

NHR Resource Allocation with JARDS

Tim Cramer, NHR4CES@RWTH, RWTH Aachen University

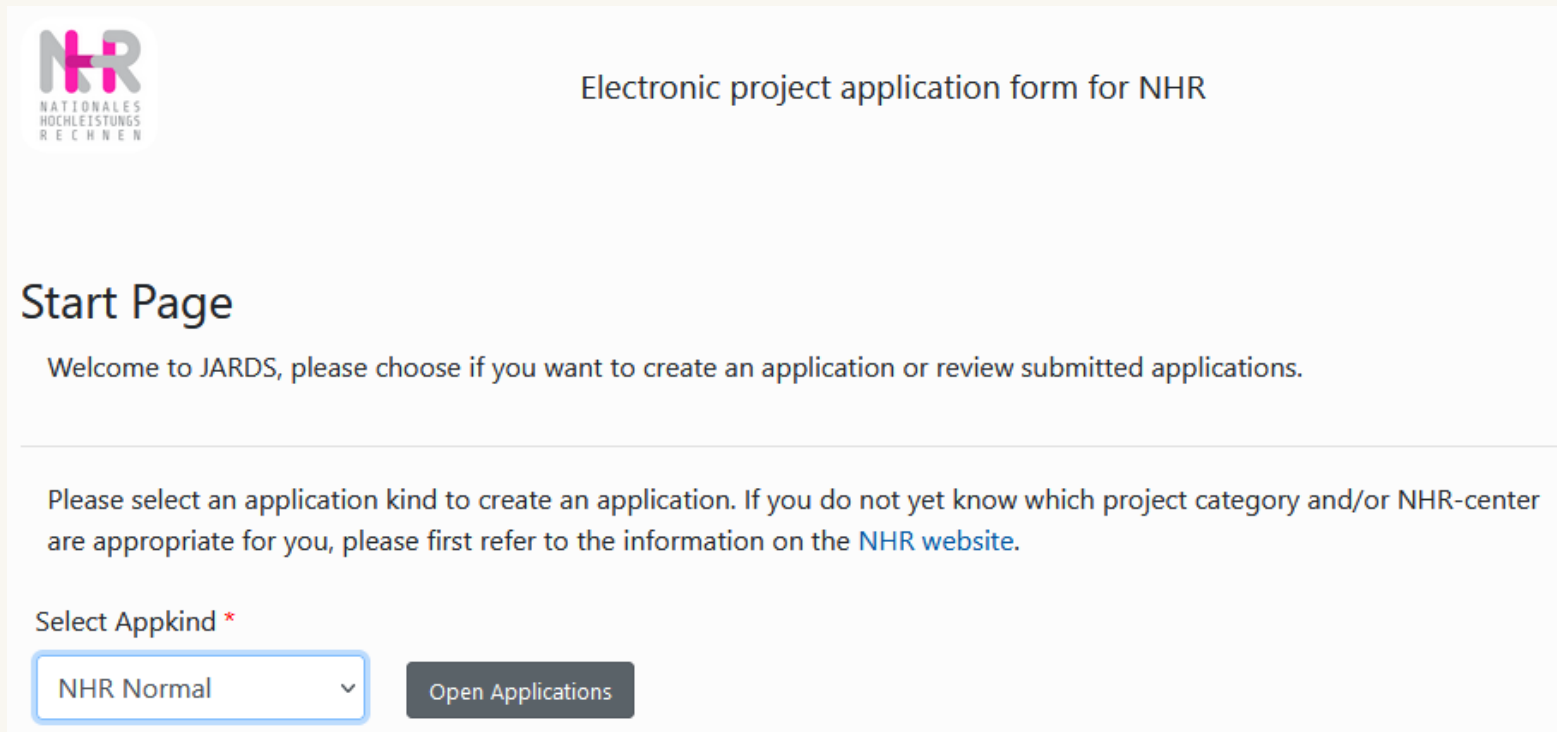
JARDS Overview

- JARDS: Joint Application Review and Dispatch Service [1]
- PHP-based web application
- Developed by Jülich Supercomputing Center (JSC) since 2014
- Supports the complex resource allocation process for HPC computing projects during all phases
- Used by many centers, e.g.
 - John von Neumann-Institute für Computing (NIC)
 - Gauss Centre for Supercomputing (GCS)
 - RWTH Aachen University
 - Paderborn Center for Parallel Computing (PC²)
 - Karlsruhe Institut für Technologie (KIT)

JARDS NHR Landing Page



Goal: One common, sustainable and scalable platform for all nine (!) NHR centers

A screenshot of the JARDS NHR landing page. The page has a white background with a light grey border. In the top left corner, there is a small version of the NHR logo. The main heading is 'Electronic project application form for NHR'. Below this, the text 'Start Page' is displayed. A welcome message follows: 'Welcome to JARDS, please choose if you want to create an application or review submitted applications.' A horizontal line separates this from the next section, which contains instructions: 'Please select an application kind to create an application. If you do not yet know which project category and/or NHR-center are appropriate for you, please first refer to the information on the [NHR website](#).' Below the instructions is a form with a dropdown menu labeled 'Select Appkind *' and a button labeled 'Open Applications'. The dropdown menu is currently set to 'NHR Normal' with a downward arrow.

<https://jards.nhr-verein.de>

NHR Resource Allocation Structure

NHR Nutzungsausschuss (NA)

- decides about „NHR large“ contingents
- load balancing

Local Resource Allocation Boards (RAB)

- decides about „NHR normal“ contingents
- makes proposal for „NHR large“ contingents



Reviewer



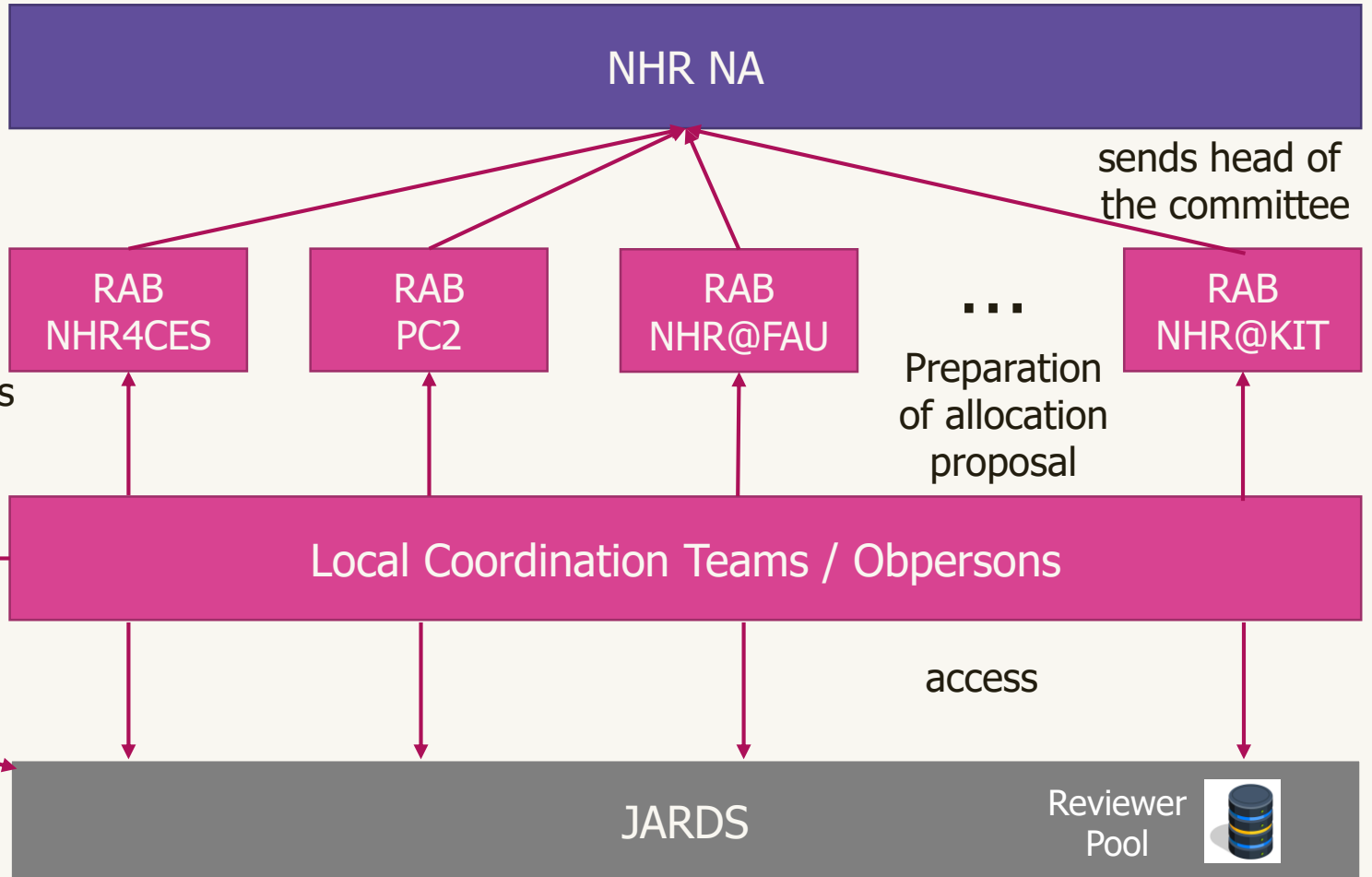
User

Application for computing time

Invite reviewer

review

29.09.2023



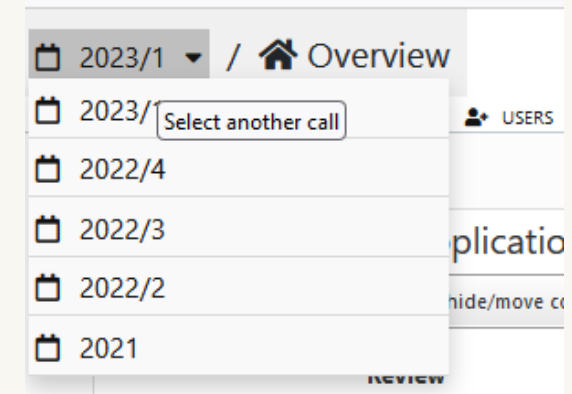
NHR Calls

- Process



- Four calls per year (example NHR4CES)

Call	Submission Deadline	TecRev Deadline	SciRev Deadline	RAB Meeting	User Board Meeting	Project Start
1	01.10.	15.10.	20.11.	End Nov	Mid Dec	01.01.
2	01.01.	15.01.	20.02.	End Feb	Mid Mar	01.04.
3	01.04.	15.04.	20.05.	End May	Mid Jun	01.07.
4	01.07.	15.07.	20.08.	End Aug	Mid Sept	01.10.



- The JARDS application server is always online
- Depending on the center, allocation for NHR normal projects might be much faster („rolling call“)

JARDS.application

JARDS.application: Project Categories

- Component for HPC proposals
- Different project categories (only technical reviewed):
 - NHR Starter
 - Intended for applicants without experience with the application procedure
 - Very easy application form
 - Fixed contingents
 - Center will be selected by NHR office
 - NHR Test/Prep
 - Preparation of larger applications
 - Limited in duration and/or resources.

JARDS.application: Project Categories

- Component for HPC proposals
- Different project categories (scientific reviewed):
 - NHR Normal
 - Detailed project description required
 - Moderate resource requirements
 - Resources are allocated by a scientific committee at the respective NHR center
 - NHR Large
 - Detailed project description required
 - Very large resource requirements
 - Resources are allocated by the NHR Nutzungsausschuss

JARDS.application: Example

- Applicant selects center and resources

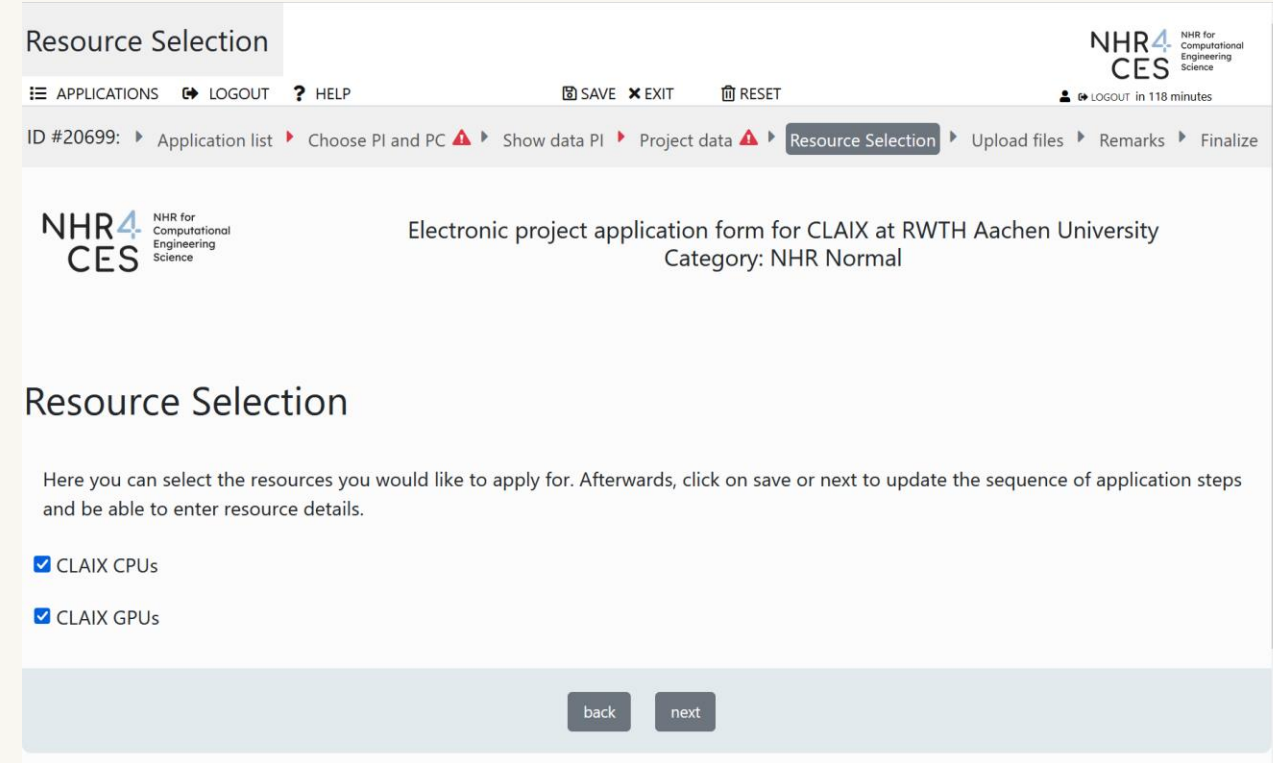
Select the NHR Center

Please select an [NHR Center](#) for your computing time project. Feel free to contact info@nhr-verein.de, if you do not yet know which center fits best to you.

NHR Center Selection *

Please select the NHR Center ▾

- Please select the NHR Center
- NHR4CES@RWTH**
- NHR4CES@TUDa
- NHR@ZIB
- NHR@TUD
- NHR@FAU
- NHR@Göttingen
- NHR@KIT
- PC2
- NHR@Süd-West



The screenshot shows the 'Resource Selection' step of the application process. The breadcrumb trail is: ID #20699: ▶ Application list ▶ Choose PI and PC ▶ Show data PI ▶ Project data ▶ **Resource Selection** ▶ Upload files ▶ Remarks ▶ Finalize. The page title is 'Electronic project application form for CLAIX at RWTH Aachen University' with the category 'NHR Normal'. The 'NHR4CES' logo is visible. The main heading is 'Resource Selection'. Below it, a text block states: 'Here you can select the resources you would like to apply for. Afterwards, click on save or next to update the sequence of application steps and be able to enter resource details.' There are two checked checkboxes: 'CLAIX CPUs' and 'CLAIX GPUs'. At the bottom, there are 'back' and 'next' buttons.

JARDS.review

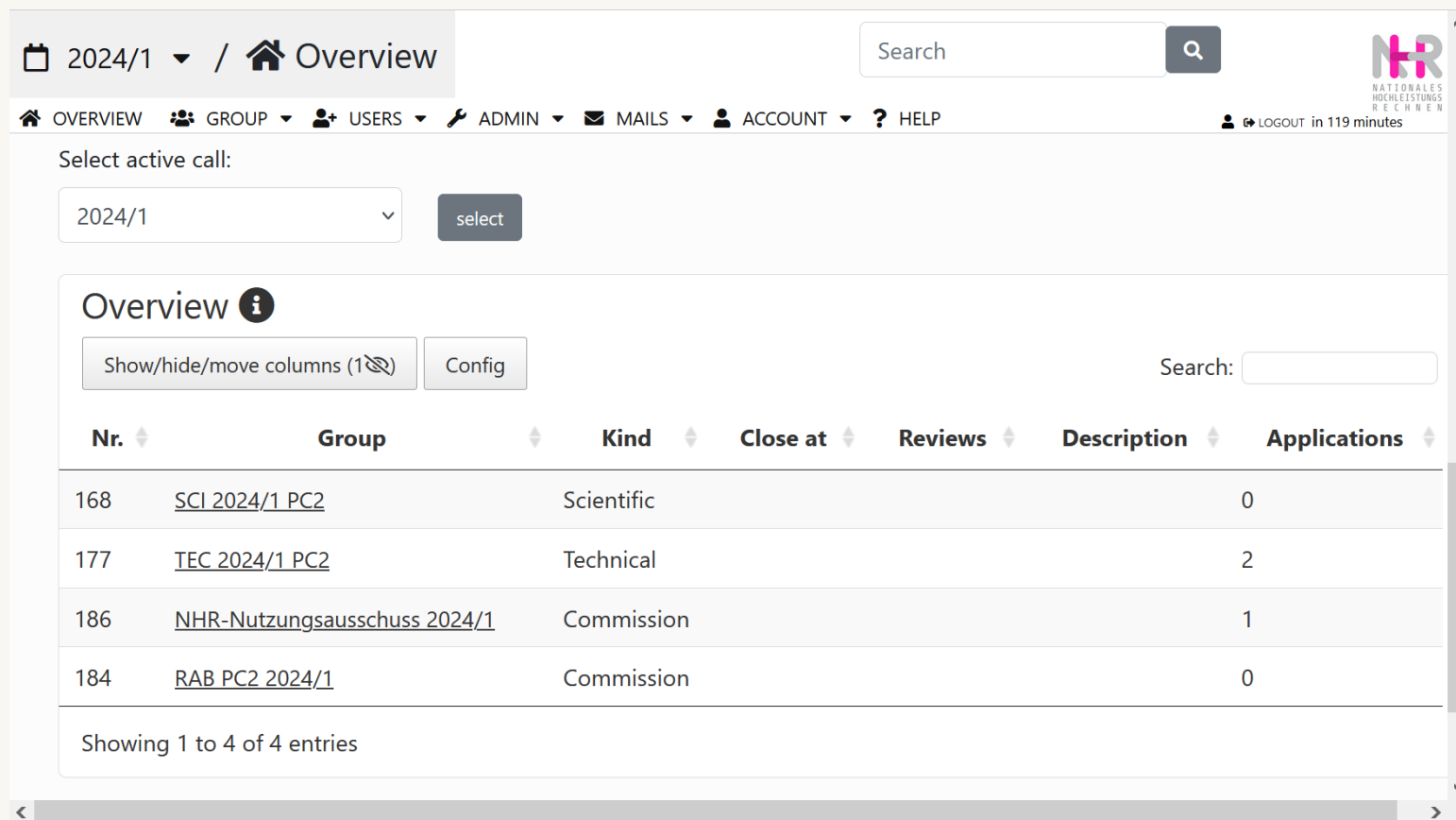
JARDS.review: Overview

- Component to support the management of the review process
- Provision of all applications with their corresponding documents
- Manage formal application check
- Reviewer management and submission of scientific and technical reviews
- Basis/provision of an overview for decisions of the RAB
- Approval/rejection of projects

JARDS.review: Groups

Four groups per center and call:

- Technical reviews
- Scientific reviews
- RAB
- Nutzungsausschuss















The screenshot shows the 'Overview' page for call 2024/1. The interface includes a navigation bar with 'OVERVIEW', 'GROUP', 'USERS', 'ADMIN', 'MAILS', 'ACCOUNT', and 'HELP'. A search bar is located in the top right. Below the navigation, there is a 'Select active call:' section with a dropdown menu set to '2024/1' and a 'select' button. The main content area is titled 'Overview' and contains a table with columns: 'Nr.', 'Group', 'Kind', 'Close at', 'Reviews', 'Description', and 'Applications'. The table lists four entries:

Nr.	Group	Kind	Close at	Reviews	Description	Applications
168	SCI 2024/1 PC2	Scientific		0		
177	TEC 2024/1 PC2	Technical		2		
186	NHR-Nutzungsausschuss 2024/1	Commission		1		
184	RAB PC2 2024/1	Commission		0		

Below the table, it says 'Showing 1 to 4 of 4 entries'. The interface also includes buttons for 'Show/hide/move columns (1)' and 'Config', and a search field for the table content.

JARDS.review: Reviewer pool

- NHR is using a shared scientific reviewer pool across all centers
- „Load balancing“ of reviewers is important
- Improved support for number of reviews in the last calls
- Best-practices: Not more than one review per call
- Comments possible

Name	Mail	Topic 1	Comments	Reviewer	#Reviews in group	#Reviews in most recent call	#Reviews previous call	#Reviews previous 6 calls	Date of last assigned review	Date of last finalized review
Aachen	reviewer1@rwth-aachen.de	301 Molecular Chemistry 		<input checked="" type="checkbox"/>	<ul style="list-style-type: none">  5  1 	<ul style="list-style-type: none">  1  1  1 	<ul style="list-style-type: none">  0  0  0 	<ul style="list-style-type: none">  0  0  0 	2023-01-19	2023-01-19

JARDS.review: Conflict Management

- Improved support for number of reviews in the last calls

Add or edit a reviewer conflict or unavailability

Reviewer: * Aachen, Reviewer1

Conflict of Interest:

Expiration Date: 29.09.2023

Comment for this conflict / unavailability:

0 characters (40000 remaining)

save

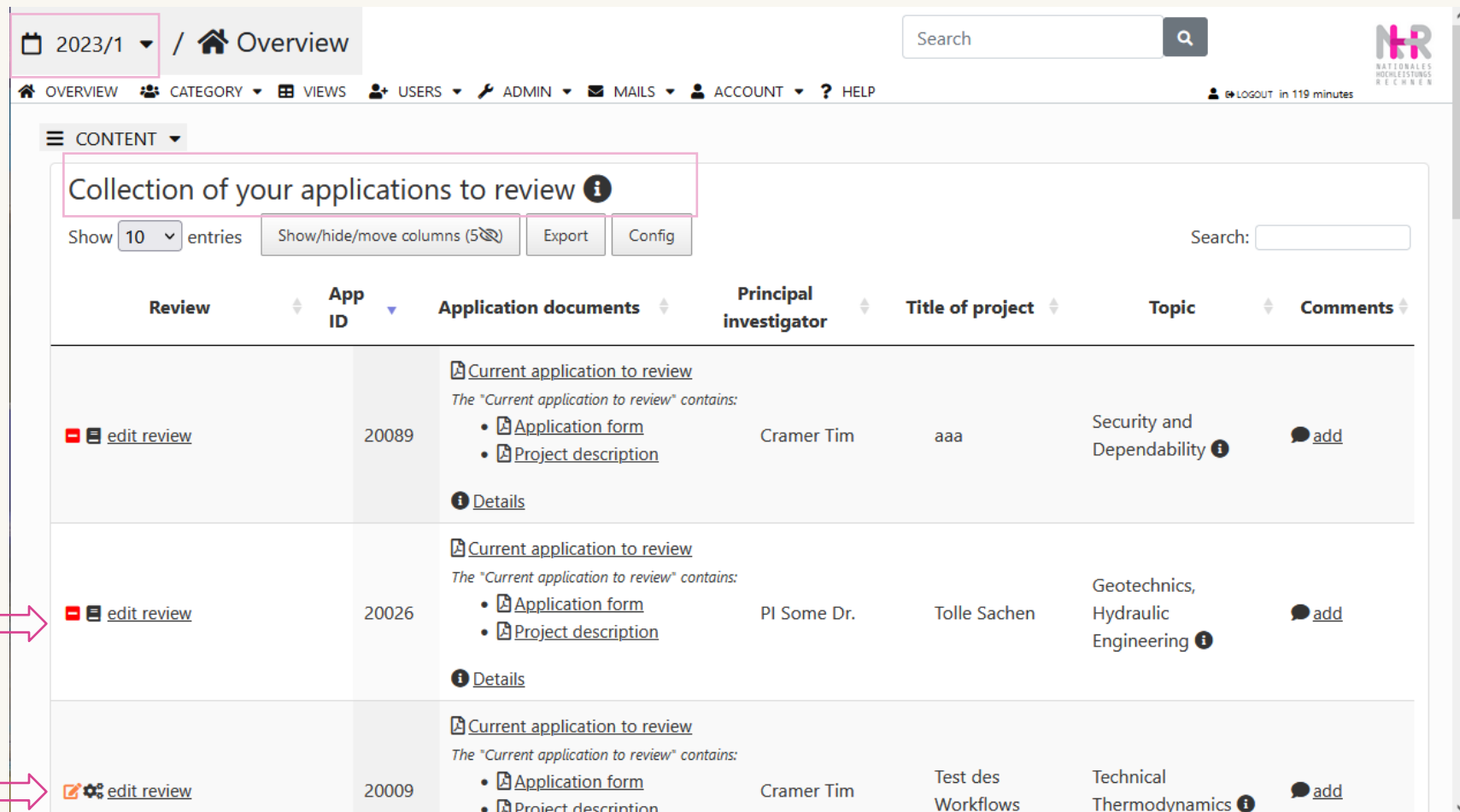
Enter mail address of the conflict of interest. Leave empty for general unavailability like sickness, vacation, sabbatical, etc.

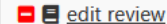


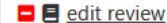





JARDS.review: Reviewer View

- Call number (e.g. "2023/1") transparent to the **users** and **reviewers**
- **(Super-)Admins** have to select explicitly
- We semi-automatically switch call quarterly (based on deadlines)

Scientific Review

Technical Review



Review	App ID	Application documents	Principal investigator	Title of project	Topic	Comments
	20089	Current application to review The "Current application to review" contains: <ul style="list-style-type: none"> Application form Project description Details	Cramer Tim	aaa	Security and Dependability 	 add
	20026	Current application to review The "Current application to review" contains: <ul style="list-style-type: none"> Application form Project description Details	PI Some Dr.	Tolle Sachen	Geotechnics, Hydraulic Engineering 	 add
	20009	Current application to review The "Current application to review" contains: <ul style="list-style-type: none"> Application form Project description 	Cramer Tim	Test des Workflows	Technical Thermodynamics 	 add

JARDS.review: Example Scientific Review

Overall judgement?

Quality *

excellent very good good average below average no comment

Priority *

very high high medium low very low no comment

Scientific relevance? *

excellent very good good average below average no comment

Experience of PI? *

excellent very good good average below average no comment

Soundness of technical program? *

excellent very good good fair not sound no comment

High-performance-computing approach? *

excellent very good good average below average no comment

Experience of PI in high-performance-computing? *

excellent very good good average below average no comment

Realistic time-frame? *

excellent very good good fair not realistic no comment

Resources on CLAIX for the project:

CPU

Minimum resources:

mio. core-h

Recommended resources:

mio. core-h

Please estimate for the proposed project:

- Minimum resources, i.e., the least amount of computing time for each resource applied for to be still useful for the project.
- Recommended resources, i.e., the amount of resources you would recommend to approach the proposed tasks.

Please justify your estimates in the field **Reviewer's judgement** above.

* Scientific Review Completed



JARDS.review: NHR Contributions

- Development of automated processes and workflows
- Regular new releases every two week (including new changes from Jülich)
- Development of JARDS API
 - Export for center specific application data
 - Import of usage data (e.g., JARDS.projects)
 - Fine grained permission system (token-secured)
- Evaluation of AAI integration / access management
 - RegApp
 - Academic Cloud
- Improvements for call changes
- Improvement for reviewer assignment
- Automatic reviewer reminders

JARDS.projects

JARDS.project

- Component for the project management
- Publications
- Reports
- Contingents

Your projects Your account All projects Open file requests Admin

Search Logout

Project **rwth1282**

Title SLURM TEST
Scientific category 403-02 Technical Chemistry
Status Active
Principal Investigator
Calls 2024/1
Local Project Id rwth1282

Modify roles Change status Change title Change scientific category Extended results

Publications 0 Files 0

Granting periods

01.12.2022 - 30.11.2023 Add report

CLAIX CPUs at RWTH Regular
34,777.51 / 12.00 mio. core-h Last updated: 30.11.2023

App ID	Title	Hosts	Call
20623	SLURM TEST	CLAIX CPUs	2024/1

Data privacy

- Joint-Control-Agreement between all centers + NHR office + NHR Verein
- External lawyer involved
- Long process
- NHR cooperation contract + appendix
- NHR data privacy contract + appendix
- Data privacy agreement

JARDS for NHR: Conclusion

- JARDS is not a plug & play software
- One common, sustainable and scalable platform for NHR
 - HPC users / applicants
 - Reviewers
 - Members of local resource allocation boards
 - Local coordination teams
 - NHR office
 - NHR Nutzungsausschuss
- Joined reviewer pool
- Benefits also for non-NHR centers
 - User forum
 - Code improvements