



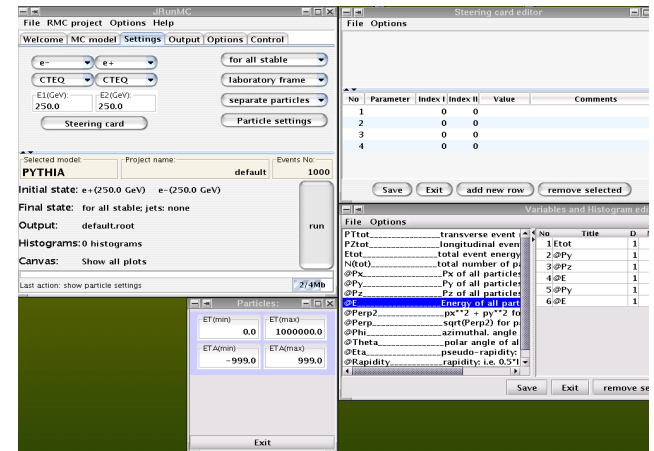
RunMC status

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Introduction

- ❑ C++/ROOT framework for running FORTRAN Monte Carlo (MC) model:
 - ✓ PYTHIA, HERWIG, ARIADNE, CASCADE, LEPTO,
 - ✓ AROMA, RAPGAP, PHOJET
- ❑ Can be used for MC validations, tuning, comparisons, calculations of correction factors etc.
- ❑ Modern C++ libraries: CLHEP, jet algorithms, event shapes ..
- ❑ Fully integrated with the C++ analysis environment (ROOT)
- ❑ JAVA graphical user interface (GUI)
- ❑ Loadable examples, fast simulations etc.

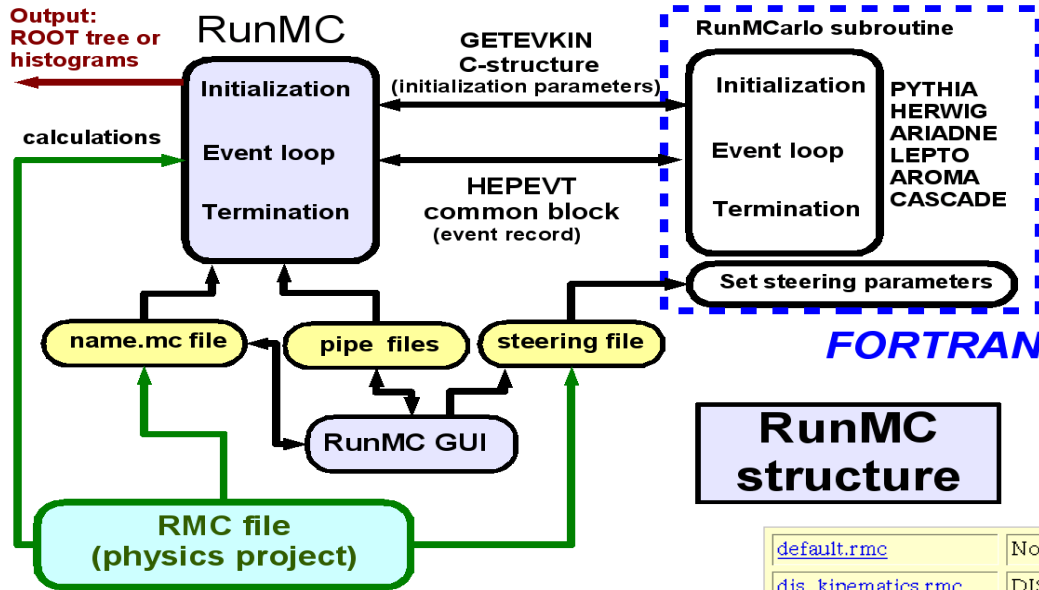


RunMC web page:

<http://projects.hepforge.org/runmc/>

(download, manual, presentations, example calculations etc.)

RunMC structure



RMC files (RunMC www page)

default.rmc	No any MC settings and physics calculations. Only dummy functions
dis_kinematics.rmc	DIS kinematic variables for HERA (Q2.x, etc), SC
charm_dis.rmc	Studies of D* cross sections in DIS (HERA), SC
dis_strange.rmc	Strangeness production (cross sections for K0s, Lambdas etc), SC
baryons_DIS.rmc	Look at kinematics of baryons in DIS at HERA, SC
jets_HERA.rmc	Jets at HERA using longitudinally-invariant KT algorithm (Breit frame), SC
jets_LHC.rmc	Kt jets at LHC with charm, SC
jets+charm_LHC.rmc	Kt jets at LHC with charm, SC
event_shapes.rmc	Event shape studies, SC
par-had-jetLHC.rmc	Jet parton-to-hadron corrections, SC
sbumps.rmc	Search and identification of resonances, SC
hztool.rmc	HZTOOL calculations (v2.0), SC
hztoolv3.rmc	HZTOOL calculations (v3.0), SC
view3d.rmc	Look at 3D pictures of ttbar production at NLC (Geant imitation), SC
view3DjetsHERA.rmc	Look at 3D pictures of Kt jets at HERA (Geant imitation), SC
view3DjetsLHC.rmc	Look at 3D pictures of Kt jets at LHC (Geant imitation), SC

Progress since May 2006 -I

- ❑ Code was modified to compile RunMC using modern compilers
- ❑ Removed dependence on CERNLIB
 - ✓ is not supported for gfortran gcc4.1
 - ✓ but many MC models use CERNLIB functions
- ❑ CERNLIB was refactored:
 - ✓ removing parts which are too difficult to compile using gfortran:
 - zebra, hbook, paw ..
 - ✓ keep math functions which are necessary for legacy MC models:
 - ✓ keep most of functions from cfortran mathlib packlib packages
 - ✓ drop support for many architectures, keep only linux/cygwin
- ❑ Stand-alone version of CERNLIB-lite is (CERNIBlite.tgz, 1.7Mb, tgz):
 - ✓ <http://www.desy.de/~chekanov/cernlib/>
- ❑ Now it is included in RunMC and compiled automatically

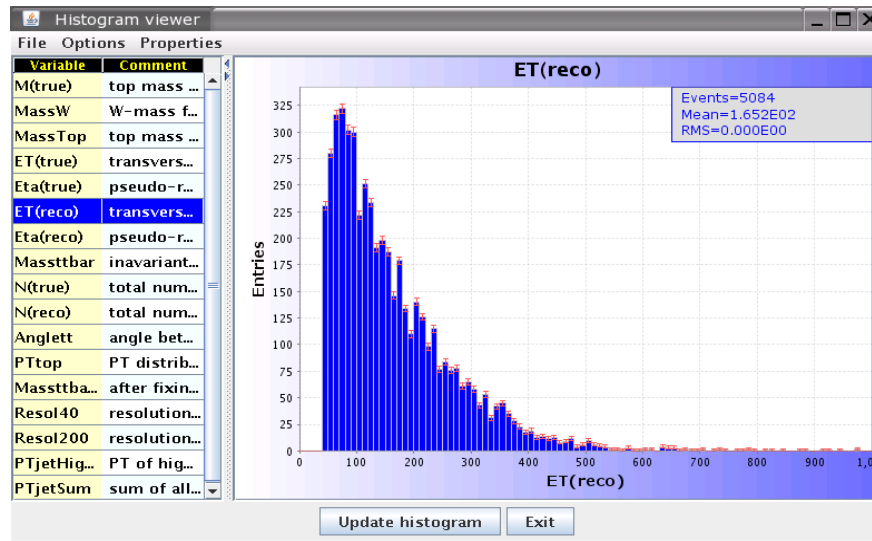
Progress since May 2006 - II

- ❑ One of the most serious issue was dependence on old PDFLIB library
- ❑ Now RunMC uses LHAPDF (Les Houches Accord PDF Interface)
 - ✓ maintained by M.Whalley (<http://projects.hepforge.org/lhapdf/>)
 - ✓ included to RunMC for easy integration and compilation
- ❑ Modern PDFs are available: CTEQ6, MRST04

- ❑ Multiuser support
- ❑ static/shared libraries can be moved to a central location (/usr/local/). The user have access only to a small part (~ several Mb) of the RunMC which is sufficient for compilations

Progress since May 2006 -III

- New feature: a JAVA histogram browser:
 - ✓ Before it was possible to monitor only up to 8 histograms
 - ✓ Now all histograms can be viewed during event generation
 - ✓ Implementation details:
 - ROOT/C++ histograms mapped to memory
 - JAVA reads them using JNI,
 - a JAVA histogram canvas based on jfreechart display them
- Works on Suse8.2, FC5, FC6. But it was not carefully tested yet



- ❑ New beta 4.2 version of RunMC is available:
- ❑ <http://projects.hepforge.org/runmc/news.html>
- ❑ Package tar.gz size is 45 Mb (before - 20 Mb). Now includes CERNLIN-lite and LHAPDF with all PDFs (large size!)
- ❑ Was tested on Suse 8.2, FC6, FC8. Suse 10.2 may have problems with termcap library