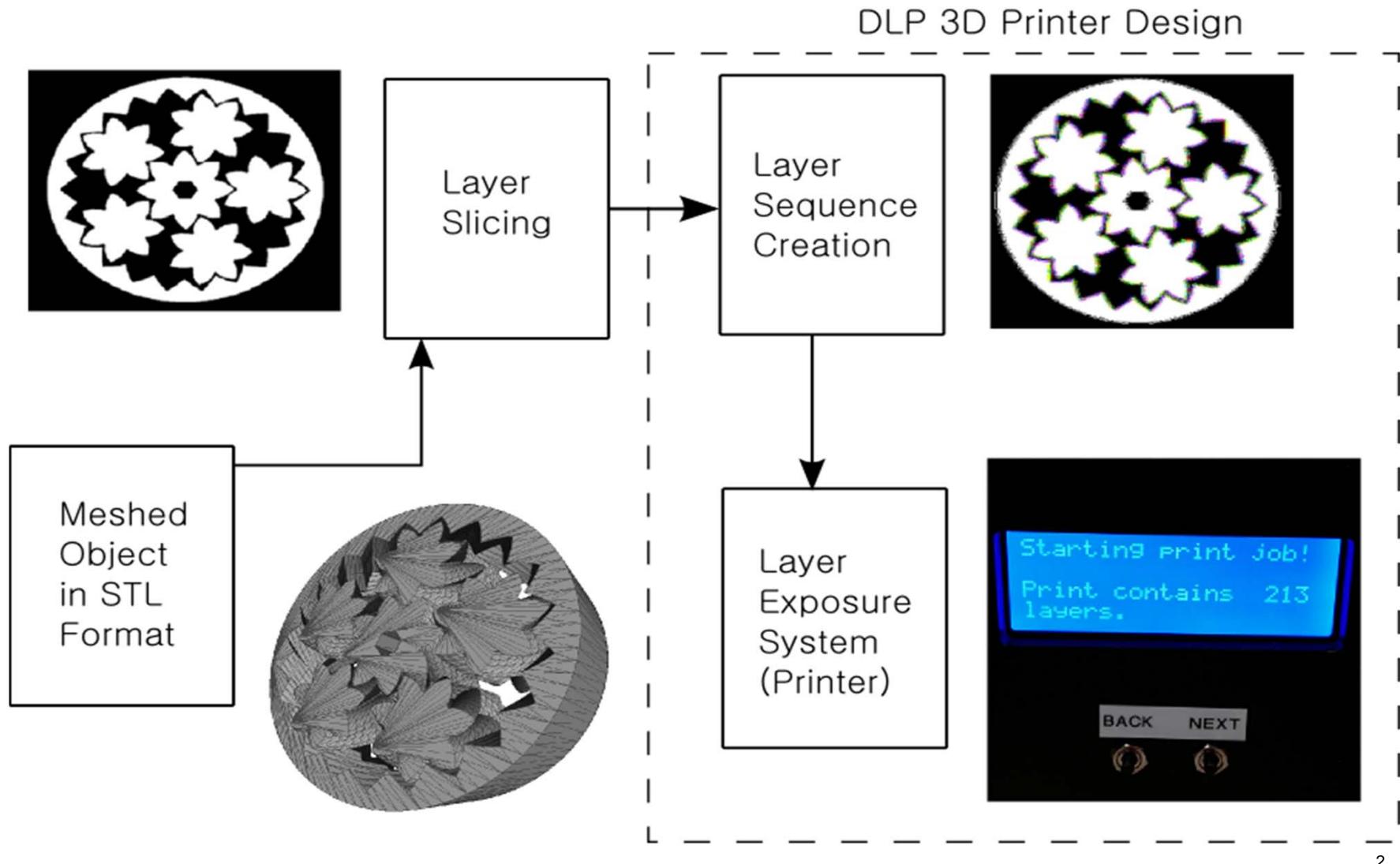




TIDA-00293 DLP 3D Printer

DLP-based 3D printing process flow



Get a cool model to print



- Download a meshed model to print from www.thingiverse.com
 - Make sure the model is in .STL format
 - Record, or remember, the file path for the .STL file

Download the required software



- Freesteel Z-level slicer
- ImageMagick Q8

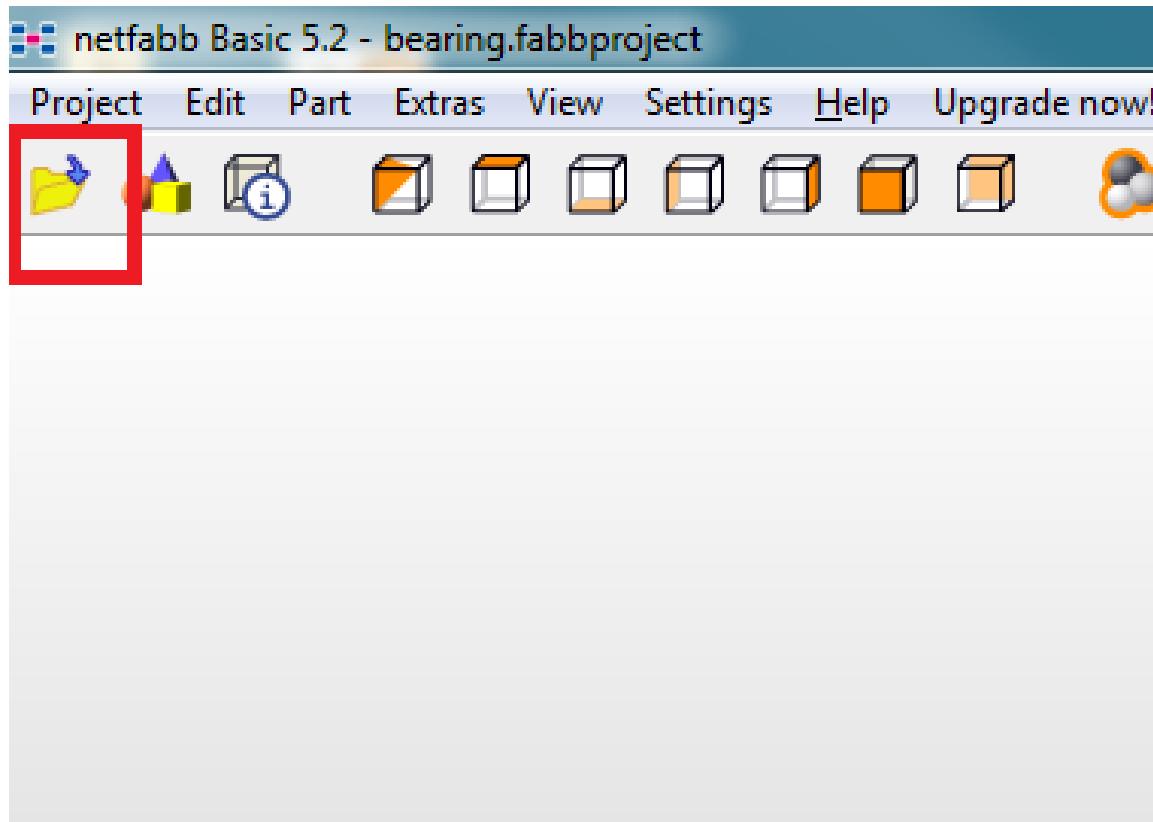
Optional software

- MeshLab
 - Download it from this website:
<https://sourceforge.net/projects/meshlab/files/meshlab/MeshLab%20v1.3.3/>
 - MeshLab lets users manipulate and change meshes
 - Use it to combine two meshes together into a single mesh
- Netfabb
 - Download Netfabb basic here:
<http://www.netfabb.com/downloadcenter.php?basic=1>
 - Check the overall height of objects by opening them in Netfabb

Opening meshes in Netfabb



- After installing Netfabb, run the program
- Click the Open button

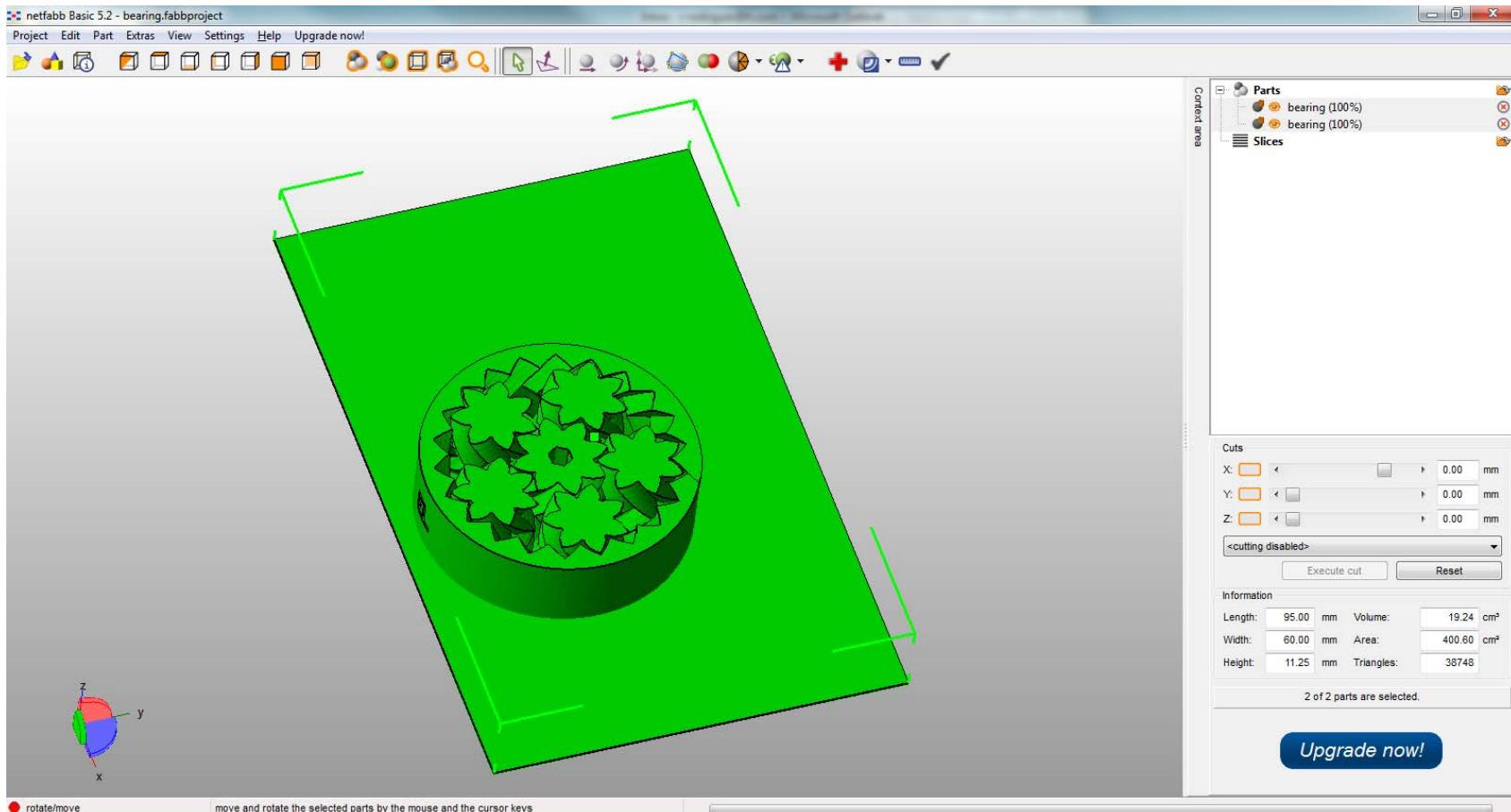


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Opening meshes in Netfabb (con't)



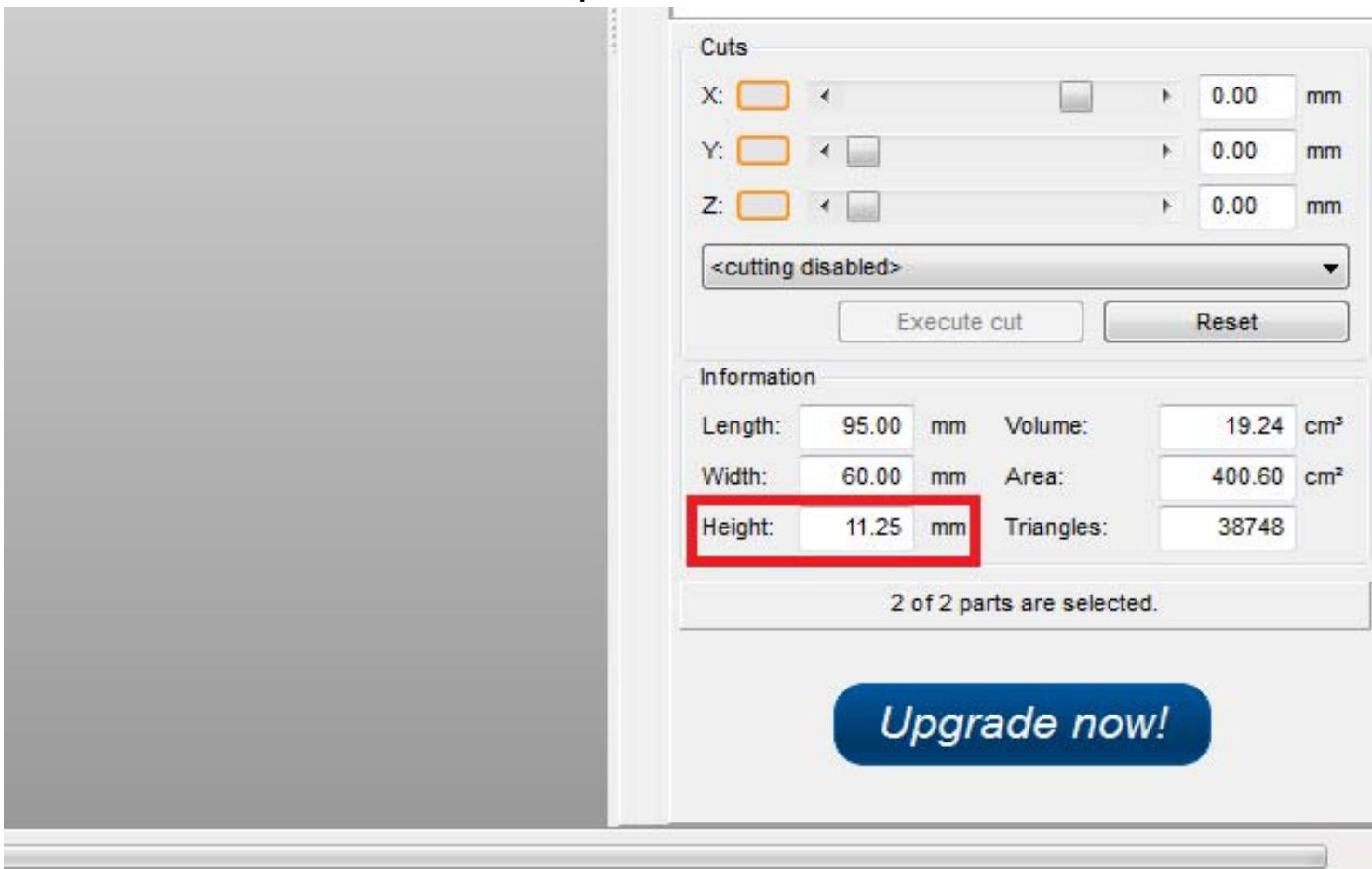
- Browse to the downloaded model and open it



A piece of information needed from Netfabb



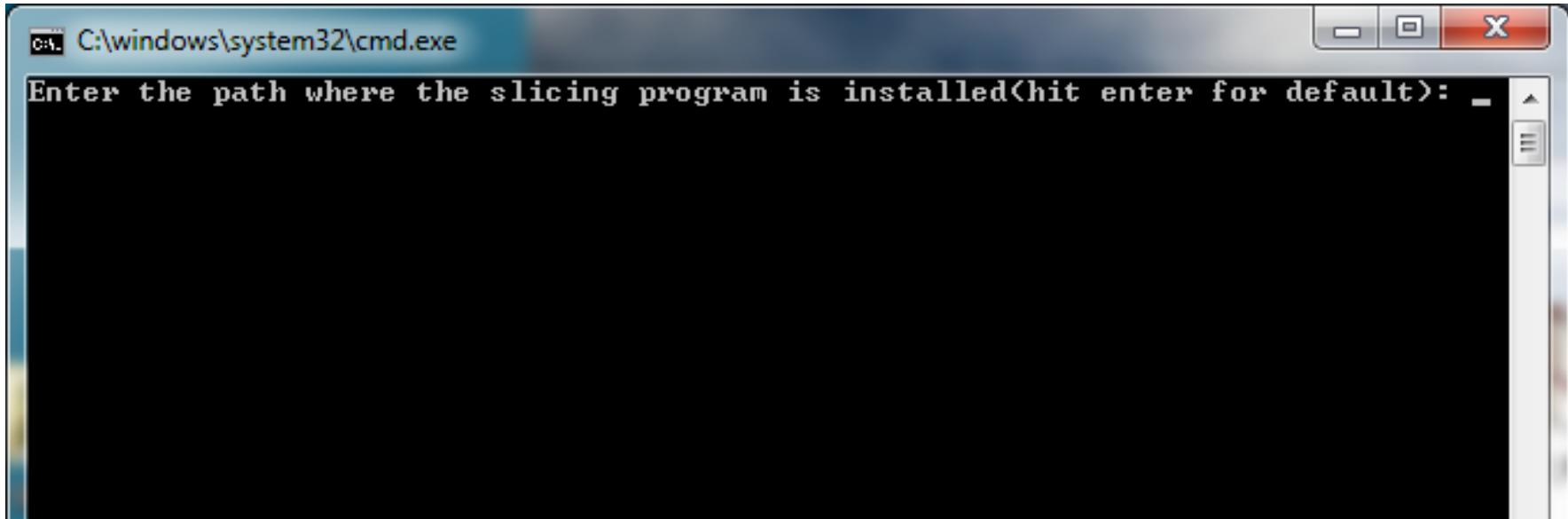
- With the mesh selected, record the height in the lower right hand corner
 - The units don't matter at this point



Ready to slice!



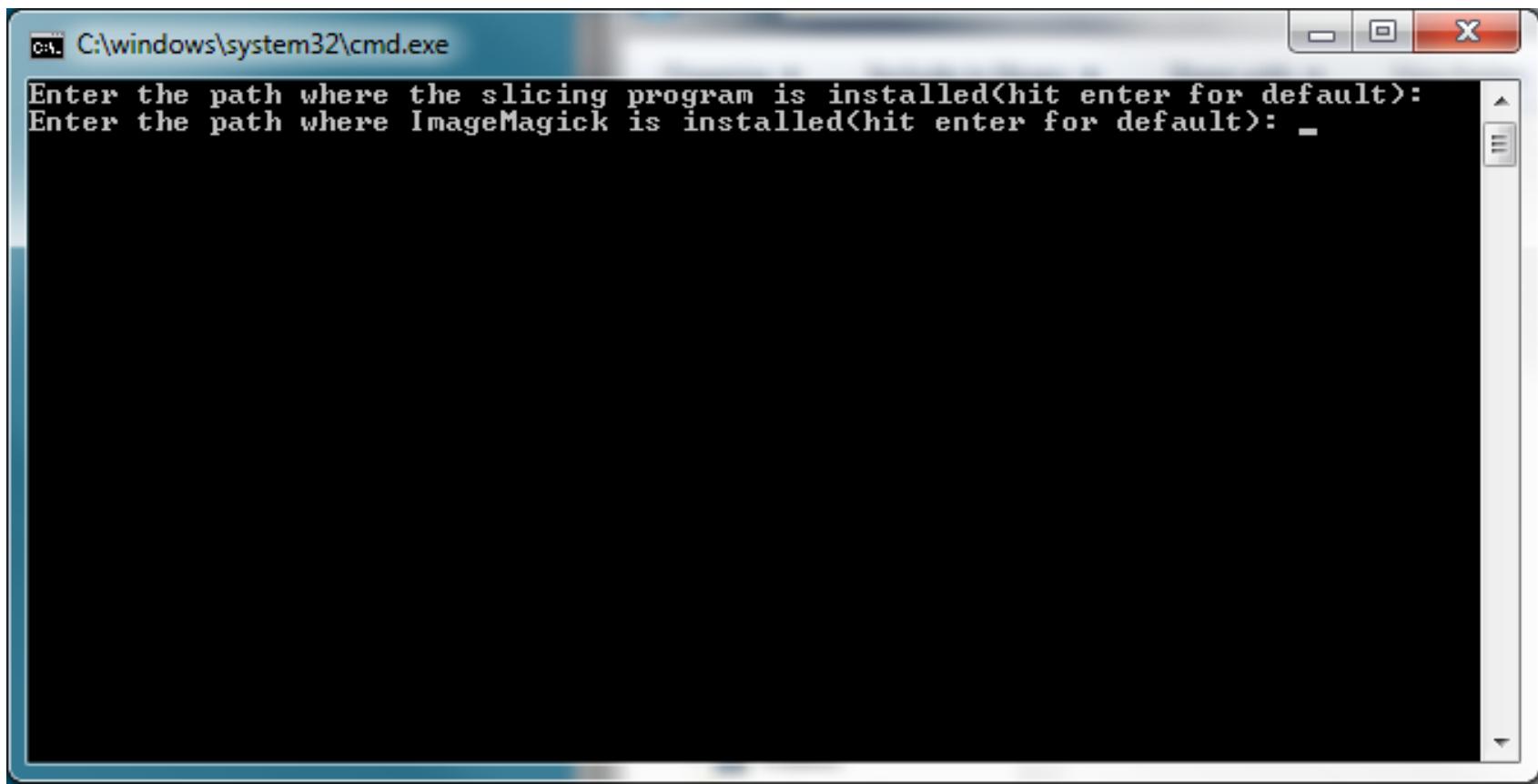
- With Freesteel Z-level slicer and ImageMagick installed
- The first prompt asks for the path to Freesteel.
 - If Freesteel is installed in the default location, just hit the enter key.
 - Otherwise, enter the path where slice.exe exists.



Path to ImageMagick



- Enter the path to the ImageMagick utility
 - If ImageMagick version 6.8.9 was installed in the default location, hit enter to accept the default path

A screenshot of a Windows Command Prompt window (cmd.exe) running on a Windows 7 desktop. The window title bar says 'C:\windows\system32\cmd.exe'. The text in the window is:

```
Enter the path where the slicing program is installed(hit enter for default):  
Enter the path where ImageMagick is installed(hit enter for default): -
```

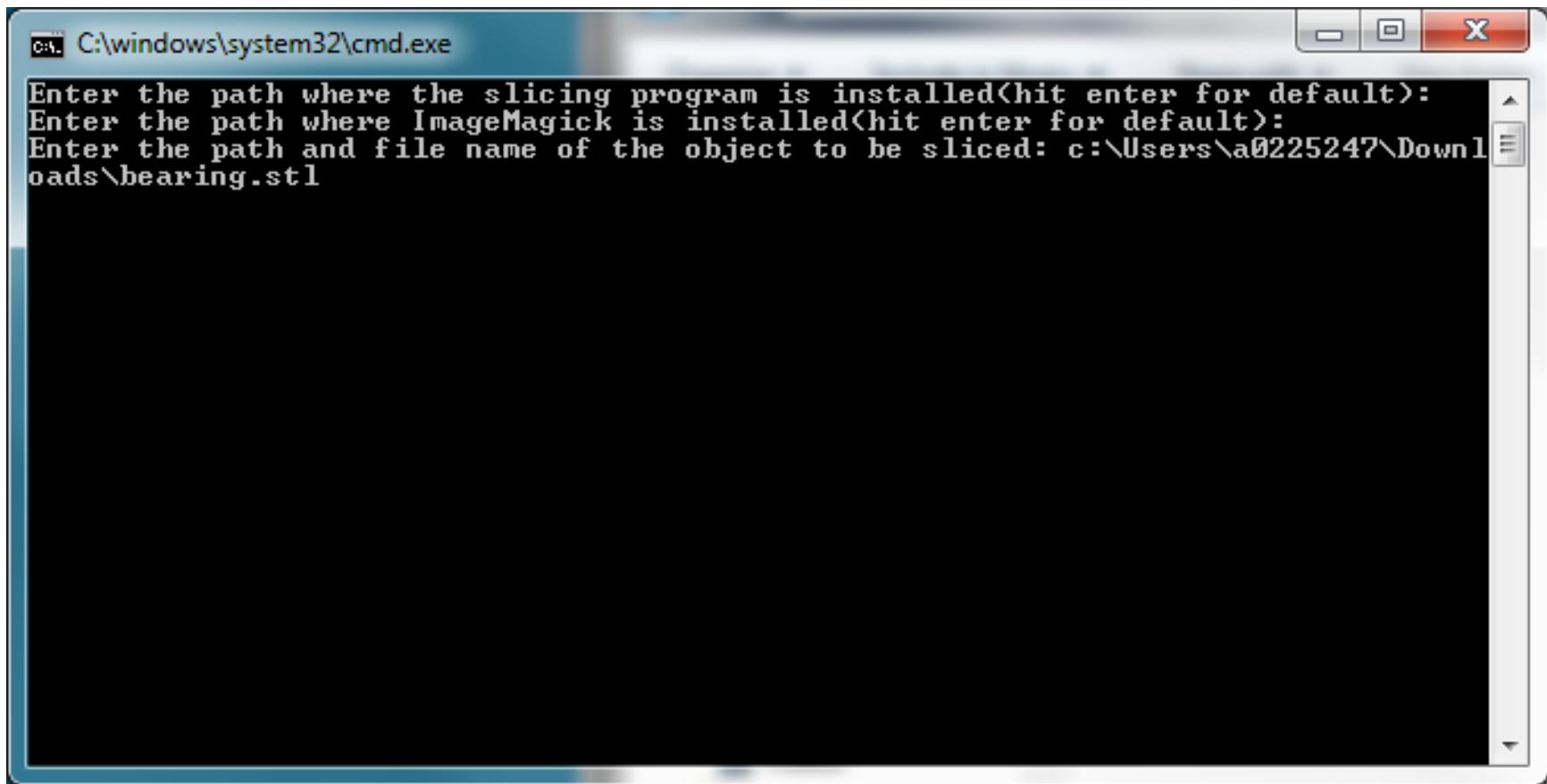
The text 'Enter the path where ImageMagick is installed(hit enter for default): -' is highlighted with a blue selection bar.

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Path to the downloaded model



- Now enter the path and file name for the downloaded model
 - Use the tab button to autocomplete directory and file names

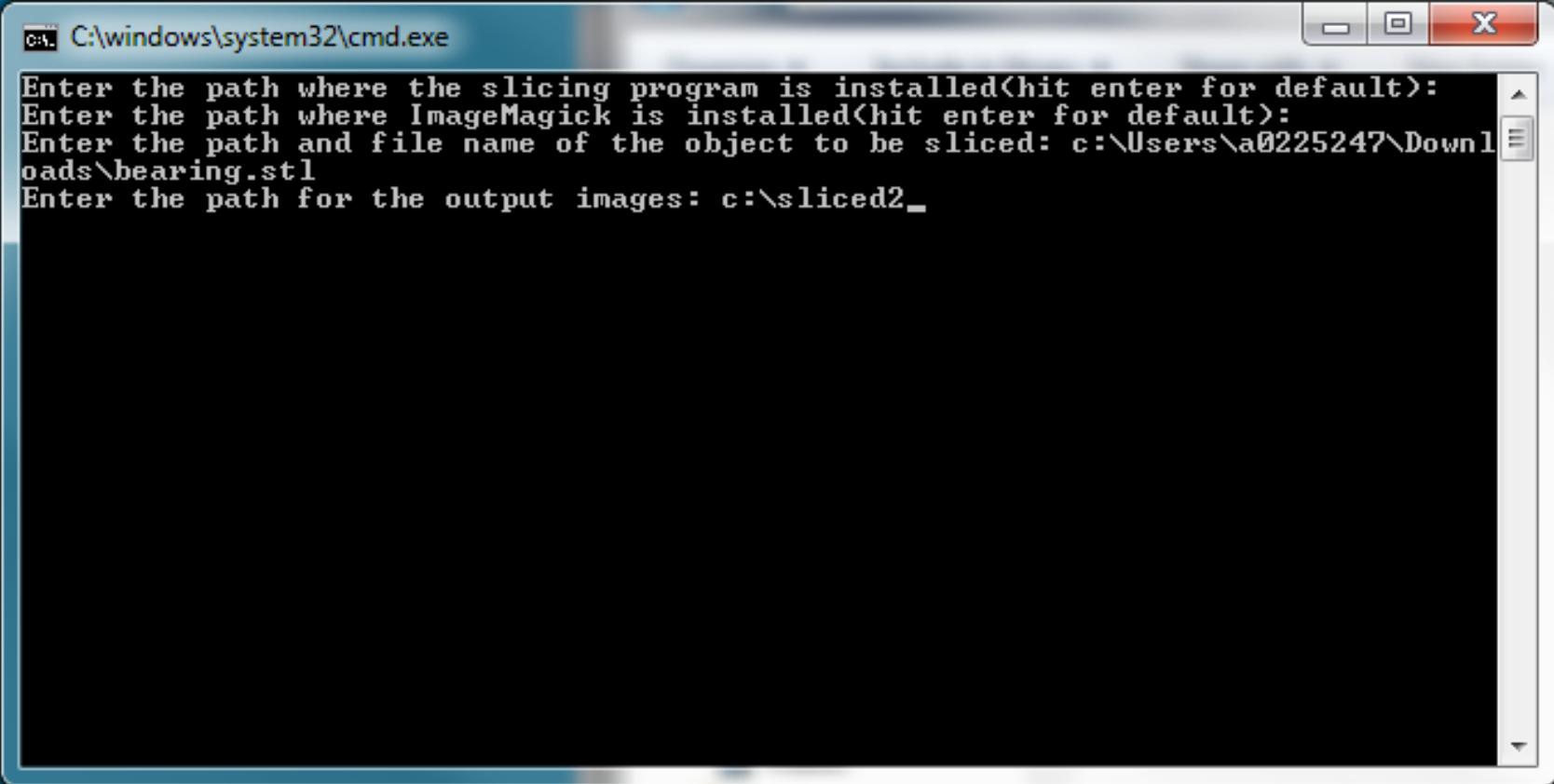
A screenshot of a Windows Command Prompt window. The title bar says 'C:\windows\system32\cmd.exe'. The window contains the following text:

```
Enter the path where the slicing program is installed(hit enter for default):  
Enter the path where ImageMagick is installed(hit enter for default):  
Enter the path and file name of the object to be sliced: c:\Users\...\Downloads\bearing.stl
```

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Output path definition

- Enter the directory where the sliced images will be placed
 - The directory should be empty or non-existent
 - Windows will create directories as necessary



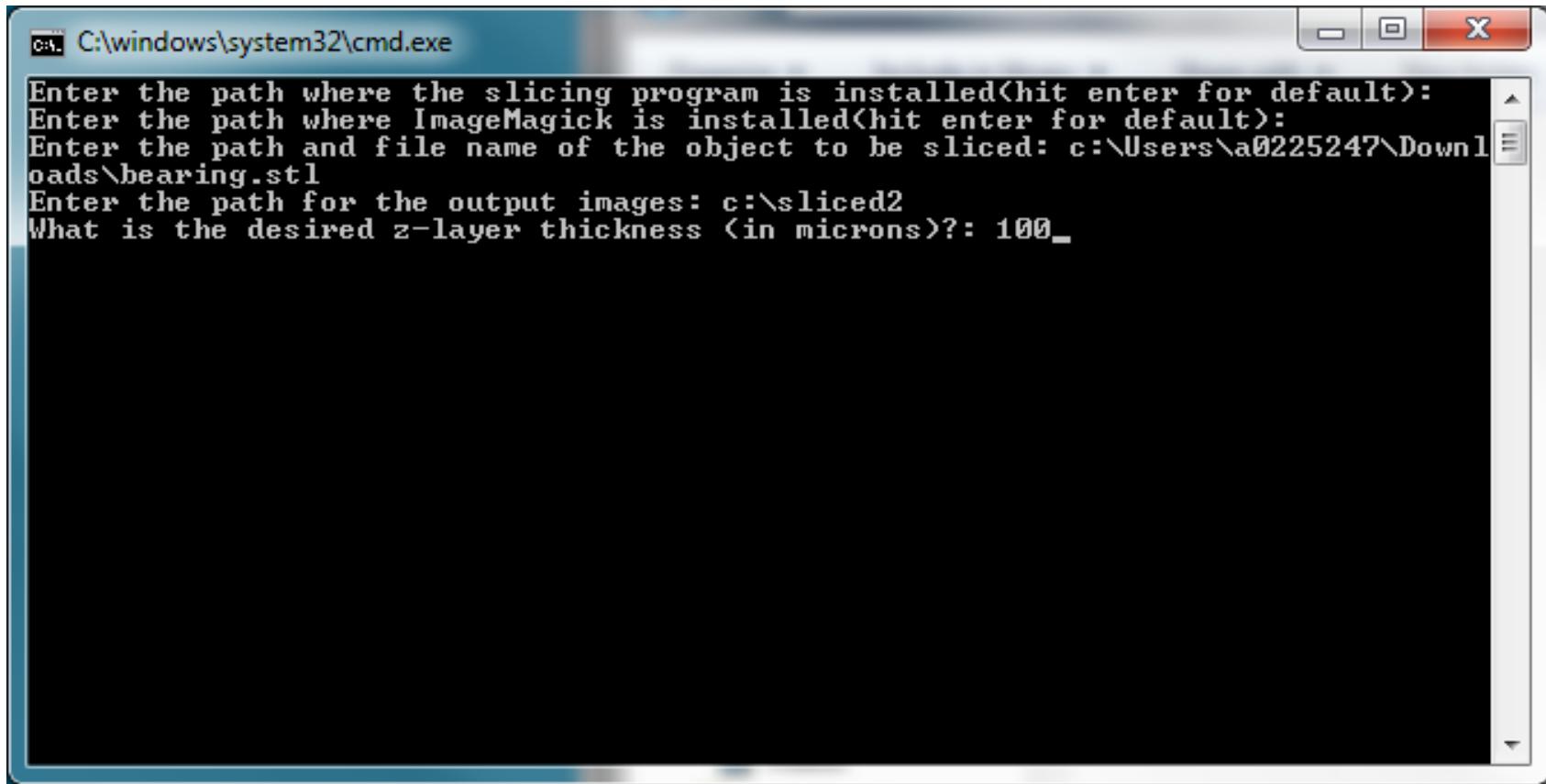
A screenshot of a Windows Command Prompt window titled 'C:\windows\system32\cmd.exe'. The window contains the following text:

```
Enter the path where the slicing program is installed(hit enter for default):  
Enter the path where ImageMagick is installed(hit enter for default):  
Enter the path and file name of the object to be sliced: c:\Users\...\Downloads\bearing.stl  
Enter the path for the output images: c:\sliced2\
```

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Z-layer thickness

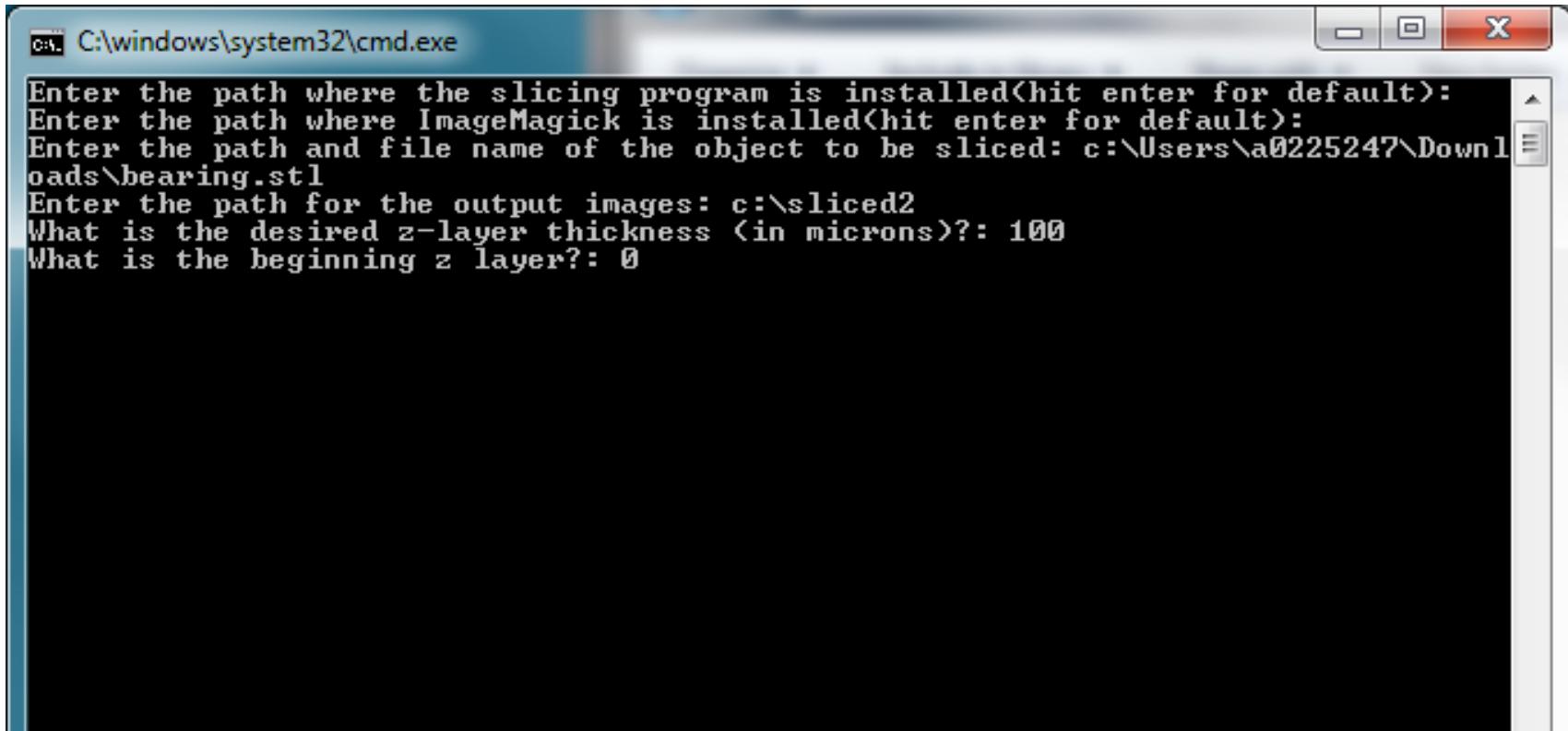
- Enter the desired thickness of the cross-sectional layers
 - Acceptable values are 1 to 999



```
C:\windows\system32\cmd.exe
Enter the path where the slicing program is installed(hit enter for default):
Enter the path where ImageMagick is installed(hit enter for default):
Enter the path and file name of the object to be sliced: c:\Users\a0225247\Downloads\bearing.stl
Enter the path for the output images: c:\sliced2
What is the desired z-layer thickness (in microns)?: 100
```

Beginning Z-layer

- Entire the first layer to be sliced
 - Typically this value is 0.
 - There may be times where you desire to start slicing an object from another point.



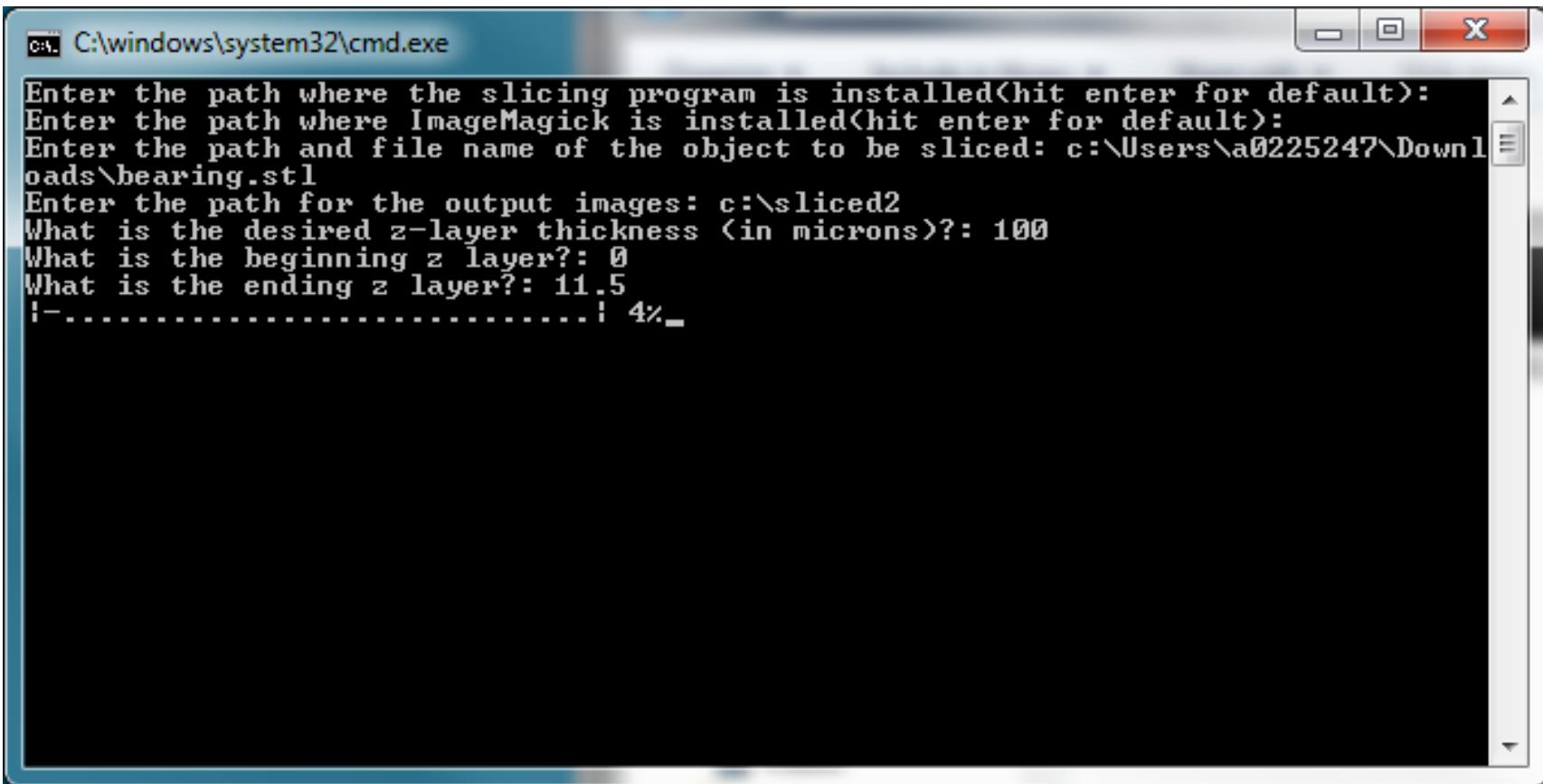
C:\windows\system32\cmd.exe

```
Enter the path where the slicing program is installed(hit enter for default):  
Enter the path where ImageMagick is installed(hit enter for default):  
Enter the path and file name of the object to be sliced: c:\Users\al0225247\Downloads\bearing.stl  
Enter the path for the output images: c:\sliced2  
What is the desired z-layer thickness (in microns)?: 100  
What is the beginning z layer?: 0
```

Last Z-layer



- This is the upper limit for the slicer
 - Enter the number recorded earlier, from Netfabb, in order to slice the entire object



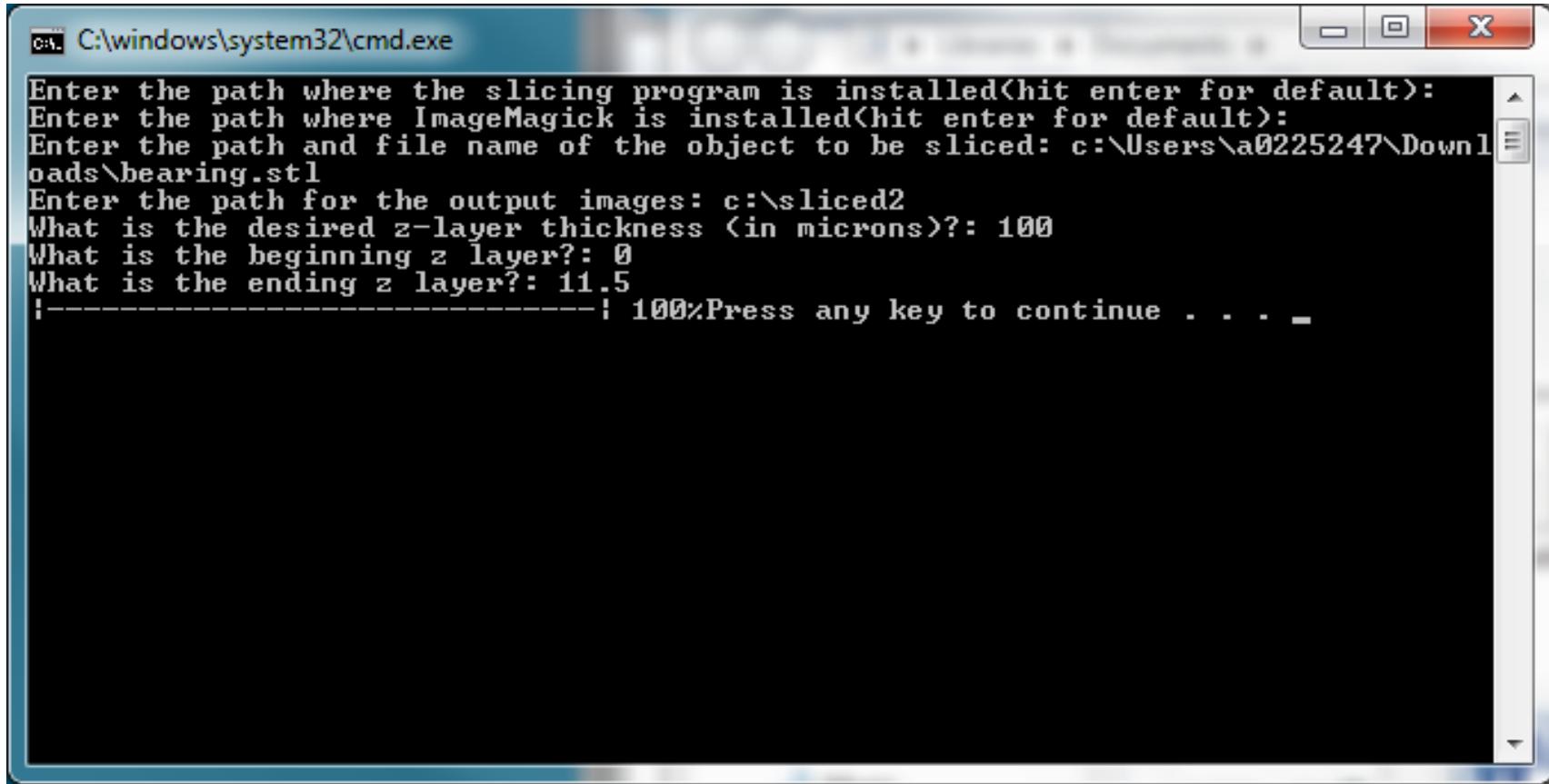
A screenshot of a Windows Command Prompt window titled 'cmd.exe' with the path 'C:\windows\system32\cmd.exe'. The window contains the following text, which is a series of prompts for a slicing program:

```
Enter the path where the slicing program is installed(hit enter for default):  
Enter the path where ImageMagick is installed(hit enter for default):  
Enter the path and file name of the object to be sliced: c:\Users\...\Downloads\bearing.stl  
Enter the path for the output images: c:\sliced2  
What is the desired z-layer thickness (in microns)?: 100  
What is the beginning z layer?: 0  
What is the ending z layer?: 11.5  
!-----! 4z_
```

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Wait patiently....

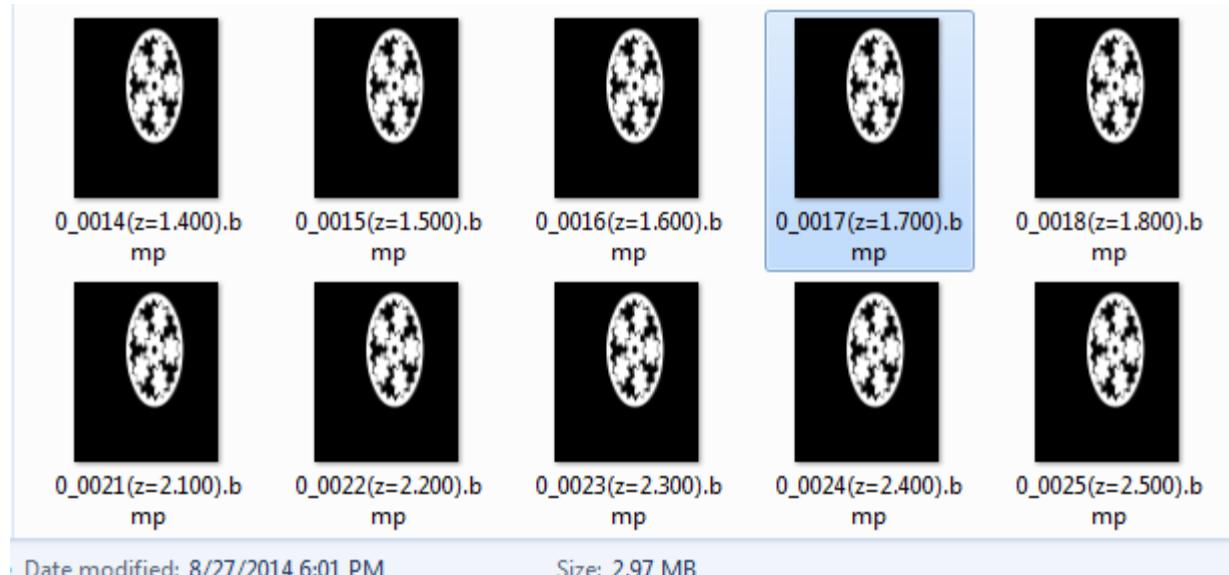
- Wait until the prompt “Press any key to continue . . .” appears
 - Press any key to close the batch script window



```
C:\windows\system32\cmd.exe
Enter the path where the slicing program is installed(hit enter for default):
Enter the path where ImageMagick is installed(hit enter for default):
Enter the path and file name of the object to be sliced: c:\Users\a0225247\Downloads\bearing.stl
Enter the path for the output images: c:\sliced2
What is the desired z-layer thickness (in microns?): 100
What is the beginning z layer?: 0
What is the ending z layer?: 11.5
!-----| 100%Press any key to continue . . .
```

Check the output files

- Using file explorer, navigate to the output directory specified in the batch script
- Verify that the images were created and are resized to 912x1140
 - 912x1140 is the native resolution of the DLP4500 DMD
 - The images must be 912x1140 or the GUI will not upload them to the printer



Date modified: 8/27/2014 6:01 PM

Dimensions: 912 x 1140

Size: 2.97 MB

Date created: 8/27/2014 5:50 PM

You are now ready to print!

- The output directory is now the input to the DLP 3D Printer GUI!

