

canvas - Bug #13446

service libraries now need a link to the root core library

08/04/2016 03:30 PM - Lynn Garren

Status:	Closed	Start date:	08/04/2016
Priority:	Normal	Due date:	
Assignee:	Paul Russo	% Done:	100%
Category:		Estimated time:	4.00 hours
Target version:	2.03.00	Spent time:	9.00 hours
Scope:	Internal	SSI Package:	art
Experiment:	-		

Description

At some point between art 2.00.03 and 2.02.01, builds of the service libraries have changed to require TVersionCheck. An error such as the following occurs, and can be resolved by including `ROOT_CORE` in the appropriate CMakeLists.txt file.

```
[ 42%] Linking CXX shared library ../../lib/liblardata_Uilities_LArPropertiesServiceArgoNeuT_service.so
CMakeFiles/lardata_Uilities_LArPropertiesServiceArgoNeuT_service.dir/LArPropertiesServiceArgoNeuT_service.cc.o: In function `__static_initialization_and_destruction_0':
/products/root/v6_06_04b/Linux64bit+2.6-2.12-e10-nu-prof/include/TVersionCheck.h:34: undefined reference to `TVersionCheck::TVersionCheck(int) '
collect2: error: ld returned 1 exit status
make[2]: *** [lardata/lib/liblardata_Uilities_LArPropertiesServiceArgoNeuT_service.so] Error 1
make[1]: *** [lardata/lardata/Utilities/CMakeFiles/lardata_Uilities_LArPropertiesServiceArgoNeuT_service.dir/all] Error 2
```

History

#1 - 08/08/2016 11:50 AM - Kyle Knoepfel

- Status changed from New to Accepted

- Estimated time set to 4.00 h

#2 - 08/08/2016 11:50 AM - Kyle Knoepfel

- Assignee set to Paul Russo

#3 - 08/09/2016 04:55 PM - Paul Russo

The cause is located at:

canvas/canvas/Persistency/Common/detail/aggregate.h line 27:

```
#include "TH1.h"
```

in order to make this possible:

```
//=====
// ROOT-TH1 specializations

template <typename T>
struct CanBeAggregated<T, std::enable_if_t<std::is_base_of<TH1,T>::value>> : std::true_type {
    static void aggregate(T& p, T const& other)
    {
        p.Add(&other);
    }
};
```

Which enables ROOT histograms to be aggregated automatically using their Add() member function.

#4 - 08/09/2016 05:00 PM - Paul Russo

The commit where this appeared is:

```
$ git log -L27,27:canvas/Persistency/Common/detail/aggregate.h
```

commit 511095387837c5affb0e74c1d6b4619d7593d125
Author: Kyle Knoepfel <knoepfel@fnal.gov>
Date: Fri May 6 15:32:29 2016 -0500

Add (and test) aggregation behavior for TH1-derived objects.

```
diff --git a/canvas/Persistency/Common/detail/aggregate.h b/canvas/Persistency/Common/detail/aggregate.h
--- a/canvas/Persistency/Common/detail/aggregate.h
+++ b/canvas/Persistency/Common/detail/aggregate.h
@@ -26,0 +26,1 @@
+#include "TH1.h"
```

\$ git name-rev --tags 511095387837c5affb0e74c1d6b4619d7593d125
511095387837c5affb0e74c1d6b4619d7593d125 tags/ART_SUITE_v2_01_00^2~19

#5 - 08/10/2016 09:04 AM - Kyle Knoepfel

Paul, Lynn, please stop by when you have the chance. If I clone lardata and checkout commit lardata:commit:bb1c7086bf3e5 (one before the commit that added the ROOT_CORE library to the services), I get a clean debug and prof builds. Furthermore, when I run the preprocessor on LArPropertiesServiceArgoNeuT_service.cc, the TH1 and aggregate.h headers are not included at all.

I would appreciate it if you could stop by so we can sort this out.

#6 - 08/10/2016 10:13 AM - Kyle Knoepfel

Lynn informed me that the art version lardata depends upon had not yet been updated. After updating to the new version, I confirm the error and Paul's diagnosis. Nice work, Paul.

Thinking of solutions...

#7 - 08/10/2016 11:57 AM - Kyle Knoepfel

The fix was simple, although it required a bit of thinking. It was sufficient to forward-declare TH1 in the aggregate.h file instead of including the TH1.h file.

Implemented with commit [canvas:7471e2fe](#).

#8 - 08/10/2016 02:13 PM - Kyle Knoepfel

I confirm that the lardata services now build correctly with the above commit, without needing to add the ROOT_CORE library as a dependency.

#9 - 08/11/2016 12:02 PM - Kyle Knoepfel

- Project changed from *cet-is* to *canvas*
- Status changed from *Accepted* to *Resolved*
- % Done changed from 0 to 100
- SSI Package art added
- SSI Package deleted ()

#10 - 08/18/2016 08:57 AM - Kyle Knoepfel

- Status changed from *Resolved* to *Closed*
- Target version set to 2.03.00