



Modern C++ Programming with Test-Driven Development: Code Better, Sleep Better

By Jeff Langr

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If you program in C++ you've been neglected. Test-driven development (TDD) is a modern software development practice that can dramatically reduce the number of defects in systems, produce more maintainable code, and give you the confidence to change your software to meet changing needs. But C++ programmers have been ignored by those promoting TDD--until now. In this book, Jeff Langr gives you hands-on lessons in the challenges and rewards of doing TDD in C++.

Modern C++ Programming With Test-Driven Development, the only comprehensive treatment on TDD in C++ provides you with everything you need to know about TDD, and the challenges and benefits of implementing it in your C++ systems. Its many detailed code examples take you step-by-step from TDD basics to advanced concepts. As a veteran C++ programmer, you're already writing high-quality code, and you work hard to maintain code quality. It doesn't have to be that hard.

In this book, you'll learn:

- how to use TDD to improve legacy C++ systems
- how to identify and deal with troublesome system dependencies
- how to do dependency injection, which is particularly tricky in C++
- how to use testing tools for C++ that aid TDD
- new C++11 features that facilitate TDD

As you grow in TDD mastery, you'll discover how to keep a massive C++ system from becoming a design mess over time, as well as particular C++ trouble spots to avoid. You'll find out how to prevent your tests from being a maintenance burden and how to think in TDD without giving up your hard-won C++ skills. Finally, you'll see how to grow and sustain TDD in your team.

Whether you're a complete unit-testing novice or an experienced tester, this book will lead you to mastery of test-driven development in C++.

What You Need

- A C++ compiler running under Windows or Linux, preferably one that supports C++11. Examples presented in the book were built under gcc 4.7.2.
- Google Mock 1.6 (downloadable for free; it contains Google Test as well) or an alternate C++ unit testing tool. Most examples in the book are written for Google Mock, but it isn't difficult to translate them to your tool of choice.
- A good programmer's editor or IDE.
- cmake, preferably. Of course, you can use your own preferred make too. CMakeLists.txt files are provided for each project. Examples provided were built using cmake version 2.8.9.
- Various freely-available third-party libraries are used as the basis for examples in the book. These include:
 - cURL
 - JsonCpp
 - Boost (filesystem, date_time/gregorian, algorithm, assign)

Several examples use the boost headers/libraries. Only one example uses cURL and JsonCpp.

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- A good programmer's editor or IDE.
- cmake, preferably. Of course, you can use your own preferred make too. CMakeLists.txt files are provided for each project. Examples provided were built using cmake version 2.8.9.
- Various freely-available third-party libraries are used as the basis for examples in the book. These include:

- cURL
- JsonCpp
- Boost (filesystem, date_time/gregorian, algorithm, assign)

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Editorial Review

Review

"Jeff Langr has written another excellent book. This time he brings Test-Driven Development to the world of C++. Jeff's starting example brings us face to face with the stark simplicity of good TDD. He explains why we work that way and then provides key practical details, all the way through test doubles, working with legacy code, threading, and more. This one is a keeper for anyone working with C++!"

—Ron Jeffries, Co-creator of the Extreme Programming methodology

*"Jeff Langr has written the best C++ book in years. **Modern C++ Programming with Test-Driven Development** is the perfect mixture of theory and practice. The abstractions are explained with clarity and gusto, but the details are right there when you need them. It's sure to be an instant classic, in C++ and in TDD both."*

—Michael D. Hill, XP coach and writer

"Jeff is an expert software craftsman, and in this book he shares his considerable wisdom about crafting great software. This book is not about testing, though you will learn valuable testing techniques. It is about improving your skills, code, products, and life through test-driving. Whether you're a novice, expert, or in between, Jeff will show you the how and the why of an expert who test-drives better products with C++."

—James W. Grenning, Author of "**Test-Driven Development for Embedded C**"

About the Author

Jeff Langr wrote Agile in a Flash with Tim Ottinger. It's a unique set of reference and recommendation cards that you can find tacked to many monitors and walls in agile shops. He has written other books and more than one hundred articles on software development, and trains and consults in software development, including test-driven development.

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Anna Vinci:

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