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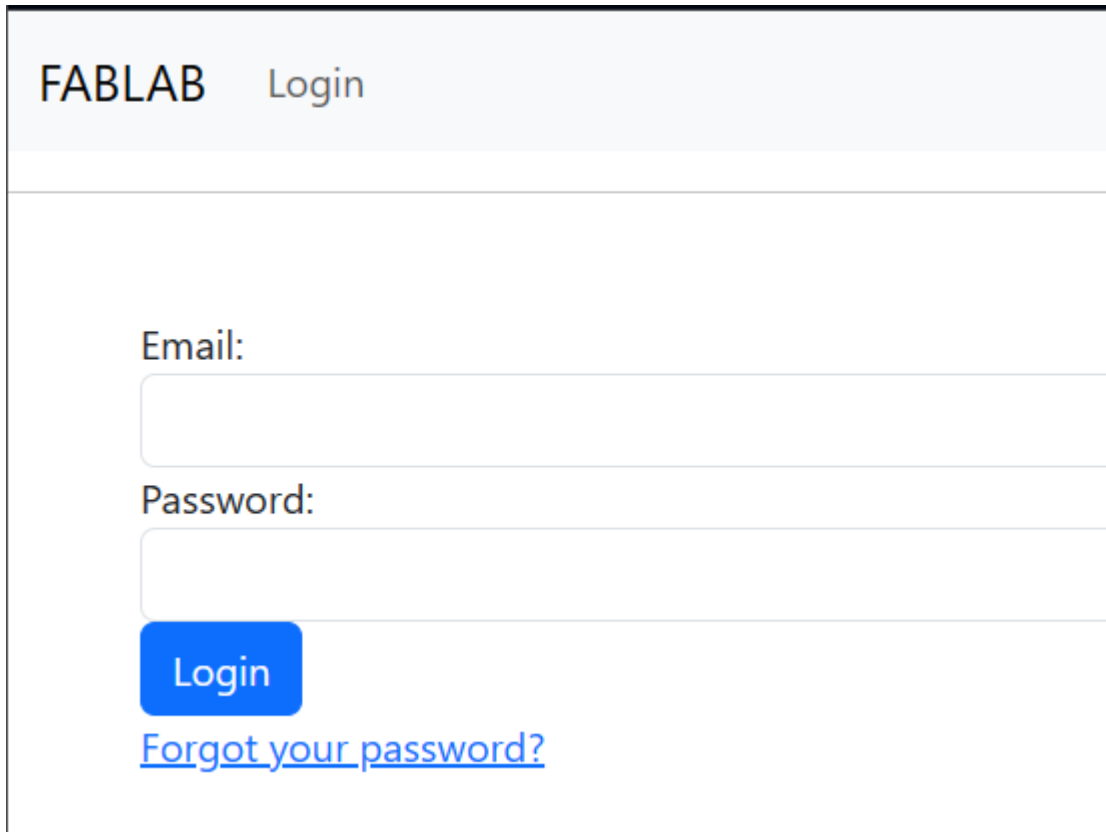
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## Authentication

The default page is a login page and all other site pages requires a logged-on user.



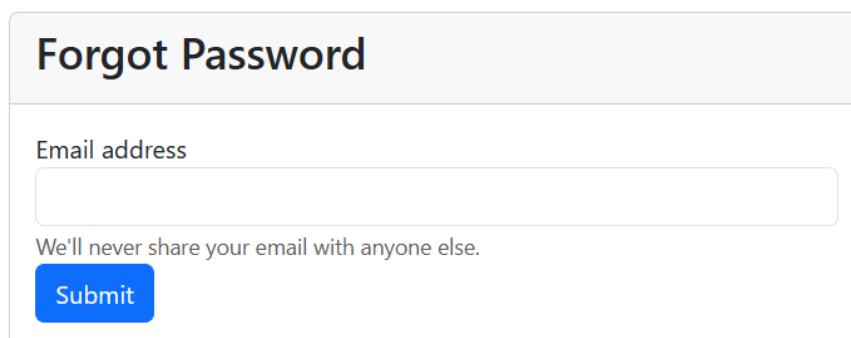
The login form is titled 'FABLAB Login' in a light gray header. Below the header, there are two input fields: 'Email:' and 'Password:'. The 'Email:' field is a simple text input. The 'Password:' field is a text input with a small eye icon on the right side to toggle visibility. Below the password field is a blue 'Login' button. Underneath the button is a blue underlined link that says 'Forgot your password?'.

Only users with email address and rôle « Can Admin backend » flag can log on.

Default user at install is :

- Login : [admin@fablab.org](mailto:admin@fablab.org)
- Password : admin

In case an admin forgets the email, the forgot password will send an email with a unique link valid for 20 minutes to reset the password.



The 'Forgot Password' form has a light gray header with the title 'Forgot Password'. Below the header, there is a label 'Email address' above a text input field. Below the input field, there is a line of text: 'We'll never share your email with anyone else.' At the bottom of the form is a blue 'Submit' button.

## Menu

This is the view for logged users :

FABLAB Users Machines Authorizations Maintenance Interventions History Roles Machine types Logout

By clicking on FABLAB you reach the homescreen.

## Homescreen

The homescreen presents a real-time view of the various machines.

FABLAB Users Machines Authorizations Maintenance Interventions History Roles Machine types Logout

## Hello admin!

### Machines status

<b>ENDER3 (3D Printer)</b> Machine is MAINTENANCE	<b>ZORTRAX 1 (3D Printer)</b> Machine is IN USE by admin	<b>ZORTRAX 2 (3D Printer)</b> Machine is BLOCKED
<b>LASER1 (Laser)</b> Machine is OFFLINE	<b>LASER2 (Laser)</b> Machine is FREE	<b>Fresa (Drill)</b> Machine is FREE

### Status description :

- IN USE = there is an opened use record (manual or automatic) on this machine
- BLOCKED = the machine has been flagged « BLOCKED FOR ALL »
- OFFLINE = the RFID has not contacted the backend for more than 3 minutes
- MAINTENANCE = the machine is free but requires maintenance intervention based on the plan
- FREE = the machine is idle and waiting for users

## Roles



This is to configure user privilege levels.

[View](#)

## Roles

This system page configures the possible role of the users

[Add Role](#)

ID	Name	Reserved	Backend admin?	Maintenance?	Authorize All?	Action
1	admins		✓	✓	✓	
2	Fab Staff		×	✓	✓	<a href="#">Edit</a> <a href="#">Delete</a>
3	Fab Users		×	×	✓	<a href="#">Edit</a> <a href="#">Delete</a>

Maintenance = The user can perform maintenance by tapping the card on machine board

Authorize all = User can use any machine in any state. This also bypasses the authorization. This can be useful in an initial phase where all fablab users can use any machine in any state.

Backend admin = User can logon to the backend web interface with its email address. On first access, he needs to receive first a new password by an admin with the Users page.

Reserved = Roles that cannot be deleted.

The Anonymous role is used for anonymized users to limit personal data retention in the system.

### [Add new role](#)

Adding a new role can be helpful to handle more fine-grained permissions.

## Add Role

Role Name:

- ☐ Can admin backend
- ☐ Can perform maintenance
- ☐ Authorize all

[Add Role](#)

See Roles page for flag description.

[Edit existing role](#)

# Edit Role

Role Name:

Fab Staff

- ☐ System reserved
- ☐ Can admin backend
- ☒ Can perform maintenance
- ☒ Super user

Update Role

## Users

Users are identified by their RFID card ID. There is no strong authentication of RFID cards in the Arduino board, only chip ID read. This is a limitation of the MFRC522 board used by the Fab-O-Matic PCB.

### View

This page shows the users and unrecognized RFID tags, and allows several actions:

- Adding new users, editing/disabling them. A disabled user cannot perform any action on the machines, but can still logon to the interface
- Deleting users. In this case the user cannot logon to the webbackend.
- Convert a badge to a new user: this is mainly to simplify the initial database creation where the fablab users may not be registered. Once the user is created, the corresponding rejected RFID card records will be purged.

## Users

### List of machines and web interface users

Add User

ID	Name	Surname	Role	Card UUID	E-mail	Disabled?	Action
1	admin	admin	admins	12345678	<a href="mailto:admin@fablag.org">admin@fablag.org</a> Password reset		<div>EditDelete</div>
2	Admin2	Test	admins	DEADBEEF			<div>EditDelete</div>

### List of rejected RFID cards

Machine	Card UUID	Time of attempt	Action
MACHINE1	4ABCDEF0	2024-01-25 04:00:00	<div>Convert to new user</div>
MACHINE1	1ABCDEF2	2024-01-10 04:00:00	<div>Convert to new user</div>

### Edit existing user

This allows to change user rôle, name, email or card UUID.

## Edit User

Name:

admin

Surname:

admin

Email (required for backend admins):

admin@fablag.org

Role:

admins

☐ Tick to disable user

Card UUID:

12345678

Please enter either 8 hexadecimal characters or leave it empty.

Update User

## Add new user

This page is reached by « Add User » button or « Convert to new user » button on the main page.

### Add User

Name:

Surname:

Email (required for backend admins):

Role:

Card UUID:

☐ User is disabled

Add User

Please note :

- Card UUID is displayed on the arduino LCD when tapping an unknown card.
- When converting a unknown card, the Card UUID field is automatically filled

## Machines


This is the list of machines. Every machine has a unique ID. The Arduino Board is uniquely linked to a machine thanks to the ID field.

### View machines

### Machines

Use this page to view and configure FabLab machines.

Add Machine

ID	Name	Machine type	Cumulated usage	Blocked for all?	Maintenance plan	Last seen	Actions
1	MACHINE1	Default type	-			-	<a href="#">View history</a> <a href="#">Edit</a> <a href="#">Delete</a>

Description :

- Cumulated usage : hours of power on by users. This is not reset.
- Maintenance plan : list of maintenance procedures to be applied to the machine
- Last seen : when an arduino board has last trasmitted the status of the machine.

View History button : view the latest uses of the machine

### Edit machine

Allows to change machine attributes. The machine name is acquired by the arduino board every minute in case of changes.

Blocked for all : this blocks any user to log on the machine except for user having « authorize all » rôle privileged.

## Edit Machine

Machine Name:

Machine Type:

Cumulated hours:

☐ Blocked for all?

Update Machine

### Add machine

Same as Edit Screen.

## Add Machine

Machine Name:

Machine Type:



Machine Hours:

☐ Blocked:

Add Machine



## Authorizations

Authorizations maps users to machines. If a user belongs to a rôle with «Authorize all », the authorizations list is ignored. This can be useful if the FabLab does not want to implement authorization for fab users.

### View authorizations

The list of authorization by machine and users can be filtered.

FABLAB Users Machines Authorizations Maintenance Interventions History Roles Machine types Logout

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## Authorizations

Add Authorization...
Add in bulk...

Filter Users:
--Select User--
Filter Machines:
--Select Machine--

Apply Filters

ID	User	Machine	Action
1	admin admin	MACHINE1	Edit Delete
2	Admin2 Test	MACHINE1	Edit Delete

Description :

- Add Authorization : to add a record for a single user on a single machine
- Add in buli : to quickly add authorizations for many users on a single machine

### Add authorization

## Add Authorization

User

Mario Rossi

Machine

LASER 1

Add Authorization

### Edit authorization

FABLAB
<h2>Edit Authorization</h2>
User
Mario
Machine
LASER 1
<button>Update Authorization</button>

### Add in bulk

Use this screen to add permissions. To remove permissions, you have to use the main screen Delete button.

First select the machine, then the users or the « Add all users.. » button.

## Bulk Authorization

Only the checked users will be authorized for the chosen machines. Unselected users will keep their current authorizations.

Select Machine:
MACHINE1
Select Users:
<input checked="" type="checkbox"/> Add All users...
<input checked="" type="checkbox"/> admin admin
<input checked="" type="checkbox"/> Admin2 Test
<button>Bulk add authorizations</button>

## Maintenance

This is for regular maintenance which shall be triggered every X hours of use.

### View

Filterable list of maintenance actions.

## Maintenances

This system page configures the possible maintenances actions of the machines

[Add Maintenance](#)

Filter Machines:

--Select Machine--

Filter Description:

[Apply Filters](#)

**Description: This is a long description of the required maintenance action**  
LCD short message: Cal Laser  
Hours Between: 100.0  
Machine LASER Rosso

[Edit](#) [Delete](#)

### Edit

## Edit Maintenance

Description:

This is a long description of the required maintenance action

LCD Message:

Cal Laser

Hours Between:

100,0

URL for instructions:

Machine:

LASER Rosso

[Update Maintenance](#)

Description : a description of what needs to be done

LCD Message : what shall be displayed on the LCD panel when maintenance is triggered

Number of hours to trigger : how much worked hours must have elapsed

Instructions : facultative, URL to instructions like manufacturer.

Machine : which machine needs this maintenance action

## Add new maintenance

### Add Maintenance

Description of maintenance:

LCD Message:

Machine to maintain:

Number of use hours to trigger:

instructions\_url:

Add Maintenance

Description : a description of what needs to be done

LCD Message : what shall be displayed on the LCD panel when maintenance is triggered

Number of hours to trigger : how much worked hours must have elapsed

Instructions : facultative, URL to instructions like manufacturer.

Machine : which machine needs this maintenance action

## Interventions

[View](#)

### Interventions

This is the list of performed maintenance actions on the machines.

[Add Intervention](#)

Intervention ID	Maintenance	Machine	User	Timestamp	Action
1	replace engine	LASER 1	Mario	May 28, 2023 10:39 AM	<a href="#">Edit</a> <a href="#">Delete</a>
2	replace brushes	PRINTER 1	Andrea	May 28, 2023 10:39 AM	<a href="#">Edit</a> <a href="#">Delete</a>

### Add manually

Interventions will be created automatically by tapping the card on the machine board, but can be added manually if the maintenance was done offline.

### Add Intervention

Maintenance:

Machine:

User:

[Add Intervention](#)

### Edit interventions

FABLAB

### Edit Intervention

Maintenance:

Machine:

User:

[Update Intervention](#)

## Usage history

[View](#)

This page shows the latest uses of all machines (up to 500 records).

# Usage History

## Search for machine usage history

Manual registration

User:

All Users

Machine:

All Machines

Start Time:

gg/mm/aaaa --:--

Filter

Machine	User	Start Time	End Time	Action
Prova1	M N	Feb 24, 2024 09:24 AM	Still in use	Delete
Prova1	C D	Feb 24, 2024 09:15 AM	Feb 24, 2024 09:19 AM	Delete
Prova1	A B	Feb 24, 2024 09:11 AM	Feb 24, 2024 09:15 AM	Delete
Prova1	C D	Feb 24, 2024 08:44 AM	Feb 24, 2024 09:10 AM	Delete

If a machine is in use, row is highlighted :

Use ID	User	Machine	Start Time	End Time	Duration (minutes)	Action
1	Mario	LASER 1	Dec 24, 2023 11:03 AM	Still in use	In use	Delete

## Manual registration

This allows to register a specific use of a machine by one user, e.g. for machine hours tracking.

### Register manually a machine use

User

-

Machine

-

Start Timestamp

gg/mm/aaaa --:--

End Timestamp

gg/mm/aaaa --:--

Submit

## Machine types

[View](#)

### Machine Types

This page defines the categories of machines in the LAB.

[Add Machine Type](#)

ID	Machine type	Auto-logout	Power-off	Action
1	Default type	60 min	10 min	<a href="#">Edit</a> <a href="#">Delete</a>

Description :

- Auto logout delay : if a user remains active more than X minutes on the machine, the arduino board will log him off. When set to 0, there is no log-off.
- Power-off : when no user is connected, the machine will be powered off after this grace period. If 0, the command relay is closed immediately at logout. The goal of this feature is to reduce power cycles on the target equipment.

[Add/Edit page](#)

## Edit Machine Type

Type Name

Auto-logout delay

Power-off grace period

[Submit](#)

## System page

This page provides an overview of the host backend server, maintenance helpers, and lists the boards which have announced themselves on MQTT broker.

### System status

Database info

Database size (KB): 148  
Database file : /home/pi/database.sqldb  
Download DB

System info

Machine info: uname\_result(system='Linux', node='FABPI', release='6.1.21+', version='#1642 Mon Apr 3 17:19:14 BST 2023', machine='armv6l'), CPU:1  
Disk free space (MB): 15433  
Memory free space (MB): 265  
Reboot system

Application info

Version installed : 0.1.12  
Version available : 0.1.12  
Update application (pip)  
Restart application

### Boards list

Board ID	Machine (ID)	IP address	FW Version	Last seen
1	Prova1 (1)	192.168.1.105	0.3.7	51 seconds ago

Database :

- This allows to download SQLite3 database for backups.

System info

- Displays system nature (in this example, a Raspberry Pi Zero)

Application info

- Checks the latest version on pypi repository (requires internet access)
- Update application button runs `pip --upgrade`
- Restart application runs `systemctl restart`

Board list :

- ID : unique ID set by the system, meaningless
- Machine ID : the board announces the MachineID it wants to handle.
- IP Address : IP of the board connected to the machine. Useful for OTA upgrades
- FW version : git version of the firmware announced by the board
- Last seen : when did the board announced itself for the last time. Announcements are independent of other boards messages.



## Excel export

On most pages, an Excel export button is available, which exports the underlying SQLite tables.

Prova1	O P	Feb 19, 2024 11:58 PM	Feb 2
Prova1	Q R	Feb 19, 2024 11:50 PM	Feb 1

---

Only first 500 records are displayed. Use filters if needed.  [Export table](#)

## Technical details

- <https://github.com/fablab-bergamo/rfid-backend>
- Flask python application + MQTT client