Is conditional compilation a valid mock/stub strategy for unit testing?

Asked 16 years, 3 months ago Modified 16 years, 3 months ago Viewed 2k times



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In a recent question on stubbing, many answers suggested C# interfaces or delegates for implementing stubs, but <u>one answer</u> suggested using conditional compilation, retaining static binding in the production code. This answer was modded -2 at the time of reading, so at least 2 people really thought this was a *wrong* answer. Perhaps misuse of DEBUG was the reason, or perhaps use of fixed value instead of more extensive validation. But I can't help wondering:

Is the use of conditional compilation an inappropriate technique for implementing unit test stubs? Sometimes? Always?

Thanks.

Edit-add: I'd like to add an example as a though experiment:

```
class Foo {
    public Foo() { .. }
    private DateTime Now {
       get {
    #if UNITTEST_Foo
       return Stub_DateTime.Now;
```

```
#else
    return DateTime.Now;
#endif
    }
    // .. rest of Foo members
}
```

comparing to

```
interface IDateTimeStrategy {
    DateTime Now { get; }
}
class ProductionDateTimeStrategy :
IDateTimeStrategy {
  public DateTime Now { get { return DateTime.Now;
} }
}
class Foo {
    public Foo() : Foo(new
ProductionDateTimeStrategy()) {}
    public Foo(IDateTimeStrategy s) {
datetimeStrategy = s; .. }
    private IDateTime_Strategy datetimeStrategy;
    private DateTime Now { get { return
datetimeStrategy.Now; } }
}
```

Which allows the outgoing dependency on "DateTime.Now" to be stubbed through a C# interface. However, we've now added a dynamic dispatch call where static would suffice, the object is larger even in the production version, and we've added a new failure path for Foo's constructor (allocation can fail).

Am I worrying about nothing here? Thanks for the feedback so far!

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edited May 23, 2017 at 11:57



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1 • 1

asked Sep 18, 2008 at 21:21



Aaron

3,474 • 25 • 26

6 Answers

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Try to keep production code separate from test code. Maintain different folder hierarchies.. different solutions/projects.



Unless.. you're in the world of legacy C++ Code. Here anything goes.. if conditional blocks help you get some of the code testable and you see a benefit.. By all means do it. But try to not let it get messier than the initial state. Clearly comment and demarcate conditional blocks.



Proceed with caution. It is a valid technique for getting legacy code under a test harness.

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answered Sep 18, 2008 at 21:44



Gishu

137k ● 47 ● 226 ● 311

Do you mean "this is okay for existing (legacy) code bases when incrementally adding unit testing" or "this works in C++" or "this works in legacy C++, but should be discouraged when starting a fresh new C++ project"? – Aaron Sep 18, 2008 at 23:26

First clause in your OR sequence. Its a nice technique to get legacy code under test without disturbing the code-base too much (You're not confident of making these changes because you don't have the safety net of tests). – Gishu Sep 19, 2008 at 4:31

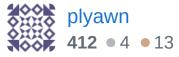


I think it lessens the clarity for people reviewing the code. You shouldn't have to remember that there's a conditional tag around specific code to understand the context.



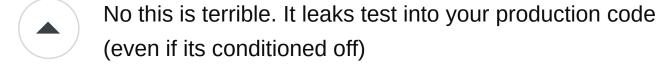
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answered Sep 18, 2008 at 21:27









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Bad bad.



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answered Sep 18, 2008 at 21:34







Test code should be obvious and not inter-mixed in the same blocks as the tested code.

1

This is pretty much the same reason you shouldn't write



if (globals.isTest)



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answered Sep 18, 2008 at 21:36





I thought of another reason this was terrible:

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Many times you mock/stub something, you want its methods to return different results depending on what you're testing. This either precludes that or makes it awkward as all heck.



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answered Sep 19, 2008 at 14:48



Aaron Jensen 6,060 • 1 • 32 • 40

How is it any more awkward than using a C# interface? In both cases, you have one method implementation body for mocking, and one method implementation body for production behavior. — Aaron Sep 22, 2008 at 17:43

Have you used a mocking framework? You don't have additional bodies for testing. Furthermore, I'm talking about situations where you want, say, 7 different behaviors depending on your context. It's just a horrendous idea. Don't do it. – Aaron Jensen Sep 22, 2008 at 19:50



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(1)

It might be useful as a tool to lean on as you refactor to testability in a large code base. I can see how you might use such techniques to enable smaller changes and avoid a "big bang" refactoring. However I would worry about leaning too hard on such a technique and would try to ensure that such tricks didn't live too long in the code base otherwise you risk making the application code very complex and hard to follow.

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answered Sep 18, 2008 at 21:36



Bradley Harris

932 • 1 • 6 • 12