

Proof/Proof-on-Demand at Atlas T3

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Using Proof at BNL T3

Wiki: <http://www.usatlas.bnl.gov/twiki/bin/view/AtlasSoftware/ProofAtBNL.html>

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xAOD on Proof (1)

- RootCore provides package uploading for Proof
- EventLoop provides job driver for running on Proof

Tested on ProofLite, but not well tested on Proof farm.

In fact, it would fail because RootCore env (esp. `LD_LIBRARY_PATH`) must be set up prior to `proofserv.exe` job (similar to local `root.exe`).

And change of `LD_LIBRARY_PATH` inside ROOT is insufficient

Solution for Running xAOD on Proof

Proof does provide parameter “**PROOF_INITCMD**” to enable env setup prior to starting proofserv.exe.

```
const char* workDir(gSystem->WorkingDirectory());  
TProof::AddEnvVar("PROOF_INITCMD",  
    TString::Format("echo source %s/rcSetup.sh """, workDir) );
```

And the latest rcSetup provides a way to set up previous ASG env with simple command “**source \$yourWorkDir/rcSetup.sh**”

Limitation on Current Solution of Running xAOD on Proof

Current solution **requires Proof workers to see the client work directory** (in order to make PROOF_INITCMD work) because:

- The directory under which PROOF_INITCMD is execute is not same as the work directory of proofserv.exe job on Proof workers
- RootCore.par can ONLY be uploaded AFTER proofserv.exe is started

Proof-on-Demand

◆ Advantages

- No dedicated Proof farm/server required
- Dynamic generating Proof workers on demand
- Automatic setup of identical ROOT version

◆ Disadvantages

- No dedicated xrootd storage behind, hence not read from local disk

Running PoD at BNL T3 Condor (1)

① Step-1: Setup of the env

cvmfs-setupATLAS

localSetupROOT yourROOTVersion

localSetupPoD

② Step-2: site-specific configuration

~/.PoD/ will be generated from “localSetupPoD”

In **~/.Pod/Pod.cfg**, change the line of "options_file=" under [condor_plugin] section to

options_file=\$HOME/.PoD/etc/Job.condor.option

Then you need put your own condor description there

Running PoD at BNL T3 Condor (2)

③ Step-3: Start PoD server

```
pod-server start
```

```
pod-submit -r condor -n 3
```

```
pod-info -l # check status of requested PoD workers
```

④ Step-4: connect to PoD workers

```
root [] TProof *p = TProof::Open("pod://")
```

Note: it crashes when click on “memory plot” button on PROOF query progress window.

⑤ Step-5: Stop PoD server

```
pod-server stop
```

Otherwise it still terminates automatically after 5-minute idle time.

xAOD on Proof-on-Demand

- Currently does not work
- Still work on it

Using FAX on Proof (1)

- clist file in the following format can be generated by fax-ls (which will look up the closest FAX redirector among sites holding that dataset)

```
#data12_8TeV.00214777.physics_Muons.merge.NTUP_2LHSG2.f489_m1261_p1320_p1315_p1344_p1345_tid01159640_00  
root://dcdoor11.usatlas.bnl.gov:1094//atlas/rucio/data12_8TeV:NTUP_2LHSG2.01159640_000001.root.1  
root://dcdoor11.usatlas.bnl.gov:1094//atlas/rucio/data12_8TeV:NTUP_2LHSG2.01159640_000002.root.1
```

The clist file can be used in ROOT:

```
TFileCollection fc("fc","list of input root files",inputList);  
TChain chain("physics"); // physics is tree name  
chain.AddFileInfoList(fc.GetList());
```

Using FAX on Proof (2)

- The required xrdSec env can be also set up via PROOF_INITCMD
- It requires authentication of VO-atlas: but it is difficult to run “[voms-proxy-init](#)” and [enter password](#) on each Proof machines.

Summary & Future Work

- ✓ In principle, xAOD job can be run on Proof though a better (universal) solution is expected
- ✓ Proof-on-Demand can be run for T3 sites without dedicated Proof farm
- ✓ FAX can be accessed on Proof

We need resolve the following:

- ❖ xAOD on Proof-on-Demand
- ❖ Convenient authentication for FAX access on Proof