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ROOT Version v5-22-00 Patch Release Notes

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A new production version ROOT v5-22-00j has been released Mar 31, 2010.

Binary tar balls are not available for patch releases.

The AFS version of v5-22-00i for many different platforms and compilers can be found at:

</afs/cern.ch/sw/lcg/app/releases/ROOT/5.22.00j/>

The complete source tree for all systems (23.5 MB) is available here:

ftp://root.cern.ch/root/root_v5.22.00j.source.tar.gz ^[4]

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

```
svn co http://root.cern.ch/svn/root/tags/v5-22-00j [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 v5-22-00-patches branch do:

```
svn co http://root.cern.ch/svn/root/branches/v5-22-00-patches [8] root
```

Changes in the head of the v5-22-00-patches branch

- IO
 - Added support for reading file written by 5.27/02 and containing a data member like:

```
std::container *fDataObjects;
```

which has been streamed member-wise (see revision r33173 of the trunk).
 - Prevent the use of an optimized StreamerInfo when reading a collection streamed member wise. The solves [the issue 73642 reported in Atlas' Savannah](#). ^[9]
 - Avoid spurious warning message when reading file with a TTree written with ROOT 5.29/03 or later:

```
Warning in : Counter fNClusterRange should not be skipped from class TTree
```
- Xrootd
 - Import fixes [#33677](#) ^[10] fixing a fake authentication failure with proxies created by voms-proxy-init when the input certificates are PKCS12-formatted
- CINT
 - Prevent buffer overrun due to long include directives ([issue #68546](#) ^[11], r33793).

Changes in version v5-22-00j (Apr 23, 2010)

- Core
 - Prevent object related to TClass and CINT from being allocated inside a TMapFile.
 - Support cross-compilation of 32-bit binaries on MacOS X 64-bit.

Changes in version v5-22-00i (Mar 31, 2010)

- Xrootd
 - Import fixes to build on MacOS X 10.4 ([#32679](#) ^[12], [#32680](#) ^[13], [#32683](#) ^[14], [#32707](#) ^[15])

- Meta
 - Add dictionary for `vector<pair<int, int> >` used in `TSchemaRule` (r32475, [bug #53130](#) [16]).
- I/O
 - Avoid spurious warning message when reading file produced by ROOT v5.27 and above.

Changes in version v5-22-00h (Feb 8, 2010)

- Xrootd
 - New version (v20100205-0000) containing several fixes needed in particular by ATLAS; this includes the new SSL module for authentication needed by Castor.
 - Import crucial fix [#32322](#) [17] on for the krb5 security module
- Krb5auth
 - Import patches [#29438](#) [18] and [#29474](#) [19] in krb5auth to fix building issues with current linux distribution (e.g. kubuntu)
- Netx
 - Import the relevant parts of patch [#30949](#) [20] adding the possibility to set on the fly (via the option field of the URL) the new read-ahead policies explicitly introduced in XrdClient for ATLAS.
- I/O
 - Fix in TXNetFile, TRFIOFile and TDCacheFile for accessing members in a zip archive [Plugin Not Found](#) [21].
 - Add support reading TWebFiles via a web proxy.

Changes in version v5-22-00g (Jan 22, 2010)

- Core
 - makelib.sh: when using the `--enable-explicitlink` option make sure all ROOT libs are fully linked. In most cases `-ld` was missing. This fixes issue [Plugin Not Found](#) [21].
 - Fix in rootcint when using the `-p` option ([Plugin Not Found](#) [21]).
- CINT
 - Fix deprecation warnings for Python 2.6 (r32033, [issue #61490](#) [22])
 - Work around warning "cast from pointer-to-function and pointer to object" in some Reflex dictionaries. (r32074 r32090, [bug #61758](#) [23])
- I/O
 - TDCacheFile: fix regression which caused `dcap://host:port/path` to fail.

Changes in version v5-22-00f (Dec 7, 2009)

- Core
 - On MacOS X determine correct ROOTSYS in case libCore.so is a symlink (as was already done on Linux systems).
- I/O
 - TDCacheFile: dCap client does not ignore `? filetype=raw` and other options, so remove it. Fixes issue [#57409](#) [24].
 - TDCacheFile: increase readahead size from 8k to 128k and make it settable via `DCACHE_RA_BUFFER` env var.
 - Make `vector<long>` and `vector<long long>` equivalent (and hence suppress: `TStreamerInfo::BuildOld:0: RuntimeWarning: Cannot convert DataHeaderElement_p2::m_Hashes from type:vector<unsigned long long> to type:vector<unsigned long>, skip element`)
 - Fix the reading of the TFile title in the header for file produced with v3 or older and for file larger than 2G
 - Saves about 20% CPU time for I/O with Atlas AODs by not injecting the `Streamer()` trampolines in Cintex
- TTree
 - Fix the FastCloner re-ordering of basket per entry when the baskets are synchronized across branches (this happens after a good `OptimizeBasket` of the tree).
- PyROOT
 - Fix for issue [Plugin Not Found](#) [21] and [Plugin Not Found](#) [21].
- Reflex
 - Allow softlinks when locating `genreflex.py` (r31534 r31543 r31556 r31563, [issue #59896](#) [25])

Changes in version v5-22-00e (Oct 11, 2009)

- MacOS X Snow Leopard
 - Support for 32-bit build on 64-bit Snow Leopard.
- TTree

- Repair nesting of 'named' TTreeFormula ([issue #53994](#) [26]).
- Core
 - In TUnixSystem and TWInNTSystem, change the dynamic library search order. First look into LD_LIBRARY_PATH (or PATH on Windows) and then in what is specified in Root.DynamicPath. This allows by changing LD_LIBRARY_PATH to search for alternative versions of plugins without changing the rootrc file(s).
 - Fix in root-config a problem with relative symbolic links.

Changes in version v5-22-00d (July 27, 2009)

- MySQL
 - Fix portability problem between 32 and 64 bit as long is not a portable type.
- Core
 - Fix tab completion for the case


```
root [0] .x tutorials/ [TAB]
```
 - Add support for skipping the reading of the \$HOME/<name> (e.g. \$HOME/.rootrc) resource file. To do this set the shell variable ROOTENV_NO_HOME. This might be useful in case the home directory resides on an automounted remote file system and one wants to avoid this file system from being mounted. Fix for issue [Plugin Not Found](#) [21].
- CINT
 - Speed up the dictionary initialization: nlogn instead of n^2. (r29297, [issue #52457](#) [27]).
 - Fix the implementation of ShowMembers in the case where the members of a class with a genreflex dictionary are of type with a rootcint dictionary and no genreflex dictionary.
- TTree
 - Insure that the TTreeCloner (fast merging) is able to also copy 'uninitialized' TStreamerInfo describing abstract classes (This fixed savannah report #52856)
 - Enhance support for reading class (A) stored in a vector where one the member is no longer part of the current class layout (of class A) and the member is a class type .
- I/O
 - Fix the initialization of the checksum information for a TSchemaRule (hence fixing the lookup based on checksum)
- PyROOT
 - Fix for issue [Plugin Not Found](#) [21].

Changes in version v5-22-00c (June 27, 2009)

- CINT
 - Only use workaround against Microsoft compiler bug ('unused' returned reference for forward declared classes, see v5-22-00b) on Windows; silences (correct) warnings on other platforms (r28683).
 - Typedefs that are defined in a scope that is not part of the dictionary will not get an entry in the rootmap file, (r29026, [issue #51846](#) [28]).
- TTree
 - Several fixes to properly support "flushing the write basket before streaming the branch".
- PyROOT
 - Fix a crash while loading 'std::set'. This fixes issue [#49779](#) [29].
- rootcint
 - Correct algorithm to find ROOTSYS, now it works also if rootcint is a symlink.

Changes in version v5-22-00b (May 14, 2009)

- Base
 - In GetOptions() fix parsing of script names with + somewhere in path.
 - Roll back mod made in r25519 which was not a good idea as it required the user to make two gStyle->Set... statements to get a white canvas.
- I/O
 - Prevent a potential infinite loop when reading the StreamerInfos.
- TTree
 - Improve performance of read back of sub-branches contains stl container of simple types
 - Prevent an infinite loop when reading a file containing a class which is split and has a vector member that has been removed in the current class layout.
 - Enhance support for reading class (A) stored in a vector where one the member is no longer part of the current class layout (of class A)
- Meta

- Support the case where loading the library needed for an autoloader entry does not lead to the loading of a CINT dictionary; This happens if the library has a Reflex dictionary and Cintex is not enabled.
- In TClass::Clone, insure that the copy is using the same 'dictionary' as the original so that it is really setting up an alias.
- Insure the autoloader is properly enabled when it is needed (for example after an explicit call to TSystem::Load even without a TApplication object).
- Cint
 - Insure that the creation and deletion of object in Cintex matches the way object are created and delete by the compiler.
 - Fix a silent corruption of the I/O system that can be triggered by a call to UpdateMembers() before Cintex got invoked. (r28049, [issue #48338](#) ^[30])
 - Call TypeBase::Deallocate() instead of ::op delete in Reflex::Class::Destruct(), and only if requested. (r28086, [issue #47076](#) ^[31])
 - Allow transient declarations even for typedef-to-class. (r28335 + r28374, [issue #49472](#) ^[32])
 - Fix invalid memory access in ~ScopeBase() after UpdateMembers(). (r28337, [issue #49533](#) ^[33])
 - Silence warnings when compiling Reflex dictionaries with `-pedantic` (r28394, [issue #49792](#) ^[34])
 - Do not try to automatically create a dictionary for template classes that were loaded via CINTEX (r28415, [issue 49926](#) ^[35])
 - Work around a silly error generated by the Microsoft compiler when seeing an 'unused' returned reference to a forward declared class.
- Graf
 - Fix in PaintAxis: the option "U", for unlabeled axis, was not implemented in case of alphanumeric axis' labels.
- Hist
 - Fix bad side effect introduced in revision 28200 in TGraph::GetHistogram().
- Geom
 - Fixed issue with un-initialized variable in TGeoScaledShape::DistFromInside(). This fixes issue [Plugin Not Found](#) ^[21].
- MathCore
 - Fix bug [Plugin Not Found](#) ^[21] in fitting TGraphErrors
 - Fix a problem in likelihood fit caused by negative pdf values
 - Fix a bug in creating the Integrator class when MathMore is not built.
- SMatrix
 - Remove tolerance check when inverting matrices (both with BK or LU methods)
- Xrootd
 - Import fixes in the security modules
- Proof
 - Fix problem with handling entry lists
 - Fix problem with retrieving files from the cache
 - Fix problem with schema evolution
 - Fix problem causing random crashes when asking for the memory plot

Changes in version v5-22-00a (Feb 12, 2009)

- Misc
 - Add support for Microsoft Visual C++ version 9.0
- Base
 - Fix issue [Plugin Not Found](#) ^[21], crash caused by PATH being larger than 8192 characters.
 - Fix issue [Plugin Not Found](#) ^[21], determination of ROOTSYS broken when libCore is in a symlinked path.
 - Fix root-config, determination of ROOTSYS broken when root-config is in a symlinked path.
 - Fix issue in TFolder::Is() not handling wildcards properly.
- Meta
 - Implement TClass::Clone (It replaces the copy constructor which was removed)
 - Suppress error message in TClass::BuildRealData if the class is used 'only' for a transient member.
 - Implement new mode 1<<7 for TClassEdit::ShortType() to strip off default template parameters.
 - Fix issue [Plugin Not Found](#) ^[21], genreflex failing for functions taking multidimensional arrays.
 - Prevent a segmentation fault and reintroduce the proper warning message when a file contains an empty collection of long double.
- TTree
 - Force the TStreamerInfo used by a split branch to be non-optimized.
 - Fix the logic when trying to match the branch from one tree to the other (avoid an infinite loop if the first branch is missing in the new tree).
- PyROOT
 - Fix for issue [Plugin Not Found](#) ^[21].
 - Windows: Create the Python module libPyROOT.pyd from libPyROOT.lib instead of copying it from

libPyROOT.dll. This solves a problem in GaudiPython.

- CINT / Reflex
 - Fix issue [Plugin Not Found](#) ^[21], genreflex failing for functions taking multidimensional arrays. (r27214)
 - Don't cache Reflex::Members. Repairs Cintex for classes with duplicate dictionaries. (r27303)
 - genreflex: prepend return type of shadows' final overrides by '::' where applicable; fixes issue [Plugin Not Found](#) ^[21]. Also keep constness of original return type. (r27305)
 - Correct CINT's handling of unsigned numbers larger than INT_MAX. (r27306)
 - When looking up list<A>::iterator, list<A> was looked up only as a struct, where in fact (for CINT) it's a typedef. This prevents template instantiation (which fails during library load) and autoloading in the case of rootmap (re-)registration for types like list<A>::iterator. (r27310)
 - Reflex::Type::SizeOf() was giving the wrong answer if the underlying type was not yet initialized when the derived type (e.g. array, typedef) was built; see issue [Plugin Not Found](#) ^[21]. (r27325)
 - Remove stray spaces in genreflex-created rootmap files for types containing (basic_)string as template argument. (r27408)
 - Insert basic_string<char> through Cintex for backward compatibility reasons. (r27408)
 - Rename unsigned int template arguments as provided by GCCXML to not end on "ul", fixing issue reported by Atlas with boost::array. (r27408)
- Fitting (MathCore + Hist)
 - Fix issue [Plugin Not Found](#) ^[21] for normalization of error resulting from fitting a TGraph
 - Fix a problem in Chi2 calculation in case of overflow
 - Fix issue [Plugin Not Found](#) ^[21] when setting a function range outside histogram range
 - Fix issue [Plugin Not Found](#) ^[21] for creating a list of functions when using TGraph default constructor
 - Fix issue [Plugin Not Found](#) ^[21] for avoiding crashes when a linear fit fails.
- TAlienFile / xrootd
 - Fix issue [Plugin Not Found](#) ^[21] TAlienFile size being recorded as size 0.
 - Fix issue [Plugin Not Found](#) ^[21] concerning TFile::Cp() of AliEn files.
- XrdProofd
 - Fix a free/delete mismatch possibly causing a segv when restarting the daemon
 - Fix a backward-incompatibility issue causing the error message "unknown action code: 5112"
- Xrootd, import of fixes from the CVS head:
 - for possible crashes of the daemon after a 'prepare'.
 - improving the server hostname check in GSI authentication.
- Hist
 - Fix issue [Plugin Not Found](#) ^[21] in TH3::Project3D for the error calculation in case of weighted histogram (or when using option "E") and no axis range is set.

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Source URL: <http://root.cern.ch/drupal/content/root-version-v5-22-00-patch-release-notes>

Links:

- [1] <http://root.cern.ch/drupal/category/package-context/download>
- [2] <http://root.cern.ch/drupal/category/package-context/patches>
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- [4] ftp://root.cern.ch/root/root_v5.22.00j.source.tar.gz
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- [6] <http://root.cern.ch/svn/root/tags/v5-22-00j>
- [7] <http://root.cern.ch/drupal/content/installing-root-source>
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- [9] <https://savannah.cern.ch/bugs/index.php?73642>
- [10] <http://root.cern.ch/drupal/../../../../../../../../viewcvs?view=rev%26amp;revision=33677>
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- [26] <http://savannah.cern.ch/bugs/?53994>

- [27] <http://savannah.cern.ch/bugs/?52457>
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