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CCNU LHCb farm 2

Computers

The computers for LHCb are `comput19-23`. CVMFS is installed on these machines.

The `comput19` is used as interactive jobs, and others are for batch jobs, though this rule is not strict.

Softwares

LHCb environment

Same as in CCNULHCbFarm

```
source /cvmfs/lhcb.cern.ch/etc/login.sh
```

ROOT

Recommended

The simplest way to set up root is by running

```
source /public/home/lhcb/setups/setup_latest_root.sh
```

It will set up the latest version of ROOT from LCG on CVMFS. ***Do not copy*** it to your directory, because it's keep updating. Instead you can make a soft link to your favorite location, for example:

```
ln -s /public/home/lhcb/setups/setup_latest_root.sh ~/
```

The printout information may break your `scp` or `rsync` command if you setup root in your `.bashrc`. You can setup it this way in your `.bashrc`

```
if [[ $- == *i* ]] && [ "$HOSTNAME" = "comput19" ]; then
    source ~/setups/latest_root.sh
fi
```

Alternative

One can also set up a different version in a similar way. For example, if one needs 6.18.00 with python 2, this command will do it:

```
source
/cvmfs/sft.cern.ch/lcg/releases/LCG_96/ROOT/6.18.00/x86_64-centos7-gcc8-opt/ROOT-env.sh
```

aspell

aspell is installed on `comput19` and `comput23`

hep_ml

Use this script to setup the `hep_ml` in `LCG_100 (x86_64-centos7-gcc9-opt)` environment: `source ~/lhcb/setups/setup_hep_ml.sh`

Geant4

Latex

Simply do

```
source /home/lhcb/setups/setup_latex.sh
```

See CCNULHCbFarm#Latex for more.

Other handy commands

slideshow

```
source /home/lhcb/setups/setup_latex.sh
source /public/home/lhcb/scripts/scripts_collection/setup.sh
```

and you will have a command `slides_report` available

slurm jobs

An example script for batch job submission can be found in the attachment and this command could be used to submit jobs:

```
sbatch test_job.sh
```

Note that the options are given inside the script.

Useful webpages [farm_slurm_commands](#) [Slurm Tutorial](#)

Example: run a 60 core job

```
srun -p high -N 1 -c 60 --mem-per-cpu=1G ./y_simultaneous_fit.py
```

- `-p high` specifies the batch system to use. `high` is the name of our batch system
- `-N 1` means we want to run the job on one computer (node)
- `-c 60` means we need 60 cpu
- `--mem-per-cpu=1G` means we need 1G memory for each cpu
- `./y_simultaneous_fit.py` is the script I want to run, which uses `TProof` to run 60 threads for toy MC studies.

I can use the `sacct` and `squeue` to check the status of the job in another session.

Example: run Gauss production

Problems and solutions

Auto logout from comput19

comput19 is configured to auto-logout inactive users by setting `TMOUT=3600`. One can keep some jobs running in screen by setting `TMOUT=` there. (`TMOUT` variable is read-only in the login session but could be overwritten inside a screen session). One can also put these lines inside `.bashrc` to overwrite the variable automatically in any screen sessions:

```
if [ "$STY" != "" ]; then ## check if this is a screen session
    export TMOUT=
fi
```

CVMFS Input/output error

Error messages like this:

```
-bash: /cvmfs/sft.cern.ch/lcg/releases/LCG_101/ROOT/6.24.06/x86_64-centos7-gcc11-opt/ROOT-env.sh:
```

This is related to the CVMFS system. One can check the information in `/cvmfs/sft.cern.ch/lcg/lastUpdate` to find the latest update. Report these information to the administrator.

Usually a reboot of the computer will solve the problem. Other possible causes include: network issue, mis-configuration of the cvmfs...

Direct-access farm2 from hepfarm

We could use `sshfs` to mount part of the space in farm2 to hepfarm. This is not in place yet. We will only do this if it's considered useful.

1. mount/unmount need root permission
2. Need to set up a file to map the users
3. If we want to set up this, we could use the `lhcb` account and just mount a subdirectory in its home

User's best practices

Leave your suggestions here...

PID resampling

Links

CcnuTeaching CCNULHCbFarm

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