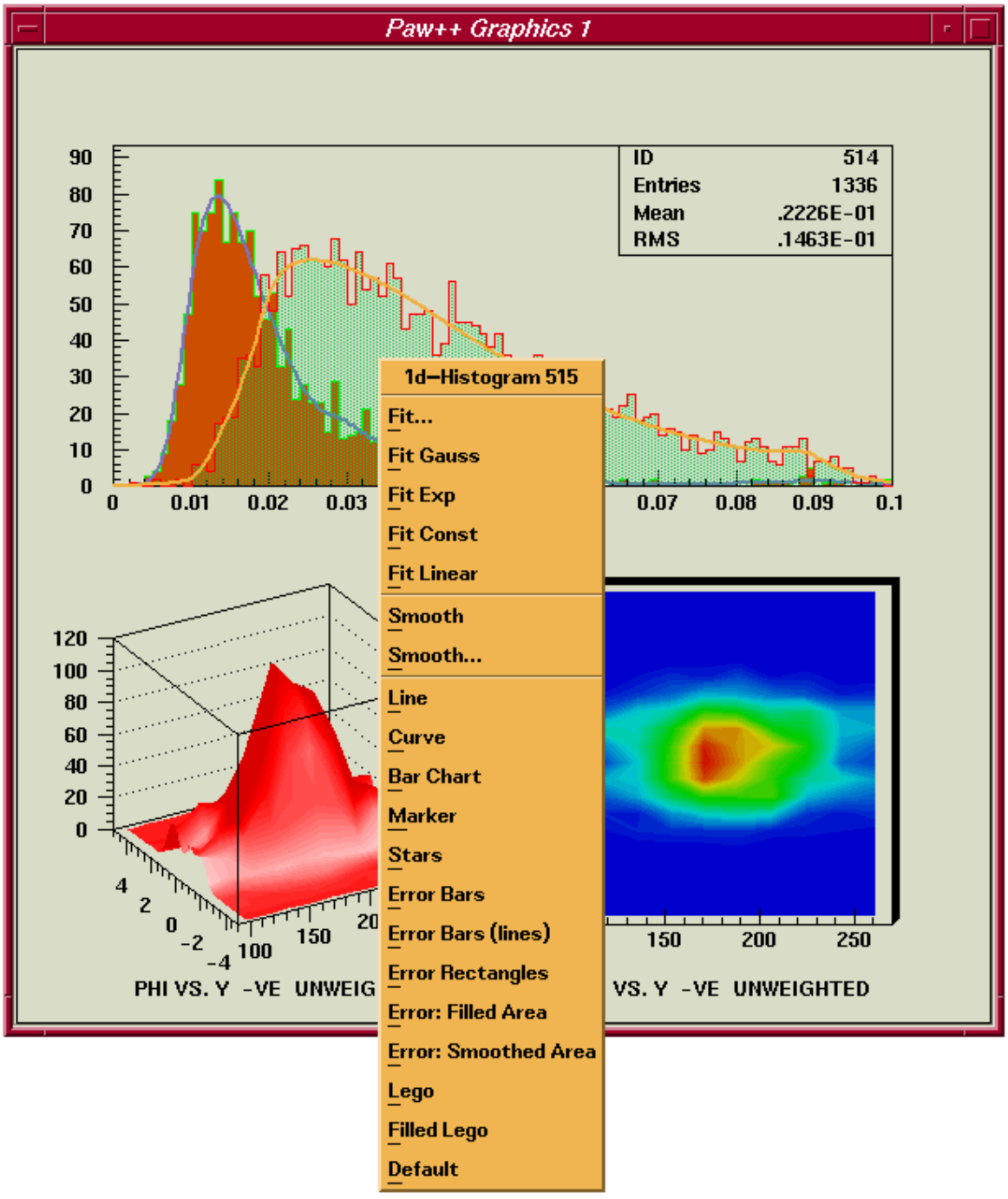
Hbook Files (//LUNn)



List	.....
Copy to //PAWC	.....
Add to //PAWC	.....
Write from //PAWC...	.....
Create N-tuple	Create a row wise Ntuple histogram.
Clear	.....
Close	.....
Help	.....

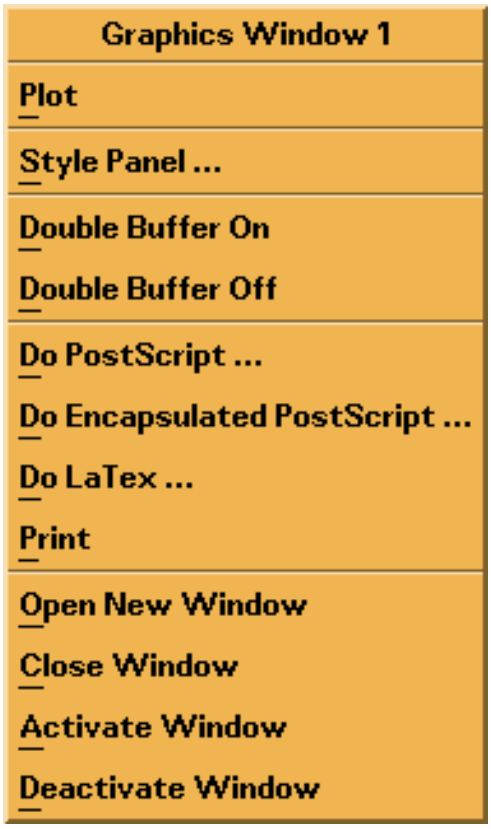
1.4 Graphics

PAW++ allows direct graphics manipulation of the objects like Histograms or Ntuples. To perform actions on object from the **Graphics Window**, it is enough to move the mouse cursor on the **Graphics Window** and to click with the right mouse button on the object. A pull down menu will be displayed according to the object picked. In this section are described the different menus available in the **Graphics Window**



1.4.1 The Graphics Window

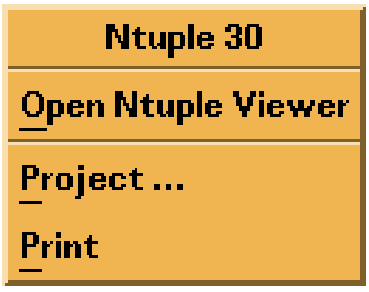
When no object is picked in the **Graphics Window** for instance when the background of the window is picked the following menu is displayed.



Plot	`Picture/Plot`
Style Panel...	`show_histoStyle`
Double Buffer On	`Igset 2BUF 1`
Double Buffer Off	`Igset 2BUF 0`
Do PostScript...	`-Picture/Print paw.ps`
Do Encapsulated PostScript...	`-Picture/Print paw.eps`
Do LaTex...	`-Picture/Print paw.tex`
Print	`Picture/Print`
Open New Window	`Work [this] OA`
Close Window	`Work [this] C`
Activate Window	`Work [this] A`
Deactivate Window	`Work [this] D`

1.4.2 Ntuple

When a Ntuple is picked in **Graphics Window** with the right mouse button, the following menu is displayed:



Open Ntuple Viewer	`default_action`
Project...	`Ntuple/Proj IDN=[this]`
Print	`Ntuple/Print [this]`

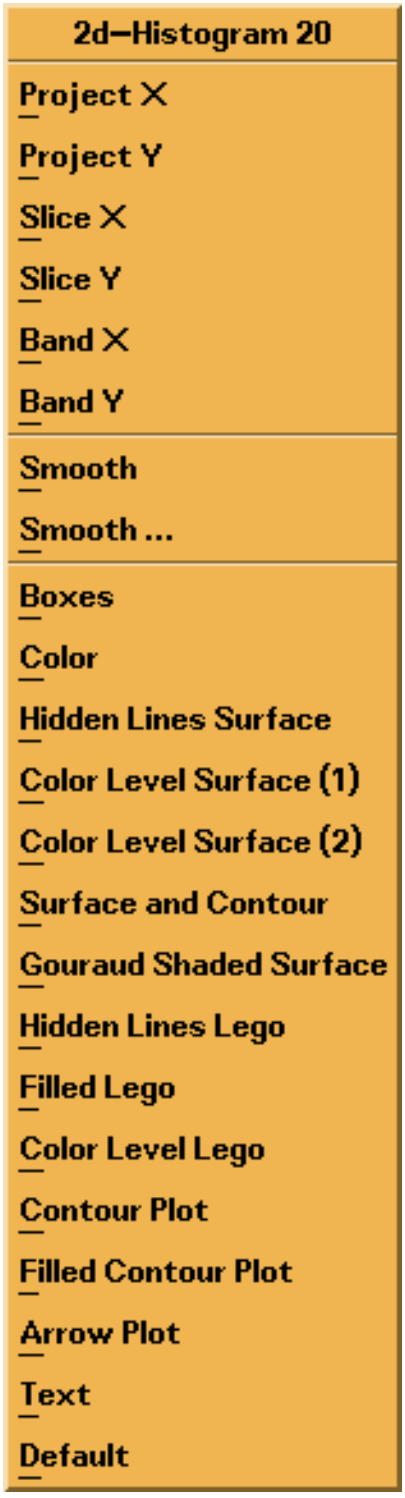
1.4.3 1D-Histogram

When a 1D-Histogram is picked in **Graphics Window** with the right mouse button, the following menu is displayed:

Fit...	`Histo/Fit [this]`
Fit Gauss	`Histo/Fit [this] G`
Fit Exp	`Histo/Fit [this] E`
Fit Const	`Histo/Fit [this] P0`
Fit Linear	`Histo/Fit [this] P1`
Smooth	`Smooth [this]`
Smooth...	`Smooth [this]`
Line	`Histo/Plot [this] L`
Curve	`Histo/Plot [this] C`
Bar Chart	`Histo/Plot [this] B`
Marker	`Histo/Plot [this] P`
Stars	`Histo/Plot [this] *`
Error Bars	`Histo/Plot [this] E`
Error Bars (lines)	`Histo/Plot [this] E1`
Error Rectangles	`Histo/Plot [this] E2`
Error: Filled Area	`Histo/Plot [this] E3`
Error: Smoothed Area	`Histo/Plot [this] E4`
Lego	`Histo/Plot [this] LEGO`
Filled Lego	`Histo/Plot [this] LEGO1`
Default	`Histo/Plot [this]`

1.4.4 2D-Histogram

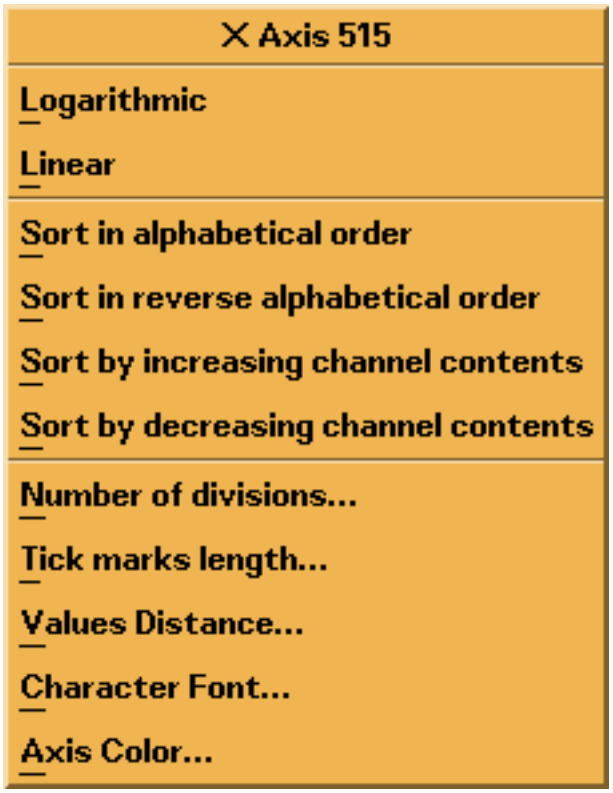
When a 2D-Histogram is picked in **Graphics Window** with the right mouse button, the following menu is displayed:



Project X	`ProX [this]; Hi/Proj [this]; Hi/Plot [this].proX`
Project Y	`ProY [this]; Hi/Proj [this]; Hi/Plot [this].proY`
Slice X	`SliX [this]; Hi/Proj [this]; Hi/Plot [this].sliX.1`
Slice Y	`SliY [this]; Hi/Proj [this]; Hi/Plot [this].sliY.1`
Band X	`BanX [this]; Hi/Proj [this]; Hi/Plot [this].banX.1`
Band Y	`BanY [this]; Hi/Proj [this]; Hi/Plot [this].banY.1`
Smooth	`Smooth [this]`
Smooth...	`Smooth [this]`
Boxes	`Histo/Plot [this] BOX`
Color	`Histo/Plot [this] COLZ`
Hidden Lines Surface	`Histo/Plot [this] SURF`
Color Level Surface (1)	`Histo/Plot [this] SURF1`
Color Level Surface (2)	`Histo/Plot [this] SURF2`
Surface and Contour	`Histo/Plot [this] SURF3`
Gouraud Shaded Surface	`Histo/Plot [this] SURF4`
Hidden Lines Lego	`Histo/Plot [this] LEGO`
Filled Lego	`Histo/Plot [this] LEGO1`
Color Level Lego	`Histo/Plot [this] LEGO2`
Contour Plot	`Histo/Plot [this] CONT`
Filled Contour Plot	`Set NCOl 28;Pal 1;Conto [this] 20 3`
Arrow Plot	`Histo/Plot [this] ARR`
Text	`Histo/Plot [this] TEXT`
Default	`Histo/Plot [this] SCAT`

1.4.5 X Axis

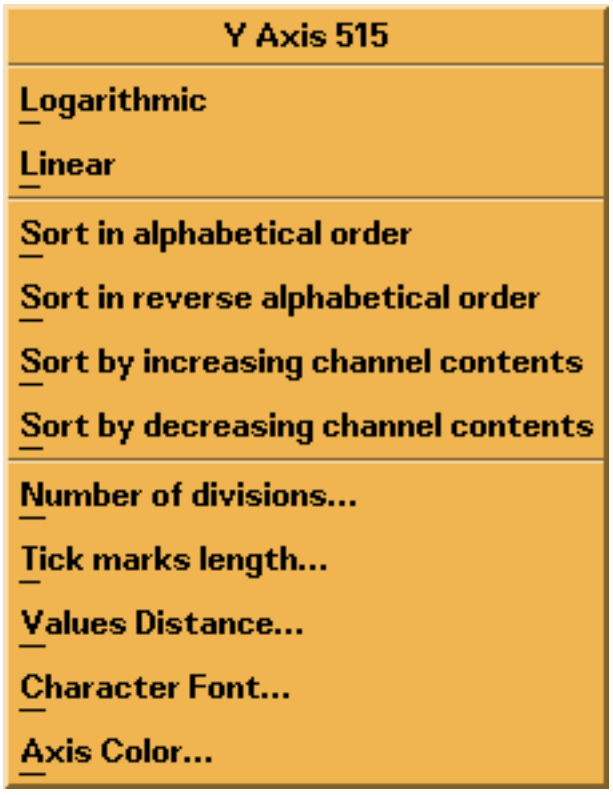
When a X-Axis is picked in **Graphics Window** with the right mouse button, the following menu is displayed:



Logarithmic	`Option LOGX ; Hist/plot [this]`
Linear	`Option LINX ; Hist/plot [this]`
Sort in alphabetical order	`Sort [this] AX ; Hist/plot [this]`
Sort in reverse alphabetical order	`Sort [this] EX ; Hist/plot [this]`
Sort by increasing channel contents	`Sort [this] DX ; Hist/plot [this]`
Sort by decreasing channel contents	`Sort [this] VX ; Hist/plot [this]`
Number of divisions...	`-Set NDVX ; Hist/plot [this]`
Tick marks length...	`-Set XTIC ; Hist/plot [this]`
Values Distance...	`-Set YVAL ; Hist/plot [this]`
Character Font...	`-Set VFON ; Hist/plot [this]`
Axis Color...	`-Set XCOL ; Hist/plot [this]`

1.4.6 Y Axis

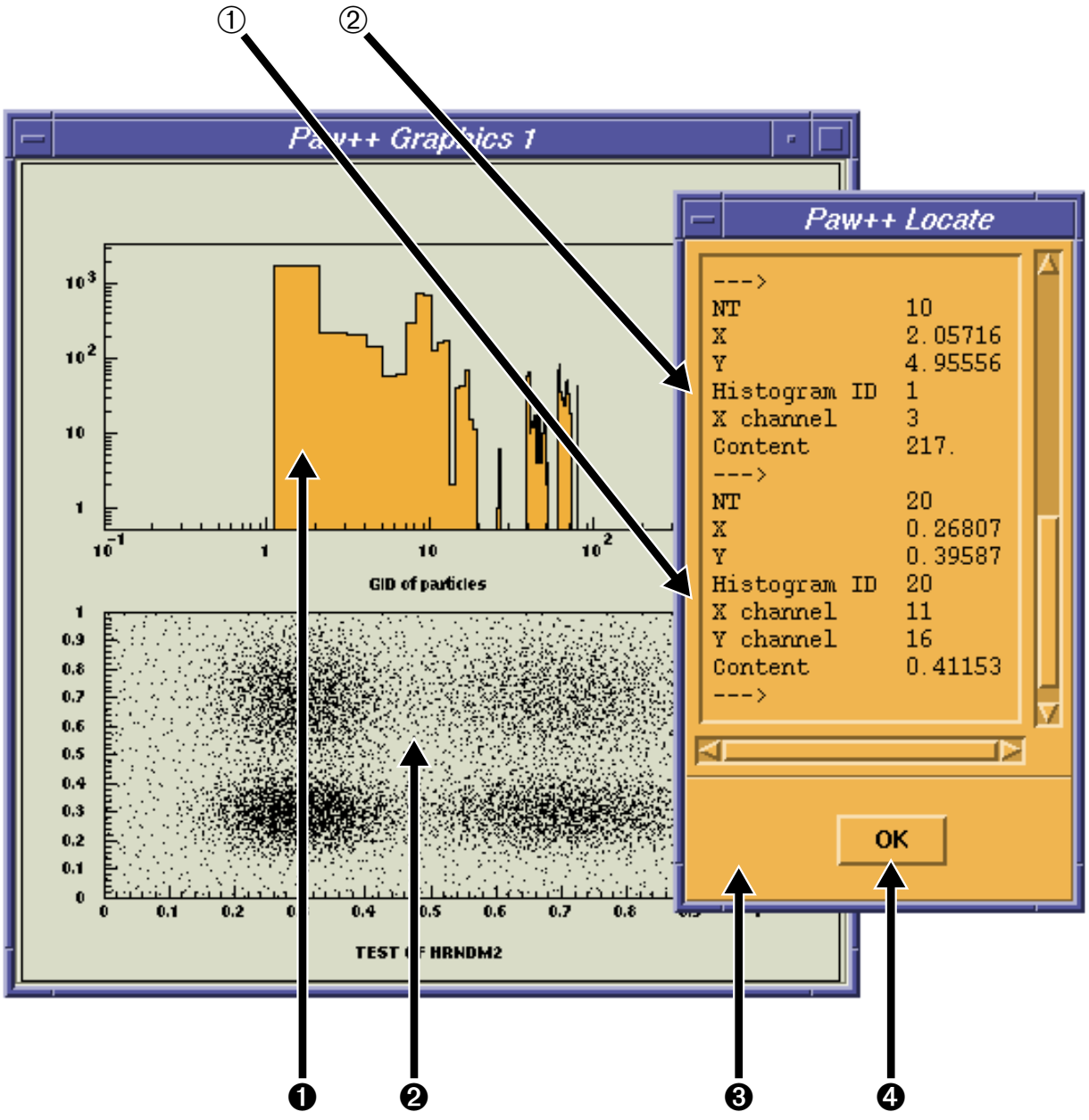
When a Y-Axis is picked in **Graphics Window** with the right mouse button, the following menu is displayed:



Logarithmic	`Option LOGY ; Hist/plot [this]`
Linear	`Option LINY ; Hist/plot [this]`
Sort in alphabetical order	`Sort [this] AY ; Hist/plot [this]`
Sort in reverse alphabetical order	`Sort [this] EY ; Hist/plot [this]`
Sort by increasing channel contents	`Sort [this] DY ; Hist/plot [this]`
Sort by decreasing channel contents	`Sort [this] VY ; Hist/plot [this]`
Number of divisions...	`-Set NDVY ; Hist/plot [this]`
Tick marks length...	`-Set YTIC ; Hist/plot [this]`
Values Distance...	`-Set XVAL ; Hist/plot [this]`
Character Font...	`-Set VFON ; Hist/plot [this]`
Axis Color...	`-Set YCOL ; Hist/plot [this]`

1.4.7 Locate on Histograms

To retrieve interactively on the **Graphics Window** an histogram identifier a bin number, a `(X,Y)` position etc... , place the mouse cursor on the graphics area and click with the left mouse button on the interesting region. The information about the picked histogram will appear in the window called **PAW++ Locate**.



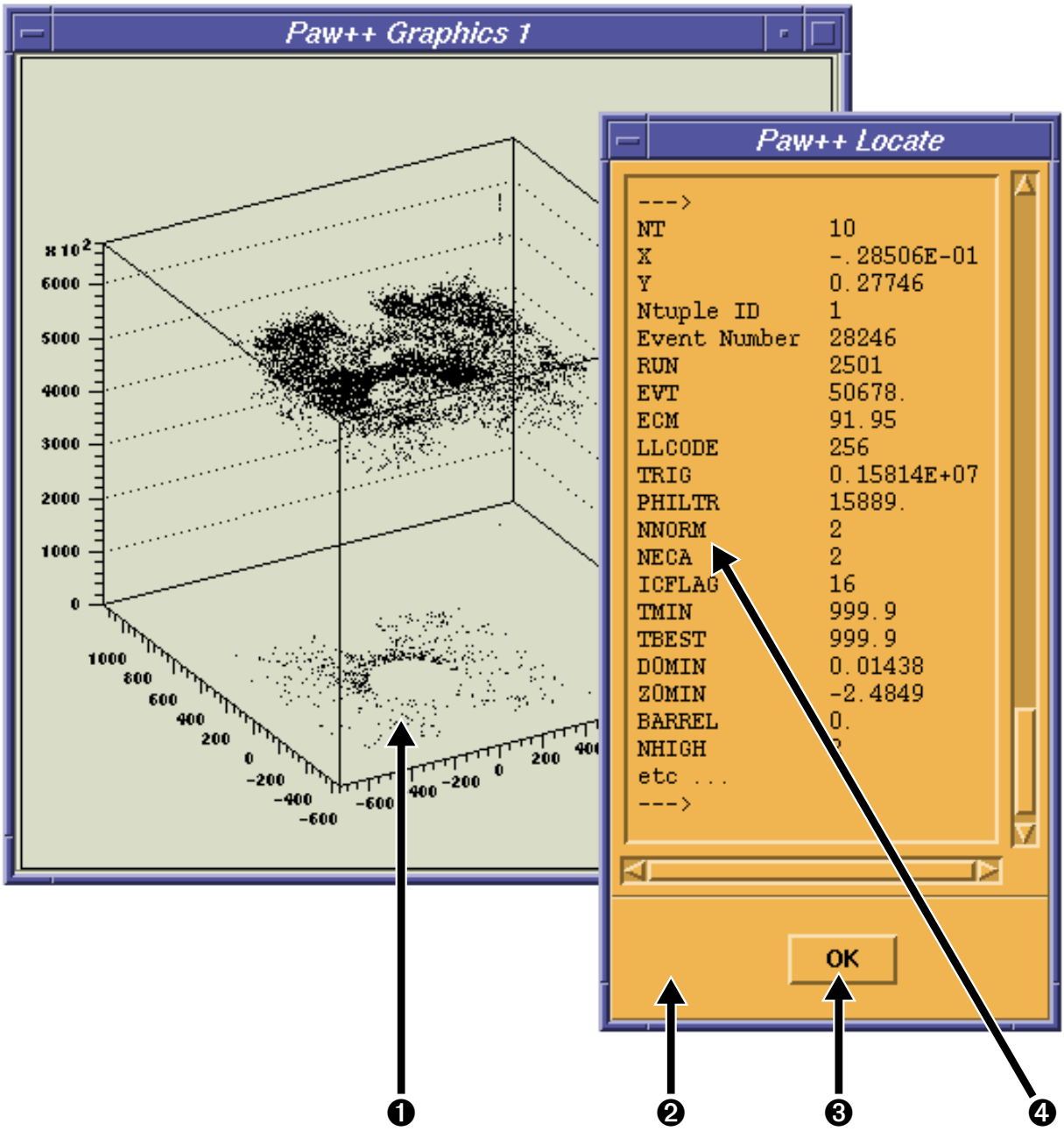
❶ 1D Histogram (with LOG scale).
❷ 2D Histogram.
❸ **PAW++ Locate** window.
❹ To release the Output window.

① Info the the 1D Histogram.

② Info the the 2D Histogram.

1.4.8 Locate on Ntuples

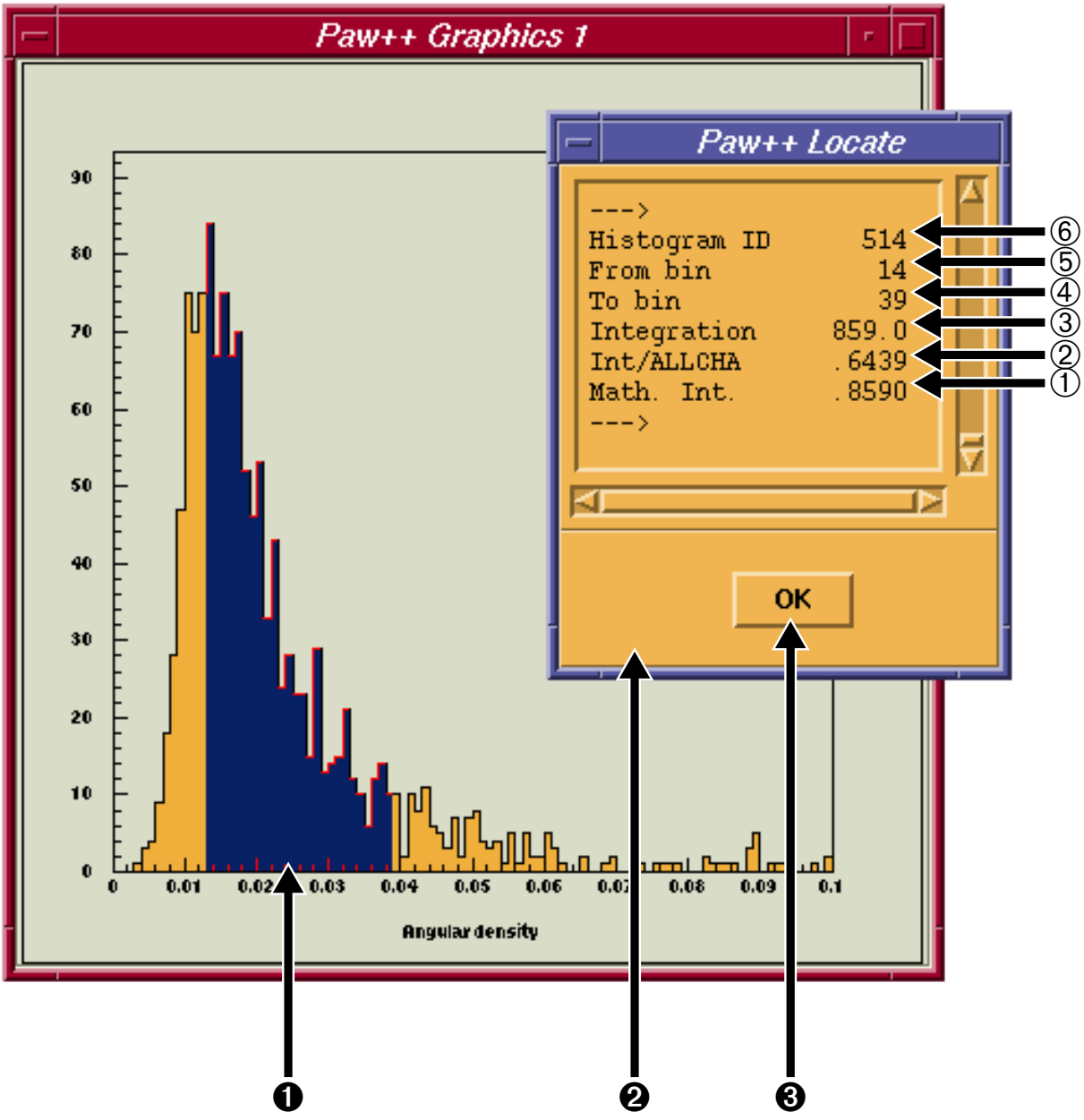
Just by clicking with the left mouse button on a Ntuple drawing, one can get the event description in the **PAW++ Locate** window. If the mouse cursor is moved on the Ntuple drawing with the left mouse button pressed, the event description will change in real time in **PAW++ Locate**.



❶ Ntuple drawing.
❷ **PAW++ Locate** window.
❸ To release the Output window.
❹ event description.

1.4.9 Integrate Histograms

To integrate interactively an histogram, place the mouse cursor on the bin from which the integration will start, and drag the cursor with the left mouse button pressed to the last bin. The result will appears in real time in a separated window called **PAW++ Locate ❷**.



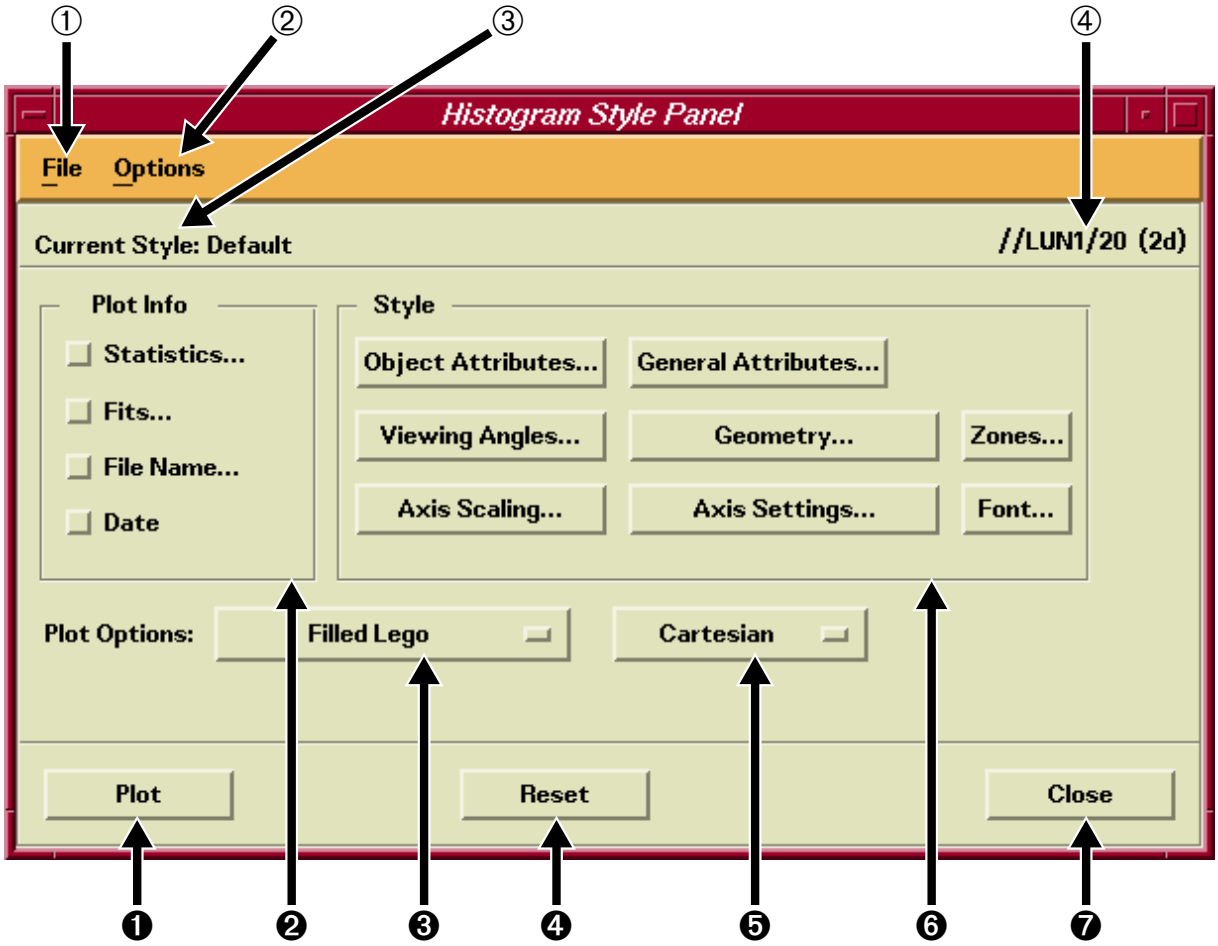
❶ Integrated area.
❷ Output window. It is possible to copy (via the mouse) the text inside this window.
❸ To release the Output window.

① Histogram identifier.

② First bin for the integration.
③ Last bin for the integration.
④ Value of the integral.
⑤ Normalized integral.
⑥ “Mathematical” integral. Each bin contribution is multiply by the bin witdh.

1.5 The Histogram Style Panel

The **Histogram Style Panel** allows to manipulate and present histograms. It works on one histogram only: the "Current histogram". To set the current histogram it is enough to plot it for the **Main Browser**, via a double click on the icon.



❶ Plot the current histogram.
❷ Add informations on the plots.
❸ Define the graphical option used to plot the current histogram.
❹ Reset the default attributes.
❺ Define the coordinate system used to draw lego and surface plots.
❻ Define attibutes used to draw the current histogram.
❼ Close the **Histogram Style Panel**.

① File menu.
② Options menu.
③ Current style name.
④ Current histogram name and type.

1.5.1 The Histogram Style Panel Menu Bar

File

Open Style — Allows to choose and execute a "Style Macro". This "Style Macro" becomes the "current style". This field ③ in the **Histogram Style Panel** is updated with the "current style" name. The "Style Macro" have by default the extension `.sty`.

Save Style — Save the "current style". When a style is saved, all the current attribute values are saved in the "Style Macro".

Save Style As... — Save the "current style" with a new name.

Close

Options

Automatic Refresh — By default the "Automatic Refresh" is on: each time the "current picture" is changed, the graphics window is updated. When this mode is off, the user has to click on one of the Apply button available.

Overlay — Each time a new histogram, vector, or ntuple drawing is produced, a clear window is performed. To superimpose all the drawing on the same image, it is enough to put this option on. This option is the equivalent of the option `S` in the command `HISTO/PLOT`.

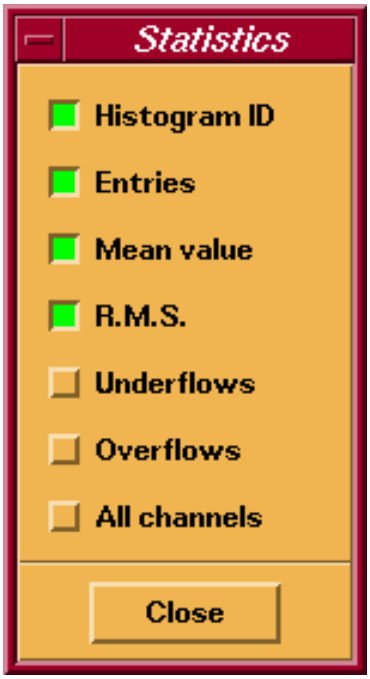
1.5.2 Plot Info

This set of toggle buttons allow to add some usefull information on the curren plot. If the Automatic refresh mode is on, the plot is automatically refresh.

Statistics...	Allow to draw (or not) the statistics on the plot (PAW command `OPTION STAT`). When the toggle button is set on, a panel is displayed in order to specify with parameters will be visible.
Fits...	Allow to draw (or not) the fit parameters on the plot (PAW command `OPTION FIT`). When the toggle button is set on, a panel is displayed in order to specify with parameters will be visible.
File Name...	Allow to draw (or not) the file name on the plot (PAW command `OPTION FILE`).When the toggle button is set on, a panel is displayed in order to specify the file name position.
Date...	Allow to draw (or not) the date on the plot (PAW command `OPTION DATE`).When the toggle button is set on, a panel is displayed in order to specify the date position

Statistics ...

This panel in the equivalent of the PAW command `SET STAT`. It allows to specify which statistics informations are displayed on the plot.



Histogram ID	The histogram identifier is displayed.
Entries	The number of entries is displayed.
Mean value	The mean value is displayed.
R.M.S.	The R.M.S. is displayed.
Underflows	The underflows are displayed.
Overflows	The overflows are displayed.
All channels	The content of the total number of channel is displayed.

Fits ...

This panel in the equivalent of the PAW command `SET FIT`. It allows to specify which fit parameters are displayed on the plot.

Chi Square	The chi square is displayed.
Errors	The errors are displayed.
Parameters	The fit parameters are displayed.

File Name ...

This panel in the equivalent of the PAW command `SET FILE`. It allows to specify the file name position on the plot.

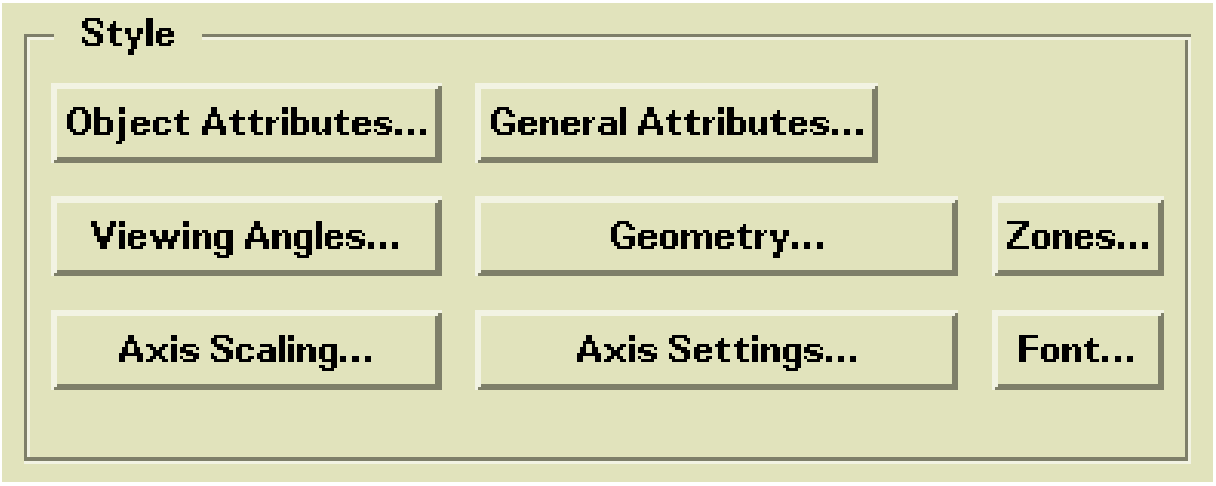
Top Left	The file name is drawn on the top left of the plot (default).
Top Right	The file name is drawn on the top right of the plot
Bottom Left	The file name is drawn on the bottom left of the plot
Bottom Right	The file name is drawn on the bottom left of the plot

Date ...

This panel in the equivalent of the PAW command `SET DATE`. It allows to specify the date position on the plot.

Top Left	The date is drawn on the top left of the plot
Top Right	The name is drawn on the top right of the plot (default).
Bottom Left	The date is drawn on the bottom left of the plot
Bottom Right	The date is drawn on the bottom left of the plot

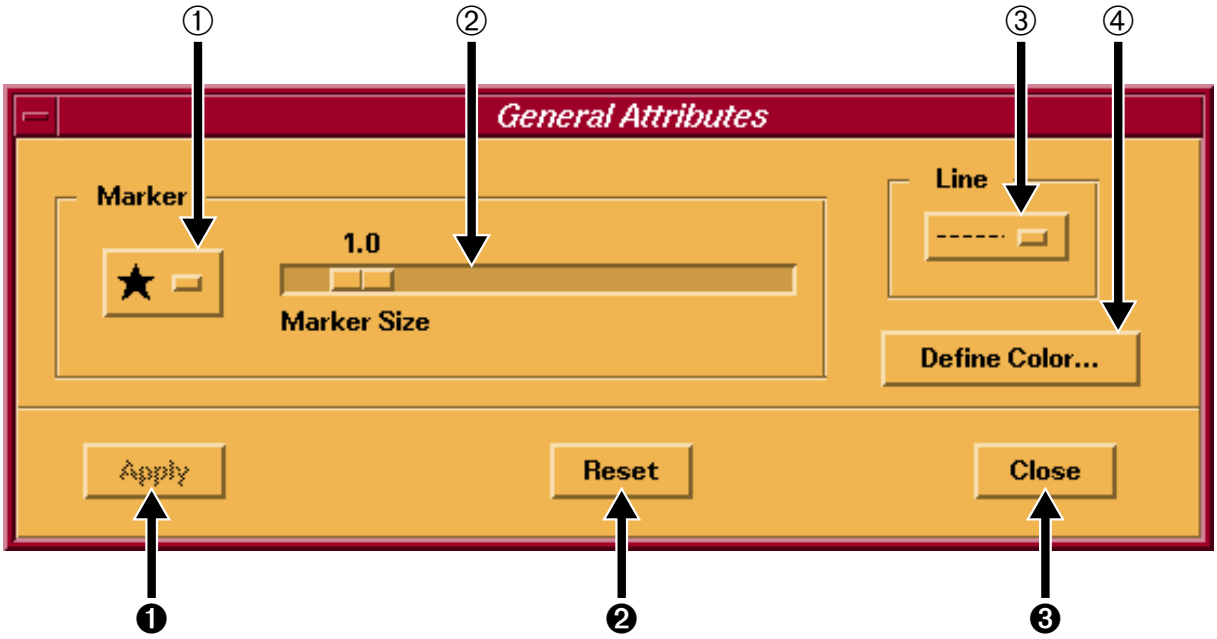
1.5.3 Style



Object Attributes...	Invoke the “Object Attributes” panel.
Viewing Angles...	Invoke the “Viewing Angles” panel.
Axis Scaling...	Invoke the “Axis Scaling” panel.
General Attributes...	Invoke the “General Attributes” panel.
Geometry...	Invoke the “Geometry” panel.
Axis Settings...	Invoke the “Axis Settings” panel.
Zones...	Invoke the “Zones” panel.
Font...	Invoke the “Font” panel.

1.5.4 General Attributes

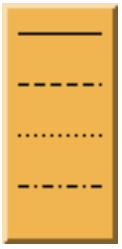
The “General Attributes” panel allow to define attributes like marker type, marker size, line type or color definition for the low level graphics primitives like the lines, the markers the boxes etc...



① This menu choice allow to define the current marker type used.

② This scale allow to change the marker scale factor.

③ This menu choice allow to define the current line style used.



④ This push button open the “Define Color” panel (see after).

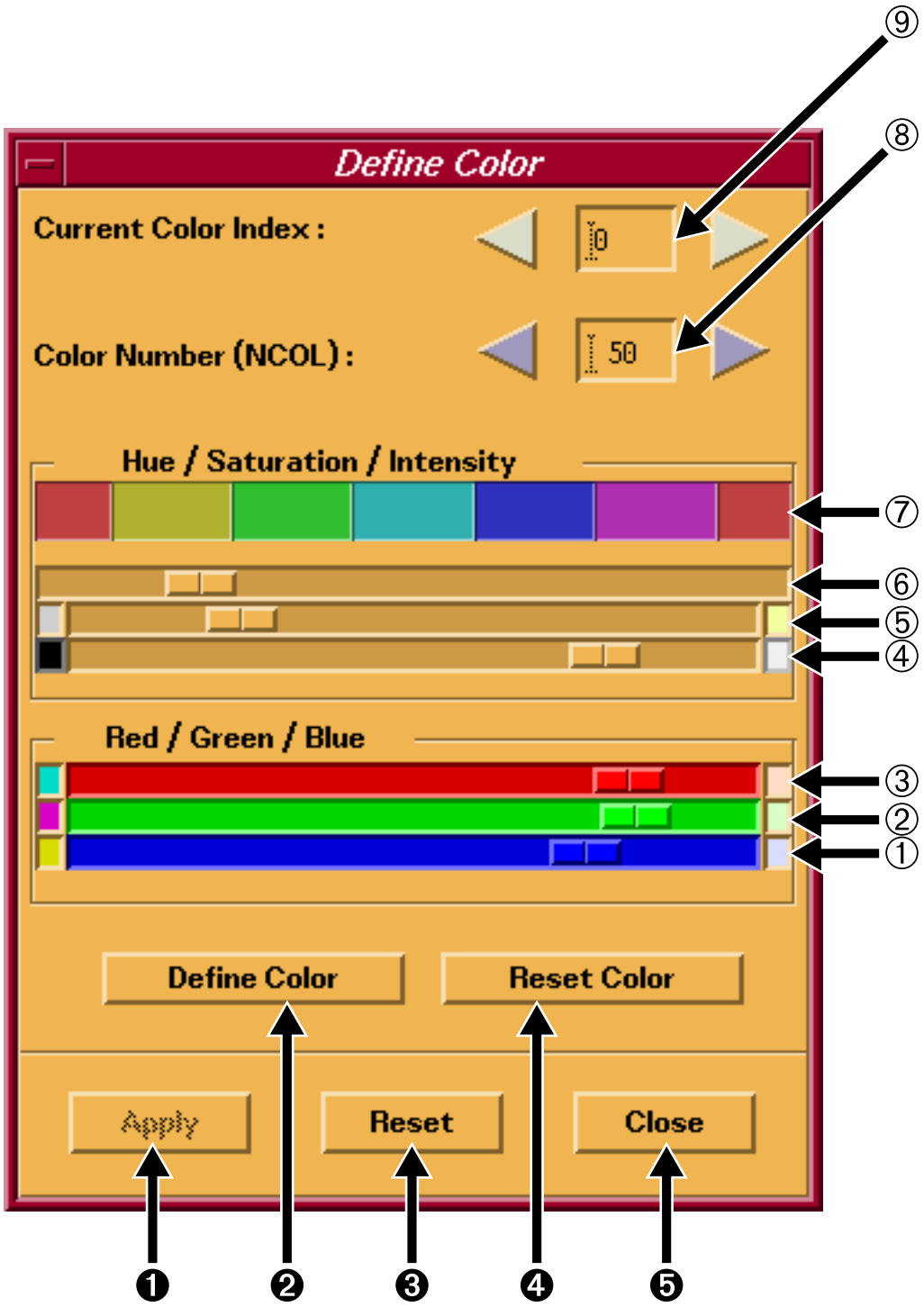
❶ By default the “automatic refresh” is on and as soon as an attribute is changed, the current picture is updated with the new attribute value. But when the “automatic refresh” is off, this button becomes active a should pressed in order to update the current picture with the new attribute value.

❷ This push button allow to reset the default value of all the attributes manageable in this panel.

❸ Close this panel.

Define Color

This panel is invoked when the button number ④ is pressed in the "General Attributes" panel. This panel allows to define a color in `RGB` or `HLS` modes.

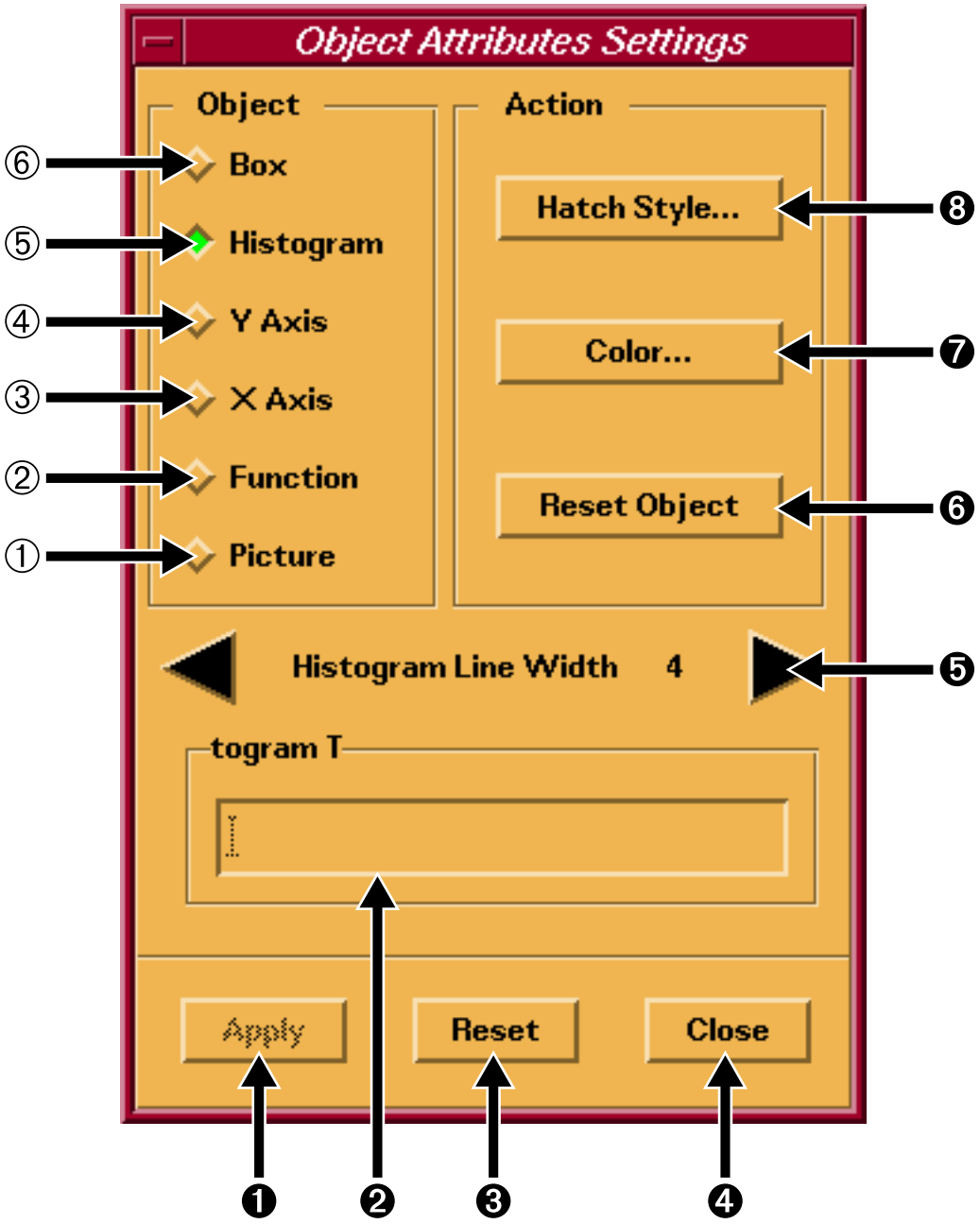


① Percentage of Blue in the color define by the **Current Color index** ⑨.
② Percentage of Blue in the color define by the **Current Color index** ⑨.
③ Percentage of Blue in the color define by the **Current Color index** ⑨.
④ Ligth.
⑤ Saturation
⑥ Hue.
⑦ Hue scale.
⑧ Maximum number of colors.
⑨ Colors index to be changed.

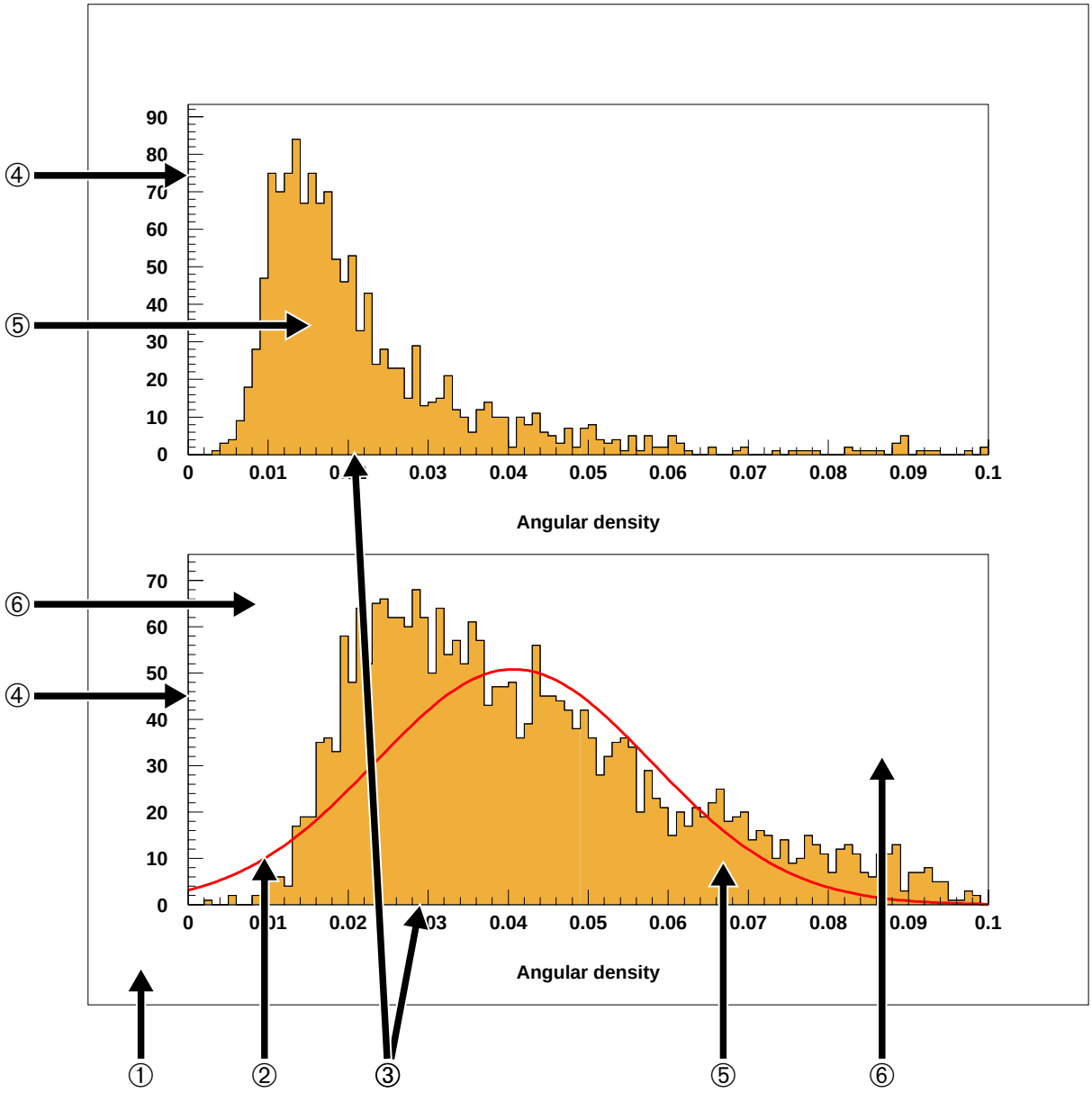
❶ Apply the changes.
❷ Define the color.
❸ Reset the color.
❹ Reset.
❺ Close the panel

1.5.5 Object Attributes

The “Object Attributes” panel allows to define the graphics attributes of the HPLOT objects managed by PAWsuch as: Histograms, Axis etc.. . On the left part of this panel the type of object can be define via a list of toggle buttons. For example here “Histogram” is selected: all the attributes definable in the panel will be apply on the histograms (histogram color, histogram line width etc...).

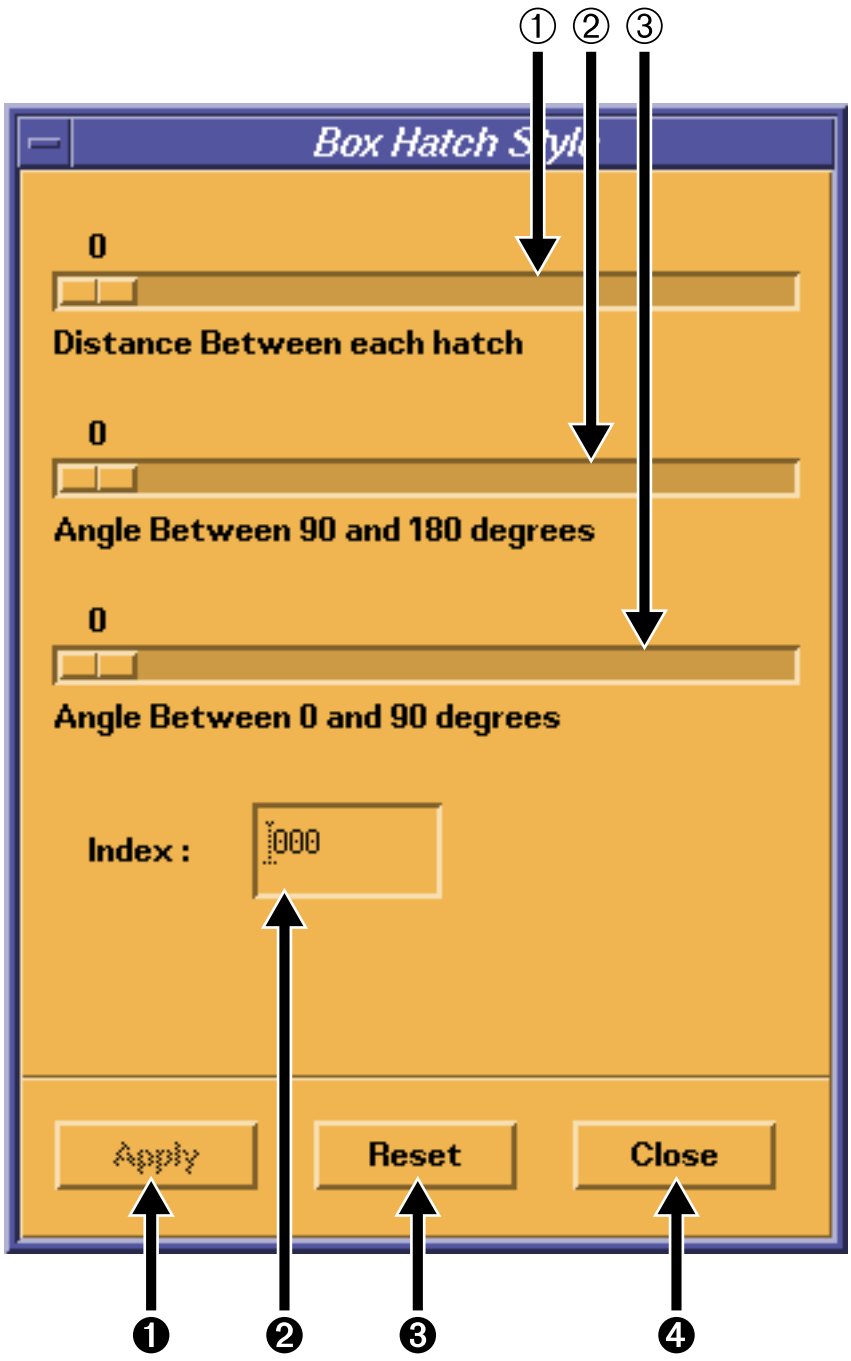


The zones affected by the buttons ① to ⑥, are shown on the next figure.



❶ Apply the changes if the “automatic refresh” is not on.
❷ Change the title of the selected object.
❸ Reset all the attributes.
❹ Close this panel
❺ Change the line width of the selected object.
❻ Reset the attributes of the selected object.
❼ Invoke the “Object Colors” panel.
❽ Invoke the “Object Hatch Style” panel.

Object Hatch Style



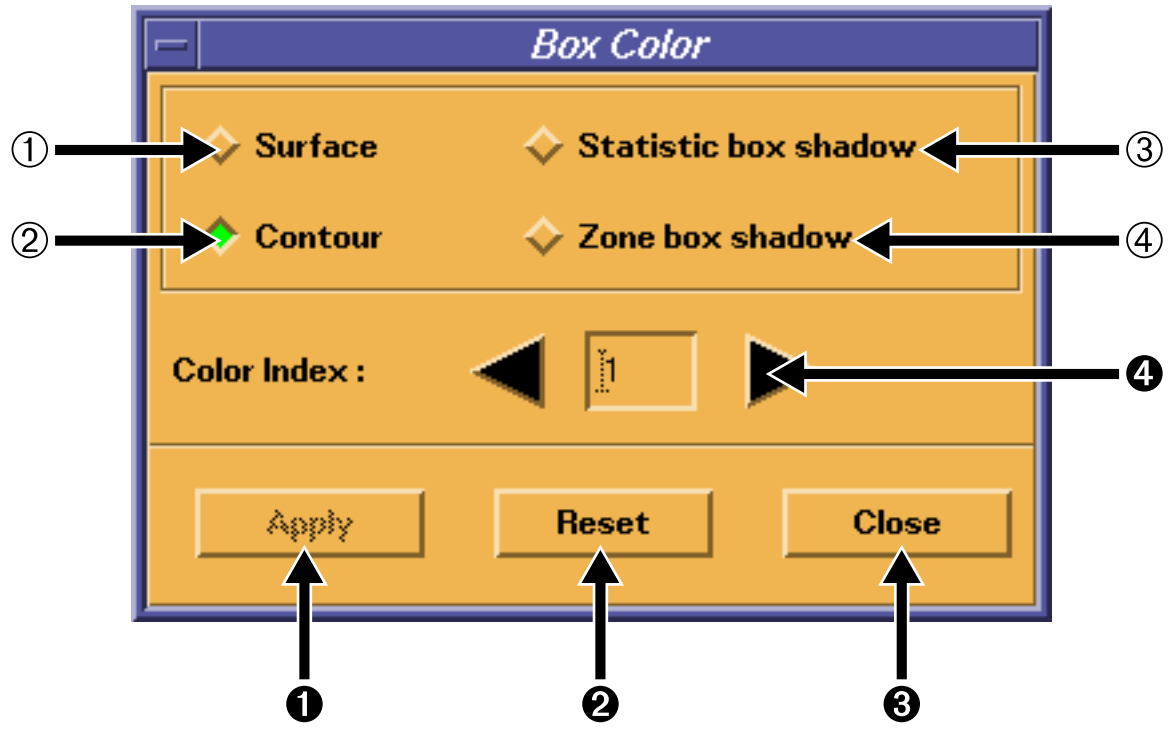
① ...
② ...
③ ...

❶ ...
❷ ...

❸ ...
❹ ...

Object Colors

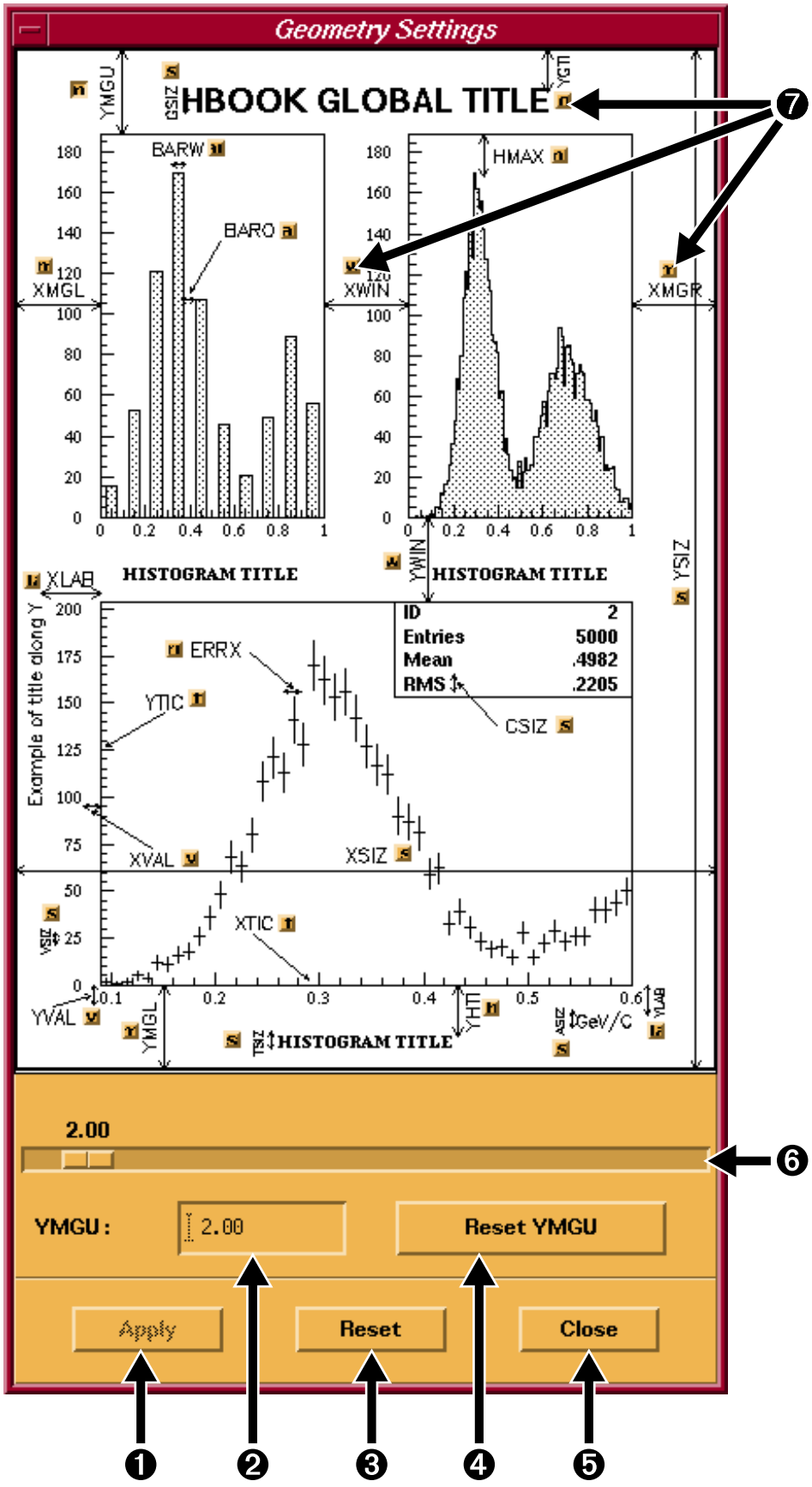
.



① ...
② ...
③ ...
④ ...

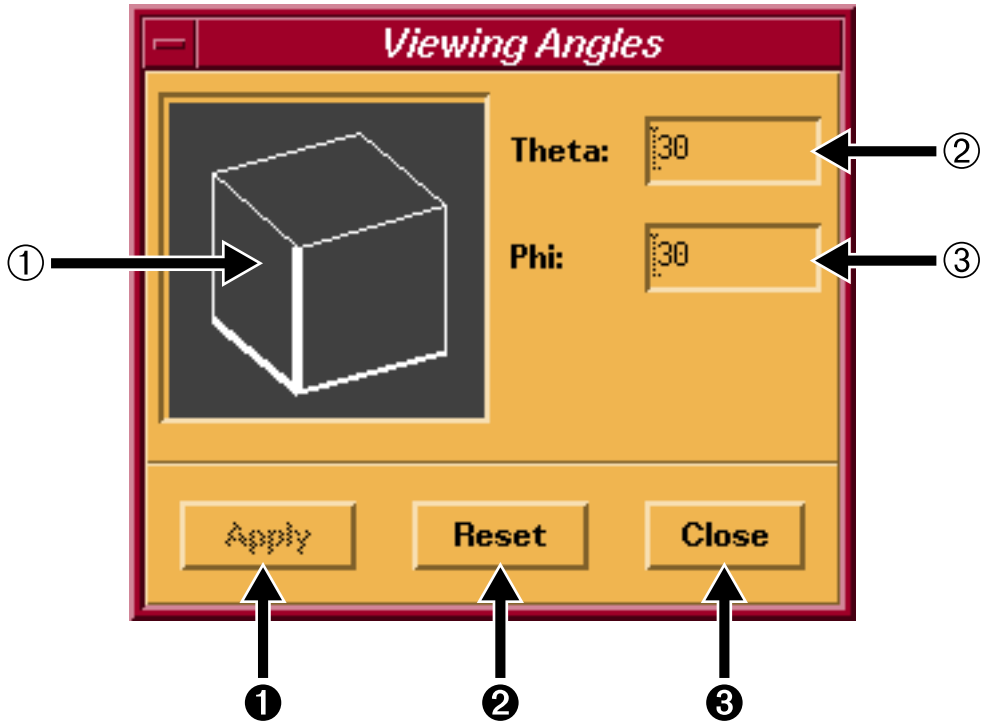
❶ ...
❷ ...
❸ ...
❹ ...

1.5.6 Geometry



❶ ...
❷ ...
❸ ...
❹ ...
❺ ...
❻ ...
❼ ...

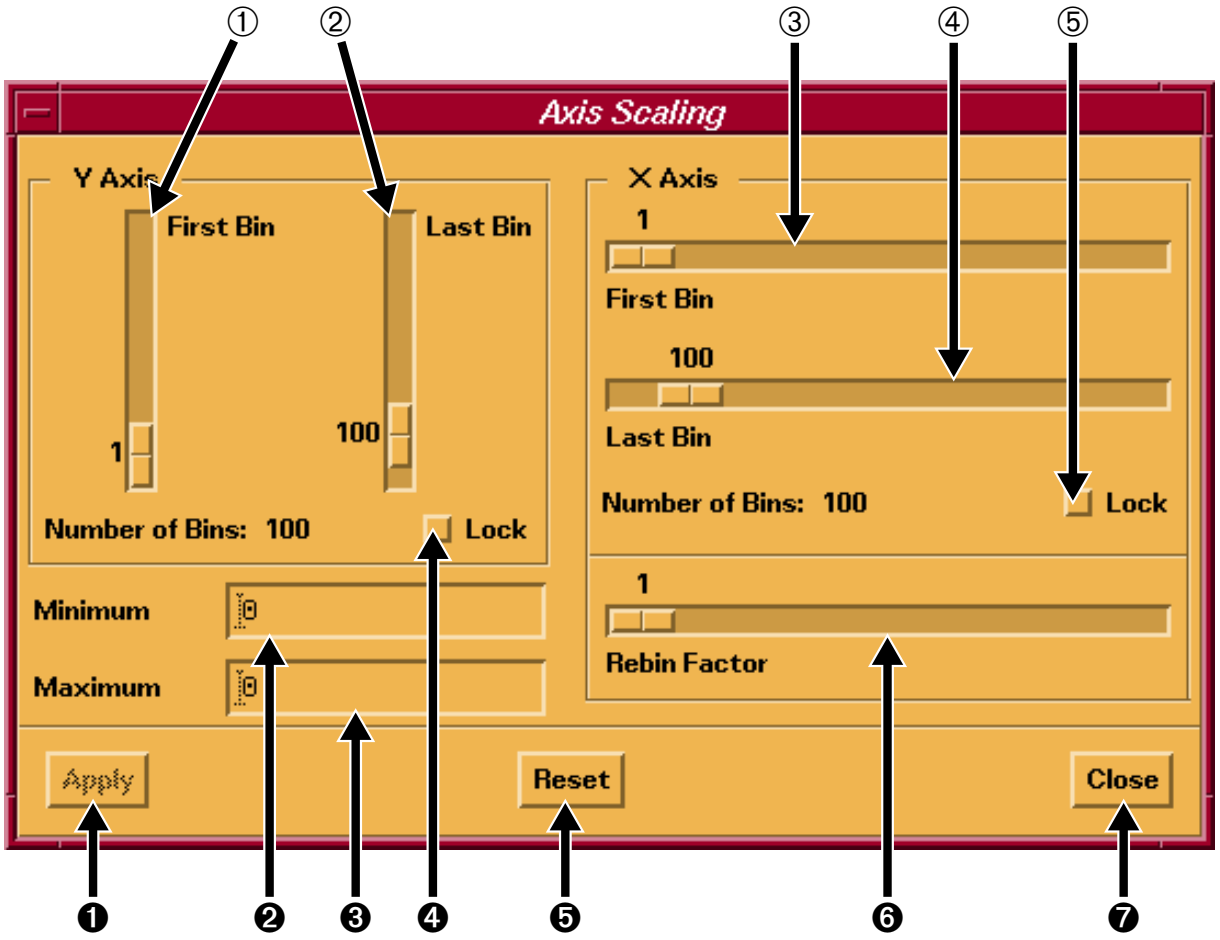
1.5.7 Viewing Angles



① ...
② ...
③ ...

❶ ...
❷ ...
❸ ...

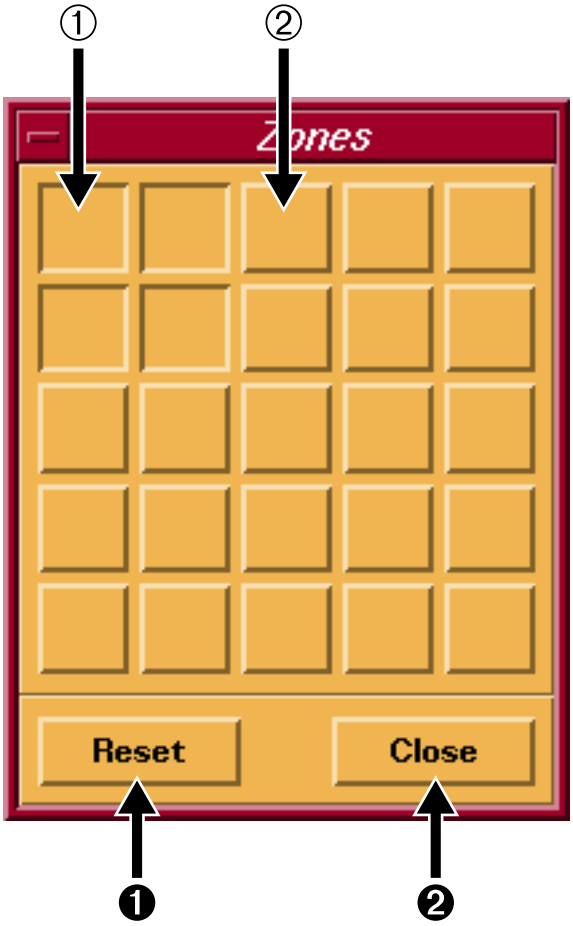
1.5.8 Axis Scaling



① ...
② ...
③ ...
④ ...
⑤ ...

❶ ...
❷ ...
❸ ...
❹ ...
❺ ...
❻ ...
❼ ...

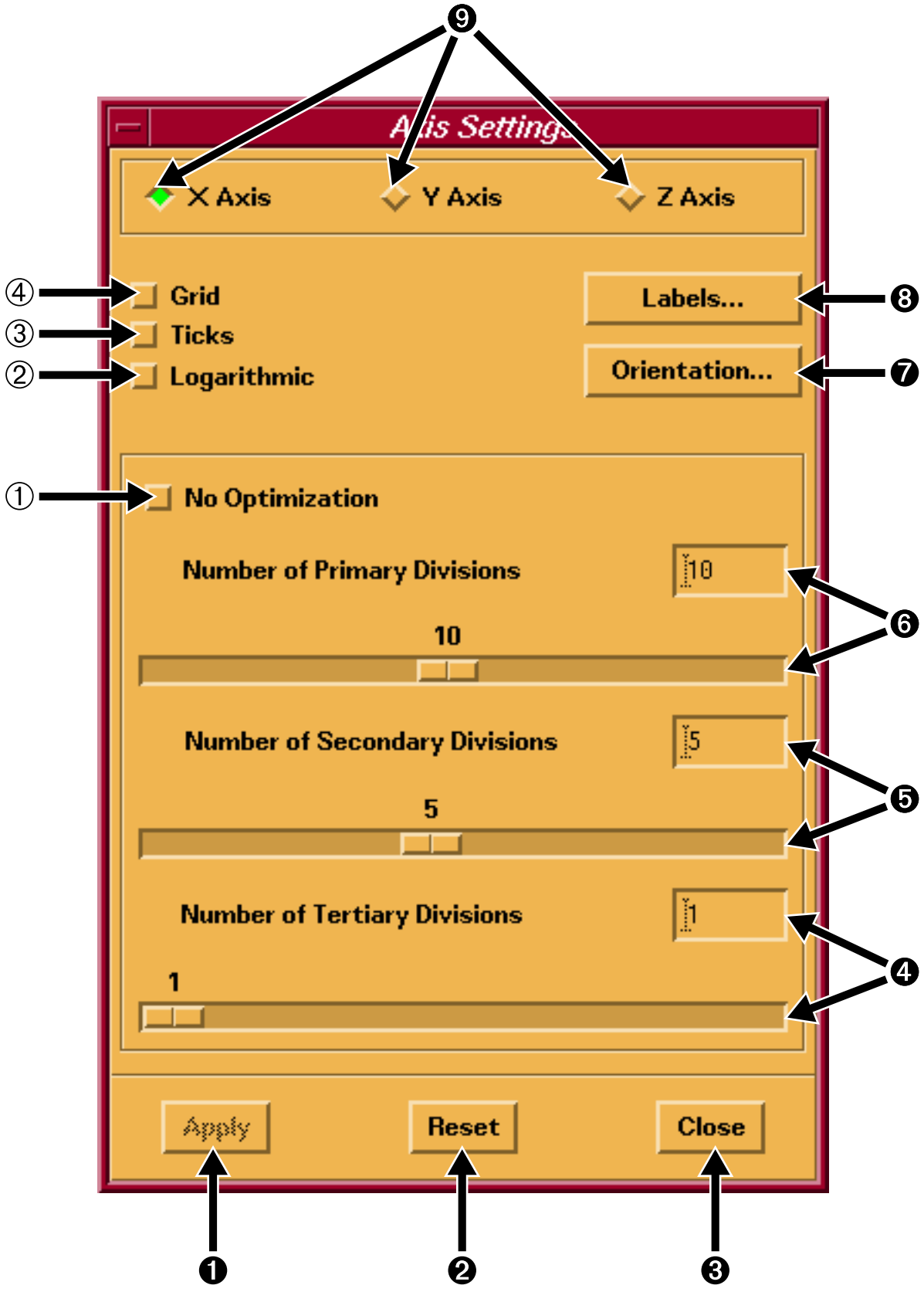
1.5.9 Zones



① ...
② ...

❶ ...
❷ ...

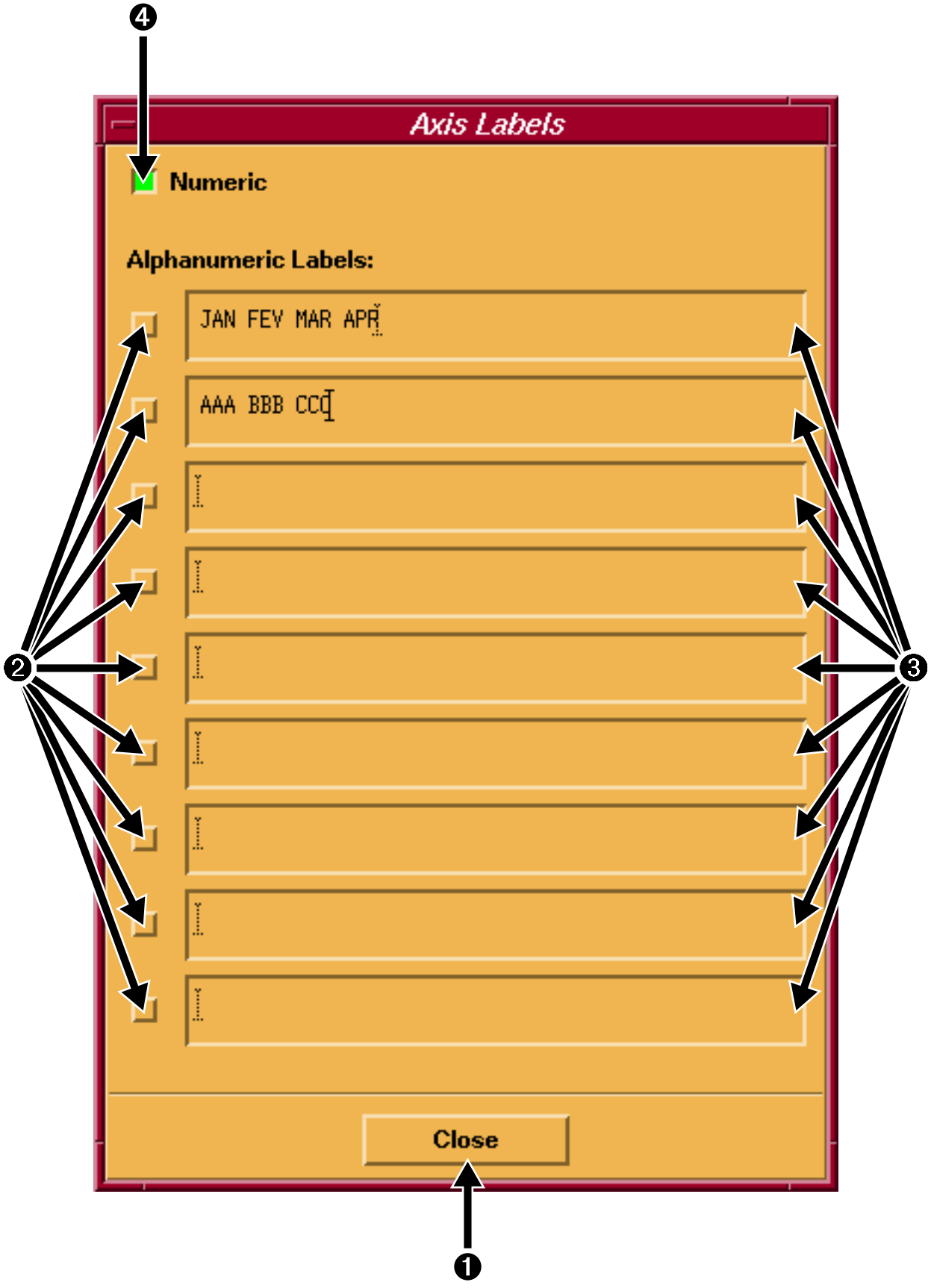
1.5.10 Axis Settings



① ...
② ...
③ ...
④ ...

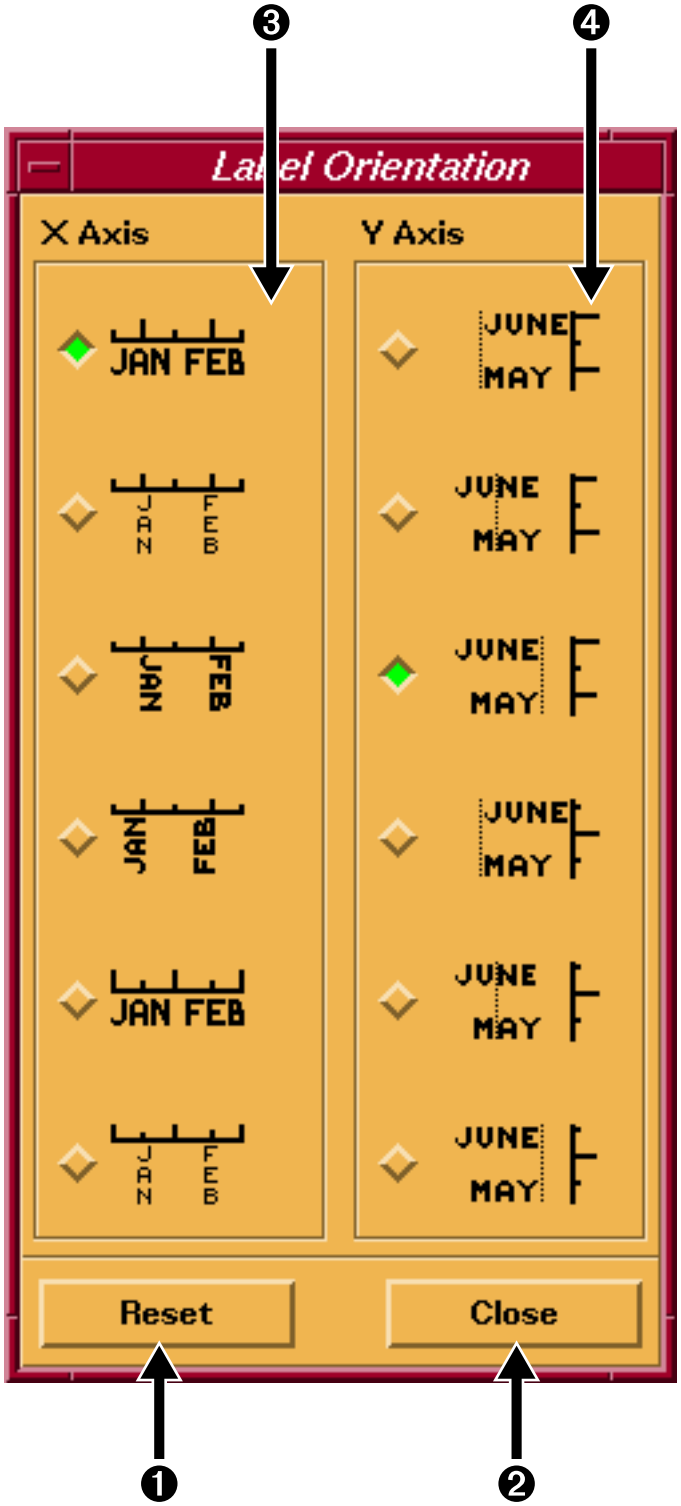
❶ ...
❷ ...
❸ ...
❹ ...
❺ ...
❻ ...
❼ ...
❽ ...
❾ ...

Axis Labels


4
Axis Labels
Numeric
Alphanumeric Labels:
JAN FEV MAR APR
AAA BBB CCC
2
3
Close
1

❶ ...
❷ ...
❸ ...
❹ ...

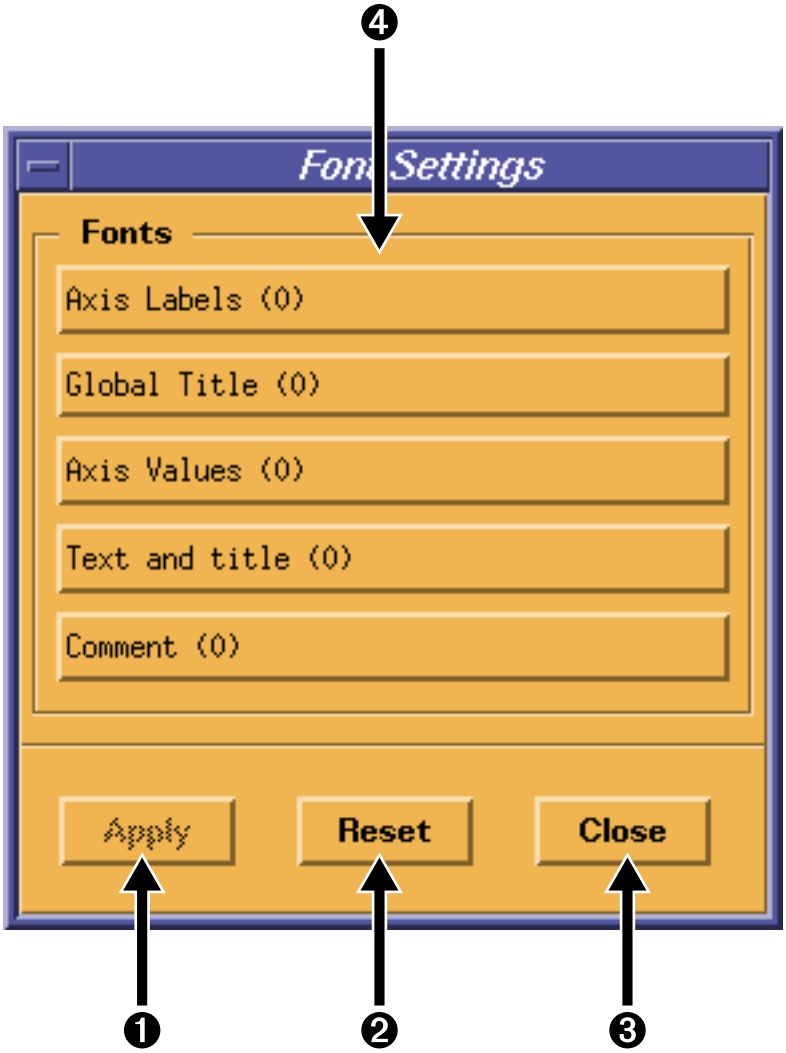
Label Orientation



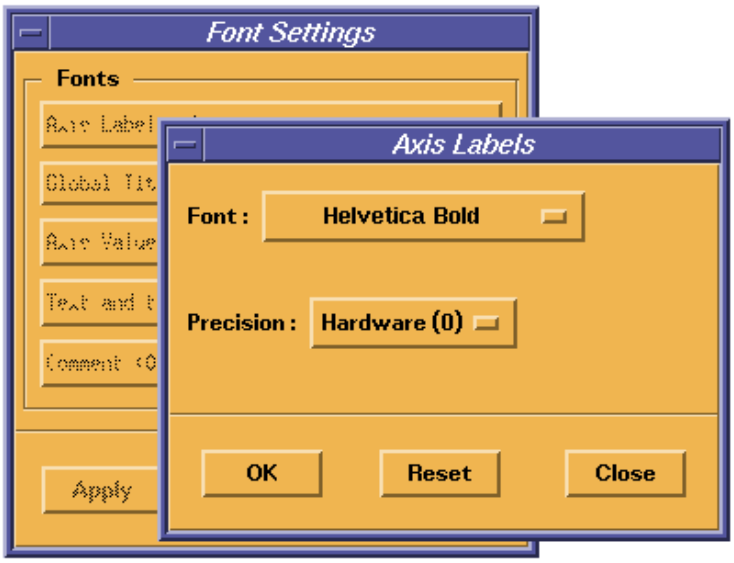
❶ ...
❷ ...

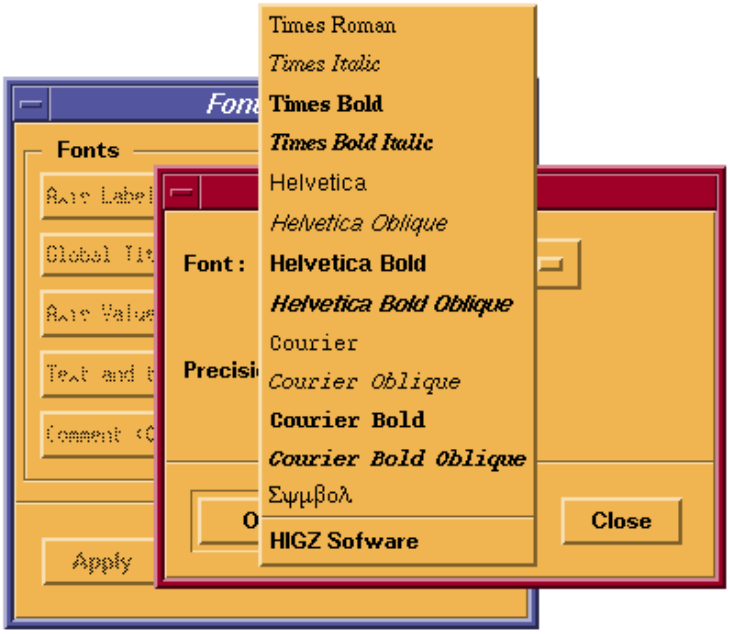
❸ ...
❹ ...

1.5.11 Font

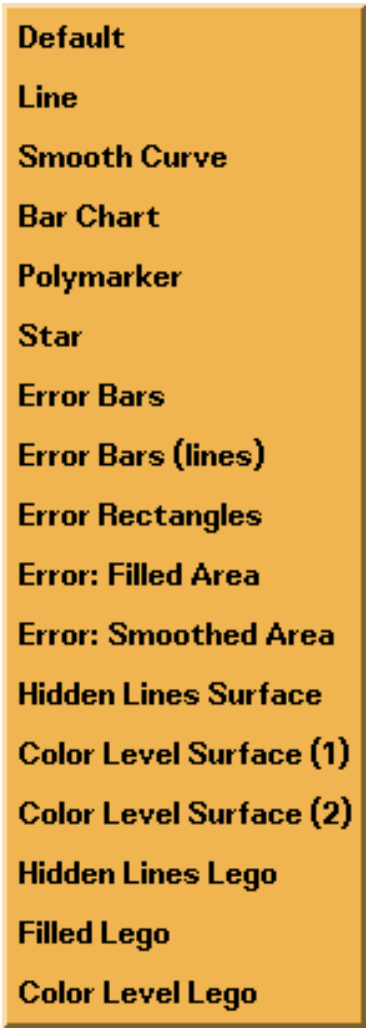


❶ ...
❷ ...
❸ ...
❹ ...

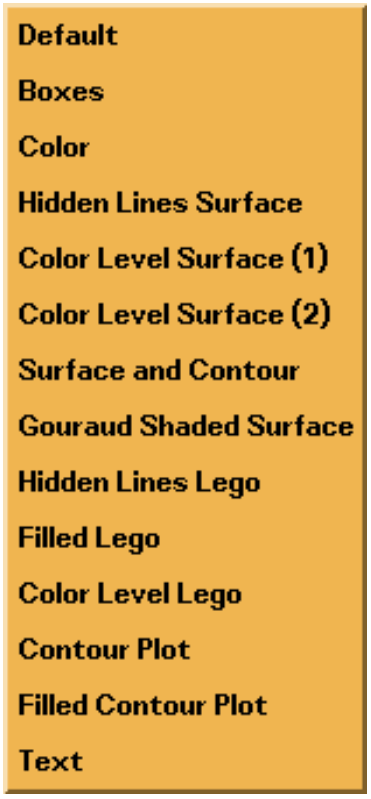

Font Settings
Fonts
Axis Labels
Font :
Helvetica Bold
Precision :
Hardware (0)
OK
Reset
Close
Apply


Times Roman
Times Italic
Times Bold
Times Bold Italic
Helvetica
Helvetica Oblique
Helvetica Bold
Helvetica Bold Oblique
Courier
Courier Oblique
Courier Bold
Courier Bold Oblique
Σψμβολ
HIGZ Sofware
Fonts
Font :
Close
Apply

1.5.12 Plot Options

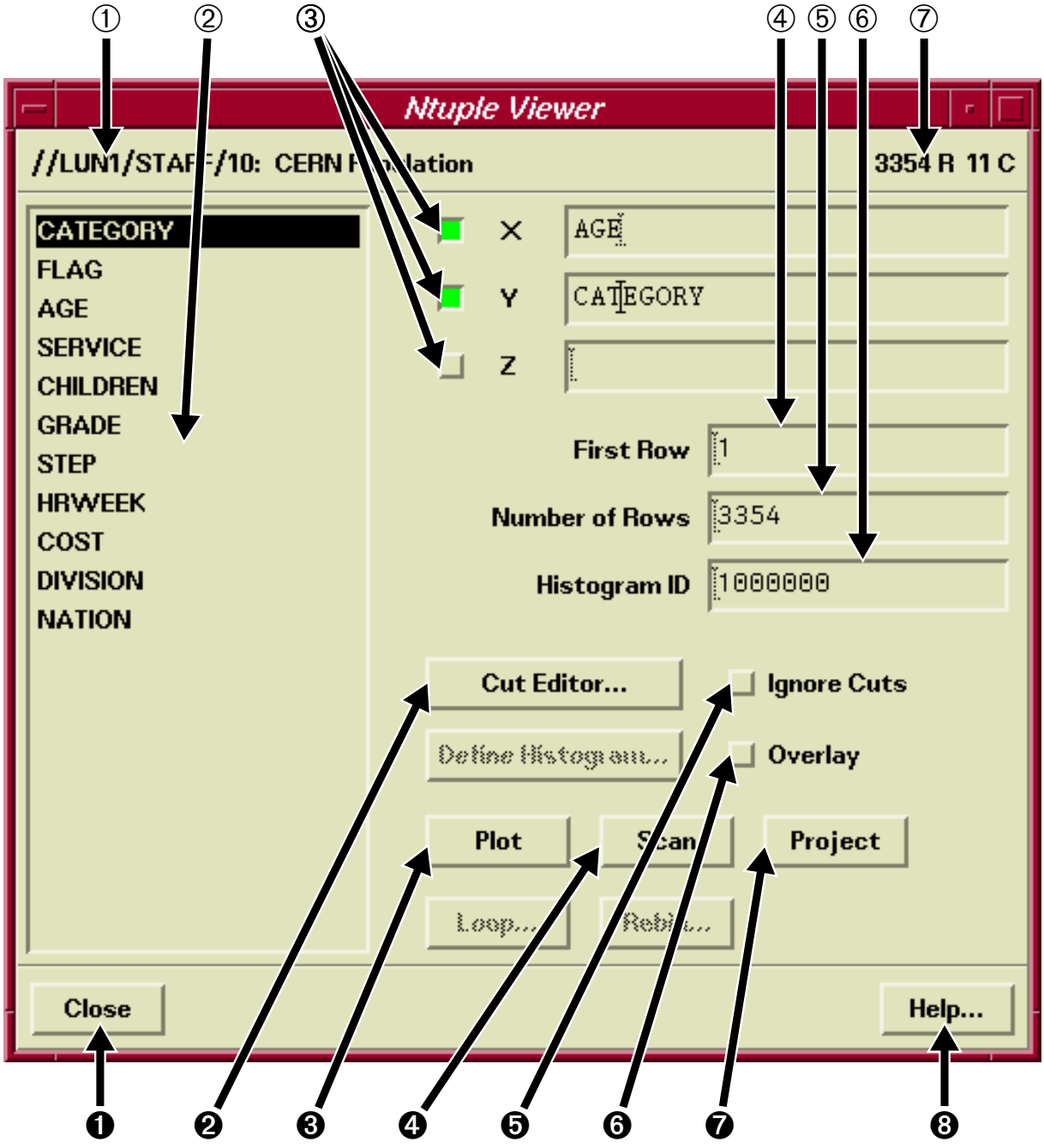


Default .....
Line .....
Smooth Curve.....
Bar Chart .....
Star .....
Error Bars .....
Error Bars (lines).....
Error Rectangles.....
Error: Filled Area.....
Error: Smoothed Area.....
Hidden Lines Surface.....
Color Level Surface (1).....
Color Level Surface (2).....
Hidden Lines Lego.....
Filled Lego .....
Color Level Lego.....



1.5.13 Coordinate Systems

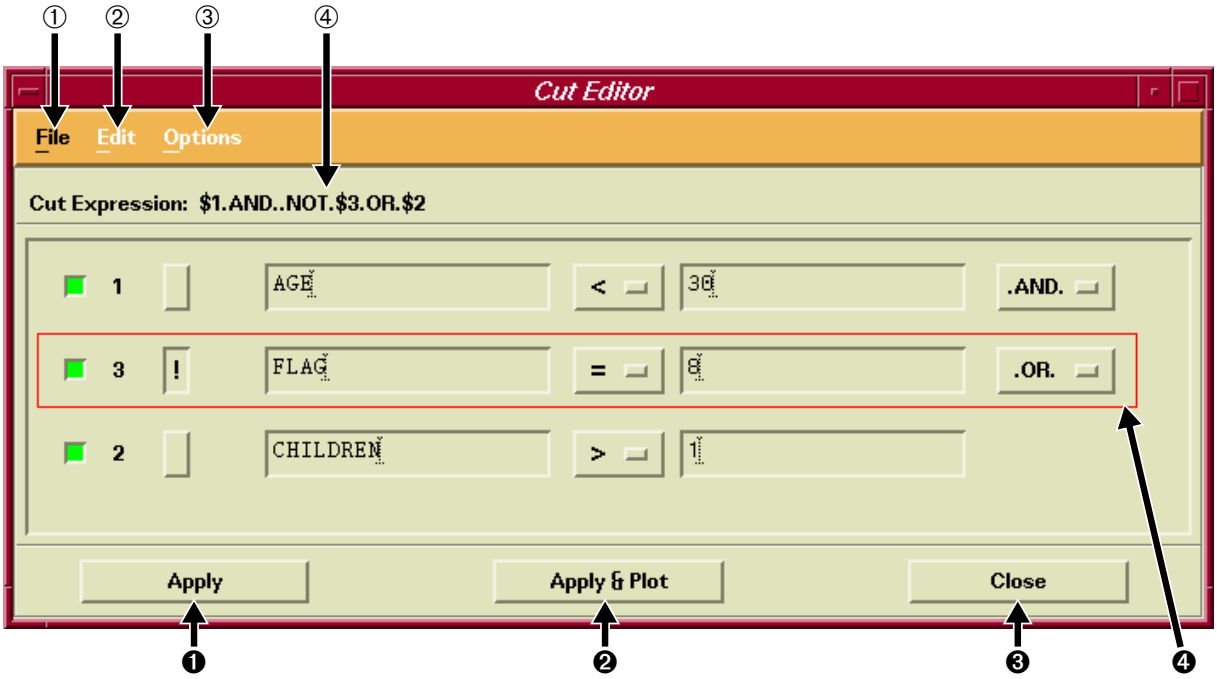
1.6 Ntuple Viewer



① Field showing the current directory and the name of the Ntuple.
② The names of the variables defined for the Ntuple. If you double click on one of the variable names a histogram showing the values of the variable will be plotted.
③ The X, Y and Z fields allow you to define which variables will be used by the Plot and Scan buttons. These fields can be filled in two ways: firstly by typing the name or an expression of a variable; secondly by double-clicking in one of the X, Y or Z fields. In the latter case the field pointed at is filled with the variable highligted in the list of variables.
④ Defines the first row used in the Ntuple when the Plot or Project buttons are pressed.
⑤ Defines the number of rows used (starting from First Row) when the Plot or Project buttons are pressed.
⑥ Defines the histogram identifier used when the Plot or Project buttons are pressed.
⑦ Fields showing the number of rows and columns in the Ntuple.

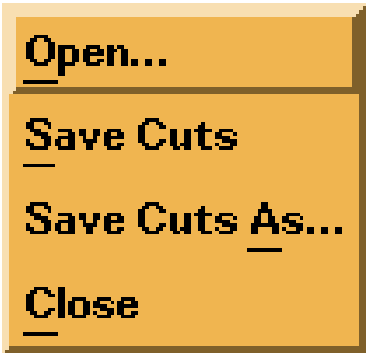
❶ Close the **Ntuple Viewer**.
❷ Invoke the **Cut Editor** (see ...).
❸ Produce a plot using all the indications specified on the **Ntuple Viewer** panel.
❹ Call the Ntuple Scanner (see ...).
❺ A toggle button allowing you to enable/disable the cuts defined with the **Cut Editor**.
❻ A toggle button, which, when pressed will produce the next plot on top of an already existing one, i.e. without clearing the graphics window.
❼ Project the selected variables in the histogram specify in ⑥.
❽ Help on the **Ntuple Viewer**.

1.7 The Cut Editor

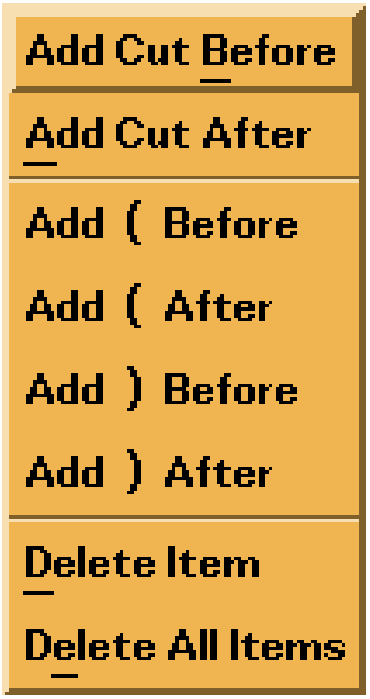


1.7.1 The Cut Editor Menu Bar

File

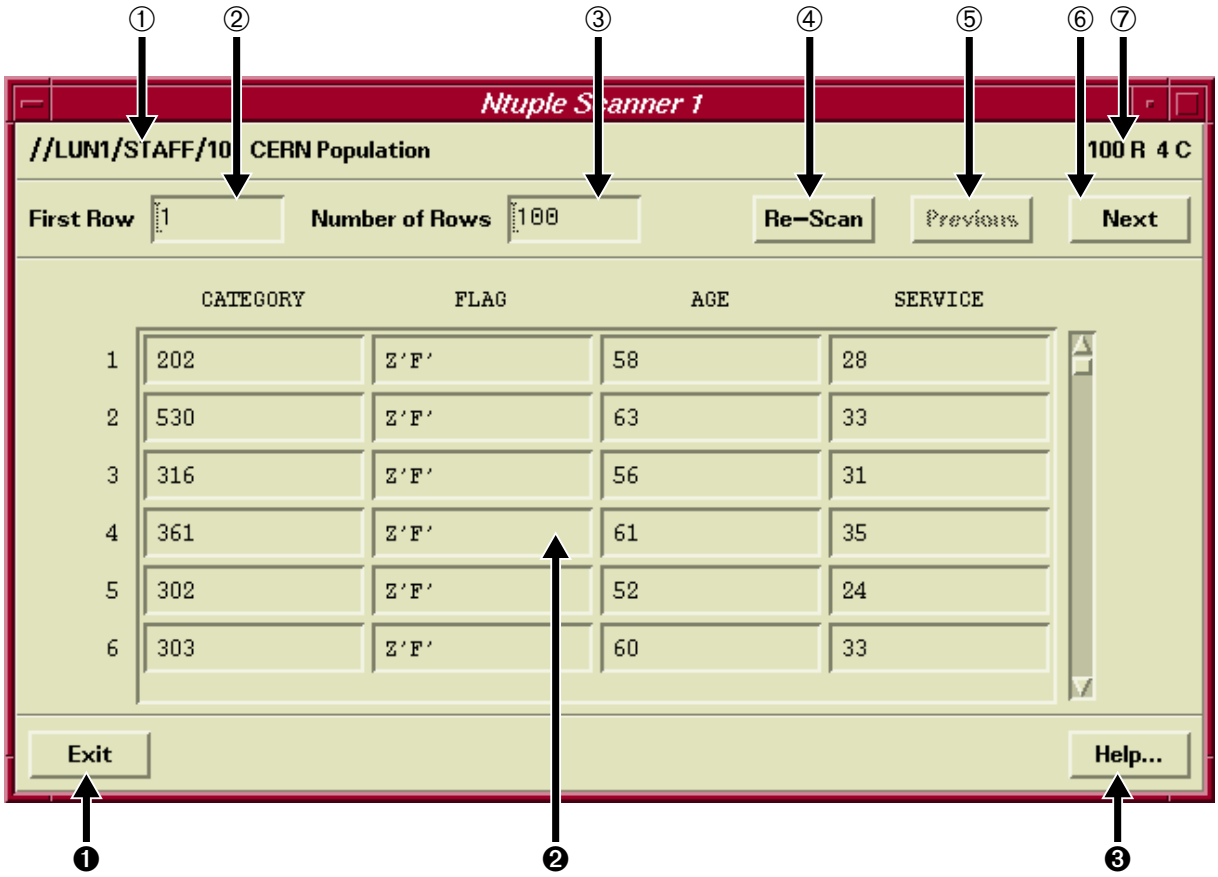


Edit



Options

1.7.2 Ntuple Scanner



1.8 KUIP/Motif Panel Interface

The PANEL Interface allows to define command sequences which are executed when the corresponding button is pressed (like `STYLE GP` in PAW/X11). The command sequence

```
PANEL 0
PANEL 4.06 'some string'
PANEL 0 D 'This is my first panel' 500x300+500+600
```

creates a panel with 4 rows and 6 columns of buttons. The text 'some string' should be long enough to fit the longest command Sequence which should be put onto one of the buttons. The 'PANEL 0 D' command defines the title and the window size and coordinates in the form WxH+X+Y.

The panels can be edited interactively:

- Clicking with the right mouse button on an empty panel button the user will be asked to give a definition to this button.

- Clicking with the left mouse button on a panel button removes its definition.

The PANEL commands needed to recreate a panel can be saved into a macro file by pressing the "Save Panel" button. Panels can be reloaded either by executing the command 'PANEL 0 D' or by pressing the "Command Panel" button in the "View" menu of the **Executive Window** and entering the corresponding file name.

Appendix A: X Window resources

A.1 X resources for PAW++

This is a list of the X resources available to PAW++. Resources control the appearance and behavior of an application.

Users can specify their own values for these resources in the standard X11/Motif way (via their own .Xdefaults file or the system wide /usr/lib/X11/app-defaults/Paw++ file).

Any default values specified by PAW++ are given behind the resource name.

```
Paw+++background:
```

Specify the background color for all windows.

```
Paw+++foreground:
```

Specify the foreground color for all windows.

```
Paw+++kxtermGeometry:                  550x550+5+10
```

Geometry of Kxterm, the KUIP terminal emulator (PAW++ **Executive Window**).

```
Paw+++kuipGraphics_shell.geometry:     550x550+585+10
```

Geometry of the Graphics Window(s) (if any).

```
Paw+++kuipBrowser_shell.geometry:      495x511+161+481
```

Geometry of the Browser(s).

```
Paw+++histoStyle_shell.geometry:       599x360+668+631
```

Geometry of the Style Panel.

```
Paw+++ntupleBrowser_shell.geometry:
```

Geometry of the **Ntuple Viewer**.

```
Paw+++XmText*fontList:           *-prestige-medium-r-normal-*-120-*
Paw+++XmTextField*fontList:      *-prestige-medium-r-normal-*-120-*
```

Font used by all text areas.

```
Paw+++kxtermFont:                *-prestige-medium-r-normal-*-120-*
```

Font used by Kxterm (PAW++ **Executive Window**)

```
Paw+++dirlist*fontList:          *-courier-bold-r-normal*-120-*
```

Font used for the icon labels in the browser.

```
Paw+++matrix.fontList:          *-courier-medium-r-normal*-120-*
```

Font used for the Ntuple/Scan matrix (accessible via the **Ntuple Viewer**).

```
Paw+++helpFont:                 *-courier-bold-r-normal*-120-*
```

Font used for help windows.

```
Paw+++fontList:                 *-swiss*742-bold-r-normal-*-120-*
```

Font for the menus, messages and boxes.

```
Paw+++keyboardFocusPolicy:      pointer
```

If “explicit” focus is determined by a mouse or keyboard command. If “pointer” (default), focus is determined by the mouse pointer position.

```
Paw+++doubleClickInterval:      400
```

The time span (in milliseconds) within which two button clicks must occur to be considered a double click rather than two single clicks.

```
Paw+++dirlist*background:
```

Specify the background color for the iconbox part of the browser.

```
Paw+++dirlist*<object>*iconForeground:
```

Specify the foreground color for the icons of type <object>.

```
Paw+++dirlist*<object>*iconBackground:
```

Specify the background color for the icons of type <object>.

```
Paw+++dirlist*<object>*iconLabelForeground:     black
```

Specify the foreground color for the labels of the icons of type <object>.

```
Paw+++dirlist*<object>*iconLabelBackground:     white
```

Specify the background color for the labels of the icons of type <object>. Currently the following different <object>’s are defined:

```
dir     -- directory
1d      -- 1d histograms
2d      -- 2d histograms
ntuple  -- Ntuples
pict    -- Higz pictures
chain   -- Ntuple chains
entry   -- Ntuple chain entries
hbook   -- Hbook files
```

The default iconForeground and iconBackground colors for these objects are:

```
Paw++*dirlist*dir*iconForeground:      blue
Paw++*dirlist*1d*iconForeground:       DarkGoldenrod3
Paw++*dirlist*2d*iconForeground:       DeepPink3
Paw++*dirlist*ntuple*iconForeground:   SteelBlue3
Paw++*dirlist*pict*iconForeground:     green4
Paw++*dirlist*chain*iconForeground:    blue
Paw++*dirlist*entry*iconForeground:    OrangeRed
```

When using a black and white X Server use the following resource settings to make the icons visible:

```
Paw++*dirlist*<object>*iconForeground:          black
Paw++*dirlist*<object>*iconBackground:          white
Paw++*dirlist*<object>*iconLabelBackground:     black
Paw++*dirlist*<object>*iconLabelForeground:     white
```

A.2 X resources for for KUIP/Motif

This is a list of the X resources available to any KUIP/Motif based application (e.g. PAW++). Resources control the appearance and behavior of an application.

Users can specify their own values for these resources in the standard X11/Motif way (via the .Xdefaults file or a file in the /usr/lib/X11/app-defaults directory). One just has to prefix the desired resource by the class name of the application.

To customize PAW++, for instance, all the resources have to be prefixed with `Paw++` or they should be stored in the file /usr/lib/X11/app-defaults/Paw++.

Any default values specified by KUIP are given behind the resource name.

```
*background:
```

Specify the background color for all windows.

```
*foreground:
```

Specify the foreground color for all windows.

```
*kxtermGeometry:                550x550+5+10
```

Geometry of Kxterm, the KUIP terminal emulator (**Executive Window**).

```
*kuipGraphics_shell.geometry:    550x550+585+10
```

Geometry of the graphics window(s) (if any).

```
*kuipBrowser_shell.geometry:     580x450
```

Geometry of the browser(s).

```
*XmText*fontList:                *-helvetica-bold-r-normal*-120-*
*XmTextField*fontList:           *-helvetica-bold-r-normal*-120-*
```

Font used by all text areas.

```
*kxtermFont:
```

Font used by Kxterm (PAW++ **Executive Window**)

```
*dirlist*fontList:
```

Font used for the icon labels in the browser.

```
*helpFont:                       *-courier-bold-r-normal*-120-*
```

Font used for help windows.

```
*fontList:                       *-helvetica-bold-r-normal*-120-*
```

Font for the menus, messages and boxes.

```
*keyboardFocusPolicy:            explicit
```

If “explicit” (default), focus is determined by a mouse or keyboard command. If “pointer” focus is determined by the mouse pointer position.

```
*doubleClickInterval:            250
```

The time span (in milliseconds) within which two button clicks must occur to be considered a double click rather than two single clicks.

```
*dirlist*background:
```

Specify the background color for the iconbox part of the browser.

```
*dirlist*<object>*iconForeground:          black
```

Specify the foreground color for the icons of type <object>.

```
*dirlist*<object>*iconBackground:          white
```

Specify the background color for the icons of type <object>.

```
*dirlist*<object>*iconLabelForeground:     black
```

Specify the foreground color for the labels of the icons of type <object>.

```
*dirlist*<object>*iconLabelBackground:     white
```

Specify the background color for the labels of the icons of type <object>.

```
*zoomEffect:                       True
```

Turn zoom effect on or off when going up and down directories in the browser.

```
*zoomSpeed:                        10
```

Specify speed of zoom effect in the browser.
Currently the following different <object>'s are defined:

```
Cmd         -- Command
InvCmd      -- Deactivated command
Menu        -- Menu tree
MacFile     -- Macro File
RwFile      -- Read-write file
RoFile      -- Readonly file
NoFile      -- No access file
ExFile      -- Executable file
DirFile     -- Directory
DirUpFile   -- Up directory (..)
```

When using a black and white X Server use the following resource settings to make the icons visible:

```
*dirlist*<object>*iconForeground:          black
*dirlist*<object>*iconBackground:          white
*dirlist*<object>*iconLabelBackground:     black
*dirlist*<object>*iconLabelForeground:     white
```

Appendix B: Editing keys in the Input Pad

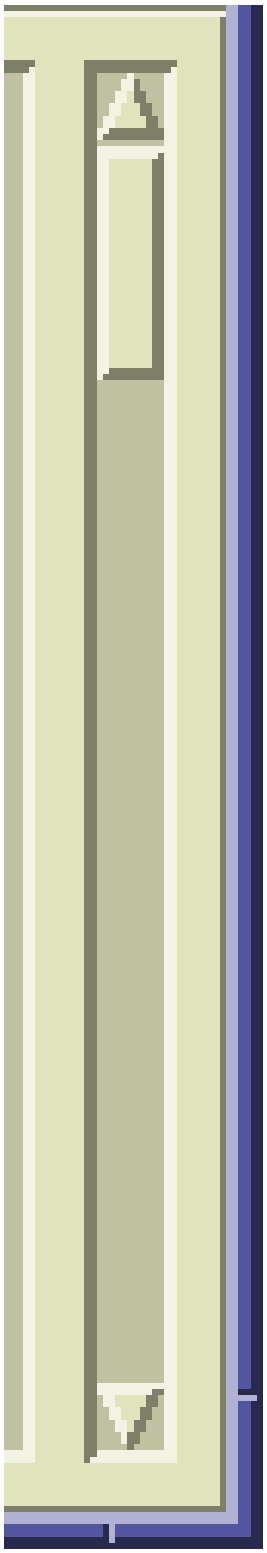
"C-b" means holding down the Control key and pressing the b key.
"M-" stands for the Meta key and "A-" for the Alt key.

C-b:	backward character
A-b:	backward word
M-b:	backward word
Shift A-b:	backward word, extend selection
Shift M-b:	backward word, extend selection
A-[:	backward paragraph
M-[:	backward paragraph
Shift A-[:	backward paragraph, extend selection
Shift M-[:	backward paragraph, extend selection
A-<:	beginning of file
M-<:	beginning of file
C-a:	beginning of line
Shift C-a:	beginning of line, extend selection
C-osfInsert:	copy to clipboard
Shift osfDelete:	cut to clipboard
Shift osfInsert:	paste from clipboard
Alt->:	end of file
M->:	end of file
C-e:	end of line
Shift C-e:	end of line, extend selection
C-f:	forward character
A-]:	forward paragraph
M-]:	forward paragraph
Shift A-]:	forward paragraph, extend selection
Shift M-]:	forward paragraph, extend selection
C-A-f:	forward word
C-M-f:	forward word
C-d:	kill next character
A-BS:	kill previous word
M-BS:	kill previous word
C-w:	kill region
C-y:	yank back last thing killed
C-k:	kill to end of line
C-u:	kill line
A-DEL:	kill to start of line
M-DEL:	kill to start of line
C-o:	newline and backup
C-j:	newline and indent
C-n:	get next command, in hold mode: next line
C-osfLeft:	page left
C-osfRight:	page right

```
C-p:            get previous command, in hold mode: previous line
C-g:            process cancel
C-l:            redraw display
C-osfDown:      next page
C-osfUp:        previous page
C-SPC:          set mark here
C-c:            send kill signal to application
C-h:            toggle hold button of pad containing input focus
F8:             re-execute last executed command
Shift F8:       put last executed command in input pad
Shift-TAB:      change input focus
```

Appendix C: The Motif user interface tools

C.1 Scale

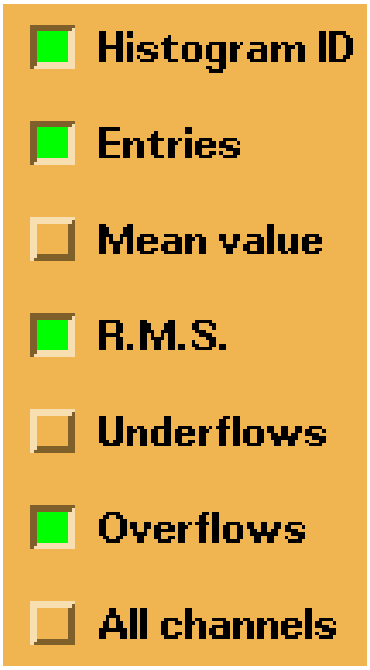


C.2 Buttons

C.2.1 Toggle Buttons

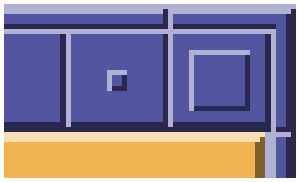
C.2.2 motifpush

C.2.3 Selection Buttons



C.3 Paned Window

C.4 Mwm Window Decoration



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Index