

Few Things to know to submit to CNAF queues

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Start up

- Use a notebook, 01 and 02 are both fine (you could setup everything locally, but why if everything is setup here?)
- Image to use at entrance 2.5

Server Options

Select your desired image:

Select your desired memory size:

GPU:

Start

- Check you are connected to queues with `cygno_htc` command

```
(base) dho@notebook:/private# cygno_htc -h
Usage:
-t/-c --tier1/--cloud, configure/switch between htc@tier1 and htc@cloud
-s --submit, submit a job: -s <subfilename> <ceid> [only for tier1 ceid=1-7 default ce02]
-f --transfer, transfer files: -f <jobid> <ceid> [only for tier1 ceid=1-7 default ce02]
-r --remove, remove jobs: -r <jobid> <ceid> [only for tier1 ceid=1-7 default ce02]
-q --monitor, monitor jobs: -q <ceid> [only for tier1 ceid=1-7 default ce02]
-m --myjobs, monitor my jobs (dho): -m <ceid> [only for tier1 ceid=1-7 default ce02]
-j --jobs, monitor all jobs: -j <ceid> [only for tier1 ceid=1-7 default ce02]
-h --help, show this help
(base) dho@notebook:/private#
```

```
(base) dho@notebook:/private# cygno_htc -q 3
htc@tier1
```

```
-- Schedd: ce03-htc.cr.cnaf.infn.it : <131.154.192.51:9619?... @ 07/21/25 13:05:18
OWNER  BATCH_NAME          SUBMITTED   DONE    RUN    IDLE  TOTAL JOB_IDS
cygno003 mytest_reco13487 7/12 10:44   -      -      -      1 2677747.0
cygno003 mytest_reco13489 7/12 10:44   -      -      -      1 2677748.0
cygno003 mytest_reco13490 7/12 10:45   -      -      -      1 2677749.0
cygno003 mytest_reco13492 7/12 10:45   -      -      -      1 2677757.0
cygno003 mytest_reco13493 7/12 10:46   -      -      -      1 2677758.0
cygno003 mytest_reco13703 7/16 11:35   -      -      -      1 2698969.0
cygno003 mytest_reco13706 7/16 11:35   -      -      -      1 2698970.0
cygno003 mytest_reco13707 7/16 11:35   -      -      -      1 2698971.0
cygno003 mytest_reco13709 7/16 11:35   -      -      -      1 2698972.0
cygno003 mytest_reco13710 7/16 11:35   -      -      -      1 2698973.0
cygno003 mytest_reco13704 7/16 11:36   -      -      -      1 2698974.0
cygno003 mytest_reco13701 7/16 11:36   -      -      -      1 2698977.0
```

```
Total for query: 12 jobs; 12 completed, 0 removed, 0 idle, 0 running, 0 held, 0 suspended
Total for cygno003: 12 jobs; 12 completed, 0 removed, 0 idle, 0 running, 0 held, 0 suspended
Total for all users: 7927 jobs; 2246 completed, 0 removed, 573 idle, 5107 running, 1 held, 0 suspended
```

First time Set up

- Create a folder you will launch the jobs command from. I chose *Run_launch_folder* you can do whatever you like
- Create another one inside *Run_launch_folder*. I called it *submaker* you can do as you want
- Copy in *submaker* the content of the template folder in cvmfs as: (you will use these template to submit jobs)

```
cp /cvmfs/sft-cygn0.infn.it/config/templates/subber.sh submaker/
```

```
(base) dho@notebook:/private/Run_launch_folder# cp /cvmfs/sft-cygn0.infn.it/config/templates/* submaker/  
(base) dho@notebook:/private/Run_launch_folder# ls submaker/  
cyclesubber.sh  subber.sh  subber_digi.sh
```

- Also add to bashrc bin folder in cvmfs as: (you will use these template to delete multiple jobs)

```
export PATH=$PATH:/cvmfs/sft-cygn0.infn.it/config/bin/
```

Have your code ready

- Somewhere outside *Run_launch_folder* have your code ready and tested:

1. Python code: have the first line of your main file to be
(not mandatory possibly make it an executable with `chmod +x <file>`)

```
1 #!/usr/bin/env python3
2
```
2. C++ code: have it already compiled properly with compilation made on notebook
3. On a different terminal*, run a simple example on the notebook to be sure the code runs.
On the queue, there is the same image as in the notebook after is `cygno_setup` typed
4. Clean up your code directory if you plan on sending it. Unnecessary files should be removed or not sent.
There is a limit of upload to the queue.
5. If you have big input files (>10-100 MB) you should store this files into the cnaf-storage and add to your code a retrieve of the file via `wget` for example

*The codes to send jobs are not fully working in the `cygno_setup` environment

Prepare subber.sh

- Subber.sh is template for all python code: reconstruction for example

Variables useful for names and code. For reco we would like to get the Run as input

To use the date as a parameter

```
1 #!/bin/bash
2 #RUN=26178
3 RUN=$1
4 WHEN=$RUN #$(date +%F_%H-%M-%S) # field to personalize for output files/folder; it could be the run number, etc
5 ##### user configuration parameters #####
6 # HTCondor config
7 export BATCHNAME="mytest_reco${WHEN}"
8 export CE=3
9 export IMAGE="/cvmfs/sft-cygn0.infn.it/dockers/images/cygn0-wn_v2.4.sif" # "docker://gmazzitelli/cygn0-wn:v2.4"
10 export CPUs=4
11
12 # Experiment executable config
13 export EXECUTEPATH="/jupyter-workspace/private/reco_cloud"
14 export EXECUTE="reconstruction.py"
15 export ARGUMENTS="configFile_MANGO.txt -r ${RUN} -j${CPUs} --git 96c209647473ef7273012cbbb2338266216c4123"
16
17 #export OTHERPATH=$EXECUTEPATH
18
19 # use OTHERFILE to pass other file/folder other than executable file.
20 #
21 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/.gitignore, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
22 submit_reco.py, ${OTHERPATH}/profiling.py, ${OTHERPATH}/energyCalibrator.py, ${OTHERPATH}/treeVars.py, ${OTHERPATH}/debug_code, ${OTHERPATH}/calibration.txt, ${OTHERPATH}/After_reco, ${OTHERPATH}/snakes.py, ${OTHERPATH}/configFile_MC.txt,
23 ${OTHERPATH}/morphsnakes.py, ${OTHERPATH}/corrections, ${OTHERPATH}/cython_cygn0.pyx, ${OTHERPATH}/cythonize.sh, ${OTHERPATH}/modules_config, ${OTHERPATH}/exec_reco.sh, ${OTHERPATH}/scripts, ${OTHERPATH}/plotter, ${OTHERPATH}/
24 clusterTools.py, ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt,
25 ${OTHERPATH}/mva, ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.C"
26 #
27 export OTHERFILE=$EXECUTEPATH/
28 #
29 # files to upload on s3 when done ("a.txt" "b.sh" "c.dat")
30 #
31 declare -a FILENAMES=("reco_run${RUN}_3D.root" "reco_run${RUN}_3D.txt") # list of file to be upload on exit
32 export ENDPOINT_URL='https://s3.cr.cnaif.infn.it:7480/' # storage end point
33 export BACKET=cygn0-analysis # or cygn0-sim (no ending slash!)
34 export TAG=users/Dho # ex RECO/Winter23-patch2-ReReco (no ending slash!)
35
36 ##### do not tuch the following code #####
37 chmod +x ${EXECUTEPATH}/${EXECUTE}
38 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/lib/subcreator.sh
39 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/cygn0_htc -s $CONFOUTPATH/sub $CE
```

Prepare subber.sh

- Subber.sh is template for all python code: reconstruction for example

```
1 #!/bin/bash
2 #RUN=26178
3 RUN=$1
4 WHEN=$RUN #$(date +%F_%H-%M-%S) # field to personalize for output files/folder, it could be the run number, etc
5 ##### user configuration parameters #####
6 # HTCondor config
7 export BATCHNAME="mytest_reco${WHEN}"
8 export CE=3
9 export IMAGE="/cvmfs/sft-cygno.infn.it/dockers/images/cygno-wn_v2.4.sif" # "docker://gmazzitelli/cygno-wn:v2.4"
10 export CPUs=4
11
12 # Experiment executable config
13 export EXECUTEPATH="/jupyter-workspace/private/reco_cloud"
14 export EXECUTE="reconstruction.py"
15 export ARGUMENTS="configFile_MANGO.txt -r ${RUN} -j${CPUs} --git 96c209647473ef7273012cbbb2338266216c4123"
16
17 #export OTHERPATH=$EXECUTEPATH
18
19 # use OTHERFILE to pass other file/folder other than executable file.
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21 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
22 submit_reco.py, ${OTHERPATH}/profiling.py, ${OTHERPATH}/energyCalibrator.py, ${OTHERPATH}/treeVars.py, ${OTHERPATH}/debug_code, ${OTHERPATH}/calibration.txt, ${OTHERPATH}/After_reco, ${OTHERPATH}/snakes.py, ${OTHERPATH}/configFile_MC.txt,
23 ${OTHERPATH}/morphsnakes.py, ${OTHERPATH}/corrections, ${OTHERPATH}/cython_cygno.pyx, ${OTHERPATH}/cythonize.sh, ${OTHERPATH}/modules_config, ${OTHERPATH}/exec_reco.sh, ${OTHERPATH}/scripts, ${OTHERPATH}/plotter, ${OTHERPATH}/
24 clusterTools.py, ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt,
25 ${OTHERPATH}/mva, ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.c"
26 #
27 export OTHERFILE=$EXECUTEPATH/
28
29 #
30 # files to upload on s3 when done ("a.txt" "b.sh" "c.dat")
31 #
32 declare -a FILENAMES=("reco_run${RUN}_3D.root" "reco_run${RUN}_3D.txt") # list of file to be upload on exit
33 export ENDPOINT_URL='https://s3.cr.cnaif.infn.it:7480/' # storage end point
34 export BACKET=cygno-analysis # or cygno-sim (no ending slash!)
35 export TAG=users/Dho # ex RECO/Winter23-patch2-ReReco (no ending slash!)
36
37 ##### do not tuch the following code #####
38 chmod +x ${EXECUTEPATH}/${EXECUTE}
39 source $CVMFS_PARENT_DIR/cvmfs/sft-cygno.infn.it/config/lib/subcreator.sh
40 source $CVMFS_PARENT_DIR/cvmfs/sft-cygno.infn.it/config/cygno_htc -s $CONFOUTPATH/sub $CE
```

Name of the job (you will see this in the queue)

CEID of the queue. 1-6.. Like different queues

DO NOT TOUCH

Number of CPU requested. The limit should be 50 with 2/3 GB per CPU.

However, your job will start only when all the CPU requested will be free.

Prepare subber.sh

- Subber.sh is template for all python code: reconstruction for example

```
1 #!/bin/bash
2 #RUN=26178
3 RUN=$1
4 WHEN=$RUN #$(date +%F_%H-%M-%S) # field to personalize for output files/folder; it could be the run number, etc
5 ##### user configuration parameters #####
6 # HTCondor config
7 export BATCHNAME="mytest_reco${WHEN}"
8 export CE=3
9 export IMAGE="/cvmfs/sft-cygn0.infn.it/dockers/images/cygn0-wn_v2.4.sif" # "docker://gmazzitelli/cygn0-wn:v2.4"
10 export CPUs=4
11
12 # Experiment executable config
13 export EXECUTEPATH="/jupyter-workspace/private/reco_cload"
14 export EXECUTE="reconstruction.py"
15 export ARGUMENTS="configFile_MANGO.txt -r ${RUN} -j${CPUs} --git 96c209647473ef7273012cbbb2338266216c4123"
16
17 #export OTHERPATH=$EXECUTEPATH
18
19 # use OTHERFILE to pass other file/folder other than executable file.
20 #
21 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/.gitignore, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
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23 ${OTHERPATH}/morphsnakes.py, ${OTHERPATH}/corrections, ${OTHERPATH}/cython_cygn0.pyx, ${OTHERPATH}/cythonize.sh, ${OTHERPATH}/modules_config, ${OTHERPATH}/exec_reco.sh, ${OTHERPATH}/scripts, ${OTHERPATH}/plotter, ${OTHERPATH}/
24 clusterTools.py, ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt,
25 ${OTHERPATH}/mva, ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.C"
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32 declare -a FILENAMES=("reco_run${RUN}_3D.root" "reco_run${RUN}_3D.txt") # list of file to be upload on exit
33 export ENDPOINT_URL='https://s3.cr.cnaif.infn.it:7480/' # storage end point
34 export BACKET=cygn0-analysis # or cygn0-sim (no ending slash!)
35 export TAG=users/Dho # ex RECO/Winter23-patch2-ReReco (no ending slash!)
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37 ##### do not tuch the following code #####
38 chmod +x ${EXECUTEPATH}/${EXECUTE}
39 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/lib/subcreator.sh
40 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/cygn0_htc -s $CONFOUTPATH/sub $CE
```

Absolute path to folder of executable

Executable file

On line arguments of your code

Prepare subber.sh

- Subber.sh is template for all python code: reconstruction for example

```
1 #!/bin/bash
2 #RUN=26178
3 RUN=$1
4 WHEN=$RUN #$(date +%F_%H-%M-%S) # field to personalize for output files/folder; it could be the run number, etc
5 ##### user configuration parameters #####
6 # HTCondor config
7 export BATCHNAME="mytest_reco${WHEN}"
8 export CE=3
9 export IMAGE="/cvmfs/sft-cygn0.infn.it/dockers/images/cygn0-wn_v2.4.sif" # "docker://gmazzitelli/cygn0-wn:v2.4"
10 export CPUs=4
11
12 # Experiment executable config
13 export EXECUTEPATH="/jupyter-workspace/private/reco_cloud"
14 export EXECUTE="reconstruction.py"
15 export ARGUMENTS="configFile_MANGO.txt -r ${RUN} -j${CPUs} --git 96c209647473ef7273012cbbb2338266216c4123"
16
17 #export OTHERPATH=$EXECUTEPATH
18
19 # use OTHERFILE to pass other file/folder other than executable file.
20 #
21 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/.gitignore, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
22 submit_reco.py, ${OTHERPATH}/profiling.py, ${OTHERPATH}/energyCalibrator.py, ${OTHERPATH}/treeVars.py, ${OTHERPATH}/debug_code, ${OTHERPATH}/calibration.txt, ${OTHERPATH}/After_reco, ${OTHERPATH}/snakes.py, ${OTHERPATH}/configFile_MC.txt,
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24 clusterTools.py, ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt,
25 ${OTHERPATH}/mva, ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.C"
26 #
27 export OTHERFILE=$EXECUTEPATH/
28 #
29 # files to upload on s3 when done ("a.txt" "b.sh" "c.dat")
30 #
31 declare -a FILENAMES=("reco_run${RUN}_3D.root" "reco_run${RUN}_3D.txt") # list of file to be upload on exit
32 export ENDPOINT_URL='https://s3.cr.cnaif.infn.it:7480/' # storage end point
33 export BACKET=cygn0-analysis # or cygn0-sim (no ending slash!)
34 export TAG=users/Dho # ex RECO/Winter23-patch2-ReReco (no ending slash!)
35
36 ##### do not tuch the following code #####
37 chmod +x ${EXECUTEPATH}/${EXECUTE}
38 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/lib/subcreator.sh
39 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/cygn0_htc -s $CONFOUTPATH/sub $CE
```

Files to upload:

Either a list of them

Or the full folder

Prepare subber.sh

- Subber.sh is template for all python code: reconstruction for example

```
1 #!/bin/bash
2 #RUN=26178
3 RUN=$1
4 WHEN=$RUN #$(date +%F_%H-%M-%S) # field to personalize for output files/folder; it could be the run number, etc
5 ##### user configuration parameters #####
6 # HTCondor config
7 export BATCHNAME="mytest_reco${WHEN}"
8 export CE=3
9 export IMAGE="/cvmfs/sft-cygn0.infn.it/dockers/images/cygn0-wn_v2.4.sif" # "docker://gmazzitelli/cygn0-wn:v2.4"
10 export CPUs=4
11
12 # Experiment executable config
13 export EXECUTEPATH="/jupyter-workspace/private/reco_cloud"
14 export EXECUTE="reconstruction.py"
15 export ARGUMENTS="configFile_MANGO.txt -r ${RUN} -j${CPUs} --git 96c209647473ef7273012cbbb2338266216c4123"
16
17 #export OTHERPATH=$EXECUTEPATH
18
19 # use OTHERFILE to pass other file/folder other than executable file.
20 #
21 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/.gitignore, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
22 submit_reco.py, ${OTHERPATH}/profiling.py, ${OTHERPATH}/energyCalibrator.py, ${OTHERPATH}/treeVars.py, ${OTHERPATH}/debug_code, ${OTHERPATH}/calibration.txt, ${OTHERPATH}/After_reco, ${OTHERPATH}/snakes.py, ${OTHERPATH}/configFile_MC.txt,
23 ${OTHERPATH}/morphsnakes.py, ${OTHERPATH}/corrections, ${OTHERPATH}/cython_cygn0.pyx, ${OTHERPATH}/cythonize.sh, ${OTHERPATH}/modules_config, ${OTHERPATH}/exec_reco.sh, ${OTHERPATH}/scripts, ${OTHERPATH}/plotter, ${OTHERPATH}/
24 clusterTools.py, ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt,
25 ${OTHERPATH}/mva, ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.C"
26 #
27 export OTHERFILE=$EXECUTEPATH/
28
29 #
30 # files to upload on s3 when done ("a.txt" "b.sh" "c.dat")
31 #
32 declare -a FILENAMES=("reco_run${RUN}_3D.root" "reco_run${RUN}_3D.txt")
33 # list of file to be upload on exit
34 export ENDPOINT_URL='https://s3.cr.cnaif.infn.it:7480/' # storage end point
35 export BACKET=cygn0-analysis # or cygn0-sim (no ending slash!)
36 export TAG=users/Dho # ex RECO/Winter23-patch2-ReReco (no ending slash!)
37
38 ##### do not tuch the following code #####
39 chmod +x ${EXECUTEPATH}/${EXECUTE}
40 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/lib/subcreator.sh
41 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/cygn0_htc -s $CONFOUTPATH/sub $CE
```

Outputsfiles

You need to know the outputfiles of your code which you want to be transfered to the cloud

DO NOT TOUCH

Choose bucket: analysis or sim

Path inside bucket where files will be uploaded

DO NOT TOUCH THESE

Prepare subber.sh

- Subber_digi.sh is template for all C++ code: digitization for example

```
1 #!/bin/bash
2 RUN=2
3 WHEN=$RUN #${date +%F_%H-%M-%S} # field to personalize for output files/folder; it could be the run number, etc
4 ##### user configuration parameters #####
5 # HTCondor config
6 export BATCHNAME="mytest_digi${WHEN}"
7 export CE=2
8 export IMAGE="/cvmfs/sft-cygn0.infn.it/dockers/images/cygn0-wn_v2.4.sif" # "docker://gmazzitelli/cygn0-wn:v2.4"
9 export CPUs=8
10
11 # Experiment executable config
12 export EXECUTEPATH="/jupyter-workspace/private/Digipp"
13 export EXECUTE="build/digitizationpp"
14 export ARGUMENTS="config/ConfigFile_new.txt -I input/alpha/ -O ./"
15
16 #export OTHERPATH=$EXECUTEPATH
17
18 # use OTHERFILE to pass other file/folder other than executable file.
19 #
20 #export OTHERFILE="${OTHERPATH}/index.php, ${OTHERPATH}/waveform.py, ${OTHERPATH}/ReadMe_PMT.md, ${OTHERPATH}/datasets, ${OTHERPATH}/.gitignore, ${OTHERPATH}/utilities.py, ${OTHERPATH}/cluster, ${OTHERPATH}/postprocessing, ${OTHERPATH}/
21 submit_reco.py, ${OTHERPATH}/profiling.py, ${OTHERPATH}/energyCalibrator.py, ${OTHERPATH}/treeVars.py, ${OTHERPATH}/debug_code, ${OTHERPATH}/calibration.txt, ${OTHERPATH}/After_reco, ${OTHERPATH}/snakes.py, ${OTHERPATH}/configFile_MC.txt,
22 ${OTHERPATH}/morphsnakes.py, ${OTHERPATH}/corrections, ${OTHERPATH}/cython_cygn0.pyx, ${OTHERPATH}/cythonize.sh, ${OTHERPATH}/modules_config, ${OTHERPATH}/exec_reco.sh, ${OTHERPATH}/scripts, ${OTHERPATH}/plotter, ${OTHERPATH}/clusterTools.py,
23 ${OTHERPATH}/pedestals, ${OTHERPATH}/reconstruction.py, ${OTHERPATH}/output.py, ${OTHERPATH}/cameraChannel.py, ${OTHERPATH}/data, ${OTHERPATH}/configFile_LNF.txt, ${OTHERPATH}/README.md, ${OTHERPATH}/configFile_MANGO.txt, ${OTHERPATH}/mva,
24 ${OTHERPATH}/utils, ${OTHERPATH}/swiftLib.py, ${OTHERPATH}/configFile_LNGS.txt, ${OTHERPATH}/showOneImage.py, ${OTHERPATH}/rootLogon.C"
25 #
26 export OTHERFILE=$EXECUTEPATH/
27
28 #
29 # files to upload on s3 when done ("a.txt" "b.sh" "c.dat")
30 #
31 declare -a FILENAMES=( "histograms_Run$(printf "%05d" $RUN).root" ) # list of file to be upload on exit
32 export ENDPOINT_URL="https://s3.cr.cnaif.infn.it:7480/" # storage end point
33 export BUCKET=cygn0-analysis # or cygn0-sim (no ending slash!)
34 export TAG= users/Dhd/Digi # ex RECO/Winter23-patch2-ReReco (no ending slash!)
35 ##### do not tuch the following code #####
36
37 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/lib/subcreator.sh
38 source $CVMFS_PARENT_DIR/cvmfs/sft-cygn0.infn.it/config/cygn0_htc -s $CONFOUTPATH/sub $CE
```

Submit

- Once subber is ready source it fromn *Run_launch_folder*.

```
(base) dho@notebook:/private/Run_launch_folder# source submaker/subber.sh 13704
subber 0.1
genetating presigned url for: reco_run13704_3D.root
genetating presigned url for: reco_run13704_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739594.
(base) dho@notebook:/private/Run_launch_folder# cygno_htc -q 4
htc@tier1
```

This automatically (and magically) creates all that is needed to submit the job and load the output on the storage, does the submission

```
-- Schedd: ce04-htc.cr.cnaf.infn.it : <131.154.192.53:9619?... @ 07/21/25 15:18:47
OWNER  BATCH_NAME                SUBMITTED   DONE    RUN    IDLE  TOTAL  JOB_IDS
cygno004 mytest_reco2025-07-14_13-54-56  7/14 13:54   -      -      -      1 2676089.0
cygno004 mytest_reco2025-07-15_12-03-10  7/15 12:03   -      -      -      1 2681034.0
cygno004 mytest_reco2025-07-15_12-06-35  7/15 12:06   -      -      -      1 2681036.0
cygno004 mytest_reco2025-07-15_12-07-12  7/15 12:07   -      -      -      1 2681037.0
cygno004 mytest_reco2025-07-18_11-59-02  7/18 11:59   -      -      -      1 2708051.0
cygno004 mytest_reco2025-07-18_12-03-03  7/18 12:03   -      -      -      1 2708087.0
cygno004 mytest_reco2025-07-18_12-14-58  7/18 12:15   -      -      -      1 2708195.0
cygno004 mytest_reco2025-07-18_12-29-47  7/18 12:29   -      -      -      1 2708428.0
cygno004 mytest_reco_2025-07-18_12-52-51  7/18 12:52   -      -      -      3 2708647.0 ... 2709626.0
cygno004 mytest_reco_2025-07-18_13-34-20  7/18 13:34   -      -      -      1 2709077.0
cygno004 mytest_reco_2025-07-18_13-36-16  7/18 13:36   -      -      -      1 2709079.0
cygno004 mytest_reco_2025-07-18_14-07-53  7/18 14:07   -      -      -      3 2709361.0 ... 2709526.0
cygno004 mytest_reco_2025-07-18_14-49-18  7/18 14:49   -      -      -      1 2709797.0
cygno004 mytest_reco13704                7/21 15:18   -      -      1      1 2739594.0
```

```
Total for query: 18 jobs; 17 completed, 0 removed, 1 idle, 0 running, 0 held, 0 suspended
Total for cygno004: 18 jobs; 17 completed, 0 removed, 1 idle, 0 running, 0 held, 0 suspended
Total for all users: 8168 jobs; 2653 completed, 0 removed, 618 idle, 4893 running, 4 held, 0 suspended
```

```
(base) dho@notebook:/private/Run_launch_folder# cygno_htc -m 4
htc@tier1
ClusterID: 2739594 JobStatus: 1 CygnoUser: dho
(base) dho@notebook:/private/Run_launch_folder# █
```

Submit

- Cyclesubber.sh is a bash example to submit multiple files in a row

```
(base) dho@notebook:/private/Run_launch_folder# source submaker/cyclesubber.sh 13690 13695
subber 0.1
genetating presigned url for: reco_run13690_3D.root
genetating presigned url for: reco_run13690_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739611.
subber 0.1
genetating presigned url for: reco_run13691_3D.root
genetating presigned url for: reco_run13691_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739612.
subber 0.1
genetating presigned url for: reco_run13692_3D.root
genetating presigned url for: reco_run13692_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739613.
subber 0.1
genetating presigned url for: reco_run13693_3D.root
genetating presigned url for: reco_run13693_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739614.
subber 0.1
genetating presigned url for: reco_run13694_3D.root
genetating presigned url for: reco_run13694_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739615.
subber 0.1
genetating presigned url for: reco_run13695_3D.root
genetating presigned url for: reco_run13695_3D.txt
genetating submit file
submitting job...
htc@tier1
Submitting job(s).
1 job(s) submitted to cluster 2739616.
```

- You might need to adapt cyclesubber depending on your folder naming
- Subber.sh should be made executable

Delete

- To delete many jobs a script is suggested
- Use *delete_jobs.sh* deletes all your jobs on a queue
- You are free to adapt to your needs

```
(base) dhc@notebook:/private/Run_launch_folder# ./submaker/delete_jobs.sh 4
htc@tier1
All jobs in cluster 2739611 have been marked for removal
htc@tier1
All jobs in cluster 2739612 have been marked for removal
htc@tier1
All jobs in cluster 2739613 have been marked for removal
htc@tier1
All jobs in cluster 2739614 have been marked for removal
htc@tier1
All jobs in cluster 2739615 have been marked for removal
htc@tier1
All jobs in cluster 2739616 have been marked for removal
```

Logs

- After submission a folder called logs appears in *Run_launch_folder*.
- Inside there is a subfolder with the fiels used for the submission
- With the command `cygno_htc -f <jobid> <ceid>` one can retrieve log files
 - .error, .log, .out which contain error and output of your program will appear in the logs folder in the corresponding job folder

folder / ... / logs / mytest_reco13691 /

Name	Modified
execute.sh	6m ago
reco_run13691_3...	6m ago
reco_run13691_3...	6m ago
sub	6m ago

/ ... / logs / mytest_reco13704 /

Name	Modified
execute.sh	7d ago
mytest_reco1370...	7d ago
mytest_reco1370...	7d ago
mytest_reco1370...	7d ago
reco_run13704_3...	7d ago
reco_run13704_3...	7d ago
reco_run13704_3...	7d ago
sub	7d ago

- In *Run_launch_folder* you will find a file which contains 0 if your main program was succesful (other number otherwise)

/ private / Run_launch_folder /

Name	Modified
logs	7m ago
submaker	8m ago

/ private / Run_launch_folder /

Name	Modified
logs	11m ago
submaker	12m ago
return_mytest_rec...	4s ago