

Workflow-based 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 ... (1/3)

I'm not a lawyer
Consult your DPO!

1. Personal data shall be: [...]

 Art. 5 GDPR

(e) kept in a form which permits identification of data subjects for **no longer than is necessary** for the purposes for which the personal data are processed;



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

Legal requirements

Let's get through the boring stuff first ... (2/3)

I'm not a lawyer
Consult your DPO!

The controller shall **communicate** any rectification or **erasure of personal data** [...] to each recipient to whom the personal data have been disclosed, unless this proves impossible or involves disproportionate effort.

 Art. 19 GDPR



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

Legal requirements

Let's get through the boring stuff first ... (3/3)

I'm not a lawyer
Consult your DPO!

1. The data subject shall have the right to obtain from the controller the **erasure of personal data** concerning him or her without undue delay [if] one of the following grounds applies:

 Art. 17 GDPR

(a) the personal data are **no longer necessary** [...] for which they were collected;

(b) the data subject withdraws consent [...] and where there is no **other legal ground for the processing**;



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

You survived the boring part!

In case you missed the confetti at the MoodleMoot DACH 2025 DevCamp

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

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



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

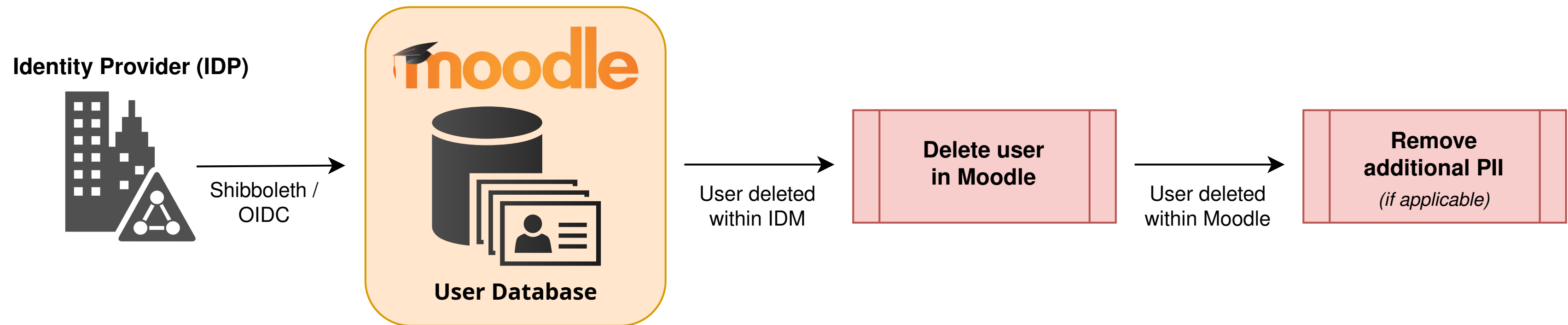
Public Moodle



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

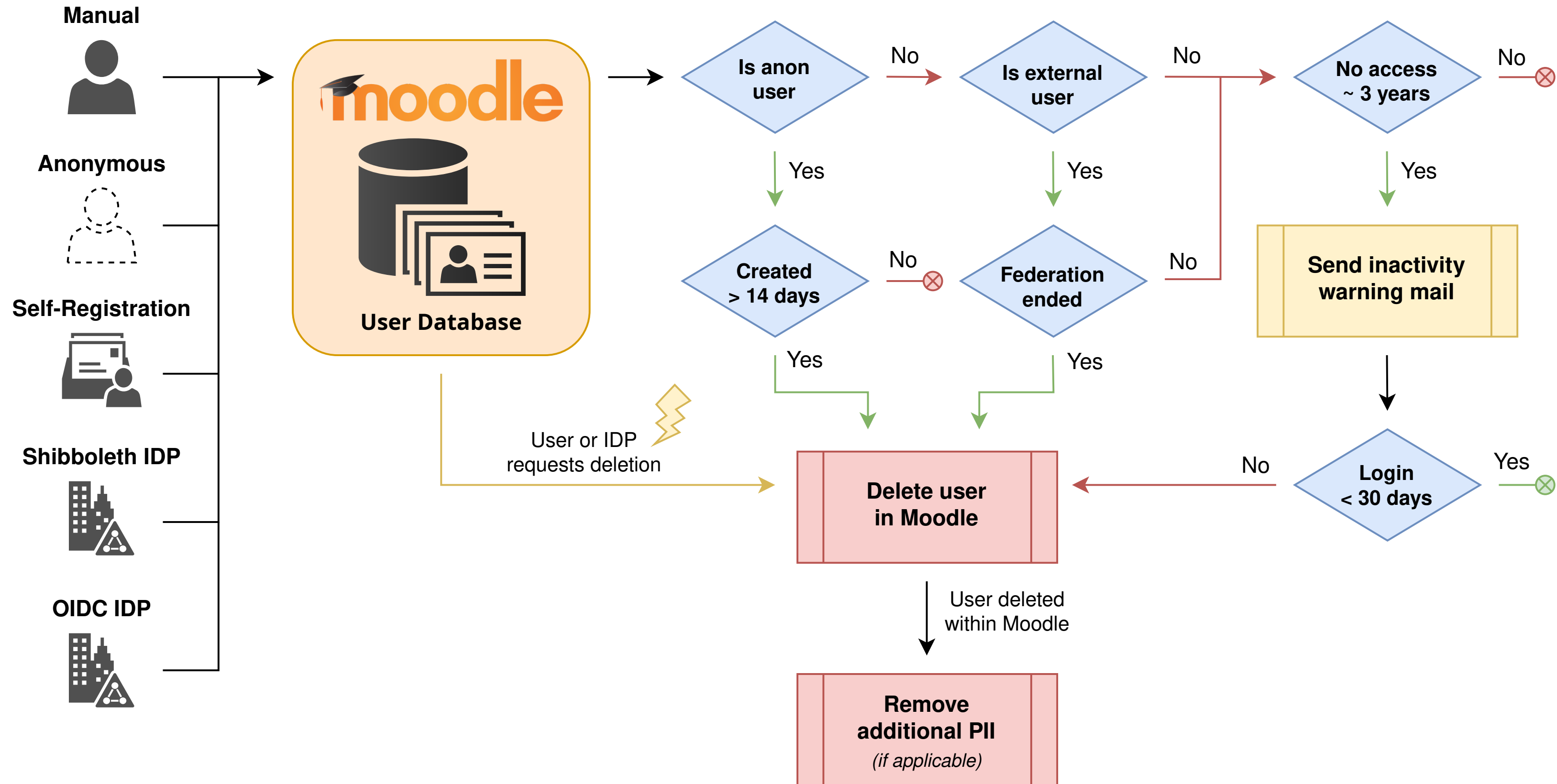
University Moodle

The simple and straight forward case



Public Moodle

The "slightly" more complicated case ...



Key takeaways

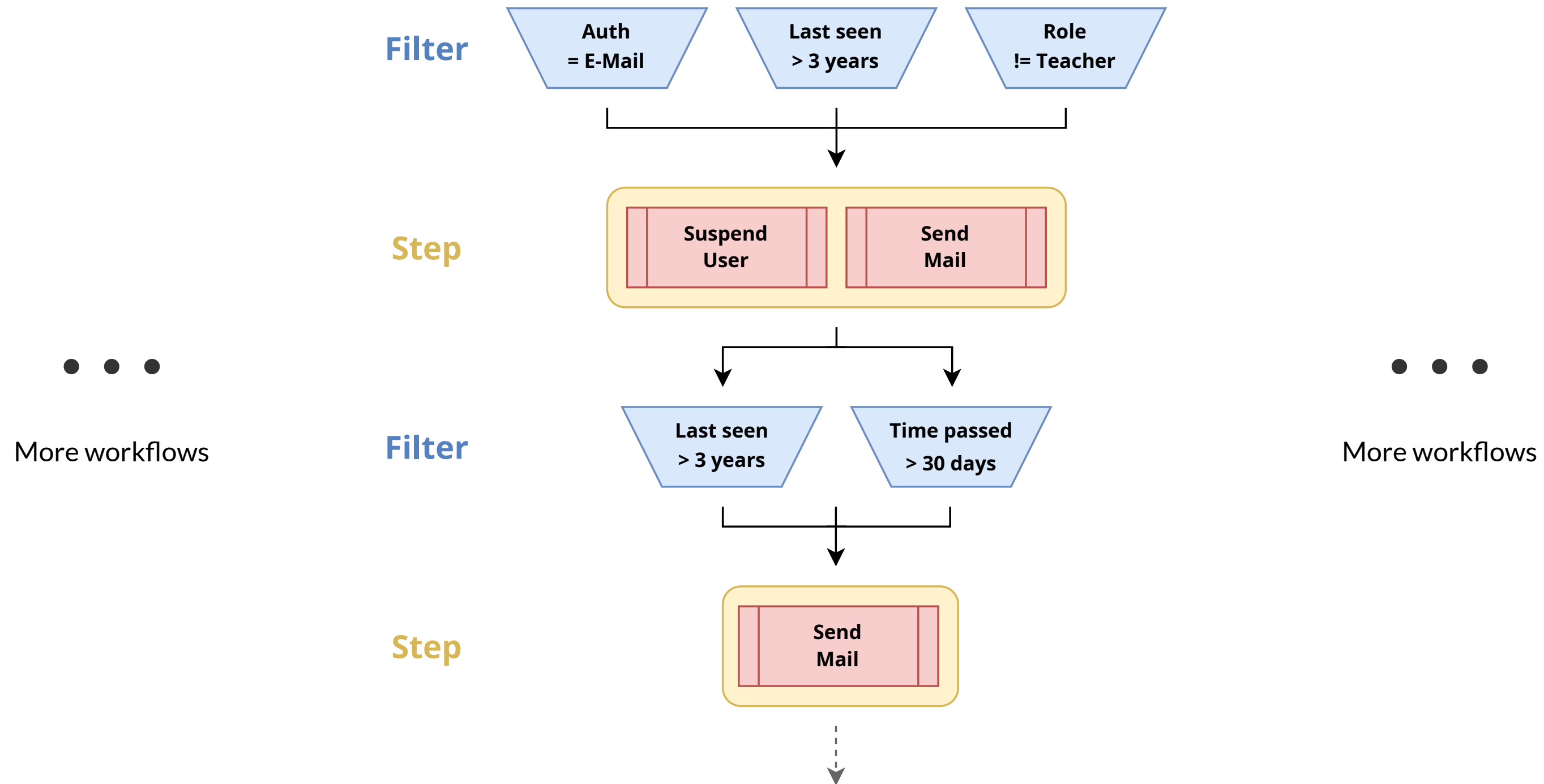
- ✂ It's only simple until it isn't
- 📊 User life cycles can be multi-staged
- 👥 Different user groups may require different life cycles
- 📄 External systems / events can dictate the flow
- ∞ There is no simple "one size fits all" solution

User Lifecycles as Workflows

Using multi-step flowcharts to model the full lifecycle of a group of users in Moodle

The workflow approach

Users progress through different user-defined workflows, similar to what is known from the [Course Life Cycle Plugin](#)



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 users 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

Filters	Actions
 Last access	 Suspend
 Auth method	 Unsuspend
 Date range	 Send Mail
 Time delay	 Delete
 Cohort	 Anonymize
 Role assignment	
 Suspension state	

Example workflow

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

Status: Disabled

Processes: 0 active (0 finished) process(es) in 2 step(s)

Last modified: 29 April 2026, 10:15 AM (Admin User)

[▶ Enable workflow](#) [✎ Turn editing on](#)

1 Warn inactive users

Filters

Last access
>= 2 years 335 days

Actions

Send mail
{{site.shortname}}: Please ...

0 active process(es)



2 Delete inactive users

Filters

Delay 30 days Last access >= 3 years

Actions

Send mail {{site.shortname}}: Your ... Delete Anonymize

0 active process(es)

Example workflow (edit mode)

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

Status: **Disabled**

Processes: 0 active (0 finished) process(es) in 2 step(s)

Last modified: 29 April 2026, 10:15 AM (Admin User)

Dry-run **Turn editing off**

1 Warn inactive users

Filters

- Last access >= 2 years 335 days

Actions

- Send mail {{site.shortname}}: Please ...

0 active process(es)



2 Delete inactive users

Filters

- Delay 30 days
- Last access >= 3 years

Actions

- Send mail {{site.shortname}}: Your ...
- Delete
- Anonymize

0 active process(es)

+ Add step

Edit action

Subject: {{site.shortname}}: Please log in to keep !

Message:

66 words Build with tinyMCE

Required

Delete **Cancel** **Save changes**

Dry-run

[Admin tools](#) / [User Lifecycle Management](#) / [Workflows](#) / Dry-run

Dev Moodle 5.2



[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.

[Admin tools](#) / [User Lifecycle Management](#) / Logs

Dev Moodle 5.2



[General](#) [Users](#) [Courses](#) [Grades](#) [Plugins](#) [Appearance](#) [Server](#) [Reports](#) [Development](#)

Logs

Filter log entries

Workflow:

All workflows

Step:


Apply filter

Reset

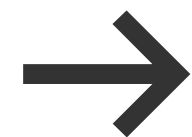
Date ↓	Users	Action	Workflow	Step
29 April 2026, 10:20:46 AM	3	✉ Send mail	Default workflow (ID: 2)	Step 1: Warn inactive users
29 April 2026, 9:20:46 AM	2	✉ Send mail	Default workflow (ID: 2)	Step 2: Delete inactive users
29 April 2026, 9:20:46 AM	2	🗑 Delete	Default workflow (ID: 2)	Step 2: Delete inactive users
29 April 2026, 9:20:46 AM	2	👤 Anonymize	Default workflow (ID: 2)	Step 2: Delete inactive users

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	<i>empty</i>
description	My secret is 1234
phone1	+00 123456789
address	North Pole 1
lastip	10.0.0.42
picture	

Moodle user table for deleted user

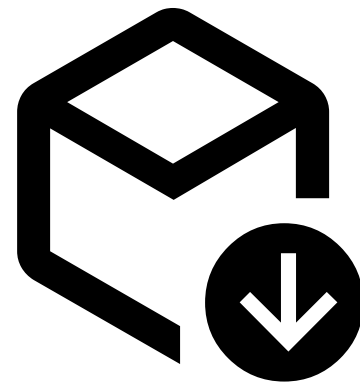


Remove
PII

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

Moodle user table after PII removal

Upgrading from the automatic user delete plugin (v1)



Existing v1.x.x installations can be upgraded to v2.x.x in-place
All previous settings will be reflected by the new workflows filters and actions

You can find all migration details here:







<https://moodleuserlifecycle.gandrass.de/changelog/#migrating-from-v1-to-v2>

Modeling Institution-specific Use-cases

Leveraging the workflow engine to support your institutions lifecycles

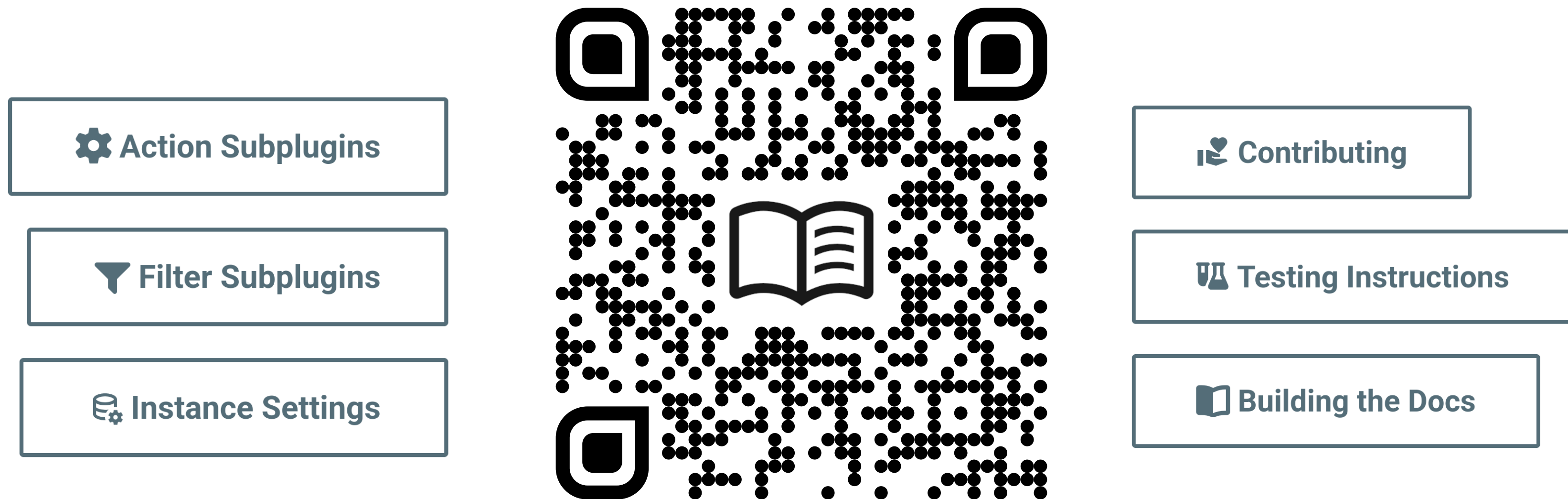
Using filters, actions, and multiple workflows

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**
-  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



<https://moodleuserlifecycle.gandrass.de/dev>

You can find detailed instructions on implementing your own sub-plugins within the [developer documentation](#)!

Contributing

You created something that could help others? Wonderful!

Please feel free to submit a **pull request** or open an **issue** over on [GitHub](#)

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Thank you!

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/)



<https://moodleuserlifecycle.gandrass.de/>

Getting the plugin

The user lifecycle management plugin is available on [GitHub](#)
and via the [Moodle Plugin directory](#)!



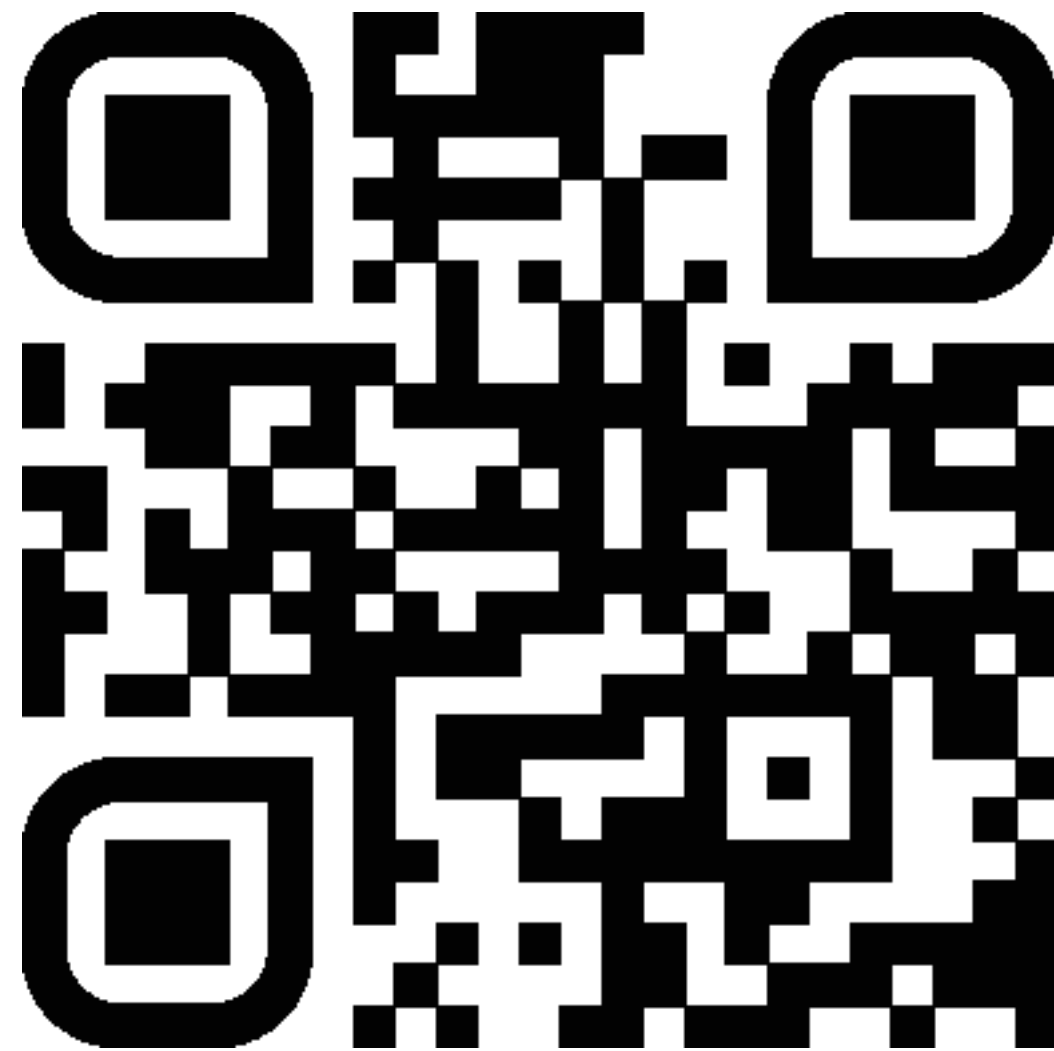
https://moodle.org/plugins/tool_userautodelete



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>