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# ROOT Version v5-34-00 Patch Release Notes

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A new production version ROOT v5-34-10 has been released Aug 29, 2013.

The AFS version of v5-34-10 for many different platforms and compilers can be found at:

[/afs/cern.ch/sw/lcg/app/releases/ROOT/5.34.10/](http://afs.cern.ch/sw/lcg/app/releases/ROOT/5.34.10/)

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

[ftp://root.cern.ch/root/root\\_v5.34.10.source.tar.gz](http://root.cern.ch/root/root_v5.34.10.source.tar.gz) <sup>[4]</sup>

Alternatively get the source from [Git](#) <sup>[5]</sup> using:

```
git clone http://root.cern.ch/git/root.git [6] root-v5-34
cd root-v5-34
git checkout -b v5-34-10 v5-34-10
```

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

To get the source of the head of the v5-34-00-patches branch do:

```
git clone -b v5-34-00-patches http://root.cern.ch/git/root.git [6] root-v5-34
```

## Changes in head of v5-34-00-patches branch

- I/O
  - Properly call an I/O rule that applies to a whole object that is split (deficiency introduced in v5.34/10). This fixes [ROOT-5483](#) <sup>[8]</sup>

## Changes in version v5-34-10 (Aug 29, 2013)

### Binary Incompatible

- Core
  - Improve TFormula performance when it calls C++ functions
- I/O
  - Add proper for custom collection (i.e class that have a CollectionProxy but are not STL collections).
  - Fix support of `iotype=Double32_t` in Cintex when this was the only used of `Double32_t` seen by `genreflex`
- TTree
  - Fix the reading a 8 bit integer by `TTree::ReadFile` and `TTree::ReadStream`
- Eve
  - Consolidate handling of `TGFileBrowser* TEveBrowser::fFileBrowser` member, see [ROOT-5294](#) <sup>[9]</sup>.
  - Fix `TEveTrackPropagator::LineIntersectPlane`, see [ROOT-5373](#) <sup>[10]</sup>.
- Proof
  - Fix PROOF-Lite crash at destruction reported in [ROOT-5280](#) <sup>[11]</sup>.
  - Import patch to fix fatal bug in `xproofd` affecting setups using authentication introduced in 5-34-06 (symptom: session do not start).
  - Modification of output sending protocol to control memory usage as described in [PROOF-30](#) <sup>[12]</sup>.
- Graphics
  - `TGraph::Draw()` needed at least the option `AL` to draw the graph axis even when there was no active canvas or when the active canvas did not have any axis defined. This was counter-intuitive. Now if `TGraph::Draw()` is invoked without parameter and if there is no axis defined in the current canvas, the option `ALP` is automatically set.
  - TH1s were drawn improperly in "Logx" mode if "X" axis starts at negative values (see Jira report [ROOT-4505](#)).
  - Fix some misplacements of characters in TLatex formulae (with TASImage).
  - New class `TTexDump` to generate PGF/TikZ vector graphics output

- Allow parenthesis in PDF and PS file names.

## Changes in version v5-34-09 (Jun 26, 2013)

### Binary Incompatible

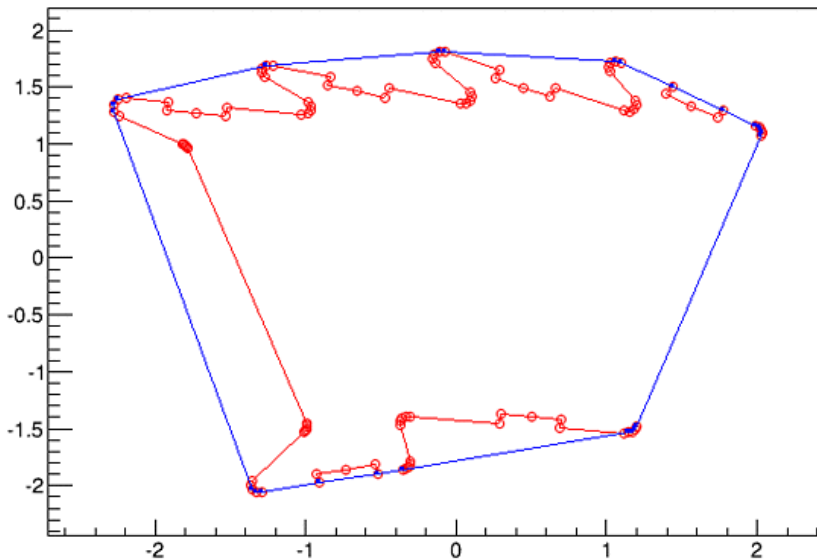
- Core.
  - Add TInterpreter::SetClassSharedLibs to extend and replace G\_\_set\_class\_autoloading\_table
- I/O.
  - Fix the handling of rule that specify a version range "[1-]" but applies to a classes with a specified version numbered. It now properly applies to all schemas.
  - Prevent out-of-bounds access when switching a TBuffer from Read to Write mode.
  - Fix spurious (fatal) removal of duplicate part of branch names.  
Since v5-34-06 (specifically commit b454e81), a TTree fails to save the content of a branch that is part of a split STL collection and whose name (of the data member) match some other component of the branch name (and the two must be separated by at least one level).  
For example out.OBJ.vec.OBJect or TH1DMEtoEDM\_MeToEDMConverter\_MeToEDMConverterRun\_TEST.obj.MEtoEdmObject.object. When reading the file back in **v5-34-06, 07 or 08**, this will result in the data not being written and the missing data not being noticed in any way by the I/O .. but of course, it is not being read. When reading the file back with v5-34-05 or below, this can result in error messages like:  
  

```
Error in : Could not find the StreamerInfo with a checksum of 0x20000 for the class "TH1F" in output.root.
```
  - Issue an error/warning when the source field of a I/O customization rule is not a list of "type name"
  - No longer ignore rules that target an existing member but do not have it as a source; instead this rule signal that the input should be ignored.
  - Issue a Fatal error when TTree::BranchOld is called for a non-TObject class.
  - Fix ROOT-5297 by fixing the implementation of TClass's MoveAddressInRepository.
  - Fix several issues found by running clang's AddressSanitizer
- CINT.
  - Fix rootcint -l / defined\_in on Windows for histfactory (a079afe).
- Proof
  - Import fixes for TProofBench in dynamic startup mode. TProofBench needs to know the maximum number of workers and to setup the context for the benchmark run. For this it was relying on TProof::GetParallel and TProof::GetListOfSlaveInfos. The information obtained was not correct in the case of a dynamic worker setup. This patch fixes several small issues related to this which are also relevant for the dynamic addition of workers.

## Changes in version v5-34-08 (May 31, 2013)

- Meta and I/O
  - Avoid null pointer dereference in TStreamerBase.
  - Add Error message when missing dictionary for STL collection.
  - Issue an error in the case of missing dictionary for STL base class of compiled classes.
  - Prevent integer overflow (unsigned int/int conversion) in TEmulatedMapProxy.
  - Implement a correct Write() method also writing the map value.
  - Add a example on how to grab the aggregate size on disk or memory for a branch.
  - Give example on how to create nested subdirectories.
  - 
  - add support for some the I/O rule element to be optional (in particular source and target)
- Proof
  - Import some fixes from the master, mostly related to dynamic startup.
  - Import fix for the processing rate and local sub-merging (thanks to B. Butler, M. Swiatlowski).
  - Import improvement in worker log naming and handling, relevant for the dynamic mode.
  - Import fix for potential issue with the generation of the TProofBench PAR files.
- Geom
  - Precision fix for TGeoPolygon affecting convexity checks and subsequently navigation for nearby vertices at large coordinates values.
  - Precision fix for safety calculation for a conical segment of a polycone
  - Precision fix for Boolean nodes affecting distance calculations from boundary points with inconsistent in/out state
  - Added user-defined extensions to volumes and nodes. This can be done inheriting from the base class TGeoExtension. To attach a user TObject derived class, one can use the reference counted TGeoRCExtension. The TGeoExtension class allows for either using or not reference counting. A utility TGeoRCPtr was added to allow smart reference counted pointers. To attach a user extension, use TGeoVolume::SetUserExtension() or TGeoNode::SetUserExtension(). To grab a reference counted pointer use GrabUserExtension(), to simply use/release use the method GetExtension().
  - Added possibility to draw polygons in 2D using TGeoPolygon::Draw() or TGeoXtru::DrawPolygon()

Polygon with 100 vertices (outscribed 25)



## Changes in version v5-34-07 (April 26, 2013)

- I/O
  - Repair support for `std::bitset` (broken in v5-34-06).

## Changes in version v5-34-06 (April 19, 2013)

### Binary Incompatible

- Core
  - Prevent silent potential data corruption when reaching more than 16777215 references objects and increase the maximum number of references object to  $16777215 * 65535$ . This addresses the Savannah report [#97630](#) <sup>[13]</sup> and [#93360](#) <sup>[14]</sup>.
  - In `TPRegex::Compile()` do not call `Optimize()` if regexp compilation has failed. Add a static flag '`Bool_t TPRegex::fgThrowAtCompileError`' that allows callers to intercept a faulty regexp being passed to `Compile()`. When this flag is in effect, a failed regexp compilation throws a `std::runtime_error`. Add member function '`Bool_t TPRegex::IsValid() const`' that returns true if the object holds a valid compiled representation of the regexp.
  - Add support in `genreflex` for data member that are arrays and are source or target of an I/O customization rule
  - `TClonesArray::Delete` now deletes properly the content of the objects even when they are representing an emulated class.
- IO
  - Allow the implicit conversion from any type of numerical STL collection to any other type of numerical STL collection (e.g. `vector<int>` to `list<float>`)
  - Implement the implicit rule for matching pair (based on being able to convert their content)
  - `hadd` now enables `Cintex` (if it has been built) so that library that are autoloaded and have a `Reflex` dictionary are effectively used. This fixes Savannah Report [#100759](#) <sup>[15]</sup>.
  - In `genreflex` add support for some the I/O rule element to be optional (in particular source and target)
  - Extend/correct the detection of renamed classes
  - Implementation the `streamerInfo` actions for `kBits`
  - Improve performance of reading a vector of non-class type by 25% (i.e. `std::vector`).
  - Improve performance of reading a branch with an `std::list<int>` by 25% by migrating to using the `StreamerInfoAction` and by implementing the access to iterator (creation, copy, increment, delete) via template function (rather than reallyly on the slow mechanism using '`At`' (and its use of the `fEnv`) ...)
  - Remove inadvertent match between 2 unrelated STL collection containing objects.
  - Add the concept of implicit rules to (centrally) support automatic translation of STL collection from numeric type to other numeric type or for when the contained class has some rules. Currently enabled only when the target is an `std::vector`.
  - Fix the Conversion of a `Double32` or `Float16` inside a collection of object to another type (the previous implemetation was not supporting the customization of the factor nor the number of bits).
- TTree
  - In `SetBranchAddress`, use the result of `CheckBranchAddressType` to decide whether to actually use the address or not. This avoid mis-using the user's pointer (but also might make invalid/awkward code fails). To prevent the check (and hence for the use a pointer no matter what), the user needs to cast the pointer to a `void*`.
  - `SetBranchAddress` now returns an error code.
  - In `TTree::SetBranchAddress`, properly reset the `TargetClass` when the address is changed (back) to the original

- type.
  - Issue an error message if the class type of the argument to `TTree::SetBranchAddr` can not be determined (missing dictionary but having only a typeid).
  - Correct the behavior when attempting to create a branch with split level zero with an object that requires the use of a `TBranchObject` (for example `TVector3`). See the ROOT Forum [#15975](#) <sup>[16]</sup>
  - Properly handle the evolution of an STL container containing a class with contains sub-object.
  - Extend the output of `TTree::Print(debugInfo)` to include the action sequence information (and add support for the sub option 'func' that also prints the function's (mangled) name).
- Math
  - Put explicit template instantiations from `ChebyshevPol.h` in implementation file, to avoid duplicate symbols that prevented static linking from succeeding.
- Net
  - The class `TS3WebFile` was modified to support also reading files hosted by Google using the S3 protocol. Its `TFile` plugin was also modified to reflect this.
- Proof
  - Import patch [#46634](#) <sup>[17]</sup> removing the dependence on the XRootD header `XrdSutAux.hh`
  - Import patch [#48766](#) <sup>[18]</sup> fixing a possible double-delete when a selector is processed by object.
  - Import patch [#48939](#) <sup>[19]</sup> fixing problem in `pq2-verify`.
  - Import patch [#49113](#) <sup>[20]</sup> fixing a possible crash in submerger mode due to missing protection.
- PyROOT
  - Support for python3.3.
- GL
  - Make camera state streamable. See `tutorials/eve/camera_restore.C`
- Eve
  - `TEveRGBAPalette`: fix bug in palette color interpolation.
- RooFit
  - **Fix for the notorious 'proxy error' problem that would crash toy studies of complex models after a couple of hours of running**
  - Eliminated most memory leaks
  - Support up to 9 arguments in `RenameVariables()` argument of `RooWorkspace::import()`
  - Introduce new generic `MultiArg()` named argument that can be passed to any RooFit function taking named argument with the purpose of extending the maximum number of accepted named arguments. Since `MultiArg()` can be nested inside `RooMultiArg()` there is now no technical limitation on the number of named arguments that can be passed
  - In `RooCategory` interpret the null-range as the default range so categories behave analogous to `RooAbsReals` when used with ranges
  - In `RooPlot` avoid drawing of stray entry in first bin when user has `TH1::DefaultSumW2()` set to `kTRUE`
  - Improve robustness of likelihood offsetting procedure that is enable via the `Offset(kTRUE)` argument to `RooAbsPdf::createNLL()` or `RooAbsPdf::fitTo()`
  - In `RooWorkspace` allow to access snapshot contents as `RooArgSet` [ JIRA-ROOT-178 ]
  - Fix bug in parallelized likelihood calculations (`NumCPU(n)`) for models that have extended likelihood components in one bin. With this fix likelihood parallelization will work robustly for all known `HistFactory`-style models
  - Add new strategies to parallelize likelihood calculations over multiple cores. New strategies allow to distribute whole pdf components over cores instead of splitting them internally. This is particularly efficient for small components (with few associated dataset entries). The new 'hybrid' parallelization option will automatically select this strategy for small components, while keeping the 'BulkPartition' internal splitting for larger components
  - In `RooMinuit` improve retrieval of MINOS status code
  - Update `RooNovosibirsk` with analytical integral (M. Petric -JIRA-ROOT-5013)
  - In `RooProfileLL` fix crash in call to `bestFitObs()` prior to calling `getVal()` [ JIRA-ROOT-4884 ]
  - Allow `Bool_t` datatypes in `TTrees` to be associated with `RooRealVars` in `RooDataSets` [ JIRA-ROOT-179 ]
  - Fix `RooAbsData::addColumn()` for datasets that are internally represented as a composite dataset, i.e datasets from `RooSimultaneous::generate()` [ JIRA-ROOT-4771 ]
  - In `RooFitResult::createHessePdf()` fix variable mapping problem in info message [JIRA-ROOT-4993 ]
  - Fix  $\chi^2$  calculation when empty bins are present in `RooCurve::calculateChi2()` [ JIRA-ROOT-4826 ]
  - Fix `RooAbsReal` copy ctor - include plot label as well [ JIRA-ROOT-4987 ]
  - Fix possible hangup in `NumCPU()` multi-core parallelization of likelihood when complex errors occur on the server-side
- HistFactory
  - Fix broken schema evolution of class `HistFactory::Measurement` with full backward compatibility
- RooStats
  - In `ModelConfig` add sanity check that objects passed to `SetNuisanceParameters()`, `SetPOI()` etc are genuine variable objects and not functions

## Changes in version v5-34-05 (Feb 14, 2013)

- Core
  - Updated the class checksum calculation to be more platform independent. Notably this changes the value of checksum for classes that inherit from STL collections.
- I/O
  - Enhance the performance of reading STL collection by 25%.
  - Enabled the implicit conversion from any collection of a Type to any other collection of a compatible type. Compatible types includes two numerical types, two class for a explicit renaming I/O customization rule and two std::pair of compatible types.
  - Fix compilation errors with castor 2.1.13-6 (DLL\_DECL is not defined in Castor anymore)
  - Remove a race condition in the asynchronous TFile prefetecher. This fixes the Savannah report
  - Added possibility to merge only a list of objects/folders from the input files, specified by name, or to skip them from merging. This is fully integrated with the new PartialMerge(flags) schema.

Usage:

The names of the objects to be merged or skipped have to be specified using the interface:

*TFileMerger::AddObjectNames(const char \*names)*

This method can be called several times to add object names. Several names can be added with one call separated by single blanks (no blank at the end). Directory names are accepted, applying the merging selection to all content. Two new options are being supported for partial merging:

*TFileMerger::PartialMerge(flags | kOnlyListed)*

This will merge only the objects in the files having the names in the specified list. If a folder is specified, it whole content will be merged

*TFileMerger::PartialMerge(flags | kSkipListed)*

This will skip merging for the specified objects. If a folder is specified, its whole content will be skipped

**Important note:** The kOnlyListed and kSkipListed flags have to be bitwise OR-ed on top of the merging defaults: kAll | kIncremental (as in the example \$ROOTSYS/tutorials/io/mergeSelective.C)

- Graphics
  - Implement #backslash in TLatex.
  - Add the optional parameter "alpha" to TColor::SetPalette. The default value is 1. (opaque palette). Any value between 0. and 1 define the level of transparency. 0. being fully transparent and 1. fully opaque.
  - Implement transparency for GL in Pad (*gStyle->SetCanvasPreferGL(1)*).
  - Fix a [problem with the option SAME](#) [21].
- Proof
  - Correctly set the PROOF internal protocol value to the level required by the new dataset staging request functionality.
  - Import patch [#48355](#) [22] with important fixes in TDataSetManagerAliEn.
  - Import patch [#48439](#) [23] with fixes/modifications in xpdtest, setxrd.sh and installXrootd.sh.
- Eve
  - Added a few extra class members to TEveRecTrackT needed by ALICE.
- RooFit
  - Make sure 'generic projection terms' of a RooProdPdf, as well as its payload are associated with the expensive object cache of the RooProdPdf, so that these are cached in workspace files when persisted
  - Make RooFFTConvPdf support convolution in a range narrower than the full domain (the narrow range can be specified as part of the 'cache' binning associated with the convolution observable that also controls the sampling density)
  - In RooChi2Var offer an explicit choice between modified and normal chi^2 calculation
  - In RooWorkspace improve functionality of importClassCode(): include files specified in the class code that are have encoded path names are now also found and stored [Savannah #100027]
  - Reorder ctor order of RooMultiVarGaussian so that version with RooArgList for the mu vector is accessible in the workspace factory.

## Changes in version v5-34-04 (Jan 10, 2013)

### Binary Incompatible

- Core
  - Fixes two thread safety issues affecting accessing TClonesArray objects in more than one thread (see revision [#47726](#) [24]).
  - Import patch [#48132](#) [25] fixing an issue in TUnixSystem::RedirectOutput; this resolves the Savannah report [#96935](#) [26].
- I/O

- Prevent a segmentation fault at the time a TFile is closed and/or deleted if it contains a TTree that is stored in a subdirectory.
  - Prevent infinite loop when encountering unzipping error. This resolves the Savannah report [#99523](#) <sup>[27]</sup>.
  - Import patch [#48115](#) <sup>[28]</sup> in TFileMerger basically skipping, for non-mergeable objects, the check on recurrent names. This should fix the Savannah report [#99015](#) <sup>[29]</sup>.
- Proof
  - Import patch [#46864](#) <sup>[30]</sup> fixing a crash in TStatus::Add in the case of missing files. This was a regression introduced by branch patch [#45751](#) <sup>[31]</sup> (import of [#45283](#) <sup>[32]</sup>).
  - Import patch [#46992](#) <sup>[33]</sup> addressing a possible crash after finalisation.
  - Import patch [#47067](#) <sup>[34]</sup> fixing possible (random) failure of test 22.
  - Import patch [#47235](#) <sup>[35]</sup> fixing a file permission issue in afdsmgrd.
  - Import patch [#47238](#) <sup>[36]</sup> fixing a few issues preventing proper cleaning of the 'data' directory when running stressProof in Proof-Lite.
  - Import patch [#47251](#) <sup>[37]</sup> fixing an issue with unexpected settings in TStatus::fBits.
  - Import patch [#47270](#) <sup>[38]</sup> adding notification of the estimated time left (and, at the end, of the processing time) also when running in batch mode.
  - Import patch [#47367](#) <sup>[39]</sup> fixing an issue with TDataSet::Validate.
  - Import patch [#47444](#) <sup>[40]</sup> to not print all progress messages during the merging phase in non-tty mode (avoid filling up the logs with useless info).
  - Import patch [#47451](#) <sup>[41]</sup> to add flexibility in defining directories for PAR packages.
  - Import patches [#47528](#) <sup>[42]</sup> and [#47573](#) <sup>[43]</sup> to support specifying the check version option in TProof::EnablePackage.
  - Import patch [#47664](#) <sup>[44]</sup> fixing an undefined variable in TSelEventGen (proofbench PAR package).
  - Import patch [#47729](#) <sup>[45]</sup> fixing a backward incompatibility introduced by patch [#45751](#) <sup>[46]</sup>.
  - Import patch [#47832](#) <sup>[47]</sup> to make sure that the fSlaves list contains always ALL workers, even those which did not initially startup; this way GetListOfSlaveInfos can be used to find out which workers had problems starting up.
  - Import patch [#47833](#) <sup>[48]</sup> to make sure that the XrdProofClient instance is always defined when calling MapClient. This was not done for example when using the weak authentication protocol 'host', or similar protocols not requiring a real authentication token.
  - Import patches [#48060](#) <sup>[49]</sup> and [#48239](#) <sup>[50]</sup> introducing an improved dataset management model where the PROOF (ROOT) dataset manager is a light frontend to the experiment file catalogs; TDataSetManagerFile is still used as local cache of the experiment information or to store the work-in-progress status of the dataset manager daemon. This model is expected to solve the scalability issues observed currently at AAFs. The patches include the new class TDataSetManagerAliEn with the first concrete implementation of experiment catalog interface and a new version of afdsmgrd able to cope with the new dataset model.
  - Import patch [#48063](#) <sup>[51]</sup> fixing fixing possible deadlock in session startup.
  - Import patch [#48068](#) <sup>[52]</sup> fixing some issues in TProofBench.
  - Import patches [#48086](#) <sup>[53]</sup> and [#48099](#) <sup>[54]</sup> fixing some building issues.
  - Import patch [#48104](#) <sup>[55]</sup> fixing fixes failure in TProofBench.
  - Import patch [#48122](#) <sup>[56]</sup> turning-off role checking for localhost connections (not required and limiting daemon test applications).
  - Import patches [#48016](#) <sup>[57]</sup> and [#48127](#) <sup>[58]</sup> with several fixes in xproofd.
  - Import patch [#48130](#) <sup>[59]</sup> adding the executable 'ptest' which can be used to test the status of the daemon.
  - Import patches [#48130](#) <sup>[59]</sup> and [#48141](#) <sup>[60]</sup> to support building ROOT using an untagged xrootd (e.g. the trunk).
  - Import patch [#48166](#) <sup>[61]</sup> reducing verbosity during merge of TProofOutputFile in no debug mode.
  - Import patches [#48211](#) <sup>[62]</sup> and [#48226](#) <sup>[63]</sup> to fix possible deadlocks associated with the handling of asynchronous timers.
- Tree
  - Import patch [#47057](#) <sup>[64]</sup> in TTree::Merge to make sure that things are really written out to disk before attempting any reading; solves an issue in TFileMerger when the merged file is written to a xrootd backend.
  - TTree::ReadFile and TTree::ReadStream now skip empty lines and commented out line (starting with #) before looking for a description. (This fixes the most recent part of the Savannah report [#28084](#) <sup>[65]</sup>).
  - In TTree::ReadFile and TTree::ReadStream allow colon (:) as the separator for the list of branch and types even in the case of a comma separated file. This resolves the Savannah report [#99528](#) <sup>[66]</sup>.
- Graphics
  - Import the TMathText class.
  - In the following example the white spaces were ignored.
 

```
TFileMerger::AddObjectNames(const char *names)
```
  - Fit parameters with very long names destroyed the stats display.
  - Import new palettes from the trunk.
  - New drawing option "SC" for TPie to draw the labels with the slices' colours.
  - Modify the Clear function in order to be able to reuse a TGraph2D after a Clear is performed.
  - In TGraph2D::GetHistogram() the lower and higher axis limits are always different.
- PyROOT
  - Reworked GIL release to be as close to the C++ call as possible
- Hist

- Fix a bug in fitting TGraphAsymErrors when including error in x (see Forum [#15564](#) <sup>[67]</sup>)
- Improve TAxis::SetRange with the possibility to include/exclude also underflow and overflow bins (see issue [#97331](#) <sup>[68]</sup>)
- Fix a bug in re-using the stored fit function in the histogram for fitting a second time
- Minuit
  - Fix a problem in TMinuitMinimizer when all parameters are fixed (see [#99058](#) <sup>[69]</sup>)
- RooFit
  - Fix a bug, introduced in 5.34.01, when generating the correct number of events when using the Extended() option ([#98832](#) <sup>[70]</sup>)
  - Import in RooPoisson the implementation of the analytical integral for the mean
- RooStats
  - Fix an issue in FactorizePdf (see Forum [#15694](#) <sup>[71]</sup>)
  - Fix a memory leak in SPlot ([#99400](#) <sup>[72]</sup>)
  - Add functions in RooStatsUtils to factorize the pdf and to remove constraint terms. Speed-up the SimpleLikelihoodRatio evaluation by avoiding to evaluate the constraints
  - Fix the AsymptoticCalculator to try to use same binning for Asimov data set as observed data
  - Add support for generating same toys for alternate hypothesis at each point to get more stable bands
- HistFactory
  - Add ability to use multiple shape-factors in a single sample, to use multiple asimov datasets and improved histfactory navigation. Add new hist2workspace executable

## Changes in version v5-34-03 (Oct 25, 2012)

### Binary Incompatible

- Build System
  - Fix in ACLiC for builds with --enable-soversion on MacOS X.
- IO
  - Fix for reloading TClass via Cintex (This fixes Savannah issue [#97765](#) <sup>[73]</sup>).
- TTree
  - In the case where the content of STL collection has one of its member removed, avoid mistakenly trying to read if SetAddress is called more than once on that branch.
  - In TTreeSQL prevent a spurious duplicate column error (Fixes Savannah issues [#98126](#) <sup>[74]</sup>).
- RooFit
  - Fix a bug in level-2 optimization of likelihoods involving pdfs containing products of conditional pdfs
  - Import weight variable of imported dataset if no weight variable is specified (Savannah #95641)
  - When importing TH1s in a RooDataHist omit 'average bin density' correction factor as that proves to be very unintuitive (Savannah #96153)
  - In RooStreamParser fix parsing issue for variables starting with an 'i' (Savannah #82458)
  - Allow to import RooPlots in workspace with crashing (Savannah #94239)
  - Fix crash in reading of RooVectorDataStore of variables with weights stored (Savannah #94908)
  - RooProduct and RooAddition now accept multiple copies of the same input argument, e.g. a\*a or a+a (Savannah #94925)
  - In fitTo() only invoke SUMW2 afterburner if there are >0 free parameters (Savannah #92332)
  - Fix documentation of RooFormulaVar (Savannah #93498)
  - In RooAbsData::splot() don't add extra weight variable when split()-ting binned datasets (Savannah #93867)
  - Fix dynamic updated of mapped binning of RooLinearVar (Savannah #82087)
- RooStats
  - Fix a bug in re-defining the same set in ModelConfig::DefineSetInWS
  - Fix a memory leak in using the test statistics detailed output
  - Fix the computation of p-values in ProfileLikelihoodCalculator::GetHypoTest for multi-dimensional models (with more than one parameter of interest)
- FFTW
  - Fix bug [#97707](#) <sup>[75]</sup> in TFFTComplexReal::SetPoint(ipoint, c)
- MathCore
  - Fix a bug in the Fitter class in setting a different error scale for likelihood fits (see post [#15368](#) <sup>[76]</sup>)
- Graphics
  - Implementation of MacOS X back-end finished.
  - When GetX(YZ) axis were called on a TGraph2D, the frame limit and plotting options were changed.

- Thick dashed lines were not correct in TASImage files
- GL
  - Make sure to pass identity matrix to TGeoCompositeShape::PaintComposite() when transformation is not included in boolean operation.
  - Enable automatic scaling of surface normals when transformation matrix is a scaling transformation.
  - Add option preventing GL viewer to disregard very small objects. Call TGLLogicalShape::SetIgnoreSizeForCameraInterest(kTRUE);
  - Fix a bug in CSG operations that manifested with gcc-4.7 (only with optimization on).
  - Move enums from global namespace:
    - EOverlap moved to Rgl namespace;
    - EClipType moved into class TGLClip as EType;
    - EPosition and EManip type were not used and have been removed.
  - Fix a bug in arc-ball camera rotation mode (when camera center was moved from window center).
- EVE
  - Fix an issue in Eve shutdown sequence.

## Changes in version v5-34-02 (Sept 21, 2012)

### Binary Incompatible

- Build System
  - When checking if "-std=c++11" compiler option exists use the compiler that is selected via --with-cxx.
- Thread
  - In Thread::Join, avoid a dead lock/race condition that sometimes prevented the TFilePrefetcher from properly finishing.
- Meta
  - Making sure that when we lookup for an existing entry we look for an exact match (as oppose to doing a lookup of the unqualified name) to avoid unrelated nested typedef/names to over-ride global scope classes that are marked for autoloading (r42421).
- I/O
  - Avoid spurious error message when reading an existing file with a class inheriting from std::string ([r45117](#) <sup>[77]</sup>)
  - Corrected the calculation of the number of read calls in TRFIOFile (See the forum [post](#) <sup>[78]</sup> on the subject. Fixed by revision [45140](#) <sup>[79]</sup>).
  - Add protection against corrupted ROOT File (wrong length stored in the file header) (Revision [45170](#) <sup>[80]</sup>).
  - Fix file->Get("Lumi/physics;2") to properly retrieve the 2nd cycle (revision [45243](#) <sup>[81]</sup>).
  - Implement TChain::RemoveFriend to avoid leaving the TChain in an unstable state (See the forum [post](#) <sup>[82]</sup> on the subject. Fixed by revision [46069](#) <sup>[83]</sup>).
- Proof
  - Import patches [#45846](#) <sup>[84]</sup>, [#45847](#) <sup>[85]</sup> and [#45849](#) <sup>[86]</sup> fixing a few consistency issues (honoring 'workers=N' when passed as option in PROOF-Lite, parallel dataset verification when PROOF is sequential).
  - Import patches [#45876](#) <sup>[87]</sup>, [#45823](#) <sup>[88]</sup> and [#45827](#) <sup>[89]</sup> fixing, in stressProof, sandbox cleaning and adding some switches to better control log saving an path in case of failures. The patch also adds the correct switches in test/CMakeList.txt for cmake -based test running.
  - Import patch [#45759](#) <sup>[90]</sup> fixing possible double delete in TProofDraw.
  - Import patches [#45283](#) <sup>[32]</sup>, [#45289](#) <sup>[91]</sup>, [#45318](#) <sup>[92]</sup>, [#45348](#) <sup>[93]</sup>, [#45367](#) <sup>[94]</sup>, [#45570](#) <sup>[95]</sup>, [#45610](#) <sup>[96]</sup>, [#45614](#) <sup>[97]</sup>, [#45615](#) <sup>[98]</sup>, [#45632](#) <sup>[99]</sup>, [#45634](#) <sup>[100]</sup>, [#45282](#) <sup>[101]</sup>, [#45696](#) <sup>[102]</sup>, [#45697](#) <sup>[103]</sup>, [#45718](#) <sup>[104]</sup> and [#45740](#) <sup>[105]</sup> automatizing the usage of file-based technology to handle outputs (see [Handling Outputs](#) <sup>[106]</sup>).
  - Import patch [#45664](#) <sup>[107]</sup> fixing an issue with afdsmgrd build in the case a '--prefix=' was passed.
  - Import patches [#45283](#) <sup>[32]</sup> (parts), [#45318](#) <sup>[92]</sup>, [#45607](#) <sup>[108]</sup>, [#45610](#) <sup>[96]</sup>, [#45613](#) <sup>[109]</sup>, [#45614](#) <sup>[97]</sup> (parts), [#45630](#) <sup>[110]</sup>, [#45632](#) <sup>[99]</sup> (parts) and [#45643](#) <sup>[111]</sup> fixing several issues:
    - consolidation of username definition in the automatic LOCALDATASERVER setting (by xproofd);
    - fix for TProof::GetUser (Savannah issue #92533)
    - use of LOCALDATASERVER in ProofAux.C, fixing potential failures of stressProof
    - fix for potential segv in the destructors of TPacketizerUnit and TVirtualPacketizer
    - fix issue with merging elements in ProcFileElements which was causing spurious failures in stressProof, test #19
  - Import patches [#45568](#) <sup>[112]</sup> and [#45597](#) <sup>[113]</sup> fixing a few issues in PROOF-Lite.
  - Import patches [#45092](#) <sup>[114]</sup> and [#45093](#) <sup>[115]</sup> adding functions to retrieve environment information from the nodes, typically from the master (datadir or some env settings).  
**Warning:** This change in binary incompatible.
  - Import patch [#45181](#) <sup>[116]</sup> fixing a crash in xproofd when using security.
- Graphics
  - The time axis behavior should now be correct along time zone and summer saving time. A fix has been done with the of Philippe Gras (CEA Saclay. IRFU/SEDI) and Julian Sitarek (IFAE). Time axis transported from a time zone to an other in a ROOT file are correct too. A new example test have been introduced to test the time axis (timeonaxis3.C)
- GUI
  - Prevent the use of a global by TGLabel before it is initialized (revision [#46073](#) <sup>[117]</sup>)



- EVE
  - Avoid crash in TEveTrack::TEveTrack(TEveMCTrack\*) constructor when PDG code is unknown. fCharge is set to 0 in this case.
  - Add support for asymmetric calorimeters in TEveCalo classes (Christian Pulvermacher).
- RooFit
  - Fix a bug in RooBernsteing for degree 1 polynomial ([#97190](#) <sup>[118]</sup>)
- RooStats
  - Fix a bug in using the correct one-sided test statistics in the AsymptoticCalculator (see corresponding discussion on RooStats mailing list)
  - Fix a bug in SimpleInterval
  - Improve LikelihoodIntervalPlot for drawing 2D contours
  - Fix the evaluation of the likelihood for ConditionalObservables
  - Fix setting a second time the nuisance pdf in the ToyMCSampler. This bug affect the HybridCalculator when using different nuisance pdf's for the null and alternate models.
  - Fix generation of AsymptoticCalculator::GenerateAsimovData for counting models containing several observables
- HistFactory
  - Import changes described in revision [45703](#) <sup>[119]</sup>
  - Import changes to have model built without a data tag selected
- Hist
  - Update projection methods to re-set binning on a previously existing histogram ([#94101](#) <sup>[120]</sup> and [#95808](#) <sup>[121]</sup>)
- Minuit
  - Apply some fixes in TMinuitMinimizer: fix resetting the configuration in a second Minos run and fix the number of contour points.

## Changes in version v5-34-01 (July 13, 2012)

### Binary Incompatible

- 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 qtcd.dll when explicitly linking is required (see [the related forum post](#) <sup>[122]</sup>).
- I/O
  - Fail gracefully instead of segfaulting on broken files in GetStreamerInfoList (Fixes Savannah [#5439](#) <sup>[123]</sup>).
  - Avoid seg fault when deleting a reseted TMemFile (revision 44749).
  - 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.
- TTree
  - Restore support for the TTreeCache use case where the lifetime of the TTreeCache is explicitly managed by the user and detach from the TFile/TTree via a call to: file.SetCacheRead(0);
  - 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](#) <sup>[124]</sup>).
  - Avoid an unnecessary flushing of the TTreeCache after the first time it filled (revision 44750)
- Proof
  - Import patch [#44606](#) <sup>[125]</sup> adding support for gcc4.7 in afdsmgrd (version 1.0.3).
  - Import patch [#44701](#) <sup>[126]</sup> with several important fixes in xproofd. Patch is server side only; only the upgrade of xproofd (or libXrdProofd) are required.
- RooFit
  - Fix bug in binned generation of extended pdf (patch [#44630](#) <sup>[127]</sup> )
- HistFactory
  - Fix a problem for pyroot and an issue in creating directory (patch [#44579](#) <sup>[128]</sup> ).
- Hist
  - Fix bug in merging histograms and profile when first histogram to merge is empty (bug [#95190](#) <sup>[129]</sup> and [#94295](#) <sup>[130]</sup>)
  - Enable TBrowser to access THnSparse with more than 16 axes (r44827).
- THtml
  - Set ROOTSYS in makehtml by calling root instead of root.exe (bug [#95635](#) <sup>[131]</sup>, r44726)
- OpenGL
  - If creation of frame-buffer object for saving of a screenshot fails, fallback to using back-buffer. This can be disabled via the following rootrc setting:  
OpenGL.SavePictureFallbackToBB: off  
Latest SLC5, SLC6 intel/mesa drivers seem to often lie that they support FBOs and then fail when asked to provide it.
  - Provide switching between standard and arc-ball rotation in TGLViewer (keybinding 'a').
  - Allow setting of non-standard coordinate systems (arbitrary up and forward direction) via new function TGLViewer::ReinitializeCurrentCamera().

- EVE
  - Add new type of track path-mark - TEvePathMatk::kLineSegment. This is to be used for silicon strip detectors rec-hits, especially for low pT tracks where searching for closest point of approach to a line segment is more robust than searching for intersection with a plane.
  - Add support for somewhat continuous energy loss along track propagation. This only makes sense if many path-marks are set for a given track, see TEveTrack::fDpDs.

## Changes in v5-34-00 (June 5, 2012)

- TTree
  - Repair the plotting of string histogram by TTree::Draw
- Net
  - Fix in TWebFile reading using https (via TSSLSocket).
- IO
  - Optimization in TFileMerger for the case where there is only one file to 'merge' (patch [#44533](#) <sup>[132]</sup>).
- Proof
  - Import patches [#44411](#) <sup>[133]</sup> and [#44425](#) <sup>[134]</sup> fixing a problem in handling local files in TDataSetManager::ScanFile;
  - Import version 1.0.2 of afdsmgrd (patches [#44243](#) <sup>[135]</sup>, [#44292](#) <sup>[136]</sup> and [#44332](#) <sup>[137]</sup>) with several important fixes for PEAC and AAFs and the integration in the cmake build
  - Import patch [#44397](#) <sup>[138]</sup> changing the default merging procedure used histograms to cover correctly all the cases.
  - Import patches for Coverity-related issues
- THtml
  - Also check for modifications in headers ([bug #94695](#) <sup>[139]</sup>, r44323).
- Textinput
  - Always move to right after prompt before writing text ([bug #91752](#) <sup>[140]</sup>, r44337).
  - Implement ^G: abort an incremental search and restore the original line (r44337).
- CINT
  - genreflex: fix an issue with base classes defining operator new() ([bug #94981](#) <sup>[141]</sup>, r44403).
- Misc
  - Remove using namespace declarations ([bug #94452](#) <sup>[142]</sup>, r44342-44352, r44368).

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**Source URL:** <http://root.cern.ch/drupal/content/root-version-v5-34-00-patch-release-notes>

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- [2] <http://root.cern.ch/drupal/category/package-context/patches>
- [3] <http://root.cern.ch/drupal/category/package-context/v5-34-00>
- [4] [ftp://root.cern.ch/root/root\\_v5.34.10.source.tar.gz](ftp://root.cern.ch/root/root_v5.34.10.source.tar.gz)
- [5] <http://root.cern.ch/drupal/content/git-howto>
- [6] <http://root.cern.ch/git/root.git>
- [7] <http://root.cern.ch/drupal/content/installing-root-source>
- [8] <https://sft.its.cern.ch/jira/browse/ROOT-5483>
- [9] <https://sft.its.cern.ch/jira/browse/ROOT-5294>
- [10] <https://sft.its.cern.ch/jira/browse/ROOT-5373>
- [11] <https://sft.its.cern.ch/jira/browse/ROOT-5280>
- [12] <https://sft.its.cern.ch/jira/browse/PROOF-30>
- [13] <https://savannah.cern.ch/bugs/?97630>
- [14] <https://savannah.cern.ch/bugs/?93360>
- [15] <https://savannah.cern.ch/bugs/?100759>
- [16] <http://root.cern.ch/phpBB3/viewtopic.php?t=15975>
- [17] <http://root.cern.ch/viewvc?rev=46634&root=root&view=rev>
- [18] <http://root.cern.ch/viewvc?rev=48766&root=root&view=rev>
- [19] <http://root.cern.ch/viewvc?rev=48939&root=root&view=rev>
- [20] <http://root.cern.ch/viewvc?rev=49113&root=root&view=rev>
- [21] <https://savannah.cern.ch/bugs/?100221>
- [22] <http://root.cern.ch/viewvc?rev=48355&root=root&view=rev>
- [23] <http://root.cern.ch/viewvc?rev=48439&root=root&view=rev>
- [24] <http://root.cern.ch/viewvc?rev=47726&root=root&view=rev>
- [25] <http://root.cern.ch/viewvc?rev=48132&root=root&view=rev>
- [26] <http://savannah.cern.ch/bugs/?96935>
- [27] <http://savannah.cern.ch/bugs/?99523>
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- [29] <http://savannah.cern.ch/bugs/?99015>
- [30] <http://root.cern.ch/viewvc?rev=46864&root=root&view=rev>
- [31] <http://root.cern.ch/viewvc?rev=45751&root=root&view=rev>
- [32] <http://root.cern.ch/viewvc?rev=45283&root=root&view=rev>
- [33] <http://root.cern.ch/viewvc?rev=46992&root=root&view=rev>
- [34] <http://root.cern.ch/viewvc?rev=47067&root=root&view=rev>
- [35] <http://root.cern.ch/viewvc?rev=47235&root=root&view=rev>

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[45] <http://root.cern.ch/viewvc?rev=47729&root=root&view=rev>  
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[52] <http://root.cern.ch/viewvc?rev=48068&root=root&view=rev>  
[53] <http://root.cern.ch/viewvc?rev=48086&root=root&view=rev>  
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[56] <http://root.cern.ch/viewvc?rev=48122&root=root&view=rev>  
[57] <http://root.cern.ch/viewvc?rev=48016&root=root&view=rev>  
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[60] <http://root.cern.ch/viewvc?rev=48141&root=root&view=rev>  
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[63] <http://root.cern.ch/viewvc?rev=48226&root=root&view=rev>  
[64] <http://root.cern.ch/viewvc?rev=47057&root=root&view=rev>  
[65] <http://savannah.cern.ch/bugs/?28084>  
[66] <http://savannah.cern.ch/bugs/?99528>  
[67] <http://root.cern.ch/phpBB3/viewtopic.php?f=3&t=15564>  
[68] <http://savannah.cern.ch/bugs/?97331>  
[69] <https://savannah.cern.ch/bugs/?99058>  
[70] <https://savannah.cern.ch/bugs/index.php?98832>  
[71] <http://root.cern.ch/phpBB3/viewtopic.php?f=15&t=15694>  
[72] <https://savannah.cern.ch/bugs/?99400>  
[73] <http://savannah.cern.ch/bugs/?97765>  
[74] <http://savannah.cern.ch/bugs/?98126>  
[75] <https://savannah.cern.ch/bugs/?97707>  
[76] <http://root.cern.ch/phpBB3/viewtopic.php?f=15&t=15368>  
[77] <http://root.cern.ch/viewvc?rev=45117&root=root&view=rev>  
[78] <http://root.cern.ch/phpBB3/viewtopic.php?f=3&t=14673&p=64367#p64367>  
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[80] <http://root.cern.ch/viewvc?rev=45170&root=root&view=rev>  
[81] <http://root.cern.ch/viewvc?rev=45243&root=root&view=rev>  
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[83] <http://root.cern.ch/viewvc?rev=46069&root=root&view=rev>  
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[86] <http://root.cern.ch/viewvc?rev=45849&root=root&view=rev>  
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[88] <http://root.cern.ch/viewvc?rev=45823&root=root&view=rev>  
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[90] <http://root.cern.ch/viewvc?rev=45759&root=root&view=rev>  
[91] <http://root.cern.ch/viewvc?rev=45289&root=root&view=rev>  
[92] <http://root.cern.ch/viewvc?rev=45318&root=root&view=rev>  
[93] <http://root.cern.ch/viewvc?rev=45348&root=root&view=rev>  
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[104] <http://root.cern.ch/viewvc?rev=45718&root=root&view=rev>  
[105] <http://root.cern.ch/viewvc?rev=45740&root=root&view=rev>  
[106] <http://root.cern.ch/drupal/content/handling-outputs>  
[107] <http://root.cern.ch/viewvc?rev=45664&root=root&view=rev>  
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[113] <http://root.cern.ch/viewvc?rev=45597&root=root&view=rev>  
[114] <http://root.cern.ch/viewvc?rev=45092&root=root&view=rev>  
[115] <http://root.cern.ch/viewvc?rev=45093&root=root&view=rev>  
[116] <http://root.cern.ch/viewvc?rev=45181&root=root&view=rev>  
[117] <http://root.cern.ch/viewvc?rev=46073&root=root&view=rev>  
[118] <https://savannah.cern.ch/bugs/index.php?97190>  
[119] <http://root.cern.ch/viewvc?view=rev&revision=45703>  
[120] <https://savannah.cern.ch/bugs/?94101>  
[121] <https://savannah.cern.ch/bugs/?95808>

[122] <http://root.cern.ch/phpBB3/viewtopic.php?t=14943>  
[123] <http://savannah.cern.ch/patch/?5439>  
[124] <http://savannah.cern.ch/bugs/?94910>  
[125] <http://root.cern.ch/viewvc?rev=44606&root=root&view=rev>  
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[127] <http://root.cern.ch/viewvc?rev=44630&root=root&view=rev>  
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[131] <https://savannah.cern.ch/bugs/index.php?95645&#95645&lt;a&gt; and &lt;a href=>  
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[134] <http://root.cern.ch/viewvc?rev=44425&root=root&view=rev>  
[135] <http://root.cern.ch/viewvc?rev=44243&root=root&view=rev>  
[136] <http://root.cern.ch/viewvc?rev=44292&root=root&view=rev>  
[137] <http://root.cern.ch/viewvc?rev=44332&root=root&view=rev>  
[138] <http://root.cern.ch/viewvc?rev=44397&root=root&view=rev>  
[139] <https://savannah.cern.ch/bugs/index.php?94695>  
[140] <https://savannah.cern.ch/bugs/index.php?91752>  
[141] <https://savannah.cern.ch/bugs/?94981>  
[142] <https://savannah.cern.ch/bugs/index.php?94452>