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CINT

What is CINT?

CINT is an interpreter for C and C++ code. It is useful e.g. for situations where rapid development is more important than execution time. Using an interpreter the compile and link cycle is dramatically reduced facilitating rapid development. CINT makes C/C++ programming enjoyable even for part-time programmers.

CINT is written in C++ itself, with slightly less than 400,000 lines of code. It is used in production by several companies in the banking, integrated devices, and even gaming environment, and of course by [ROOT](#)^[1], making it the default interpreter for a large number of high energy physicists all over the world.

Features

CINT covers most of ANSI C (mostly before C99) and ISO C++ 2003. A CINT **script can call compiled classes/functions and compiled code can make callbacks to CINT interpreted functions**. Utilities like `makecint` and `rootcint` automate the process of embedding compiled C/C++ library code as shared objects (as Dynamic Link Library, DLL, or shared library, .so). Source files and shared objects can be **dynamically loaded/unloaded** without stopping the CINT process. CINT offers a gdb like debugging environment for interpreted programs.

Download

CINT is free software in terms of charge and freedom of utilization: it is licensed under the X11/MIT license. See the included [COPYING](#)^[2] for details.

The source of CINT 5.18.00 from 2010-07-02 is available here (tar.gz, 2MB)^[3].

CINT 5.16.19 from 2007-03-19 is available via anonymous ftp:

- [Source package for all platforms \(2MB\)](#)^[4] (with bash configure script for most of the platforms)
- [Binary package for Windows \(2MB\)](#)^[5].

To build the source package do:

```
$ tar xzf cint-5.16.19-source.tar.gz
$ cd cint-5.16.19
$ ./configure
$ gmake
```

The current sources of CINT can be downloaded via subversion. From a bash shell (the `$` is meant to denote the shell prompt), run

```
$ svn co http://root.cern.ch/svn/root/branches/v5-34-00-patches/cint [6] cint
$ cd cint
```

Once you have the sources you can simply update them by running `svn up`.

You can also download a certain version of CINT using subversion:

```
$ svn co http://root.cern.ch/svn/cint/tags/v5-16-19 [7] cint-v5.16.19
$ cd cint-v5.16.19
```

You can build CINT from these sources by running

```
$ ./configure
$ make -j2
```

For windows you will need to install the [cygwin](#)^[8] package to build CINT from sources.

Before downloading check the [release notes](#)^[9] of the latest version.

Portability

CINT works on number of operating systems. Linux, HP-UX, SunOS, Solaris, AIX, Alpha-OSF, IRIX, FreeBSD, NetBSD, NEC EWS4800, NewsOS, BeBox, HI-UX, Windows-NT/95/98/Me, MS-DOS, MacOS, VMS, NextStep, Convex have all been reported as working at some point in time; Linux, Windows, MacOS and Solaris are actively developed. A number of compilers is supported, i.e. GCC, Microsoft Visual C++, Intel's ICC, HP-CC/aCC, Sun-CC/CC5, IBM-xlC, Compac-cxx, SGI-CC, Borland-C++, Symantec-C++, DJGPP, cygwin-GCC.

The ROOT System

The [ROOT system](#)^[10] embeds CINT to be able to execute C++ scripts and C++ command line input. CINT also provides extensive RTTI capabilities to ROOT. See the following chapters on how CINT is used in ROOT:

- [Adding Your own Classes to ROOT](#)^[11]
- [CINT as Dictionary Generator](#)^[12]
- [CINT as Command Line and Macro Interpreter](#)^[13]

The Authors

CINT is developed by [Masaharu Goto](#)^[14], who works for Agilent Technologies, Philippe Canal and Paul Russo at [Fermilab](#)^[15], and Leandro Franco, Diego Marcos, and Axel Naumann from [CERN](#)^[16].

Limitations

CINT implements a very large subset of C++, but has also [some differences and limitations](#)^[17]. We have developed a new version of CINT where most of [these limitations](#)^[18] have been removed. This new version is called CINT 7 (aka "new core"); it is the now the default for stand-alone CINT installations.

CINT Mailing List

[^{\[19\]}root-cint@cern.ch](mailto:root-cint@cern.ch) is the CINT mailing list. To join the mailing list do the following:

- If you don't have a CERN account, create a [light weight CERN account](#)^[20].
- Add yourself to the [root-cint mailing list](#)^[21], by clicking on the "Members" tab and then on the "Add me" button.
- To remove yourself from the mailing list click on the "Remove me" button on the same above "Members" page.

The [archive of the mailing list](#)^[22] is also available; you can also find it on [Nabble.com](#)^[23].

For more detailed CINT information see below:

- [README](#)^[24]: features, license condition, installation, etc...
- [Releases Notes](#)^[9]: current revision, recent changes
- [ChangeLog](#)^[25]: Subversion changes
- [FAQ](#)^[26]
- [Cint man page](#)^[27]: command line options, debugger commands
- [Reference](#)^[28]: reference manual in alphabetical order

- [Commands](#) ^[29]
- [Bytecode compiler](#) ^[30]
- [CINT API](#) ^[31]
- [Error messages](#) ^[32]
- [Limitations \(concepts, ISO compatibility\)](#) ^[17]
- [Limitations \(sizes, lengths\)](#) ^[18]
- [Makecint](#) ^[33]: utility for embedding C/C++ library - reference manual
- [Adding External Libraries](#) ^[34]: embedding C/C++ library - user guide

External References

A few random pointers concerning CINT:

- Louis Höfler has compiled a [summary on how to build CINT on Windows](#) ^[35].
- Chris Brody implemented a CINT interface to [libevent](#) ^[36]: <http://code.google.com/p/event-hpp> ^[37]
- [The Computer Language Benchmarks Game](#) ^[38] has tested CINT: <http://shootout.alioth.debian.org/u32/compare.php?lang=cint> ^[39]
- CINT is used in a computer game's AI engine: <http://emergency4.com> ^[40]
- There is a nice how-to on building an [error-checking C++ editor](#) ^[41] with Scintilla and CINT.

Attachment	Size
cint-5.18.00.tgz ^[3]	2.04 MB

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Source URL: <http://root.cern.ch/drupal/content/cint>

- Links:
- [1] <http://root.cern.ch>
 - [2] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/COPYING>
 - [3] <http://root.cern.ch/drupal/sites/default/files/cint-5.18.00.tgz>
 - [4] <http://root.cern.ch/root/cint-5.16.19-source.tar.gz>
 - [5] <http://root.cern.ch/root/cint-5.16.19-win32.tar.gz>
 - [6] <http://root.cern.ch/svn/root/branches/v5-34-00-patches/cint>
 - [7] <http://root.cern.ch/svn/cint/tags/v5-16-19>
 - [8] <http://www.cygwin.com>
 - [9] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/RELNOTE.txt>
 - [10] <http://root.cern.ch/>
 - [11] <http://root.cern.ch/root/Using.html>
 - [12] <http://root.cern.ch/root/CintGenerator.html>
 - [13] <http://root.cern.ch/root/CintInterpreter.html>
 - [14] <mailto:gotori@hanno.jp>
 - [15] <http://fnal.gov>
 - [16] <http://cern.ch>
 - [17] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/limitati.txt>
 - [18] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/limitnum.txt>
 - [19] <mailto:root-cint@cern.ch>
 - [20] <https://account.cern.ch/account/Externals/>
 - [21] https://e-groups.cern.ch/e-groups/Egroup.do?egroupId=10060133&AI_USERNAME=RDM&searchField=0&searchMethod=0&searchValue=&pageSize=30&hideSearchFields=false&searchMemberOnly=false&searchAdminOnly=false&AI_SESSION=d2pfPsKDGpw5kQw5CvJnhT1GNP17QkbMW7pyTctBLxG3Q7vWkr7T1-162506713611340887240667
 - [22] <http://root.cern.ch/root/cinttalk/AboutCint.html>
 - [23] <http://www.nabble.com/CINT-f13997.html>
 - [24] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/README.txt>
 - [25] <http://root.cern.ch/root/ChangeLog-cint.phtml>
 - [26] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/FAQ.txt>
 - [27] <http://root.cern.ch/root/Cint.phtml?man>
 - [28] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/ref.txt>
 - [29] <http://root.cern.ch/root/CintCommands.html>
 - [30] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/bytecode.txt>
 - [31] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/cintapi.txt>
 - [32] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/message.txt>
 - [33] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/makecint.txt>
 - [34] <http://root.cern.ch/viewvc/branches/v5-34-00-patches/cint/doc/extlib.txt>
 - [35] <http://www.awake24.de/documents/cint/Compiling%20CINT%20on%20Windows.htm>
 - [36] <http://monkey.org/~provos/libevent/>
 - [37] <http://code.google.com/p/event-hpp>
 - [38] <http://shootout.alioth.debian.org>
 - [39] <http://shootout.alioth.debian.org/u32/compare.php?lang=cint>
 - [40] <http://emergency4.com>
 - [41] http://www.codeproject.com/KB/cpp/Personal_C___Compiler.aspx