
Subject: Re: Access to MC information after the digitization stage
Posted by [Dominik Steinschaden](#) on Tue, 11 Aug 2015 14:07:00 GMT
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Attached you find an macro using the PandaRoot classes to manage the data and using the FairLinks to go through the different data stages.

```
using std::cout;
using std::endl;
```

```
void link_basic_2(){
```

```
    // Set your inpute files here
```

```
    TString simFile = "data_sim/sim_s_gc_G4_6.root";
    TString parFile = "data_sim/sim_s_gc_G4_6_params.root";
    TString digiFile = "data_digi/digi_s_gc_G4_6_1000.root";
    TString outFile = "output.root";
```

```
    int Ev_start = 24;
    int Ev_end = 61;    // take 0 for all events
```

```
    TStopwatch timer;
    timer.Start();
```

```
    // ----- Initialize Run manager -----
```

```
    FairRunAna *fRun= new FairRunAna();
    fRun->SetInputFile(digiFile);
    fRun->AddFriend(simFile);
    fRun->SetOutputFile(outFile);
    fRun->SetUseFairLinks(kTRUE);
```

```
    // ----- Parameter database -----
```

```
    TString allDigiFile = gSystem->Getenv("VMCWORKDIR");
    allDigiFile += "/macro/params/all.par";
```

```
    FairRuntimeDb* rtdb = fRun->GetRuntimeDb();
    FairParRootFileIo* parInput1 = new FairParRootFileIo();
    parInput1->open(parFile.Data());
```

```
    FairParAsciiFileIo* parIo1 = new FairParAsciiFileIo();
    parIo1->open(allDigiFile.Data(),"in");
    rtdb->setFirstInput(parInput1);
    rtdb->setSecondInput(parIo1);
```

```
    fRun->Init();
```

```
    // ----- Initialize Used Variables and Branches -----
```

```
    FairRootManager* ioman = FairRootManager::Instance();
```

```

TClonesArray* mcTrackArray = (TClonesArray*)ioman->GetObject("MCTrack"); // if not
"initialized" here it may produces error at the first access
TClonesArray* scitPointArray = (TClonesArray*)ioman->GetObject("SciTPoint");
TClonesArray* scitHitArray = (TClonesArray*)ioman->GetObject("SciTHit");
PndMCTrack* mcTrack = NULL;
PndSciTPoint* scitPoint = NULL;
PndSciTHit* scitHit = NULL;
FairMultiLinkedData mcLink, pointLink;

if (Ev_end == 0) Ev_end = Int_t((ioman->GetInChain()->GetEntries()-1);
for (int i_Event=Ev_start; i_Event <= Ev_end; i_Event++) { // ----- Loop over digitized events
-----

    ioman->ReadEvent(i_Event);

    for (Int_t i_Array=0; i_Array < scitHitArray->GetEntries() ;i_Array++){ //----- loop over array
entries
        scitHit = (PndSciTHit*) scitHitArray->At(i_Array);

// ----- do some stuff with the SciTHit data here -----

        pointLink = scitHit->GetLinksWithType(ioman->GetBranchId("SciTPoint")); // --- get all links
to the wanted Branch.
        //mcLink = scitHit->GetLinksWithType(ioman->GetBranchId("MCTrack")); //You can also
get direct Access to "MCTrack"
        scitPoint = (PndSciTPoint* ) ioman->GetCloneOfLinkData(pointLink.GetLink(0)); // -- load
the Data of the chosen Link

// ----- do some stuff with the SciTPoint data here -----

        mcLink = scitPoint->GetLinksWithType(ioman->GetBranchId("MCTrack")); // you can also
use the Links of the linked file.
        mcTrack = (PndMCTrack * ) ioman->GetCloneOfLinkData(mcLink.GetLink(0));

// ----- do stuff with the McTrack data -----

    }
} //----- end of event loop

timer.Stop();
Double_t rtime = timer.RealTime();
Double_t ctime = timer.CpuTime();
cout << endl << endl;
cout << "Macro finished succesfully." << endl;
cout << "Output file is " << outFile << endl;
cout << "Parameter file is " << parFile << endl;
cout << "Real time " << rtime << " s, CPU time " << ctime << " s" << endl;
cout << endl;
// -----

}

```

File Attachments

1) [link_basic_2.C](#), downloaded 445 times
