

Singleton

Links

- Stack Overflow: [Shared pointers to a singleton do not recognize each other](#)
- Stack Overflow: [C++ Singleton design pattern](#)
- Rainer Grimm: [Thread-Safe Initialization of a Singleton](#)
- RIP Tutorial: [Lazy Initialization](#)

Examples

Static Instance

A thread-safe method (guaranteed since C++11, see [here](#)) using a static instance of class CFoo (Meyers singleton):

```
class CFoo {
public:
    static CFoo& getInstance()
    {
        static CFoo instance;
        return instance;
    }
};
```

Dynamic, Using Smart Pointers

A thread-safe method using C++11 smart pointers for creation of an singleton instance of class CFoo:

```
#include <mutex> // std::mutex
#include <memory> // std::weak_ptr, std::shared_ptr

using std;

static weak_ptr<CFoo> s_pFoo; // singleton instance pointer
static mutex s_lock; // singleton instance lock

shared_ptr<CFoo> CFoo::getInstance()
{
    lock_guard<mutex> lock(s_lock);
    shared_ptr<CFoo> pInstance = s_pFoo.lock();

    if (!pInstance)
    {
```

```
pInstance = make_shared<CFoo>(); // create shared smart pointer
s_pFoo = pInstance;             // replace (set) managed object
} // if

return pInstance;
} // getInstance()
```

Dynamic, Using DCLP

See [Jeff Preshing: Double-Checked Locking is Fixed In C++11](#).

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