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.

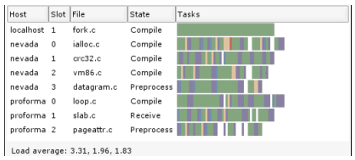
- c_cache

  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.

  -o turns on the following optimization flags:

```
-fauto-inc-dec
-fcompare-elim
-fcprop-registers
-fdce
-fdefer-pop
-fdelayed-branch
-fdse
```

- 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

ONE

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

TWO

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

THREE

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

FOUR

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.