

Migration to user groups for permissions

Google Summer of Code proposal 2023 - Zulip

Basic Information

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About Me

I am a second year student enrolled in the Computer science and Engineering department of Indian Institute of Technology, (BHU) Varanasi. I was introduced to the world of programming and software development in my first year. Since then, I have explored various fields such as Web Development, Data Structures, Algorithms, Computer Architecture, and Operating Systems. I have a keen interest in web development and it has increased since I started contributing to open source.

I have worked on several projects, and working on them gave me practical experience and knowledge in frontend development frameworks like Vue.js, React.js, and backend frameworks like Django, Django Rest Framework, Express, NodeJs. I have experience in programming with various languages like Python, C, CPP, Javascript.

Past Experience

I am a member of [Club of Programmers \(COPS\), IIT\(BHU\)](#). COPS is a group of students in our college where students share their knowledge about different technologies in order to learn from each other, it also organizes various hackathons and

coding events to enrich programming culture. I joined the club in my first year and learned a lot from my seniors by working and contributing to various projects of the club. It is through the seniors of this club that I came to know about open source contributions as well as about Google Summer of Code.

Working with various personal as well as projects of the club , I have got very good experience in working with Django, Express, and frontend frameworks like Reactjs and Vuejs.

Projects

I have worked on various projects, some of which are made individually and others are made in groups.

1. Roadsters ([Source Code](#))

This was the first full-stack web application developed by me. It is a marketplace for second hand bicycles where individuals can buy and sell used bicycles. This project uses NodeJs for backend and EJS as templating engine for rendering webpages. Building this project I got a thorough understanding of NodeJs and basics of frontend.

It has the following notable features:

- Allows a buyer to get a list of all bicycles available for selling.
- Buyer can also get more details of the bicycle and get contact information of the seller.
- Allows a seller to register on the website and list bicycles for selling.
- Sellers can also edit profile and details of bicycles posted by them at any time.

2. Technex'23 Website ([Source Code](#))

Technex is Techno-management Fest organized by IIT BHU, India. Being a part of its Tech Team, I was responsible for making the [official website](#). My major work was in the UI of the home page and the Workshops page. This project used Vue/Nuxt for frontend and Django for backend.

3. Codeforces Ranklist ([Source Code](#))

It was a group project developed by me and my friend. The website allows users to register and view Codeforces(one of the most popular website among competitive

programmers) ratings of other users registered on the website. It also allows various filters based on Ranking, Admission year etc. This project was developed to promote the culture of competitive programming in our college. It used Next.js for frontend and firebase for authentication along with MongoDB as database.

Why Zulip?

There are many reasons I am choosing Zulip as my possible mentor open-source organization, First of all, Zulip uses almost the same tech stack I was using in my personal projects so I am comfortable with it and while exploring open-source organizations I was highly impressed by the Zulip documentation and active community. I really didn't see any organization with that much detailed and well-maintained documentation, and even after having this great documentation, there is a most active and welcoming [CZO](#) community where you can discuss your technical problems and clear your every single doubt.

Zulip is where I started my open source journey and it has been an amazing experience since then. I have been part of the community for around 4-5 months now and I learnt a lot from code reviews, CZO discussions. I want to learn more by getting involved in bigger projects in order to make Zulip even better. So Zulip is the only organization I am applying for this GSOC.

Contributions to Zulip

- [All pull requests opened by me](#)
- [All pull requests by me \(status: open\)](#)

All pull requests opened by me		
Sr. No.	Title	Status
1	settings: Improve success feedback for deleting alert words.	Merged
2	css: Fix spilling out of long email on email change confirmation.	Merged
3	css: Fix Handle emoji not loading gracefully in PM list.	Merged
4	settings: Improve permissions banners on invitations panel.	Merged
5	streams: Allow sorting of stream members.	Merged
6	user_groups: Enabled sorting of subscribers.	Merged
7	bots: Improve bots permission banner.	Merged
8	recent_conversations: Exclude muted user PMs from recent conversations.	Merged
9	notifications: Added modal to warn when all notifications are about	Merged

	to get disabled.	
10	bots: Disable edit button for system bots.	Merged
11	settings: Add option to prevent users from changing custom profile field.	Open
12	settings: Make default notifications settings customizable per-stream.	Open
13	css: Changed position of status emoji.	Open
14	settings: Improve permissions notice banners.	Open
15	user_groups: Sends a notification message to users when someone else add them to user group.	Open
16	custom profile field: Added a new field type Phone Number.	Open
17	invitations: Adding members to user groups through invitations.	Open
18	streams: Make stream settings and create stream UI more consistent.	Open
19	streams: Fixes issue in stream creation.	Open

All issues reported by me		
1	Hovering to user avatar in profile settings(#23844).	
2	user group panel not changing with live updates.	
3	Changing stream notification settings from notifications panel.	
4	Issue in stream creation.	

Proposal Description

Overview

The main target of this project proposal would be to work on [migration to user groups for permissions](#) which aims to replace every setting in Zulip that currently allows organizations to assign

permissions based on role (admin, moderator, etc.) with a setting based on arbitrary “user groups”. I would majorly work on areas of settings and stream settings , migrating the existing settings to the new model and adding new settings based on the new permission model.

Proposed work

1. Make it possible to add users to groups in invitation modal ([#24365](#)).

We would like to support adding users to user-groups through invitations as user-groups will be the key-tool after completion of this project.

I have already raised [#24580](#) for this. But some work needs to be done in typeahead and adding backend support for subscribing a user to multiple user groups efficiently in order to successfully merge it.

2. Migrate realm level permissions to the new model.

After going through the main issue and PRs related to this project it looks like we have done most of the work to be done in backend and API design. So I think we can now start migrating permissions to the new model.

Tim has already given implementation plan for migrating realm permissions in [#19525](#). But some discussion needs to be done on the design part of the "Create group" button that lets the user make a new group in a modal without leaving the "Realm permissions" screen.

Once I have successfully prototyped the migration for one realm setting, I will work on migrating other realm settings also.

3. Migrate stream level permissions to the new model.

Once we have migrated some realm level settings we can start migrating stream level settings. Currently we have one major stream level setting “Who can post to stream” which needs to be migrated.

We have already added a new stream level setting “Who can unsubscribe others from this stream” in [#23992](#) which uses the user groups permission model but currently allows to assign permission to only system groups. Certain stream level settings will also need to have an option of “Subscribers of this stream” while assigning permissions. There has been some discussion regarding how to handle this case in the following section of [#design > New permissions model](#) thread.

4. Adding new settings based on user groups permissions model.

I will work on adding new permissions settings based on the new permissions model. I would like to discuss with the community regarding the settings which should be added first. Currently I am proposing to add the following settings:

- **Who can edit the settings for the stream**
I chose this setting because it looks like this was one of the most requested settings from clients and we've delayed adding it in order to avoid migration of this setting.
- **Group that can delete messages they themselves sent in this stream.**
Currently we have a realm level setting for this. I would be changing this to a stream level setting. I chose it because I think it will be easy to implement.

If time allows I will be happy to add other settings also based on the new permissions model.

Project Timeline

Period	Objective
Community Bonding Period (4-28 May)	
May 4- May 28	<ul style="list-style-type: none">● Coordinate to get my pending PRs merged and follow up needed for them.● Discussing with the community regarding the realm level setting which should be migrated first for prototype.
Phase-1 (29 May- 10 July)	
May 29 - June 5	<ul style="list-style-type: none">● Doing the necessary backend changes and typeahead changes in order to complete PR #24580.● Start design discussion regarding "Create group" button for creating user groups while assigning permissions.
June 6 - June 26	<ul style="list-style-type: none">● Start working on creating a prototype by migrating a realm level setting and create a roadmap in order to efficiently migrate other realm level settings.● Discussion with the community regarding the settings which should be migrated next.
June 27 - July 10	<ul style="list-style-type: none">● Start working on migrating the discussed realm settings.

Mid-Term evaluation (10-14 July)	
Phase-2 (July 14 - August 21)	
July 14- July 31	<ul style="list-style-type: none"> • Start working on migrating the discussed realm settings.
August 1-August 7	<ul style="list-style-type: none"> • Work on migrating the stream level setting “Who can post to stream”. • Discussion regarding new settings to be added based on the user-group permissions model.
August 8- August 20	<ul style="list-style-type: none"> • Work on adding the discussed settings.
Final evaluation (21-28 August)	

Availability

I will be having my end semester exams in the last week of April and will be over by 10th of May. After that I will be having my summer break for around 2.5 months. I do not have any other commitments during this period, So I can easily devote around 30-35 hours per week. So I wish to apply for a **350 hours** long project.

I would also inform about any sudden engagements (if any) and will make sure to cover up by working more in preceding and succeeding weeks.

Post GSoC

Even after GSoC I would love to continue contributing and stay active in the CZO community, any day if I got free time I will absolutely consider spending time with Zulip. I'll still continue to working on my open pull requests and work on new issues. Zulip is an awesome community, with really nice people. I intend to contribute to Zulip on a long-term.