

Imprimanta 3D Robofun 20x20x20

Manual de instalare



A. Ce avem nevoie pentru instalare

1. **Drive** pentru arduino – www.arduino.cc
2. Software pentru transformarea fisierului .stl (imaginea obiectului de printat) in limbajul inteles de masina (imprimanta) .gcode ; acesta este **Cura**.
3. Soft care transmite fisierul gcode la imprimanta : **Repetier** .

Toate aceste programe sunt **gratuite** .

B. Ce avem nevoie pentru utilizare

1. Un model 3D in format .stl : il descarci de aici <https://www.thingiverse.com/> sau il faci singur;
2. Filament pla sau abs (<https://www.robofun.ro/imprimante-3d/filament-premium-robofun-pla-175>);
3. Rabdare si perseverenta;

Cateva recomandari:

1. Se pote folosi numai REPETIER (are inglobata functionalitatea CURA dar cu mai putine posibilitati de alegere a setarilor si in alt mod dispuse).
2. Daca folositi CURA si apoi REPETIER ,inainte de cuplarea la imprimanta ,opriti CURA (REPETIER si CURA folosesc aceleasi porturi pentru comunicare).
3. Folositi filament de calitate si urmati recomandarile producatorului de filament pentru temperaturi si viteze.
4. Va recomandam sa urmariti filmele (aveti link-uri la sfarsitul acestui manual).
5. Incepeti cu piese simple , fara multe detalii.
6. Tineti seama de informatiile pe care le dau CURA si REPETIER despre print : timp , cantitate (g) , lungime filament , numar de straturi.
7. Asezati imprimanta pe o suprafata plana si destul de rigida , tineti seama ca in timpul printarii nu puteti folosi calculatorul pentru programe consumatoare de resurse (memorie , procesare) si dezactivati screen saver si hibernate.
8. Aici : <http://www.thingiverse.com/> gasiti o colectie vasta de modele 3D.

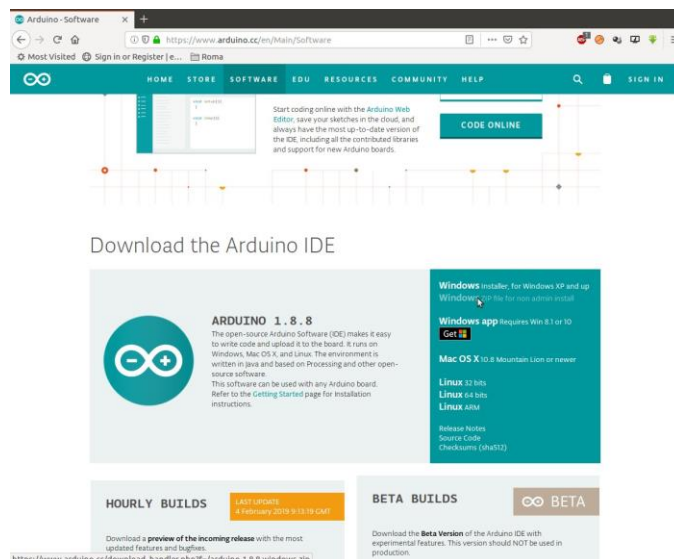
NOTA: Programele pe care le descarci pot fi alte versiuni fata de cele din imagini, dar au aceleasi functionalitati.

Pasul 1 - DRIVERE Arduino

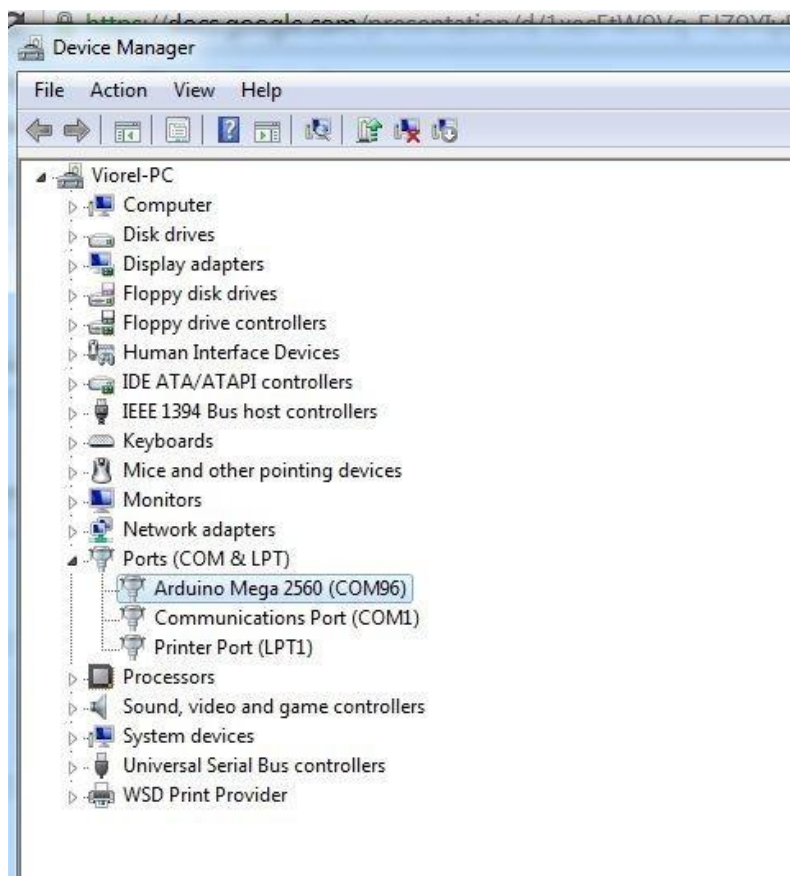
<http://arduino.cc>

Download DRIVERE

Dezarhivezi zip-ul, infigi imprimanta in USB, selectezi “Have Drivers”, ii indici folder-ul “drivers” din folder-ul dezarhivat.



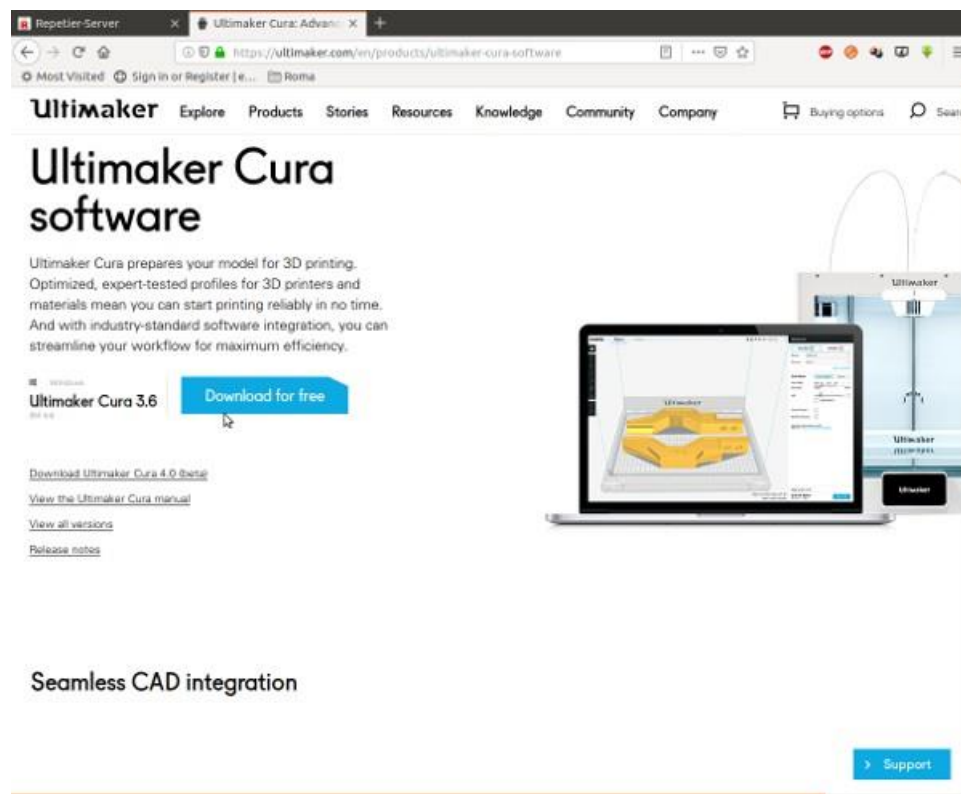
In Device Manager ar trebui sa vezi un nou port marcat “Arduino Mega 2560”.



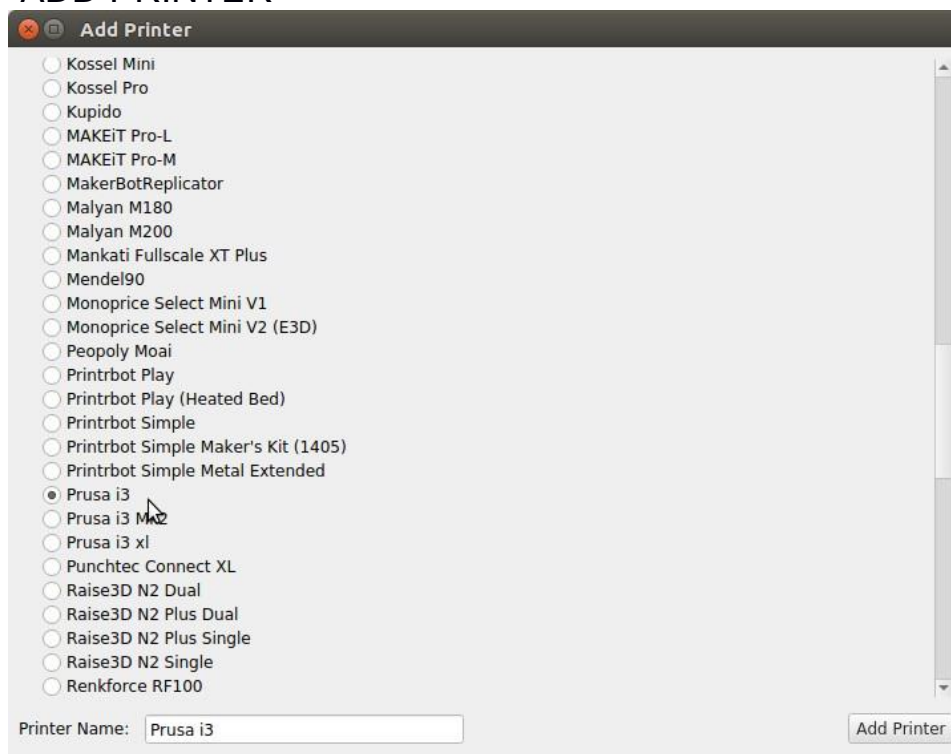
Pasul 2: CURA - download si configurare

<https://ultimaker.com/en/products/cura-software/list>

Il downloadezi si il instalezi

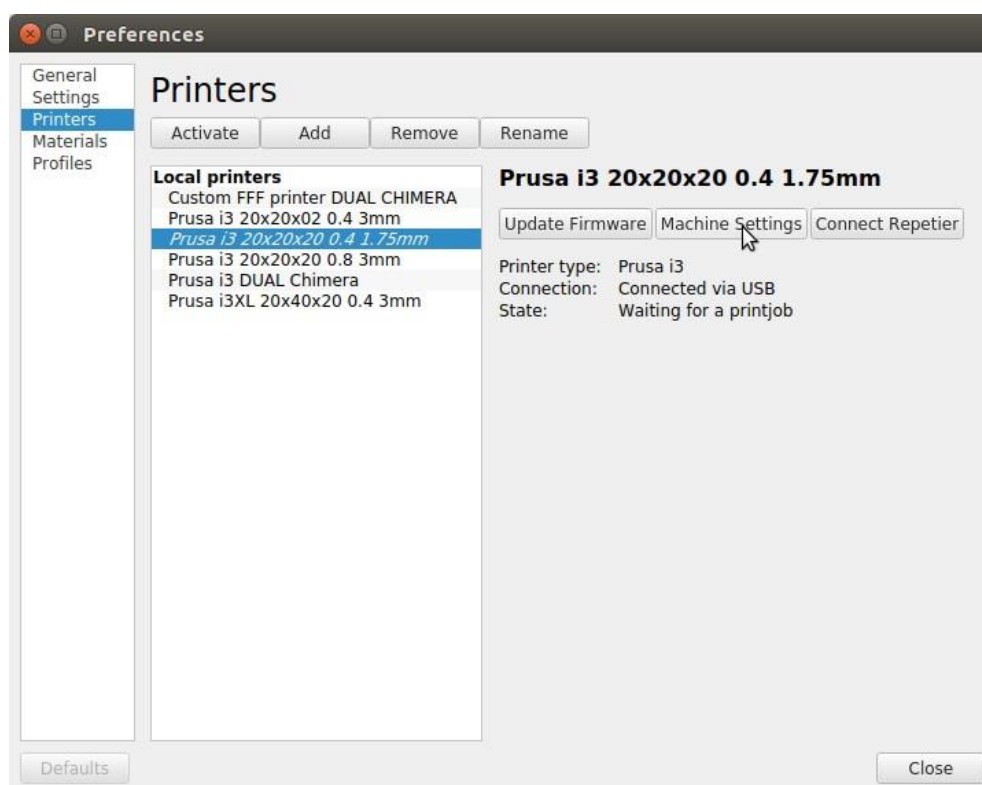


CURA- ADD PRINTER



Alegem modelul .imprimantei
CURA PRINTER

Aici alegem imprimanta, ii dam nume si facem primele setari.
CURA MACHINE SETTINGS



Modifica start.code ca mai jos (start code este un set de comenzi care pregatesc masina si se executa inainte de print)

```
=====
G21; [mm] mode
G91;set relative position
G1 Z5;raise head
G28 X0 Y0;endstops for X and Y
M104 S210; heat up
G90;absolute position
G92 E0;zero extruder
G1 Z15;raise head
G92 E0 X0 Y0;zero for X Y axes
```

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G1 X40.00 F2000;move X axis 40 mm

G92 X0;zero X axis

G28 Z0;endstop for Z

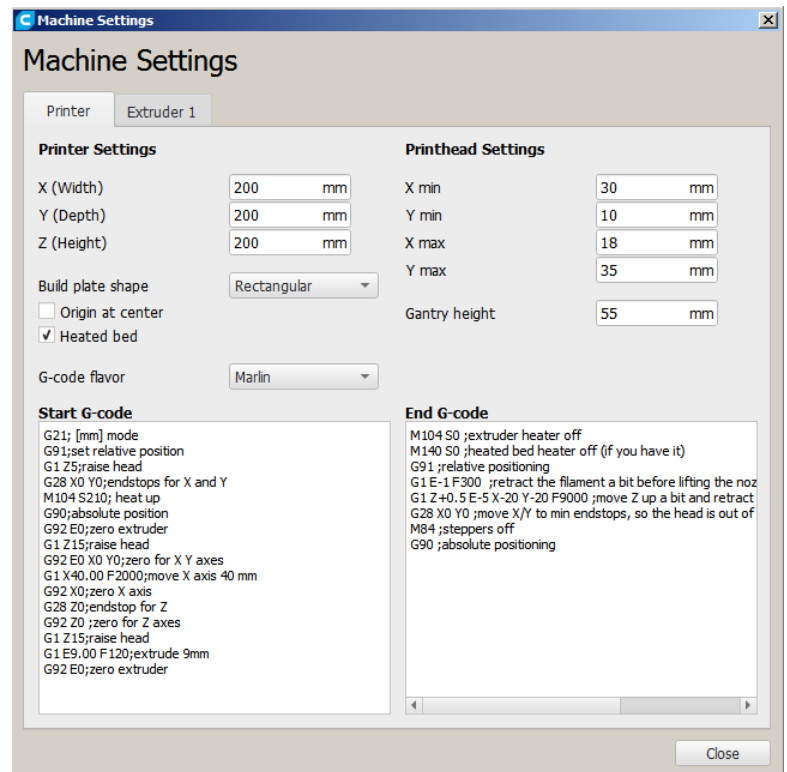
G92 Z0 ;zero for Z axes

G1 Z15;raise head

G1 E9.00 F120;extrude 9mm

G92 E0;zero extruder

=====

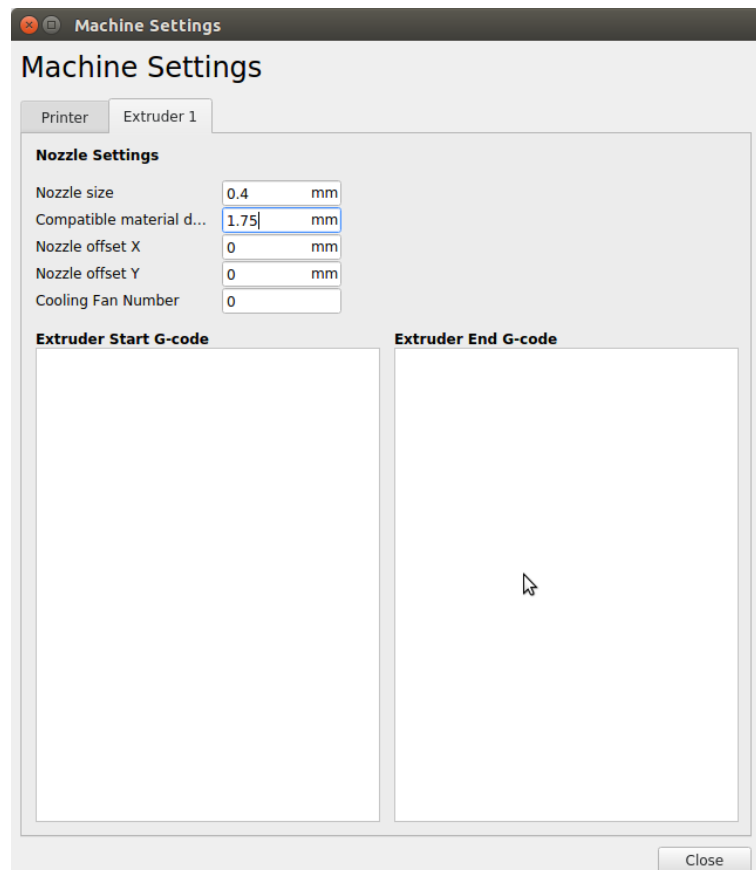


CURA MACHINE SETTINGS

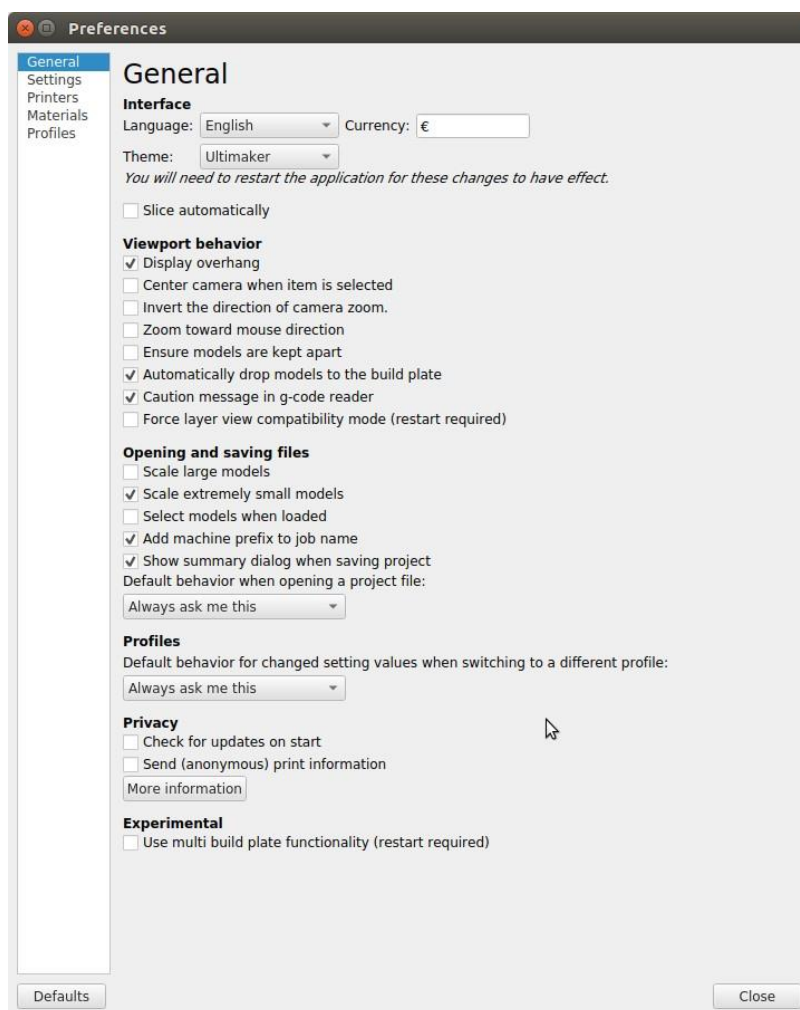
Seteaza caracteristicile de baza :

diametrul duzei - 0.4mm

diametrul materialului – 1.75 mm

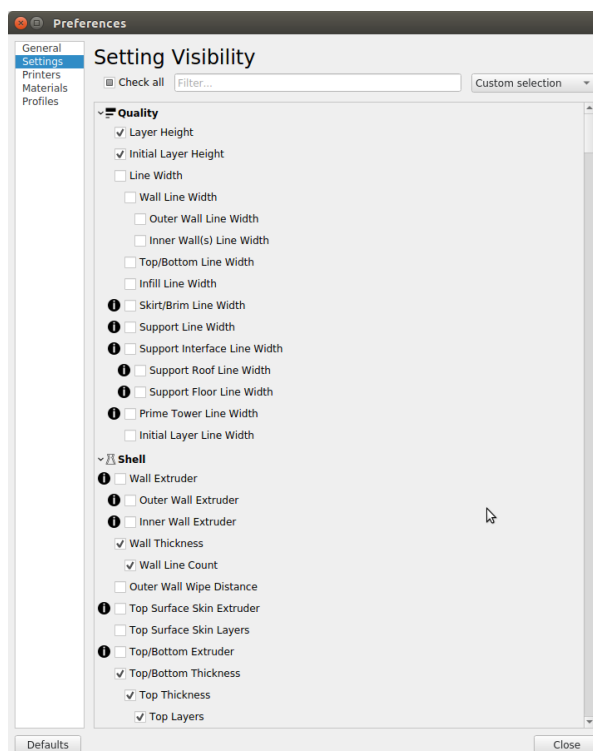


Setari generale Cura



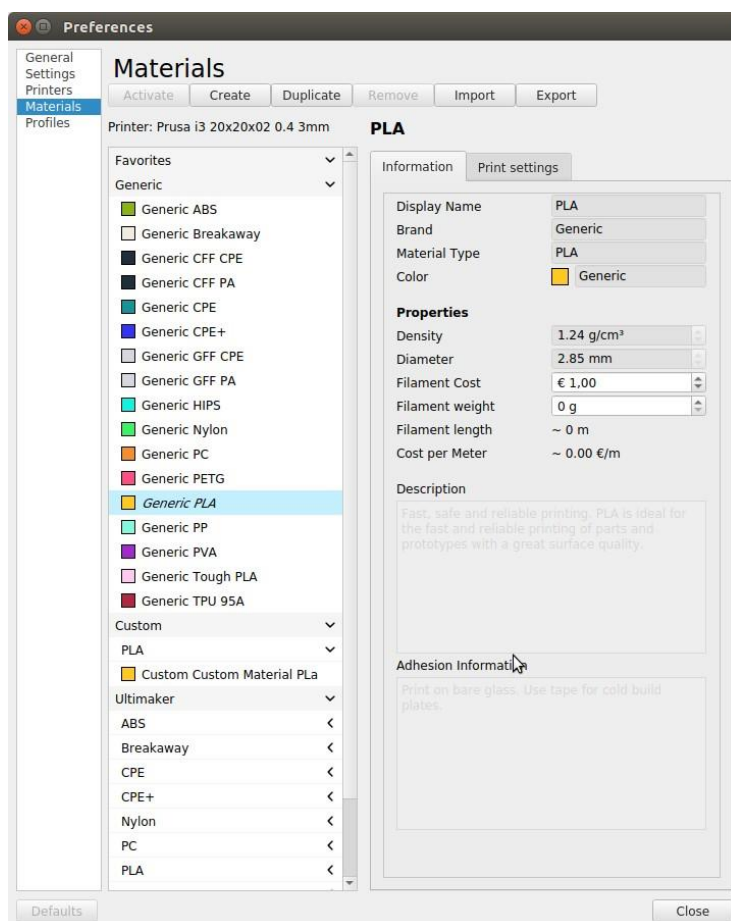
Setari avansate Cura

Panoul de setari avansate :
(principalele setari si suficiente
pentru majoritatea lucrarilor
le gasiti in pag. 9)



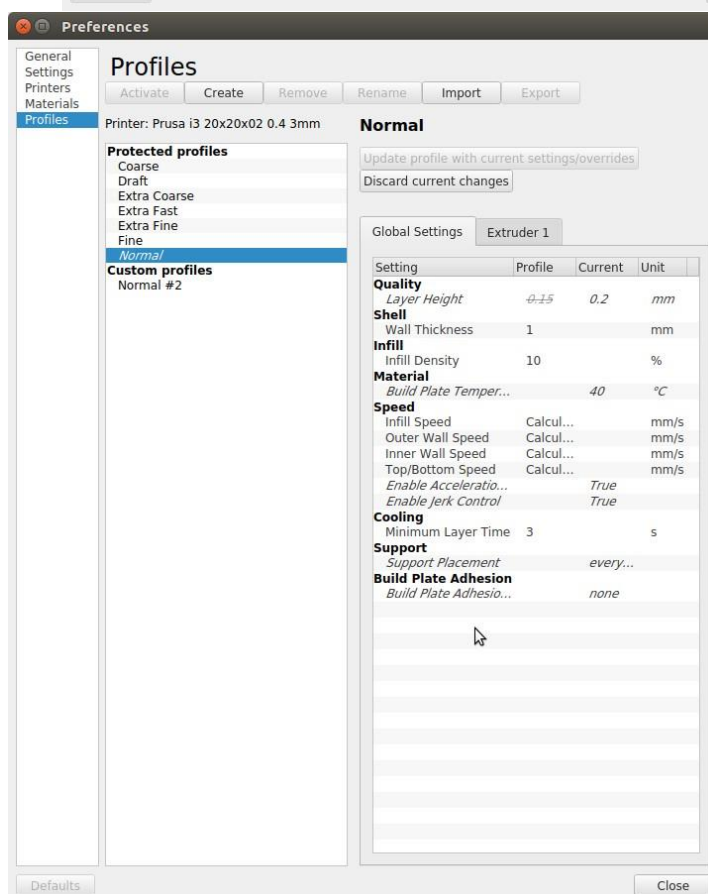
CURA MATERIAL

Aici ne putem defini tipul si caracteristicile materialului pentru printare .



CURA PROFILES

Daca ne-am definit un set de caracteristici cu care printam, le putem pastra intr-un profil.



CURA MACHINE SETTINGS

File Edit View Settings Extensions Marketplace Preferences Help

Cura Prepare Monitor

Prusa i3 20x20x20 0.4 1.75mm

Material: PLA

[Check compatibility](#)

Print Setup Recommended Custom

Profile: Normal - 0.15mm

Search...

Quality

Layer Height: 0.2 mm

Initial Layer Height: 0.3 mm

Shell

Wall Thickness: 1 mm

Wall Line Count: 2

Top/Bottom Thickness: 1 mm

Top Thickness: 1 mm

Top Layers: 5

Bottom Thickness: 1 mm

Bottom Layers: 5

Horizontal Expansion: 0 mm

Infill

Infill Density: 20 %

Infill Pattern: Lines

Material

Printing Temperature: 210 °C

Build Plate Temperature: 40 °C

Enable Retraction: ☒

Retract at Layer Change: ☐

Retraction Distance: 3 mm

Retraction Speed: 50 mm/s

Please load a 3D model

Material: PLA

[Check compatibility](#)

Print Setup Recommended Custom

Profile: Normal - 0.15mm

Search...

Enable Retraction: ☒

Retract at Layer Change: ☐

Retraction Distance: 3 mm

Retraction Speed: 50 mm/s

Speed

Print Speed: 50 mm/s

Infill Speed: 50 mm/s

Wall Speed: 25.0 mm/s

Outer Wall Speed: 50 mm/s

Inner Wall Speed: 50 mm/s

Top/Bottom Speed: 50 mm/s

Enable Acceleration Control: ☒

Print Acceleration: 1000 mm/s²

Travel Acceleration: 2000 mm/s²

Travel

Z Hop When Retracted: ☐

Support

Generate Support: ☐

Build Plate Adhesion

Build Plate Adhesion Type: None

Dual Extrusion

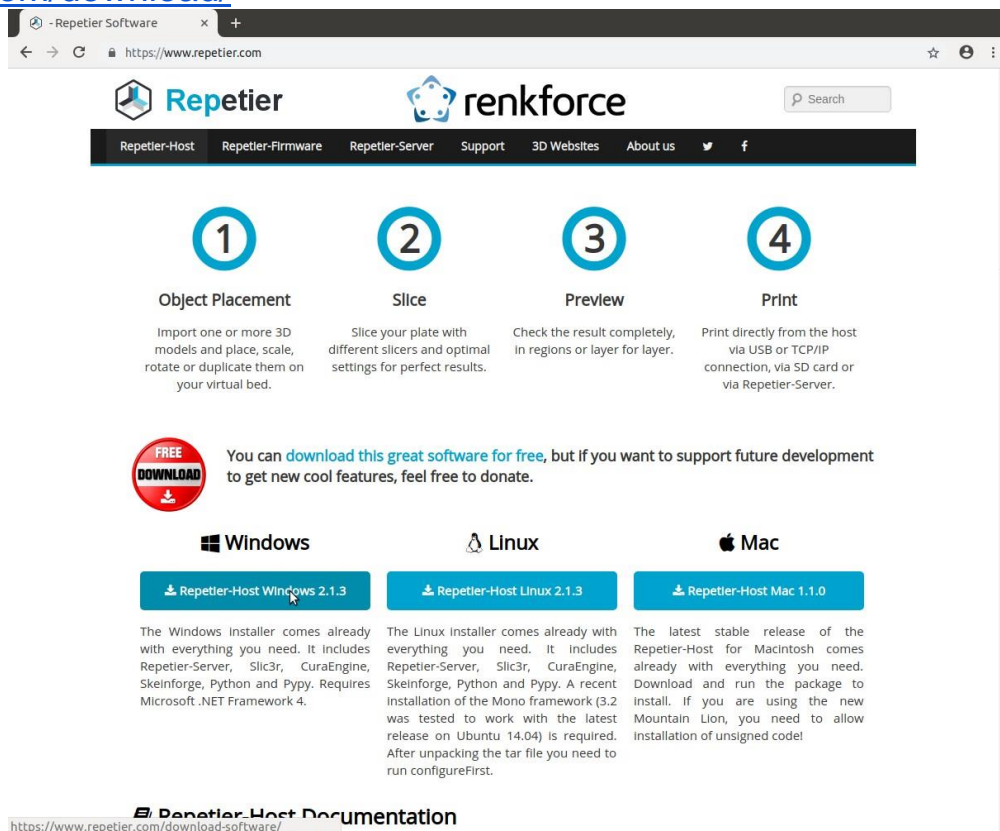
Experimental

Please load a 3D model

00h 00min
0.00m / ~ 0g

0.0 x 0.0 x 0.0 mm

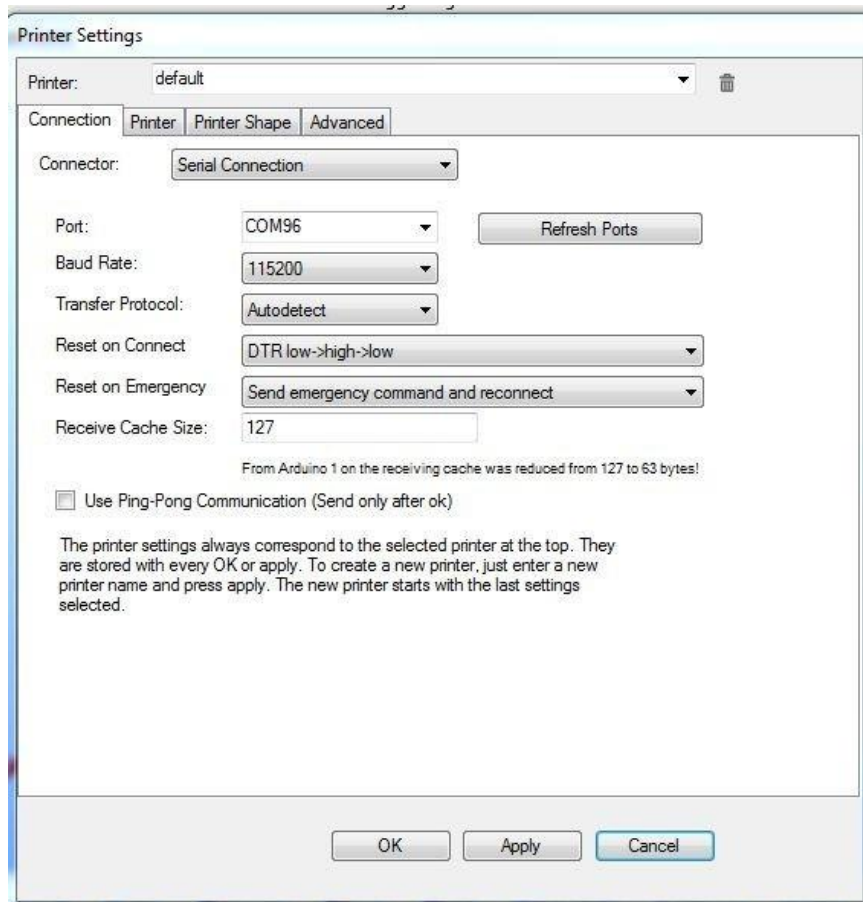
Il downloadezi
si il instalezi



The screenshot shows the Repetier website with a navigation bar and a main content area. The main content area has four numbered steps: 1. Object Placement, 2. Slice, 3. Preview, and 4. Print. Below these steps is a 'FREE DOWNLOAD' button. Underneath, there are three sections for Windows, Linux, and Mac, each with a download button and a description of the installer. The Windows section mentions that the installer includes Repetier-Server, Slic3r, CuraEngine, Skeinforge, Python and Pypy, and requires Microsoft .NET Framework 4. The Linux section mentions that the installer includes Repetier-Server, Slic3r, CuraEngine, Skeinforge, Python and Pypy, and requires the Mono framework (3.2) and Ubuntu 14.04. The Mac section mentions that the installer includes Repetier-Server, Slic3r, CuraEngine, Skeinforge, Python and Pypy, and requires the Mono framework (3.2) and Ubuntu 14.04.

REPETIER

Config -> Printer Settings
modifici Port (vezi ce port
are Arduino) si Baud Rate

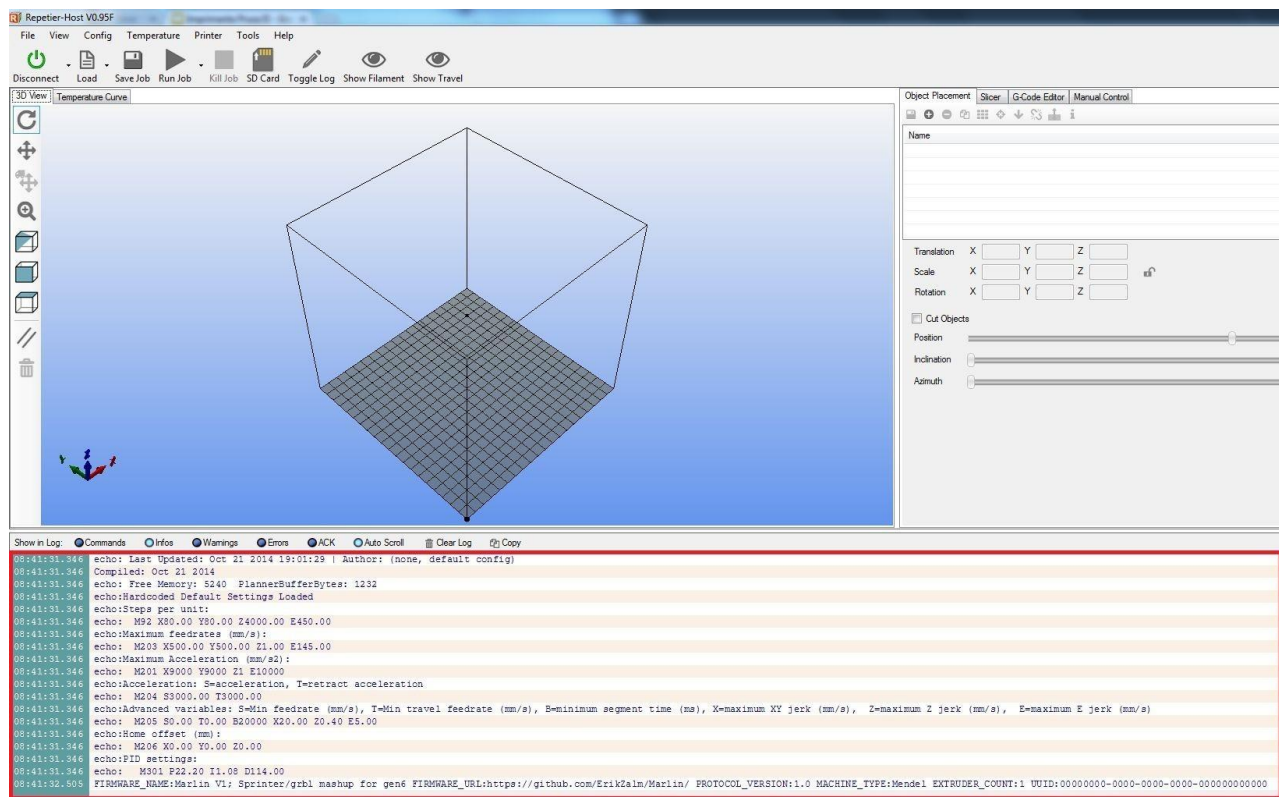


The screenshot shows the 'Printer Settings' dialog box. The 'Printer' dropdown is set to 'default'. The 'Connection' tab is selected. The 'Connector' is set to 'Serial Connection'. The 'Port' is set to 'COM96'. The 'Baud Rate' is set to '115200'. The 'Transfer Protocol' is set to 'Autodetect'. The 'Reset on Connect' is set to 'DTR low->high->low'. The 'Reset on Emergency' is set to 'Send emergency command and reconnect'. The 'Receive Cache Size' is set to '127'. There is a checkbox for 'Use Ping-Pong Communication (Send only after ok)'. At the bottom, there are 'OK', 'Apply', and 'Cancel' buttons.

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apesi "Connect", trebuie sa vezi ca in imagine



Se aplica lipici pe bed (pe sticla) o data la fiecare 10-15 print-uri Dupa aplicare se lasa sa se usuce 5-10 minute inainte de print In principiu, orice lipici similar va functiona, inasa cu BIC am obtinut cele mai bune rezultate

O alta alternativa pentru acoperirea bed-ului este banda adeziva Tesa 4435

<https://www.dedeman.ro/ro/banda-mascare-tesa-4435-albastra-exterior-rezistenta-la-uv-50-mm/p/5007800>

Noi am obtinut intotdeauna rezultate mult mai bune cu lipiciul BIC fata de banda adeziva, recomandam lipici BIC.



Tutoriale Video

<https://vimeo.com/93221203>

<https://vimeo.com/93233253>

parola : robofun

https://www.youtube.com/watch?v=PcXW_7-FaFA

<https://www.youtube.com/watch?v=MboQjmYBlak>

https://www.youtube.com/watch?v=1_u73VKTuEg

<https://www.youtube.com/watch?v=5vCU6mEhAdc>

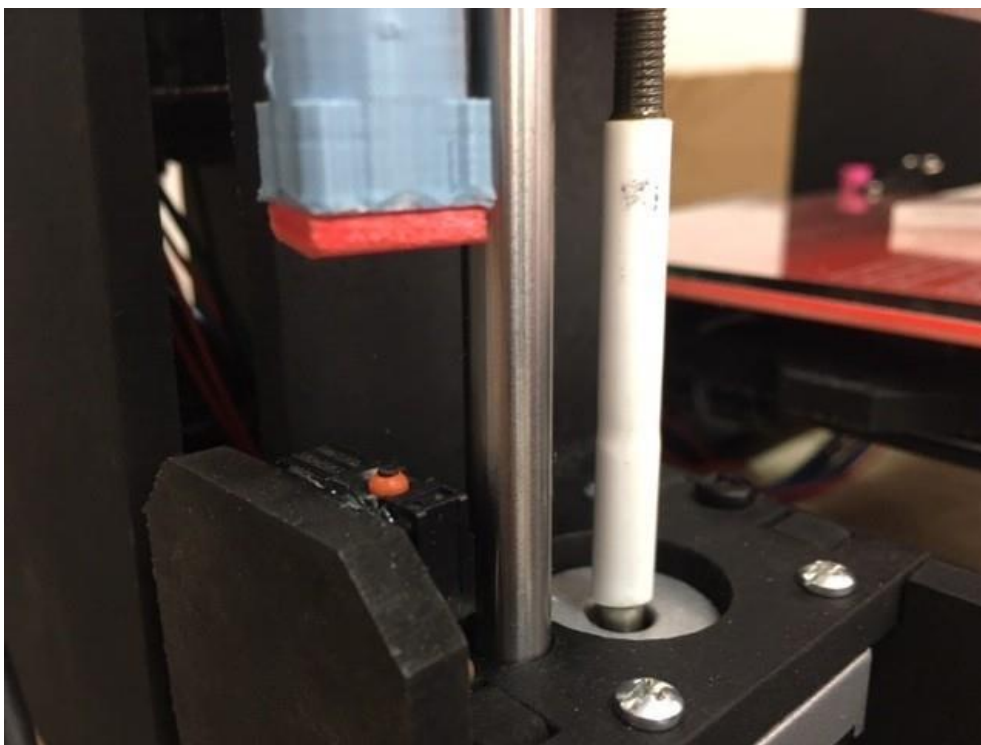
Schimbarea filamentului (FF IMPORTANT !)

1. se incalzeste hotend-ul la 205 grade
2. se asteapta 5 minute
3. se extrudeaza astfel circa 10 cm de filament
(masurati in zona groasa a filamentului, deasupra extruder-ului, NU in zona in care iese din hotend); procesul dureaza vreo 30 de secunde cel putin
4. se extrage filamentul apasand butonul corespunzator din Repetier sau apasand pe levierul extruderului si tragand filamentul
5. se taie oblic noul filament
6. se introduce noul filament ,tinand apasat levierul extruderului pana cand apare in tubul de teflon, apoi se poate actiona din Repetier avans rapid sau extrudare

daca se sare pasul 3, infundarea hotend-ului este aproape garantata :)

Pozitia de zero

- reglaj din elementul mobil din stanga (cel care apasa pe butonul endstop)



Orizontalitatea patului incalzit

- reglaj din cele patru piulite

Cele 4 piulite din colturile
patului incalzit



Intrebari, dificultati, print-uri esuate ?

Te ajutam cu placere !

Pe **robofun.ro**, sectiunea helpdesk :

<https://www.robofun.ro/helpdesk/open.php#consultanta-tehnica>

sau

email contact@robofun.ro

daca ne spui 2-3 vorbe despre ce e nu e in regula, screenshot-uri cu ecranele de setari din Cura (tab-ul Basic si tab-ul Advanced), cateva poze cu obiectul printat

Promitem un raspuns foarte rapid la astfel de emailuri :)