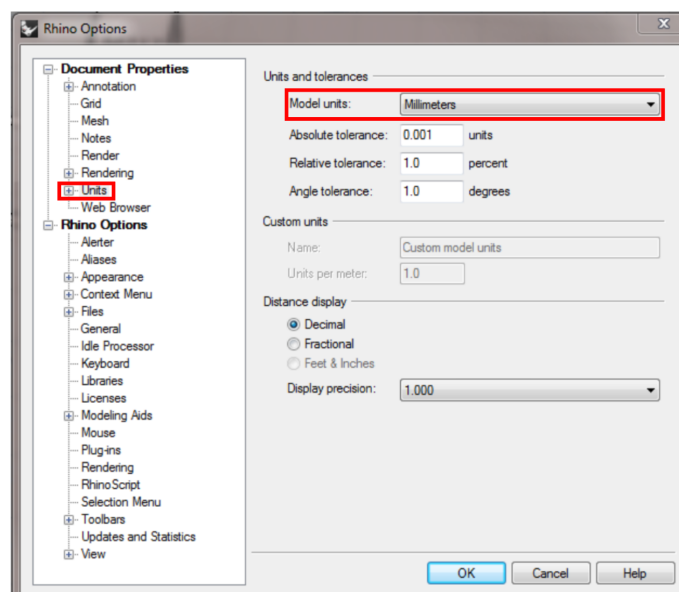


# INDA LAB

## 2020–2021 3D Printing Guideline (Online Protocol)

### Setting up your file in Rhino:

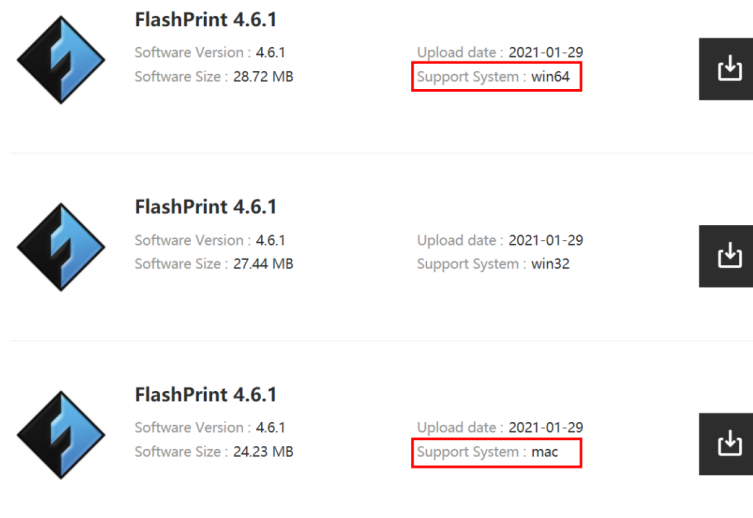
1. Make sure the scale of the file is 1 = 1 and **units are set to Millimeter (mm)**. **Your file will not be able to print without the units set properly to millimeters.** To check, type [\[Options\]](#). Under Document Properties > Units > make sure both 'Model' and 'Layout' is set to Millimeters.



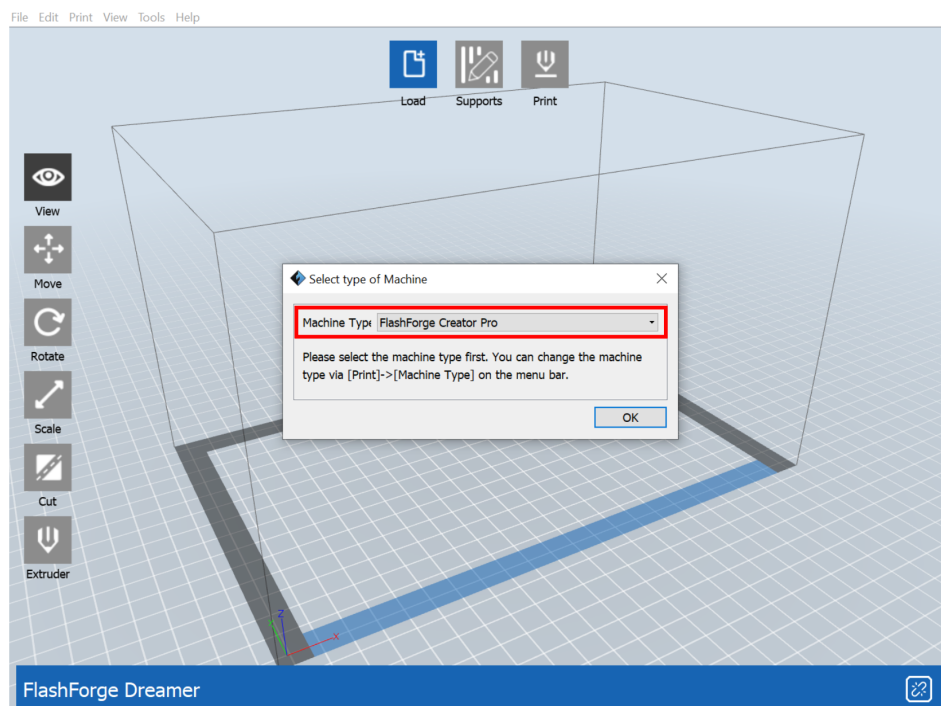
2. When setting up your model for printing, **make sure your model does not exceed the printing bed 227mm (length) x 148mm (width) x 150mm (height)**. To check, use the [\[BoundingBox\]](#) command to create a rectilinear box object to enclose your model.
3. Checking for Naked Edges: All objects must be closed solids/polysurfaces (aka “watertight” objects) in order to successfully print. Select your object and type the command [\[ShowEdges\]](#) > a window titled “Edge Analysis” will appear. Select “Naked Edges”. Use [\[JoinEdges\]](#), [\[Cap\]](#), or [\[FillHoles\]](#) to correct your open object, if any.
4. Make sure there are no duplicates [\[SelDup\]](#), and no hidden objects [\[Show\]](#).
5. If you have multiple geometries, they need to be joined into a single object if possible to prevent any printing error. Use the command [\[BooleanUnion\]](#) to join your geometries.
6. Once ready, [\[SaveAs\]](#) .STL file.

## Download Flashforge 3D printing software:

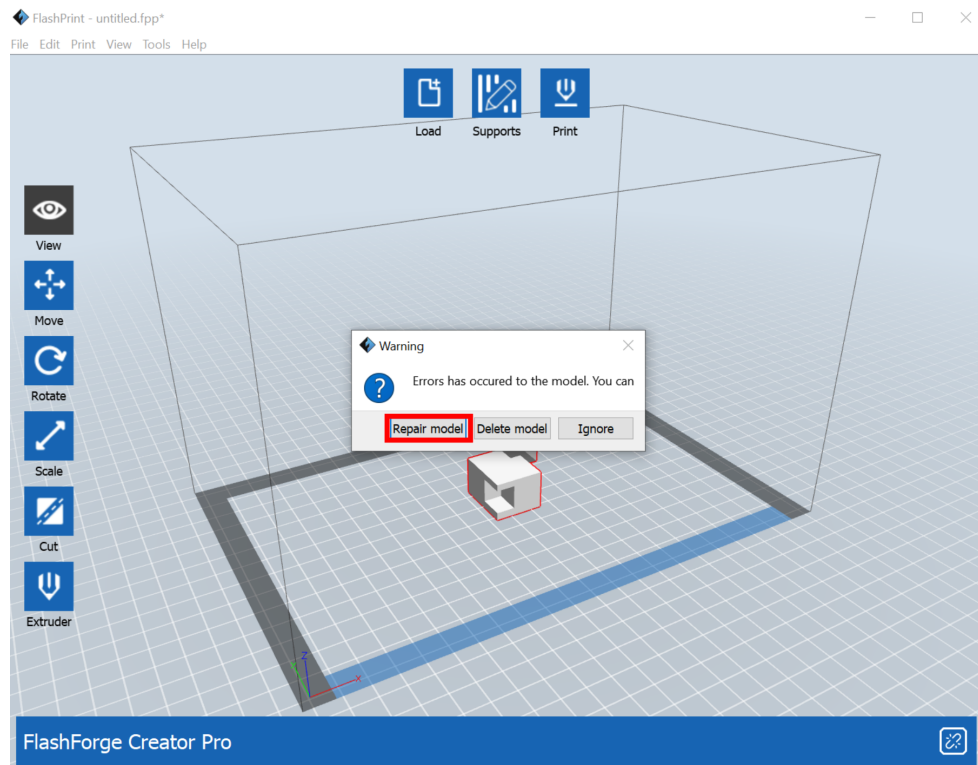
7. To expedite your printing process, download [FlashForge](#). For Windows, make sure you are downloading the latest version, FlashPrint 4.6.1 **with the support system for win64**. Downloading win32 will not work! For Mac, make sure the support system is for 'mac'.



8. Follow the instructions on screen to download the program. When you first open the program, select 'FlashForge Creator Pro' when prompted to select Machine Type.



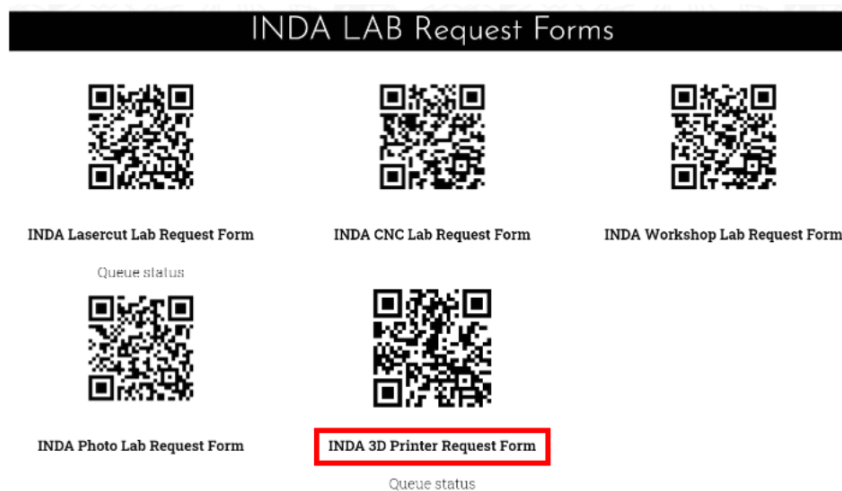
9. To check whether your object will be printable, simply drag and drop your .STL file into the program. If there is error that has occurred to the model, make sure you “repair model” and re-save your STL file before submitting.



10. The lab technician will add printing support and determine your print resolution that would best suit your print.

### Submitting your work:

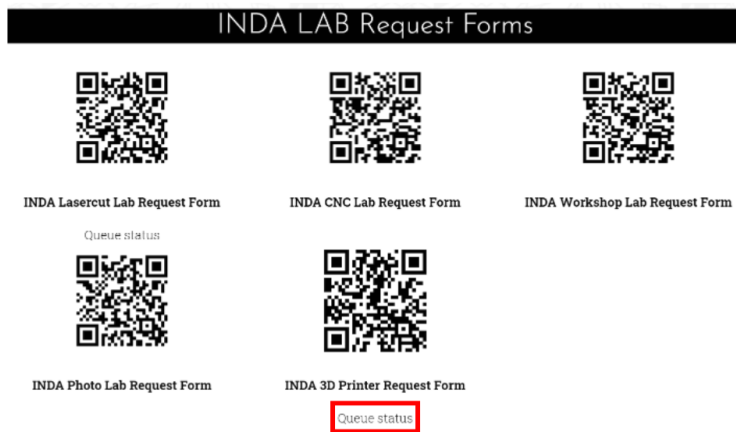
11. Once you have completed your 3d printing file and saved as .STL format, visit the [INDA website](#).
12. Under the 'Administration' tab, go to the google doc "INDA 3D Printer Request Form".



13. Make sure you submit your full contact information including a working phone number. The lab coordinator or technician will contact you to make sure your file is set up properly and if there are any chances that need to be corrected before executing the work.

## Viewing your Queue & Printing Completion:

14. Once your file has been confirmed, you can check your status of your work at the Queue Status form. This is located under the 'INDA 3D Printer Request Form'.
15. You will be contacted again to pick up your work after it is completed.



INDA 3D Printer Request Form

Timestamp	Name	Year	Time for printing	Status
1. Feb 18, 2021, 4:58...	Paweenda Patarathamaporn	INDA Student Year 4	1h 40m	completed
2. Feb 20, 2021, 2:2...	Natricha Pomteparak	INDA Student Year 4	4h 06m	completed
3. Feb 21, 2021, 4:57...	Nathana Pavitpok	INDA Student Year 1	-	cancel
4. Feb 21, 2021, 11:52...	Paweenda Patarathamaporn	INDA Student Year 4	8h 43m	completed
5. Feb 21, 2021, 11:53...	Paweenda Patarathamaporn	INDA Student Year 4	11h 30m	completed
6. Feb 21, 2021, 11:54...	Paweenda Patarathamaporn	INDA Student Year 4	24h 26m	pending...
7. Feb 22, 2021, 9:19...	Natricha Pomteparak	INDA Student Year 4	2h 21m	completed
8. Feb 22, 2021, 10:4...	Nathana Pavitpok	INDA Student Year 1	37h 59m	pending...
9. Feb 22, 2021, 10:4...	Nathana Pavitpok	INDA Student Year 1	18h 18m	pending...
1. Feb 22, 2021, 10:4...	Nathana Pavitpok	INDA Student Year 1	1h 47m	pending...
1. Feb 22, 2021, 10:4...	Nathana Pavitpok	INDA Student Year 1	5h 42m	pending...
1. Feb 22, 2021, 3:59...	Paweenda Patarathamaporn	INDA Student Year 4	8h 18m	pending...
1. Feb 22, 2021, 4:13...	Napas Simarangsun	INDA Student Year 4	3h 00m	completed
1. Feb 22, 2021, 4:14...	Napas Simarangsun	INDA Student Year 4	3h 27m	pending...
1. Feb 22, 2021, 4:14...	Napas Simarangsun	INDA Student Year 4	5h 32m	pending...
1. Feb 22, 2021, 4:15...	Napas Simarangsun	INDA Student Year 4	3h 03m	pending...
1. Feb 22, 2021, 4:16...	Napas Simarangsun	INDA Student Year 4	3h 16m	pending...
1. Feb 22, 2021, 4:16...	Napas Simarangsun	INDA Student Year 4	3h 17m	pending...
1. Feb 22, 2021, 4:17...	Napas Simarangsun	INDA Student Year 4	-	-
2. Feb 22, 2021, 4:18...	Napas Simarangsun	INDA Student Year 4	-	-
2. Feb 22, 2021, 4:19...	Napas Simarangsun	INDA Student Year 4	-	-
2. Feb 22, 2021, 4:19...	Napas Simarangsun	INDA Student Year 4	-	-

1: 25/25 < >

## Important Notes:

- Each file should contain one, single model. If you have multiple parts or models you would like to 3D print, you will need to submit individual forms for each.
- If you have duplicate piece(s) you need to print, only submit one model. When contacted by the lab technician, indicate how many duplicates you need.
- Layer resolution and significantly impact print time. As a rule of thumb, the lab technician will assess your file and will determine the appropriate resolution for your model. However, if you have any specific requests on resolution, make sure to indicate this when contacted.