Welcome
to the 11th
(and 2nd virtual)
DIRAC Users' Workshop

A virtual DUW

We felt it was too still early to organize a f2f workshop.

So, back on Zoom, with basically the same agenda as per DUW 2021:

2 half-days for:

- knowing about recent and upcoming developments
- users (experiments') reports

Mon 09/05 | Tue 10/05 | All days

Print | PDF | Full screen | Detailed view | Filter

Session legend

DIRAC Developments and DevOps

09:00	**Intro and directions**	*Federico Stagni*	
	Zoom	09:00 - 09:20	
	On Authentication, Authorization and Single Sign On	*Andrii Lytovchenko et al.*	
	Zoom	09:20 - 09:45	
	Interfaces: WebApp and COMDIRAC	*Andrii Lytovchenko et al.*	
	Zoom	09:45 - 09:55	
10:00	**WMS and Computing Resources**	*Alexandre Franck Boyer*	
	Zoom	09:55 - 10:40	
	Coffee break		
	Zoom	10:40 - 11:00	
11:00	**Monitoring with and for DIRAC**	*Ruben Pozzi*	
	Zoom	11:00 - 11:20	
	Data Management	*Christophe Haen*	
	Zoom	11:20 - 11:40	
	DIRAC and Rucio	*Janusz Martyniak*	
	Zoom	11:40 - 12:00	
12:00	**On Python 3, DIRACOS, and other FAQs**	*Chris Burr*	
	Zoom	12:00 - 12:30	

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Expriments' reports

09:00	**LHCb**	*Concezio Bozzi*	
	Zoom	09:00 - 09:20	
	CLIC/ILC/FCC/Calice	*Andre Sailer*	
	Zoom	09:20 - 09:40	
	GridPP	*Daniela Bauer*	
	Zoom	09:40 - 10:00	
10:00	**EGI**	*Gino Marchetti*	
	Zoom	10:00 - 10:20	
	Belle2	*Michel Hernandez Villanueva*	
	Zoom	10:20 - 10:40	
	coffee break		
	Zoom	10:40 - 11:00	
11:00	**IHEP**	*Xiaomei Zhang*	
	Zoom	11:00 - 11:20	
	CTA	*Luisa ARRABITO*	
	Zoom	11:20 - 11:40	
	JINR	*Igor Pelevanyuk*	
	Zoom	11:40 - 12:00	
12:00	**Summary and prospects**	*Federico Stagni*	
	Zoom	12:00 - 12:20	

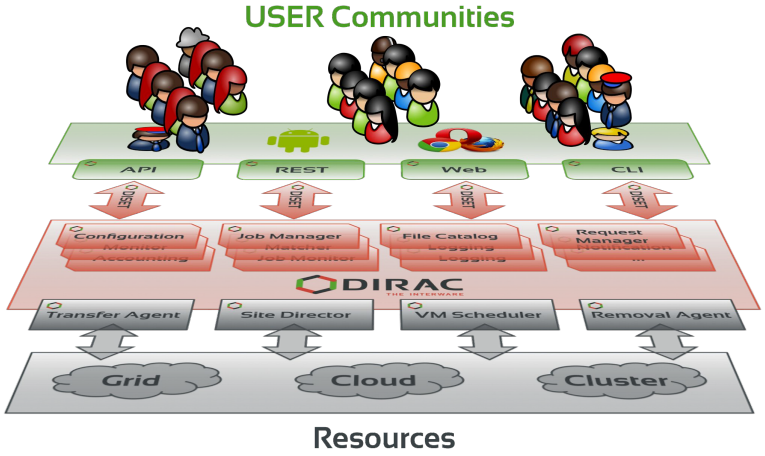
Workshop rules

(also posted here)

- The sessions are recorded, and will be made public afterwards
- After each presentation there will be few minutes for questions. Please “raise your hand” in Zoom to intervene.
  - and it would be nice if you switch on the camera while speaking
- Notes are taken in this free-for-all notebook and you are welcome to participate to it.
  - you can also write the questions here

What's DIRAC?

- A software framework for distributed computing
- A **complete** solution to one (or more) user community
- Builds a layer between users and resources



- Started as an LHCb project, experiment-agnostic in 2009
- Developed by communities, for communities
  - Open source (GPL3+), GitHub hosted
  - Python 3 (python 2.7 kept for current production release)
  - Publicly documented, active assistance forum, yearly users workshops, open developers meetings and hackathons
- The DIRAC consortium as representing body

Installations and communities

(that I know)

Shared by multiple experiments/projects, both inside HEP, astronomy, and life science

Experiment agnostic

Extensible

Flexible

Why is DIRAC popular?

- **DIRAC as-a-service** (1 installation, several VOs) available since long time
  - all DIRAC functionalities are multi-VO as of release v7r3
  - good for limited-manpower communities
- Feature-rich, all-in-one (WMS, DMS, but also Productions and Dataset management, and monitoring)
  - again, good for limited-manpower communities
- Tightly-integrated DIRAC WebApp
- Actively developed and maintained

"Stable"

from previous workshops

"Communication is the killer feature of DIRAC"

Some DIRAC developments

- always valid: Integrating DIRAC workflows in HPCs
- always valid: DMS advancements
- Done: Python 3
  - py3 clients supported since version 7.2 (pip installable)
  - py3 server supported since version 7.3 (production)
  - py2 support ends with 8.0 (release is few weeks away)
    - with some obvious exceptions of part of pilots code
- Ongoing: `dips://` → `https://`
  - `dips`: DIRAC proprietary protocol for RPC calls
  - `http`: based on tornado
  - several DIRAC services already available using HTTP, and adding more
    - `http` will be the default for all the DIRAC services from version 8.1
- Ongoing: token support, and IdP (IaM, Check-in)
- Ongoing: ES/kibana/grafana dashboards
- Started: running on kubernetes (goal: define a *helm* chart)
- Started: using celery and RabbitMQ (retiring part of DIRAC framework)

Releases

Production

- v7r2 (7.2) (March 2021)
  - code structure changed
    - + using sweeper for propagating PRs
  - https services (few)
  - python3 clients (optional)
- v7.3 (v7r3) (Sept 2021)
  - https services (some more)
  - python3 clients (default)
  - python3 server (optional, but stable)

Upcoming

- v8.0 (May 2022)
  - https services (more)
  - python3 only, client and server
  - initial support for tokens, Oauth2, non-VOMS IdPs
- v8.1
  - all services can be exposed via http
  - Oauth2: full support
  - use of celery and RabbitMQ
- v8.2
  - abandoning DISET?

NB: many other developments are not listed here but in the presentations that follow.

Management and administration

- Releases deployed by Github Actions:
  - on pypi (for python3) for DIRAC and its extensions
  - in CVMFS: `/cvmfs/dirac.egi.eu/installSource`
- Deploys:
  - servers: puppet modules (used at least by LHCb and CLIC)
    - can be added to github if requested
  - starting to look into k8s services deployments

Supported versions

We're not too strict but *normally*:

The "production branch" - 1

e.g., today v7r3 … v7r2

note: in few weeks v8.0 will be out

… and try to keep up to date!

- Backward compatibility is assured for 1 release

Running environment

Production, but legacy, and unsupported	Really Production
DIRACOS available since v6r21 default from v7r0 will stay for all **python2** installations but *not anymore developed/maintained*	DIRACOS2 available since v7.2 for **python3** only installations (client, and server) based on *Conda*

For Devs

BILD meetings:

"BiWeekly 'Loyal' DIRAC Developers meetings"

every 2nd week

Thursday at 10:00 AM CET

LHCb hosted

Clic, Belle2, EGI/FG, BES3/Juno, GridPP, IHEP represented

→ *you want to be invited? Just let me know*

Where releases and issues are discussed!

Certification hackathons:

every (other) 2nd week

Thursday at 10:00 AM CET

LHCb hosted

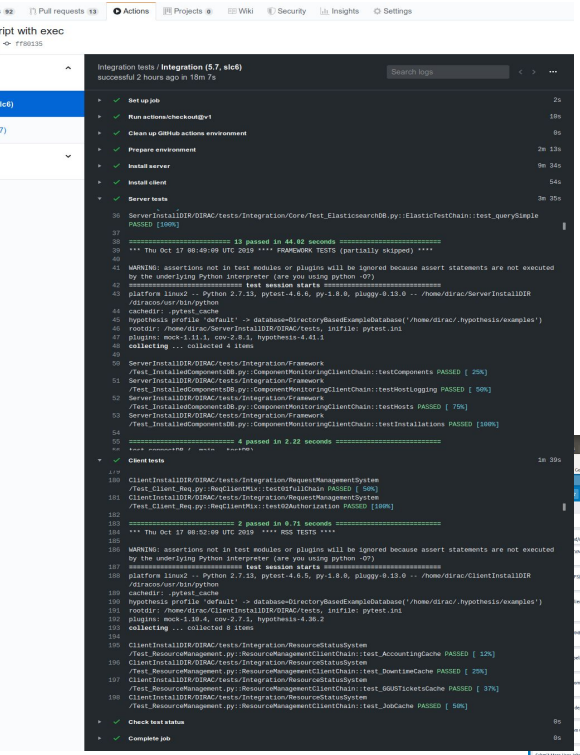
Clic, EGI/FG, GridPP represented

→ *you want to be participate? Just let me know*

lhcbdirac.slack.com + Trello

DIRAC
THE INTERWARE

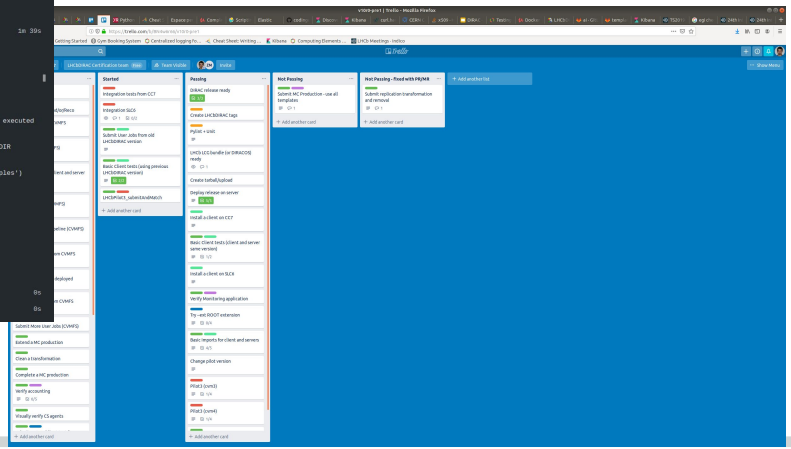
Development and testing

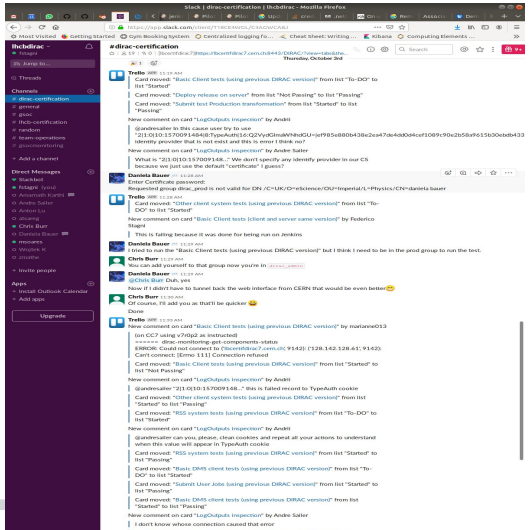


~6 FTE as core developers, a dozen contributing developers

Tests, certification, integration process is a daily work.

- We use (lots of) GitHub Actions, and Jenkins for some bits
- We run certification hackathons every 2nd week





Questions/comments?

- dirac.readthedocs.io
  - including code documentation
- Ops and general questions: Google forum – but we prefer github discussions
- Dev and DevOps issues: on github
- Bi-weekly developers meetings (and/or hackathons): BILD

backup

Where to find documentation

- official doc: http://dirac.readthedocs.io/en/latest/index.html

  BTW: click on low, right side, search for “edit”, click, write/correct it…

- GitHubWiki: https://github.com/DIRACGrid/DIRAC/wiki

  e.g. for operational changes for new releases

- ...or in the presentations of previous workshop(s)

- on the google forum, for operations and assistance

- github issues, for… filing issues

  or solving them… ;-)

DIRAC developers/maintainers philosophy (2009)

- 2009: monolithic framework
  - batteries (all dependencies) included, for client and for server
    - ship *python* and *MySQL* (also for server) and *runsv*
  - DISET framework, `dips://` protocol
  - in-house monitoring (based on RRD)
  - in general, large use of in-house libraries

    `pyGSI, gLogger, ThreadPool, ProcessPool, Script`

DIRAC developers/maintainers philosophy (2022)

- 2022: lighter project(s)
  - `dips:// → https://`
    - DISET → *tornado*
  - replace in-house developments with external libraries

    `m2crypto, logging, concurrent.futures, celery, etc.`
  - separate the development from the deployment
    - e.g. *MySQL, ElasticSearch, runit* are not distributed
    - with *python3*, instead of “bringing the environment with the release”, we “deploy a release in an environment”.