

# The hep\_random C++ Library: Design, Experience, and Plans

As an active participant in the international C++ standardization effort, Fermilab has contributed significant expertise toward the analysis and design of a random-number facility suitable for incorporation into the forthcoming update to the C++ standard. A first version of this design has been promulgated as part of a recently-approved Technical Report issued by the C++ Working Group of the International Standards Organization.

In addition to its design contributions, Fermilab has produced a reference implementation of the TR facility. Known as hep\_random, this implementation has also served as a vehicle for experimentation with extensions valuable to the scientific community in general and to the HEP community in particular.

In this paper, we describe the design of the TR1 random-number library. We also discuss our experience in implementing both this design and Fermilab's extensions to it. We conclude by describing our recommendations to the C++ standards bodies based on our experiences.

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