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ROOT Version v5-32-00 Patch Release Notes

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A new production version ROOT v5-32-04 has been released June 13, 2012.

The AFS version of v5-32-04 for many different platforms and compilers can be found at:

[/afs.cern.ch/sw/lcg/app/releases/ROOT/5.32.04/](http://afs.cern.ch/sw/lcg/app/releases/ROOT/5.32.04/)

The complete source tree for all systems (54 MB) is available here:

[ftp://root.cern.ch/root/root_v5.32.04.source.tar.gz](http://root.cern.ch/root/root_v5.32.04.source.tar.gz) ^[4]

Alternatively get the source from [Subversion](#) ^[5] using:

```
svn co http://root.cern.ch/svn/root/tags/v5-32-04 [6] root
```

After obtaining the source read the file [README/INSTALL](#) ^[7] (in short just do: `cd root; ./configure; make`).

To get the source of the head of the v5-32-00-patches branch do:

```
svn co http://root.cern.ch/svn/root/branches/v5-32-00-patches [8] root
```

Changes in head of v5-32-00-patches branch

- I/O
 - Corrected the calculation of the number of read calls in TRFIOFile (See the forum [post](#) ^[9] on the subject. Fixed by revision 45140).
 - Add protection against corrupted ROOT File (wrong length stored in the file header) (Revision 45170).
 - Fix for recent versions of castor (Revision 48474).
- Proof
 - Import patches [#45092](#) ^[10] and [#45093](#) ^[11] adding functions to retrieve environment information from the nodes, typically from the master (datadir or some env settings).

Warning: This change in binary incompatible.

- CINT
 - Silence warnings on MacOS 10.7 with current XCode (r46000).

Changes in version v5-32-04 (June 13, 2012)

- Core
 - Avoid risk of executing the tear down routines twice at process termination when `-q` is used and there is no input file descriptor. (revision 44838).
 - Fix linking of `qtcint.dll` when explicitly linking is required (see [the related forum post](#) ^[12]).
- Net
 - Fix in TWebFile reading using https (via TSSLSocket).
- I/O
 - Avoid seg in I/O operation if you change the prefetch settings after the cache is created (revision 44755).
 - Add an explicit 'Close' for the read cache so that we can insure that all the (concurrent) outstanding connection/use of the TFile are closed before closing the file.

Warning: Binary incompatible change in TFileCacheRead.h

- Tree
 - ReadFile() must stop at EOF (r44196, bug [#94455](#) ^[13]).
 - Prevent negative consequences of call SetAutoFlush with a default value (44279, bug [#94669](#) ^[14]).
 - Repair the plotting of string histogram by TTree::Draw
 - Fixes issue in TChainIndex that made reading the first entry of the 2nd and subsequent files in the TChain not beeing properly reading when using the index. (Fixes Savannah [#94910](#) ^[15]).
 - Avoid an unnecessary flushing of the TTreeCache after the first time it filled (revision 44750)
- Proof
 - Import patch [#44397](#) ^[16] changing the default merging procedure used histograms to cover correctly all the cases.
 - Import patch [#44048](#) ^[17] removing the automatic creation of TDrawFeedback by TProofChain.
 - Import patch [#44701](#) ^[18] fixing several stability issues in xproofd. Patch is server side only; only the upgraded xproofd (or libXrdProofd) is equired.
 - Import patch [#42703](#) ^[19] removing unused variables in xproofd.
- CINT
 - genreflex: fix an issue with base classes defining operator new() (bug [#94981](#) ^[20], r44426).
- RooFit
 - Fix bug in binned generation of extended pdf (patch [#44630](#) ^[21])
- Hist
 - Fix bug in merging histograms and profile when first histogram to merge is empty (bug [#95190](#) ^[22] and [#94295](#) ^[23])

Changes in version v5-32-03 (May 9, 2012)

- Build System
 - Port to gcc 4.7 in both c++03 and c++11 mode.
- Core
 - Fix a (10 year) old issue with wrong MacOS X TZ reporting (which for OSX included the DST). Now we return purely the geographical TZ offset from UTC independent of DST (as for all other platforms).
 - On MacOS X correctly return the physical memory in GetSysInfo().
 - Enable AltGr on Windows (r44098, bug [#94123](#) ^[24]).
- I/O
 - In TFileMerger and hadd when objects can not be merged do **not** overwrite the last object in the set with the first (but rather, appending it to the output file like the others elements of the set). This fixes Savannah [#93193](#) ^[25]
 - In TSeqCollection::Merge (and hence in TFileMerger), do not append non-mergeable object but rather add a copy of the original. This fixes Savannah issue [#93401](#) ^[26].
 - In TFileMerger and hadd, re-enable the warning about non-mergeable objects.
- Tree
 - Fix circular TTree when its contains objects. This fixes Savannah issue [#93282](#) ^[27].
- TreeViewer
 - Fix a problem with array names (e.g. fVertex[]) as reported [on the forum](#) ^[28].
- Proof
 - Import patch [#42921](#) ^[29] to add also to TXUnixSocket the possibility to disable reconnections via the variable TXSocket.Reconnect (0 disable reconnections; default is 1) .
 - Import patches [#42775](#) ^[30], [#42788](#) ^[31], [#42882](#) ^[32] and [#42883](#) ^[33] enabling parallel dataset verification.
 - Import patches [#43101](#) ^[34], [#43884](#) ^[35] and [#43886](#) ^[36] adding in proofbench full support for dataset generation on external storage.
 - Import patch [#43567](#) ^[37] fixing a few issues with dataset verification of back-ends different from xrootd.

Changes in version v5-32-02 (March 27, 2012)

- Build System
 - Fix for building with external OpenSSL in non system location. Fixes issue [#92502](#) ^[38], r43338.
- CINT
 - Avoid creating dictionary where TClass can not find the CINT dictionary for an STL collection (case of nested collection where the inner collection are requested with the explicit std::). This fixes the Savannah report [92491](#) ^[39].
- I/O
 - Fix the merging (hadd and TFileMerger) of TTree in subdirectories when an incremental merge is requested (or needed). See the post [#92486](#) ^[40].
 - In TChainIndex (and hence tree friendship involving chains), properly handle the case where the requested index is too high. (See Forum [#61833](#)) ^[41].
- Proof

- Import patch [#43245](#) ^[42] fixing an issue with forcing local copies of files before merging (bit not always honored).
- Import patch [#43295](#) ^[43] to remove dependencies of netx on xrootd-related internal headers (the patch also removes external support for xrootd versions older than 4 years)
- Import patch [#43107](#) ^[44] to add the possibility to force submerging at node level, i.e. one submerger per physical machine; in this way the network traffic can be minimized, for example when merging large output files.
- Import patch [#43426](#) ^[45] fixing a problem with TProofOutputFile (more flexibility in the automatic definition of the env LOCALDATASERVER).
- Import patch [#43440](#) ^[46] fixing an issue with the username used to access a remote file in the xproofd daemon. Fixes a problem when retrieving files from workers where the username is different, e.g. PoD on gLite.
- Import patch [#43470](#) ^[47] fixing an backward compatibility issue affecting TProofBench::MakeDataSet.
- QT
 - Repair generation of qtcint (see the forum post [#13636](#) ^[48]).
- Histfactory
 - adjusts the ranges of the nuisance parameters for the statistical uncertainties and adds a simple method that is needed for the analytical Barlow-Beeston-lite-like optimization.
 - fix a typo in the XML parsing for an option that has rarely been used.

Changes in version v5-32-01 (February 29, 2012)

- Build System
 - Various corrections to the cmake build system.
 - Better Solaris 11.11 / CC 5.12 support (r42776, r42777).
 - Make distribution roottest-able, add missing stress files (r42879, r42880).
 - Do not remove essential files during make clean (bug [#90487](#) ^[49], r43131).
- Cint
 - Import patch [#42566](#) ^[50] fixing an issue preventing the generation on the dictionary for MathCore on some 32bits distributions This fixes [#90906](#) ^[51].
 - Import patch [#42805](#) ^[52] fixing the problem [#83909](#) ^[53] which leading to failure of the auto-dictionary generator when dealing with class template inside a namespace.
 - Fix parsing of templated function names in Linkdefs (Savannah [#90486](#) ^[54], [r42849](#) ^[55]).
 - Fix G__ONLINE at 1024 even if configuring --with-cint-longline (bug [#90330](#) ^[56], r42584).
 - Warn if selection.xml references a field that does not exist (bug [#90061](#) ^[57], r42899).
 - Silence warning in Shadow.h on Windows (r42902).
 - Fix the executing of TPad * pp = (TPad*) gPad, see the [report on the forum](#). ^[58]
- Core
 - Import patch [#42757](#) ^[59] fixing memory leak due to multiple allocations of gLibraryVersion.
 - Add missing implementation for TGenericClassInfo::GetDirectoryAutoAdd.
- I/O
 - Initialize the thread local gDirectory to gROOT rather than null (this is in particular useful to support TObject::Clone which needs a non-zero gDirectory)
 - Resolve [#88174](#) ^[60] which lead to failure in hadd and the TFileMerger (See patch [#42802](#) ^[61]).
- TTree
 - Resolve [#89645](#) ^[62] which could lead to segmentation fault when writing a sparse branch (in a large TTree) with a very long branch name.
 - Make sure that in the tertiary operator implementation we always load the branch that are needed (even in the case cond ? y : -y where cond is false). This fixes [#90826](#) ^[63].
- Net
 - Fix in case of redirection in TWebFile (fixes issue [91689](#) ^[64]).
- RooFit
 - Extend string parsing buffer in RooWorkspace factory to 10k
 - Allow explicit control over normalization of constraint terms through argument GlobalObservables() in RooAbsPdf::fitTo()
 - In RooMultiVarGaussian Support analytical integration of parameters as well
 - Faster parameter lookup inside RooMinuit
 - Bug fix in RooAddPdf in handling of recursive fractions with non-extended pdfs
 - Bug fix in RooAddPdf::expectedEvents() with fraction coefficients where transformation by range integral ratio is needed for expected yield
 - Bug fix in RooHist::makePullHist (solves Savannah [#89945](#))
 - Bug fix in RooCurve::findPoint (solves Savannah [#89949](#))
 - Bug fix in RooDataHist::adjustBinning (solves Savannah [#89947](#))
 - Bug fix in error messaging in RooProdPdf (solves Savannah [#89125](#))
 - Bug fix in private copy ctor of RooDataHist (solves Savannah [#85506](#))
 - Documentation fix for RooAbsData (solves Savannah [#84662](#))
 - Add option house average instead of bin center for residual and pull histograms (patch [#4948](#))
 - Use createIntegral() inside RooAbsReal::createPlotProjection so that pdf projections with multiple ranges are

- supported
- Bug fix in RooAbsData::fillHistogram (solves Savannah #83858)
- Apply auto-conversion to vector-based data storage in legacy RooDataSet constructors that take TTrees as argument
- In RooAbsOptTestStatistic disable cache-and-track optimization if storage class is not RooVectorDataStore (as it is only supported by this class)
- Bug fix in RooRealMPFE -- pass applyWeightSquared flag to remote server - fixes problems with weighted likelihoods calculated with >1 CPU (solves Savannah #84369)
- Bug fix in RooAbsTestStatistic, forward applyWeightSquared flag to all components (solves Savannah #88479)
- In RooTruthModel fix analytical integration ranges for 'expBasis' for non-standard ranges
- Bug fix in RooAbsHiddenReal - fix infinite loop cause by typo
- In RooAbsAnaConvPdf only evaluate convolutions that are prefixed by a non-zero coefficient
- Bug fix in RooEffProd normalization when explicit normalization range is used
- In RooVectorDataStore fix caching of conditional pdfs in level-2 cache mode
- In RooVectorDataStore restrict cache recalculation to active elements (restores normal performance scaling behavior for NCPU>1)
- Fix bug in RooAbsAnaConv so that generation from convoluted pdfs also works after persistence (solves Savannah#90986)
- Fix bug in RooCachedReal so that passthrough debug mode is functional
- Fix uninitialized data member in RooCachedReal to fix unreproducible behavior when fitting with parameterized integral caching
- Bug fix in RooGaussModel in sinh and cosh convolution terms (solves Savannah #90845)
- Bug fix in expression of partial integral in RooSpHarmonic
- Reduce abundant info messages in operation of RooAbsCachedReal and RooCachedReal to debug stream
- Make size of RooAICRegistry payload scale dynamically to support complex fits
- Fix memory leak in RooAbsTestStatistic
- In RooEffGenContext use known maximum of efficiency function if advertised for more efficient operation
- Fix persistence problems in RooUnblind* classes (solves Savannah #91268)
- In RooProdPdf terminate calculation when value is <= cutoff rather than
- In RooAbsAnaConvPdf improve performance by caching range name strings in RooNameReg
- Make payload of RooCacheManager scale dynamically to improve performance of complex fits
- In RooHistPdf also fast-track integration over named ranges if these map to the full range definition
- In RooDataHist fix bug in partial bin volume corrections in partial integrals.
- Remove stray debug comment in RooAbsData
- Make RooDataSet::fillHistogram() also work correctly for weighted datasets
- RooStats
 - Use flag=2 for constant term optimization in the evaluation of the profile likelihood test statistic
 - Fix a bug in running an automatic scan in the HypoTestInverter.
 - Fix a bug in making the Asimov data set in the AsymptoticCalculator when using workspaces generated with the new HistFactory version (see this [RootForum post](#) ^[65]).
 - Add possibility to make an AsimovDataSet using nominal nuisance parameter values
 - Add ProfileLikelihoodTestStat::SetOneSidedDiscovery() for q0 and added ::SetSigned() option to allow test statistic to probe fluctuations corresponding to p-values >50%.
 - Misc. fixes to SamplingDistPlot and HypoTestPlot
- HistFactory
 - Fix a bug in ParamHistFunc constructor needed for bin-by-bin uncertainties (StatError Activate="True" and ShapeFactor) to work properly
 - Change Poisson constraint terms to use "no rounding" flag, important for asymptotic calculations.
 - Added InterpCode=4 to FlexibleInterpVar which avoids kink in likelihood near alpha=0 that cause problems for MINUIT.
- Hist
 - Remove extra semicolon in THnSparse_internal.h (bug [#89917](#) ^[66], r42532)
- Proof
 - Import in stressProof the patches introducing new tests, adding a return code consistent with standard test facilities and the option '-noprogess' to switch off the progress information which may create problems in wrapper applications intercepting the output (e.g. ctest). Patches imported: 42000,42142,42302,42303,42376,42386,42387,42393,42400,42416,42434,42451,42462 .
 - Import patch [#42578](#) ^[67] fixing in getProof.C some issues mostly related to PROOF-Lite.
 - Import class to analyse the performance tree (see [description](#) ^[68])
 - Adapt patch [#42671](#) ^[69] fixing a problem with TProof::Load reported in the PROOF forum, caused by the fact that the additional files were not copied in the master sandbox but left in the cache.
 - Import patch [#42798](#) ^[70] in TDataSetManagerFile consolidating the way duplicates are removed.
 - Import patch [#42904](#) ^[71] in TProofOutputFile changing the default mode for merging histograms in TFileMerger, to reduce the memory footprint.
 - Import patch [#43074](#) ^[72] fixing the way errors are handled when uploading files (e.g. UploadPackage).

- Import patch [#43157](#) ^[73] fixing a compilation issue with xrootd 3.0.2 .
- Core / Textinput
 - Handle '{' on windows keyboards requiring Shift+AltGr+... ([bug #90192](#) ^[74], r42582, r42595).
- Graf3D
 - Import rev 42084 from trunk: Fix crash on exit when stamped element map is not empty.
- GUI
 - Import patch [#42940](#) ^[75] fixing a problem with new style when using SetBackgroundPixmap() with flat buttons.
- PyROOT
 - Patch for [#91505](#) ^[76]: allow null-characters in strings passed through the binding.

Changes in v5-32-00 (December 2, 2011)

- Build System
 - Refine (aka fix) configuration of internal CINT array sizes (r42210, [#88752](#) ^[77]).
- Hist
 - Import fix [#42155](#) ^[78] from the trunk to fix for bug [#88561](#) ^[79]
 - THnSparse: fix calculation of number of entries (r42190)
 - Import r42237 to optimize the merging of histograms in case of equal axes.
- Minuit2
 - Import fix [#42147](#) ^[80] in Minuit2Minimizer for fixing bug [#89111](#) ^[81] seen only on Windows
- RooFit
 - Add binned integration support for RooStats
- HistFactory
 - Add ParamHistFunc for bin by bin statistical errors for template shapes
- Math
 - Fix warning "undefined order of evaluation" in KDTree (r42191).
- Proof
 - Adapt patch [#42142](#) ^[82] fixing the return code of stressProof.
 - Import patch [#42238](#) ^[83] fixing checks of controlling envs and parameters in TPerfStat.
 - Import patch [#42248](#) ^[84] fixing name of the internal directory in the draw functions of TProofBench.
- Core
 - Zero out unused slots in TClonesArray::ExpandCreateFast(), was causing stale TClonesArray elements across TTree entries (r42333).
- I/O
 - Fix issue in case of corrupted file with unreadable StreamerInfo record ([#87896](#) ^[85]).

Changes in v5-32-00-rc2 (November 16, 2011)

- Build System
 - Port to IBM AIX 7.
 - Port to Solaris 11.11.11.
 - Fix for libMathCore being removed from root.exe by smart linkers like on Ubuntu 11.
 - Fixing missing dependency on Windows cmake build.
 - Enable configuration of internal CINT array sizes (r41942, [#88752](#) ^[77]).
- Core
 - Fix the user of TThread static function before the creation of any TThread object.
 - Make TSystem::StackTrace() work on Solaris and Ubuntu.
- Proof
 - Import patch [#41771](#) ^[86] fixing an issue locating the xrootd authentication framework plugin in the PROOF client
 - Import patch [#41772](#) ^[87] fixing an issue with the configuration of xrootd lib paths when xrootd libs are in system lib paths.
 - Import patches [#41785](#) ^[88] and [#41786](#) ^[89] fixing an issue with packetizers preventing proper entry range processing and the file ordering in datasets.
 - Import patch [#41788](#) ^[90] fixing an issue with AddInputData when objects are TTree or derived.
 - Import patch [#41801](#) ^[91] fixing an issue in the packetizers potentially crashing PROOF-Lite at exit when using file-resident outputs.
 - Import patch [#41869](#) ^[92] cleaning-up and simplifying the configuration of xrootd-related list of libraries.
 - Import patches [#41958](#) ^[93] and [#41999](#) ^[94] to improve checks, definition and cleaning of the working dir in tutorials/proof/getProof.C
 - Import patch [#41904](#) ^[95] extending TProofMgr::Ping functionality to 'xrootd' too. This is useful to test if an xrootd server is available at a given address.
- Hist
 - Import patch #42017 to fix a bug in SetContent with time display histograms
 - TCanvas::SaveAs() in a .C produced invalid C++ code for histograms drawn with the option COLZ (patch

#42107)

- MathCore
 - Import patch #41834 to fix a bug in TMath::Quantiles
 - Import patch #41984 for fixes in Fitter classes for weighted and extended likelihood fits
- MathMore
 - Import patch #42011 for fixing pruning of warning messages in Interpolation classes
- RooFit/RooFitCore
 - Import patch #41862^[96], #41871, #41899, #41976 to improve cache optimizations
 - Patch #42089 (add new bin-integrator)
 - Patch #42128 (various optimizations in pdf handling)
 - Patch #42153 (further optimizations, expand bin-integrator to 2/3d, support for mixed binned/unbinned generation)
- RooStats
 - Import patch #41799 to fix NLL evaluations in the AsymptoticCalculator
 - Import patch #41810 to fix computation of expected limits in HypoTestInverterResult
 - Import patch #41985 to fix for zero toys in HypoTest calculators
 - Import patch #41887 to fix for reusing of NLL in SimpleLikelihoodRatioTestStat

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Source URL: <http://root.cern.ch/drupal/content/root-version-v5-32-00-patch-release-notes>

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[83] <http://root.cern.ch/viewvc?rev=42238&root=root&view=rev>
[84] <http://root.cern.ch/viewvc?rev=42248&root=root&view=rev>
[85] <https://savannah.cern.ch/bugs/?87896>
[86] <http://root.cern.ch/viewvc?rev=41771&root=root&view=rev>
[87] <http://root.cern.ch/viewvc?rev=41772&root=root&view=rev>
[88] <http://root.cern.ch/viewvc?rev=41785&root=root&view=rev>
[89] <http://root.cern.ch/viewvc?rev=41786&root=root&view=rev>
[90] <http://root.cern.ch/viewvc?rev=41788&root=root&view=rev>
[91] <http://root.cern.ch/viewvc?rev=41801&root=root&view=rev>
[92] <http://root.cern.ch/viewvc?rev=41869&root=root&view=rev>
[93] <http://root.cern.ch/viewvc?rev=41958&root=root&view=rev>
[94] <http://root.cern.ch/viewvc?rev=41999&root=root&view=rev>
[95] <http://root.cern.ch/viewvc?rev=41904&root=root&view=rev>
[96] <http://root.cern.ch/viewvc?view=rev&revision=41862>