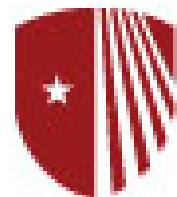


GuRoom

Google Drive Sharing Manager

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SACMAT 2023 Lightning Talk

[Sign in](#)

GuRoom:

Groom your Cloud Drive Permissions

If you don't have an account,
You can sign in with [Google](#) or [Dropbox](#)!



Sign In

[Sign In with Google](#)[Sign In with Dropbox](#)

i If you do not need to transfer ownership, you do not need to give permission for the **drive** and **drive.file** scopes.
But if you change your mind later, you can always add them later.

Workflow

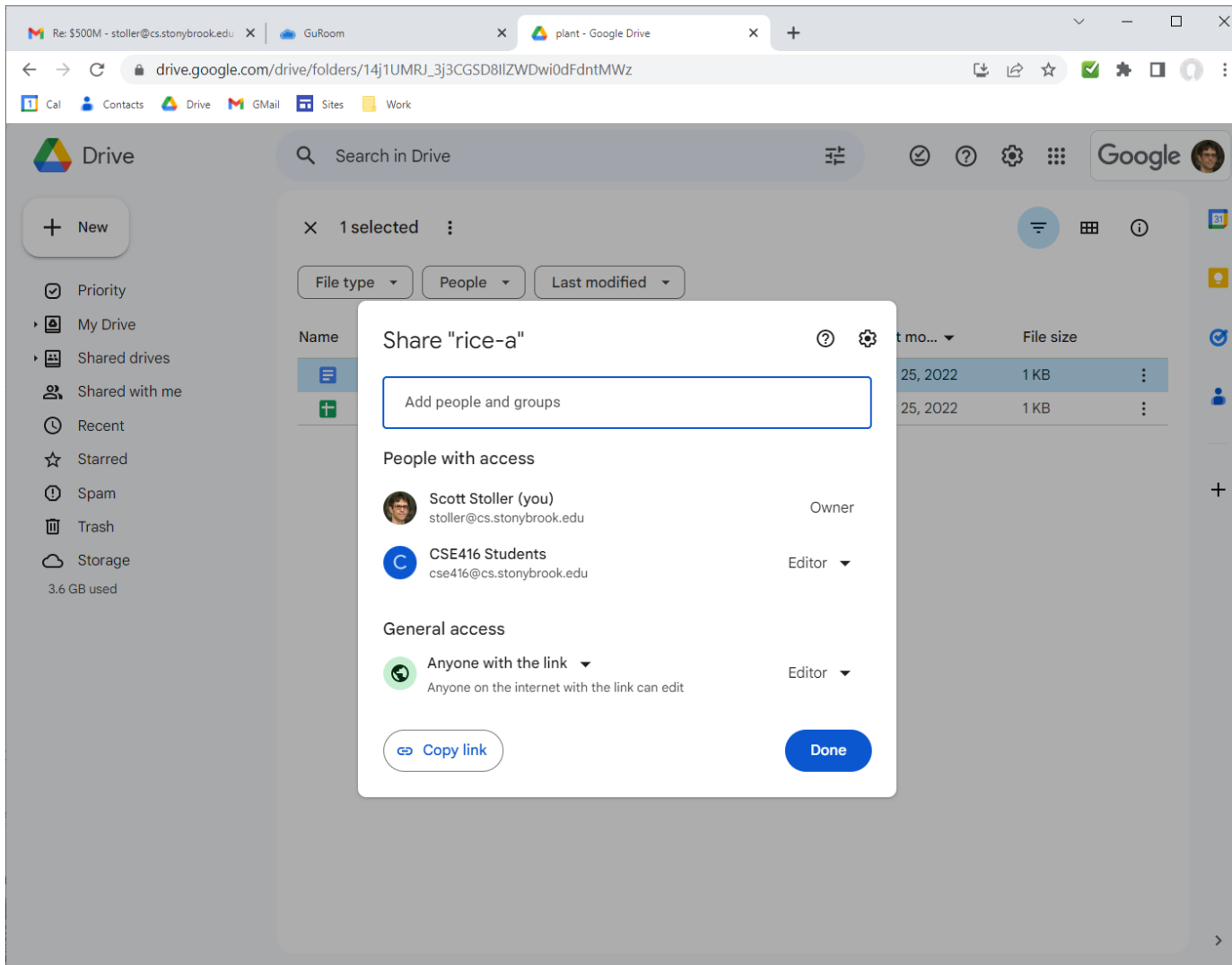
1. **Take a snapshot** of all sharing-related metadata in your Google Drive.
 - ◆ Includes My Drive, Shared With Me, and Shared Drives.
2. Browse and analyze any saved snapshot of your Google Drive.

GuRoom's **snapshot database** makes subsequent analysis **more efficient** and enables **historical queries**.

GuRoom is retargetable to multiple cloud drive services and currently also includes partial support for Dropbox.

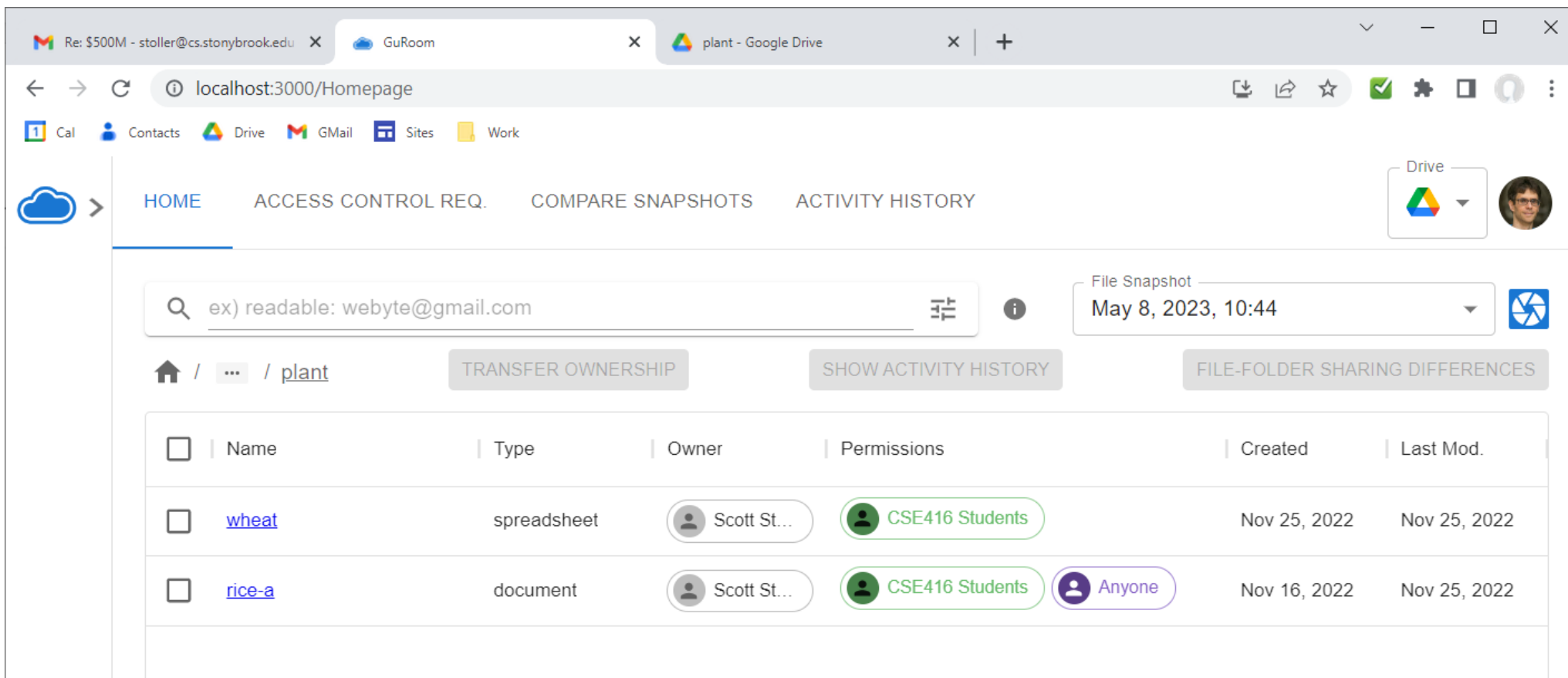
Permission Browser: Google Drive

- display permissions of **one file at a time**.
- **inherited** and **directly-assigned** permissions look the same





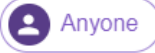


Permission Browser: GuRoom

- display permissions of **many files** at once.
- **inherited** and **directly-assigned** permissions are color-coded.



The screenshot shows a web browser window with three tabs: 'Re: \$500M - stoller@cs.stonybrook.edu', 'GuRoom', and 'plant - Google Drive'. The address bar shows 'localhost:3000/Homepage'. The page has a navigation bar with 'HOME', 'ACCESS CONTROL REQ.', 'COMPARE SNAPSHOTS', and 'ACTIVITY HISTORY'. A search bar contains 'ex) readable: webyte@gmail.com'. A 'File Snapshot' dropdown shows 'May 8, 2023, 10:44'. Below the search bar are buttons for 'TRANSFER OWNERSHIP', 'SHOW ACTIVITY HISTORY', and 'FILE-FOLDER SHARING DIFFERENCES'. The main content is a table with columns: Name, Type, Owner, Permissions, Created, and Last Mod.

<input type="checkbox"/>	Name	Type	Owner	Permissions	Created	Last Mod.
<input type="checkbox"/>	wheat	spreadsheet			Nov 25, 2022	Nov 25, 2022
<input type="checkbox"/>	rice-a	document		 	Nov 16, 2022	Nov 25, 2022

File Search

- Google Drive and GuRoom both provide:
 - ◆ textual query language
 - ◆ GUI query builder
- **Google Drive:** **Conjunctions** of conditions such as `readable:user` and `owner:user`.
- **GuRoom:** **Arbitrary Boolean combinations** of conditions similar to those in Google Drive, and supports **regular expressions** for file names and user names.

File Search: GuRoom Query Builder

The screenshot shows a web browser window with the address bar at `localhost:3000/Homepage`. The browser tabs include "Re: \$500M - stoller@cs.stonybrook.edu", "GuRoom", and "plant - Google Drive". The background is a Google Drive interface with a search bar containing "ex) readable: w" and a list of files: "Name", "wheat", and "rice-a".

The "QUERY BUILDER" dialog box is centered on the screen. It has the following fields and options:

- From:** A dropdown menu with "shared" selected.
- To:** A dropdown menu with "shared" selected.
- Logic:** Radio buttons for "and" (checked) and "or".
- Readable by:** A dropdown menu.
- Writable by:** A dropdown menu.
- (file) Name:** A text input field.
- IN:** A dropdown menu with "Path" selected.
- SubFolders:** A checkbox that is currently unchecked.

At the bottom of the dialog box are two buttons: "GENERATE" (in blue) and "CANCEL" (in grey). The bottom of the browser window shows "Rows per page: 10" and "1-2 of 2".

Analysis of Group Permissions

- Sharing a file with a Google Group (e.g., mygroup@googlegroups.com) allows all members of the group to access it.
- **Google Drive**: Searching for files readable by a group member does **not** return files shared with the group.
- **GuRoom**: It does, if you have taken a snapshot of the group membership.

Sharing History: Google Drive

- Shows sharing activity for **one file** at a time, in a narrow **sidebar**.

The screenshot displays the Google Drive web interface. The browser address bar shows the URL: `drive.google.com/drive/folders/14j1UMRJ_3j3CGSD8IIZWDwi0dFdntMWz`. The main content area shows a folder named 'plant' containing two files: 'rice-a' and 'wheat'. The 'Activity' tab is selected, showing a list of sharing events. The events are categorized by year: 'This year' and 'Last year'. The 'This year' section shows a sharing event on April 6, 2022, at 8:44 PM, where the user shared the 'plant' folder with 'CSE416 Students' as an Editor. The 'Last year' section shows two events from November 25, 2022: one where the user created and shared the 'wheat' file with 'CSE416 Students' as an Editor at 11:54:18 AM, and another where the user shared the 'rice-a' file with 'Anyone on the internet with the link' as an Editor at 11:53:51 AM.

Sharing History: GuRoom

- Shows sharing activity **full-screen** for **all files in selected folder** (subtree), including deleted files.

The screenshot displays the 'ACTIVITY HISTORY' page in the GuRoom application. The page shows the folder name 'shared with family' and a snapshot from May 9, 2023, at 19:30. Below this, there are input fields for 'Date Start' and 'Date End', a 'SHOW ACTIVITY HISTORY' button, and a 'REFRESH CONTACTS' button. The main content is a table with the following columns: Primary Action, Folder/file Name, Actor, Action Type, Action Details, and Action Date.

Primary Action	Folder/file Name	Actor	Action Type	Action Details	Action Date
Rename the folder/file	recipes.txt	Scott Stoller	Rename the folder/file	Change Name: recipes (1).txt to recipes.txt	2023-01-07 02:36:49
	recipes.txt	Scott Stoller	Edit		2023-01-07 02:36:49
Created	recipes (1).txt	Scott Stoller	Created		2023-01-07 02:36:11
	recipes (1).txt	Scott Stoller	Changed Permission	Scott Stoller became OWNER. Sylvi Stoller became VIEWER	2023-01-07 02:36:11
Created	estate planning.zip	Scott Stoller	Created		2022-09-29 00:14:49
	estate planning.zip	Scott Stoller	Changed Permission	Serene Stoller became VIEWER. Scott Stoller became OWNER	2022-09-29 00:14:49
Created	shared with family	Scott Stoller	Created		2022-04-06 17:39:12
	shared with family	Scott Stoller	Changed Permission	Serene Stoller became VIEWER. Sylvi Stoller became VIEWER	2022-04-06 17:39:12

Security Auditing

- **Google Drive:** no security auditing.
- **GuRoom:** check whether file sharing is consistent with a policy of the form:
 - ◆ Search Query (the policy applies to all matching files)
 - ◆ Allowed Readers
 - ◆ Allowed Writers
 - ◆ Denied Readers
 - ◆ Denied Writer

Sharing Changes

List **all sharing changes** between **two snapshots** of your Google Drive

Base File Snapshot: initial snapshot

Compare File Snapshot: May 9, 2023, 19:30

COMPARE

Name	Base Snapshot Permission	Compare Snapshot Perm
/SharedWithMe/frontiers - assoc editors.txt.undefined		
/demodrive/plant/flower2/su ower.form	X	commenter
/demodrive/oak100.docume	X	commenter
/demodrive/oak12.documer	X	fileOrganizer
/demodrive/oak5.document	X	reader
/demodrive/oak6.document	X	organizer
/demodrive/oak4.document	X	writer