



The CNRS logo, consisting of the lowercase letters 'cnrs' in a white, sans-serif font inside a dark blue circle.

Centre de Calcul
de l'Institut National de Physique Nucléaire
et de Physique des Particules

A photograph of a server room with rows of blue server racks. One rack in the foreground has a glass door and a white label with the CCIN2P3 logo. The room is dimly lit with blue ambient lighting.

Beautiful Batch Tests
January 2024

- ▶ **Perform functional tests on batch system to ensure :**
 - ▶ Batch controller nodes are up
 - ▶ Batch services are running
 - ▶ Batch configuration is OK (Partitions, QOS...)
 - ▶ Special users (Admins and Operators) are properly registered
 - ▶ User, Operator and Admin commands are OK
 - ▶ All kind of jobs run correctly (htc, hpc, gpu, interactive...)

- ▶ **Functional tests are welcome:**

- ▶ Each time we detect a problem on the cluster
- ▶ On software upgrade: during test phase and production

Implies something quick and easy to run

A thin blue arrow pointing upwards and to the left, from the text "Implies something quick and easy to run" towards the second bullet point "On software upgrade: during test phase and production".

- ▶ Using a gitlab repo to maintain easily and share with team members
- ▶ Using a friendly client web app (easy to launch, easy to use)



- ▶ **Let's see it in action !**



▸ Python

- flask to manage web server
- pexpect to deal with shell commands returns
- pyyaml to deal with yaml format
- asyncio to deal with concurrent code

▸ **Goss** (<https://github.com/goss-org/goss#introduction>)

- System Administrator tool used to validate server's configuration (ports, services, users, process...)
- Used in this context only for shell commands launching python's scripts

▸ Test example in Goss

```
command:  
  controller_ping:  
    exec: python cluster/controller_ping.py  
    exit-status: 0  
    skip: false  
    stderr: []  
    stdout:  
    - Test OK  
    timeout: 30000  
    title: CONTROLLER PING  
  job_htc:  
    exec: python job/job.py --scriptfile job_htc.sh  
    exit-status: 0  
    skip: false  
    stderr: []  
    stdout:  
    - Test OK  
    timeout: 300000  
    title: JOB HTC
```


- ▶ Adding tests (of course)
- ▶ Do the same for our grid cluster (HTCondor)

Questions?

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Thanks for your attention.

Beautiful Batch Tests Home Results Reset

Home

Config

Tests

Cluster

- CONTROLLER PING
Perform scontrol ping command to see if slurm controllers are UP
- PARTITION LIST
Check that all PARTITIONS are set
- QOS LIST
Check that all QOS are set

Account

Rest API

Job

Select All Unselect All Launch Tests

✓ **Beautiful Batch Tests**

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Tests in progress...

running tests 10 / 10

Force Refresh

Refreshing page in 5 seconds

Current Jobs

	ACCOUNT	USER	JOBID	NAME	PARTITION	NODELIST	STATE	REASON
0	ccin2p3	brigaud	47382	bbt_job_profiling_gpu_575	gpu	ccwgsurm0109	RUNNING	NaN
1	ccin2p3	brigaud	47386	bbt_slurm_profiling_47382_575	htc	NaN	PENDING	Dependency
2	ccin2p3	brigaud	47384	bbt_job_out_of_mem_575	htc	ccwtbsurm02	RUNNING	NaN
3	ccin2p3	brigaud	47387	bbt_job_htc_575	htc	ccwtbsurm02	RUNNING	NaN
4	ccin2p3	brigaud	47383	bbt_htc_interactive_575	htc_interactive	ccwtbsurm03	RUNNING	NaN

Results

successful tests 8 / 10

controller_ping exit-status: True stdout: True

get_diag exit-status: True stdout: True

get_accounts exit-status: True stdout: True

get_node exit-status: True stdout: False

partition_list exit-status: True stdout: True

job_gpu exit-status: True stdout: True

```
2024-01-30 15:24:30.457581
sbatch --job-name bbt_job_gpu_575 --output=/pbs/throng/ccin2p3/calcul/batch/bbt/log/job_gpu-%j.out --error=/pbs/throng/ccin2p3/calcul/batch/bbt/log/job_gpu-%j.err job/job_gpu.sh
sbatch: INFO: Account: ccin2p3
sbatch: INFO: Feature list: x86_64,e17
sbatch: INFO: Submission node: ccosvms0432
sbatch: INFO: Partition set to: gpu
sbatch: INFO: Time limit set to: 0-00:01 (1 minutes)
Submitted batch job 47385
```

jobid: 47385

```
jobid: 47385 jobstatus: RUNNING
jobid: 47385 jobstatus: RUNNING
jobid: 47385 jobstatus: RUNNING
jobid: 47385 jobstatus: COMPLETED
```

jobOK: 1 => totalJob:1

job_out_of_mem exit-status: True stdout: True

job_htc exit-status: True stdout: True