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CMS Remote Analysis Builder 2 - CRAB2

Introduction

CRAB is a utility to submit CMSSW jobs to distributed computing resources. By using CRAB you will be able to:

- Access CMS data and Monte-Carlo which are distributed to CMS aligned centres worldwide.
- Exploit the CPU and storage resources at CMS aligned centres.

Before starting to learn about CRAB, you may want to get an overview of the Grid model and of a typical analysis workflow. For that purpose read the following chapters of the CMS Offline WorkBook:

- 5.1 Chapter Overview -- Getting Started
- 5.3 Analysis Workflow

For detailed documentation about CRAB, see section Advanced CRAB Documentation further down in this page.

CRAB Client and Server

AS OF AUGUST 2013, CRAB2 SERVER HAS BEEN TURNED OFF, RECOMMENDED SCHEDULER IS REMOTEGLIDEIN.

Getting Started

This section describes how to begin using CRAB to perform your analysis on the Grid.

Prerequisites

To use CRAB to submit your CMSSW job to the Grid you must meet some prerequisites, which you can find in the CRAB Prerequisites page. There you will also find information on how to setup your environment to use CRAB at CERN and how to do a private installation of CRAB.

Basic Workflows

You can find a guide to the basic functionality of CRAB in the CRAB Basic Workflows page. If you have never used CRAB before, it is a good place to learn how to use the tool.

Latest Tutorial

Regular tutorials are given on using CRAB. The course material for these tutorials is stored online for future reference, although it refers to specific CRAB and CMSSW versions that may no longer be available.

- Most recent CRAB2 tutorial given at CERN.

Advanced CRAB Documentation

The advanced user should refer to the following specific documentation as appropriate.

CRAB Online Manual

The CRAB Online Manual [provides](#) detailed documentation about CRAB commands and configuration parameters. This is the same documentation you get from the `crab -help` command.

CRAB Publication to DBS

CRAB Usage at CERN CAF

CRAB Usage at LPC CAF (T3_US_FNALLPC)

LPC CAF at FNAL is a local analysis facility only accessible to users with a local account. Like for CERN CAF, data there are not accessible to grid jobs.

To use CRAB on the FNAL LPC CAF, you need to do roughly as you do at CERN: 1) Setup CMSSW 2) Setup CRAB

For SL5 (cmslpc-sl5):

```
cmsrel CMSSW_X_Y_Z (only first time)
cd CMSSW_X_Y_Z
cmsenv
source /cvmfs/cms.cern.ch/crab/crab.(c)sh
```

If you want to use CRAB to submit to the local condor batch system, please see the additional instructions at CRABonLPCCAF. If you created a `.no_glite_setup` file during the CRAB 26x/27x transition, you can safely delete that file now as it is no longer used.

Setup on other places

Please be aware that CRAB needs `gLite_3_2` on sl5 and `gLite_3_1` on SL4 (i.e. works with the official `gLite` UI version for the two operating systems).

CRAB on PBS

CRAB Developers Documentation

Using CRAB to generate MonteCarlo events

FAQ, Troubleshooting, Getting Support

Frequently asked questions (FAQ)

List of CRAB exit codes

Diagnosing Problems

If a problem is encountered with CRAB you can begin with the following template. This template will help you to identify the nature of the problem and if a solution already exists:

- Grid job diagnosis template for trouble shooting

Before contacting the CRAB feedback hypernews, you should consult the Frequently Asked Questions (FAQ) page.

Getting Support

If you have still not found the solution to your problem, you may wish to consult the CRAB feedback hypernews forum.

- either via mail: hn-cms-crabFeedback@cernNOSPAMPLEASE.ch
- or via web form: CRAB Support Hypernews
<https://hypernews.cern.ch/HyperNews/CMS/recent?days=30&whichforums=selected&forums=crabFeedback>

If you are running locally in LPC, in case of problems please contact: lpc-howto@fnalNOSPAMPLEASE.gov

When contacting `crabFeedback`, you must

- write brief description of the problem and of relevant error messages
- upload all files needed for debug. There is a `crab` option that provides the upload of your logs:
 - ◆ if the problem affects some or all jobs, pick one with the issue (jobid) and do
 - ◇ if jobs are in "done" status:

```
crab -getoutput <jobid>
```

so the stdout and fjr will be retrieved, then

```
crab -uploadLog <jobid>
```

to upload all the necessary files

◇ if your jobs are aborted:

```
crab -postMortem <jobid>
```

so the `postMortem` file will be generated

```
crab -uploadLog <jobid>
```

to upload all the files

- report the URL provided by the `crab -uploadLog` command in the email for the support.
- **note:** of course if your `crab` working directory is not the default `<username>_0_...` you need to add the `-c` option like for any other `crab` command

Useful Links

- CRAB Related
 - ◆ CRAB for developers - CRAB page for developers
 - ◆ CRAB FAQ for operators - CRAB page for operators
 - ◆ How to run CRAB3 - Official twiki for CRAB3 client usage
- Certificate Related
 - ◆ How to get access (getting a certificate, being registered into the CMS VO...)
 - ◆ [cern service portal](#) if you need support about grid certificate released by cern CA.
- Data Discovery
 - ◆ [DAS Data Aggregation System](#) - The data discovery page
- Monitoring

- ◆ Dashboard Web Page [↗](#)
- ◆ User task monitoring [↗](#)
- Sites
 - ◆ siteDB [↗](#)
 - ◆ Site status for CMS sites [↗](#)
 - ◆ GOC DB [↗](#) db of Grid resources
 - ◆ User association to T2 Associating Users to Tier2's in CMS
 - ◆ T2 and analysis groups Tier-2 Associations to Analysis Groups
- Services
 - ◆ WMS CERN status [↗](#)
 - ◆ WMS CNAF status [↗](#)
 - ◆ Available CRAB server list [↗](#)
 - ◆ CERN central services downtime and incidents [↗](#)
 - ◆ Service Level Status overview [↗](#)
 - ◆ voms user registration [↗](#)
- CMSSW
 - ◆ Valid CMSSW Releases page
 - ◇ Updated list [↗](#)
 - ◇ Releases mailing list [↗](#)
 - ◆ List of exit codes
- General
 - ◆ The CMS Offline WorkBook
 - ◆ GIT Tutorial [↗](#)
 - ◆ How to change the name to the SE
- Editing the twiki
 - ◆ Useful techniques for editing CRAB twiki pages

CRAB Releases Notes

- CRAB client - standalone
 - ◆ currently recommended version of the CRAB client, i.e. the one which is default on lxplus, is available at [CRAB_current.tgz](#). Release notes here [↗](#).
 - ◆ Older CRAB versions here [↗](#)
 - ◆ Even older CRAB versions here

CRAB references

CRAB presentations, posters, publications and tutorials page

-- AndresTanasijczuk - 07 Oct 2014

This topic: CMSPublic > SWGuideCrab2

Topic revision: r3 - 2015-04-15 - FreyaBlekman



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