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CREAM-CE direct job submission metrics

These metrics are used to probe cream-ce using cream-cli commands.

1. **emi.cream.CREAMCEDJS-DirectJobState**. Direct job submission to CREAM-CE.
2. **emi.cream.CREAMCEDJS-DirectJobMonit**. Babysit submitted grid jobs.
3. **emi.cream.CREAMCEDJS-DelegateProxy**. Delegate proxy to CREAM CE
4. **emi.cream.CREAMCEDJS-DirectJobCancel**. Cancel active job.
5. **emi.cream.CREAMCEDJS-ServiceInfo**. Get CREAM CE service info
6. **emi.cream.CREAMCEDJS-SubmitAllowed**. Check if submission to the CREAM CE is allowed
7. **emi.cream.CREAMCEDJS-DirectJobSubmit**. Passive. Final status of direct job submission to CREAM CE

emi.cream.CREAMCEDJS-DirectJobState

Direct submission to a CREAM-CE, which can be chosen using these parameters:

<code>--resource <URI></code>	CREAM CE to send job to. Format : <host>[:<port>]/cream-<lrms-system-name>-<queue-name> If not given - resource discovery will be performed.
<code>--ldap-uri <URI></code>	Format [ldap://]hostname[:port[/]] (Default: ldap://sam-bdii.cern.ch:2170)
<code>--prev-status <0-3></code>	Previous Nagios status of the metric.

As specified if the destination CREAM-CE is not explicited a resuorce discovery will be performed using the given ldap server.

At the moment the template jdl used for submission is very simple:

```
Type="Job";
JobType="Normal";
Executable = "<jdlExecutable>";
Arguments = "<jdlArguments>";
StdOutput = "cream.out";
StdError = "cream.out";
OutputSandbox = {"cream.out"};
OutputSandboxBaseDestUri="gsiftp://localhost";
```

where the Executable is the command "/bin/hostname/"

emi.cream.CREAMCEDJS-DirectJobMonit

Monitors submitted grid jobs. Threaded implementation with one thread per monitored resource with max 10 threads. Passively updates emi.cream.CREAMCEDJS-DirectJobState with the latest state of the job according to CREAM when job is not in a terminal state. When job enters terminal state or was canceled the metric updates both emi.cream.CREAMCEDJS-DirectJobState and emi.cream.CREAMCEDJS-DirectJobSubmit with the final job status. The latter metrics are updated (as passive checks) either via Naigos command file or NSCA. emi.cream.CREAMCEDJS-DirectJobSubmit is the metric which goes to Metric Store Database.

Test

To test the probe you have to create a valid proxy.

JobState + JobMonit

First you have to "submit" a job:

```
/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>  
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DirectJobState --resource <CREAM CE url>
```

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t  
OK: Job was submitted [https://cream-30.pd.infn.it:8443/CREAM126240562].  
OK: Job was submitted [https://cream-30.pd.infn.it:8443/CREAM126240562].  
Testing from: cream-48.pd.infn.it  
DN: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Alessio Gianelle/CN=proxy  
VOMS FQANs: /dteam/Role=NULL/Capability=NULL, /dteam/NGI_IT/Role=NULL/Capability=NULL  
  
https://cream-30.pd.infn.it:8443/CREAM126240562
```

Then you can monitor the job:

```
/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>  
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DirectJobMonit --pass-check-dest active
```

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t  
OK: DONE.  
metric results >>> <cream-30.pd.infn.it,emi.cream.CREAMCEDJS-DirectJobSubmit-dteam>
```

```
metric results >>> <cream-30.pd.infn.it,emi.cream.CREAMCEDJS-DirectJobState-dteam>
```

```
OK: Jobs processed - 1  
OK: Jobs processed - 1  
DONE : 1|jobs_processed=1;; DONE=1;; REALLY-RUNNING=0;; RUNNING=0;; REGISTERED=0;; PENDING=0;; ID
```

When it finishes the output file is retrieve and stored into `/var/lib/gridprobes/<VO or FQAN>/emi.cream/CREAMCEDJS/<hostname>/jobOutput`. The output file should contains the hostname of the worker node where job have run.

```
[ale@cream-48 ~]$ cat /var/lib/gridprobes/dteam/emi.cream/CREAMCEDJS/cream-30.pd.infn.it/jobOutput  
cream-wn-030.pn.pd.infn.it
```

JobState + JobMonit + JobCancel

To test easily the "Cancel" metrics you need to modify the JDL template to increment job duration:

```
[ale@cream-48 ~]$ cat /usr/libexec/grid-monitoring/probes/emi.cream/CREAMDJJS-jdl.template  
[  
Type="Job";  
JobType="Normal";  
#Executable = "<jdlExecutable>";  
Executable = "/bin/sleep";  
#Arguments = "<jdlArguments>";  
Arguments = "100";  
StdOutput = "cream.out";  
StdError = "cream.out";  
OutputSandbox = {"cream.out"};  
OutputSandboxBaseDestUri="gsiftp://localhost";  
]
```

Then you have to "submit" the job:

JobState + JobMonit

**/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DirectJobState --resource <CREAM CE url>**

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t
OK: Job was submitted [https://cream-30.pd.infn.it:8443/CREAM226348631].
OK: Job was submitted [https://cream-30.pd.infn.it:8443/CREAM226348631].
Testing from: cream-48.pd.infn.it
DN: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Alessio Gianelle/CN=proxy
VOMS FQANs: /dteam/Role=NULL/Capability=NULL, /dteam/NGI_IT/Role=NULL/Capability=NULL

https://cream-30.pd.infn.it:8443/CREAM226348631
```

Monitor the job until it arrives to the *RUNNING* state:

**/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DirectJobMonit --pass-check-dest active**

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t
metric results >>> <cream-30.pd.infn.it,emi.cream.CREAMCEDJS-DirectJobState-dteam>
OK: [RUNNING] https://cream-30.pd.infn.it:8443/CREAM226348631
OK: [RUNNING] https://cream-30.pd.infn.it:8443/CREAM226348631

glite-ce-job-status https://cream-30.pd.infn.it:8443/CREAM226348631

***** JobID=[https://cream-30.pd.infn.it:8443/CREAM226348631]
      Status      = [RUNNING]
OK: Jobs processed - 1
OK: Jobs processed - 1
[RUNNING] : 1|jobs_processed=1;; DONE=0;; REALLY-RUNNING=0;; RUNNING=1;; REGISTERED=0;; PENDING=0
```

Then you can cancel it:

**/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DirectJobCancel**

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t
OK: job cancelled
OK: job cancelled
Testing from: cream-48.pd.infn.it
DN: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Alessio Gianelle/CN=proxy
VOMS FQANs: /dteam/Role=NULL/Capability=NULL, /dteam/NGI_IT/Role=NULL/Capability=NULL
Job cancellation request sent:
glite-ce-job-cancel --noint https://cream-30.pd.infn.it:8443/CREAM226348631
Job bookkeeping files deleted.
```

You can check the manually if the final status of the job is *CANCELLED* as expected:

```
[ale@cream-48 ~]$ glite-ce-job-status https://cream-30.pd.infn.it:8443/CREAM226348631

***** JobID=[https://cream-30.pd.infn.it:8443/CREAM226348631]
      Status      = [CANCELLED]
      ExitCode     = []
      Description  = [Cancelled by user]
```

DelegateProxy

To test delegation use this command:

```
/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>  
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-DelegateProxy
```

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t  
OK: [Delegated]  
OK: [Delegated]  
glite-ce-delegate-proxy -e cream-30.pd.infn.it:8443 dteam-551a6  
2011-11-10 13:40:24,178 NOTICE - Proxy with delegation id [dteam-551a6] succesfully delegated to
```

You can check if the delegation is correct submitting a job using the returned delegation id

```
[ale@cream-48 ~]$ glite-ce-job-submit -D dteam-551a6 -r cream-30.pd.infn.it:8443/cream-pbs-cert  
https://cream-30.pd.infn.it:8443/CREAM290551353
```

```
[ale@cream-48 ~]$ glite-ce-job-status https://cream-30.pd.infn.it:8443/CREAM290551353
```

```
***** JobID=[https://cream-30.pd.infn.it:8443/CREAM290551353]  
Status = [DONE-OK]  
ExitCode = [0]
```

ServiceInfo

To verify this metric simply issue this command:

```
/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>  
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-ServiceInfo
```

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t  
OK: success  
OK: success  
Testing from: cream-48.pd.infn.it  
DN: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Alessio Gianelle/CN=proxy  
VOMS FQANs: /dteam/Role=NULL/Capability=NULL, /dteam/NGI_IT/Role=NULL/Capability=NULL  
success  
description = CREAM 2  
doesAcceptNewJobSubmissions = True  
interfaceVersion = 2.1  
property = [(Property){  
    name = "cemon_url"  
    value = "NA"  
}]  
serviceVersion = 1.13  
startupTime = 2011-10-10 14:44:12.000638  
status = RUNNING
```

SubmitAllowed

To verify this metric simply issue this command:

```
/usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo <vo> -x <path of the proxy>  
-H <CREAM hostname> -m emi.cream.CREAMCEDJS-SubmitAllowed
```

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t  
OK: [Submission Allowed]  
OK: [Submission Allowed]  
glite-ce-allowed-submission cream-30.pd.infn.it:8443  
Job Submission to this CREAM CE is enabled
```

You can also disable submission to the CREAM CE (you MUST be an *admin* for this CE)

```
[ale@cream-48 ~]$ glite-ce-disable-submission cream-30.pd.infn.it
```

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Operation for disabling new submissions succeeded

Then verify that the metrics returns the correct message:

```
[ale@cream-48 ~]$ /usr/libexec/grid-monitoring/probes/emi.cream/CREAMCEDJS-probe --vo dteam -x /t
OK: [Submission Allowed]
OK: [Submission Allowed]
glite-ce-allowed-submission  cream-30.pd.infn.it:8443
Job Submission to this CREAM CE is disabled
```

This topic: CREAM > DjsCreamProbe

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