

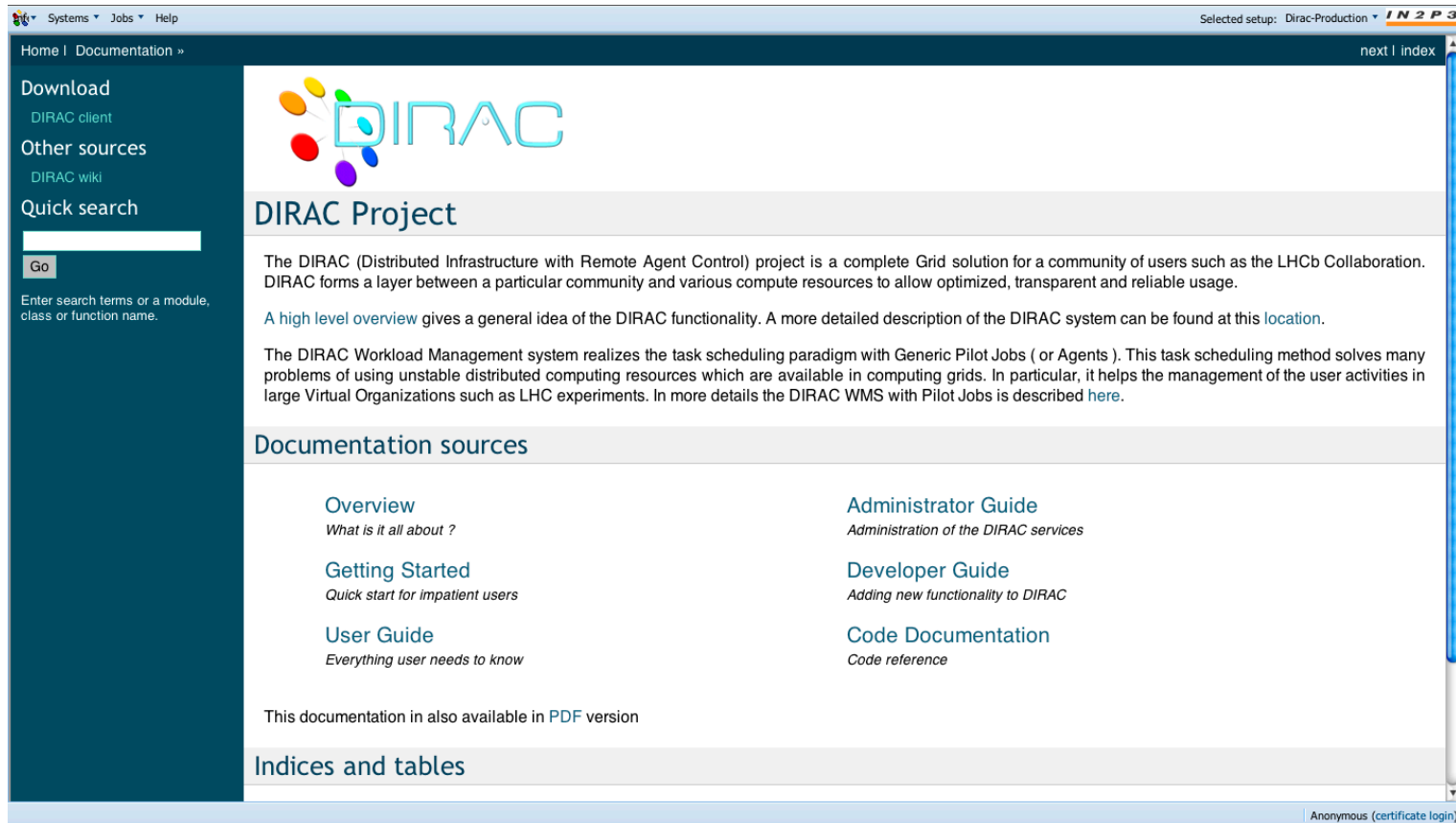


Getting started

DIRAC Project

- ▶ **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 Project website. The header includes navigation links like 'Systems', 'Jobs', and 'Help', and a 'Selected setup: Dirac-Production' indicator. The main content area features the DIRAC logo, the title 'DIRAC Project', and a description of the project as a complete Grid solution. It also provides links to a 'high level overview' and a 'location' for more details. Below this, there's a section for 'Documentation sources' with links to 'Overview', 'Getting Started', 'User Guide', 'Administrator Guide', 'Developer Guide', and 'Code Documentation'. A note mentions that the documentation is also available in PDF version. The footer includes a link to 'Indices and tables' and a login status indicator.

Home | Documentation »

Download
DIRAC client

Other sources
DIRAC wiki

Quick search

Go

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

Selected setup: Dirac-Production **IN2P3**

next | index

DIRAC Project

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

Overview <i>What is it all about ?</i>	Administrator Guide <i>Administration of the DIRAC services</i>
Getting Started <i>Quick start for impatient users</i>	Developer Guide <i>Adding new functionality to DIRAC</i>
User Guide <i>Everything user needs to know</i>	Code Documentation <i>Code reference</i>

This documentation is also available in [PDF](#) version

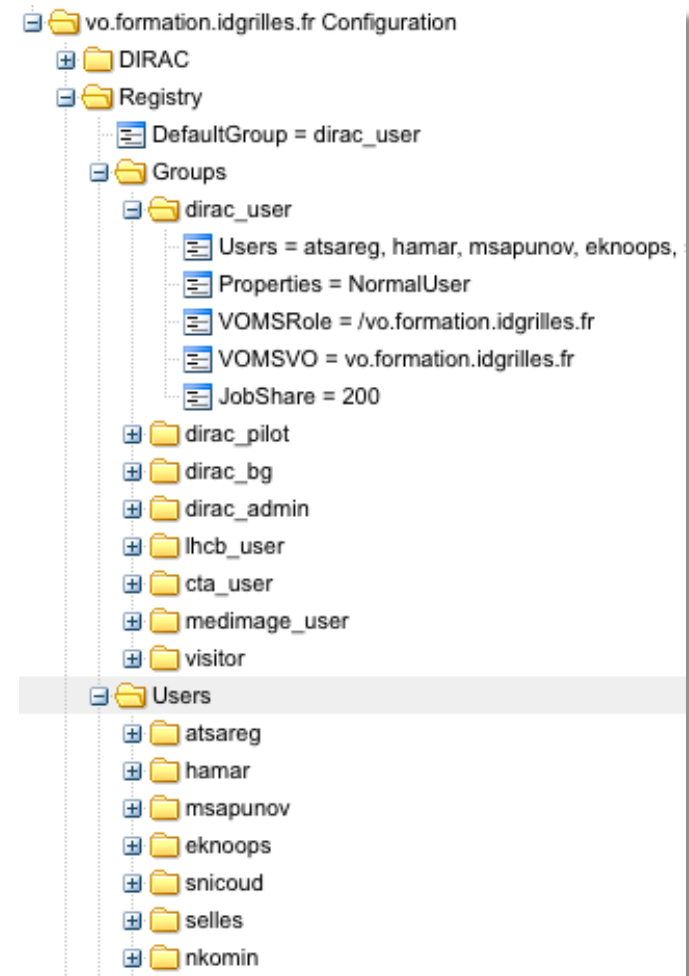
Indices and tables

Anonymous (certificate login)



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**
 - ▶ Short living tutorial certificates will be used
 - ▶ The tutorial certificates are otherwise the same as real ones
- ▶ **The tutorial certificates are available for the participants as .p12 files**
 - ▶ Validity : till 15/06/12
 - ▶ Password : bordeaux130612

Proxy Management

- ▶ 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
 - ▶ Tools > Upload Proxy
 - ▶ Choose certificate file
 - ▶ Provide password

A screenshot of a web browser window titled 'Proxy upload'. The window has a light blue background. At the top, there's a header bar with the title 'Proxy upload' and some smaller text. Below the header, there's a 'Certificate:' label followed by a text input field and a 'Browse...' button. Underneath, there's a section titled 'Input password for' with two labels: 'p12 certificate:' and 'personal key:', each followed by a text input field. At the bottom of the form, there's a paragraph of text explaining the security of the process and providing two commands: 'dirac-cert-convert.sh CERT_FILE_NAME.p12' and 'dirac-proxy-init -UP'. At the very bottom, there are three buttons: 'Submit' (with a green checkmark icon), 'Reset' (with a red 'X' icon), and 'Close' (with a red 'X' icon).



DIRAC: user interfaces

- ▶ **Unix command line interface**
 - ▶ Historically the first one
 - ▶ Suitable for unix addicts
 - ▶ Easy to use in shell scripts
 - ▶ Too many commands
 - ▶ Even more switches

- ▶ **Python API**
 - ▶ Originally for DIRAC developers
 - ▶ More users are starting to use it
 - ▶ The most versatile
 - ▶ Build your own DIRAC applications

- ▶ Web interface – <http://dirac.france-grilles.fr>
 - ▶ User friendliness is the goal
 - ▶ That's why we start with this one
 - ▶ No security compromises
 - ▶ Less flexibility than with other interfaces
 - ▶ But still in rapid development
 - ▶ More exciting functionalities
 - ▶ More application specific extensions



Loading certificate into the browser

- ▶ 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

- ▶ **Job submission**
 - ▶ Demonstrator

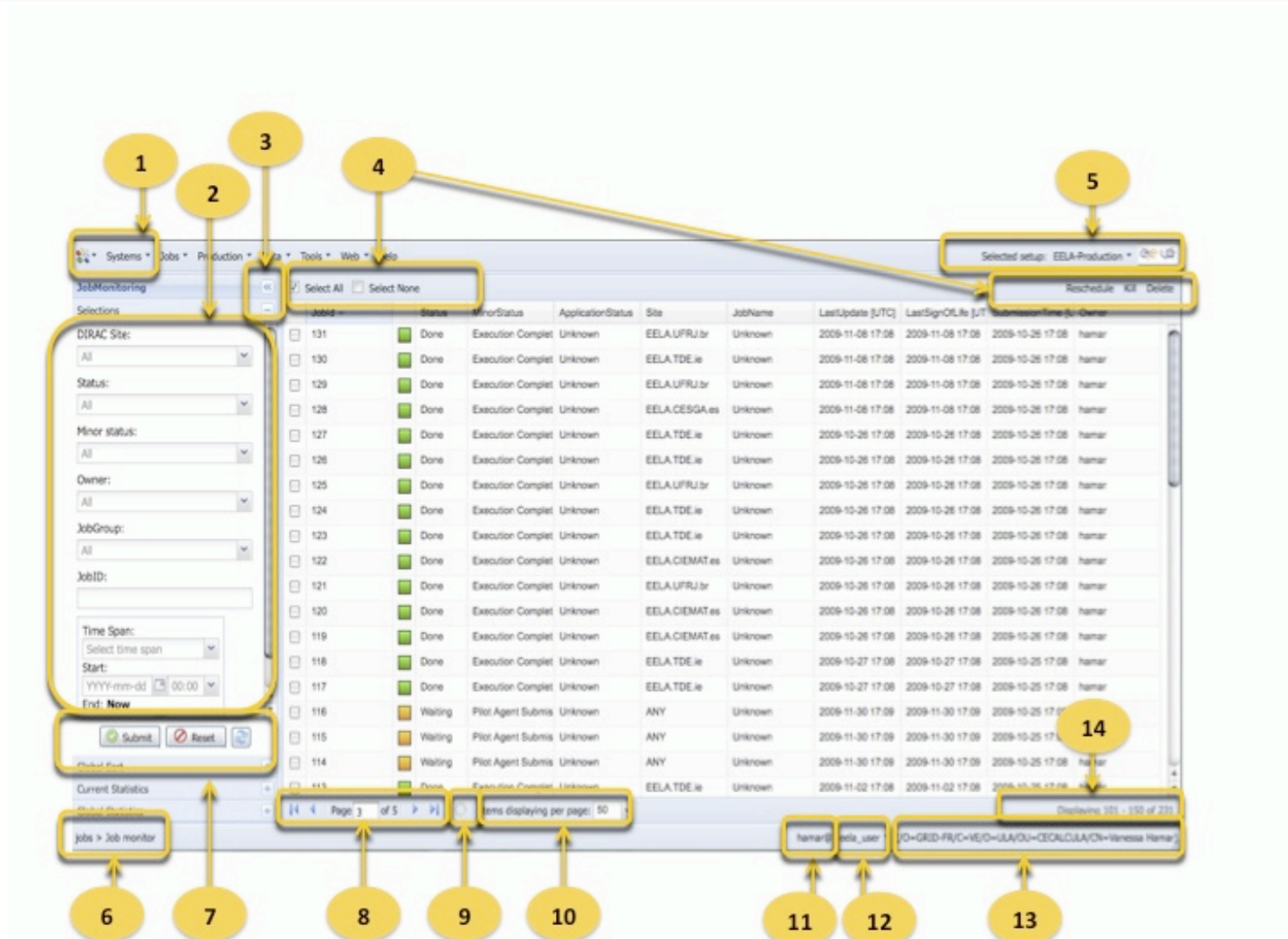
- ▶ **Job Monitoring**
 - ▶ Job status, access to the results

- ▶ **Data discovery**
 - ▶ E.g. LHCb Bookkeeping database interface
 - ▶ Generic Catalog Browser to come

- ▶ **Administrative tasks**
 - ▶ Configuration management
 - ▶ Users and groups, community policies
 - ▶ Accounting, services monitoring

- ▶ **Specific application Web Portals can be derived**
 - ▶ Community Application Servers
 - ▶ All the grid computational tasks steered on the web
 - ▶ E.g. LHCb Production Management System

Web Portal: general layout



The screenshot displays the DIRAC Web Portal interface with various components highlighted by numbered yellow circles and arrows:

- 1**: Navigation menu (Systems, Jobs, Production, Data, Tools, Web, Help).
- 2**: JobMonitoring section header.
- 3**: Selections sidebar containing filters for DIRAC Site, Status, Minor status, Owner, JobGroup, JobID, and Time Span.
- 4**: Action buttons (Select All, Select None) above the job list.
- 5**: Selected setup (EELA-Production) and action buttons (Reschedule, Kill, Delete).
- 6**: Current Statistics section.
- 7**: Job > Job monitor link.
- 8**: Page navigation (Page 3 of 5).
- 9**: Items displaying per page (50).
- 10**: User information (hamar@eela_user).
- 11**: User ID (O=GRID-FR/C=IE/O=UJA/OU=CERN/CN=Viviane Hamar).
- 12**: User email (viviane.hamar@cern.ch).
- 13**: User phone number (+33 478 620 1111).
- 14**: Job list table with columns: JobID, Status, MinorStatus, ApplicationStatus, Site, JobName, LastUpdate [UTC], LastSignOffLife [UTC], SubmissionTime [UTC], Owner.

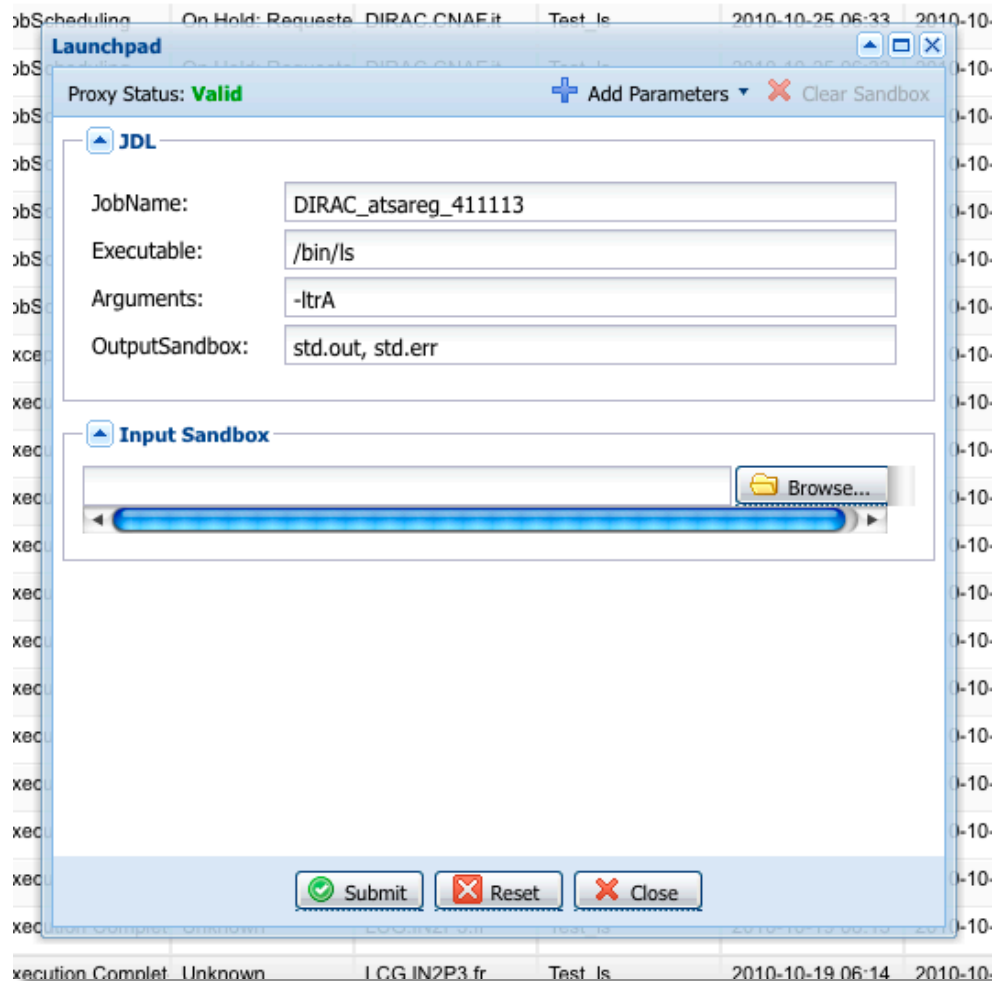
JobID	Status	MinorStatus	ApplicationStatus	Site	JobName	LastUpdate [UTC]	LastSignOffLife [UTC]	SubmissionTime [UTC]	Owner
131	Done	Execution Complet	Unknown	EELA.UFRJ.br	Unknown	2009-11-06 17:06	2009-11-06 17:06	2009-10-26 17:06	hamar
130	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-11-06 17:06	2009-11-06 17:06	2009-10-26 17:06	hamar
129	Done	Execution Complet	Unknown	EELA.UFRJ.br	Unknown	2009-11-06 17:06	2009-11-06 17:06	2009-10-26 17:06	hamar
128	Done	Execution Complet	Unknown	EELA.CESGA.es	Unknown	2009-11-06 17:06	2009-11-06 17:06	2009-10-26 17:06	hamar
127	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
126	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
125	Done	Execution Complet	Unknown	EELA.UFRJ.br	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
124	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
123	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
122	Done	Execution Complet	Unknown	EELA.CIEMAT.es	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
121	Done	Execution Complet	Unknown	EELA.UFRJ.br	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
120	Done	Execution Complet	Unknown	EELA.CIEMAT.es	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
119	Done	Execution Complet	Unknown	EELA.CIEMAT.es	Unknown	2009-10-26 17:06	2009-10-26 17:06	2009-10-26 17:06	hamar
118	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-27 17:06	2009-10-27 17:06	2009-10-25 17:06	hamar
117	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-10-27 17:06	2009-10-27 17:06	2009-10-25 17:06	hamar
116	Waiting	Pilot Agent Submis	Unknown	ANY	Unknown	2009-11-30 17:06	2009-11-30 17:06	2009-10-25 17:06	hamar
115	Waiting	Pilot Agent Submis	Unknown	ANY	Unknown	2009-11-30 17:06	2009-11-30 17:06	2009-10-25 17:06	hamar
114	Waiting	Pilot Agent Submis	Unknown	ANY	Unknown	2009-11-30 17:06	2009-11-30 17:06	2009-10-25 17:06	hamar
113	Done	Execution Complet	Unknown	EELA.TDE.ie	Unknown	2009-11-02 17:06	2009-11-02 17:06	2009-10-26 17:06	hamar

Web Portal: general layout

1. **Main Menu:** This menu offers options for systems, jobs, tools and help.
2. **Selections:** Shows a set of selectors than permits generate customs selections.
3. **Buttons to open/collapse panels:** Permit open or collapse left menu.
4. **Actions to perform for job(s):** These actions permits select all, select none, reset, kill or submit
5. **Menu to change DIRAC setup:** Users can change between different setups.
6. **Current location:** Indicates where the user is located inside the portal.
7. **Buttons to submit or reset the form:** After options are selected its possible to submit and execute the selection or reset the selectors.
8. **Pagination controls:** Permits navigate between the pages, and also show in which page the user is navigating.
9. **Refresh table:** Reload the page without loose the previous selection and show the new status.
10. **Items per page:** This option allow the users to specify how many items are going to be displayed by page.
11. **User DIRAC login:** Login assigned to the user connected to DIRAC web portal.
12. **DIRAC Group:** The user could belong to different groups and perform actions depending of the group previously selected.
13. **Certificate DN:** Web portal shows the distinguish name of user certificate what is being used to realize the connection.
14. **Index items displayed:** Display the range of items displayed in the page.

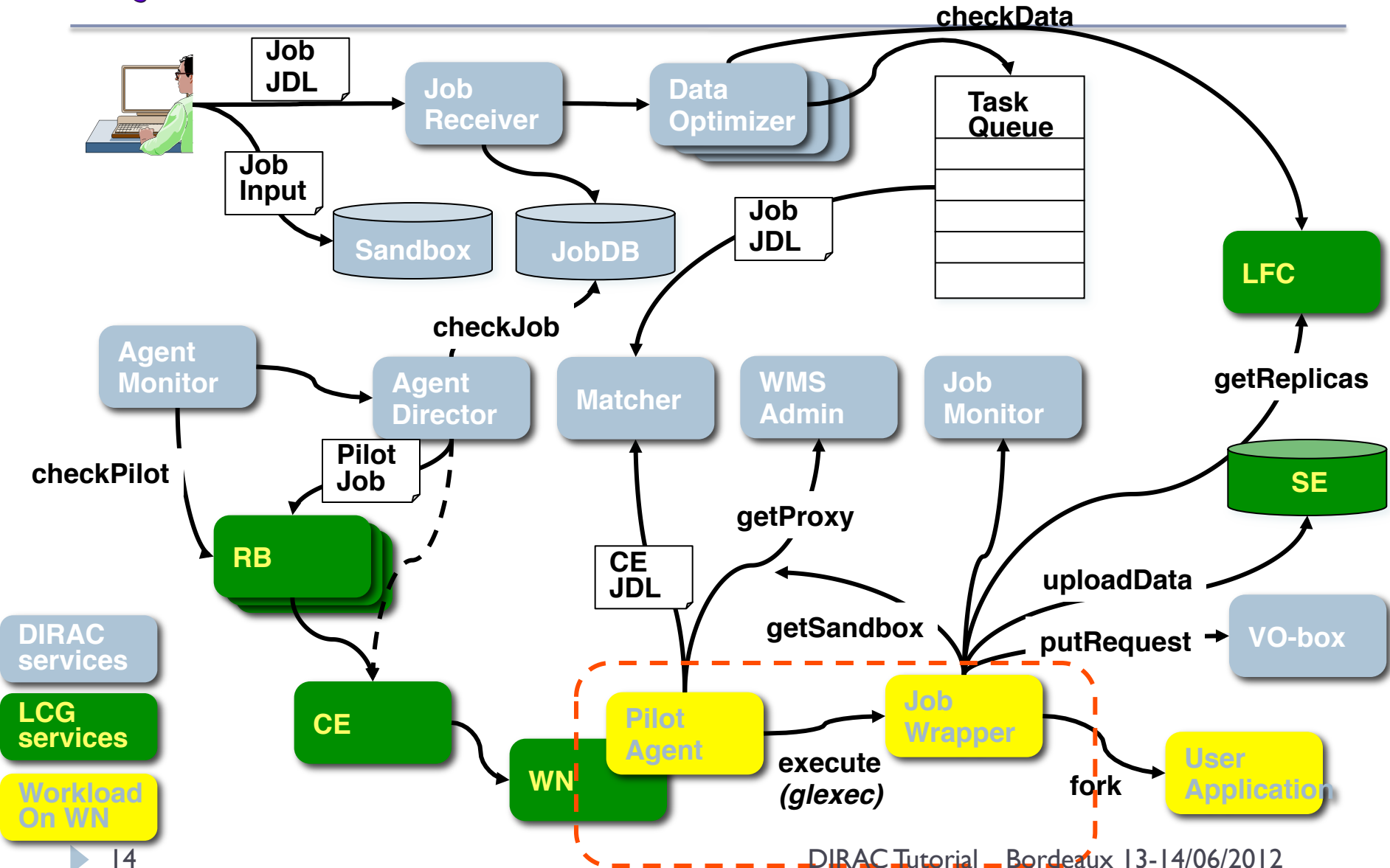
Web Portal: job submission

- ▶ Launchpad applet
 - ▶ Jobs > JobMonitoring > Tools
- ▶ 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

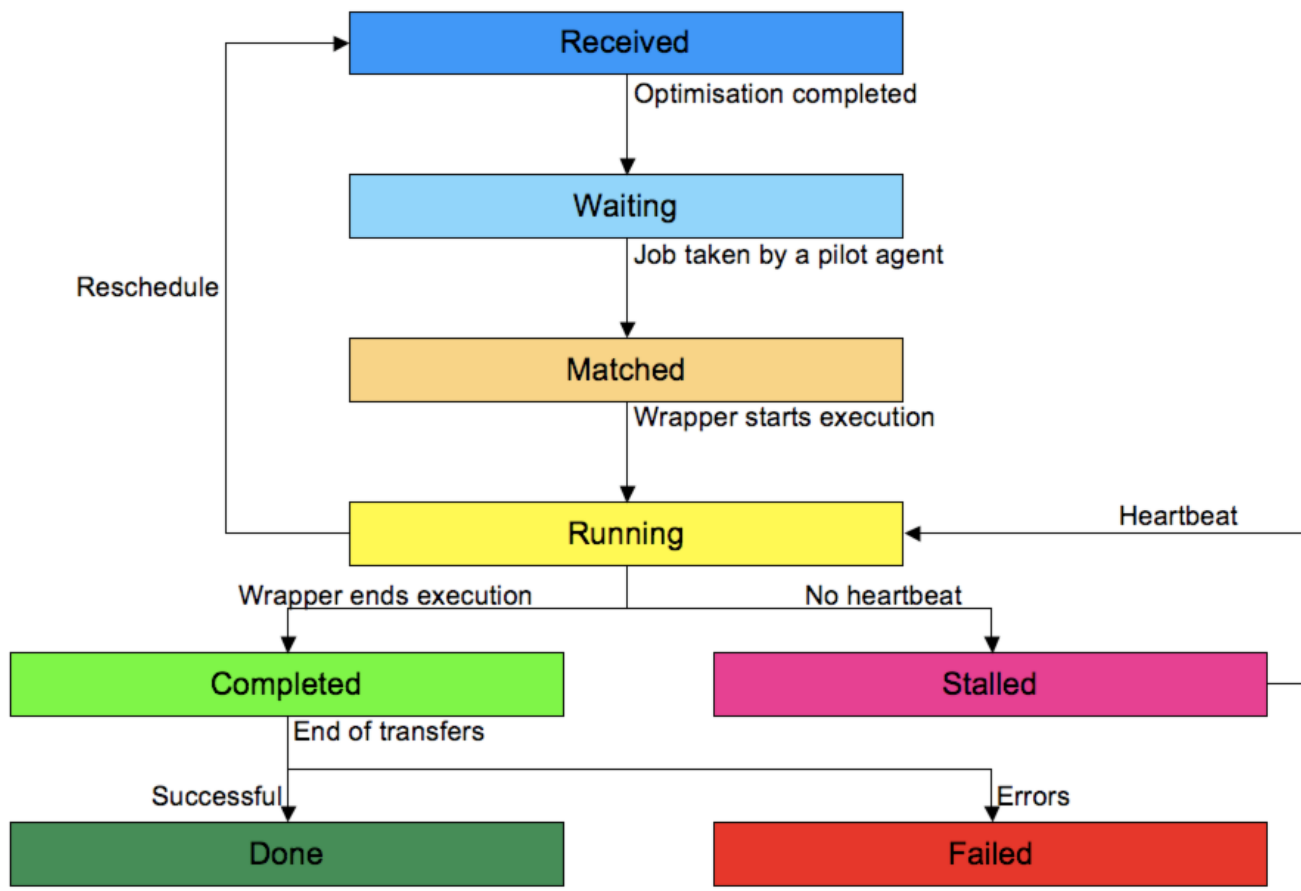


The screenshot shows the 'Launchpad' window with the following fields and controls:

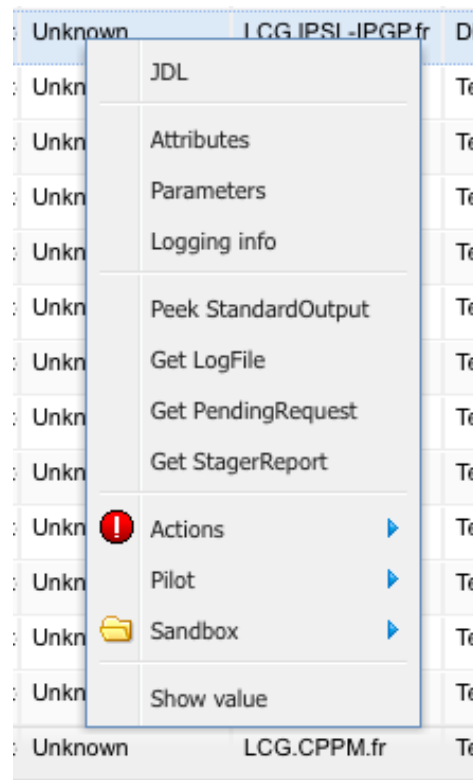
- Proxy Status:** Valid
- Buttons:** + Add Parameters, ✖ Clear Sandbox
- JDL Section:**
 - JobName:** DIRAC_atsareg_411113
 - Executable:** /bin/ls
 - Arguments:** -ltrA
 - OutputSandbox:** std.out, std.err
- Input Sandbox Section:**
 - A file selection area with a 'Browse...' button.
- Bottom Buttons:** ✓ Submit, ✖ Reset, ✖ Close



Job state machine



- ▶ 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