



## Bulk job submission

DIRAC Project



# Parametric Jobs

- ▶ A parametric job consists in submission of a set of jobs where only one parameter make the difference between the jobs.
  - ▶ Parameteric jobs share the same Input Sandbox
- ▶ The parameteric job must define a JDL attribute "**Parameters**". It can take the following values:
  - ▶ A list (strings or numbers).
    - ▶ `Parameters = {"value1", "value2", "value3"};`
    - ▶ Or, an integer specifying the number of parameters to generate, in this case the JDL attributes `ParameterStart` and `ParameterStep/ParameterFactor` must be defined in order to create the sequence of values:
      - ▶  $P_0 = \text{ParameterStart}$
      - ▶  $P_i = P_{i-1} * \text{ParameterFactor} + \text{ParameterStep}$





## Parametric Jobs

- ▶ The %s placeholder is substituted by the parameter value and can be put in any JDL attributes.
  - ▶ Not all the attributes can be parameterized this way, e.g. Input Sandbox files can not be parameterized.
- ▶ The %n placeholder is replaced by the parameter sequential number
  - ▶ Useful to be used in job and file names
  - ▶ Left padded with zeros to make names alphabetically sortable
- ▶ The %j placeholder is replaced by the DIRAC job ID
  - ▶ Can be useful in the OutputPath JDL attribute





## Parametric Job - JDL

```
Executable = "testParametricJob.sh";
JobName = "Parametric_%n";
Arguments = "%s";
Parameters = 20;
ParameterStart = 0;
ParameterStep = 0.02;
ParameterFactor = 1;
StdOutput = "StdOut_%j";
StdError = "StdErr_%j";
InputSandbox = {"testJob.sh"};
OutputSandbox = {"StdOut_%j", "StdErr_%j"};
```

Placeholder replaced by Parameter number value for each job

Placeholder replaced by Parameter value for each job

Placeholder replaced by Parameter value for each job



# Parametric Job - JDL

Parameters in JDL

Add parameters

Selected setup: Dirac-Production

JobMonitoring

System Jobs Views Tools

Select All Select None

JobId Status MinorStatus ApplicationStatus Site JobName LastUpdate [UTC] LastSignOfLife [...] SubmissionTim... Owner

Reschedule Kill Delete

Site: All

Status: All

Minor status: All

Application status: All

Owner: vhamar

JobGroup: All

JobType: All

JobID:

Submit Reset

Global Sort

Selected Statistics

Global Statistics

jobs > Job monitor

Proxy Status: Valid

JDL

JobName: DIRAC\_vhamar\_573593

Executable: /bin/ls

Arguments: -ltrA

OutputSandbox: std.out, std.err

Parameters: 0

ParameterStart: 0

ParameterStep: 1

ParameterFactor: 1

Add Parameters Clear Sandbox

Input Sandbox

Parameters ParameterStart ParameterStep SubmitPools ParameterFactor

Browse...

Submit Reset Close

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- ▶ Submit series of “mandelbrot” jobs with Web Launchpad
  - ▶ Submit multiple jobs to explore the C seeds
  - ▶ Submit multiple jobs with increasing precision to make a series of frames for the Mandelbrot movie
  - ▶ Submit jobs to multiple sites, one per site
  - ▶ Monitor jobs
  - ▶ Store results in the grid SE
- ▶ Goals
  - ▶ Understand bulk job description
  - ▶ Understanding job input/output data

