1. 9 boys and 7 girls sit in a circle, what's the expectation of the number of boy-girl neighbors?

~~We put 7 girls in place on the circle first, that leads to 7 empty spaces -- think of them as 7 boxes. We can put the 9 boys in any way we like to the 7 boxes. Say if x boxes are not empty (with at least 1 boy) and the other (7-x) boxes are empty, then we have 2\*x boy-girl neighbors.~~

~~For x=7, the probability is P(Neighbors=2\*7)=P(7 boys are put into 7 boxes first, the other 2 at will) = 7/7\*6/7\*5/7\*4/7\*3/7\*2/7\*1/7\*7/7\*7/7=7!/7^7~~

~~For x=6, the probability is P(Neighbors=2\*6)=P(6 boys are put into 6 boxes first, the other 3 put to any 1 or 2 of the 6 at will) = C(7,6)\*6/7\*5/7\*4/7\*3/7\*2/7\*1/7\*6/7\*6/7\*6/7 =6^3\*6!/7^9~~

~~……~~

~~For x=i, the probability is P(Neighbors=2\*i)=P(i boys are put into i boxes first, the other 7-i put to any 1 or 2 or … or i boxes of the i at will) = C(7,i)\*i/7\*(i-1)/7 \* …\* 1/7\*(i/7)^(9-i)~~

~~……~~

~~For x=1, the probability is P(Neighbors=2\*1)=P(every boy is put into a same box) = C(7,1)\*(1/7)^9.5t~~

~~The expectation of boy-girl neighbors~~

~~E = Sum(i=1 to 7) C(7,i) \* i/7\*(i-1)/7 \* …\* 1/7\*(i/7)^(9-i) \* [2\*i]~~

~~= Sum(i=1 to 7) 7!/i!/(7-i)! \* i!/7^i \*(i/7)^(9-i) \* [2\*i]~~

~~= Sum(i=1 to 7) 7!/i!/(7-i)! \* i!/7^9 \*i^(10-i) \*2~~

~~= 2\* 7! /7^9 \* Sum(i=1 to 7) i^(10-i)/(7-i)!~~

(Thanks to Ji Yang’s idea)

For any girl, the next one to her (clockwise) is a boy with probability B/(B+G-1);

For any boy, the next one to him (clockwise) is a girl with probability G/(B+G-1).

So the total expected number of neighbors is G\* B/(B+G-1)+ B\* G/(B+G-1) = 2 GB/(B+G-1).

3. You are allowed to toss a dice for up to three times. You can decide to stop after each toss, and you will get the same value of dollars as the number shown on your last toss. What is the value of this game?

This is a typical dynamic programming problem, appeared in the Green book page 123, Dice Game.

If I am given only 1 time to toss, the value is 1/6\*(1+2+3+4+5+6)=3.5

If given 2 times, the value is 1/6\*(4+5+6+3\*3.5) =4.25 considering that I will continue if the first toss gets less than 3.5, the expected value of the next toss if I do not stop after the first.

If given 3 times, the value is 1/6\*(5+6+4\*4.25)=14/3 considering that I will continue if the first toss gets less than 4.25, the expected value of the next two tosses if I do not stop after the first.

10. What is the use of 'default' ? When do you want to define your own default constructor?

The use of ‘default’ in C++ is a class’ member functions automatically generated by the complier if not declared. They include constructor, copy constructor, copy assignment operator, and destructor. All these functions will be both public and inline.

(see item 5 of Effective C++” third version).

You should generally write a default constructor for every class you define, to guarantee the state of any “default constructed” variable. If you don’t declare a default constructor, the complier will supply one for you; however, since it does not know much about your class, it won’t be able to guarantee very much about the initial stat of one of your variables. In fact, all the native types will be left in random state, as though they were declared but not initialized; this is an undesirable condition.

Why did I say ‘generally’, but not always? Because there are some times when you do not want to allow an object to be created unless the ‘real’ data is available.

If you want to make it impossible to create an object via complied-generated default constructor, you can declare a private default constructor that will cause a complier error in any user code that tried to define an object of that class without specifying an initial value. You do not have to implement this constructor, because a program that tried to use it won’t compile. (see page 328 of C++: A Dialogue)

11. Implement a thread safe singleton.

<http://stackoverflow.com/questions/2576022/efficient-thread-safe-singleton-in-c>

1. This [Meyers/Alexandrescu paper](http://www.aristeia.com/Papers/DDJ_Jul_Aug_2004_revised.pdf) (www.aristeia.com/Papers/DDJ\_Jul\_Aug\_2004\_revised.pdf) explains why - but that paper is also widely misunderstood. It started the 'double checked locking is unsafe in C++' meme - but its actual conclusion is that double checked locking in C++ can be implemented safely, it just requires the use of memory barriers in a non-obvious place.

The paper contains pseudocode demonstrating how to use memory barriers to safely implement the DLCP, so it shouldn't be difficult for you to correct your implementation.

1. If you are using C++11, here is a right way to do this:

Foo& getInst()

{

static Foo inst(...);

return inst;

}

According to new standard there is no need to care about this problem any more. Object initialization will be made only by one thread, other threads will wait till it complete. Or you can use std::call\_once. (more info [here](http://en.cppreference.com/w/cpp/thread/call_once))

1. ACE singleton implementation uses double-checked locking pattern for thread safety, you can refer to it if you like. You can find source code [here](http://www.tena-sda.org/doc/5.2.1/ACE/d5/da0/Singleton_8cpp-source.html).

00001 // Singleton.cpp,v 4.54 2005/10/28 16:14:55 ossama Exp

00002

00003 #ifndef ACE\_SINGLETON\_CPP

00004 #define ACE\_SINGLETON\_CPP

00005

00006 #include "[ace/Singleton.h](https://www.tena-sda.org/doc/5.2.1/ACE/d5/dae/Singleton_8h.html)"

00007

00008 #if !defined (ACE\_LACKS\_PRAGMA\_ONCE)

00009 # pragma once

00010 #endif /\* ACE\_LACKS\_PRAGMA\_ONCE \*/

00011

00012 #if !defined (\_\_ACE\_INLINE\_\_)

00013 #include "[ace/Singleton.inl](https://www.tena-sda.org/doc/5.2.1/ACE/db/d9c/Singleton_8inl.html)"

00014 #endif /\* \_\_ACE\_INLINE\_\_ \*/

00015

00016 #include "[ace/Object\_Manager.h](https://www.tena-sda.org/doc/5.2.1/ACE/db/d49/Object__Manager_8h.html)"

00017 #include "[ace/Log\_Msg.h](https://www.tena-sda.org/doc/5.2.1/ACE/d8/dad/Log__Msg_8h.html)"

00018 #include "[ace/Framework\_Component.h](https://www.tena-sda.org/doc/5.2.1/ACE/db/d5b/Framework__Component_8h.html)"

00019 #include "[ace/Guard\_T.h](https://www.tena-sda.org/doc/5.2.1/ACE/dd/d75/Guard__T_8h.html)"

00020

00021 [ACE\_RCSID](https://www.tena-sda.org/doc/5.2.1/ACE/de/d74/config-macros_8h.html#02c8c39809f634f80ae418676b428d9b) (ace,

00022 Singleton,

00023 "Singleton.cpp,v 4.54 2005/10/28 16:14:55 ossama Exp")

00024

00025

00026 [ACE\_BEGIN\_VERSIONED\_NAMESPACE\_DECL](https://www.tena-sda.org/doc/5.2.1/ACE/d1/d84/Versioned__Namespace_8h.html#78f3599dee58e808df38728932dee208)

00027

00028 template <class TYPE, class ACE\_LOCK> void

[00029](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#2f924c220ea37475a909979a1ca5abc6) [ACE\_Singleton](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html)<TYPE, ACE\_LOCK>::dump (void)

00030 {

00031 #if defined (ACE\_HAS\_DUMP)

00032 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Singleton<TYPE, ACE\_LOCK>::dump");

00033

00034 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00035 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_LIB\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html" \l "926b4269dca522058e2e654afcfff992) ("instance\_ = %x"),

00036 [ACE\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) ()));

00037 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_END\_DUMP](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#59d86761611e7581142bc968202d3c16)));

00038 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00039 #endif /\* ACE\_HAS\_DUMP \*/

00040 }

00041

00042 template <class TYPE, class ACE\_LOCK> [ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) \*&

[00043](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#7ce381c855900852a9ac5aece05e674a) [ACE\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#7ce381c855900852a9ac5aece05e674a) (void)

00044 {

00045 #if defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00046 // Pointer to the Singleton instance. This works around a bug with

00047 // G++ and it's (mis-)handling of templates and statics...

00048 static [ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) \*[singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#9bd2fa8b6b54d44a088ca4506280fcac) = 0;

00049

00050 return [singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#9bd2fa8b6b54d44a088ca4506280fcac);

00051 #else

00052 return [ACE\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html);

00053 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00054 }

00055

00056 template <class TYPE, class ACE\_LOCK> TYPE \*

[00057](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#6ca780884be3d23be29b2ee7f4aa75e4) [ACE\_Singleton<TYPE, ACE\_LOCK>::instance](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#6ca780884be3d23be29b2ee7f4aa75e4) (void)

00058 {

00059 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Singleton<TYPE, ACE\_LOCK>::instance");

00060

00061 [ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) \*&singleton =

00062 [ACE\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#7ce381c855900852a9ac5aece05e674a) ();

00063

00064 // Perform the Double-Check pattern...

00065 if (singleton == 0)

00066 {

00067 if ([ACE\_Object\_Manager::starting\_up](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html" \l "786216be9fc223c0439a7719cd06bef6) () ||

00068 [ACE\_Object\_Manager::shutting\_down](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#21034241f169ed393ca5deecd4b2612b) ())

00069 {

00070 // The program is still starting up, and therefore assumed

00071 // to be single threaded. There's no need to double-check.

00072 // Or, the ACE\_Object\_Manager instance has been destroyed,

00073 // so the preallocated lock is not available. Either way,

00074 // don't register for destruction with the

00075 // ACE\_Object\_Manager: we'll have to leak this instance.

00076

00077 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html)), 0);

00078 }

00079 else

00080 {

00081 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00082 // Obtain a lock from the ACE\_Object\_Manager. The pointer

00083 // is static, so we only obtain one per ACE\_Singleton

00084 // instantiation.

00085 static ACE\_LOCK \*lock = 0;

00086 if (ACE\_Object\_Manager::get\_singleton\_lock (lock) != 0)

00087 // Failed to acquire the lock!

00088 return 0;

00089

00090 [ACE\_GUARD\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#3db1b0a0f7bf75627e9d67d616b059de) (ACE\_LOCK, ace\_mon, \*lock, 0);

00091

00092 if (singleton == 0)

00093 {

00094 #endif /\* ACE\_MT\_SAFE \*/

00095 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html)), 0);

00096

00097 // Register for destruction with ACE\_Object\_Manager.

00098 [ACE\_Object\_Manager::at\_exit](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#add86734a21cfc1a608eee82eaebaeb6) (singleton);

00099 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00100 }

00101 #endif /\* ACE\_MT\_SAFE \*/

00102 }

00103 }

00104

00105 return &singleton->[instance\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#5d2f22f05ada2cd010e15354c0ad0651);

00106 }

00107

00108 template <class TYPE, class ACE\_LOCK> void

[00109](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#f52f56eb1fa71d5d06c56b5a017764ac) [ACE\_Singleton<TYPE, ACE\_LOCK>::cleanup](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#f52f56eb1fa71d5d06c56b5a017764ac) (void \*)

00110 {

00111 delete this;

00112 [ACE\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#7ce381c855900852a9ac5aece05e674a) () = 0;

00113 }

00114

00115 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00116 // Pointer to the Singleton instance.

00117 template <class TYPE, class ACE\_LOCK> [ACE\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) \*

00118 [ACE\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html) = 0;

00119

00120 template <class TYPE, class ACE\_LOCK> [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) \*

00121 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) = 0;

00122 #endif /\* !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES) \*/

00123

00124 template <class TYPE, class ACE\_LOCK> void

[00125](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#470390fc6d0ae1bd7b9108dc95328fbd) [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::dump](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#470390fc6d0ae1bd7b9108dc95328fbd) (void)

00126 {

00127 #if defined (ACE\_HAS\_DUMP)

00128 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::dump");

00129

00130 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00131 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_LIB\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html" \l "926b4269dca522058e2e654afcfff992) ("instance\_ = %x"),

00132 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) ()));

00133 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_END\_DUMP](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#59d86761611e7581142bc968202d3c16)));

00134 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00135 #endif /\* ACE\_HAS\_DUMP \*/

00136 }

00137

00138 template <class TYPE, class ACE\_LOCK>

00139 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) \*&

[00140](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#2ddb66efe5ae511a17143d9b7ba5365d) [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#2ddb66efe5ae511a17143d9b7ba5365d) (void)

00141 {

00142 #if defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00143 // Pointer to the Singleton instance. This works around a bug with

00144 // G++ and it's (mis-)handling of templates and statics...

00145 static [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) \*[singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#a3a4410da8ef87da400bd942bb7bd0a5) = 0;

00146

00147 return [singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#a3a4410da8ef87da400bd942bb7bd0a5);

00148 #else

00149 return ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::singleton\_;

00150 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00151 }

00152

00153 template <class TYPE, class ACE\_LOCK> TYPE \*

[00154](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#1c863c7c1bee43e3d8e2e13cc760c6ac) [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#1c863c7c1bee43e3d8e2e13cc760c6ac) (void)

00155 {

00156 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance");

00157

00158 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) \*&singleton =

00159 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#2ddb66efe5ae511a17143d9b7ba5365d) ();

00160

00161 // Perform the Double-Check pattern...

00162 if (singleton == 0)

00163 {

00164 if ([ACE\_Object\_Manager::starting\_up](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html" \l "786216be9fc223c0439a7719cd06bef6) () ||

00165 [ACE\_Object\_Manager::shutting\_down](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#21034241f169ed393ca5deecd4b2612b) ())

00166 {

00167 // The program is still starting up, and therefore assumed

00168 // to be single threaded. There's no need to double-check.

00169 // Or, the ACE\_Object\_Manager instance has been destroyed,

00170 // so the preallocated lock is not available. Either way,

00171 // don't register for destruction with the

00172 // ACE\_Object\_Manager: we'll have to leak this instance.

00173

00174 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html)),

00175 0);

00176 }

00177 else

00178 {

00179 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00180 // Obtain a lock from the ACE\_Object\_Manager. The pointer

00181 // is static, so we only obtain one per

00182 // ACE\_Unmanaged\_Singleton instantiation.

00183 static ACE\_LOCK \*lock = 0;

00184 if (ACE\_Object\_Manager::get\_singleton\_lock (lock) != 0)

00185 // Failed to acquire the lock!

00186 return 0;

00187

00188 [ACE\_GUARD\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#3db1b0a0f7bf75627e9d67d616b059de) (ACE\_LOCK, ace\_mon, \*lock, 0);

00189 #endif /\* ACE\_MT\_SAFE \*/

00190

00191 if (singleton == 0)

00192 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton,

00193 ([ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html)),

00194 0);

00195 }

00196 }

00197

00198 return &singleton->[instance\_](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#5d2f22f05ada2cd010e15354c0ad0651);

00199 }

00200

00201 template <class TYPE, class ACE\_LOCK> void

[00202](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#c16e14d659a578ef534266a1bbd634f4) [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::close](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#c16e14d659a578ef534266a1bbd634f4) (void)

00203 {

00204 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html) \*&singleton =

00205 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#2ddb66efe5ae511a17143d9b7ba5365d) ();

00206

00207 if (singleton)

00208 {

00209 singleton->[cleanup](https://www.tena-sda.org/doc/5.2.1/ACE/df/d5c/classACE__Singleton.html#f52f56eb1fa71d5d06c56b5a017764ac) ();

00210 [ACE\_Unmanaged\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d4/d53/classACE__Unmanaged__Singleton.html#2ddb66efe5ae511a17143d9b7ba5365d) () = 0;

00211 }

00212 }

00213

00214 template <class TYPE, class ACE\_LOCK> void

[00215](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#6efddad5a9c12a460d489ab36a282946) [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::dump](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#6efddad5a9c12a460d489ab36a282946) (void)

00216 {

00217 #if defined (ACE\_HAS\_DUMP)

00218 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::dump");

00219

00220 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00221 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_LIB\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html" \l "926b4269dca522058e2e654afcfff992) ("instance\_ = %x"),

00222 [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html) ()));

00223 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_END\_DUMP](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#59d86761611e7581142bc968202d3c16)));

00224 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00225 #endif /\* ACE\_HAS\_DUMP \*/

00226 }

00227

00228 template <class TYPE, class ACE\_LOCK> [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html) \*&

[00229](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#908098ea5b9e409d45ae59b62d83023e) [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#908098ea5b9e409d45ae59b62d83023e) (void)

00230 {

00231 #if defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00232 // Pointer to the Singleton instance. This works around a bug with

00233 // G++ and it's (mis-)handling of templates and statics...

00234 static [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html) \*[singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#552c0c8ed41ad4c0d077b91f73b24245) = 0;

00235

00236 return [singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#552c0c8ed41ad4c0d077b91f73b24245);

00237 #else

00238 return [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html);

00239 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00240 }

00241

00242 template <class TYPE, class ACE\_LOCK> TYPE \*

[00243](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#139dcb4068982481a2f2924108f5db2c) [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#139dcb4068982481a2f2924108f5db2c) (void)

00244 {

00245 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance");

00246

00247 [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html) \*&singleton =

00248 [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#908098ea5b9e409d45ae59b62d83023e) ();

00249

00250 // Perform the Double-Check pattern...

00251 if (singleton == 0)

00252 {

00253 if ([ACE\_Object\_Manager::starting\_up](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html" \l "786216be9fc223c0439a7719cd06bef6) () ||

00254 [ACE\_Object\_Manager::shutting\_down](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#21034241f169ed393ca5deecd4b2612b) ())

00255 {

00256 // The program is still starting up, and therefore assumed

00257 // to be single threaded. There's no need to double-check.

00258 // Or, the ACE\_Object\_Manager instance has been destroyed,

00259 // so the preallocated lock is not available. Either way,

00260 // don't register for destruction with the

00261 // ACE\_Object\_Manager: we'll have to leak this instance.

00262

00263 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html)), 0);

00264 }

00265 else

00266 {

00267 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00268

00269 // Obtain a lock from the ACE\_Object\_Manager. The pointer

00270 // is static, so we only obtain one per ACE\_Singleton instantiation.

00271 static ACE\_LOCK \*lock = 0;

00272 if (ACE\_Object\_Manager::get\_singleton\_lock (lock) != 0)

00273 // Failed to acquire the lock!

00274 return 0;

00275

00276 [ACE\_GUARD\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#3db1b0a0f7bf75627e9d67d616b059de) (ACE\_LOCK, ace\_mon, \*lock, 0);

00277

00278 if (singleton == 0)

00279 {

00280 #endif /\* ACE\_MT\_SAFE \*/

00281 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html)),

00282 0);

00283

00284 // Register for destruction with ACE\_Object\_Manager.

00285 [ACE\_Object\_Manager::at\_exit](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#add86734a21cfc1a608eee82eaebaeb6) (singleton);

00286 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00287 }

00288 #endif /\* ACE\_MT\_SAFE \*/

00289 }

00290 }

00291

00292 return [ACE\_TSS\_GET](https://www.tena-sda.org/doc/5.2.1/ACE/d4/dbe/TSS__T_8h.html#f67674a31f8954da6de2208da3b3ae4a) (&singleton->instance\_, TYPE);

00293 }

00294

00295 template <class TYPE, class ACE\_LOCK> void

[00296](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#47f53828534aa185448f02c028e20e37) [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::cleanup](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#47f53828534aa185448f02c028e20e37) (void \*)

00297 {

00298 delete this;

00299 [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#908098ea5b9e409d45ae59b62d83023e) () = 0;

00300 }

00301

00302 template <class TYPE, class ACE\_LOCK> void

[00303](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#fb740c09ed2848530eb36f7b6b82effc) [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::dump](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#fb740c09ed2848530eb36f7b6b82effc) (void)

00304 {

00305 #if defined (ACE\_HAS\_DUMP)

00306 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::dump");

00307

00308 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00309 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_LIB\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html" \l "926b4269dca522058e2e654afcfff992) ("instance\_ = %x"),

00310 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) ()));

00311 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_END\_DUMP](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#59d86761611e7581142bc968202d3c16)));

00312 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00313 #endif /\* ACE\_HAS\_DUMP \*/

00314 }

00315

00316 template <class TYPE, class ACE\_LOCK>

00317 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) \*&

[00318](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#d928c20bb54ec0a58053e18acc183613) [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#d928c20bb54ec0a58053e18acc183613) (void)

00319 {

00320 #if defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00321 // Pointer to the Singleton instance. This works around a bug with

00322 // G++ and it's (mis-)handling of templates and statics...

00323 static [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) \*[singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#5687818cd32caf2171980f376effe770) = 0;

00324

00325 return [singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#5687818cd32caf2171980f376effe770);

00326 #else

00327 return [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html);

00328 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00329 }

00330

00331 template <class TYPE, class ACE\_LOCK> TYPE \*

[00332](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#3691ed23ee78eca01a3b198d6b18fecf) [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#3691ed23ee78eca01a3b198d6b18fecf) (void)

00333 {

00334 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance");

00335

00336 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) \*&singleton =

00337 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#d928c20bb54ec0a58053e18acc183613) ();

00338

00339 // Perform the Double-Check pattern...

00340 if (singleton == 0)

00341 {

00342 if ([ACE\_Object\_Manager::starting\_up](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html" \l "786216be9fc223c0439a7719cd06bef6) () ||

00343 [ACE\_Object\_Manager::shutting\_down](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#21034241f169ed393ca5deecd4b2612b) ())

00344 {

00345 // The program is still starting up, and therefore assumed

00346 // to be single threaded. There's no need to double-check.

00347 // Or, the ACE\_Object\_Manager instance has been destroyed,

00348 // so the preallocated lock is not available. Either way,

00349 // don't register for destruction with the

00350 // ACE\_Object\_Manager: we'll have to leak this instance.

00351

00352 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton,

00353 ([ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html)),

00354 0);

00355 }

00356 else

00357 {

00358 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00359 // Obtain a lock from the ACE\_Object\_Manager. The pointer

00360 // is static, so we only obtain one per

00361 // ACE\_Unmanaged\_Singleton instantiation.

00362 static ACE\_LOCK \*lock = 0;

00363 if (ACE\_Object\_Manager::get\_singleton\_lock (lock) != 0)

00364 // Failed to acquire the lock!

00365 return 0;

00366

00367 [ACE\_GUARD\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#3db1b0a0f7bf75627e9d67d616b059de) (ACE\_LOCK, ace\_mon, \*lock, 0);

00368 #endif /\* ACE\_MT\_SAFE \*/

00369

00370 if (singleton == 0)

00371 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton,

00372 ([ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html)),

00373 0);

00374 }

00375 }

00376

00377 return [ACE\_TSS\_GET](https://www.tena-sda.org/doc/5.2.1/ACE/d4/dbe/TSS__T_8h.html#f67674a31f8954da6de2208da3b3ae4a) (&singleton->instance\_, TYPE);

00378 }

00379

00380 template <class TYPE, class ACE\_LOCK> void

[00381](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#39d8122af2a1ee64d480418b1b5068dc) [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::close](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#39d8122af2a1ee64d480418b1b5068dc) (void)

00382 {

00383 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) \*&singleton =

00384 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html#d928c20bb54ec0a58053e18acc183613) ();

00385

00386 if (singleton)

00387 singleton->[cleanup](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html#47f53828534aa185448f02c028e20e37) ();

00388 }

00389

00390 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00391 // Pointer to the Singleton instance.

00392 template <class TYPE, class ACE\_LOCK> ACE\_TSS\_Singleton <TYPE, ACE\_LOCK> \*

00393 [ACE\_TSS\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d8/d81/classACE__TSS__Singleton.html) = 0;

00394

00395 template <class TYPE, class ACE\_LOCK>

00396 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) \*

00397 [ACE\_Unmanaged\_TSS\_Singleton<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/da/d74/classACE__Unmanaged__TSS__Singleton.html) = 0;

00398 #endif /\* !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES) \*/

00399

00400 /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

00401

00402 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00403 // Pointer to the Singleton instance.

00404 template <class TYPE, class ACE\_LOCK> [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) \*

00405 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) = 0;

00406 #endif /\* !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES) \*/

00407

00408 template <class TYPE, class ACE\_LOCK> void

[00409](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#ed29d9538094e4674e4690a4414514a5) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::dump](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#ed29d9538094e4674e4690a4414514a5) (void)

00410 {

00411 #if defined (ACE\_HAS\_DUMP)

00412 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::dump");

00413

00414 #if !defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00415 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_LIB\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html" \l "926b4269dca522058e2e654afcfff992) ("instance\_ = %x"),

00416 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) ()));

00417 [ACE\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d9/d3d/config-minimal_8h.html#f5fe8159f8e055937ea198635d88b8b1) (([LM\_DEBUG](https://www.tena-sda.org/doc/5.2.1/ACE/d6/d4d/Log__Priority_8h.html#ad11b59e25a001d846394a4e09198f5a0dfc87ba2c82fb51b04a89e2cc335006), [ACE\_END\_DUMP](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#59d86761611e7581142bc968202d3c16)));

00418 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00419 #endif /\* ACE\_HAS\_DUMP \*/

00420 }

00421

00422 template <class TYPE, class ACE\_LOCK>

00423 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) \*&

[00424](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#73e778bc7ed4b15ef7f23041ade4b29c) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#73e778bc7ed4b15ef7f23041ade4b29c) (void)

00425 {

00426 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance\_i");

00427

00428 #if defined (ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES)

00429 // Pointer to the Singleton instance. This works around a bug with

00430 // G++ and it's (mis-)handling of templates and statics...

00431 static [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) \*[singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#3f9b8c016e69a683f3c056c9aa8b7e7d) = 0;

00432

00433 return [singleton\_](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#3f9b8c016e69a683f3c056c9aa8b7e7d);

00434 #else

00435 return ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::singleton\_;

00436 #endif /\* ACE\_LACKS\_STATIC\_DATA\_MEMBER\_TEMPLATES \*/

00437 }

00438

00439 template <class TYPE, class ACE\_LOCK> TYPE \*

[00440](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#e2522d785bee89ac9dbb07bc5af56a3e) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#e2522d785bee89ac9dbb07bc5af56a3e) (void)

00441 {

00442 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance");

00443

00444 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) \*&singleton =

00445 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#73e778bc7ed4b15ef7f23041ade4b29c) ();

00446

00447 // Perform the Double-Check pattern...

00448 if (singleton == 0)

00449 {

00450 if ([ACE\_Object\_Manager::starting\_up](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html" \l "786216be9fc223c0439a7719cd06bef6) () ||

00451 [ACE\_Object\_Manager::shutting\_down](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d57/classACE__Object__Manager.html#21034241f169ed393ca5deecd4b2612b) ())

00452 {

00453 // The program is still starting up, and therefore assumed

00454 // to be single threaded. There's no need to double-check.

00455 // Or, the ACE\_Object\_Manager instance has been destroyed,

00456 // so the preallocated lock is not available. Either way,

00457 // don't register for destruction with the

00458 // ACE\_Object\_Manager: we'll have to leak this instance.

00459

00460 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton, ([ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html)),

00461 0);

00462 }

00463 else

00464 {

00465 #if defined (ACE\_MT\_SAFE) && (ACE\_MT\_SAFE != 0)

00466 // Obtain a lock from the ACE\_Object\_Manager. The pointer

00467 // is static, so we only obtain one per

00468 // ACE\_Unmanaged\_Singleton instantiation.

00469 static ACE\_LOCK \*lock = 0;

00470 if (ACE\_Object\_Manager::get\_singleton\_lock (lock) != 0)

00471 // Failed to acquire the lock!

00472 return 0;

00473

00474 [ACE\_GUARD\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d7/d33/Global__Macros_8h.html#3db1b0a0f7bf75627e9d67d616b059de) (ACE\_LOCK, ace\_mon, \*lock, 0);

00475 #endif /\* ACE\_MT\_SAFE \*/

00476

00477 if (singleton == 0)

00478 [ACE\_NEW\_RETURN](https://www.tena-sda.org/doc/5.2.1/ACE/d1/da8/OS__Memory_8h.html#521b651e2d921b803474b2ef260bad4f) (singleton,

00479 ([ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html)),

00480 0);

00481 }

00482 //ACE\_REGISTER\_FRAMEWORK\_COMPONENT(ACE\_DLL\_Singleton<TYPE,ACE\_LOCK>, singleton);

00483 [ACE\_Framework\_Repository::instance](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d7f/classACE__Framework__Repository.html#2032ecde36f9b2c3fd108f1e997e4bd7) ()->[register\_component](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d7f/classACE__Framework__Repository.html" \l "abb7f687f18d017e64ef66f4f9e4ee48)

00484 (new [ACE\_Framework\_Component\_T](https://www.tena-sda.org/doc/5.2.1/ACE/dc/d92/classACE__Framework__Component__T.html)<[ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) > (singleton));

00485 }

00486

00487 return &singleton->[instance\_](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#34465687f6d94ce4db34122040ec5efd);

00488 }

00489

00490 template <class TYPE, class ACE\_LOCK> void

[00491](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#44e0cd5d38cedd6179cd058903779cf8) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::close](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#44e0cd5d38cedd6179cd058903779cf8) (void)

00492 {

00493 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::close");

00494

00495 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html) \*&singleton =

00496 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::instance\_i](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#73e778bc7ed4b15ef7f23041ade4b29c) ();

00497

00498 delete singleton;

00499 singleton = 0;

00500 }

00501

00502 template <class TYPE, class ACE\_LOCK> void

[00503](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#d3ffa6fe9d4636aa1e3626e0a1a6cfb2) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::close\_singleton](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#d3ffa6fe9d4636aa1e3626e0a1a6cfb2) (void)

00504 {

00505 [ACE\_TRACE](https://www.tena-sda.org/doc/5.2.1/ACE/df/de2/config-all_8h.html#77d8a2ed757667703bab11fcdeb83f85) ("ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::close\_singleton");

00506 [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::close](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#44e0cd5d38cedd6179cd058903779cf8) ();

00507 }

00508

00509 template <class TYPE, class ACE\_LOCK> const [ACE\_TCHAR](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html#988977730d39929d7268cb90f95fbcab) \*

[00510](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#c7ef250c0d77a0506967afec5bc588fa) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::dll\_name](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#c7ef250c0d77a0506967afec5bc588fa) (void)

00511 {

00512 return this->[instance](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#e2522d785bee89ac9dbb07bc5af56a3e) ()->dll\_name ();

00513 }

00514

00515 template <class TYPE, class ACE\_LOCK> const [ACE\_TCHAR](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html#988977730d39929d7268cb90f95fbcab) \*

[00516](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#8656e686bdcf167df47ff1a5a098241e) [ACE\_DLL\_Singleton\_T<TYPE, ACE\_LOCK>::name](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#8656e686bdcf167df47ff1a5a098241e) (void)

00517 {

00518 return this->[instance](https://www.tena-sda.org/doc/5.2.1/ACE/d3/d0e/classACE__DLL__Singleton__T.html#e2522d785bee89ac9dbb07bc5af56a3e) ()->name ();

00519 }

00520

00521

00522 /\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

00523

00524 template <class TYPE> const [ACE\_TCHAR](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html#988977730d39929d7268cb90f95fbcab)\*

[00525](https://www.tena-sda.org/doc/5.2.1/ACE/dd/dfb/classACE__DLL__Singleton__Adapter__T.html#98bcd0725b8481cbb5d9142d6654cb1c) [ACE\_DLL\_Singleton\_Adapter\_T<TYPE>::dll\_name](https://www.tena-sda.org/doc/5.2.1/ACE/dd/dfb/classACE__DLL__Singleton__Adapter__T.html#98bcd0725b8481cbb5d9142d6654cb1c) (void)

00526 {

00527 // @todo make this a constant somewhere (or it there already is one

00528 // then use it.

00529 return [ACE\_TEXT](https://www.tena-sda.org/doc/5.2.1/ACE/d7/db5/ace__wchar_8h.html#9b584b6aca34e2eea39b102bf3d10322)("ACE");

00530 }

00531

00532 [ACE\_END\_VERSIONED\_NAMESPACE\_DECL](https://www.tena-sda.org/doc/5.2.1/ACE/d1/d84/Versioned__Namespace_8h.html#707f52b23394248c9a6c8f584a8139b8)

00533

00534 #endif /\* ACE\_SINGLETON\_CPP \*/