

Running Analysis

Tuesday, July 28

1

1st R3BRoot Development Workshop
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GSI, Darmstadt



Configuration script

- Every time new shell is opened

```
cd BUILD_DIR
```

```
./config.sh
```

```
cd SOURCE_DIR/macro/r3b/unpack/tof
```



Execute analysis macro

```
root -l
```

```
[.] .L run_s438b_lmd_beam.C
```

```
[.] run("run301")
```

```
...
```

```
[.] .q
```



```
// number of events to read, -1 - untill CTRL+C
const Int_t nev = -1;
// 1 - onspill, 2 - offspill. -1 - all
const Int_t trigger = 1;
// directory with lmd files
TString inDir = "/Volumes/Data/kresan/s438b/lmd/";

// name of output file
TString outputFileName = runNumber + "_raw.root";
// name of parameter file
TString parFileName = "params_" + runNumber + "_raw.root";
```



- Create data source with event-header unpacker

```
FairLmdSource* source = new FairLmdSource();  
source->AddPath(inDir, runNumber+"*");
```

```
R3BEventHeaderUnpack *event_unpack = new R3BEventHeaderUnpack();  
source->AddUnpacker(event_unpack);
```



- Add detector unpacker

```
// NeuLAND MBS parameters -----  
Short_t type = 94;  
Short_t subType = 9400;  
Short_t procId = 12;  
Short_t subCrate = 0;  
Short_t control = 3;  
source->AddUnpacker(new R3BLandUnpack("", type, subType,  
                                     procId, subCrate, control));  
// -----
```



- Create steering class

```
FairRunOnline* run = new FairRunOnline(source);  
run->SetOutputFile(outputFileName.Data());
```



- Create and set magnetic field

```
// Create ALADIN field map -----  
R3BAladinFieldMap* magField = new R3BAladinFieldMap("AladinMaps");  
Double_t fMeasCurrent = 2500.; // I_current [A]  
magField->SetCurrent(fMeasCurrent);  
magField->SetScale(1.);  
run->SetField(magField);  
// -----
```




- At this stage user-defined analysis tasks are plugged in



- Initialize

```
run->Init();
```



- Runtime database

```
FairRuntimeDb* rtdb = run->GetRuntimeDb();  
R3BFieldPar* fieldPar = (R3BFieldPar*)rtdb->getContainer("R3BFieldPar");  
fieldPar->SetParameters(magField);  
fieldPar->setChanged();  
Bool_t kParameterMerged = kTRUE;  
FairParRootFileIo* parOut = new FairParRootFileIo(kParameterMerged);  
parOut->open(parFileName);  
rtdb->setOutput(parOut);  
rtdb->print();
```



- Execute event loop and save parameter containers

```
run->Run(nev, 0);  
rtdb->saveOutput();
```



TOF MBS parameters

R3BTofUnpack

Type = 88

Sub-type = 8800

ProcID = 12

Sub-crate = 2

Control = 9