



WMT

The Workload Management Test

- Command-line interface
- Multistream job submission
- Tests all available resources
- Controlled job parameters (lifetime, resubmission count, output data size)
- Fast runtime jobs states check
- Simple and compatible state-file format (UI utils, “Storm” tests, etc.)
- Table-formatted output in plaintext and HTML
- Detection of failed and resubmitted jobs



Job submission (parameters)

```
wmt [-h] [-a [-r]] [-v <VO name>] [-f <filename>] [-c <number>]  
    [-w <number>] [-d <number>] <jobs count> [<streams count>]
```

- h Show help
 - a Get list of resources from edg-job-list-match
 - r Submit jobs in a random order
 - v VO name to use for submission
 - c Set job resubmission count
 - w Set job sleep time
 - d Set job output data size
- <jobs count> Number of jobs submitted in each stream
- <streams count> Number of job submission streams



Job submission (how it looks)

Two streams submitting two jobs:

```
$ wmt 2 2
```

```
#####  
Starting the Workload Management Test.  
#####  
Getting list of available resources.  
Total number of resources: 17  
WARNING: too small number of jobs to test all resources.  
Spawning job streams [++]  
Actual number of streams: 2  
Waiting for streams to initialize [++]  
Starting submission.  
2: submitting job 1  
1: submitting job 1  
2: submitting job 2  
1: submitting job 2  
2: finished, average time for a single submit: 13 sec.  
1: finished, average time for a single submit: 14 sec.  
Submission complete.
```



Job submission (how it looks)

The same with automatic resource allocation:

```
$ wmt -ar 2 2
```

```
#####  
Starting the Workload Management Test.  
#####  
Getting list of available resources.  
Total number of resources: 17  
WARNING: too small number of jobs to test all resources.  
Spawning job streams [++]  
Actual number of streams: 2  
Waiting for streams to initialize [++]  
Starting submission.  
1: submitting job 1 to lxshare0290.cern.ch:2119/jobmanager-lcgpbs-short  
2: submitting job 1 to lxshare0235.cern.ch:2119/jobmanager-pbs-medium  
1: submitting job 2 to lxshare0277.cern.ch:2119/jobmanager-pbs-short  
2: submitting job 2 to lcgce01.cern.ch:2119/jobmanager-lcglsf-grid  
2: finished, average time for a single submit: 13 sec.  
1: finished, average time for a single submit: 14 sec.  
Submission complete.
```



Job submission (the state file)

State file after two runs:

```
$ cat wmt-kiryanov.state
```

```
# Submission date: Wed Nov 26 11:42:56 2003 VO: dteam
https://lxshare0234.cern.ch:9000/NiXLQs0wrVefhK_BP9LptA
https://lxshare0234.cern.ch:9000/yKld-qDy2PA40AU1B6XP1w
https://lxshare0234.cern.ch:9000/xpeMt8PLJnoImTfbr0ED_Q
https://lxshare0234.cern.ch:9000/Hjeo8rJZL1LMTspJc5S1Xw
# Submission date: Wed Nov 26 11:48:54 2003 VO: dteam
https://lxshare0234.cern.ch:9000/eWTQk1uf_VJtIVbtytVjfA
https://lxshare0234.cern.ch:9000/Qmi06E2Kjkg7ZXH1xqGH2g
https://lxshare0234.cern.ch:9000/5403V_rU604b-4WXAx3Uxg
https://lxshare0234.cern.ch:9000/3vGzfm19QjZ_7VWW1LjkDQ
```



Jobs states check (parameters)

```
wmt -s [-g] [-m [-l <number>]] [-f <filename>]
```

- s Output jobs state table
- g Suppress output of jobIDs
- m Output jobs state table in HTML
- l Set refresh period for the HTML page
- f Use alternate state file
(default: wmt-<username>.state)



Jobs states check

(text output)

Jobs states after two runs:

```
$ wmt -s
```

```
Checking jobs states...
```

| | Done (Success) |
|---|----------------|
| lcgce01.cern.ch:2119/jobmanager-lcglsf-grid | 1 |
| lxshare0235.cern.ch:2119/jobmanager-pbs-medium | 1 |
| lxshare0241.cern.ch:2119/jobmanager-pbs-short | 1 |
| lxshare0277.cern.ch:2119/jobmanager-pbs-medium | 1 |
| lxshare0277.cern.ch:2119/jobmanager-pbs-short | 2 |
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-long | 1 |
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-shor | 1 |
| Total | 8 |

```
Total number of jobs: 8. Resubmitted jobs: 0 (0%). Failed jobs: 0 (0%).
```



Jobs states check

(text output)

Jobs states (the bad case):

```
$ wmt -s
```

```
Checking jobs states...
```

| | | Aborted |
|---|----|---------|
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-medium | 10 | [10] |
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-short | 4 | [4] |
| Total | 14 | |

```
Total number of jobs: 14. Resubmitted jobs: 0 (0%). Failed jobs: 14 (100%).
```

```
14 jobs failed with reason "Job RetryCount (3) hit":  
https://lxshare0234.cern.ch:9000/upcufBPS26CwCZ6p7dp3IA  
https://lxshare0234.cern.ch:9000/gzKaqiEH7DaOgYEJaa2YBA  
https://lxshare0234.cern.ch:9000/OvPwR7Fq8GEYZU_NiD1MgQ  
https://lxshare0234.cern.ch:9000/IGtv-5U1Ut3daxC1L9F_pg  
https://lxshare0234.cern.ch:9000/FehbQ33XD1zRuaTPDOSvTw  
https://lxshare0234.cern.ch:9000/yES3C3Yp2o6XxPTY20lHTw  
https://lxshare0234.cern.ch:9000/cI10r5OEz4_0zW8xemB--g  
https://lxshare0234.cern.ch:9000/JDLMshpLu_qmLpjMWIgybg  
    ---//---
```




Jobs states check (HTML output)

The HTML look:

Workload Management Test Results

Date: Wed Nov 26 12:12:34 2003

| | Done (Success) |
|--|----------------|
| lcgce01.cern.ch:2119/jobmanager-lcglsf-grid | 1 |
| lxshare0235.cern.ch:2119/jobmanager-pbs-medium | 1 |
| lxshare0241.cern.ch:2119/jobmanager-pbs-short | 1 |
| lxshare0277.cern.ch:2119/jobmanager-pbs-medium | 1 |
| lxshare0277.cern.ch:2119/jobmanager-pbs-short | 2 |
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-long | 1 |
| lxshare0290.cern.ch:2119/jobmanager-lcgpbs-short | 1 |
| Total | 8 |

Total number of jobs: **8**. Resubmitted jobs: **0 (0%)**. Failed jobs: **0 (0%)**.



Jobs states check (integration with the UI)

Fetching the output:

```
$ edg-job-get-output --noint -i wmt-kiryanov.state
```

```
Retrieving files from host lxshare0234.cern.ch  
Retrieving files from host lxshare0234.cern.ch  
Retrieving files from host lxshare0234.cern.ch  
Retrieving files from host lxshare0234.cern.ch
```

```
*****
```

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:

- https://lxshare0234.cern.ch:9000/NiXLQs0wrVefhK_BP9LptA

have been successfully retrieved and stored in the directory:
/tmp/jobOutput/kiryanov_NiXLQs0wrVefhK_BP9LptA

Output sandbox files for the job:

- <https://lxshare0234.cern.ch:9000/yKld-qDy2PA40AU1B6XP1w>

have been successfully retrieved and stored in the directory:
/tmp/jobOutput/kiryanov_yKld-qDy2PA40AU1B6XP1w

---//---