Suggestion for Online Use of Histo-Scope

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This document summarizes the list of items suggested by the audiences during the Histo-Scope demonstration on Oct. 8. The general consensus of the people attended the demonstration was that the Histo-Scope is, in its current status, ready to be used in various field system tests but needs some important features for real online use. We will try to order the suggestions by the matter of frequency, meaning in the order of importance for online use. The items with **bold** faces are, to us, essential functionalities for online use of the Histo-Scope.

The suggestions are :

1. **Should save a snap-shot of dynamically filled histograms into a file in HBOOK/ROOT/HEPTULE/ etc format.**
2. **Read in a reference histogram files and compare the current run with the reference.**
3. **Compare a dynamically filled plot to a standard plot stored in a local file, normalized and unnormalized.**
4. **Normalization should be reversible and independently done on an individual histogram.**
5. **When overlaying two dynamically filled plots, would be nice to have the option to dynamically normalize the plots for direct shape comparison.**
6. **Should allow displaying multiple histograms on a canvas without having to move histograms into the frame by hand.**

7. **Comparisons on the multiple histogram display should also be possible.**

8. **Must have a capability of testing the sameness of two histograms being compared, *Kolmogorov* test and χ^2 test.**

9. **Print out or view a standard set of histograms w/o retyping or redoing the whole command sequence manually. This could be many pages of histograms. The current Histo-Scope configuration file system only allows one page per postscript file. The ability of display/printout standard set of histograms in an orderly fashion and put all the figures into one postscript file allowing an easy print out is one of the most crucial functionalities of online monitoring program. Stu suggests a 'print' button in the browser similar to the 'view' button, which could also work from configuration sets.**

10. Declare histograms not only at the initialization stage but also in the middle of the process.

11. Histogram manipulation (One should be able to do analysis on histogram within the PAT) and arithmetics (subtraction, multiplication, division, and additions of histograms).

12. The annotation of viewed/printed plots could be better. Perhaps an annotation field associated with each histogram/plot which could be optionally added to the viewed/printed page.

13. Draw lines or arrows in the plots.

14. Privileged GUI server to prevent uninterrupted access of histograms.

15. Should have at least some minimal fit functionality and be able to display fit parameters and the fit functions on the plot.

16. Can configuration sets be nested hierarchically? That would be useful for ease of management.

17. Needs an easy way to manage 'runs' as sequences of 'clear', 'fill', 'watch', and 'print'. This may not be a fault of Histo-Scope, but we need to

insure that our plans for managing runs fit within the capabilities of Histo-Scope.

18. The ability to extend ntuples from memory into disk seems necessary.

19. In the demo we couldn't really examine the robustness of the system. For example, does the 'client' properly handle abnormal termination of the 'browser'?

20. There are clearly a lot of D0 specific operations which must 'surround' the Histo-Scope operations. It appears that this is possible, but some early effort to demonstrate the operation of the Browser from within a Python framework is necessary.