

Getting started

DIRAC Tutorial



- ▶ DIRAC information system

 - Documentation sources

- DIRAC users and groups

 - Registration with DIRAC

- Getting DIRAC credentials

 - Getting the certificates right

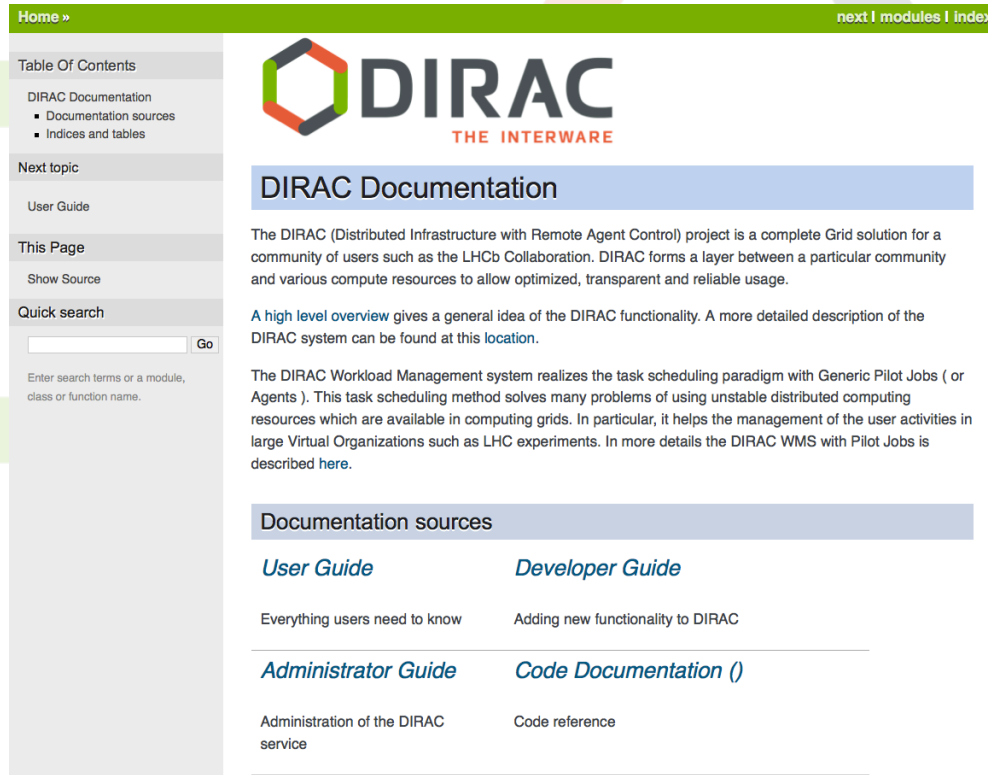
 - Registering user proxies

- ▶ Web portal interface

- ▶ Hello world! job

- ▶ DIRAC Project Web site contains entry points to various docs

This is being rapidly developed now, more info to come



The screenshot shows the DIRAC Documentation website. The header is green with 'Home »' on the left and 'next | modules | index' on the right. The main content area has a blue header 'DIRAC THE INTERWARE' and a blue box titled 'DIRAC Documentation'. Below this, there is a paragraph about the DIRAC project, a link to a high level overview, and a paragraph about the DIRAC Workload Management system. A section titled 'Documentation sources' contains four links: 'User Guide', 'Developer Guide', 'Administrator Guide', and 'Code Documentation ()'. A sidebar on the left contains a 'Table Of Contents' with links to 'DIRAC Documentation', 'Documentation sources', and 'Indices and tables'. It also has sections for 'Next topic' (User Guide), 'This Page' (Show Source), and 'Quick search' (a search box with a 'Go' button).

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User Guide

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Quick search

Go

Enter search terms or a module, class or function name.

DIRAC THE INTERWARE

DIRAC Documentation

The DIRAC (Distributed Infrastructure with Remote Agent Control) project is a complete Grid solution for a community of users such as the LHCb Collaboration. DIRAC forms a layer between a particular community and various compute resources to allow optimized, transparent and reliable usage.

A [high level overview](#) gives a general idea of the DIRAC functionality. A more detailed description of the DIRAC system can be found at this [location](#).

The DIRAC Workload Management system realizes the task scheduling paradigm with Generic Pilot Jobs (or Agents). This task scheduling method solves many problems of using unstable distributed computing resources which are available in computing grids. In particular, it helps the management of the user activities in large Virtual Organizations such as LHC experiments. In more details the DIRAC WMS with Pilot Jobs is described [here](#).

Documentation sources

User Guide	Developer Guide
Everything users need to know	Adding new functionality to DIRAC
Administrator Guide	Code Documentation ()
Administration of the DIRAC service	Code reference

DIRAC users and groups

In order to work with DIRAC users should be registered

In one or several groups

For traceability, accounting, etc

User's rights are determined by the ***Properties*** of the group

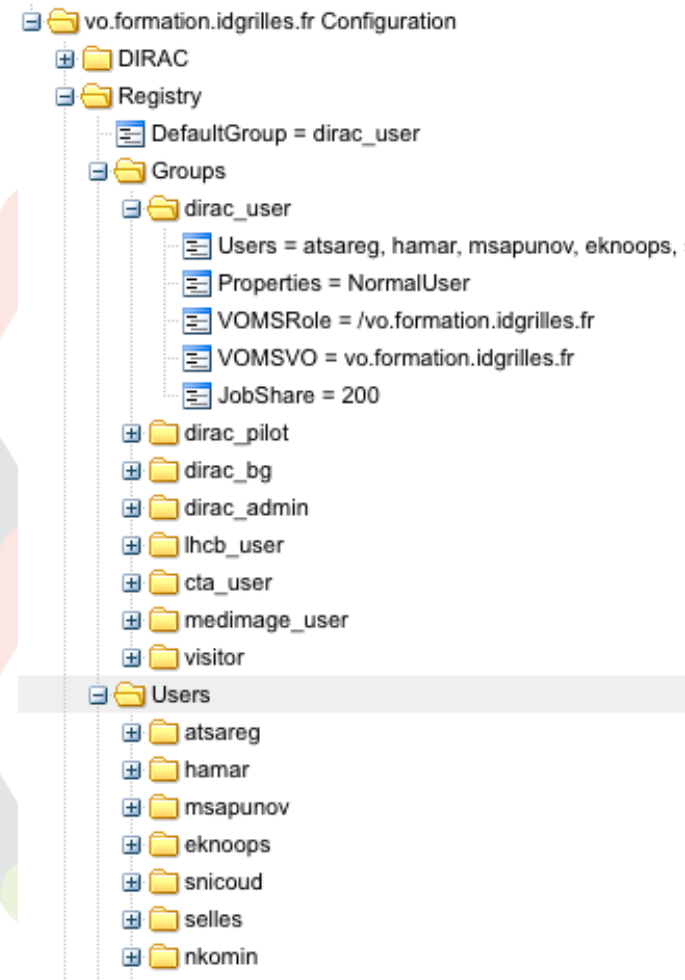
E.g. ***NormalUser*** can submit jobs

but can not change the DIRAC Configuration data

Each group has its share of jobs that it can run

Determines the group priority

Groups are mapped onto VOMS VO groups/roles



Grid users are identified by their certificates

Individual certificates, X509 PKI infrastructure

Obtaining the certificates is not part of the tutorial

All the students have a generic tutorial certificate

Individual certificates can be used if any

Please, check your case

The students are already registered in the **dirac_user** group

Login names `usera`, `userb`, etc

These accounts are temporary

For the real DIRAC account one should get a personal certificate and register with the DIRAC service

- ▶ DIRAC has a full featured Proxy Management system

Secure Proxy repository – ProxyManager service

Can be configured to use MyProxy server

Supply user proxies to various components

Automatic proxy renewal if necessary

Before using DIRAC a long living proxy must be uploaded to the Proxy Repository

In the Web Portal:

<https://dirac.france-grilles.fr/DIRAC>

Tools > Upload Proxy

Choose certificate file

Provide password



The screenshot shows a web browser window titled 'Proxy upload'. The form contains the following fields and elements:

- Certificate:** A text input field with a 'Browse...' button to its right.
- Input password for:** A section header for the password fields.
- p12 certificate:** A text input field.
- personal key:** A text input field.
- Disclaimer:** A paragraph of text stating: 'We are not keeping neither your private key nor password for certificate or private key on our service. While we try to make this process as secure as possible by using SSL to encrypt the key when it is sent to the server, for maximum security, we recommend that you manually convert and upload the proxy using DIRAC client commands: `dirac-cert-convert.sh CERT_FILE_NAME.p12` and `dirac-proxy-init -UP`'.
- Buttons:** At the bottom, there are three buttons: 'Submit' (with a green checkmark icon), 'Reset' (with a red 'X' icon), and 'Close' (with a red 'X' icon).

Web interface – <https://dirac.france-grilles.fr/DIRAC>

User friendliness is the goal

That's why we start with this one

No security compromises

Stable but based on outdated technology

The new web portal prototype is also ready to use:

[***https://dirac.in2p3.fr/DIRAC***](https://dirac.in2p3.fr/DIRAC)

But still in rapid development

Some things to iron out

More exciting functionalities

More application specific extensions

User guide:

<http://diracgrid.org/files/docs/UserGuide/WebAppUserGuide/index.html>

YouTube video course: <https://www.youtube.com/watch?v=vKBpED0lyLc#>

- ▶ Before using the Web portal the user grid certificate must be loaded into the browser

Used to authenticate the user to the DIRAC services

Firefox

Preferences > Advanced > Encryption > View Certificates

Import certificate

- ▶ From .p12 file

Password required

Exporting certificate in Firefox

Preferences > Advanced > Encryption > View Certificates

Backup certificate

Web Portal: job submission

Launchpad applet

Tools > Launchpad

Job submission with the real owner credentials

Job description

Executable, arguments

Sandboxes

Input/Output data

Extra parameters

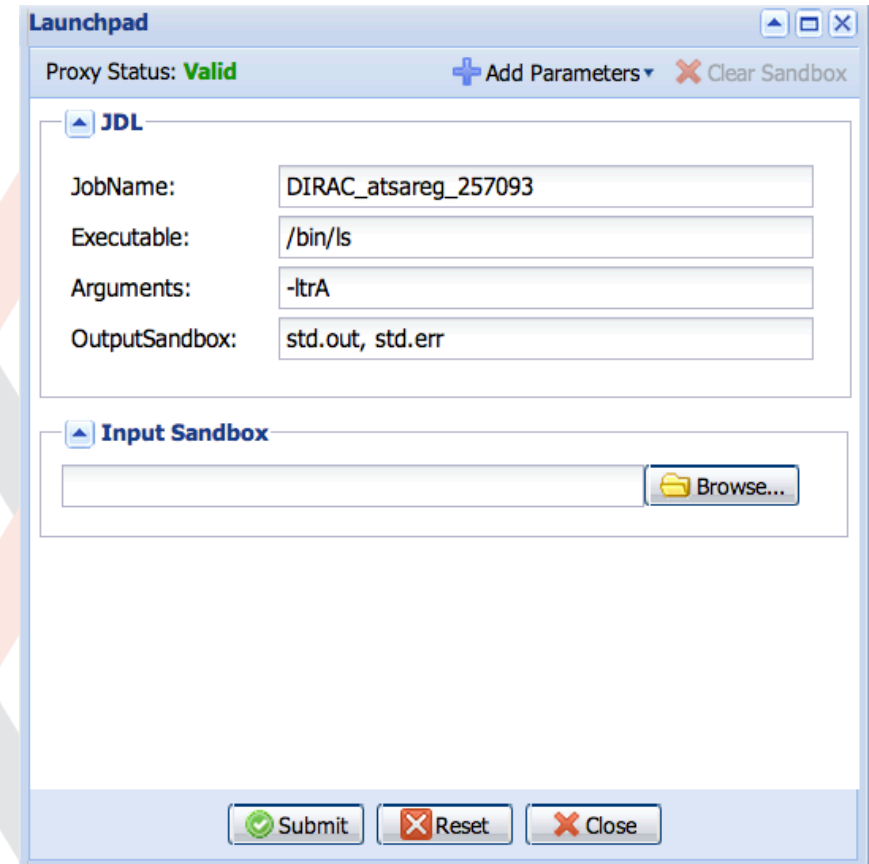
Input Sandbox

Upload local files

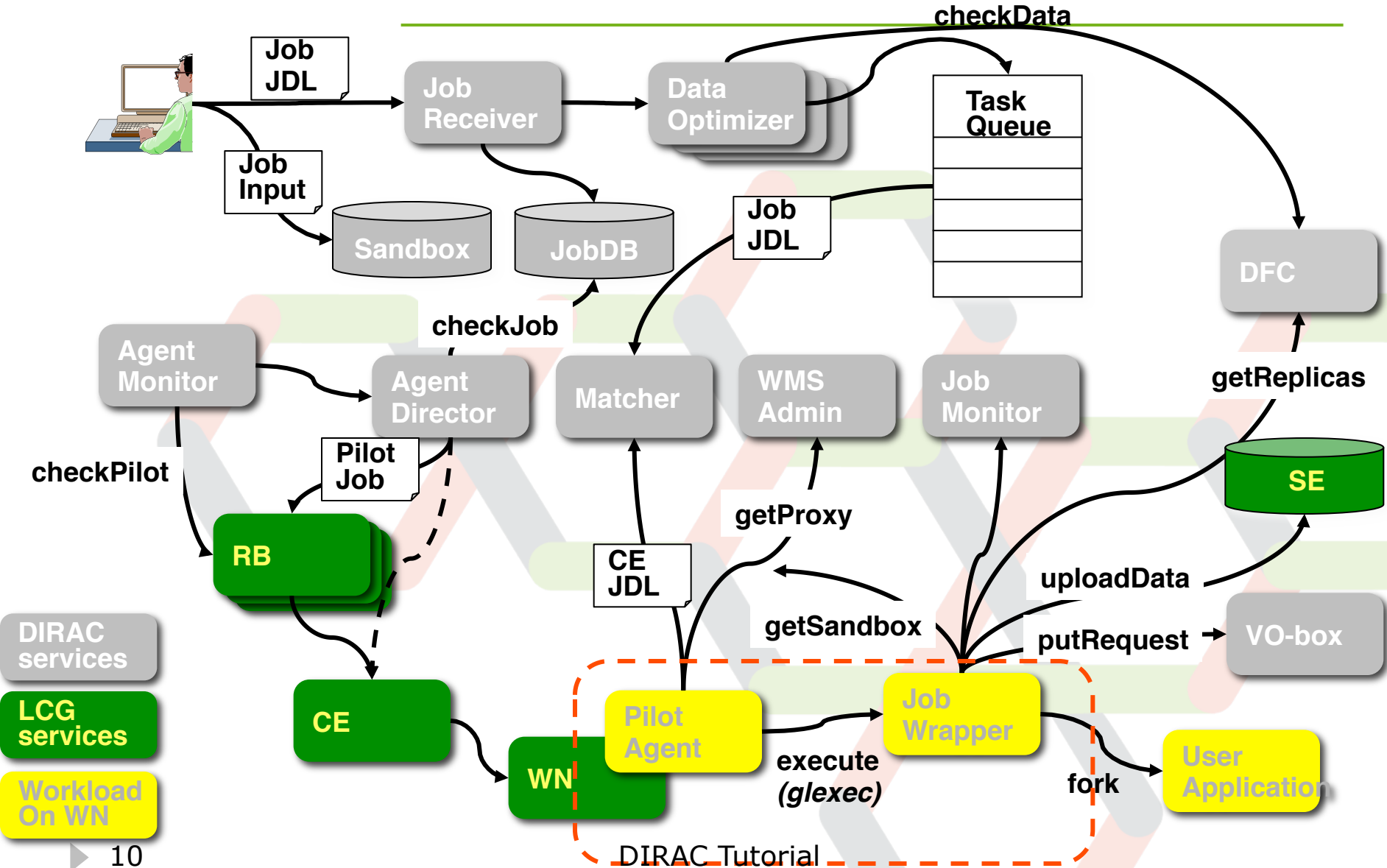
Simple application

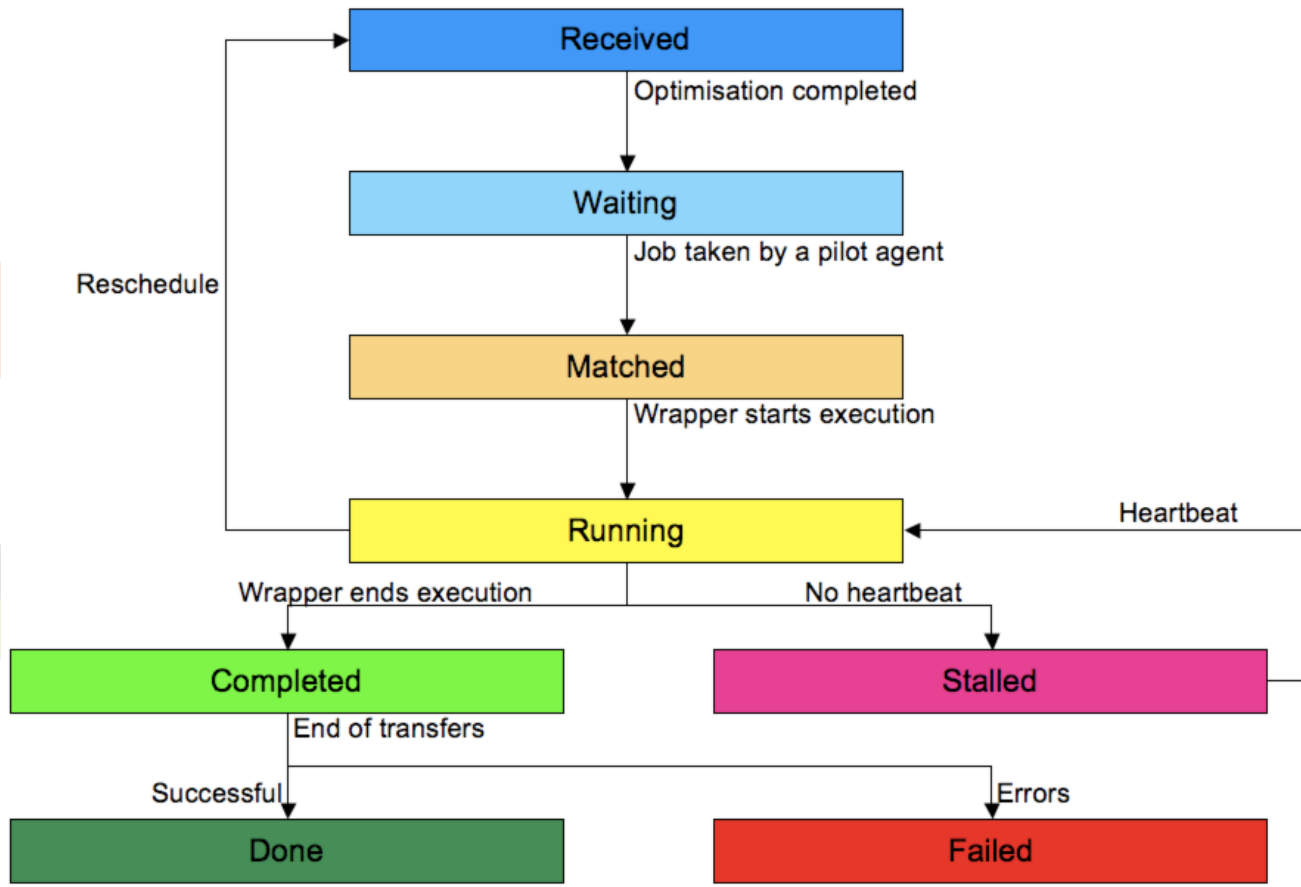
Mostly for demonstration purposes

Evolving into a more versatile tool



The screenshot shows the 'Launchpad' web portal interface. At the top, it displays 'Proxy Status: Valid' and buttons for 'Add Parameters' and 'Clear Sandbox'. Below this is a section titled 'JDL' (Job Description Language) with four input fields: 'JobName:' containing 'DIRAC_atsareg_257093', 'Executable:' containing '/bin/lis', 'Arguments:' containing '-ltrA', and 'OutputSandbox:' containing 'std.out, std.err'. Below the JDL section is an 'Input Sandbox' section with a text input field and a 'Browse...' button. At the bottom of the interface are three buttons: 'Submit' (with a green checkmark icon), 'Reset' (with a red X icon), and 'Close' (with a red X icon).





Job Monitoring page

Everything you need to know about your jobs

Use **Help** button for detailed explanations

Job Menu

Job info

Actions

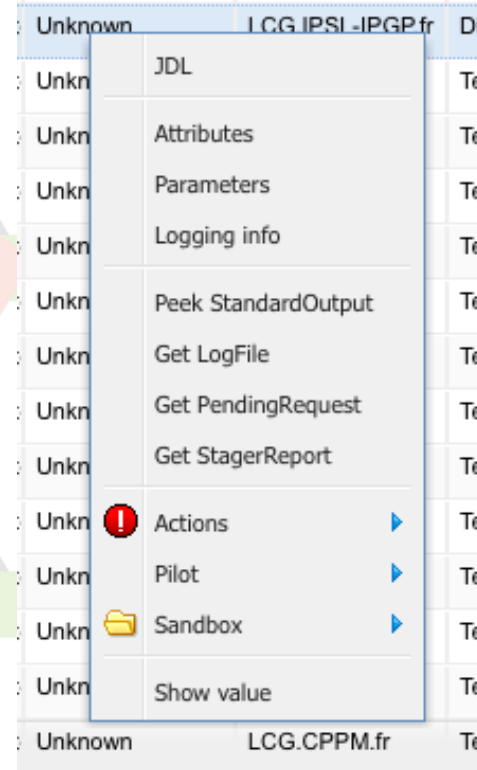
▶ Reschedule, delete, kill

Pilot output access

Useful for debugging

Sandbox download

Job selections



Submit “Hello, world!” job with Web Launchpad

- Basic job description

- Monitor it

- Get results

Submit job with Input and Output Sandbox

- Simple processing

- Getting results

Goals

- Understand job description

- Understanding job Web monitoring and manipulation tools