



Segundo Taller de Cómputo de la Colaboración MexNICA

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Outline

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PROOF - The Parallel ROOT Facility

PROOF is an extension of ROOT, that enables the interactive analysis of large sets of ROOT files in parallel on groups of computers or multi-processor machines. It can parallelize tasks that can be formulated as a set of independent sub-tasks.

The description of how to use it is:

<http://mpd.jinr.ru/proof-parallelization/>

```
iamaldonado@supernova: ~  
iamaldonado@supernova: ~/Software/Taller2/reconstruccion/recoc$ root reco.C  
-----  
| Welcome to ROOT 6.16/00                               https://root.cern |  
| (c) 1995-2018, The ROOT Team                           |  
| Built for linuxx8664gcc on Feb 24 2020, 16:53:00        |  
| From tags/v6-16-00@v6-16-00                            |  
| Try '.help', '.demo', '.license', '.credits', '.quit'/'.'q' |  
-----  
  
root [0]  
Processing reco.C...  
[INFO] ++++++ T P R O O F ++++++  
[INFO] creating TProof* proof = TProof::Open("");  
+++ Starting PROOF-Lite with 8 workers +++  
Opening connections to workers: OK (8 workers)  
Setting up worker servers: OK (8 workers)  
PROOF set to parallel mode (8 workers)  
[INFO] ++++++ C R E A T E D ++++++  
[WARN] FairRun::SetOutputFile() deprecated. Use FairRootFileSink.  
[INFO] The input consists out of the following trees and files:  
[INFO] - mpdsim  
[INFO] - evetest.root  
[WARN] QUITTING, CAUSE IT'S not running on proof worker  
[INFO] outputFileName = mpdst.root  
[INFO] FairRunAnaProof::RunOnProof(): The chain seems to have 20 entries.  
[INFO] FairRunAnaProof::RunOnProof(): There are 1 files in the chain.  
[INFO] FairRunAnaProof::RunOnProof(): Starting inChain->Process("FairAnaSelector","",20,0)  
Error in <TStreamerInfo::Build>: MpdTpcDigitizerAZ: TpcGas* has no streamer or dictionary, data member fGas will not be saved  
Error in <TStreamerInfo::Build>: MpdTpcDigitizerAZ: DigOrigArray*** has no streamer or dictionary, data member fDigits4dArray will not be saved  
Error in <TStreamerInfo::Build>: MpdTpcDigitizerAZ, discarding: const int* fNumOfPadsInRow, no [dimension]
```

Ejemplos de comandos viejos, usados para ALICE son:

```
TString proofCluster="mpd@nc10.jinr.ru"
```

```
TProof *p = TProof::Open(proofCluster.Data());
```

```
p->ShowPackages();
```

```
gROOT->LoadMacro("MyAnalysisMacro.C");
```

```
MyAnalysisMacro(dataset.Data(),useMC,nEvents,nEventsSkip,format);
```

MPD-Scheduler

Si se tienen tareas que requieren mucho tiempo, muchas tareas simples o gran cantidad de archivos para procesar, se puede usar el sistema por lotes **MPD-Scheduler** es un módulo de mpdroot para distribuir los trabajos en el cluster y simplificar la ejecución. Los trabajos se corren con **mpd-scheduler** y son archivos xml.

La descripción más detallada, la pueden encontrar en:

<http://mpd.jinr.ru/batch-processing/>

En un directorio, copiar los archivos: test.f14 y los requeridos para ejecutar los macros runMC.C y reco.C

Y copiar los macros *.xml

```
cp ~/Software/mpdroot/macro/mpd_scheduler/examples/mpd_runMC_local.xml  
cp ~/Software/mpdroot/macro/mpd_scheduler/examples/mpd_reco_local.xml  
cp ~/Software/mpdroot/macro/mpd_scheduler/examples/mpd_reco_2_parallel_loc
```

y modificamos los archivos con el nombre de entrada y salida y loc ofrremos con:

```
mpd-schedule mpd_runMC_local.xml
```

Facilidades en NICA

- ▶ Acceder al cluster del JINR

<https://webncx.jinr.ru/>

- ▶ Información

https://indico.jinr.ru/event/1368/contributions/9470/attachments/7397/10484/MPD_MC_Seminar_VRiabov.pdf

- ▶ Foro <https://mpdforum.jinr.ru/c/MCPrd>

Generación, Simulación, Reconstrucción y análisis

- ▶ Acceso al cluster

```
ssh -Y ivonne_alicia@xook.nucleares.unam.mx
```

- ▶ Generación y simulación

```
cd /storage/mexnica/ivonne/tutorial
```

- ▶ Análisis

```
cd /storage/mexnica/ivonne/Taller2
```