Tabula Rasa – Automatic User Lifecycle Management for Moodle

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Motivation

Why and when do we even want to get rid of users and other content?



Legal requirements

Let's get through the boring stuff first ...



We need to **remove old user records** and other personally identifiable information (PII) from our systems without undue delay

Art. 5 GDPR

Students **deleted from** the **university IDM** must be deleted from Moodle without undue delay

Art. 19 GDPR

Students **can't** simply request the **deletion of exam data** or grades. Deletion can't be a simple self-service process.

Art. 17 GDPR

Technical & Organizational aspects

- Your `moodledata/` folder is only getting bigger
  - All uploaded files and submissions are kept for active users
- Your Moodle database grew to a decent size while containing mostly unused data
- Certain tasks or database queries take ages to complete
  - Some housekeeping tasks still scale largely with the amount of total user data
- Having less data to sift through leaves more time for the interesting tasks
- Avoiding name collisions when searching for users
  - Enrolling the correct *"John Smith"* out of 30 ones can be error-prone
- Phasing out old content (e.g., question types or activities)
  - Some plugins can only be uninstalled once all usages / instances are deleted

User vs. Course Lifecycle

How user lifecycles differ from course lifecycles

And can't we just have one plugin?!



Same idea – different subject

Both, tool_lifecycle and tool_userautodelete, are powerful workflow engines with pluggable building blocks ... they just look after different things!

Course Lifecycle

tool_lifecycle

- Manages your **courses**
- Courses are **selected initially** by filters
- Can have **interactive** steps
- Backup, hide, notify, delete, ...

User Lifecycle

tool_userautodelete

- Manages your **user accounts**
- Users can be **filtered at any stage**
- Runs **fully automated**
- Notify, suspend, delete, anonymize, ...

Better together

Why having one generalist if you can have two specialists?

Each plugin does one job, and does it well!

Course Lifecycle

tool_lifecycle



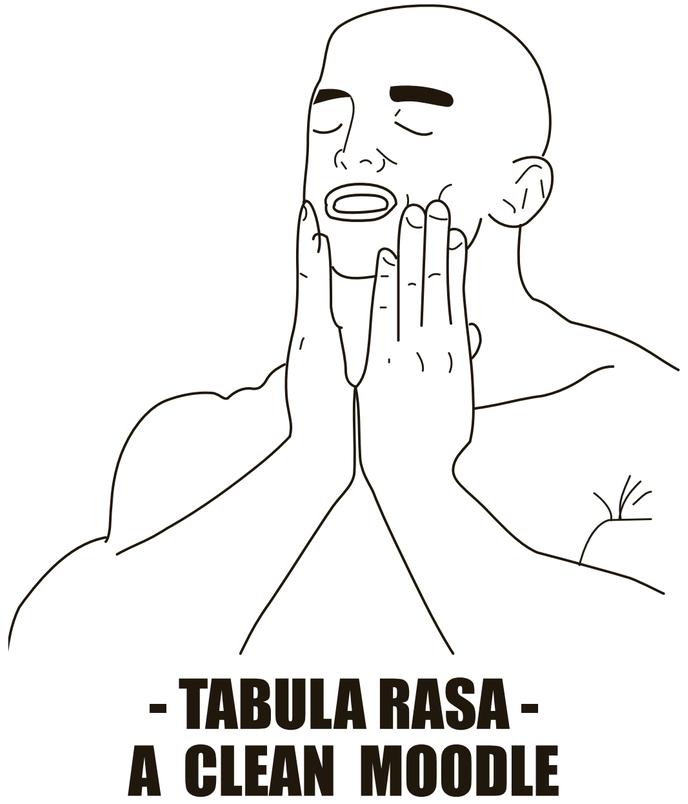
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User Lifecycle

tool_userautodelete



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Our Current User Lifecycle(s)

How users get on and off our Moodle platforms

Different platforms, different user lifecycles

We run a number of Moodle platforms with diverging user management

University Moodles

HAW HAMBURG

- Used solely by our students
- Primary auth method is SSO
- One account per university member
- Semester-based user creation

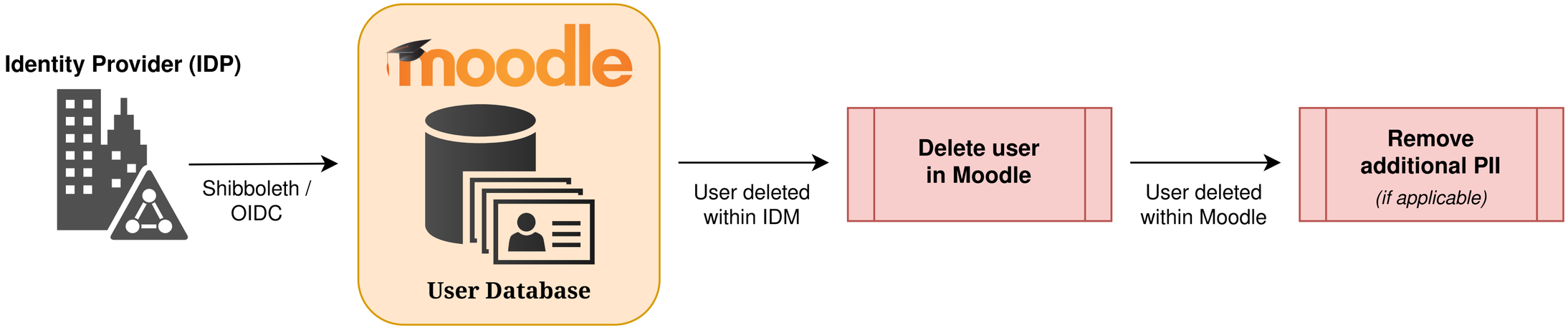
Public Moodle

via MINT

- Open to the public
- Local accounts and multiple SSOs
- Anonymous temporary accounts
- Constant user fluctuation

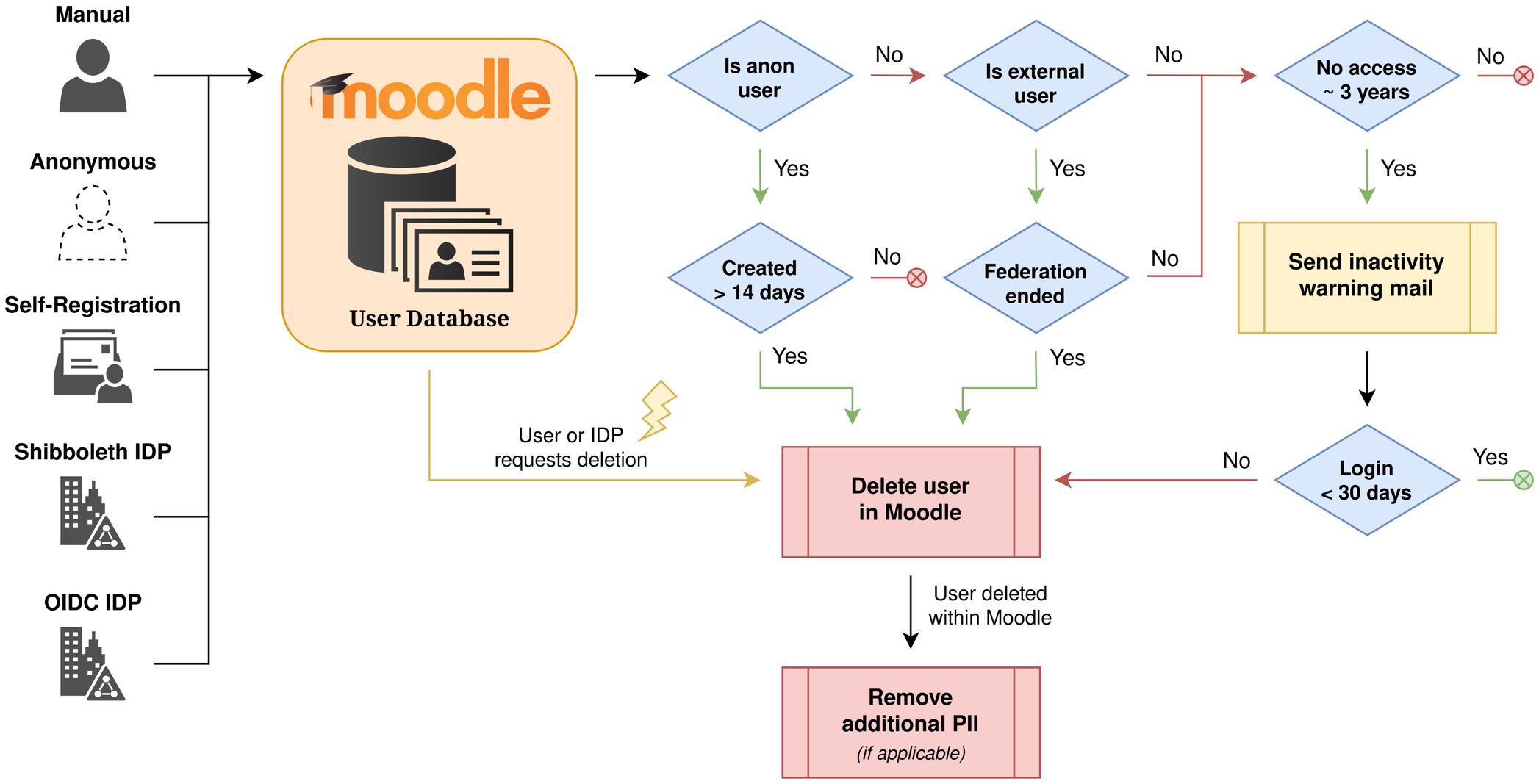
University Moodle

The simple and straightforward case



Public Moodle

The "*slightly*" more complicated case ...



Key takeaways

- It's only simple until it isn't
- User lifecycles can be multi-staged
- Different user groups may require different lifecycles
- External systems / events can dictate the flow
- There is no simple "one size fits all" solution

Moodle Plugin:
User Lifecycle Management

The *Automatic User Deletion* plugin grew into a fully-fledged workflow management engine.

Key features

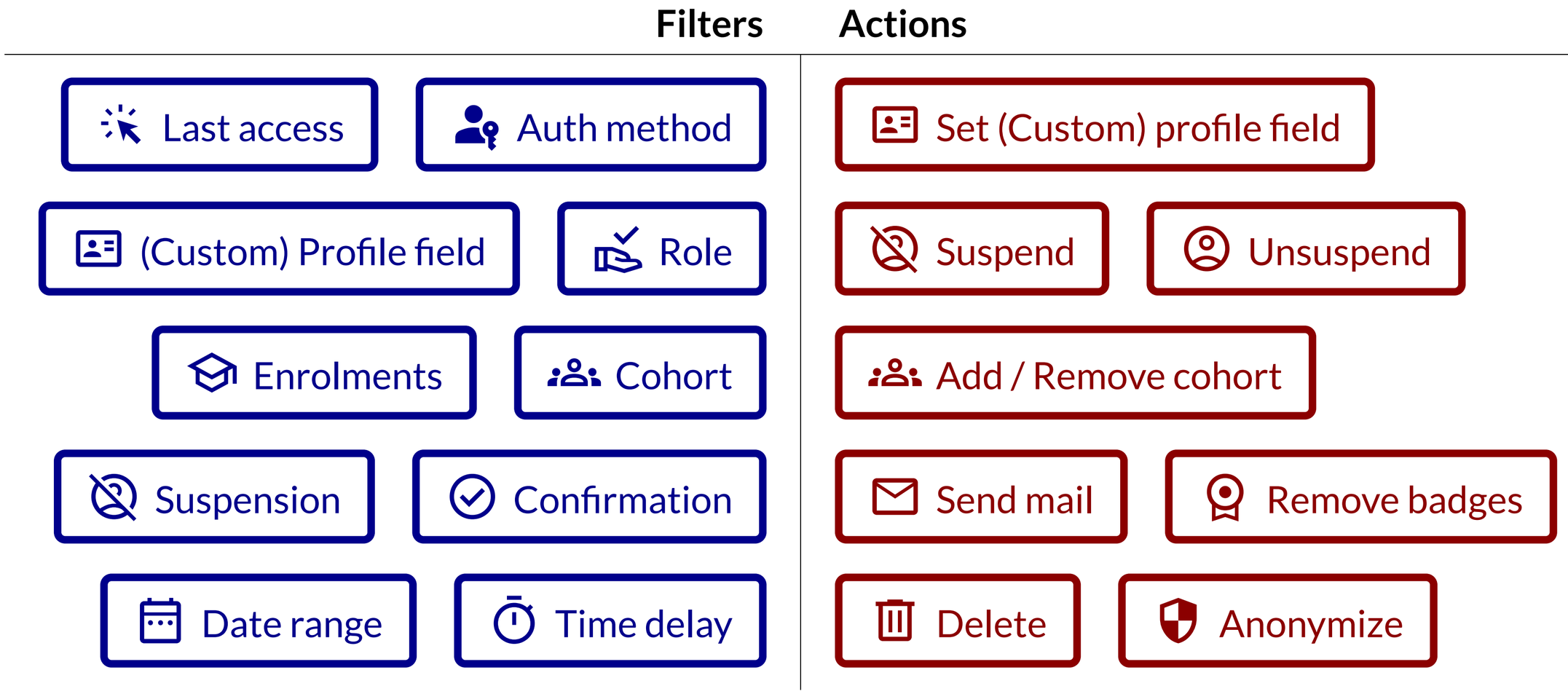
- Automatically manages users based on flexible workflows
- Extensive criteria for selection / filtering users
- Various actions to perform on user accounts
- GDPR-compliant deletion of user data
- Dry-run mode for verifying the configuration
- Action log to audit performed actions
- Highly configurable (time thresholds, auth method, ...)
- Dynamic variables (e.g., user names) in email templates



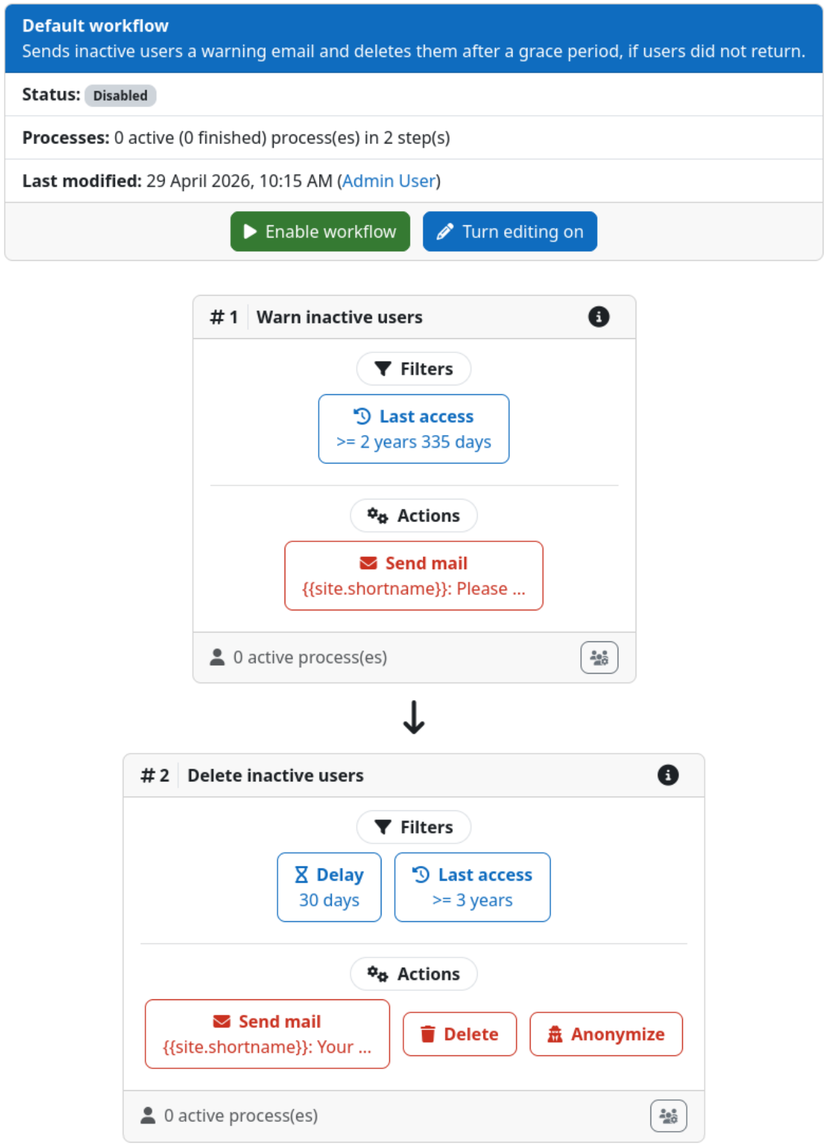
Moodle Plugin:
Automatic User Lifecycle Management
(tool_userautodelete)

Filters and actions

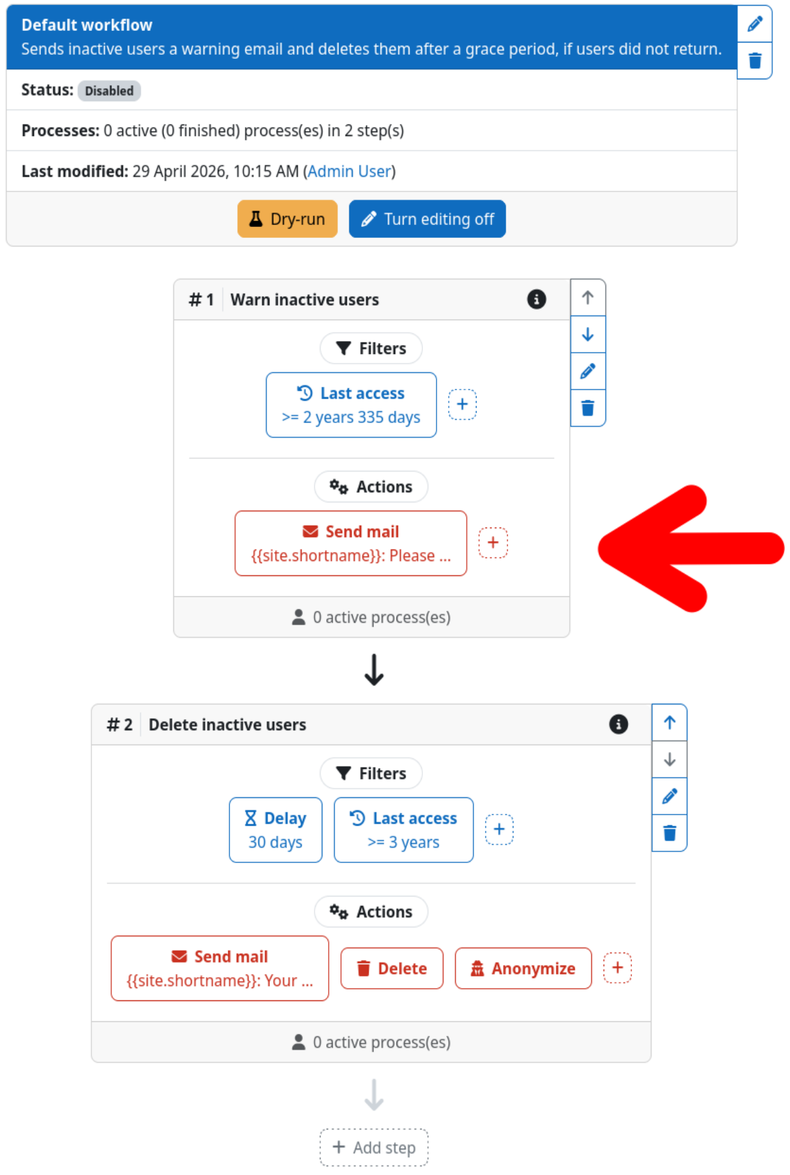
User filters and actions are lightweight and flexible sub-plugins

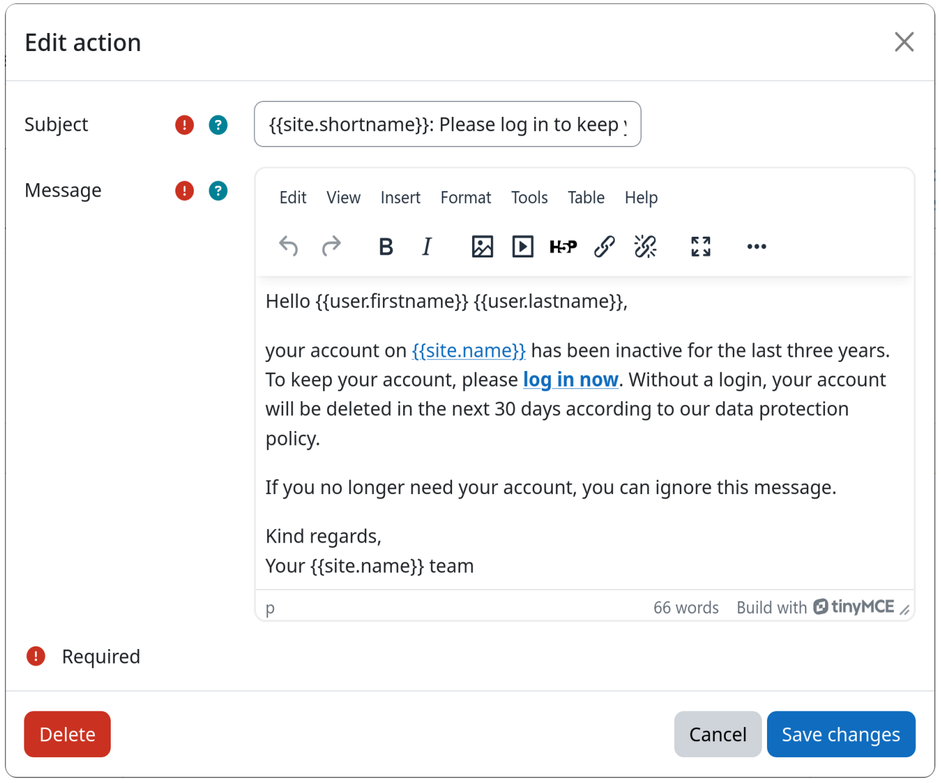


Example workflow



Example workflow (edit mode)





Dry-run

Admin tools / User Lifecycle Management / Workflows / Dry-run

Dev Moodle 5.2

Search

General | Users | Courses | Grades | Plugins | Appearance | Server | Reports | Development

Dry-run

Below you will find all users that would be ingested by this workflow upon execution. None of the users is actually ingested at this point, so you can safely inspect the list to verify that the workflow is configured correctly.

Please note, that a single user can only be part of a single workflow at any point in time. Therefore, only users that match the defined filter criteria of the first workflow step and are not yet part of any workflow are listed below.

Default workflow
Sends inactive users a warning email and deletes them after a grace period, if users did not return.

Affected users: 3

Selection filters: Last access

Last modified: 29 April 2026, 10:56 AM (Admin User)

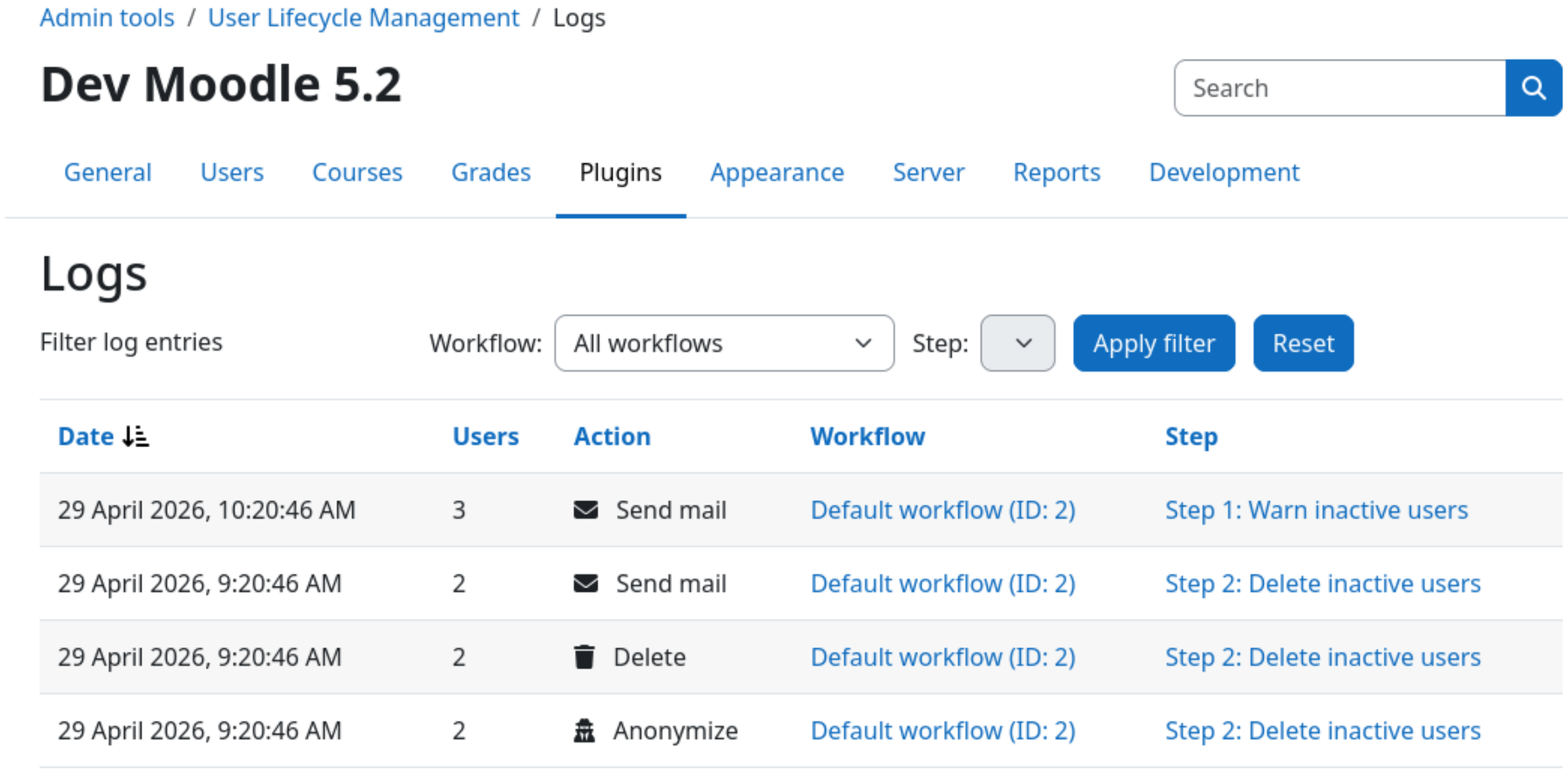
← Back to workflow

ID	User	Last access	Status	Authentication method
9	John Doe (testuser1)	Saturday, 29 April 2023, 5:05 PM	Active	Manual accounts
10	Alice Parker (testuser2)	Tuesday, 18 April 2023, 3:18 AM	Active	Manual accounts
11	Bob Carter (testuser3)	Thursday, 6 April 2023, 1:32 PM	Active	Manual accounts

Action logs

All actions performed by the plugin are logged in a cumulative fashion.

Specific workflows, steps, and actions can be identified, filtered for, and sorted by.



GDPR-compliant user deletion

Removing the remaining personally identifiable information (PII) after Moodle *"deleted"* a user

deleted	0
username	johndoe
password	<Password Hash>
email	jd@foo.com
firstname	John
lastname	Doe
institution	Awesome Uni
idnumber	123456789
description	My secret is 1234
phone1	+00 123456789
address	North Pole 1
lastip	10.0.0.42
picture	

Moodle user table for active user

Delete user

deleted	1
username	jd@foo.com.1772113756
password	<Password Hash>
email	<MD5 Hash>
firstname	John
lastname	Doe
institution	Awesome Uni
idnumber	*empty*
description	My secret is 1234
phone1	+00 123456789
address	North Pole 1
lastip	10.0.0.42
picture	

Moodle user table for deleted user

Remove PII

deleted	1
username	DELETED-USER-1
password	*empty*
email	DELETED-USER-1@localhost
firstname	DELETED
lastname	DELETED
institution	*empty*
idnumber	*empty*
description	*empty*
phone1	*empty*
address	*empty*
lastip	*empty*
picture	

Moodle user table after PII removal

Modeling Institution-specific Use-cases

Leveraging the workflow engine to support your institution's lifecycles

Using filters, actions, and multiple workflows

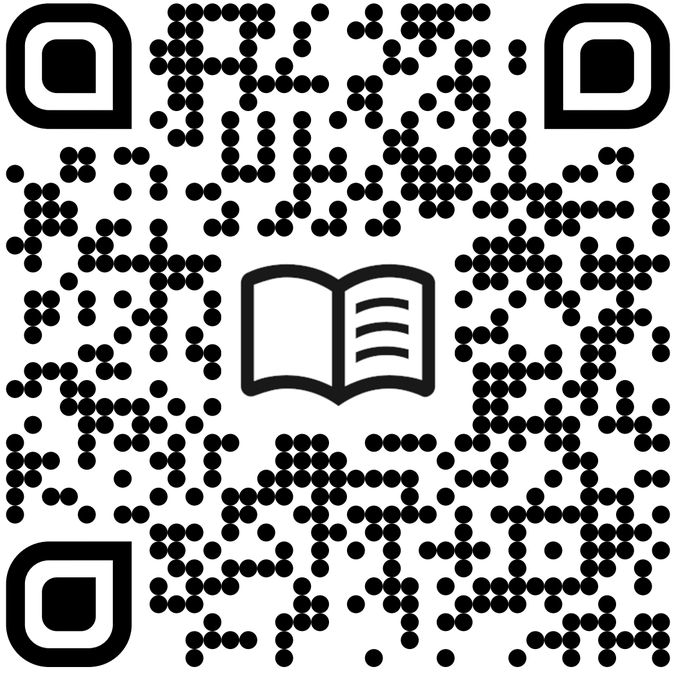
You got various user groups that require different lifecycles? We got you covered!

- Having multiple workflows allows targeting different user groups independently
- Steps, filters, and actions can be combined freely
- Workflows are ordered and follow a deterministic execution model
- A user will only ever be in a single workflow at a given point in time
- Workflows can either be disabled individually or paused globally
- Timeout / user retention can be configured on a per-workflow basis

Creating custom filters and user actions

All filters and user actions are small yet flexible sub-plugins and
can therefore easily be extended according to your specific needs

- Action Subplugins
- Filter Subplugins
- Instance Settings



https://moodleuserlifecycle.gandrass.de/dev

- Contributing
- Testing Instructions
- Building the Docs

You can find detailed instructions on implementing your own sub-plugins
within the developer documentation!

Contributing

You created something that could help others? Wonderful!

Open an issue

Found a bug or have an idea? Let us know!

Submit a pull request

Fixes, features, and docs are always welcome

Share your sub-plugins

Your custom filters and actions can help others



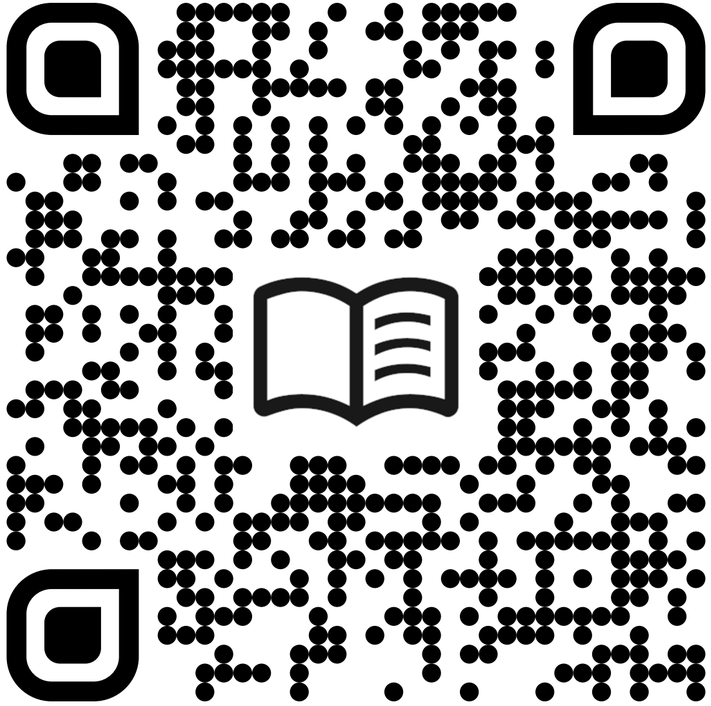
ngandrass/moodle-tool_userautodelete

Quickstart and Resources

I got you hooked and you would like to start exploring the plugin? Nice!

Quickstart

You can find a quick guide on how to install the plugin and
get started with your first workflow in the comprehensive online documentation



https://moodleuserlifecycle.gandrass.de/

Getting the plugin

The user lifecycle management plugin is available on GitHub
and via the Moodle Marketplace!

https://marketplace.moodle.com/plugins/tool_userautodelete

https://github.com/ngandrass/moodle-tool_userautodelete

Q&A Session

Now it's time for your questions!

You can find all slides of this talk at
https://gandrass.de