Point Cloud Library

Release 0.0

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Contents

The following presents a set of advanced topics regarding PCL.

PCL uses modern C++ template programming in order to achieve maximum generality and reusability of its components. Due to intricate details of the current generation of C++ compilers however, the usage of templated code introduces additional compile-time delays. We present a series of tricks that, if used appropriately, will save you a lot of headaches and will speed up the compilation of your project.

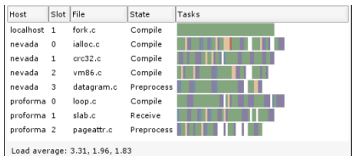
- c_cache

  CCache is a compiler cache. It speeds up recompilation by caching previous compilations and detecting when the same compilation is being done again. Supported languages are C, C++, Objective-C and Objective-C++.

	Elapsed time	Percent	Factor
Without ccache	367.11 s	100.00 %	1.0000 x
ccache 3.0 direct, first time	385.67 s	105.06 %	0.9519 x
ccache 3.0 direct, second time	9.70 s	2.64 %	37.8464 x
ccache 3.0 prepr., first time	382.26 s	104.13 %	0.9604 x
ccache 3.0 prepr., second time	23.90 s	6.51 %	15.3603 x

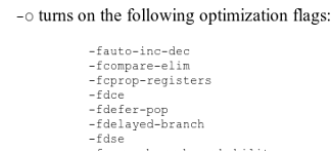
- distc

  distcc is a program to distribute builds of C, C++, Objective C or Objective C++ code across several machines on a network. distcc should always generate the same results as a local build, is simple to install and use, and is usually much faster than a local compile.



- compiler_optimizations

  Depending on what compiler optimizations you use, your code might behave differently, both at compile time and at run time.



- single_compile_unit

  In certain cases, it's better to concatenate source files into single compilation units to speed up compiling.

```
1 #include "../Dialog/Dialog.cpp"
2 #include "../Dialog/ModalDialog.cpp"
3 #include "../GDI/Brush.cpp"
4 #include "../GDI/Font.cpp"
5 #include "../Helper/Thread.cpp"
6 #include "../Window/MDIChildWindow.cpp"
7 #include "../Window/MDIParentWindow.cpp"
8 #include "../Window/SDIWindow.cpp"
```

CHAPTER 1

Developing PCL code

To make our lives easier, and to be able to read and integrate code from each other without causing ourselves headaches, we assembled a set of rules for PCL development that everyone should follow:

Rules

- if you make important commits, please **_add the commit log_** or something similar **_to the changelist page_** (https://github.com/PointCloudLibrary/pcl/blob/master/CHANGES.md);
- if you change anything in an existing algorithm, **_make sure that there are unit tests_** for it and **_make sure that they pass before you commit_** the code;
- if you add a new algorithm or method, please **_document the code in a similar manner to the existing PCL code_** (or better!), and **_add some minimal unit tests_** before you commit it;
- method definitions go into (include/.h), templated implementations go into (include/impl/.hpp), non-templated implementations go into (src/.cpp), and unit tests go in (test/.cpp);
- last but not least, please **_respect the same naming and indentation guidelines_** as you see in the pcl_style_guide.

- pcl_style_guide

  Please follow the following naming and indentation rules when developing code for PCL.

- exceptions_guide

  Short documentation on how to add new, throw and handle exceptions in PCL.

- pcl2

  An in-depth discussion about the PCL 2.x API can be found here.

CHAPTER 2

Committing changes to the git master

In order to oversee the commit messages more easier and that the changelist looks homogenous please keep the following format:

“* <fixed|bugfix|changed|new> X in @<classname>@ (#<bug number>)”

CHAPTER 3

Improving the PCL documentation

- how_to_write_a_tutorial

  In case you want to contribute/help PCL by improving the existing documentation and tutorials/examples, please read our short guide on how to start.

CHAPTER 4

How to build a minimal example

- minimal_example

  In case you need help to debug your code, please follow this guidelines to write a minimal example.