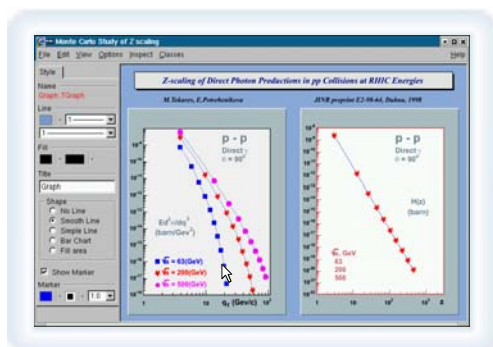


The Graphical User Interface (GUI) design is an important component of the ROOT framework. Two sets of classes, recently introduced in ROOT v4.01, are presented in this paper: the graphics editor and the GUI builder.

ROOT Graphics Editor

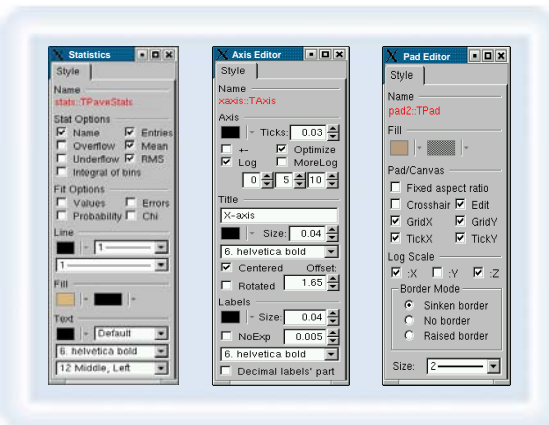
The graphics editor is split into discrete units of so-called object editors. This makes the GUI easier to design and adapt to the users' profiles. The only convention to follow is to derive the code object editor from the `TGedFrame` base class, and to use as a name the class name concatenated with 'Editor', i.e. for `TGraph` objects the editor is the `TGraphEditor`.

TGraph Editor



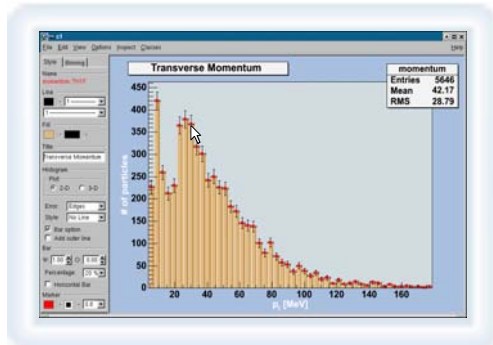
TGX11

Different Object Editors



- They give an intuitive way to edit objects in a canvas with immediate feedback.
- The three-mouse-clicks rule of navigation limits the number of levels for completing a single task.
- The user interface gives full control to users.
- Related actions work the same way and reinforce the understanding of the functions.
- Complexity is reduced by hiding some GUI elements and revealing them when necessary.

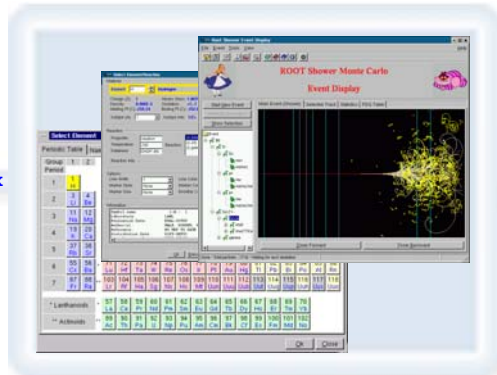
TH1 Editor



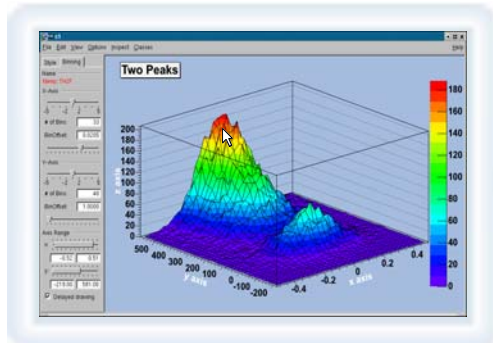
TGWin32GD

TVirtualX

User Applications



TH2 Editor



TGQt

The ROOT widgets (window's gadgets) are fully cross-platform. The GUI classes interface to the platform-dependent low level graphics system via the abstract class `TVirtualX`. Concrete versions of this abstract class have been implemented for `X11`, `Win32`, and `Qt`.

Thanks to this single graphics interface, porting to a new platform requires only the implementation of `TVirtualX`.

The benefit of applications running on more than one kind of computer is obvious - it increases the program's robustness, makes their maintenance easier and improves the reusability of the code.