
Subject: Problem with including targets in simulation
Posted by [Ina Syndikus](#) on Tue, 20 Oct 2015 13:27:04 GMT
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Hi,

I try to run a very simple simulation with R3BRoot. For this I downloaded and installed the newest R3BRoot version and used the macro r3bsim.C as described on the webpage. Furthermore, I tried to create my own target with the provided script create_target_geo.C and it seemed to work (= produced a root-file in R3BRoot/geometry).

When I run the simulation with target4 (default value), it works. But if I try to change the target either to target1 (predefined lead target) or to target5 (CH2target, created as described above), the script stops with a segmentation violation and the error message below occurs.

Now my question is: What am I doing wrong? Is there a better way to create new targets? And why is the predefined target1 not working, too?

Cheers,
Ina

Processing r3bsim.C...

```
[INFO ] FairRootManager::OpenOutFile("r3bsim_test.root")
[INFO ] Media file used : /u/syndikus/R3BRoot/geometry/media_r3b.geo
[INFO ] ===== FairRunSim: Initialising simulation run =====
Info in <TGeoManager::TGeoManager>: Geometry FAIRGeom, FAIR geometry created
[INFO ] FairGeoMedia: Read media
```

```
*****
initialisation for run id 1445346130
*****
```

```
[INFO ] Create visualisation manager
[INFO ] R3BAladinFieldMap ---> 0: cos 0.9993 sin 0.0385
[INFO ] R3BAladinFieldMap ---> 1: cos 0.9991 sin -0.0419
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_0500.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_0500.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_1100.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_1100.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_1300.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_1300.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_1500.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_1500.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_1700.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_1700.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_1900.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_1900.dat
```

```

[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_2100.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_2100.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_2300.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_2300.dat
[INFO ] R3BAladinFieldMap opening Field Map file :
/u/syndikus/R3BRoot/field/magField/Aladin/newmap/ala_2500.dat
[INFO ] R3BAladinFieldMap: Reading field map: ala_2500.dat
[INFO ] R3BAladinFieldMap::Init() called
[INFO ] ----- Standard Config is called -----
Loading Geant3 libraries ...
Loading Geant3 libraries ... finished

```

MZSTOR. ZEBRA table base TAB(0) in /MZCC/ at adr 426026079 1964A45F HEX

```

MZSTOR. Initialize Store 0 in /GCBANK/
with Store/Table at absolute adrs 426135325 426026079
                HEX 19664F1D 1964A45F
                HEX 1AB22 0
                relative adrs 109346 0
with 1 Str. in 2 Links in 5300 Low words in 4999970 words.
This store has a fence of 16 words.

```

```

MZLOGL. Set Log Level 0 for store 0
1***** GEANT Version 3.21/11 Released on 100298
0***** Correction Cradle Version 0.1100

```

```

MZDIV. Initialize Division Constant in Store 0
NW/NWMAX= 20004000000, MODE/KIND= 1 2
Division 20 initialized.

```

```

MZLINK. Initialize Link Area /GCLINK/ for Store 0 NL/NS= 20 20

```

```

MZLINK. Initialize Link Area /GCSLNK/ for Store 0 NL/NS= 100 100
-I- G3Config: Geant3 with TGeo has been created.
Physics cuts with script
/u/syndikus/R3BRoot/gconfig/SetCuts.C
SetCuts Macro: Setting Processes..
SetCuts Macro: Setting cuts..
SetCuts Macro: Setting Processes..
SetCuts Macro: Setting cuts..
Info in <TGeoManager::SetTopVolume>: Top volume is cave. Master volume is cave
Info in <TGeoNavigator::BuildCache>: --- Maximum geometry depth set to 100
[INFO ] Constructing Target geometry from ROOT file
/u/syndikus/R3BRoot/geometry/target_CH2Target_s393.geo.root

```

*** Break *** segmentation violation

=====

There was a crash (kSigSegmentationViolation).

This is the entire stack trace of all threads:

```
=====
#0 0x00007fea74b3506e in __libc_waitpid (pid=<optimized out>, stat_loc=0x7ffc11e8674c,
options=<optimized out>) at ../sysdeps/unix/sysv/linux/waitpid.c:32
#1 0x00007fea74ac9989 in do_system (line=<optimized out>) at
../sysdeps/posix/system.c:149
#2 0x00007fea758d1e28 in TUnixSystem::Exec (this=0x69bed0, shellcmd=0x1b463d0
"/cvmfs/fairroot.gsi.de/fairsoft/mar15p2/share/root/etc/gdb-backtrace.sh 32376 1>&2") at
/tmp/fairsoft/mar15p2/tools/root/core/unix/src/TUnixSystem.cxx:2172
#3 0x00007fea758d266a in TUnixSystem::StackTrace (this=0x69bed0) at
/tmp/fairsoft/mar15p2/tools/root/core/unix/src/TUnixSystem.cxx:2419
#4 0x00007fea758d00a9 in TUnixSystem::DispatchSignals (this=0x69bed0,
sig=kSigSegmentationViolation) at
/tmp/fairsoft/mar15p2/tools/root/core/unix/src/TUnixSystem.cxx:1294
#5 0x00007fea758ce331 in SigHandler (sig=kSigSegmentationViolation) at
/tmp/fairsoft/mar15p2/tools/root/core/unix/src/TUnixSystem.cxx:440
#6 0x00007fea758d5e8c in sighandler (sig=11) at
/tmp/fairsoft/mar15p2/tools/root/core/unix/src/TUnixSystem.cxx:3748
#7 0x00007fea7590b21c in textinput::TerminalConfigUnix::HandleSignal
(this=0x7fea760d1280, signum=11) at
/tmp/fairsoft/mar15p2/tools/root/core/textinput/src/textinput/TerminalCo nfigUnix.cpp:96
#8 0x00007fea7590af49 in (anonymous namespace)::TerminalConfigUnix__handleSignal
(signum=11) at /tmp/fairsoft/mar15p2/tools/root/core/textinput/src/textinput/TerminalCo
nfigUnix.cpp:36
#9 <signal handler called>
#10 0x00007fea75873bd6 in TObjArray::GetAbsLast (this=0x0) at
/tmp/fairsoft/mar15p2/tools/root/core/cont/src/TObjArray.cxx:511
#11 0x00007fea69a537dc in GetEntriesFast (this=0x0) at
/cvmfs/fairroot.gsi.de/fairsoft/mar15/include/root/TObjArray.h:67
#12 FairModule::ExpandNode (this=0x12a4530, fN=<optimized out>) at
/tmp/fairroot_v-15.03/base/sim/FairModule.cxx:537
#13 0x00007fea69a532a2 in FairModule::ConstructRootGeometry (this=0x12a4530) at
/tmp/fairroot_v-15.03/base/sim/FairModule.cxx:407
#14 0x00007fea68a2f142 in R3BTarget::ConstructGeometry (this=0x12a4530) at
/u/syndikus/R3BRoot/passive/R3BTarget.cxx:47
#15 0x00007fea69a507c7 in FairMCApplication::ConstructGeometry (this=0x139ef80) at
/tmp/fairroot_v-15.03/base/sim/FairMCApplication.cxx:848
#16 0x00007fea65425327 in TGeant3::Init (this=0x17fe7c0) at TGeant3/TGeant3.cxx:6358
#17 0x00007fea69a4db39 in FairMCApplication::InitMC (this=0x139ef80, setup=<optimized
out>, cuts=<optimized out>) at /tmp/fairroot_v-15.03/base/sim/FairMCApplication.cxx:389
#18 0x00007fea69a413de in FairRunSim::SetMCConfig (this=this
entry=0x120a280) at /tmp/fairroot_v-15.03/base/steer/FairRunSim.cxx:379
#19 0x00007fea69a4283c in FairRunSim::Init (this=0x120a280) at
/tmp/fairroot_v-15.03/base/steer/FairRunSim.cxx:230
#20 0x00007fea69ab4475 in G__G__BaseDict_785_0_5 (result7=0x7ffc11e8a4e0,
funcname=<optimized out>, libp=<optimized out>, hash=<optimized out>) at
/tmp/fairroot_v-15.03/build/base/G__BaseDict.cxx:13233
#21 0x00007fea740d7000 in Cint::G__ExceptionWrapper (funcp=0x7fea69ab4460
<G__G__BaseDict_785_0_5(G__value*, char const*, G__param*, int)>,
result7=0x7ffc11e8a4e0, funcname=0x1202870 "", libp=0x7ffc11e8a520, hash=0) at
cint/cint/src/Api.cxx:393
```

#22 0x00007fea741af8aa in G__execute_call (result7=0x7ffc11e8a4e0, libp=0x7ffc11e8a520, ifunc=0x1202870, ifn=0) at cint/cint/src/newlink.cxx:2408
#23 0x00007fea741b0250 in G__call_cppfunc (result7=0x7ffc11e8a4e0, libp=0x7ffc11e8a520, ifunc=0x1202870, ifn=0) at cint/cint/src/newlink.cxx:2612
#24 0x00007fea74188e10 in G__interpret_func (result7=0x7ffc11e8a4e0, funcname=0xde78c0 "Init", libp=0x7ffc11e8a520, hash=404, p_ifunc=0x1202870, funcmatch=1, memfunc_flag=1) at cint/cint/src/ifunc.cxx:5791
#25 0x00007fea741625bb in G__getfunction (item=0xdc7fb5 "Init()", known3=0x7ffc11e96004, memfunc_flag=1) at cint/cint/src/func.cxx:2660
#26 0x00007fea7429dac0 in G__getstructmem (store_var_type=112, varname=..., membername=0xdc7fb5 "Init()", memnamesize=2147483647, tagname=0xde0050 "run", known2=0x7ffc11e96004, varglobal=0x7fea7456ca80, objptr=2) at cint/cint/src/var.cxx:6821
#27 0x00007fea7428e116 in G__getvariable (item=0xdc7fb0 "run->Init()", known=0x7ffc11e96004, varglobal=0x7fea7456ca80, varlocal=0x7ffc11e98c60) at cint/cint/src/var.cxx:5407
#28 0x00007fea7415145b in G__getitem (item=0xdc7fb0 "run->Init()") at cint/cint/src/expr.cxx:1906
#29 0x00007fea7414eb95 in G__getexpr (expression=0x6dacb0 "run->Init()") at cint/cint/src/expr.cxx:1488
#30 0x00007fea741e35e4 in G__exec_function (statement=..., pc=0x7ffc11e9890c, piout=0x7ffc11e98908, plargestep=0x7ffc11e98900, presult=0x7ffc11e987a0) at cint/cint/src/parse.cxx:645
#31 0x00007fea741f48a3 in G__exec_statement (mparen=0x7ffc11e994bc) at cint/cint/src/parse.cxx:7371
#32 0x00007fea7418c3de in G__interpret_func (result7=0x7ffc11e99880, funcname=0x6bf170 "r3ball", libp=0x7ffc11e998c0, hash=576, p_ifunc=0xd99cb0, funcmatch=1, memfunc_flag=0) at cint/cint/src/ifunc.cxx:6710
#33 0x00007fea74163335 in G__getfunction (item=0x6be950 "r3ball(nEvents,detGeo,target4,fEventDisplay,fMC,fGene,fUserPList,fR3BMagnet,1500.,OutFile,ParFile) ", known3=0x7ffc11ea4554, memfunc_flag=0) at cint/cint/src/func.cxx:2901
#34 0x00007fea741515a3 in G__getitem (item=0x6be950 "r3ball(nEvents,detGeo,target4,fEventDisplay,fMC,fGene,fUserPList,fR3BMagnet,1500.,OutFile,ParFile) ") at cint/cint/src/expr.cxx:1918
#35 0x00007fea7414eb95 in G__getexpr (expression=0x6d9c90 "r3ball(nEvents,detGeo,target4,fEventDisplay,fMC,fGene,fUserPList,fR3BMagnet,1500.,OutFile,ParFile) ") at cint/cint/src/expr.cxx:1488
#36 0x00007fea741e35e4 in G__exec_function (statement=..., pc=0x7ffc11ea6e5c, piout=0x7ffc11ea6e58, plargestep=0x7ffc11ea6e50, presult=0x7ffc11ea6cf0) at cint/cint/src/parse.cxx:645
#37 0x00007fea741f48a3 in G__exec_statement (mparen=0x7ffc11ea7a0c) at cint/cint/src/parse.cxx:7371
#38 0x00007fea7418c3de in G__interpret_func (result7=0x7ffc11ea7dd0, funcname=0x6b1350 "r3bsim", libp=0x7ffc11ea7e10, hash=592, p_ifunc=0xd7ee70, funcmatch=1, memfunc_flag=0) at cint/cint/src/ifunc.cxx:6710
#39 0x00007fea74163335 in G__getfunction (item=0x6b0b30 "r3bsim()", known3=0x7ffc11eb2aa4, memfunc_flag=0) at cint/cint/src/func.cxx:2901
#40 0x00007fea741515a3 in G__getitem (item=0x6b0b30 "r3bsim()") at cint/cint/src/expr.cxx:1918
#41 0x00007fea7414eb95 in G__getexpr (expression=0xd9c0d0 "r3bsim()") at cint/cint/src/expr.cxx:1488
#42 0x00007fea7413caed in G__calc_internal (exprwithspace=0x6b2ba0 "r3bsim()") at

```

cint/cint/src/expr.cxx:1071
#43 0x00007fea741ff77e in G__process_cmd (line=0xd99bf0 ".X
/u/syndikus/R3BRoot/macros/r3b/.r3bsim.C", prompt=0x6a15e8 "", more=0x6a15e0,
err=0x7ffc11eb645c, rslt=0x7ffc11eb63f0) at cint/cint/src/pause.cxx:2333
#44 0x00007fea758822d6 in TCint::ProcessLine (this=0x6a15a0, line=0xd99bf0 ".X
/u/syndikus/R3BRoot/macros/r3b/.r3bsim.C", error=0x7ffc11eb9264) at
/tmp/fairsoft/mar15p2/tools/root/core/meta/src/TCint.cxx:548
#45 0x00007fea75882957 in TCint::ProcessLineSynch (this=0x6a15a0, line=0xd99bf0 ".X
/u/syndikus/R3BRoot/macros/r3b/.r3bsim.C", error=0x7ffc11eb9264) at
/tmp/fairsoft/mar15p2/tools/root/core/meta/src/TCint.cxx:627
#46 0x00007fea757c381f in TApplication::ExecuteFile (file=0x7ffc11eb7203 "r3bsim.C",
error=0x7ffc11eb9264, keep=false) at
/tmp/fairsoft/mar15p2/tools/root/core/base/src/TApplication.cxx:1106
#47 0x00007fea757c30a8 in TApplication::ProcessFile (this=0x7eea30, file=0x7ffc11eb7203
"r3bsim.C", error=0x7ffc11eb9264, keep=false) at
/tmp/fairsoft/mar15p2/tools/root/core/base/src/TApplication.cxx:982
#48 0x00007fea757c2f2d in TApplication::ProcessLine (this=0x7eea30, line=0x7ffc11eb7200
".x r3bsim.C", sync=false, err=0x7ffc11eb9264) at
/tmp/fairsoft/mar15p2/tools/root/core/base/src/TApplication.cxx:955
#49 0x00007fea75347a90 in TRint::Run (this=0x7eea30, retn=false) at
/tmp/fairsoft/mar15p2/tools/root/core/rint/src/TRint.cxx:418
#50 0x0000000004013bd in main (argc=1, argv=0x7ffc11eb93f8) at
/tmp/fairsoft/mar15p2/tools/root/main/src/rmain.cxx:29
=====

```

The lines below might hint at the cause of the crash.
If they do not help you then please submit a bug report at
<http://root.cern.ch/bugs>. Please post the ENTIRE stack trace
from above as an attachment in addition to anything else
that might help us fixing this issue.

```

=====
#10 0x00007fea75873bd6 in TObjArray::GetAbsLast (this=0x0) at
/tmp/fairsoft/mar15p2/tools/root/core/cont/src/TObjArray.cxx:511
#11 0x00007fea69a537dc in GetEntriesFast (this=0x0) at
/cvmfs/fairroot.gsi.de/fairsoft/mar15/include/root/TObjArray.h:67
#12 FairModule::ExpandNode (this=0x12a4530, fN=<optimized out>) at
/tmp/fairroot_v-15.03/base/sim/FairModule.cxx:537
#13 0x00007fea69a532a2 in FairModule::ConstructRootGeometry (this=0x12a4530) at
/tmp/fairroot_v-15.03/base/sim/FairModule.cxx:407
#14 0x00007fea68a2f142 in R3BTarget::ConstructGeometry (this=0x12a4530) at
/u/syndikus/R3BRoot/passive/R3BTarget.cxx:47
#15 0x00007fea69a507c7 in FairMCApplication::ConstructGeometry (this=0x139ef80) at
/tmp/fairroot_v-15.03/base/sim/FairMCApplication.cxx:848
#16 0x00007fea65425327 in TGeant3::Init (this=0x17fe7c0) at TGeant3/TGeant3.cxx:6358
#17 0x00007fea69a4db39 in FairMCApplication::InitMC (this=0x139ef80, setup=<optimized
out>, cuts=<optimized out>) at /tmp/fairroot_v-15.03/base/sim/FairMCApplication.cxx:389
#18 0x00007fea69a413de in FairRunSim::SetMCConfig (this=this
entry=0x120a280) at /tmp/fairroot_v-15.03/base/steer/FairRunSim.cxx:379
#19 0x00007fea69a4283c in FairRunSim::Init (this=0x120a280) at
/tmp/fairroot_v-15.03/base/steer/FairRunSim.cxx:230
=====

```

Root > Function r3bsim() busy flag cleared
Function r3ball() busy flag cleared

Subject: Re: Problem with including targets in simulation
Posted by [Dmytro Kresan](#) on Wed, 21 Oct 2015 08:19:15 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Ina,

geometry files and macros for target need to be updated. The problem that the logical volume can not be placed directly into the TOP volume. All nodes of a detector have to go to the keeping volume. The fix in the file create_target_geo.C (lines 194 - 195)

Previously:

```
TGeoCombiTrans* pGlobal = GetGlobalPosition(pMatrix);  
gTop->AddNode(pleadTarget_log, 0, pGlobal);
```

Fixed:

```
TGeoVolumeAssembly *target_top = new TGeoVolumeAssembly("LeadTarget");  
target_top->AddNode(pleadTarget_log, 0, pMatrix);
```

```
TGeoCombiTrans* pGlobal = GetGlobalPosition(pMatrix);  
gTop->AddNode(target_top, 0, pGlobal);
```

We will also put the changes to the repository, including modifications for ROOT 6 support.

Best regards,
Dima

Subject: Re: Problem with including targets in simulation
Posted by [Dmytro Kresan](#) on Wed, 18 Nov 2015 13:35:13 GMT
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Hi,

fixes to geometry macros for target are now in dev branch of main R3BRoot repository. The *.geo.root files have been also updated.
Please test it and write back in case the crash still happens.

Best regards,
Dima
