

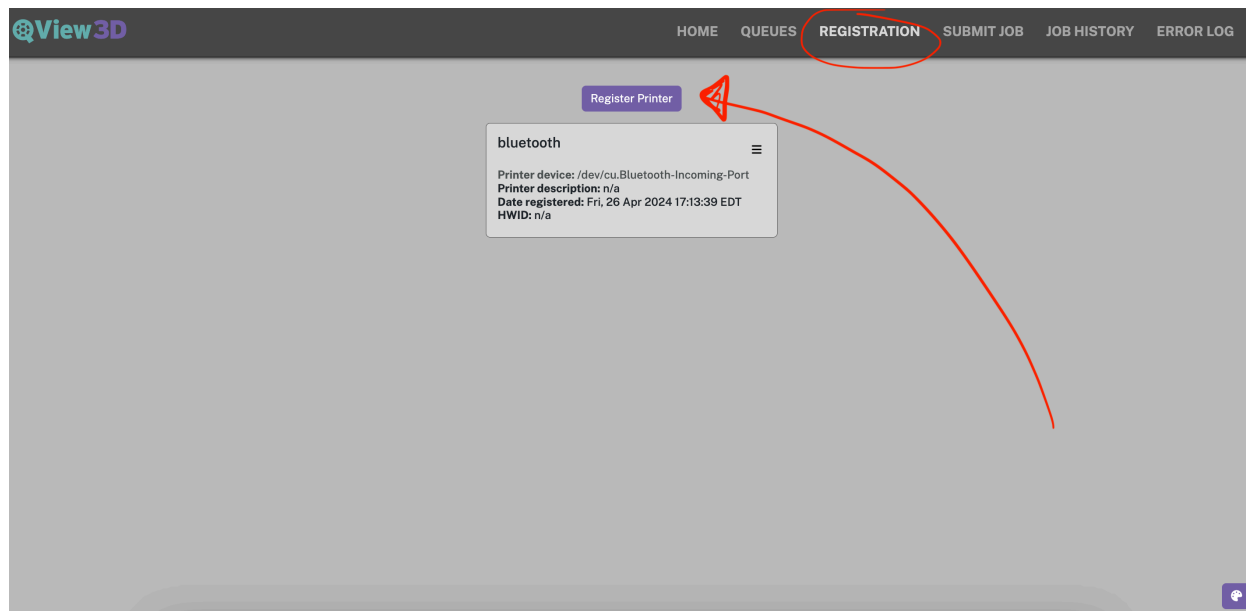
User's Manual

Q3D Software

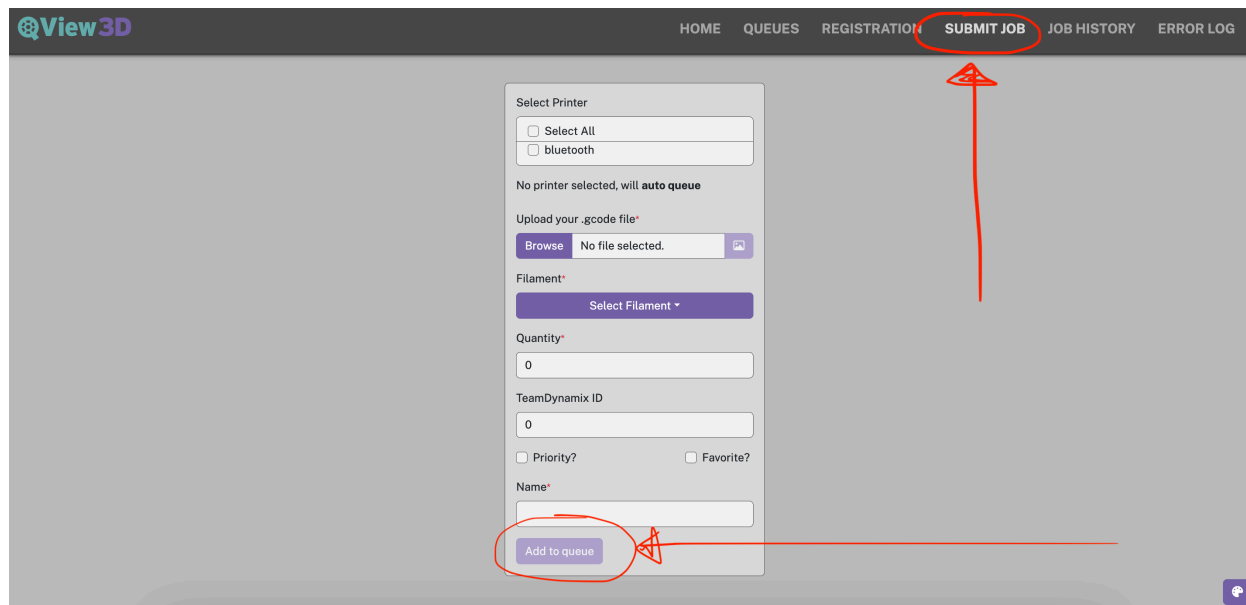
User's Manual	1
Quickstart	3
Main View	5
Queue View	11
Registration View	13
Submit Job View	17
Job History View	20
Error Log	23
Theme Selection	25

Quickstart

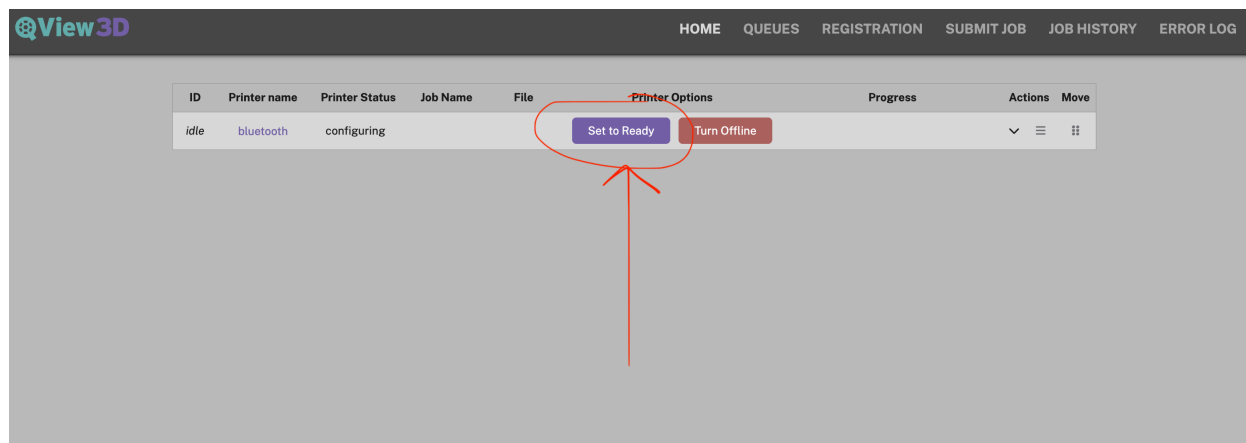
1. Connect your Prusa i3 MK4 printer(s) directly to the machine Q3D is installed on via USB-C.
2. Navigate to REGISTRATION and click “Register Printer.” Fill out the form the appears.



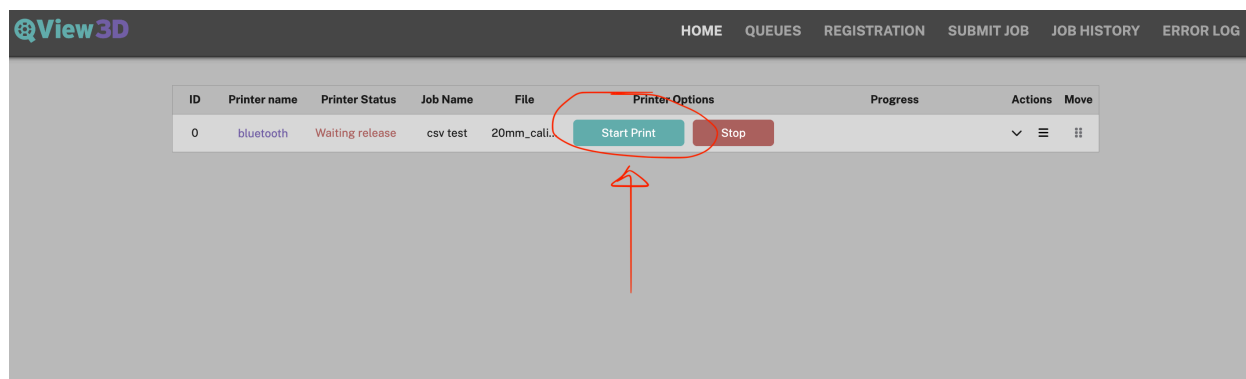
3. Navigate to SUBMIT JOB and fill out the form. Required fields are marked with a red asterisk. Click ADD TO QUEUE when complete.



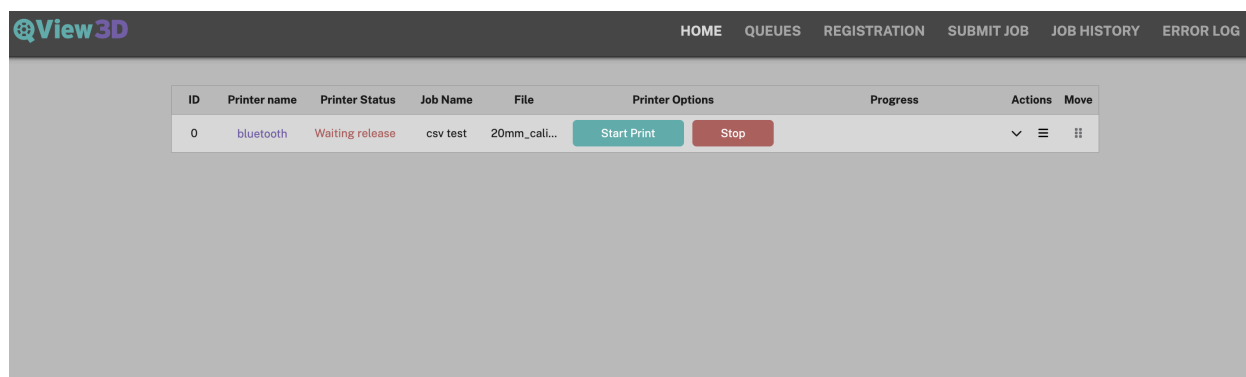
3. Navigate to HOME and set printer to READY.



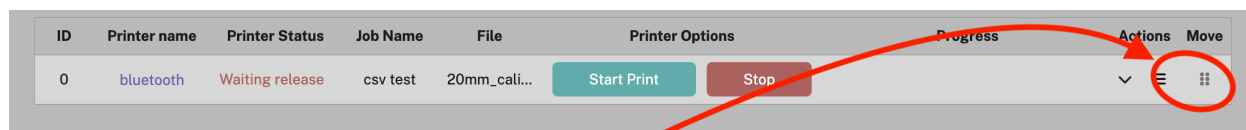
4. When the build plate is clear, click START PRINT. Happy printing!



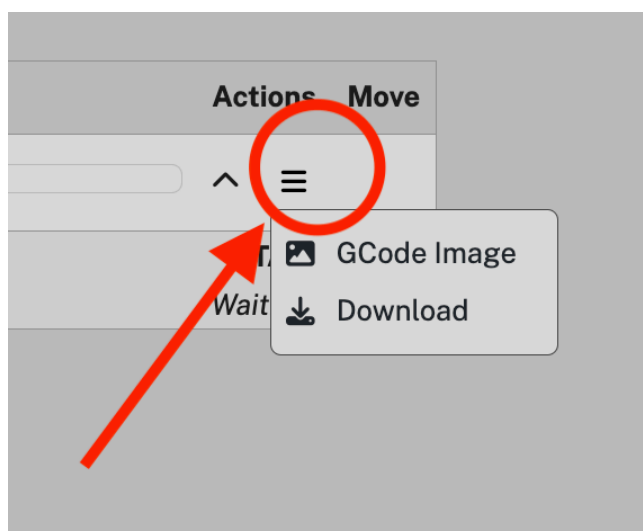
Main View



- The user may click and drag to change the order of printers displayed on the page.



- The user may click the hamburger menu to see a 3-D rendered image of the file or to download the file.



List of possible printer statuses:

- **Configuring**

- Upon registration, the printer status is “configuring.” Once the user sets the status to “ready,” it can accept prints.

- **Offline**

- When the printer is offline, the software will halt communication with the printer. The printer itself will remain on, but nothing in the printer’s queue will get sent to the printer.

- **Ready**

- The printer can only accept new prints if the status is set to “ready.”

- **Error**

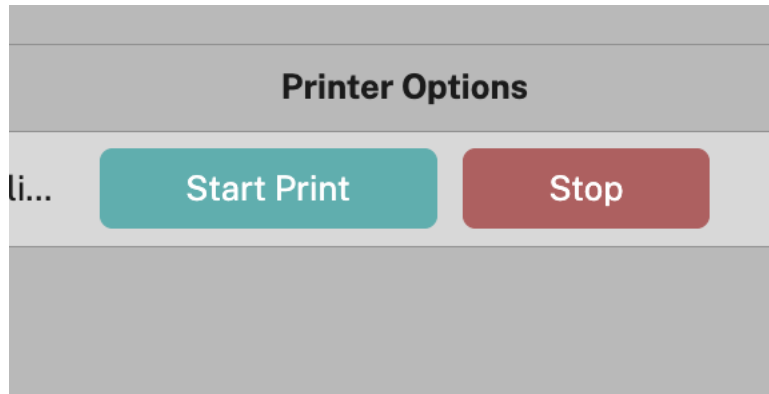
- The printer can not accept new prints if the status is **error**. The printer will error only when a job is sent to the printer and something goes wrong (i.e. timeout error, serial communication error, hardware error, etc). In this case, the job will be removed from the queue and its status is also set to **error**. However, the job can still be located and rerun from ***Job History View or Error log***. When the error is resolved, the user may change the status of the printer from **error** to **ready** manually.

ID	Printer name	Printer Status	Job Name	File	Printer Options	Progress	Actions	Move
idle	bluetooth	error			Set to Ready	Turn Offline	No response from printer	⌵ ⌵ ⋮

- **Waiting Release**

- Once the printer status is set to “ready,” the first job in the printer’s queue will get sent to the printer. However, the user must still select “start print” for communication to begin. If this job was submitted as a mistake, the user has

the opportunity to cancel the job. This will set the printer status to **complete** and the job status to **cancelled**.



- **Printing**

- When the printer completes its calibration, the PAUSE and COLOR CHANGE buttons will no longer be disabled.

ID	Printer name	Printer Status	Job Name	File	Printer Options			Progress	Actions	Move
0	bluetooth	printing	csv test	20mm_cali...	Pause	Color Change	Stop	<div><div></div>0.00%</div>	⌵	⋮

- The user may also click the arrow on the right side of the table to view print time and temperature data.

ID	Printer name	Printer Status	Job Name	File	Printer Options			Progress	Actions	Move
0	bluetooth	Waiting release	csv test	20mm_cali...	Start Print	Stop			⌵	⋮
Layer:	Filament:	Nozzle:	Bed:	Elapsed:	Remaining:	Total:	ETA:			
	idle	idle	idle	Waiting...	Waiting...	Waiting...	Waiting...			

- **Color Change**

- When the user selects the Color Change button, the software will idle until the printer completes its current layer. The user may then see the LCD screen for instructions on changing the color. Once this is done, the print will automatically resume and the status will return to **printing**.

- **Paused**

- The user may choose to pause a print. The printer nozzle will move to the corner. The user may click the “unpause” button that appears on the software when complete.

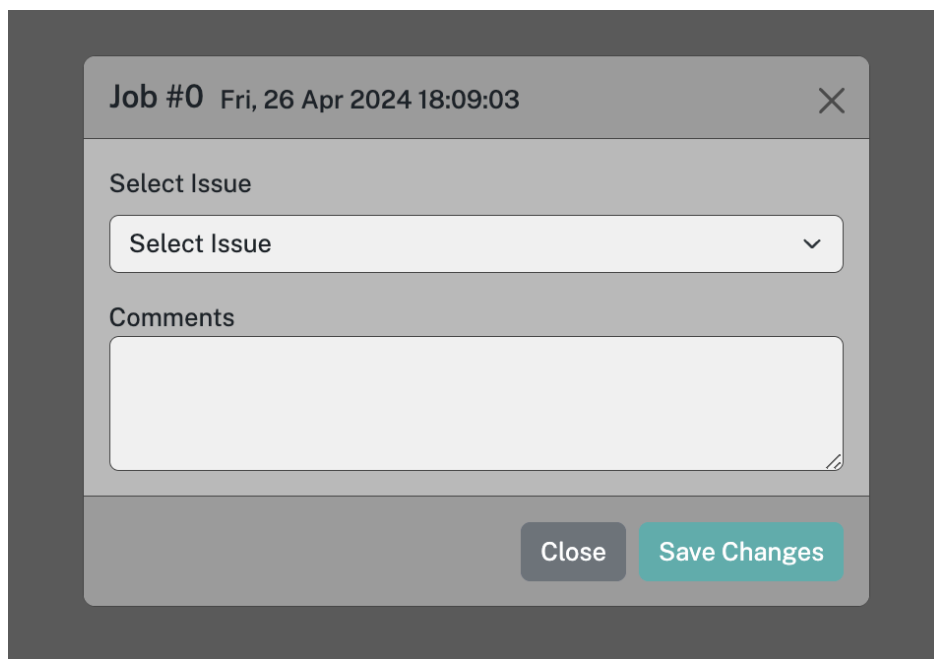
- **Complete**

- When the status of the printer is **complete**, the printer has been fully disconnected and the user may remove the print from the build plate. The printer will have a status of **complete** when 1) the print has fully completed, or 2) the user cancelled the job from the software.
- Additionally, when the print is complete, the user can click one of these three buttons. All buttons will remove the job from the printer’s queue and update the job status in Job History. Descriptions of button functionality below.

ID	Printer name	Printer Status	Job Name	File	Printer Options	Progress	Actions	Move	
0	bluetooth	complete	csv test	20mm_cali...	Turn Offline	Clear	Clear/Rerun	Fail	⌵ ⌵ ⌵

Fail button

The *fail* button sets the status of the printer to **error** and the status of the job to **error**. The printer will not accept new prints. A menu will appear for the user to assign an ISSUE to the job and to assign comments. Issues are created by the user in ERROR LOG.

A screenshot of a software dialog box titled "Job #0 Fri, 26 Apr 2024 18:09:03" with a close button (X) in the top right corner. The dialog box has a light gray background and is set against a dark gray backdrop. It contains two main sections: "Select Issue" and "Comments". The "Select Issue" section features a white dropdown menu with the text "Select Issue" and a downward arrow. The "Comments" section has a large, empty white text area with a small cursor icon at the bottom right. At the bottom of the dialog box, there are two buttons: a gray "Close" button and a teal "Save Changes" button.

Clear button

The *clear* button sets the status of the printer to **ready** and the status of the job to **complete**. After a 2 second delay, *Main View* will display the following job in the print queue.

Clear & Rerun Button

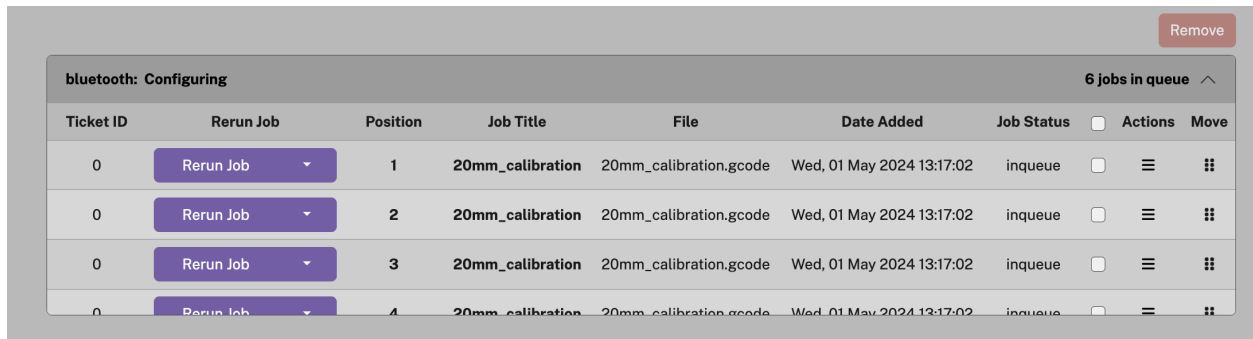
This button sets the status of the printer to **ready** and the status of the job to **complete**. It duplicates the current job and adds it to the *front* of the selected printer's queue.

Stopping Print Job

DO NOT STOP FROM LCD SCREEN. This will stop the fans but not the print, which may cause the printer to overheat.

While the printer is printing, the user can choose to stop the print. This will set the status of the printer to **complete** and the status of the job to **cancelled**. A loading icon will appear in the *progress* column while the printer is completing its ending sequence (*Turn off temperature, turn off heatbed, turn off fan, park, wait, reset LA, reset heartbeat target temp, disable motors*). Then, the three buttons will display: *fail, clear, clear & rerun*.

Queue View



The screenshot shows a web interface for a queue. At the top right is a red 'Remove' button. Below it is a header bar for 'bluetooth: Configuring' with a '6 jobs in queue' indicator and a dropdown arrow. The main table has columns: Ticket ID, Rerun Job, Position, Job Title, File, Date Added, Job Status, Actions, and Move. There are four visible rows, each with a 'Rerun Job' button and a 'Remove' checkbox.

Ticket ID	Rerun Job	Position	Job Title	File	Date Added	Job Status	Actions	Move
0	Rerun Job	1	20mm_calibration	20mm_calibration.gcode	Wed, 01 May 2024 13:17:02	inqueue	<input type="checkbox"/>	⋮
0	Rerun Job	2	20mm_calibration	20mm_calibration.gcode	Wed, 01 May 2024 13:17:02	inqueue	<input type="checkbox"/>	⋮
0	Rerun Job	3	20mm_calibration	20mm_calibration.gcode	Wed, 01 May 2024 13:17:02	inqueue	<input type="checkbox"/>	⋮
0	Rerun Job	4	20mm_calibration	20mm_calibration.gcode	Wed, 01 May 2024 13:17:02	inqueue	<input type="checkbox"/>	⋮

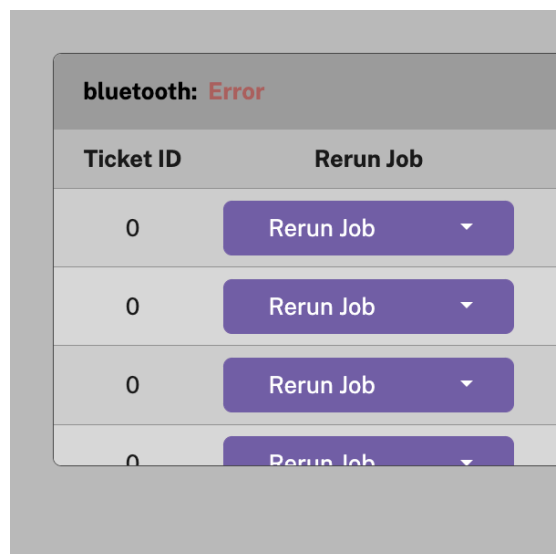
Deleting Jobs

The user can delete a job from the queue by selecting a box and clicking the *Remove* button.

Deleting a job from queue view **will not** delete the job from the database. Job will still be visible in *Job History View*.

You may only remove a job from this page if the status is *inqueue*. The status will now be set to *cancelled* in Job History.

Rerunning Jobs

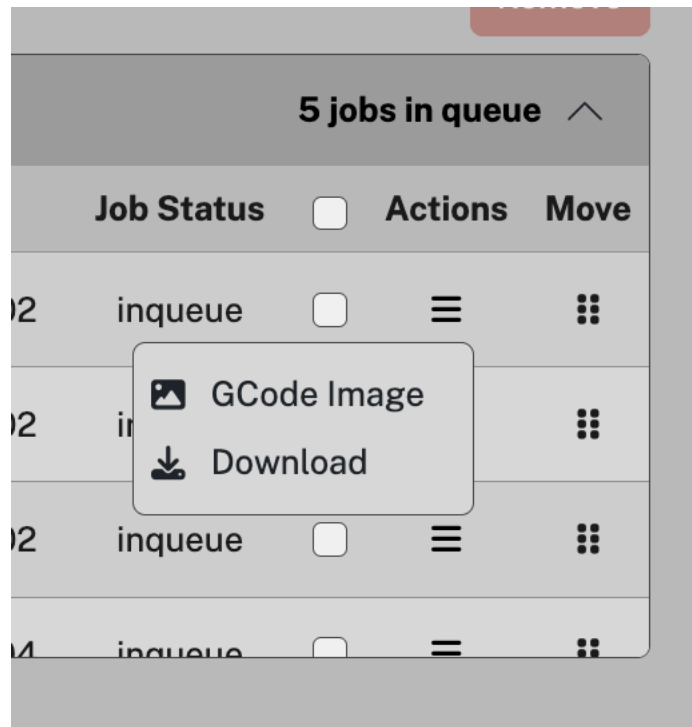


The screenshot shows a web interface for rerunning jobs. At the top is a header bar for 'bluetooth: Error'. Below it is a table with columns: Ticket ID and Rerun Job. There are four visible rows, each with a 'Rerun Job' button.

Ticket ID	Rerun Job
0	Rerun Job
0	Rerun Job
0	Rerun Job
0	Rerun Job

Rerun jobs is a split button. Click the left portion to rerun the job on the current printer. Click the arrow dropdown to duplicate the job on another printer's queue.

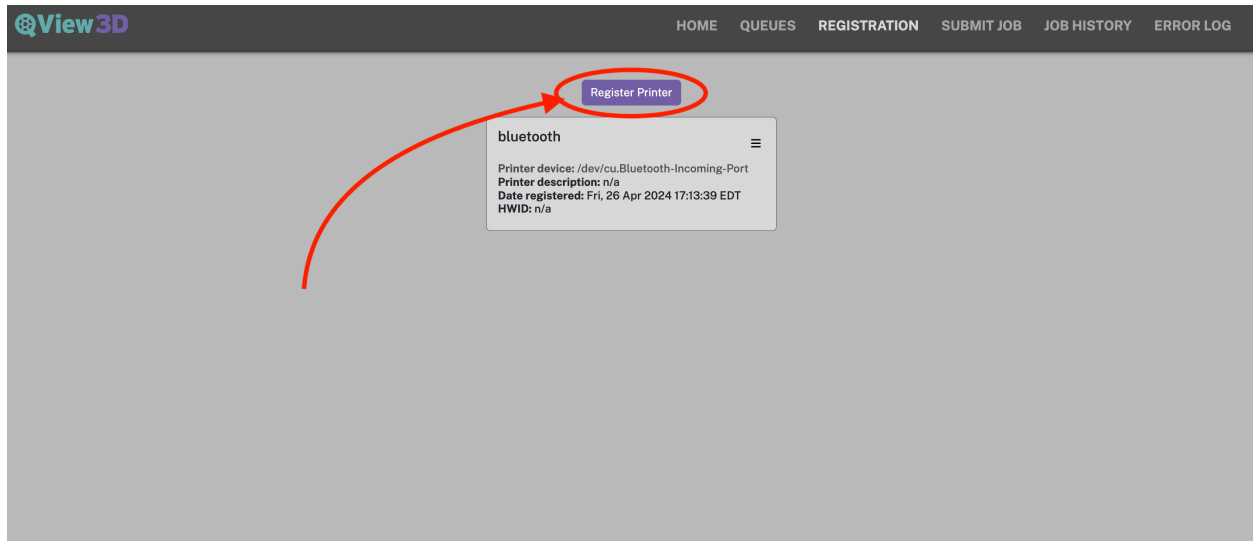
Actions



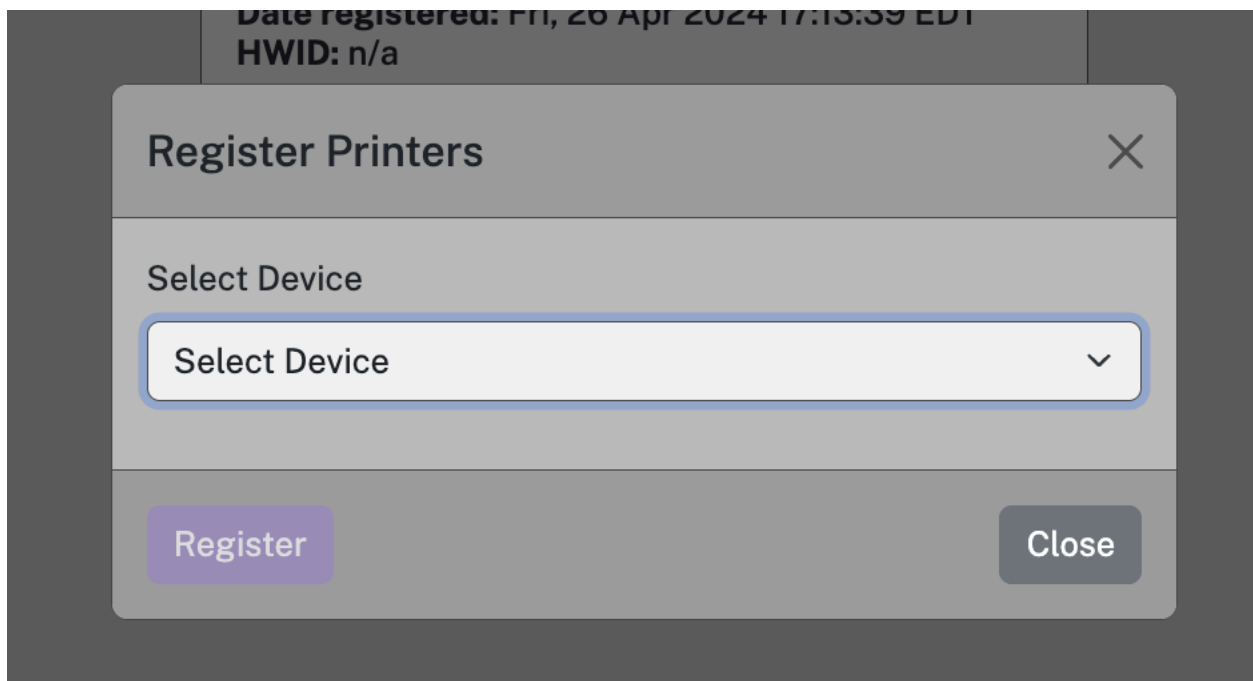
The user may download the file, view a rendered image, and change position of items in the queue by clicking and dragging.

Registration View

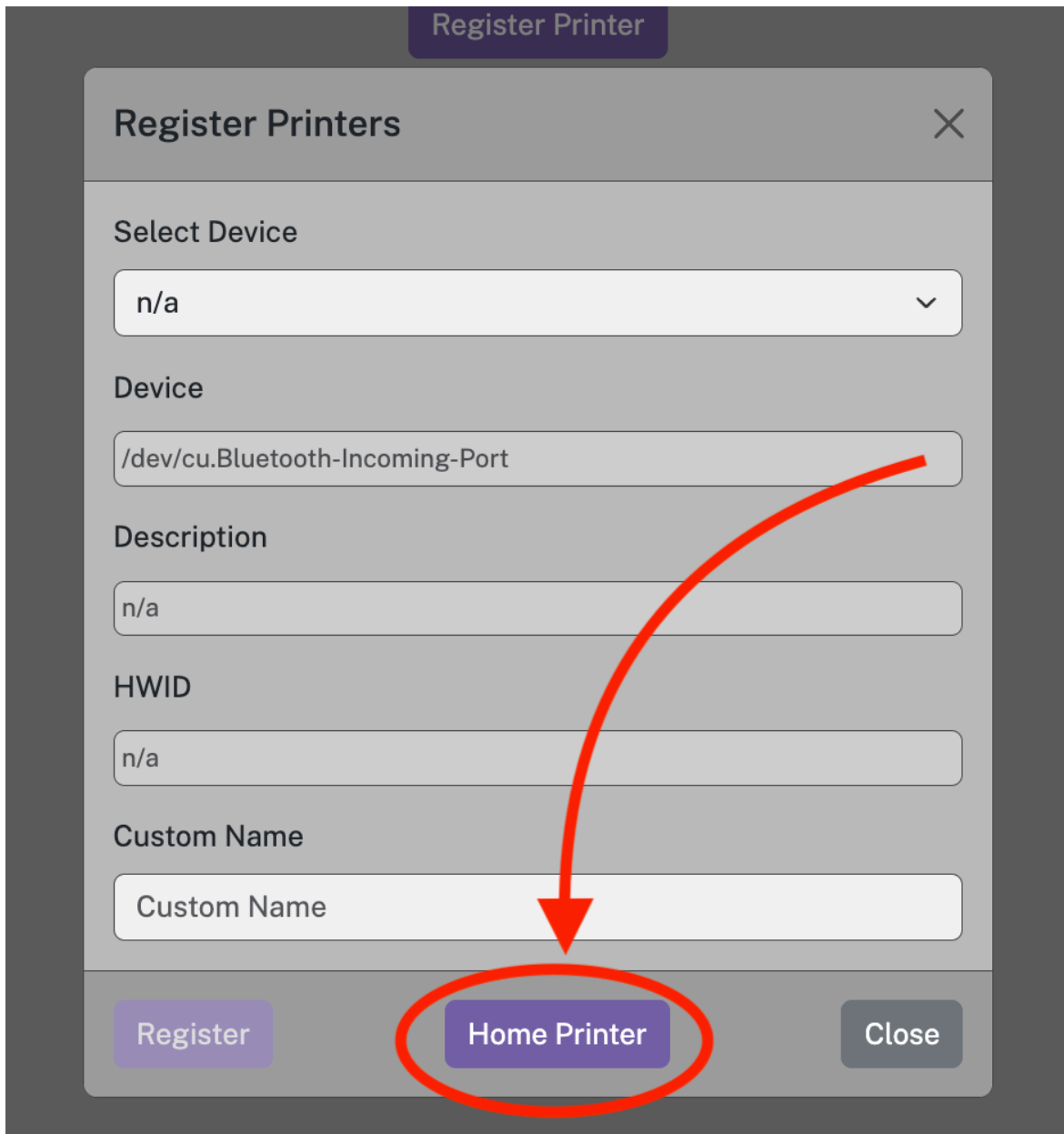
Registering Printers



To register a printer, click the “Register Printer” button. A modal will appear. Use the dropdown to select the printer you would like to register.



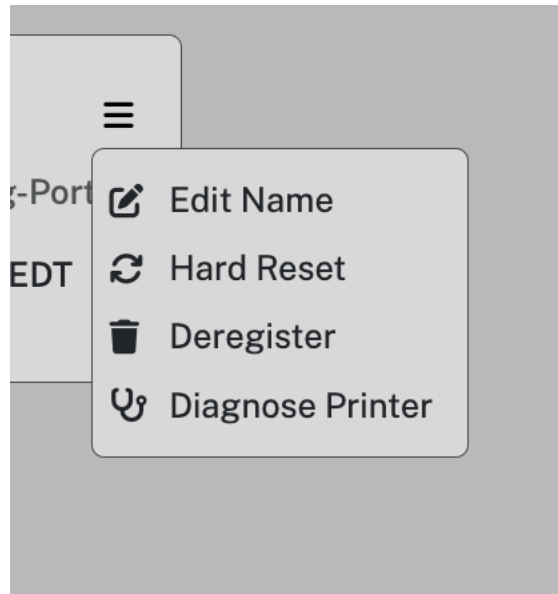
A dialogue will appear with the printer's information. If you are registering multiple printers at once, click "Home Printer" as shown in the picture below to move the printer head if you are unsure which printer is getting detected. Give the printer a custom name and click "register."



The image shows a "Register Printers" dialog box with a title bar containing a close button (X) and a "Register Printer" button. The dialog contains several input fields: "Select Device" (a dropdown menu showing "n/a"), "Device" (a text field containing "/dev/cu.Bluetooth-Incoming-Port"), "Description" (a text field containing "n/a"), "HWID" (a text field containing "n/a"), and "Custom Name" (a text field containing "Custom Name"). At the bottom of the dialog are three buttons: "Register", "Home Printer", and "Close". A red arrow originates from the "Home Printer" button and points to the "Custom Name" text field. The "Home Printer" button is also circled in red.

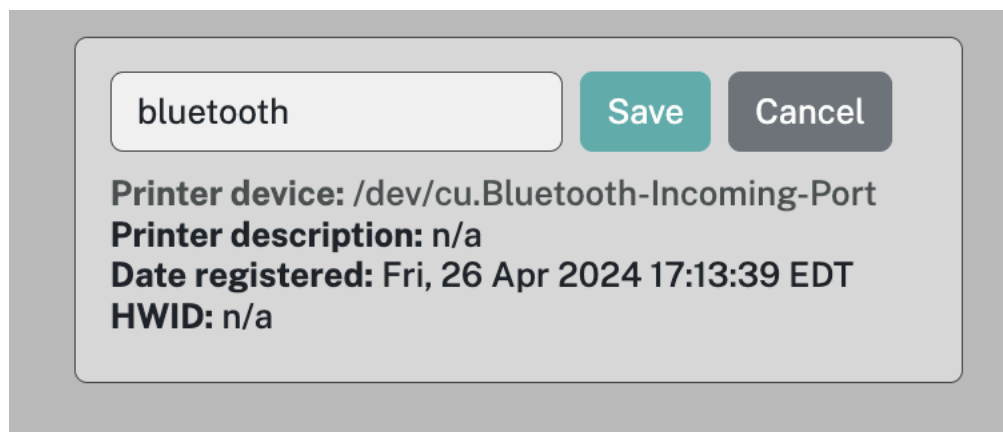
Actions

Click on the hamburger menu to display possible actions for each printer.



Editing Name

To edit the name of the printer, click the “edit name” button. Click “save” to save or “cancel” to revert changes.



Hard Reset

A new **thread** is created for each registered printer. This allows multiple printers to access different parts of the same codebase at the same time. Each printer thread is

stored in an **array** so the code can access the printer and printer queue separately based on the printer's unique ID.

If a printer is unresponsive or the software communication seems to be off, it is possible the printer thread could be “stuck” somewhere. We tried our best to implement error handling mechanisms, but in case of emergency, this button will delete the thread from the array and create a brand-new one. This will break the printer out of any death-loop it may be in.

The printer's status will be reset to **configuring**. All jobs in the queue will have a status of “inqueue.”

Deregistering Printers

This will delete the printer's thread and remove the printer from the database. In Job History, all jobs printed on that printer will still have the printer's name associated with it. If the user re-registers a printer under a different name, the jobs will still be stored under the old name.

Diagnose Printer

The Diagnose Printer button gives information about the printer's port. Clicking the “Repair Ports” button corrects any inconsistencies between the system port and the registered port. Ports are automatically corrected before printing, so this is just a safety feature.

bluetooth

Printer device: /dev/cu.Bluetooth-Incoming-Port
Printer description: n/a
Date registered: Fri, 26 Apr 2024 17:13:39 EDT
HWID: n/a

Diagnosing bluetooth:

This printer is registered under port
/dev/cu.Bluetooth-Incoming-Port.

The system has found a **matching port** with
the following details:

Device: /dev/cu.Bluetooth-Incoming-Port,
Description: n/a,
HWID: n/a

Device /dev/cu.Bluetooth-Incoming-Port is
registered with the following details:

Name: bluetooth
Device: /dev/cu.Bluetooth-Incoming-Port,
Description: n/a,
HWID: n/a

Clear

Repair Ports

Submit Job View

Select Printer

☐ Select All


☐ bluetooth

No printer selected, will **auto queue**

Upload your .gcode file*

Browse

No file selected.



Filament*

Select Filament ▾

Quantity*

1

TeamDynamix ID

0

☐ Priority?

☐ Favorite?

Name*

Add to queue

Auto Queue

If the user does not specify a printer, the job will be added to the printer with the shortest queue. If the user specifies a quantity > 1 , the job will get sent to multiple printers.

Selecting multiple printers

If the user selects multiple printers, the specified quantity must be greater than the number of printers selected.

The load will be evenly distributed amongst the specified printers.

Choosing a file

A user can only upload files with the extension .gcode. The user can only submit job names with a length < 50 characters (including the extension). The filament will auto-fill if sliced for Prusa.

Priority Job

Selecting this button will send the job to the front of the queue.

Favorite

This will add the submitted job to “favorites.” If the quantity > 1 , only 1 job will be favorited.

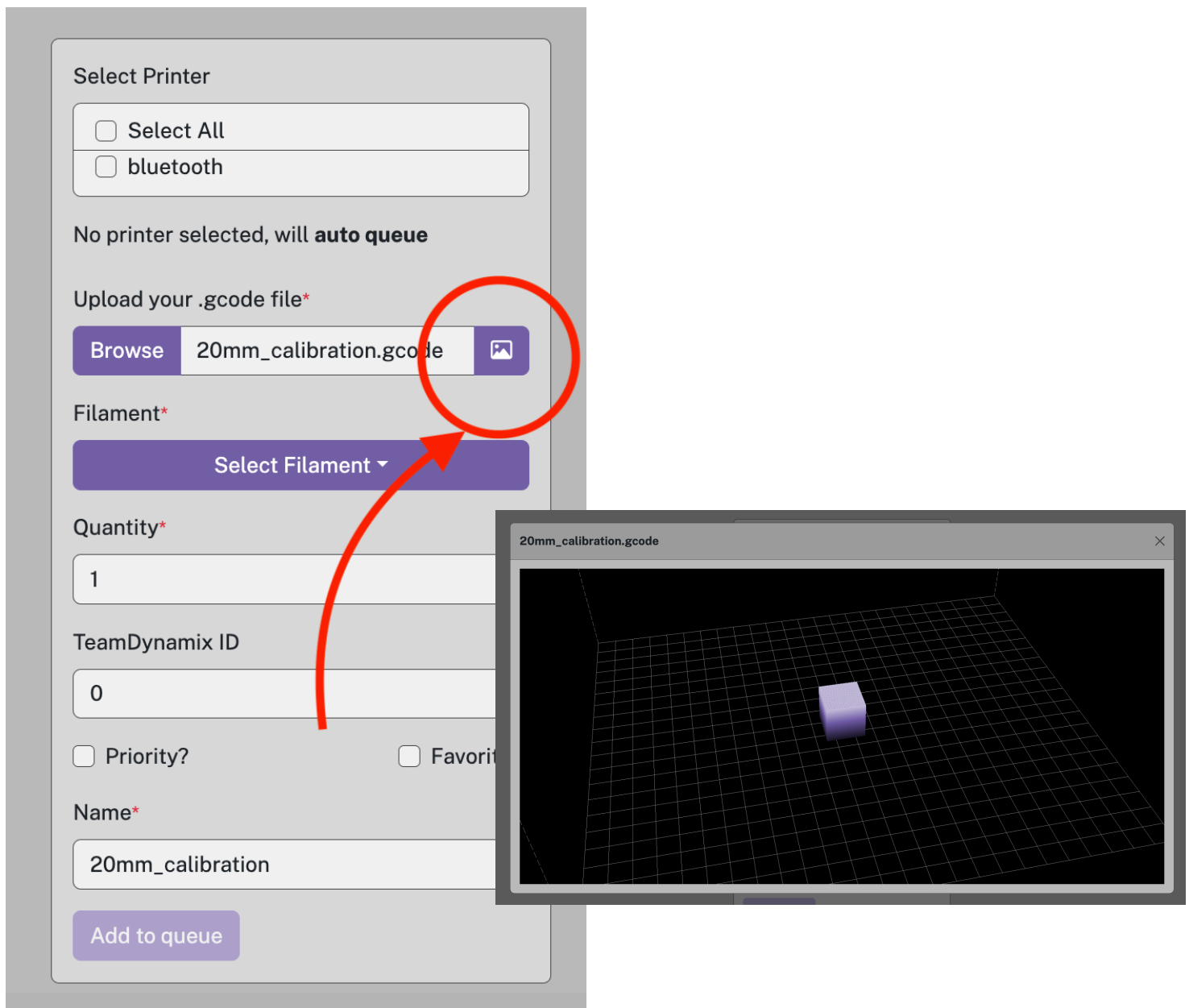
Name

Title of job. This is different from the file name.

Add to queue button

The job will appear in the queue of the specified printer(s) in ***Queue View*** and also in ***Job History View***.

File Preview



The screenshot displays the job setup interface. The 'Upload your .gcode file*' section shows a file named '20mm_calibration.gcode' selected, with a red circle highlighting the file name and the upload icon. A red arrow points from this circle to the 'Add to queue' button at the bottom. The 'File Preview' window on the right shows a 3D model of a small purple cube on a grid.


Select Printer

☐ Select All

☐ bluetooth

No printer selected, will **auto queue**

Upload your .gcode file*

Browse 20mm_calibration.gcode 

Filament*

Select Filament ▾

Quantity*

1

TeamDynamix ID

0

☐ Priority? ☐ Favorite

Name*

20mm_calibration

Add to queue

20mm_calibration.gcode

3D preview window showing a small purple cube on a grid.

Job History View

Filter ▾							📄	🔄	🗑️
Ticket ID	Printer	Job Title	File	Final Status	Date Completed	Actions			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:31:23	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:31:23	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	printing	Wed, 01 May 2024 13:31:21	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			
0	bluetooth	☆ TEST PRIORITY	20mm_calibration.gcode	inqueue	Wed, 01 May 2024 13:24:26	≡			

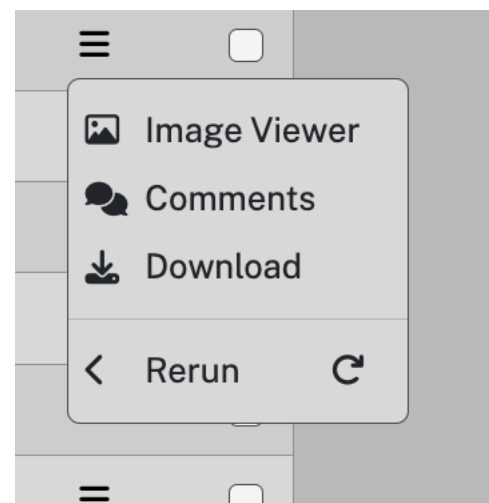
Previous Page 1 of 84 Next

Deleting Jobs

Select the checkbox and click the trashcan to delete jobs from the database. Select the box at the top to select all jobs. This selection will be cleared if you change the page.

Actions

Click the hamburger menu to view actions for each job. The user may preview the file, add a comment, download the file, or rerun it on a different printer. Clicking the “rerun” option will pre-fill the Submit Job box.



Filter

The user may filter by:

- Jobs/page
- Device
- Issue (created by user; see error log)
- Ticket ID
- Job name
- File name
- Order by date
- Date range
- Favorited jobs

Click “submit” to see specified jobs. Click “clear filter” to revert changes.

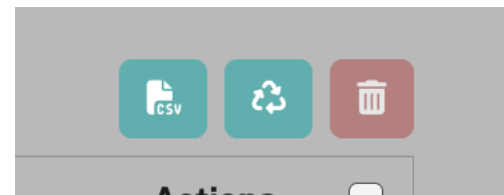
The screenshot shows a sidebar titled "Filter" with a dropdown arrow. It contains several sections for filtering jobs:

- Jobs per page, out of 831:** A text input field with the value "10".
- Device:** Two checkboxes: "bluetooth" and "Deregistered printers".
- Issue:** Four checkboxes: "Nozzle error", "Bed heating error", "cvj", and "new issue".
- Search using Ticket ID:** A text input field.
- Search for jobs:** A text input field.
- Search by:** Two checked checkboxes: "Search by Job Name" and "Search by File Name".
- Order:** Two radio buttons: "Newest to Oldest" (selected) and "Oldest to Newest".
- Date Range:** A date range picker icon.
- Favorites:** An unchecked checkbox.

At the bottom of the sidebar are two buttons: "Submit Filter" (purple) and "Clear Filter" (red).

CSV File Download

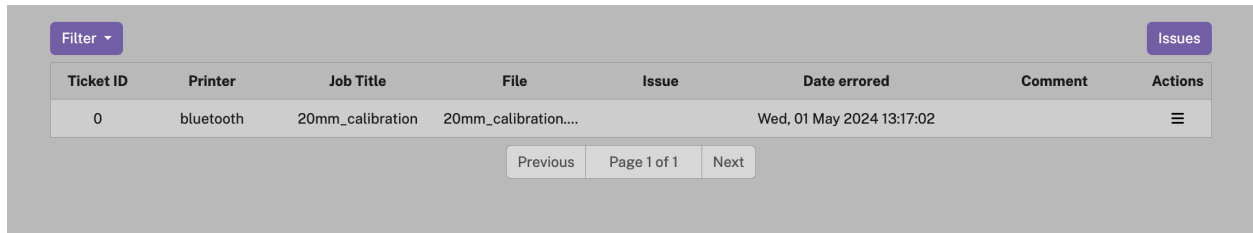
Clicking the icon on the left will download a CSV file with all of the jobs specified in the filter. If the user does not specify a filter, all jobs in the database will be included in the CSV file.



Recycle Jobs

Clicking the middle icon will remove files from jobs stored in the database for 6 months or longer. All other job information will remain in the database. The user will no longer be able to rerun or view jobs whose files have been deleted.

Error Log



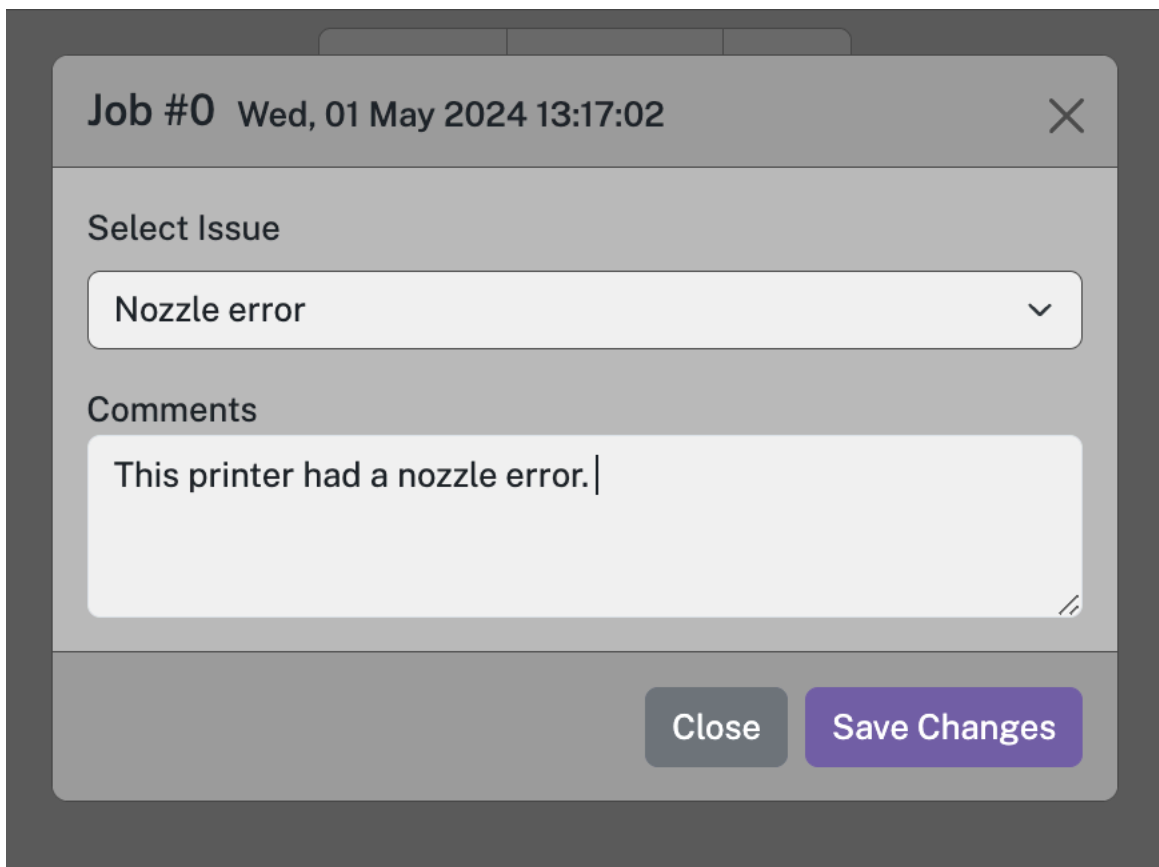
The screenshot shows a web interface for an error log. At the top left is a 'Filter' button with a dropdown arrow. At the top right is an 'Issues' button. Below these is a table with the following columns: Ticket ID, Printer, Job Title, File, Issue, Date errored, Comment, and Actions. The table contains one row with the following data: Ticket ID 0, Printer bluetooth, Job Title 20mm_calibration, File 20mm_calibration..., Issue (empty), Date errored Wed, 01 May 2024 13:17:02, Comment (empty), and Actions (a menu icon). Below the table are three buttons: 'Previous', 'Page 1 of 1', and 'Next'.

Ticket ID	Printer	Job Title	File	Issue	Date errored	Comment	Actions
0	bluetooth	20mm_calibration	20mm_calibration....		Wed, 01 May 2024 13:17:02		⋮

Previous Page 1 of 1 Next

The error log displays all jobs that ended with a status of “error.”

The user is able to create and assign “issues” to jobs. If you click “comments,” the user is able to assign an issue and a comment.



The screenshot shows a modal window titled 'Job #0 Wed, 01 May 2024 13:17:02' with a close button (X) in the top right corner. Inside the modal, there is a 'Select Issue' section with a dropdown menu currently showing 'Nozzle error'. Below this is a 'Comments' section with a text area containing the text 'This printer had a nozzle error.' and a cursor at the end. At the bottom of the modal are two buttons: 'Close' and 'Save Changes'.

Job #0 Wed, 01 May 2024 13:17:02

Select Issue

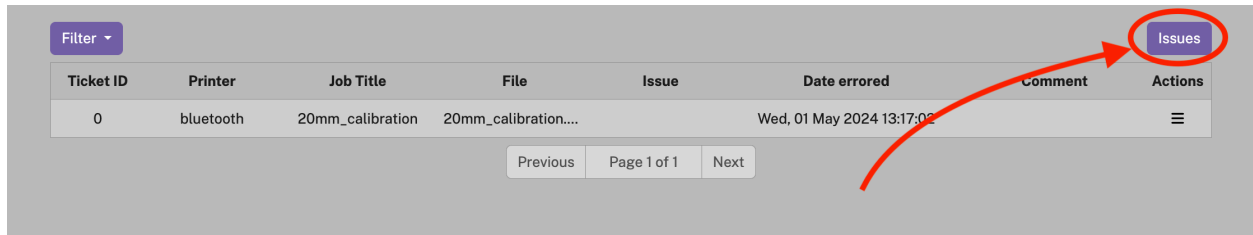
Nozzle error

Comments

This printer had a nozzle error.

Close Save Changes

If no issues are displayed in the dropdown, the user must create a new issue.

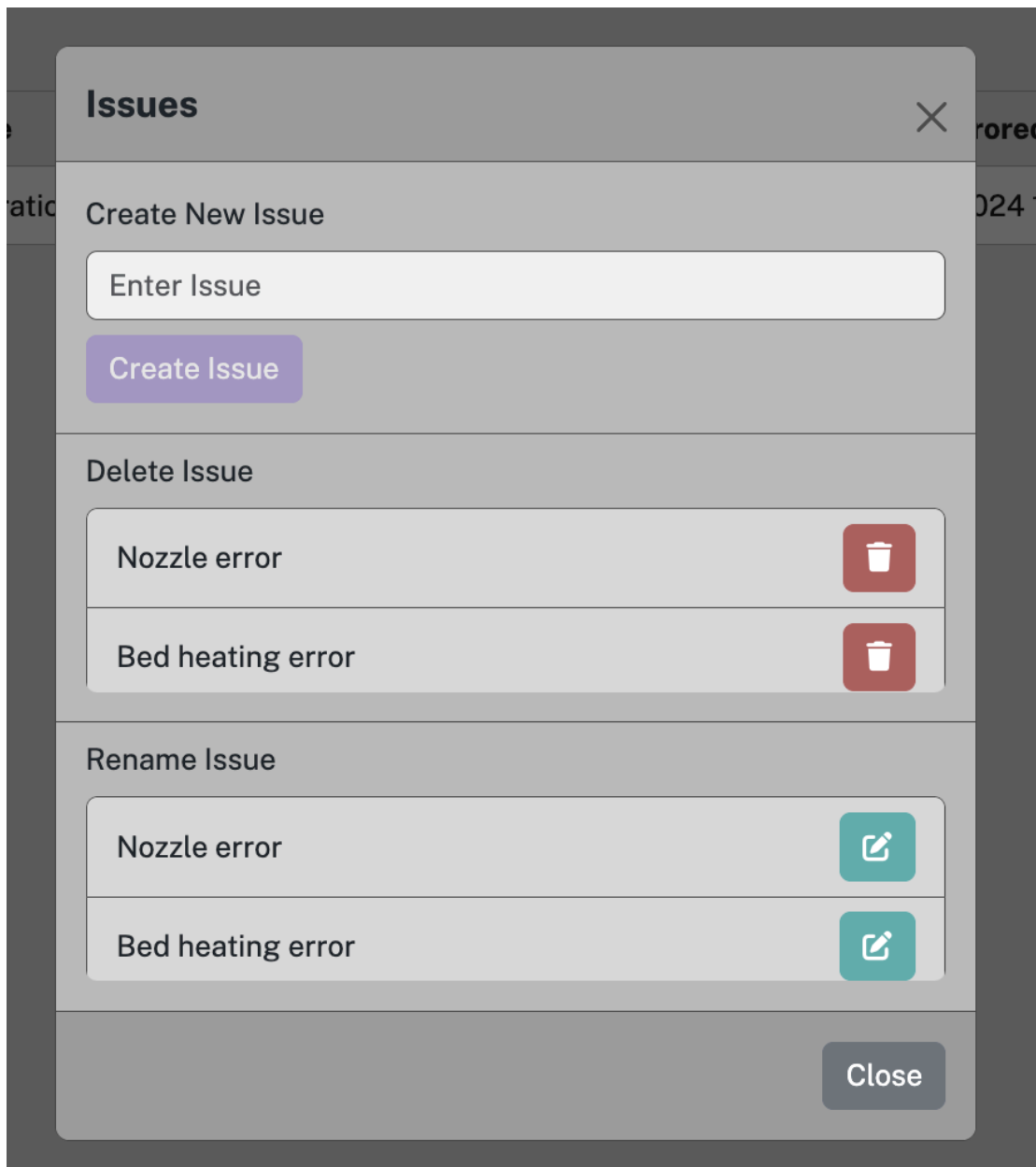


The screenshot shows a table with the following columns: Ticket ID, Printer, Job Title, File, Issue, Date errored, Comment, and Actions. A red circle highlights the 'Issues' button in the top right corner, with a red arrow pointing to it from the right.

Ticket ID	Printer	Job Title	File	Issue	Date errored	Comment	Actions
0	bluetooth	20mm_calibration	20mm_calibration....		Wed, 01 May 2024 13:17:02		⋮

Previous Page 1 of 1 Next

This will enable the user to create an issue, remove old issues, and change the name of existing issues.




The 'Issues' modal form contains three sections: 'Create New Issue', 'Delete Issue', and 'Rename Issue'. The 'Create New Issue' section has a text input field labeled 'Enter Issue' and a 'Create Issue' button. The 'Delete Issue' section lists 'Nozzle error' and 'Bed heating error' with red trash icons. The 'Rename Issue' section lists 'Nozzle error' and 'Bed heating error' with teal edit icons. A 'Close' button is at the bottom right.


Issues

Create New Issue


Create Issue


Delete Issue

Nozzle error 

Bed heating error 

Rename Issue

Nozzle error 

Bed heating error 

Close

Theme Selection

The screenshot displays the View3D software interface. At the top, a navigation bar includes links for HOME, QUEUES, REGISTRATION, SUBMIT JOB, JOB HISTORY, and ERROR LOG. Below this is a table with columns: ID, Printer name, Printer Status, Job Name, File, Printer Options, Progress, Actions, and Move. The table contains one row with the printer name 'bluetooth' and status 'configuring'. The 'Printer Options' column shows buttons for 'Set to Ready' and 'Turn Offline'. The 'Actions' column has a dropdown menu icon. The 'Move' column has a list icon.

A 'Theme Settings' dialog box is open in the foreground. It has a title bar with a close button. The dialog is divided into two main sections: 'Color' and 'Font'. The 'Color' section has a 'Primary Color' label with a purple color swatch and a 'Secondary Color' label with a teal color swatch. Below these are 'Revert' and 'Save' buttons. The 'Font' section has a label 'Upload your .ttf file', a 'Browse' button, and a text field containing 'No font selected.'. Below these are 'Revert' and 'Save' buttons.

A red arrow points from the 'Theme Settings' dialog box to a gear icon in the bottom right corner of the main interface, indicating that the user can adjust the color and font of the software.

The user may adjust the color and font of the software.

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal gray lines across the entire width of the page, providing a guide for writing. The background is a solid off-white color. There are no margins, text, or other markings present.