

Introduction to running interactive analysis on stoomboot

- ✓ Your workstation is equipped with a desktop running Scientific Linux 7 as OS
- ✓ Once you connect with your username and passwd you access your local filesystem
- ✓ Upon request, bash is the selected shell
 - 👁 Check it yourself by opening a new terminal
- ✓ You can access from your machines
 - 👁 Other desktops of the group
 - ☐ mole, hamme, blavet, inn, jaba, todd, nass
 - 👁 The interactive nodes of stoomboot
 - ☐ stbc-i1, stbc-i2, stbc-i4, stbc-i5, stbc-i6
 - 👁 The batch nodes of stoomboot (not directly)

Check if all machines are responding and report back in case of problems!!!

If the non-responsive machine is sitting on your desk...please switch it on ;-)

- ✓ You have limited storage space in your local disk (~1GB)
 - 👁 Do not store large files (e.g. AOD) at \$HOME!!!

- ✓ Instead you can store files at
 - 👁 `/project/alice/users/<YourUserName>`
 - ☐ Note that you have to create the directory yourselves
 - 👁 `/dcache/alice/<YourUserName>`
 - ☐ Note that you have to request the creation of a directory from the CT (stbc-admin@nikhef.nl) with CC to me

- ✓ Proposed strategy:
 - 👁 Keep small files (e.g. pdf of articles, txt files) @ your \$HOME directory
 - 👁 Keep your macros, small results in root files etc @ `/project/alice/users/<YourUserName>`
 - 👁 Keep your large files that do not need to be changed (e.g. AOD) @ `/dcache/alice/<YourUserName>`

- ✓ Do not try to setup a working (Alice) environment at the login server → it will not work!!!
 - 👁 Different OS installed not compatible with our scripts
 - 👁 This server is used as a bridge to access machines attached to the Nikhef domain when connecting from outside the domain

- ✓ /project and its subdirectories can be accessed from any machine (i.e. desktops and stbc nodes)

- ✓ /dcache and its subdirectories can only be accessed from the stoomboot nodes
 - 👁 Both the interactive and the batch ones



- ✓ The group has a large disk space allocated under /dcache/alice
 - 👁 300TB
 - 👁 Used to store very large files that remain unchanged

- ✓ The filesystem is very efficient in handling large files but does not allow (it was not meant to, to start with) to append information into a file
 - 👁 Read-only access e.g. if you store a macro, open it and change it, you won't be able to save it

- ✓ What is being stored @ dcache?
 - 👁 Centrally stored data samples
 - ☐ raw data → AOD
 - ☐ MC → AOD or/and Kinematics
 - 👁 Large output of analysis that is meant only to be read and not rewritten

✓ Raw data (AOD)

👁 The biggest part of the LHC10h sample (Pb-Pb @ 2.76TeV 2010 run)

☐ ~10M events (min.bias)

👁 Few runs of the LHC11h sample (Pb-Pb @ 2.76TeV 2011 run)

☐ ~1M events (triggered)

👁 The low intensity LHC15o sample (Pb-Pb @ 5.02TeV 2015 run)

☐ ~3M events (min. bias)

Send me a mail or pass by if you need something else to be copied!!!

✓ MC productions

- 👁 Pythia8 w/ and w/o CR under /dcache/alice/panosch/sim/2011/LHC11a/CR and /dcache/alice/panosch/sim/2011/LHC11a/NoCR
- 👁 AMPT with string melting option under /dcache/alice/panosch/sim/2015/LHC15o/AMPT/StringMelting
- 👁 HIJING w/ and w/o quenching under /dcache/alice/panosch/sim/2015/LHC15o/HIJING/Quenching/MB and /dcache/alice/panosch/sim/2015/LHC15o/HIJING/NoQuenching/MB
- 👁 Pythia8 Monash2013 (one run) under /dcache/alice/panosch/sim/2017/LHC17e2/

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- ✓ Stoomboot is the name of the local Nikhef cluster
- ✓ It is the local batch computing facility at Nikhef
- ✓ accessible for users from scientific groups to perform
 - 🌀 data analysis
 - 🌀 Monte Carlo calculations/simulations
- ✓ The Stoomboot facility consists of
 - 🌀 3 interactive nodes and
 - 🌀 a batch cluster with 93 nodes with 8 cores each,
- ✓ The cluster is running on Scientific Linux CERN 6 as operating system



- ✓ Login to stbc-i1 (or i2 or i4)
- ✓ Check which AliPhysics versions are available

```
VO_ALICE@AliPhysics::vAN-20170902-1
VO_ALICE@AliPhysics::vAN-20170903-1
VO_ALICE@AliPhysics::vAN-20170904-1
VO_ALICE@AliPhysics::vAN-20170905-1
VO_ALICE@AliPhysics::vAN-20170906-1
VO_ALICE@AliPhysics::vAN-20170907-1
VO_ALICE@AliPhysics::vAN-20170908-1
VO_ALICE@AliPhysics::vAN-20170909-1
VO_ALICE@AliPhysics::vAN-20170910-1
VO_ALICE@AliPhysics::vAN-20170911-1
VO_ALICE@AliPhysics::vAN-20170912-1
VO_ALICE@AliPhysics::vAN-20170913-1
VO_ALICE@AliPhysics::vAN-20170914-1
VO_ALICE@AliPhysics::vAN-20170915-1
VO_ALICE@AliPhysics::vAN-20170916-1
VO_ALICE@AliPhysics::vAN-20170917-1
VO_ALICE@AliPhysics::vAN-20170918-1
VO_ALICE@AliPhysics::vAN-20170919-1
VO_ALICE@AliPhysics::vAN-20170920-1
VO_ALICE@AliPhysics::vAN-20170921-1
VO_ALICE@AliPhysics::vAN-20170922-1
VO_ALICE@AliPhysics::vAN-20170923-1
VO_ALICE@AliPhysics::vAN-20170924-1
VO_ALICE@AliPhysics::vAN-20170925-1
bash|stbc-i1: alienv q | grep AliPhysics
```

Use this command to query which version is available on cvmfs

- ✓ Setup your AliPhysics environment

```
bash|stbc-i1> alienv enter VO_ALICE@AliPhysics::vAN-20170923-1
[AliPhysics/vAN-20170923-1] pchrist >
```

Replace the AliPhysics version chosen here with the one you need

- ✓ Ultimately you will be using the run and AddTask macros that Davide provided in his tutorial

- ✓ Before doing so...
 - 🌀 You need to create a TChain of
 - ❑ AliAOD.root files in case you want to analyse raw data or the output of the reconstruction of MC
 - ❑ galice.root in case you want to analyse the generated part of a MC production

 - 🌀 The analysis can even work even on a single file (AliAOD.root or galice.root)

✓ How to create a chain of AliAOD.root files

```
[AliPhysics/vAN-20170925-1] pass2_lowIR > pwd
/dcache/alice/panosch/alice/data/2015/LHC15o/000244917/pass2_lowIR
[AliPhysics/vAN-20170925-1] pass2_lowIR > aliroot
*****
*
*      W E L C O M E  to  R O O T      *
*
*   Version   5.34/30      23 April 2015   *
*
*   You are welcome to visit our Web site *
*      http://root.cern.ch                *
*
*****

ROOT 5.34/30 (heads/v5-34-00-patches@v5-34-28-57-gec27989, Aug 14 2017, 15:22:00 on linuxx8
664gcc)

CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0] TChain *c = new TChain("aodTree")
root [1] c->Add("15000244917022.100/AliAOD.root")
(Int_t)1
root [2] c->Add("15000244917022.101/AliAOD.root")
(Int_t)1
root [3] c->Add("15000244917022.102/AliAOD.root")
(Int_t)1
root [4] c->GetEntries()
(const Long64_t)389
root [5]
```

✓ This can be easily done with a simple for loop of course inside your run macro

✓ How to create a chain of galice.root files

```
[AliPhysics/vAN-20170925-1] 244340 >
[AliPhysics/vAN-20170925-1] 244340 > pwd
/dcache/alice/panosch/alice/sim/2017/LHC17e2/244340
[AliPhysics/vAN-20170925-1] 244340 > aliroot
*****
*
*           W E L C O M E  to  R O O T           *
*
*   Version   5.34/30      23 April 2015      *
*
*   You are welcome to visit our Web site *
*           http://root.cern.ch             *
*
*****

ROOT 5.34/30 (heads/v5-34-00-patches@v5-34-28-57-gec27989, Aug 14 2017, 15:22:00 on linuxx86_64gcc)

CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0] TChain *c = new TChain("TE")
root [1] c->Add("045/galice.root")
(Int_t)1
root [2] c->Add("046/galice.root")
(Int_t)1
root [3] c->Add("047/galice.root")
(Int_t)1
root [4] c->GetEntries()
dlopen error: /cvmfs/alice.cern.ch/x86_64-2.6-gnu-4.1.2/Packages/AliRoot/v5-09-16-1/lib/libAliPythia6.so: undefined symbol: pyqpar_
Load Error: Failed to load Dynamic link library /cvmfs/alice.cern.ch/x86_64-2.6-gnu-4.1.2/Packages/AliRoot/v5-09-16-1/lib/libAliPythia6.so
E-TCint::AutoLoad: failure loading library libAliPythia6 for class AliGenPythiaPlus
W-TClass::TClass: no dictionary for class AliGenPythiaPlus is available
(const Long64_t)1200
root [5]
```

✓ Again, this can be easily done with a simple for loop of course inside your run macro

