

## NuRandom - Bug #23852

### Problem with compiling dunetpc with larsoft v08\_39\_00 c7:debug

01/09/2020 11:46 AM - Tingjun Yang

<b>Status:</b>	Closed	<b>Start date:</b>	01/09/2020
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Kyle Knoepfel	<b>% Done:</b>	100%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>		<b>Spent time:</b>	1.00 hour

#### Description

We got the following error when compiling dunetpc with larsoft v08\_39\_00 c7:debug:

```
[1004/2192] Linking CXX executable dunetpc/bin/test_ExponentialChannelNoiseService
FAILED: dunetpc/bin/test_ExponentialChannelNoiseService
: && /cvmfs/larsoft.opensciencegrid.org/products/clang/v7_0_0/Linux64bit+3.10-2.17/bin/clang++ -g
-gdwarf-4 -O0 -std=c++98 -Werror -pedantic -Wno-unused-local-typedefs -std=c++17 -Wall -Werror=re
turn-type -rdynamic dunetpc/dune/DetSim/Service/test/CMakeFiles/test_ExponentialChannelNoi
seService.dir/test_ExponentialChannelNoiseService.cxx.o -o dunetpc/bin/test_ExponentialChannelNoi
seService -Wl,-rpath,/dune/app/users/tjyang/larsoft_mydev/build_slf7.x86_64/dunetpc/lib:/cvmfs/larsoft.o
pensciencegrid.org/products/larcoreal/v08_19_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.openscienc
egrid.org/products/lardata/v08_12_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/produc
ts/larcore/v08_09_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/nuevdb/v
1_01_02/sl77.x86_64.c7.debug/lib:/cvmfs/dune.opensciencegrid.org/products/dune/lbne_raw_data/v1_04
_43/sl77.x86_64.c7.nu.s93.debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/art/v3_03_01/sl77.
x86_64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/messagefacility/v2_05_00/sl77.x86_
64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7
-debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/art_root_io/v1_01_04/sl77.x86_64.c7.debug/l
ib:/cvmfs/larsoft.opensciencegrid.org/products/nurandom/v1_03_01/sl77.x86_64.c7.debug/lib:/cvmfs/l
arsoft.opensciencegrid.org/products/clhep/v2_4_1_2/Linux64bit+3.10-2.17-c7-debug/lib:/cvmfs/larsof
t.opensciencegrid.org/products/canvas/v3_08_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.openscience
grid.org/products/fhiclcpp/v4_10_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/pr
oducts/cetlib/v3_08_00/sl77.x86_64.c7.debug/lib:/cvmfs/larsoft.opensciencegrid.org/products/cetlib
_except/v1_03_04/sl77.x86_64.c7.debug/lib dunetpc/lib/libdune_DetSim_Service_ExponentialChannelNoi
seService_service.so dunetpc/lib/libdune_ArtSupport.so /cvmfs/larsoft.opensciencegrid.org/products
/larcoreal/v08_19_00/sl77.x86_64.c7.debug/lib/liblarcoreal_Geometry.so dunetpc/lib/libSignalShap
ingDUNE_service.so /cvmfs/larsoft.opensciencegrid.org/products/boost/v1_70_0/Linux64bit+3.1
0-2.17-c7-debug/lib/libboost_filesystem.so /cvmfs/larsoft.opensciencegrid.org/products/lardata/v08
_12_00/sl77.x86_64.c7.debug/lib/liblardata_Uilities_LArFFT_service.so /cvmfs/larsoft.openscienc
egrid.org/products/larcoreal/v08_19_00/sl77.x86_64.c7.debug/lib/liblarcoreal_Geometry.so /cvmfs/l
arsoft.opensciencegrid.org/products/larcore/v08_09_00/sl77.x86_64.c7.debug/lib/liblarcore_Geometry_
Geometry_service.so /cvmfs/larsoft.opensciencegrid.org/products/lardata/v08_12_00/sl77.x86_64.c7.d
ebug/lib/liblardata_Uilities.so dunetpc/lib/libRunHistoryDUNE.so -lwda /cvmfs/larsoft.openscience
grid.org/products/nuevdb/v1_01_02/sl77.x86_64.c7.debug/lib/libnuevdb_IFDatabase.so /cvmfs/dune.o
pensciencegrid.org/products/dune/lbne_raw_data/v1_04_43/sl77.x86_64.c7.nu.s93.debug/lib/liblbne-raw
_data_Services_ChannelMap_ChannelMapService_service.so /cvmfs/larsoft.opensciencegrid.org/products/
art/v3_03_01/sl77.x86_64.c7.debug/lib/libart_Framework_Principal.so /cvmfs/larsoft.opensciencegrid
.org/products/art/v3_03_01/sl77.x86_64.c7.debug/lib/libart_Persistency_Common.so /cvmfs/larsoft.op
ensciencegrid.org/products/art/v3_03_01/sl77.x86_64.c7.debug/lib/libart_Persistency_Provenance.so
/cvmfs/larsoft.opensciencegrid.org/products/art/v3_03_01/sl77.x86_64.c7.debug/lib/libart_Framework
_Services_System_FileCatalogMetadata_service.so /cvmfs/larsoft.opensciencegrid.org/products/messag
efacility/v2_05_00/sl77.x86_64.c7.debug/lib/libMF_MessageLogger.so /cvmfs/larsoft.opensciencegrid
.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libGeom.so /cvmfs/larsoft.openscienc
egrid.org/products/art_root_io/v1_01_04/sl77.x86_64.c7.debug/lib/libart_root_io_tfile_support.so /
cvmfs/larsoft.opensciencegrid.org/products/art_root_io/v1_01_04/sl77.x86_64.c7.debug/lib/libart_ro
ot_io_TFileService_service.so /cvmfs/larsoft.opensciencegrid.org/products/nurandom/v1_03_01/sl77.x
86_64.c7.debug/lib/libnurandom_RandomUtils_NuRandomService_service.so /cvmfs/larsoft.openscienc
egrid.org/products/art/v3_03_01/sl77.x86_64.c7.debug/lib/libart_Framework_Core.so /cvmfs/larsoft.open
sciencegrid.org/products/clhep/v2_4_1_2/Linux64bit+3.10-2.17-c7-debug/lib/libCLHEP.so /cvmfs/larso
ft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libRIO.so /cvmfs/
larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libNet.so /c
```

```
vmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libImt.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libHist.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libGraf.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libGraf3d.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libGpad.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libTree.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libRint.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libPostscript.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libMatrix.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libPhysics.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libMathCore.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libThread.so /cvmfs/larsoft.opensciencegrid.org/products/art/v3_03_01/slf7.x86_64.c7.debug/lib/libart_Framework_EventProcessor.so /cvmfs/larsoft.opensciencegrid.org/products/art/v3_03_01/slf7.x86_64.c7.debug/lib/libart_Framework_Services_Registry.so /cvmfs/larsoft.opensciencegrid.org/products/art/v3_03_01/slf7.x86_64.c7.debug/lib/libart_Utilities.so /cvmfs/larsoft.opensciencegrid.org/products/art/v3_08_00/slf7.x86_64.c7.debug/lib/libcanvas.so /cvmfs/larsoft.opensciencegrid.org/products/fhiclcpp/v4_10_00/slf7.x86_64.c7.debug/lib/libfhiclcpp.so /cvmfs/larsoft.opensciencegrid.org/products/cetlib/v3_08_00/slf7.x86_64.c7.debug/lib/libcetlib.so /cvmfs/larsoft.opensciencegrid.org/products/cetlib_except/v1_03_04/slf7.x86_64.c7.debug/lib/libcetlib_except.so /cvmfs/larsoft.opensciencegrid.org/products/root/v6_18_04b/Linux64bit+3.10-2.17-c7-debug/lib/libCore.so /cvmfs/larsoft.opensciencegrid.org/products/boost/v1_70_0/Linux64bit+3.10-2.17-c7-debug/lib/libboost_system.so && : /cvmfs/larsoft.opensciencegrid.org/products/nurandom/v1_03_01/slf7.x86_64.c7.debug/lib/libnurandom_RandomUtils_NuRandomService_service.so: undefined reference to `rndm::SeedMasterHelper::EngineId:global' clang-7: error: linker command failed with exit code 1 (use -v to see invocation) [1021/2192] Building CXX object dunetpc/dune/HitAnalysis/CMakeFiles/SignalToNoise_module.dir/SignalToNoise_module.cc.o ninja: build stopped: subcommand failed.
```

```
-----  
ERROR: Stage install / package failed.  
-----
```

## History

### #1 - 01/09/2020 02:54 PM - Thomas Junk

Maybe just adding noise but my build of `dunetpc` stopped at a different place:

```
[ 55%] Linking CXX executable ../../bin/test_LArSeedService  
...  
/cvmfs/larsoft.opensciencegrid.org/products/nurandom/v1_03_01/slf7.x86_64.c7.debug/lib/libnurandom_RandomUtils_NuRandomService_service.so: undefined reference to `rndm::SeedMasterHelper::EngineId:global'  
clang-7: error: linker command failed with exit code 1 (use -v to see invocation)  
...  
make[2]: *** [dunetpc/bin/test_LArSeedService] Error 1  
make[1]: *** [dunetpc/test/ArtServices/CMakeFiles/test_LArSeedService.dir/all] Error 2  
make[1]: *** Waiting for unfinished jobs....
```

It links to this library which has similar-looking (sorry, mangled) names. The Undefined name and the Weak name appear to differ in mangle-added characters.

```
<dunebuild01.fnal.gov> nm /cvmfs/larsoft.opensciencegrid.org/products/nurandom/v1_03_01/slf7.x86_64.c7.debug/lib/libnurandom_RandomUtils_NuRandomService_service.so | grep -i seedmaster | grep -i global  
U _ZN4rndm16SeedMasterHelper8EngineId6globalE  
0000000000348c0 W _ZN4rndm16SeedMasterHelper8EngineIdC2ERKNSt3__112basic_stringIcNS2_11char_traitsIcEENS2_9a1  
locatorIcEEEEES1_8Global_tE  
000000000039380 W _ZNK4rndm16SeedMasterHelper8EngineId8isGlobalEv
```

### #2 - 01/09/2020 03:06 PM - Lynn Garren

We have confirmed that there is a problem with the c7 debug build of `nurandom`. Kyle is working on a fix to `nurandom`, but we do not anticipate making a new `larsoft` build and distribution until the regular release next week.

### #3 - 01/09/2020 03:32 PM - Kyle Knoepfel

- Assignee set to Kyle Knoepfel

- Status changed from New to Assigned

The problem is understood. This appears to be a symptom of code that links against `nurandom_RandomUtils_NuRandomService_service` but does not actually include the `"nurandom/RandomUtils/NuRandomUtils.h"` header.

Although this type of problem should not occur and will be fixed, a short-term workaround may be to remove the `nurandom_RandomUtils_NuRandomService_service` library dependency from the location where the error occurs. Unfortunately, this may be difficult to do in cases where plugin/module globbing is done with the `art_make` CMake function.

**#4 - 01/09/2020 03:35 PM - Kyle Knoepfel**

- *% Done changed from 0 to 100*
- *Status changed from Assigned to Resolved*
- *Project changed from LArSoft to NuRandom*
- *Experiment deleted (-)*

Implemented with commit [nurandom:3fa3fb8](#). New nurandom release forthcoming.

**#5 - 05/28/2020 12:10 PM - Lynn Garren**

- *Status changed from Resolved to Closed*