



**CLion, Cross-platform IDE  
for C and C++ development**





CLion is an IDE for C and C++ developed by JetBrains. Besides, it supports Python and Web technologies (JavaScript, HTML, XML, CSS, etc.) and has a variety of plugins for other languages (like Go or Swift, for example).

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# About CLion

CLion helps developers do their work better and be more productive × thanks to its deep knowledge of C and C++ languages, including understanding of modern standards and libc++ and Boost libraries:

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For reading the code: instant navigation through the code base with structure and hierarchical views, that takes into consideration overloaded functions and operators, as well as macros and templates.

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For produce high quality code: count on the IDE for continuous analysis of your entire code base (including full Data Flow Analysis), as well as helpful on-the-fly fixes suggestion and the long list of reliable refactorings, operating on the entire project.

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For writing the code: lots of code generation abilities, that save developers time by providing them with useful and modernize code pieces in one shortcut.

Being a part of IntelliJ-platform, CLion provides developers with the fully-packed development environment, that includes:

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Powerful debugging abilities, for both local and remote debug

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Integration with Git and other Version control systems

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Unit testing with Google Test or Catch and code documentation in well-known Doxygen format

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Wide customization options

To learn more about the product, please check our web site at [jetbrains.com/clion](https://jetbrains.com/clion)

# How does CLion match against competing tools?

JetBrains has made an extensive research of various tools to come up with a comparison table. We tried to make it comprehensive and as neutral as we possibly can. As all the products mentioned in the document are being actively developed and their functionality changes on a regular basis, we consider this comparison valid for specific releases that are indicated in the header of the comparison table.

We tried to make it comprehensive and as neutral as we possibly can. If you discover any inaccurate items in this table, please contact us at [sales@jetbrains.com](mailto:sales@jetbrains.com) and we'll update the table as soon as possible.

This document includes CLion comparison with Visual Studio, Qt Creator and Eclipse CDT.

Product name	CLion	Visual Studio	Qt Creator	Eclipse CDT
<b>Products versions in comparison</b>				
Version in comparison	<b>CLion 2017.1</b>	<b>Visual Studio 2017</b>	<b>Qt Creator 4.2</b>	<b>Eclipse CDT 9.1 Neon with plugins</b>
<b>Compatibility with operating systems</b>				
Linux/Unix	✓ (64b)	×	✓ (64b)	✓ (64b)
Windows	✓ (64b)	✓ (32/64b)	✓ (32/64b)	✓ (32/64b)
macOS	✓	×	✓	✓

# Product features comparison

Group	Tool	CLion	Visual Studio	Qt Creator	Eclipse CDT
<b>Toolchains:</b>					
Build system	CMake	✓	✓	✓	✓
	Makefiles / Autotools	×	✓	✓	✓
	Visual Studio project	×	✓	×	×
	qmake	×	×	✓	×
Compiler	GCC / Clang	✓	✓ <sup>1</sup>	✓	✓
	MSVC	✓ <sup>2</sup>	✓	✓	✓
Debugger	GDB / LLDB	✓	✓	✓	✓
	Visual Studio Debugger	×	✓	✓	×

Category	Feature	CLion	Visual Studio	Qt Creator	Eclipse CDT
<b>Features:</b>					
C/C++ languages support	C11	partially	× <sup>3</sup>	✓	×
	C++11	✓	✓	✓ limited <sup>4</sup>	✓
	C++14	✓ <sup>5</sup>	✓ <sup>6</sup>	✓ limited <sup>7</sup>	× <sup>8</sup>
	C++17	partially <sup>9</sup>	partially <sup>10</sup>	✓ limited <sup>11</sup>	× <sup>12</sup>
Other languages	Python	✓ <sup>13</sup>	✓	✓	✓
	JavaScript	✓ <sup>14</sup>	✓	✓	✓
	HTML	✓	✓	×	✓
	CSS	✓	✓	×	✓
	XML	✓	✓	×	✓
Code navigation	Go to declaration / definition	✓	✓	✓	✓
	Go to Class by name	✓	✓	✓	✓
	Go to File by name	✓	✓	✓	✓
	Go to Symbol by name	✓	✓	✓ only for current file	✓
	Go to Base class	✓	×	×	×
	Go to Derived class	✓	×	×	×
	File Structure view	✓	✓	✓	✓
	Include Hierarchy	✓	×	✓	✓
	Call Hierarchy	✓	✓	×	✓
	Type Hierarchy	✓	✓	✓	✓
	TODO	✓	✓	✓	✓

Category	Feature	CLion	Visual Studio	Qt Creator	Eclipse CDT
Code navigation	Bookmarks	✓	✓	✓	✓
	Go to recent files	✓	×	✓	✓
Code refactorings	Move	✓	×	✓ limited <sup>15</sup>	×
	Safe delete	✓	×	×	×
	Inline	✓	×	×	×
	Rename	✓	✓	✓	✓
	Change signature	✓	×	×	×
	Extract Variable	✓	×	×	✓
	Extract Constant	✓	×	×	✓
	Extract Parameter	✓	×	✓	×
	Extract Define	✓	×	×	×
	Extract Typedef	✓	×	×	×
	Extract Function	✓	✓	✓	×
	Extract Superclass/ Subclass	✓	×	×	×
	Pull Members Up / Push Members Down	✓	×	×	×
	Code generation	Auto-import	✓	×	✓
Generate getters/ setters		✓	✓	✓	✓
Generate construc- tors/destructors		✓	×	×	×
Generate operators		✓	×	×	×

Category	Feature	CLion	Visual Studio	Qt Creator	Eclipse CDT
Code generation	Generate definition	✓	✓	✓	✓
	Surround with templates	✓	✓	×	✓
	Generate missing switch cases	✓	×	✓	×
	Create from usage	✓	×	×	×
Unit testing	Google Test	✓	✓	✓	✓
	Boost	×	✓	×	✓
	Others	Catch	×	QTestLib	QTestLib, TAP
VCS	Systems supported	CVS, Git, GitHub, Mercurial, Perforce, SVN, TFS	ClearCase, CVS, Git, GitHub, Mercurial, Perforce, SVN, TFS	ClearCase, CVS, Git, Mercurial, Perforce, SVN, TFS <sup>16</sup>	ClearCase, CVS, Git, GitHub, Mercurial, Perforce, SVN, TFS
Documentation	Doxygen	✓	×	✓	✓
	Quick Documentation preview	✓	×	×	×
	Documentation generation	✓	×	×	✓
	Parameter info	✓	✓	×	×
Code analysis	On-the-fly checks	✓	✓	✓	✓
	Quick Fixes	✓	✓	✓	×
	Comments	~40 checks, including Data Flow Analysis; Clang-Tidy integration with quick-fixes	Compiler errors and warnings + 115 proprietary code analysis rules	clang static analyzer built-in	~30 checks
Code formatter		✓	✓	✓	✓



# Marketing / Market / Community comparison

## Pricing comparison

CLion	USD 199 in the 1st year USD 159 in the 2nd year USD 119 per year after Support by JetBrains is included
Visual Studio Professional <sup>17</sup>	USD 1199 (USD 799 renew) per year per subscription <sup>18</sup>
Qt Creator	Free, provided AS IS. Comes with no support. <sup>19</sup>
Eclipse	Free, under Eclipse Public License. Comes with no support.

## Community comparison (Dec 2016)

Indicator	CLion	Visual Studio	QtCreator	Eclipse
StackOverflow Answers	650	62825	3275	103102
Google Trends <sup>20</sup>	55	57	71	9
Twitter followers	3744	387K	28 <sup>21</sup>	17.9K

# Platform

JetBrains IDEs are built on top of a single platform developed by JetBrains, called IntelliJ Platform. This shared platform helps ease the learning curve by providing a familiar development environment across tools, languages and platforms.

When the out-of-the-box functionality is not enough, CLion plugin repository contains more than 600 downloadable plugins of all kinds, including those that provide support for various frameworks, additional version control systems, integrations with various tools, and editor enhancements.

Should you require integration with any solutions, services or technologies you use in the company, you can always take advantage of the extensibility of IntelliJ Platform for custom development. A powerful and rich API is available for you to extend the platform based on your needs.

## **Extending IntelliJ Platform significantly lowers custom development costs and efforts thanks to:**

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One-time plugin development work needed for all IntelliJ IDEA-based IDEs (instead of developing a dedicated plugin for each of the tools, a single plugin can be developed and made compatible with all IntelliJ IDEA-based IDEs at once).

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Plugins can be developed using a single language, be it Java or Kotlin, allowing developers to leverage the platform to target any technology.

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Custom plugins can be developed for any language and for any of the IDEs taking advantage of a single SDK (with a single consistent API to that SDK) for plugin/extension development.

# Polyglot Experience

CLion is built on top of the IntelliJ platform, which means it inherits a lot of IntelliJ IDEA (e.g. editor, navigation, VCS, etc) functionality, as well as most of WebStorm functionality, and Python support provided by PyCharm Community either out-of-the-box,

or with corresponding plugins to be installed from the plugin repository free of charge. Please refer to IntelliJ IDEA, WebStorm, PyCharm dedicated comparison documents or visit [JetBrains web site](#) for more information.

Short comparison of WebStorm functionality (HTML/CSS/JavaScript/etc) with competitors (please refer to the WebStorm comparison document or [WebStorm product web site](#) for more information):

		Competitors			
	IntelliJ IDEA 2016.3	Sublime Text 3	Visual Studio Code 1.8	Atom 1.12.7 with Nuclide 0.188	Eclipse Neon for JavaScript and Web
JavaScript and ECMAScript support	✓	Partially	Partially	Partially	Partially
TypeScript support	✓	✓ with additional plugin	✓	✓ with additional plugin	✓ with additional plugin
HTML support	✓	✓	✓	✓	✓
CSS support	✓	✓	✓	✓	✓

## More Information

We tried to make it comprehensive and as neutral as we possibly can. If you discover any inaccurate items in this table, please contact us at [sales@jetbrains.com](mailto:sales@jetbrains.com) and we'll update the table as soon as possible.

If you need assistance with managing your licenses, selecting a licensing option, requesting assistance with a JetBrains offer, or any special request or suggestion for JetBrains tools, please do not hesitate to [contact us](#).



# Footnotes

<sup>1</sup> Cross-platform cases Visual C++ Cross-Platform Mobile

<sup>2</sup> Experimental support with some limitations [blog.jetbrains.com/clion/2017/02/clion-2017-1-eap-first-steps-to-asm-and-msvc/#msvc](http://blog.jetbrains.com/clion/2017/02/clion-2017-1-eap-first-steps-to-asm-and-msvc/#msvc)

<sup>3</sup> Only those features are supported, that are part of C99 or ISO C++

<sup>4</sup> All C++11, C++14 and C++17 features are supported with the help of clang-based parser in code highlighting and code completion, while code navigation and refactorings are using limited parser abilities with not all features supported.

<sup>5</sup> With exceptions to constexpr [jetbrains.com/help/clion/cpp\\_support.html](http://jetbrains.com/help/clion/cpp_support.html)

<sup>6</sup> With exceptions to Avoiding/fusing allocations [blogs.msdn.microsoft.com/vcblog/2016/10/11/c1417-features-and-stl-fixes-in-vs-15-preview-5](http://blogs.msdn.microsoft.com/vcblog/2016/10/11/c1417-features-and-stl-fixes-in-vs-15-preview-5)

<sup>7</sup> All C++11, C++14 and C++17 features are supported with the help of clang-based parser in code highlighting and code completion, while code navigation and refactorings are using limited parser abilities with not all features supported.

<sup>8</sup> [bugs.eclipse.org/bugs/show\\_bug.cgi?id=490405](http://bugs.eclipse.org/bugs/show_bug.cgi?id=490405)

<sup>9</sup> Only nested namespaces and `_has_include` are supported [jetbrains.com/help/clion/cpp\\_support.html](http://jetbrains.com/help/clion/cpp_support.html)

<sup>10</sup> More details [blogs.msdn.microsoft.com/vcblog/2016/10/11/c1417-features-and-stl-fixes-in-vs-15-preview-5](http://blogs.msdn.microsoft.com/vcblog/2016/10/11/c1417-features-and-stl-fixes-in-vs-15-preview-5)

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<sup>11</sup> All C++11, C++14 and C++17 features are supported with the help of clang-based parser in code highlighting and code completion, while code navigation and refactorings are using limited parser abilities with not all features supported.

<sup>12</sup> [bugs.eclipse.org/bugs/show\\_bug.cgi?id=490406](http://bugs.eclipse.org/bugs/show_bug.cgi?id=490406)

<sup>13</sup> Functionality is equal to PyCharm Community Edition [jetbrains.com/pycharm](http://jetbrains.com/pycharm)

<sup>14</sup> Functionality is mostly equal to WebStorm [jetbrains.com/webstorm](http://jetbrains.com/webstorm)

<sup>15</sup> Move refactorings works only for function definitions and for moving declarations out of if conditions [doc.qt.io/qtcreator/creator-editor-refactoring.html](http://doc.qt.io/qtcreator/creator-editor-refactoring.html)

<sup>16</sup> 3rd-party plugin [github.com/jesperhh/teamfoundation](http://github.com/jesperhh/teamfoundation)

<sup>17</sup> Prices are currently available for Visual Studio 2015 only, since 2017 is still in RC

<sup>18</sup> With support and cross-platform tools [visualstudio.com/vs/pricing](http://visualstudio.com/vs/pricing)

<sup>19</sup> [qt.io/licensing-comparison](http://qt.io/licensing-comparison)

<sup>20</sup> Collected comparison for “CLion”, “Visual Studio C++”, “Qt Creator”, “Eclipse CDT”, 11-17/12/2016

<sup>21</sup> Qt project twitter in the whole (@qtproject) has 18.5K