
CACM Printer Farm Setup

A student user guide for the 3D Printer OS Slicer

Overview

This guide explains how students can prepare; access and 3D print their files using the 3D Printer OS Slicer.

3D Printing Farm Policy

- 1) Allotments are based on academic year:
 - 1st year \$3
 - 2nd year \$8
 - 3rd year \$12
 - 4th year \$15
 - 5th year \$20
 - 2) 3D prints start on first come, first serve basis within the queue.
 - 3) Each student may queue up to 1 job at a time.
 - 4) 1st year students must complete a D2L course provided by the Digital Fabrication Lab before receiving access.
 - 5) The Bambu Lab H2D Pro is only available for 4th and 5th year students.
 - 6) Only CACM class projects are permitted, no personal 3D printing is allowed.
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Requirements

Listed below are what is required of students

- A computer
 - Access to the internet
 - Your .stl file
 - An account for 3D Printer OS
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Accessing 3D Printer OS

This section will explain how to gain access to 3D Printer OS

Overview

Students will be given access to 3D Printer OS through the Digital Fabrication Lab.

This access is given at the beginning of the semester.

Students are broken up into workgroups based on their academic year.

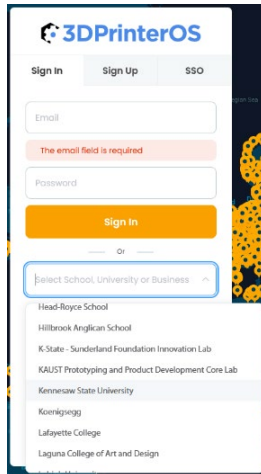
As stated in the policy, 1st year students are only given access after completing the required D2L course.

Step 1: Signing into 3D Printer OS

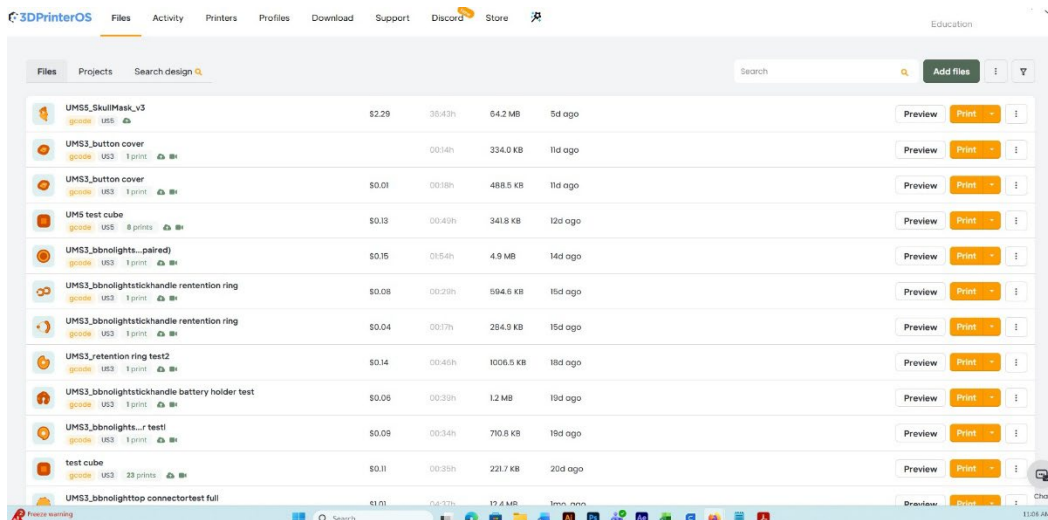
- Go to the [3D Printer OS Website](#).
- Use Single sign on to log into the website
- Use the **Select School, University, or Business** menu->find **Kennesaw State University**



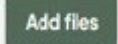
- Enter your credentials for Kennesaw State University.

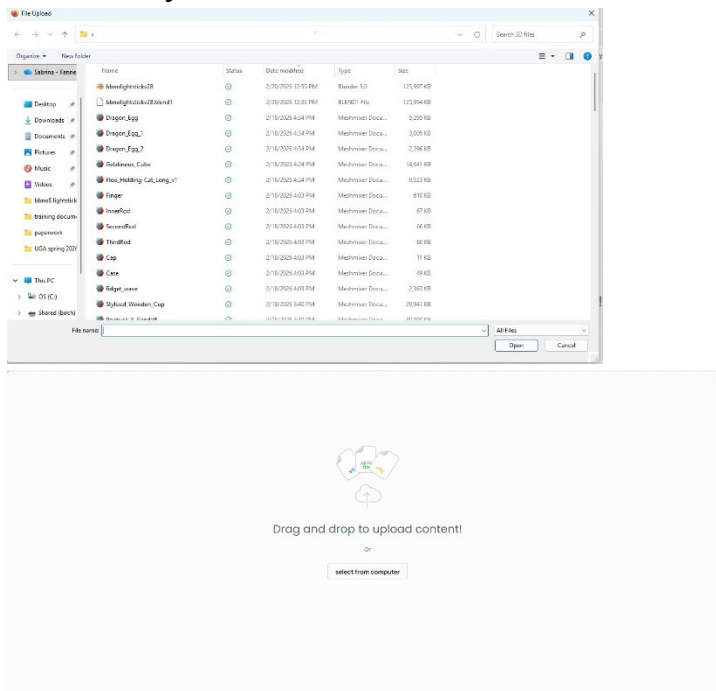


- After logging in you will be taken to the 3D Printer OS files page, this is where all your files will be stored.



Step 2: Selecting an .stl file

- Click **Add Files** , you will be given an option to drag and drop or search for your files.



- Select the **.stl** file you want to 3D print->click open.

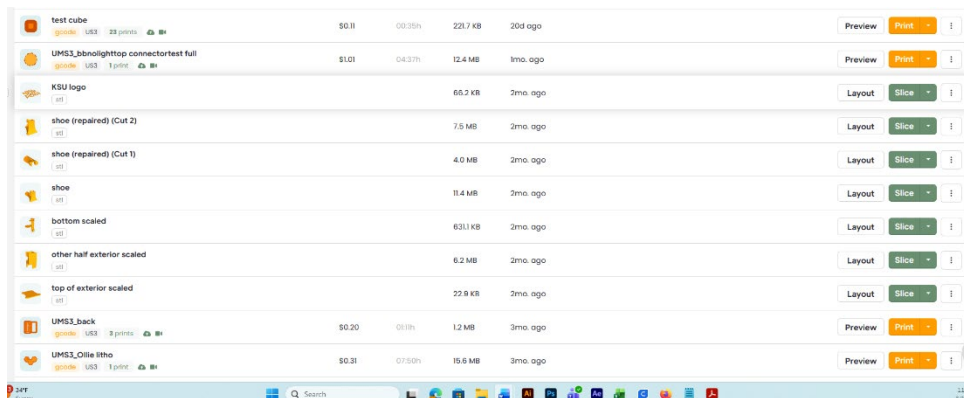
Uploading a file to 3D Printer OS Slicer

Overview

This section will show users how to use the layout screen and menu to set up their .stl file for slicing.

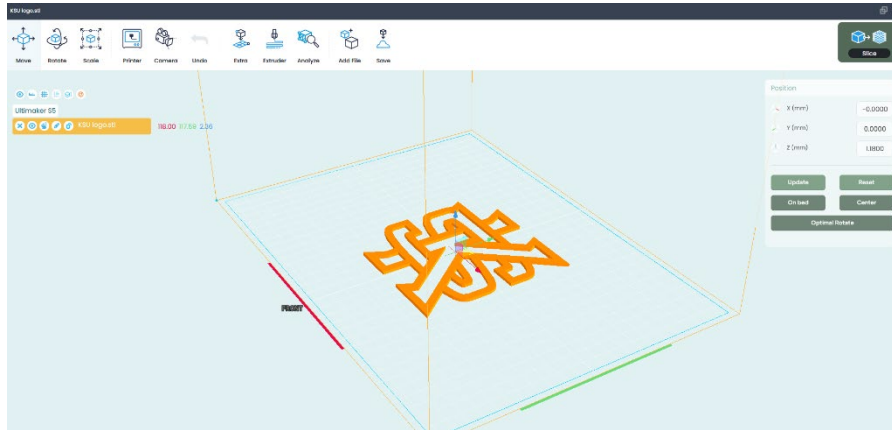
Step 1: Access the layout screen.

- After uploading your .stl you will see it within your files.



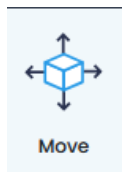
- Highlight it and find the **Layout Button** Layout, click the **Layout Button**.

- You will be taken to the Layout Screen.

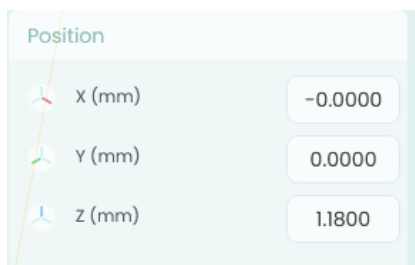


Step 2: Using the Navigation Menu

- Within the Layout Screen you are able to move your object in three directions, X, Y, and Z. This is done using the **Move Tool** in **Navigation Menu**



- When using the Move Tool, you will be able to see and control the changes on the right side of the screen in the corresponding menu.

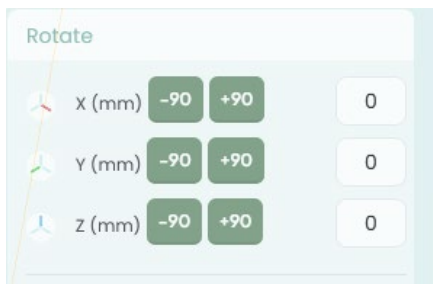


- You can also rotate in three directions, X, Y and Z using the **Rotate Tool**.



Rotate

- When using the Rotate Tool, you will be able to see and control the changes on the right side of the screen in the corresponding menu.



- You are also able to adjust the scaling of your object in X, Y and Z using the **Scale Tool**.



Scale

- When using the Scale Tool, you will be able to see and control the changes on the right side of the screen in the corresponding menu.



- Use these three tools at your disposal to position your object on the build plate.
-

Step 3: Select your 3D Printer

- Students have a selection of Ultimaker S3, S5 and S6 3D printers.
- Access this by going past the Navigation Menu to the 3D Printer Icon



Printer

- Click on it to see the list of 3D Printers.

Favorite Printers

Ultimaker S3
(230x190x200)

Ultimaker S5
(330x240x300)

Bambu Lab X1E
(256x256x256)

Creality Ender-3
(220x220x250)

My Printers

Bambu Lab X1E
(256x256x256)

Creality CR-10(S)
(300x300x400)

All Printers3Dexter Dextbot - Experimental
(200x200x200)3DPrinter Prime 1
(300x200x280)AE3D Impressora Wide
(340x340x230)Airwolf AXIOM
(317x203x254)Airwolf HD2x - Experimental
(280x200x300)Airwolf3D XL - Experimental
(295x230x178)

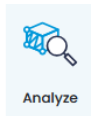
- Highlight and select the 3D printer you wish to use.
 - This will reconfigure the build plate to be the correct size.
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Step 4: Double check your work

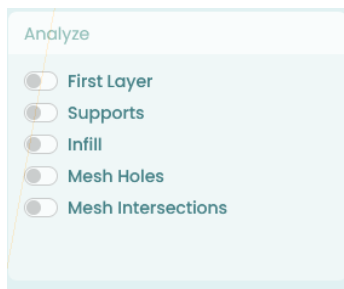
It's important to make sure your object is properly set up in the Layout Screen before you send it over the 3D Printer OS Slicer.



- Use the **Camera** Camera to navigate around your object, and check you have the correct orientation.



- **Analyze** will check over your object based on the credentials you give it.



- By doing this you can make sure that there are no errors in your file that would prevent optimal 3D printing.



- **Extra** Extra will allow you to copy an object, rename, mirror, and align it to the build plate.



- If you make a mistake and want to go back, **select Undo**



- Once satisfied with your file, select **Save** to keep your work.
- Any file saved within the Layout Screen will be placed into a **Project Folder**
- This folder will keep track of any .stl files modified.

Slicing a file in 3D Printer OS Slicer

Overview

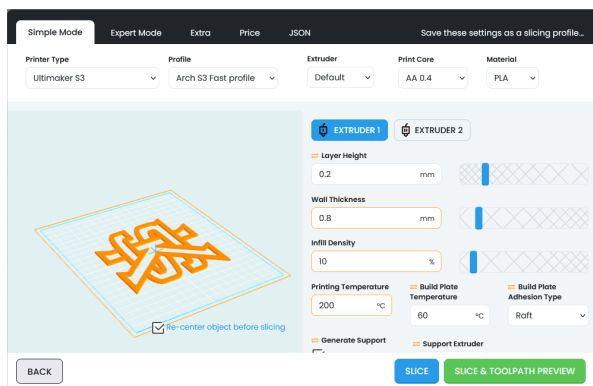
In this section students will learn how to use the OS Slicer

Step 1: Open the OS Slicer

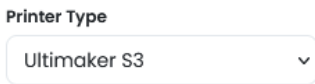
Go to the .stl file you just saved, navigate over to the **Slice Button**, select it.

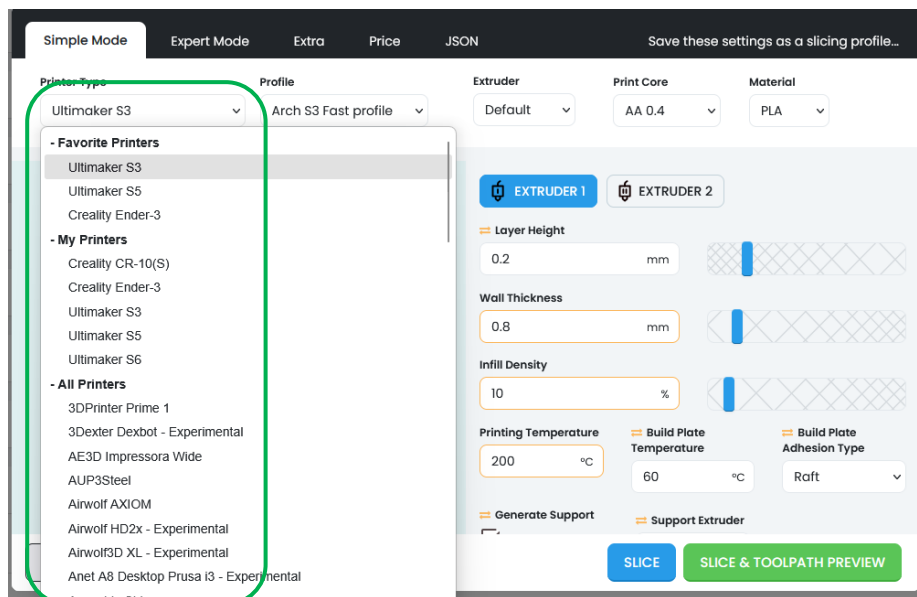


The OS Slicer screen will pop up.



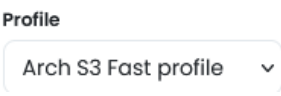
Step 2: Select the correct 3D Printer

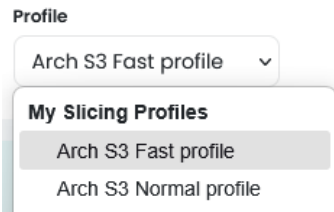
- Go to **Printer Type**  ->go to the drop-down menu and select the same 3D Printer you used in the Layout Screen.
 - *Note: If you select the incorrect 3D printer, your object will:*
 1. Not fit the build plate correctly
 2. Will not show up in your workgroup (1st and 2nd year limited to S3).



Step 3: Select a Print profile

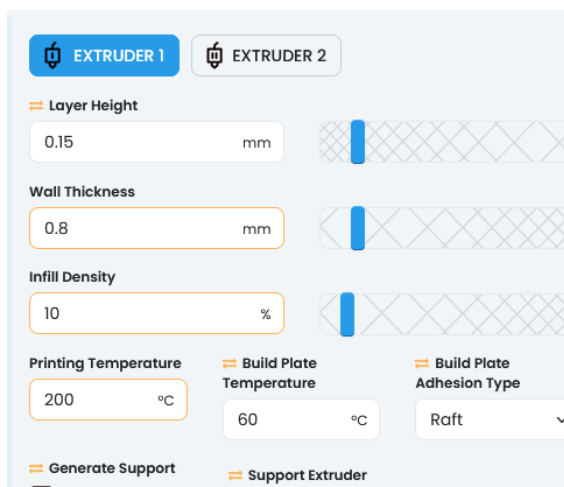
Print profiles are slicing profiles that tell the 3D printer the exact parameters of how to create a 3D print.

- Go to **Profile**  ->click on the drop-down menu to select a prefabricated profile.
 - *Note: students will only be able to select the profiles corresponding to the 3D printer they selected.*



- The settings will change depending on the profile selected.

STUDENTS DO NOT TOUCH THESE SETTINGS.



- Once you are satisfied with the settings select **Slice & Toolpath Preview**

SLICE & TOOLPATH PREVIEW

Uploading to the 3D Print Farm.

Overview

In this section students will learn how to select a 3D printer and queue their print to the farm.

Step 1: Select a Print profile

- After selecting **Slice & Toolpath Preview**, you will be taken to the **Toolpath Preview Screen**.
 - This screen is a digital representation of what your final print will look like.



- New information about your print will pop up, mainly **how much filament is being used, how long the print will take and how much it will cost.**

Filament: 30.11 g Estimated print time: 03:07:48 Cost: \$0.45

- The amount of filament used will collate to how much it will cost. Please keep this in mind when 3D printing.



- Navigate over to the **Print icon**, **click on it.**
- **The 3D printer queue** will pop up. You will see a list of 3D Printers to select from.

Ultimaker S3 Print to multiple printers

KSU logo_18760128.gcode \$0.45 03:08h 30.11g - PLA - 0.4mm

Printer name	Queue Time	Material(s)	Copies
ARCH-03 Ultimaker S3		PLA - 0.4mm	1
ARCH-04 Ultimaker S3		PLA - 0.4mm	1
ARCH-05 Ultimaker S3		PLA - 0.4mm	1
ARCH-06 Ultimaker S3		PLA - 0.4mm	1
ARCH-07 Ultimaker S3		PLA - 0.4mm	1
ARCH-08 Ultimaker S3	16:18h	PLA - 0.4mm	1
ARCH-09 Ultimaker S3		PLA - 0.4mm	1
ARCH-10 Ultimaker S3		PLA - 0.4mm	1
ARCH-11 Ultimaker S3	01:28h	PLA - 0.4mm	1

- There are 3D printing icons located to the name of each 3D Printer.
- Different colors have different meanings that will help you decide what 3D printer to select.



The 3D Printer is available for use.



The 3D Printer is currently not available.



The current 3D print job is paused.



The 3D printer is currently being used.

- If a 3D printer has one or multiple jobs queued or printing on it, students will be able to see a projected time of how long the wait is.



ARCH-08
Ultimaker S3

16:18h

During peak traffic season Midterms and Finals, the wait time for 3D printers can increase dramatically. Please keep this in mind when creating your projects.

- **Select the radio icon** on the 3D printer you want.



ARCH-04
Ultimaker S3



PLA - 0.4mm



1



- **Select Queue**

Queue

- *Students are unable to print their own files.*

- The 3D print file will be waiting in the queue for the 3D printer you selected.



- Students will need to wait until **staff have approved or denied their 3D Print Job.**
- **You will get an email when the print starts, stops, and is finished.**

**ALL EMAILS WILL COME FROM 3D PRINT OS, MAKE SURE TO
CHECK YOUR SPAM FOLDER.**

Troubleshooting

Overview

This section will describe the most common issues users will face and how to resolve them.

Table 1 Troubleshooting

Problem	Cause	Solution
No available printers when trying to queue	- Selected the wrong printer - Not added to workgroup	- Double check the selected printer - Email staff about being added to workgroup
Cannot login because there is no account	User has not been signed up for 3D Printer OS	Email staff about requirements to be added.
3D print is too large for 3D printer	User selected incorrect 3D printer when using Slicing Screen	Go back to the .stl file and re-slice for the correct 3D printer.
Prints have no support and are needed.	- User accidentally turned supports off when slicing - User did not use the recommended print profiles.	Re-slice the .stl file using the correct print profiles provided by the DFL
Print floating in air and rejected	User did not orient their parts properly in the Layout Screen	User needs to select the .stl file and orient it correctly in the Layout Screen.
Layout Screen saying object is too big when it's fitting	There is an extra part within the .stl file out of bounds that the Layout Screen is seeing	- Go back to original file in original software and locate extra piece. - Move it closer if needed or delete it if not.
Print came out too small	User did not size it correctly in the Layout Screen	Select the .stl file, go back to the Layout Screen and resize.



Print came out with stringy overhangs	• User did not use support when needed	• Double check slicer to make sure support is turned on.
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