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# TSD

Tjenester for sensitive data  
Services for Sensitive Data

# *TSD – Services for Sensitive Data*

*An infrastructure for high security data*

# TSD overview

- In production since 2014
- Norway's largest PaaS infrastructure for sensitive data
- >10.5k unique users, >1.8k active projects
- Receiving 3500+ user support cases per year
- 4 PiB of storage and growing
- National service via Sigma2: financing HPC and storage





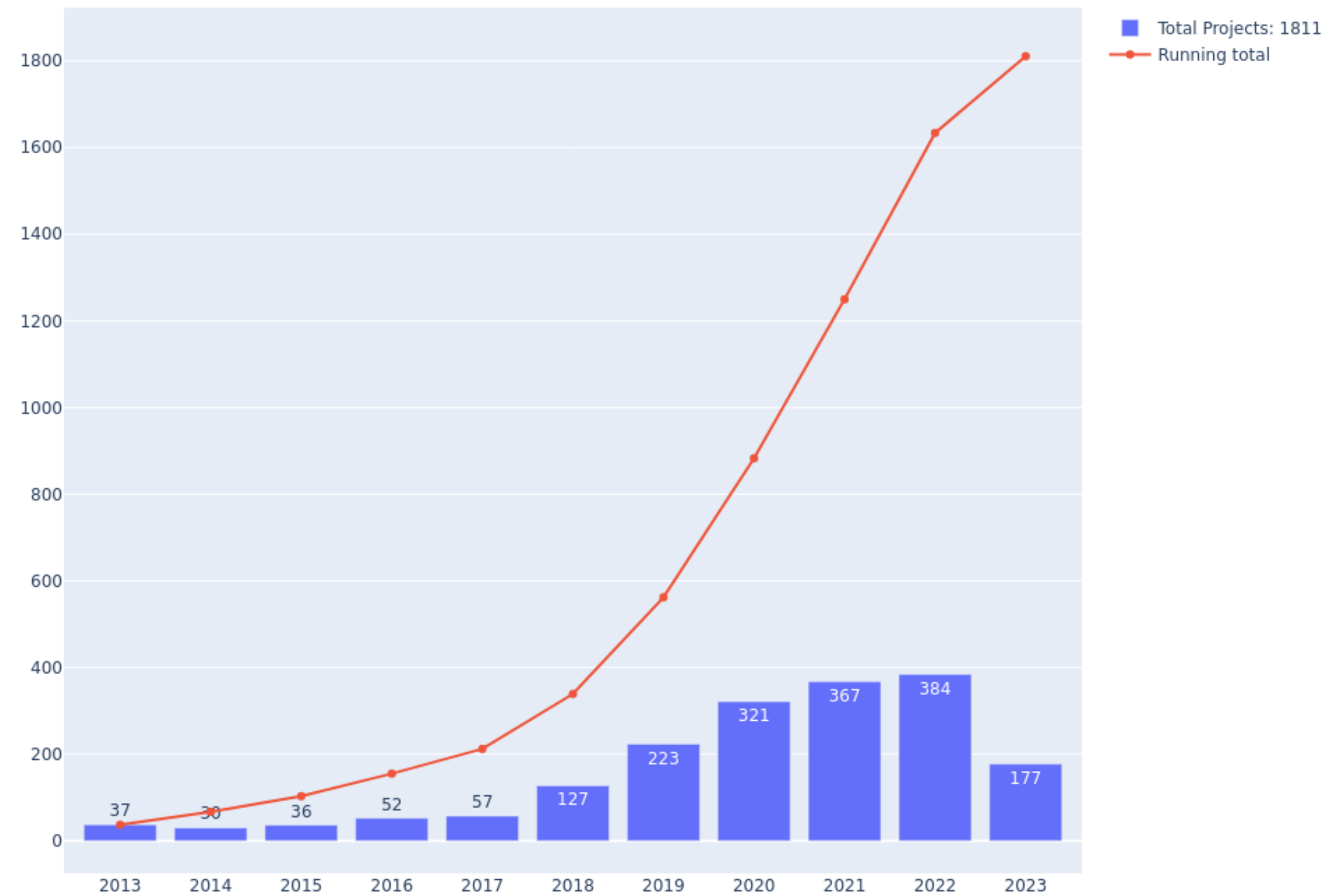


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# Active projects





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# Isolation & security

- All projects are isolated on the network level
  - Assures no data flowing between tenants
- Users work within secure environment of their project
- All logins with enforced 2FA

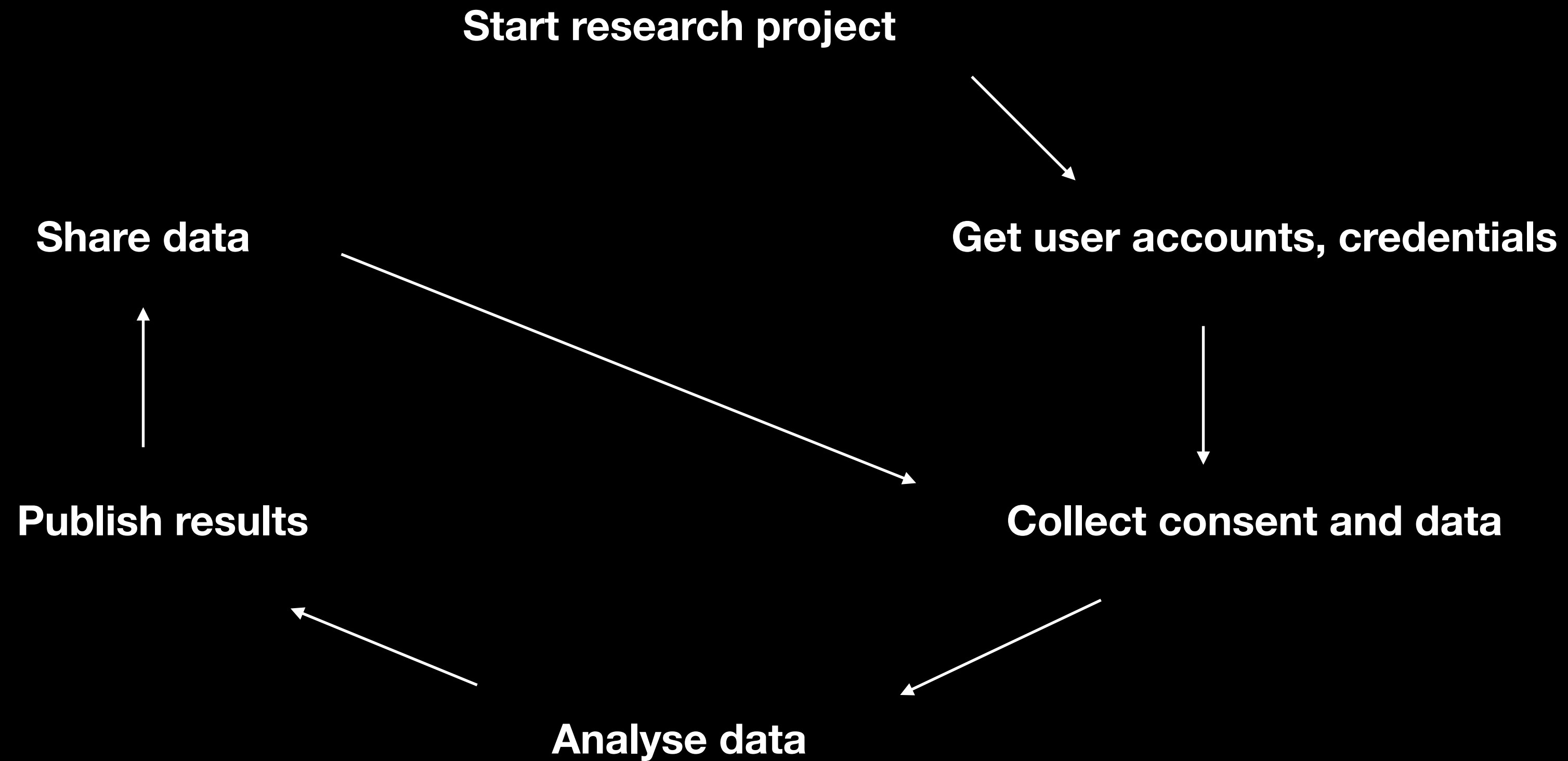




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# Project lifecycle





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# Usage patterns

- Primary interface is remote desktop
- File transfer via RESTful API
- HPC
- Containers
- Custom application development



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# Services

**TSD Publication Portal**  
Download Files

**Publishing  
Sharing**

**Archiving**



**Profile**  
Change your password / get new QR Code.

Log in

**Apply for access to a project**  
Currently only available for users with a Norwegian electronic ID.

Log in (ID-Porten)

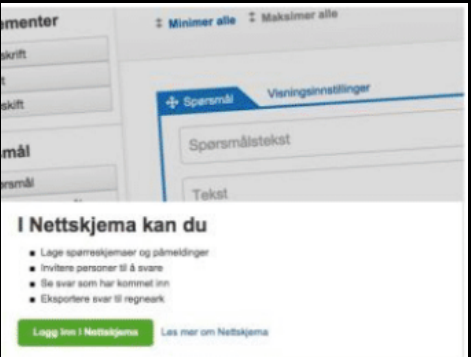
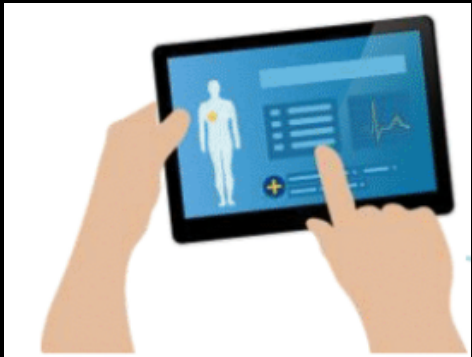
**Project administration**

- Review pending applications
- List all people in project
- Group management
- External import links

Log in

**Self service**

**Data capture  
Consent  
App development**



Welcome to the TSD Data Portal

To use this service you should already hold a valid TSD user account.

Import Files

Export Files

Record From Media Device

**Analysis  
Compute  
Software  
Storage  
Backup  
Databases**



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# Project creation

- REK/NSD/Datatilsynet/Personvernombud - required ethical approval
- Submission done with DIFI digital signature
- 10 working days for processing
- No limitation on who can apply as PI, or member
- Different pricing for different affiliations





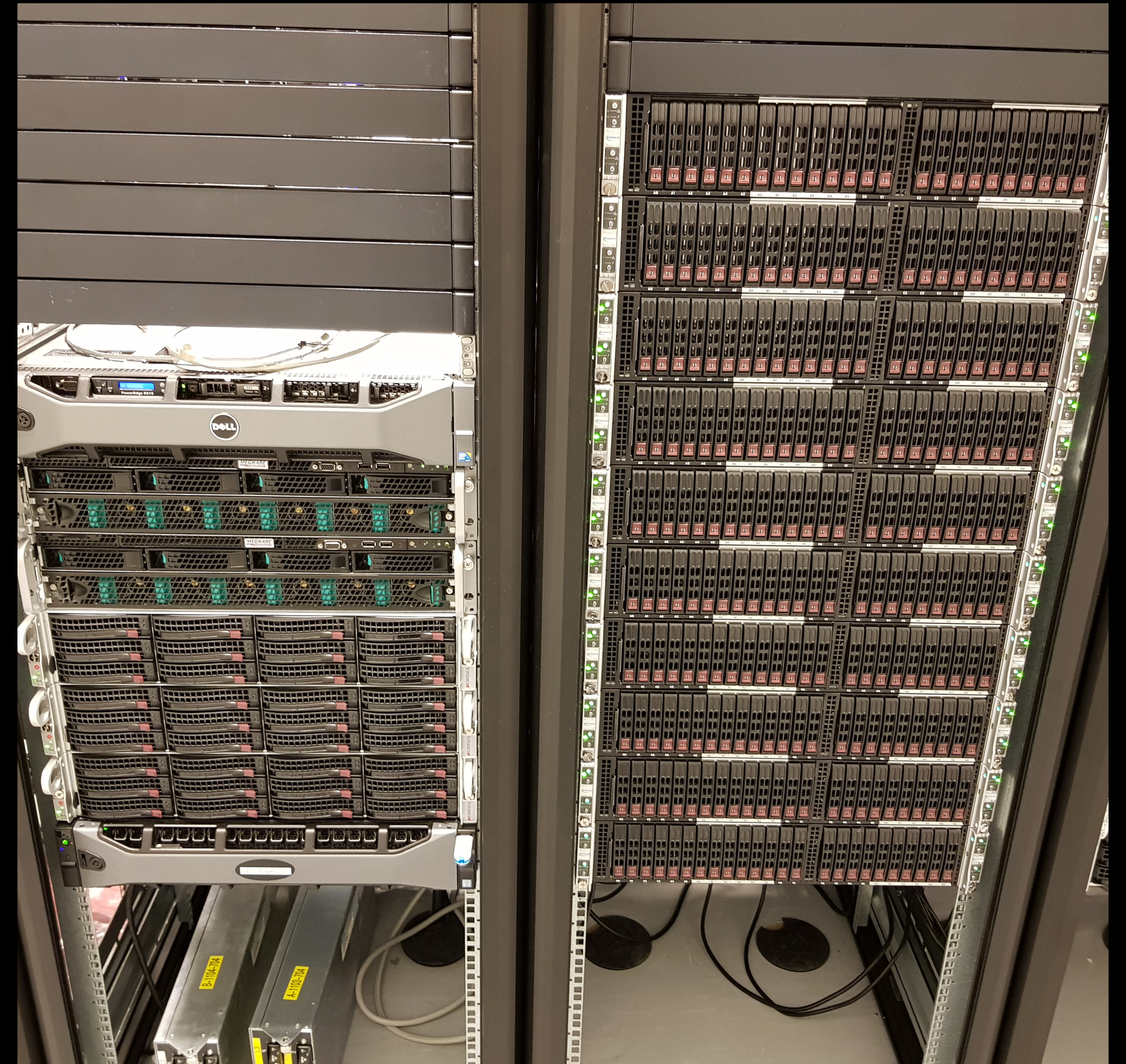
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# Colossus3

- Parallel jobs
- 2176 AMD CPU cores, 17TB memory
- Apply for hours via Sigma2
- CentOS 7
- Supports containers
- GPU nodes for machine learning
- Dragen, FPGA, special gene sequencing hardware
- <https://www.uio.no/english/services/it/research/sensitive-data/use-tsd/hpc/index.html>







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# Project roles

- Principle investigator
  - Initial applicant
  - Responsible for project setup and rights management
- Rights
  - Admin- right to assign/remove rights
  - Export - right to export data from TSD
  - Custom - to manage custom file access



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# User creation

- User applies
- Project administrator approves



# TSD Selfservice

Selfservice portal for TSD

Language ▾

123456\*\*\*\*\*

## Apply for user account

Do you have a UiO Username?

- ☐ Yes: [Please Log in with UiO](#)  
☒ No

Norwegian National ID Number

12345678900

☒ I confirm that this is the National ID number for the new user

Full name

Ola Nordmann

Date of birth

12 / 04 / 1956

Project code

p11

Email

olanordmann@email.no

Submit application



### Contact information

E-mail: [tsd-drift@usit.uio.no](mailto:tsd-drift@usit.uio.no)

Phone: 22 84 00 04

### Responsible for this page.

[Services for sensitive data \(TSD\)](#)





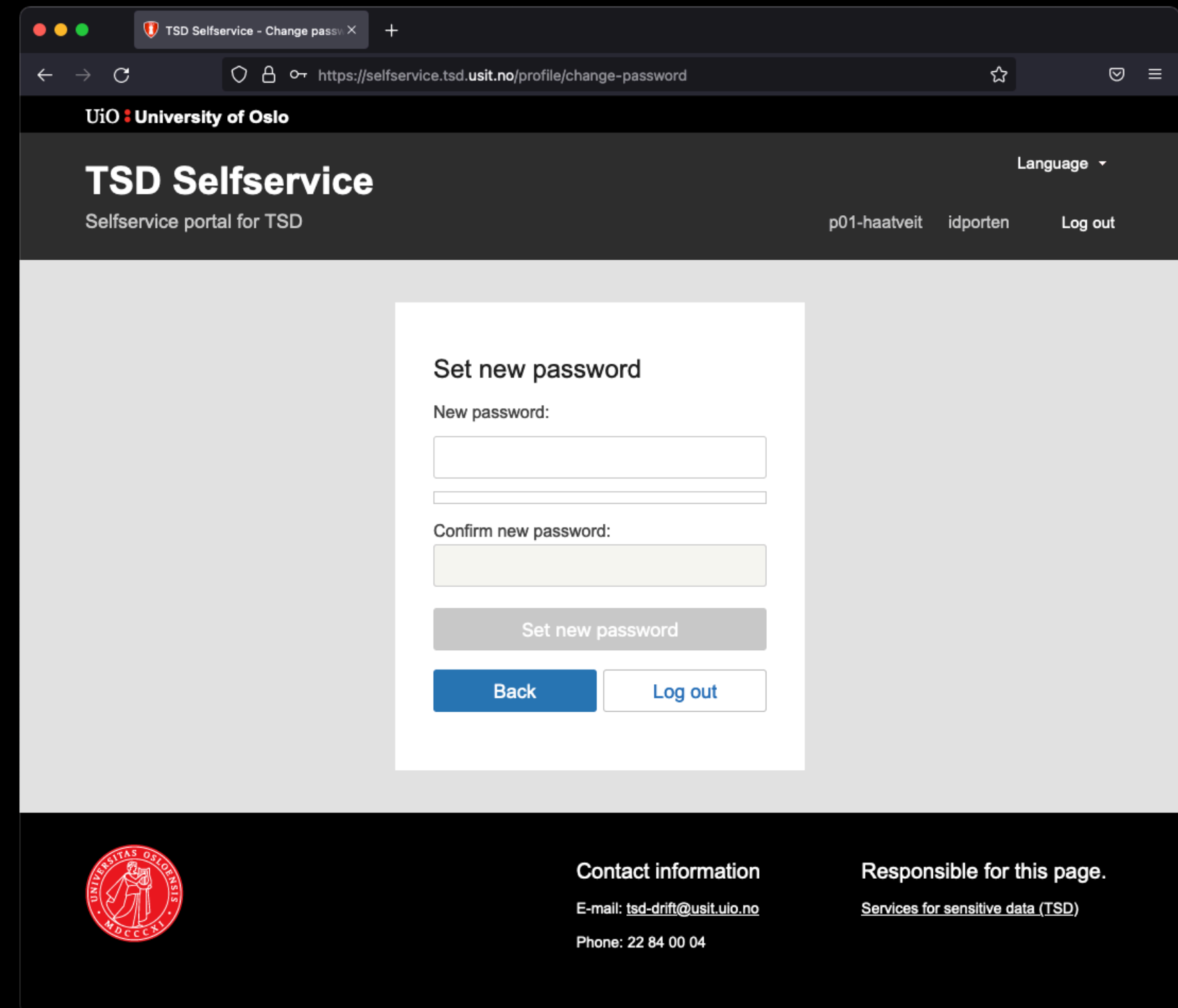


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# Self service credentials management

- Login with TSD account or via ID-porten
- Change password
- Set new one-time passcode secret
- <https://selfservice.tsd.usit.no>



The screenshot shows a web browser window with the URL <https://selfservice.tsd.usit.no/profile/change-password>. The page header includes the University of Oslo logo and the text "TSD Selfservice" and "Selfservice portal for TSD". A language dropdown menu is visible in the top right corner. The main content area features a "Set new password" form with the following fields and buttons:

- New password:** Two input fields for password entry.
- Confirm new password:** One input field for password confirmation.
- Set new password:** A button to submit the new password.
- Back:** A button to return to the previous page.
- Log out:** A button to log out of the system.

The footer contains the University of Oslo logo, contact information (E-mail: [tsd-drift@usit.uio.no](mailto:tsd-drift@usit.uio.no), Phone: 22 84 00 04), and a link to the "Services for sensitive data (TSD)" page.



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# Data collection overview

- Structured data - e.g. surveys, longitudinal
- Unstructured data
- Automated data import
- Webapp/mobile development
- Dynamic digital consent
- Secure video recording
- Extensible services

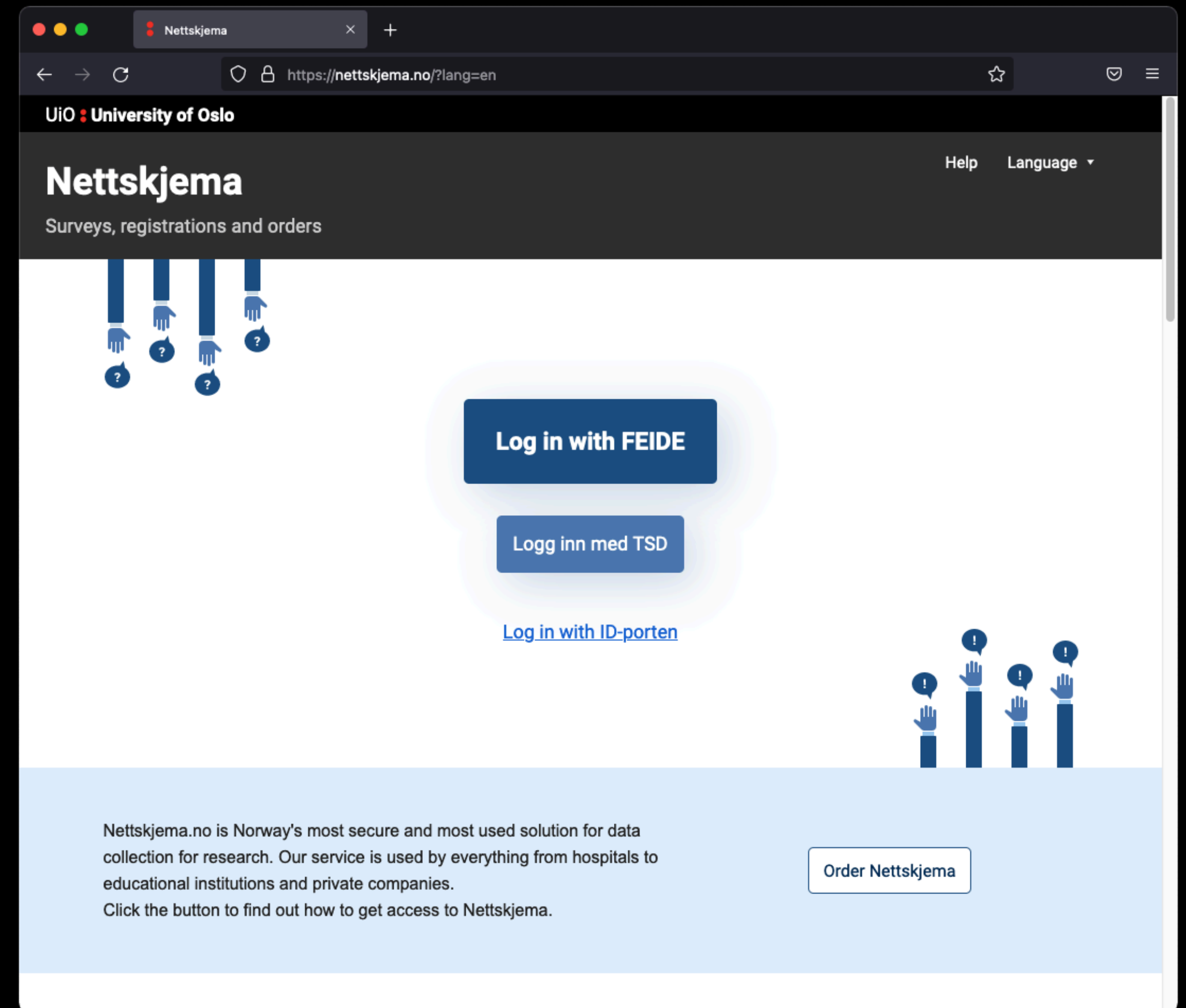


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# DEMO: Nettskjema

- Can use UiO or ID-porten credentials
- Must specify data formats (codebooks)
- Automatic dataset construction for use in statistical software
- <https://nettskjema.no>





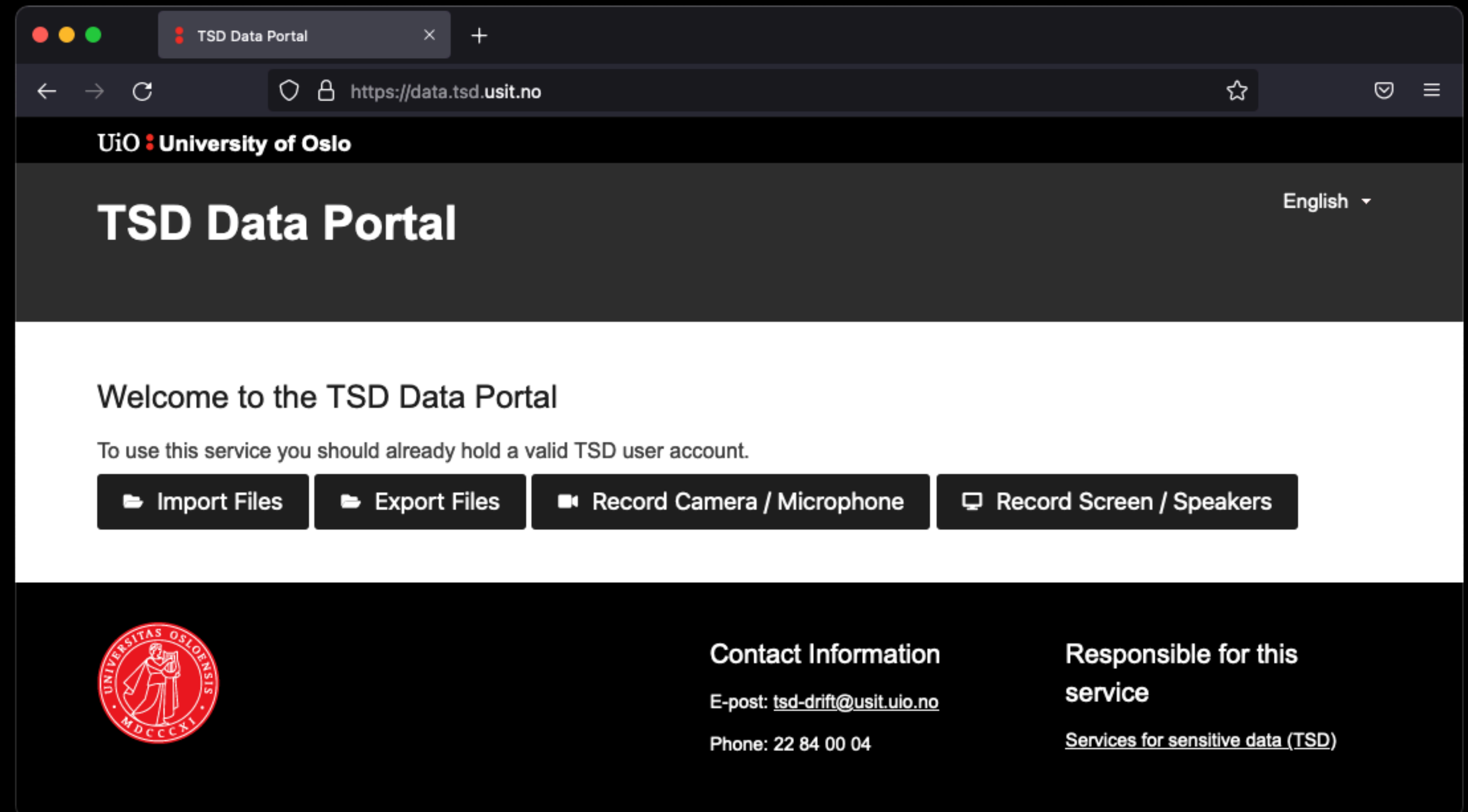


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# DEMO: Unstructured data import

- <https://data.tsd.usit.no>
  - Granular access on uploads
  - Import and Export
  - Unlimited data sizes
  - Resume
  - Available anywhere
- [api.tsd.usit.no](https://api.tsd.usit.no)
  - Command-line client
  - Useful for automation
  - Custom app development





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# Automating data import

- `tsd-api-client`
- <https://github.com/unioslo/tsd-api-client>

```
tmux: tacl (Python /Users/haatveit/.local/bin/tacl --upload /Users/haatveit/Downloads/... 5
→ ~ tacl --register p77
Choose the API environment by typing one of the following numbers:
1 - for normal production usage
2 - for use over fx03 network
3 - for testing
4 - for Educloud normal production usage
5 - for Educloud testing
> 1
username > p77-haatveit
password >
one time code > 079909
GET: https://api.tsd.usit.no/v1/p77/auth/tsd/api_key
updating p77
Successfully registered for p77, and API environment hosted at https://api.tsd.usit.no/v1
→ ~ tacl --upload ~/Downloads/Rocky-x86_64-dvd.iso p77
your session has expired, please authenticate
username > p77-haatveit
password >
one time code > 842737
Upload id: 89066545-d28c-436d-99f5-02fa113ed537
/Users/haatveit/Downloads/Rocky-x86_64-dvd.iso 5% -:--:--
```



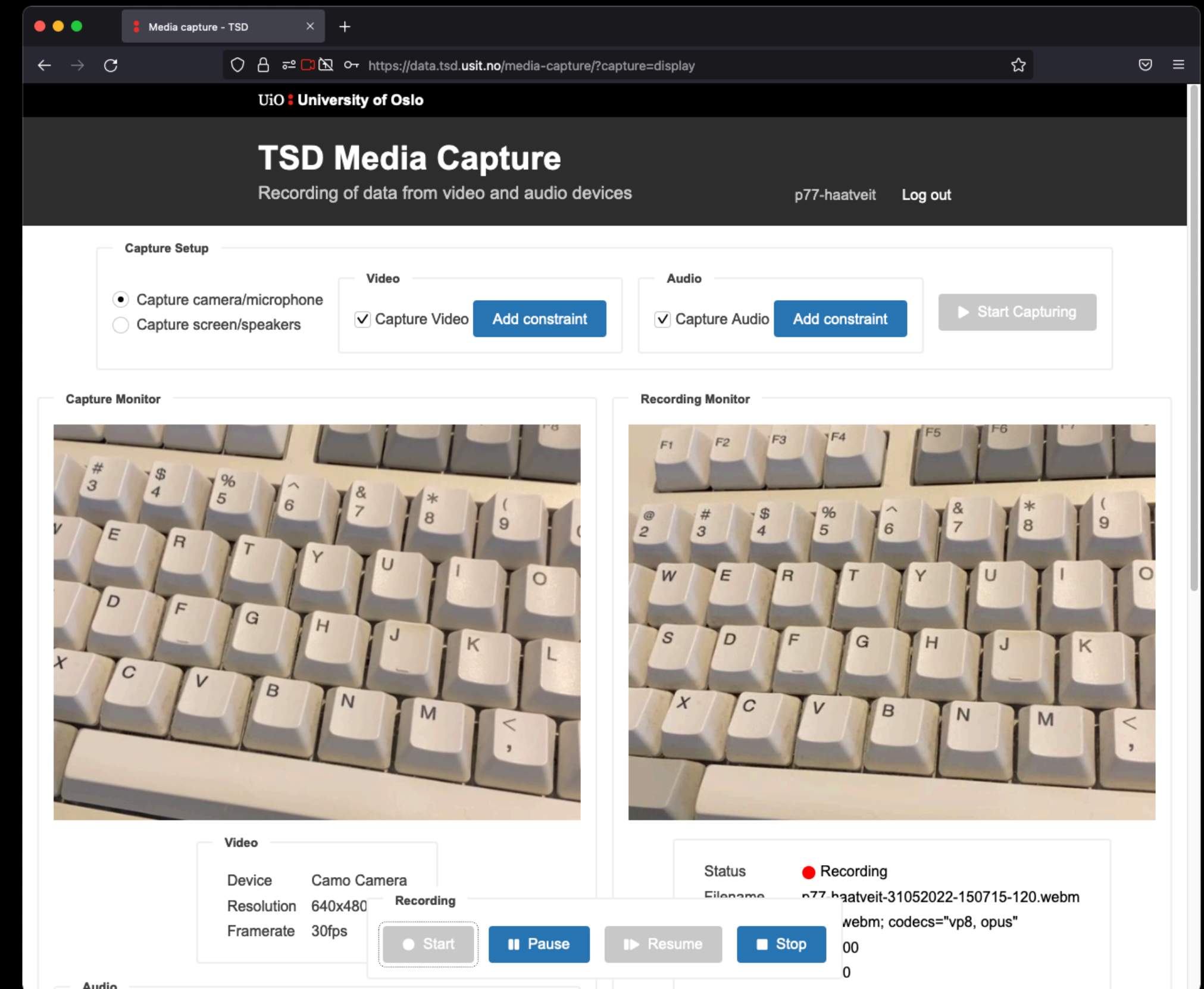


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# Secure video recording

- Desktop app - record and stream, no intermediate storage
- Available on [data.tsd.usit.no](https://data.tsd.usit.no)
- Feature supports audio only recording as well





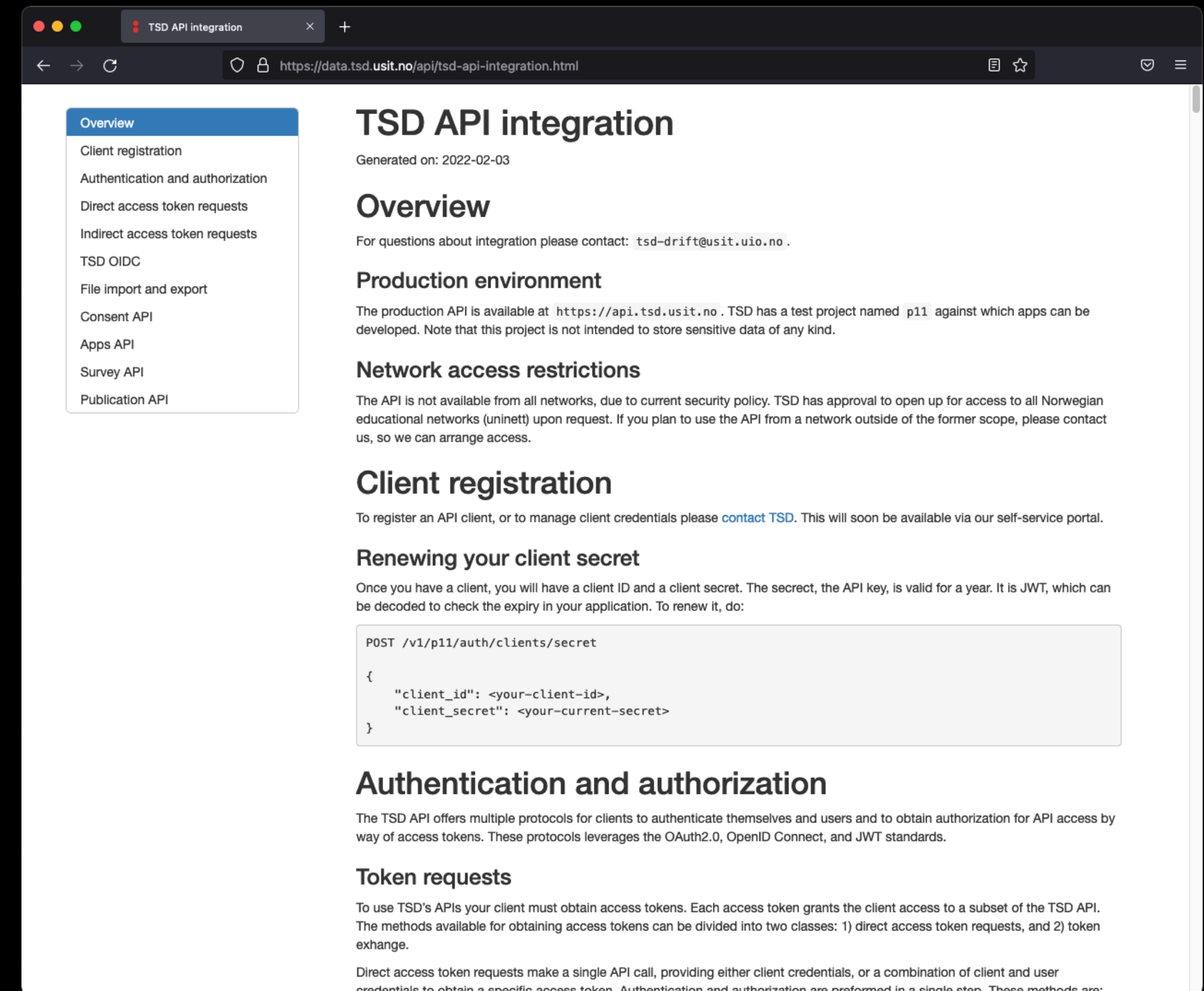
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# App development

- App developers and project managers to assist custom requests
- API docs:  
<https://data.tsd.usit.no/api/tsd-api-integration.html>
- [tsd-contact@usit.uio.no](mailto:tsd-contact@usit.uio.no)





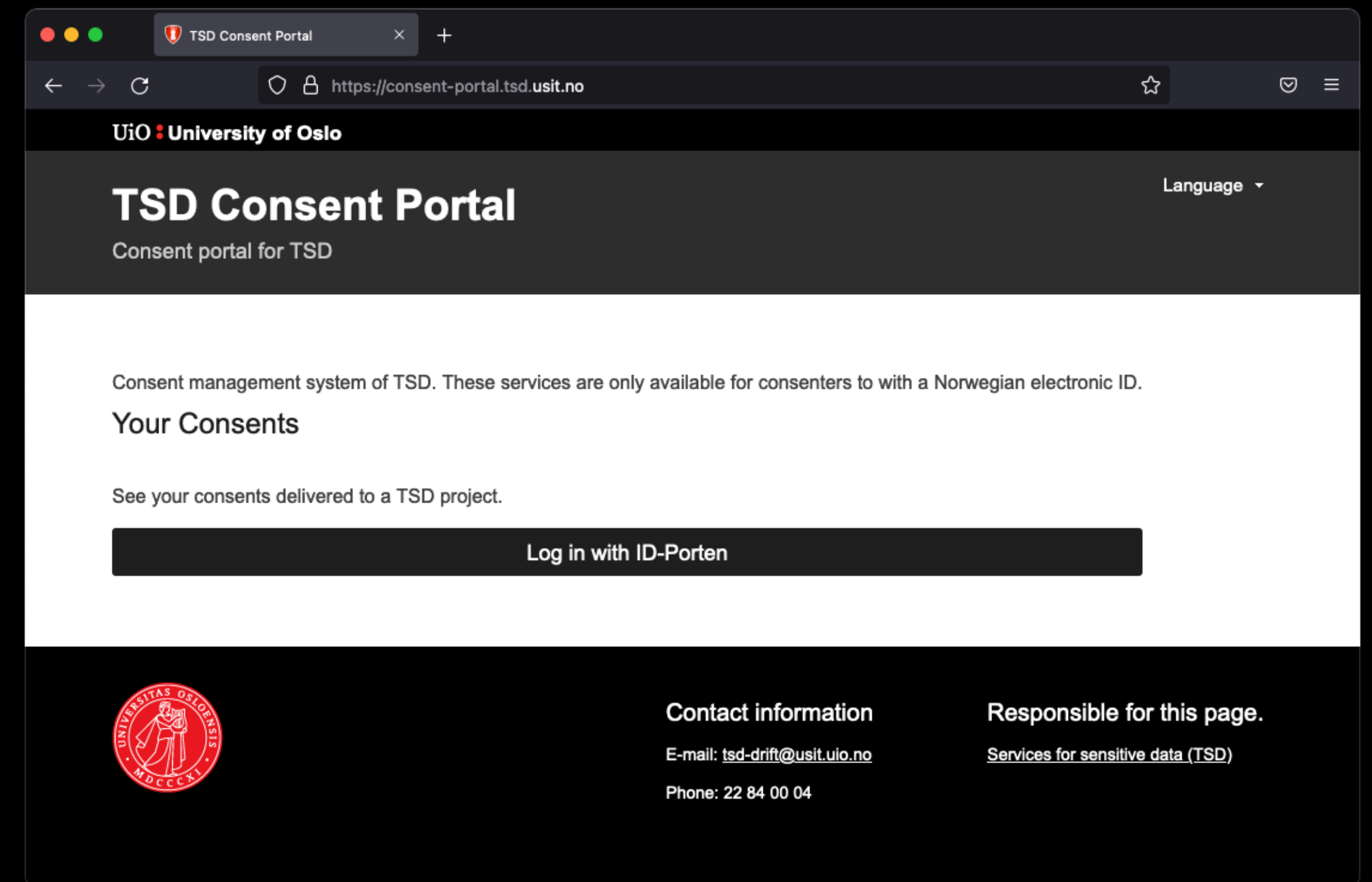
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# Consent automation

- Dynamic digital consents
  - Integration with Nettskjema
  - Support for digital signatures
- Researchers get
  - Portal with overview
  - API for programmatic checks
- End-user portal with insights, withdrawal, etc
- HelseNorge integration on the way





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# TSD Consent Portal from the consentor's view, e.g. a patient

TSD Consent Portal – Mozilla Firefox

TSD Consent Portal x +

← → ↻ 🔒 https://consent-portal.tsd.usit.no

Getting Started Getting Started Prime Video: The T... IT-ITI-DOC/openshif... Vakt · IT-EDUCLOU... Klar Tale Facebook #4086340: Custom... Other Bookmarks

TSD Consent Portal Consent Referrals Add referral Help

## Forms collecting your consent ?

Sort by Time of last change (latest to oldest) ▼

|   |                                                                                            |   |
|---|--------------------------------------------------------------------------------------------|---|
| 👁 | Alectinib (Alecensa)-samtykke IMPRESS-Norway<br>Last updated: 2022-12-22 12:28             | 9 |
| 👁 | Samtykke-lege-behandling-pasient IMPRESS-Norway<br>Last updated: 2022-12-22 11:33          | 2 |
| 👁 | Samtykke-lege-molekylær-screening-pasient IMPRESS-Norway<br>Last updated: 2022-12-22 11:32 | 3 |
| 👁 | Samtykke-til-molekylær-screening-voksen IMPRESS-Norway<br>Last updated: 2022-12-22 11:31   | 1 |
| 👁 | MilenNewDemo<br>Last updated: 2022-09-08 13:30                                             | 2 |



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TSD contact details

🌐 [Home page/online manual](#)

✉ [tsd-drift@usit.uio.no](mailto:tsd-drift@usit.uio.no)

📞 (+47) 22 84 00 04

← → ↺

https://consent-portal.tsd.usit.no

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☰

Getting StartedGetting StartedPrime Video: The T...IT-ITI-DOC/openshif...Vakt · IT-EDUCLOU...Klar TaleFacebook#4086340: Custom...Other Bookmarks

TSD Consent PortalConsentReferralsAdd referral

Help👤

Add another referral?

Sort byTime of last change

Alectinib (Alecensa)-sa

Last updated: 2022-12-22 12:28

Show link

Samtykke-til-molekylær-screening-voksen IMPRESS-Norway

Last updated: 2022-12-22 11:31

Show link

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✉

[tsd-drift@usit.uio.no](mailto:tsd-drift@usit.uio.no)

📞

(+47) 22 84 00 04

Link to referral form

✕

Copy the following hyperlink:

3&CBref\_full\_name=Milen%20gnianov%20Kouylekov

Sending out a  
request for consent

# The project manager's insights

TSD Consent Administration

← → ↻ https://internal.consent.tsd.usit.no/#

TSD Consent Administration List Query Register

Forms registered for project p1753 ?

Filter

Sort by Time of last change (latest to oldest)

|   |                                                          |   |
|---|----------------------------------------------------------|---|
| 👁 | Alectinib (Alecensa)-samtykke IMPRESS-Norway             | 2 |
|   | Last updated 2022-12-22 12:28                            |   |
| 👁 | Samtykke-lege-behandling-pasient IMPRESS-Norway          | 2 |
|   | Last updated 2022-12-22 11:33                            |   |
| 👁 | Samtykke-lege-molekylær-screening-pasient IMPRESS-Norway | 3 |
|   | Last updated 2022-12-22 11:32                            |   |
| 👁 | Samtykke-til-molekylær-screening-voksen IMPRESS-Norway   | 2 |
|   | Last updated 2022-12-22 11:31                            |   |

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 (+47) 22 84 00 04





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# Sharing sensitive data via metadata

- Collaborations:
  - Tryggve2/Heilsa, local EGA
  - EOSC-Hub/EOSC-Nordic/DICE, Secure B2SHARE
  - NSD, ambition: provide links to data



# Contact

[tsd-drift@usit.uio.no](mailto:tsd-drift@usit.uio.no)

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