LSDF-Portal: Project management for the Large Scale Data Facility

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Steinbuch Centre for Computing (SCC)

What is the LSDF-Portal

Introduction to Django

Project Results

Next Project?

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Next Project?

Live Demo!

What is the LSDF-Portal

Overview
Project Lifecycle
Project Creation
Project Approval
Requesting More Storage

Storage management for 18PB for research projects
Based on Python/django (more on that later)
available at: lsdf.kit.edu
(my test server: lsdf.fkarg.de with user:test and admin4:lsdf)

What is the LSDF-Portal

Overview
Project Lifecycle
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- Project Creation -¿ NEW
- Admins take a look -¿ PENDING
- granted -¿ APPROVED
- not granted -¿ REJECTED
- done -¿ EXPIRED/DELETED

What is the LSDF-Portal

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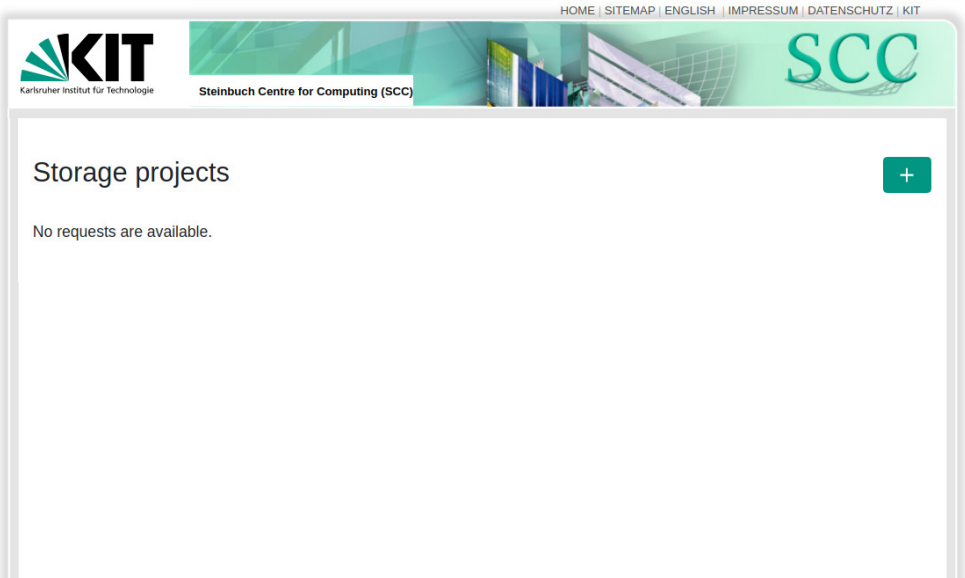
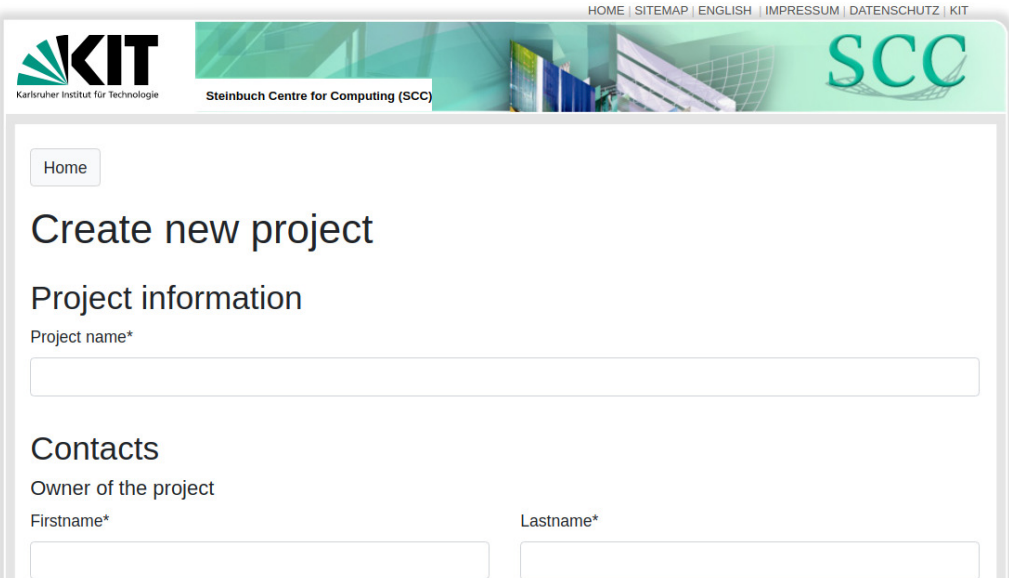
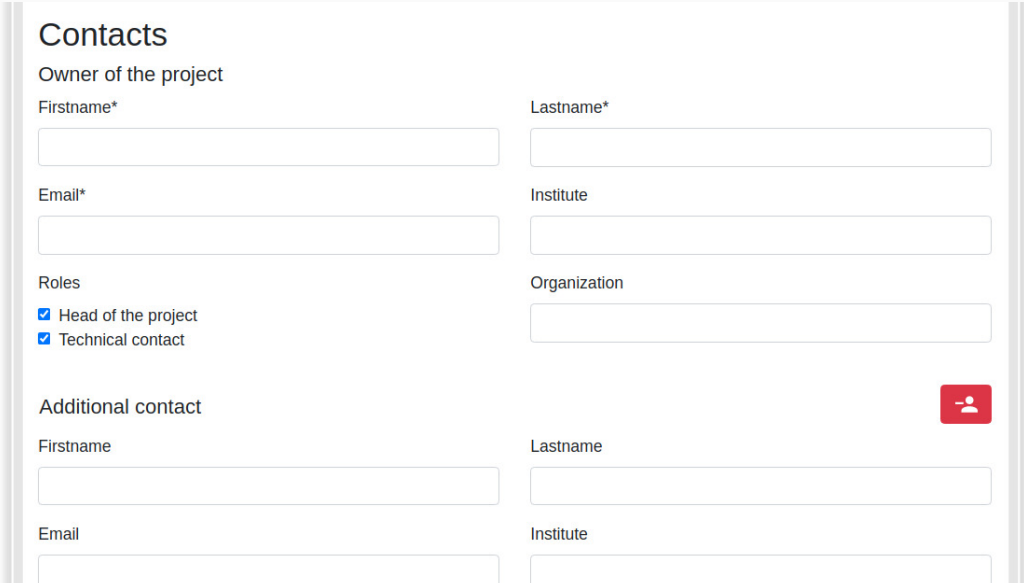
First Login


HOME | SITEMAP | ENGLISH | IMPRESSUM | DATENSCHUTZ | KIT
Karlsruher Institut für Technologie
Steinbuch Centre for Computing (SCC)
SCC
Storage projects
+
No requests are available.

Project Creation



Project Creation: Add Contacts



Available Fields

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

DFG Review Board*

DFG Subject Area*

End of the project*

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

Expected storage capacity in TB (1 TB = 1000 GB)

Directory name*

Fields filled out

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

Natural Sciences (3)

DFG Review Board*

Mathematics (312)

DFG Subject Area*

Mathematics (312-01)

End of the project*

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

15

Expected storage capacity in TB (1 TB = 1000 GB)

Submit Proposal

Protocols

- [x] SSH, SFTP, SCP, HTTPS/Web are enabled for all storage projects
- [ ] CIFS
- [ ] NFS V3 (Client needs to be connected to KIT-IDM)

Access control

Owner name*

Who should be the owner the project directory? The owner can be a KIT user (e.g. ab1234) or a KIT service account (e.g. OE-ProjectName-0001). Please, contact your ITB to create a service account.

Group name*

Which group should get access to your project directory (e.g. OE-ProjectName-LSDF)? Please contact your ITB to create a group.

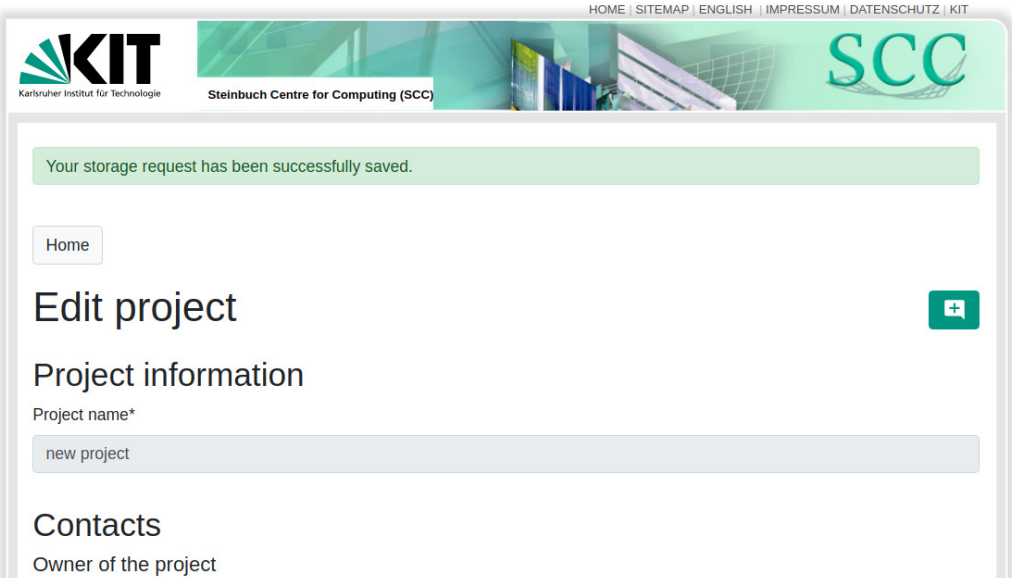
Group permission*

No permissions

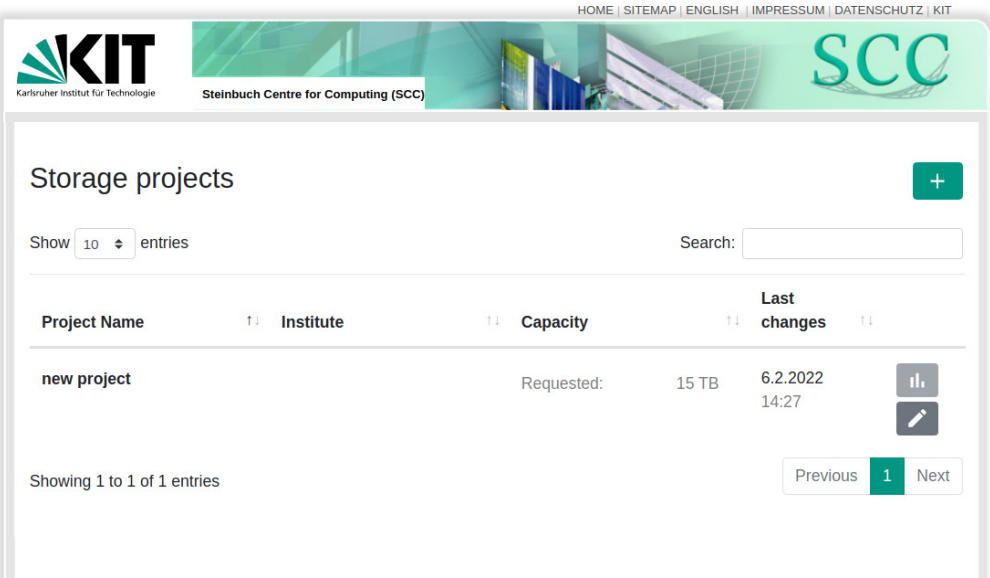
- [ ] Extended group permissions (ACLs)

Submit Storage Proposal

Succesful Submission



Project in List



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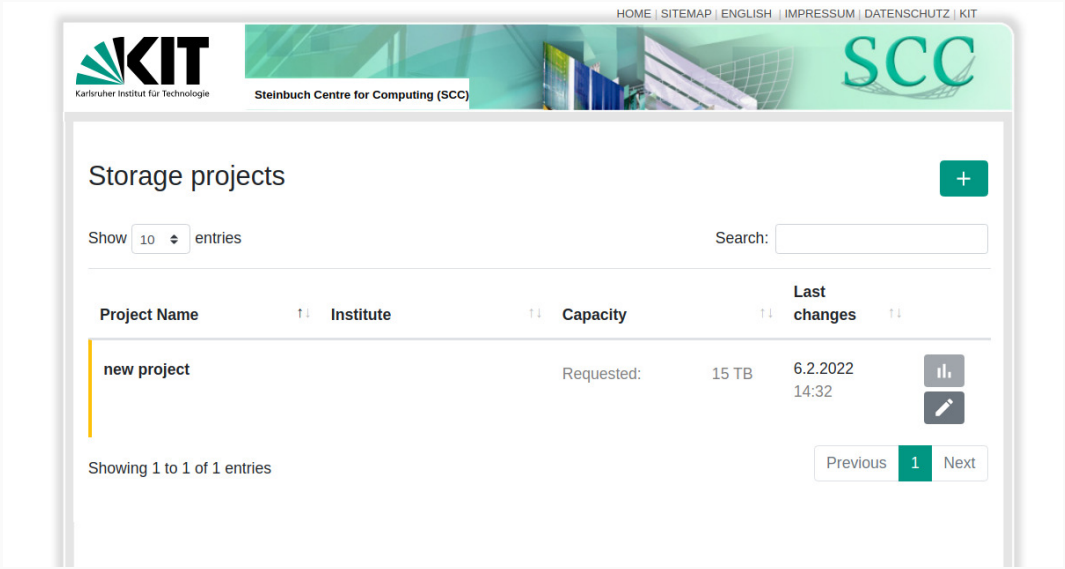
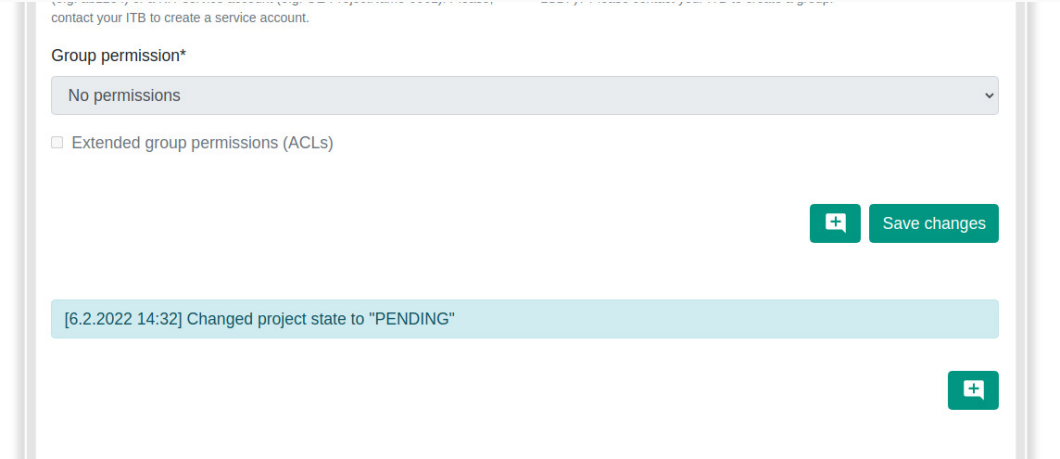
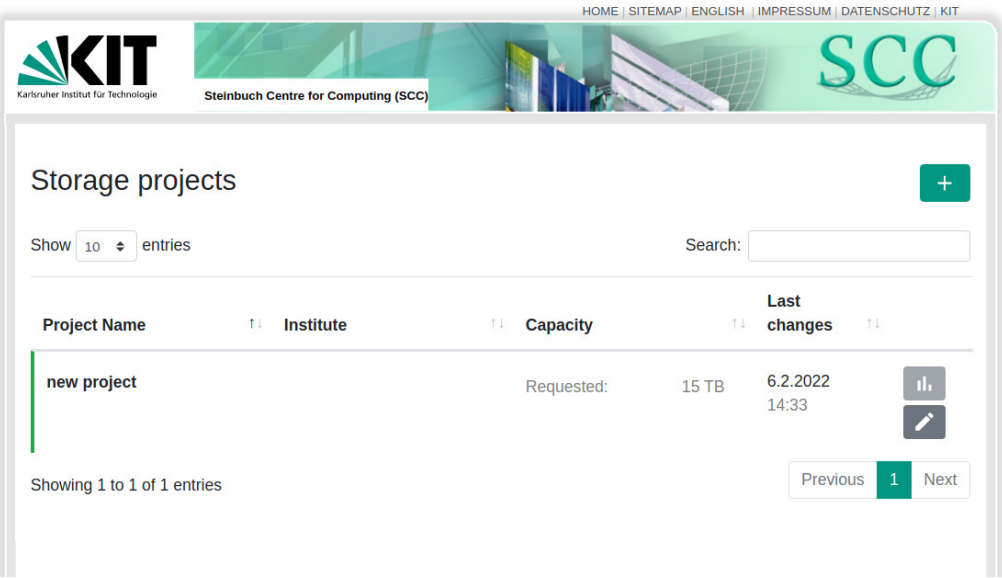
Project Pending



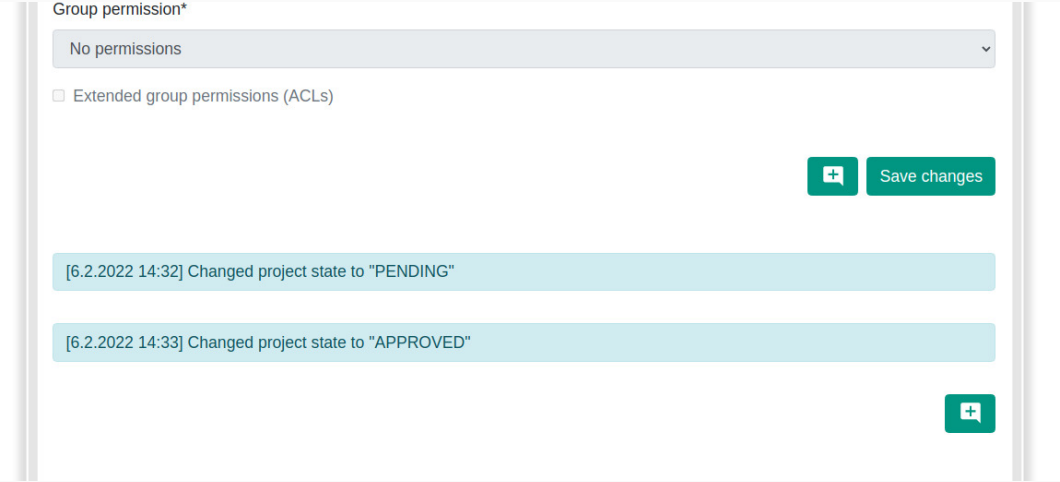
State Change Message



Project Approved



State Change Message



What is the LSDF-Portal

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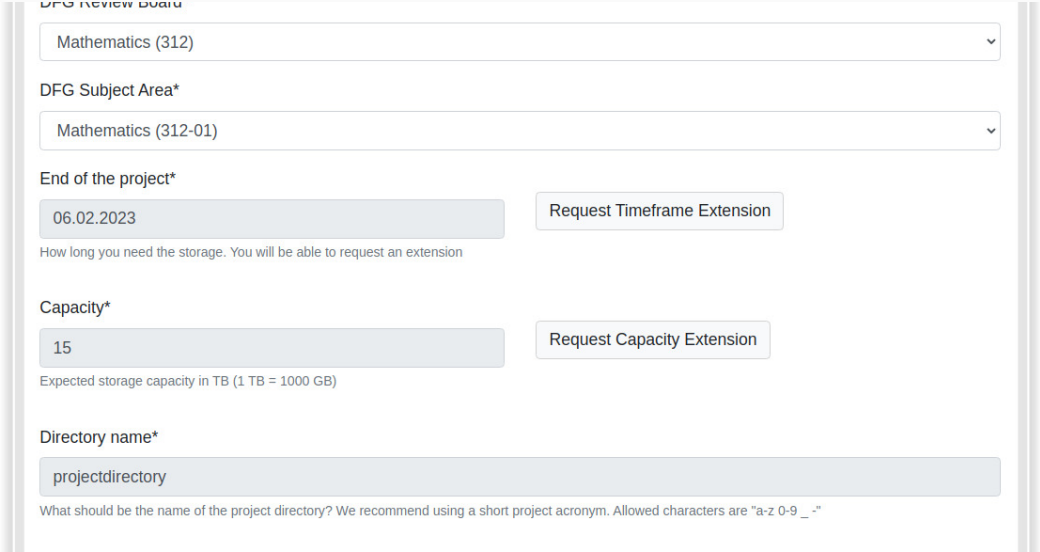
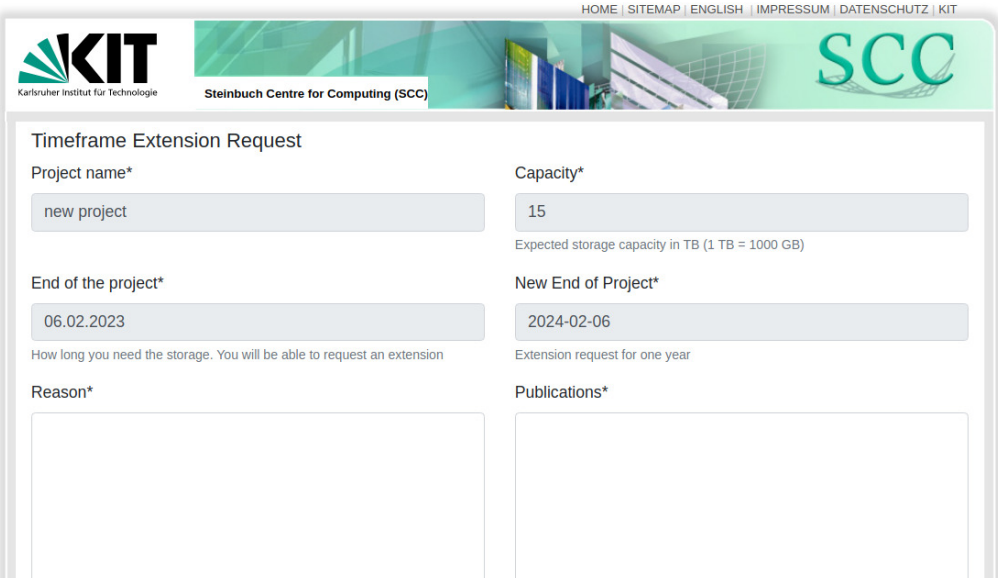
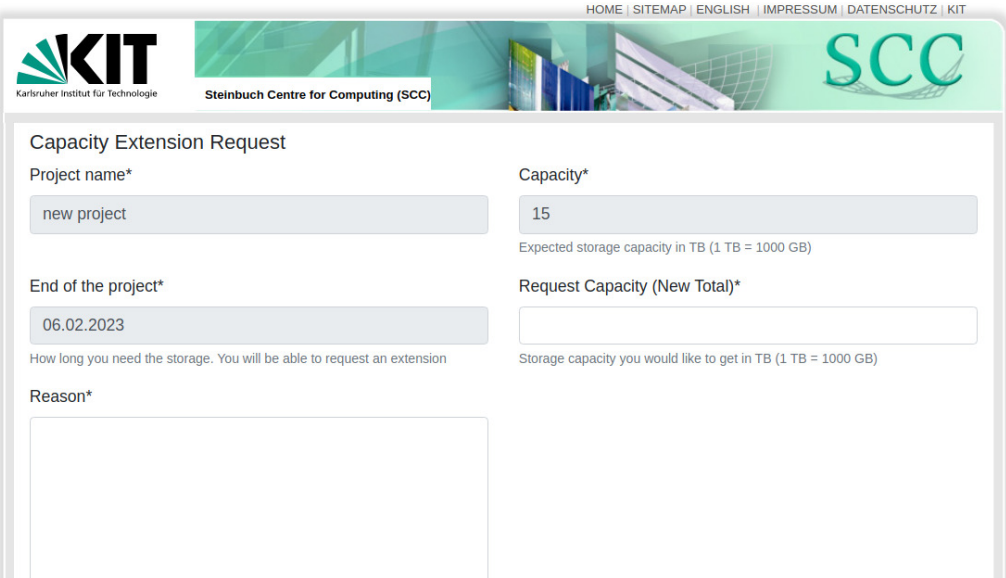
Extension Requests: The Project Needs to be Approved



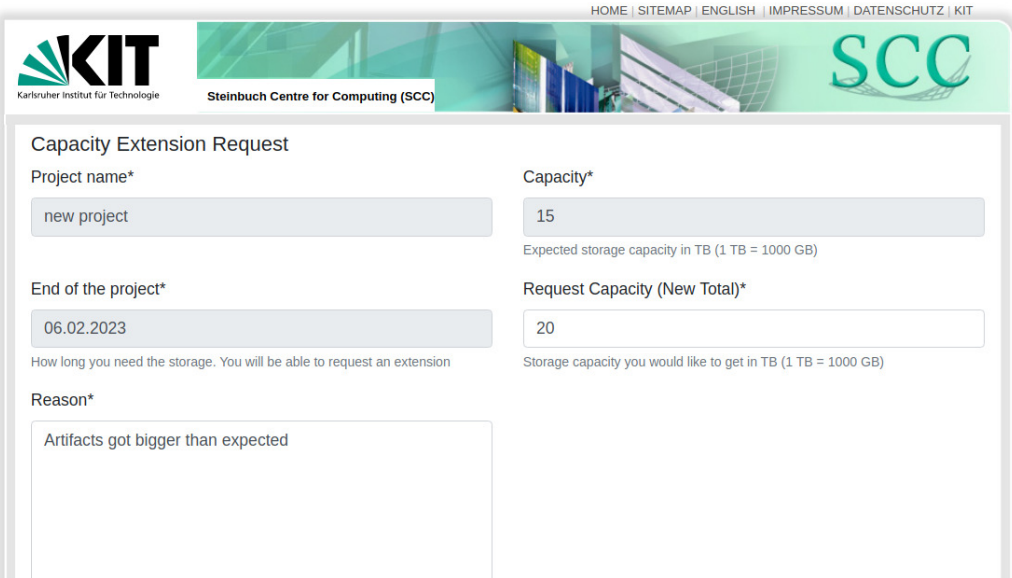
lsdf.kit.edu/extension/timeframe/9/create/



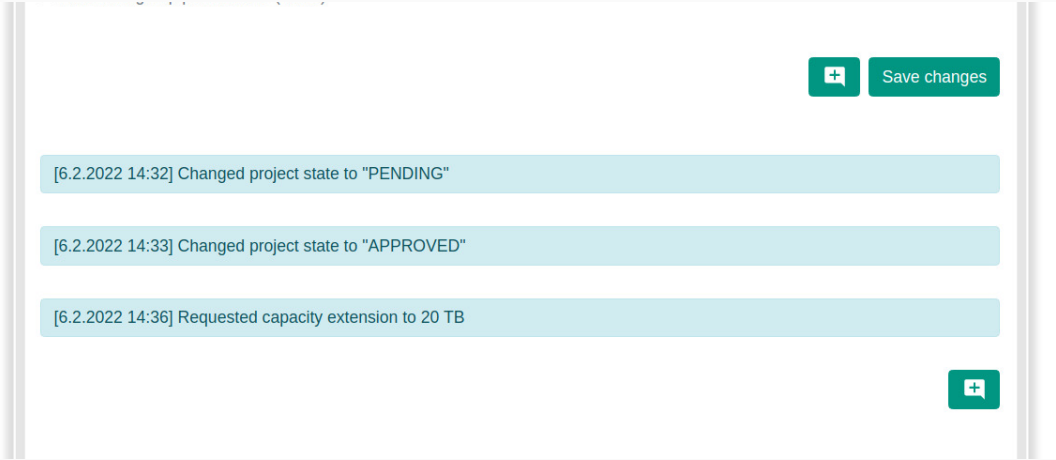
Capacity Extension Request View



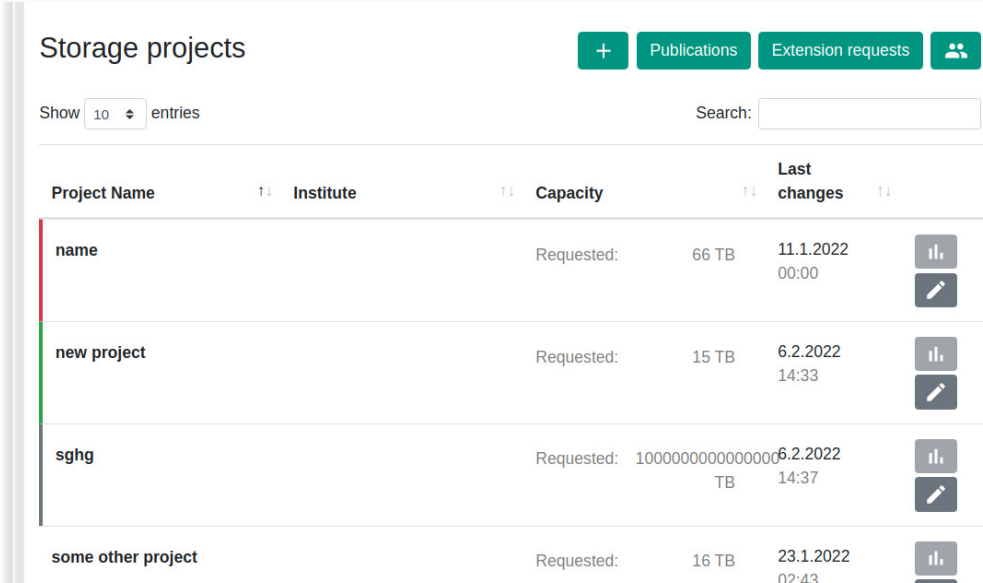
Filled out Capacity Extension



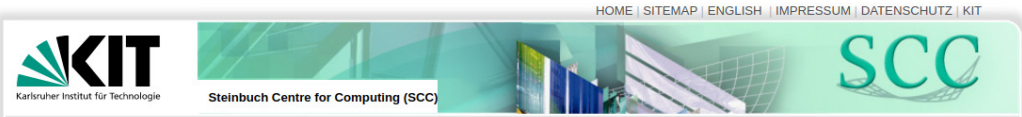
Extension System Message



Projects Admin View

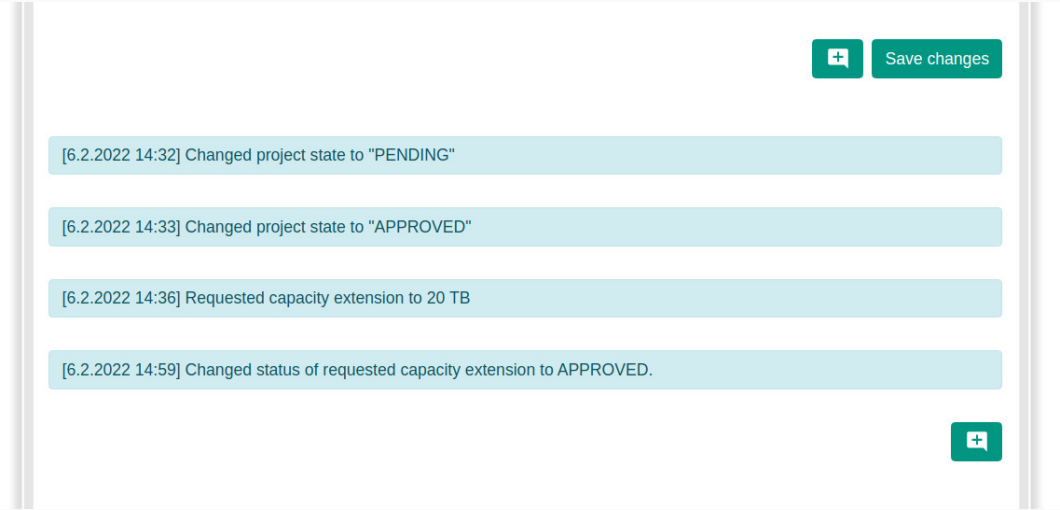


Extension Request Overview

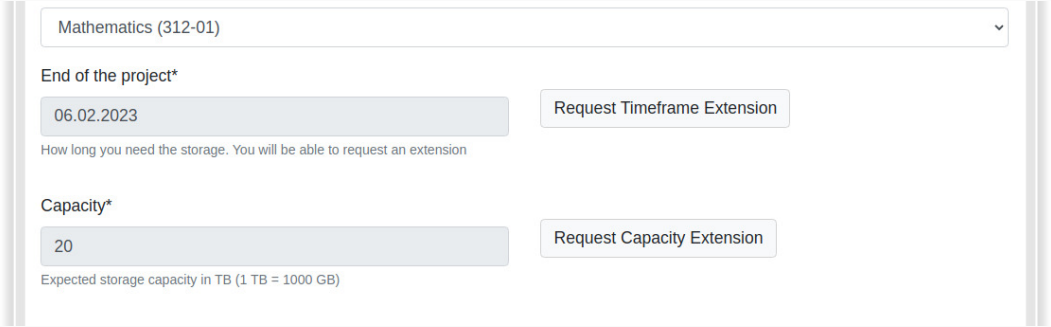


Approving Request

System Message showing Extension Approval



Increased Capacity from User View



Storage Use Histogram

(TODO: Screenshot: Histogram of storage usage.)

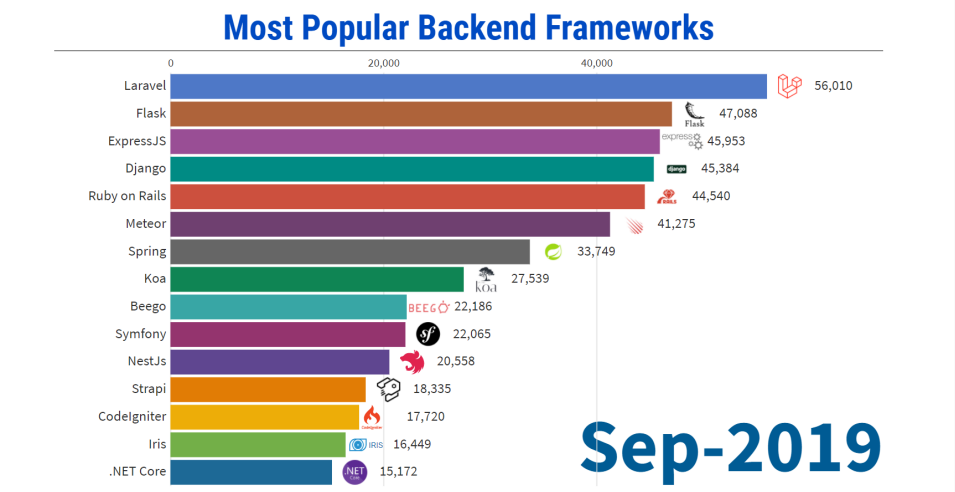
What is the LSDF-Portal

Introduction to Django

Project Results

Next Project?

Django is a Popular Framework



Source: [1]

What is Django?

Meet Django

Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

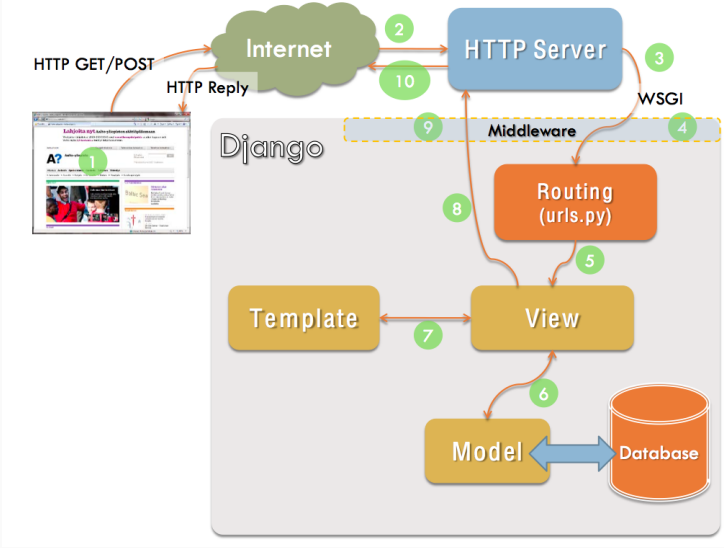
Ridiculously fast.

Django was designed to help developers take applications from concept to completion as quickly as possible.

Exceedingly scalable.

Some of the busiest sites on the web leverage Django's ability to quickly and flexibly scale.

Django Overview



Source: [2]

What is the LSDF-Portal

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Next Project?

Project Results

- **Upgrade Dependencies**
- Proper Logging
- Attempt to automatically generate documentation
- Selecting a DFG board
- Diff to schema in database
- Attempt to properly modularize PersonForm
- Extension Requests

From Django 2 to Django 3
(Django 4 released during the project, has been decided to go to 3 in production first)

Project Results

- Upgrade Dependencies
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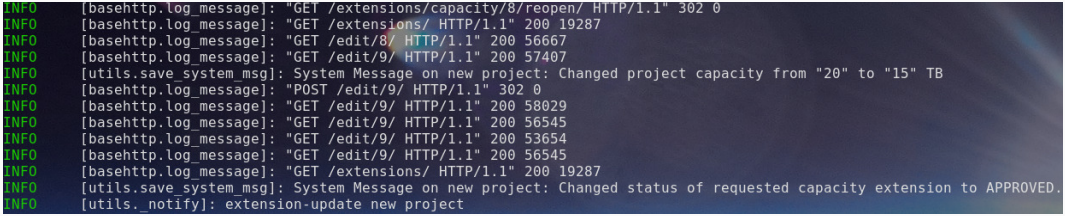
Logging Now


INFO [basehttp.log_message]: "GET /extensions/capacity/8/reopen/ HTTP/1.1" 302 0
INFO [basehttp.log_message]: "GET /extensions/ HTTP/1.1" 200 19287
INFO [basehttp.log_message]: "GET /edit/8/ HTTP/1.1" 200 56667
INFO [basehttp.log_message]: "GET /edit/9/ HTTP/1.1" 200 57407
INFO [utils.save_system_msg]: System Message on new project: Changed project capacity from "20" to "15" TB
INFO [basehttp.log_message]: "POST /edit/9/ HTTP/1.1" 302 0
INFO [basehttp.log_message]: "GET /edit/9/ HTTP/1.1" 200 58029
INFO [basehttp.log_message]: "GET /edit/9/ HTTP/1.1" 200 56545
INFO [basehttp.log_message]: "GET /edit/9/ HTTP/1.1" 200 53654
INFO [basehttp.log_message]: "GET /edit/9/ HTTP/1.1" 200 56545
INFO [basehttp.log_message]: "GET /extensions/ HTTP/1.1" 200 19287
INFO [utils.save_system_msg]: System Message on new project: Changed status of requested capacity extension to APPROVED.
INFO [utils._notify]: extension-update new project

Logging Now

- Properly defined Logging levels (debug, info, warn, error, critical)
- Logging to console, syslog and file
- Differing formatter for console and other (timestamps, ...)
- Rotating files: Keep last five days, overwrite after

Project Results

- Upgrade Dependencies
- Proper Logging
- **Attempt to automatically generate documentation**
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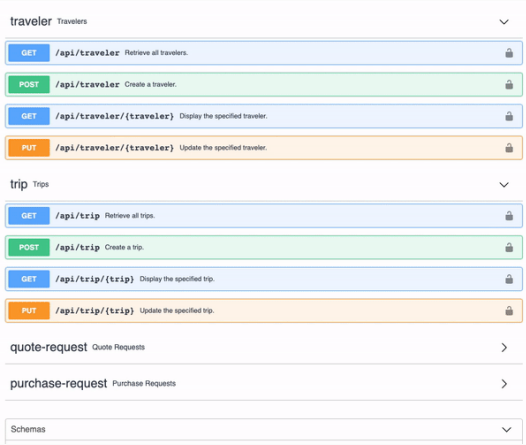
Automatically Generate Documentation



(Example)

Failed, because:

- Mainly used to generate documentation for JSON endpoints
- 'Primitive' Views lacking important information for automatic generation

Was worth a try.

Project Results

- Upgrade Dependencies
- Proper Logging
- Attempt to automatically generate documentation
- **Selecting a DFG board**
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Excerpt of DFG subject areas

Engineering Sciences (131 Members)		
RB-Nr.	Review Board / Subject Area	Subject Areas
401	Production Technology	⊞
402	Mechanics and Constructive Mechanical Engineering	⊞
403	Process Engineering, Technical Chemistry	⊞
404	Fluid Mechanics, Technical Thermodynamics and Thermal Energy Engineering	⊞
405	Materials Engineering	⊞
406	Materials Science	⊞
407	Systems Engineering	⊞
408	Electrical Engineering and Information Technology	⊞
409	Computer Science 409-01 Theoretical Computer Science 409-02 Software Engineering and Programming Languages 409-03 Security and Dependability 409-04 Operating, Communication, Database and Distributed Systems 409-05 Interactive and Intelligent Systems, Image and Language Processing, Computer Graphics and Visualisation 409-06 Information Systems, Process and Knowledge Management 409-07 Computer Architecture and Embedded Systems 409-08 Massively Parallel and Data-Intensive Systems	⊟

Selection of DFG Subject Area upon Project Creation

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

DFG Review Board*

DFG Subject Area*

End of the project*

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

Expected storage capacity in TB (1 TB = 1000 GB)

Directory name*

Selection of DFG Discipline

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

Humanities and Social Sciences (1)
Life Sciences (2)
Natural Sciences (3)
Engineering Sciences (4)

DFG Subject Area*

End of the project*

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

Expected storage capacity in TB (1 TB = 1000 GB)

Directory name*

Selection of DFG Subject without Board

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

Natural Sciences (3)

DFG Review Board*

DFG Subject Area*

End of the project*

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

Expected storage capacity in TB (1 TB = 1000 GB)

Directory name*

Selection of DFG Subject

Please Specify where your project is mainly located according to the DFG Fachsystematik:

DFG Discipline*

Natural Sciences (3)

DFG Review Board*

Mathematics (312)

DFG Subject Area*

Mathematics (312-01)

06.02.2023

How long you need the storage. You will be able to request an extension

Capacity*

Expected storage capacity in TB (1 TB = 1000 GB)

Directory name*

Code

(TODO: code of change function with request) (TODO: maybe from other side as well?)

Project Results

- Upgrade Dependencies
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- **Diff to schema in database**
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The DFG schema changes frequently

- The DFG schema changes every four years
- It was last changed in 2020
- So it'll change again in two years
- Not clear how much (probably not a whole lot)

So I implemented a command to compare any csv to what is currently in the database: (TODO: code listing)

Project Results

- Upgrade Dependencies
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- **Attempt to properly modularize PersonForm**
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Explain the problem (show exemplary code) of redundancy Managed to get quite far, very good (deep) learning example, and absolutely possible. just requires some more time than expected. Nags me that it's not modular yet. Some day.

Project Results

- Upgrade Dependencies
- Proper Logging
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- **Extension Requests**

Extension Requests

Much-requested feature. (TODO: Overview of newly introduced routes, views, forms, models and relations)

What is the LSDF-Portal

Introduction to Django

Project Results

Next Project?

Previously barely any documentation existed. Now a bunch of stuff has comments. Show tokei stats?

LOC stats

```
===============================================================================
Language Files Lines Code Comments Blanks
===============================================================================
CSS 28 19162 17248 284 1630 Dockerfile 1 11 7 0 4 JavaScript 27 63499 43096
13725 6678 Python 48 3078 2485 159 434 SVG 14 14 14 0 0 YAML 1 27 22 1 4
-------------------------------------------------------------------------------
HTML 15 1239
1111 43 85 -------------------------------- CSS 1 312 282 28 2 -------------------------------- JavaScript 7 248 204 23 21 (Total) 1799
1597 94 108 ------------------------------------
------------------------------------ Markdown 1 55 0 36 19 -------------------------------- BASH 1 4 4 0 0 (Total) 59 4 36 19
===============================================================================
Total 135 87085 63983 14248 8854
===============================================================================
```

There's a bunch of stuff still left to do:

- change to new kit design
- upgrade to dynamic personForms
- login with non-unique identifiers
- user administration: registered/unregistered/...
- automation of project creation by accessing the storage api directly
- ...

Sources i

- "Most popular backend frameworks – 2012/2019." https://statisticsanddata.org/data/most-popular-backend-frameworks-2012-2021/, 2019. **accessed 2022-02-07.**
- "Devopedia, "django"." https://devopedia.org/django, 2020. **accessed 2022-02-07.**