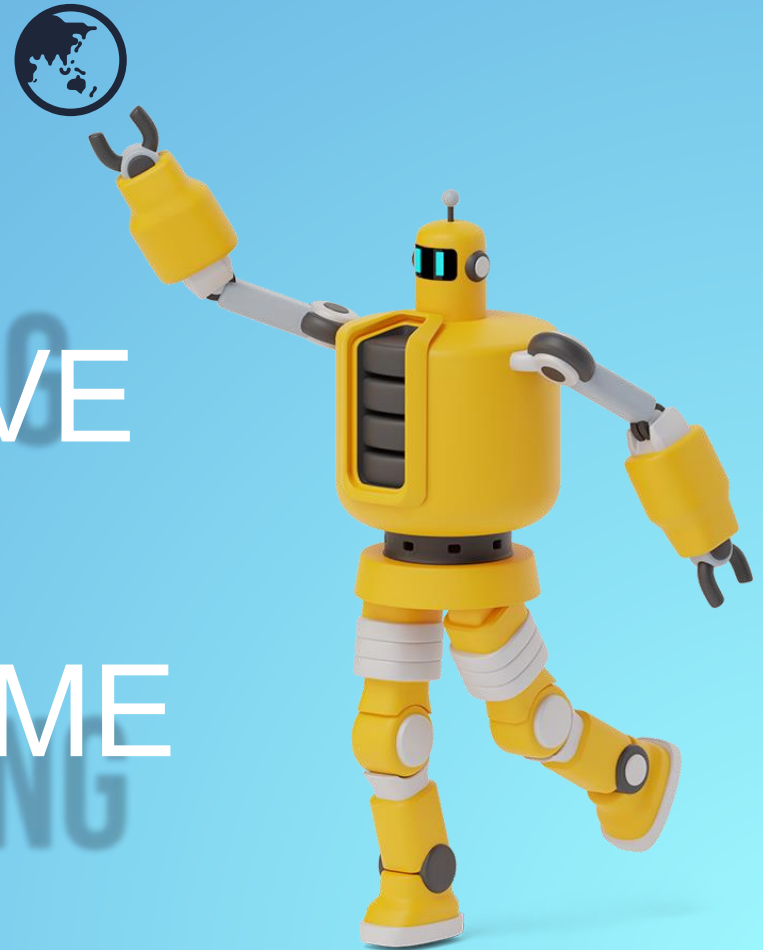




3D BASKI VE

3D

MODELLEME



# GİRİŞ

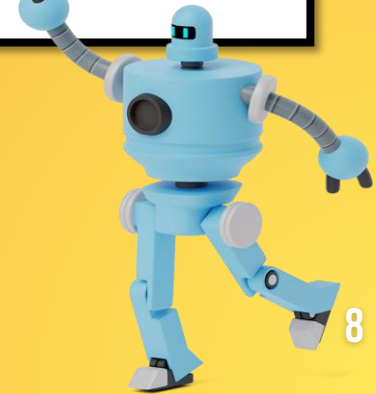
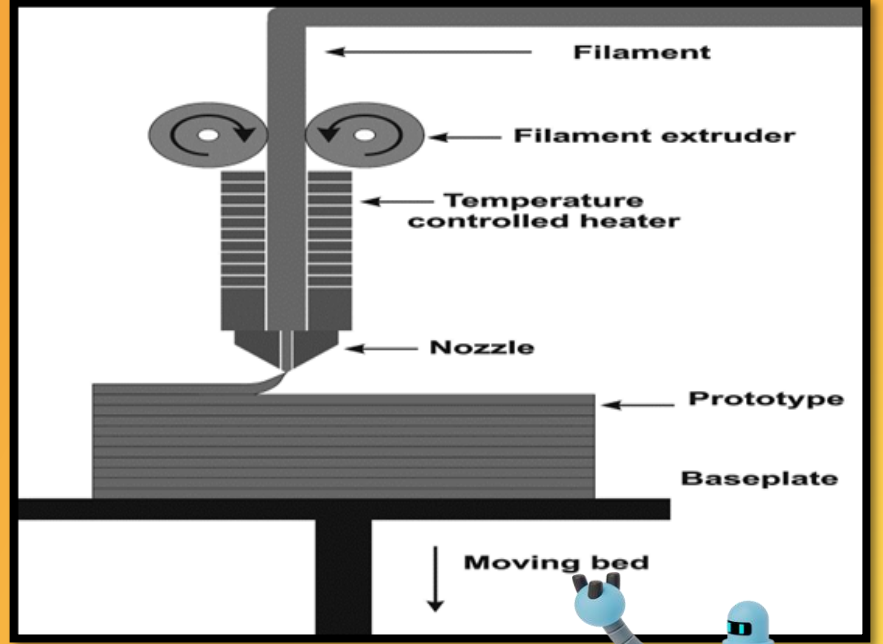


# 3 Boyutlu Yazıcı Tipleri



# Sigortalı Biriktirme Modellemesi (FDM)

Piyasadaki en popüler olan, en uygun fiyatlı 3D baskı teknolojisi, malzemeleri katman katman uygulayarak, son derece hassas bir sıcak tutkal tabancası gibi üç boyutlu desenler oluşturarak çalışır.



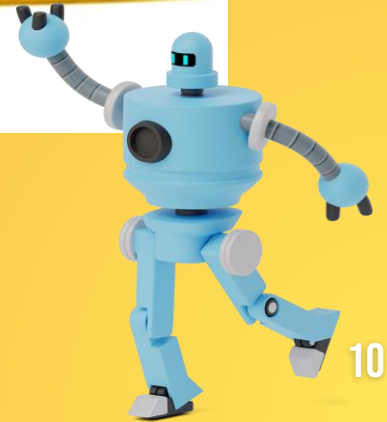
# STEREOLITHOGRAFİ (SLA)

SLA, ışığa duyarlı bir sıvı reçine tabakasını bir ultraviyole lazer ışınına maruz bırakır, böylece reçine sertleşir ve katılaşır. Nesne katman katman yazdırılır ve her katman bir öncekinin üzerine inşa edilir.



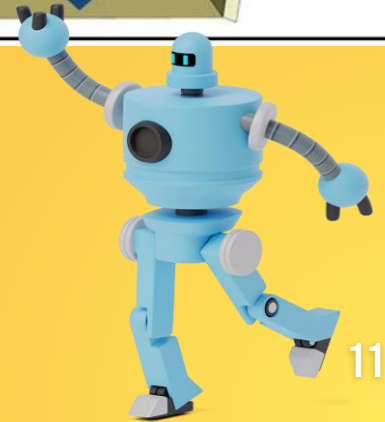
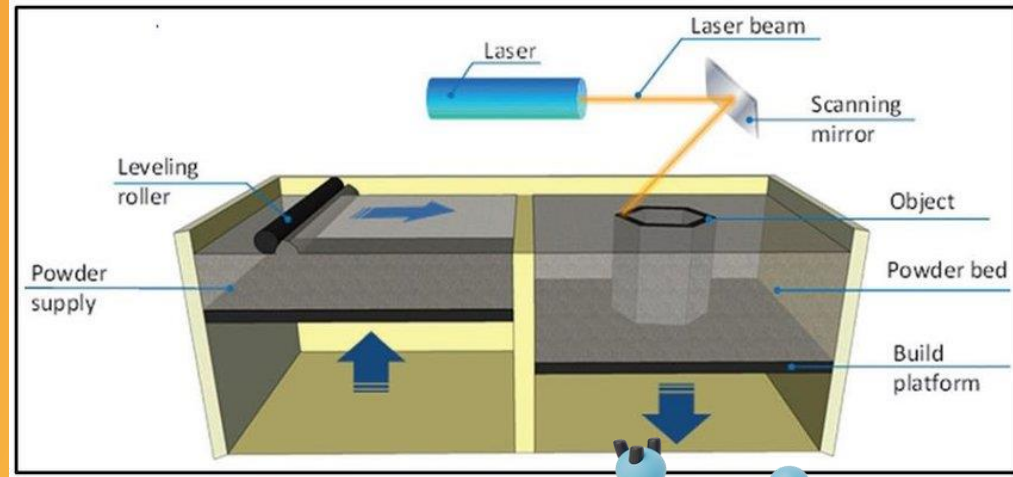
# Dijital Işıık İřleme (DLP)

Dijital ışık işleme, sıvı reçineyi ışık kullanarak sertleřtirmesi bakımından SLA'ya benzer. İki teknoloji arasındaki temel fark, DLP'nin bir dijital ışık projektör ekranı kullanması ve SLA'nın bir UV lazer kullanmasıdır.



# (SLM)Seçici Lazer Ergitme

SLM uses a high powered laser beam to fully melt metallic powders into solid three-dimensional objects. The object is printed layer by layer. Typical materials used are stainless steel, aluminum, titanium and cobalt chromium.

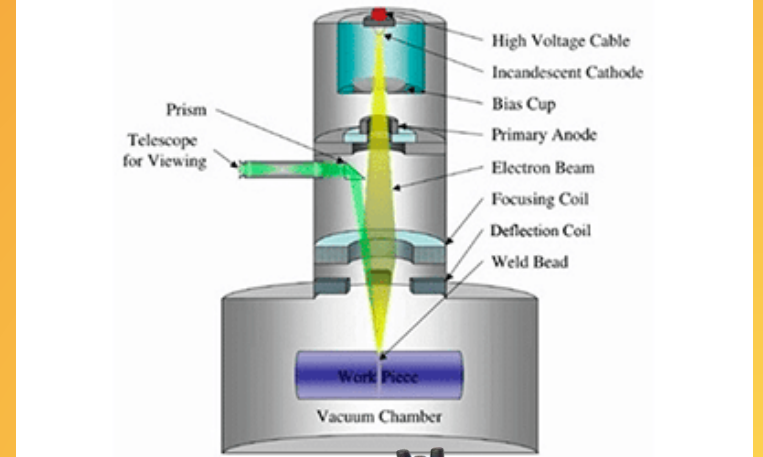


# Elektron Işını Erime

EBM, metalik tozu 1000 °C'ye kadar yüksek sıcaklıklarda tamamen eritmek için yüksek vakum altında bir elektron ışını kullanır. Nesne katman katman yazdırılır.

Bu tür 3D yazıcı, havacılık parçaları ve tıbbi implantlar üretmek için saf titanyum, Inconel718 ve Inconel625 gibi metalleri kullanabilir.

Bu teknoloji türü, öncekilerden daha yavaş ve daha pahalıdır.







# Filament Çeşitleri

# PLA (Polilaktik Asit)

Bu biyolojik olarak parçalanabilen malzeme, 3d baskıda en çok kullanılanlardan biridir.



# PETG (Polietilen tereftalat)

PETG filamenti, tüm filamentlerin en güçlü ve en dayanıklılarından biridir.



# TPU (Polyester Poliüretan)

TPU filament aşınmaya, darbelere ve birçok kimyasala karşı dayanıklıdır. Çok yönlüdür ve birçok farklı endüstride kullanılır.



# Diğerleri



# Dilimleme Çeşitleri



# Dilimleme Çeşitleri

- 3D baskıda, 3D modelli bir dosyaya sahip olmak gerekir (3D formatında çizim). En yaygın dosyalar STL ve OBJ'dir.
- Daha sonra dosyayı 3D yazıcı tarafından okunabilecek özel bir koda (G kodu) dönüştürmek gerekiyor. Bu tür kodlama, dilimleme yazılımı ile yapılır ve işleme dilimleme denir.

# Dilimleyici Seçimi

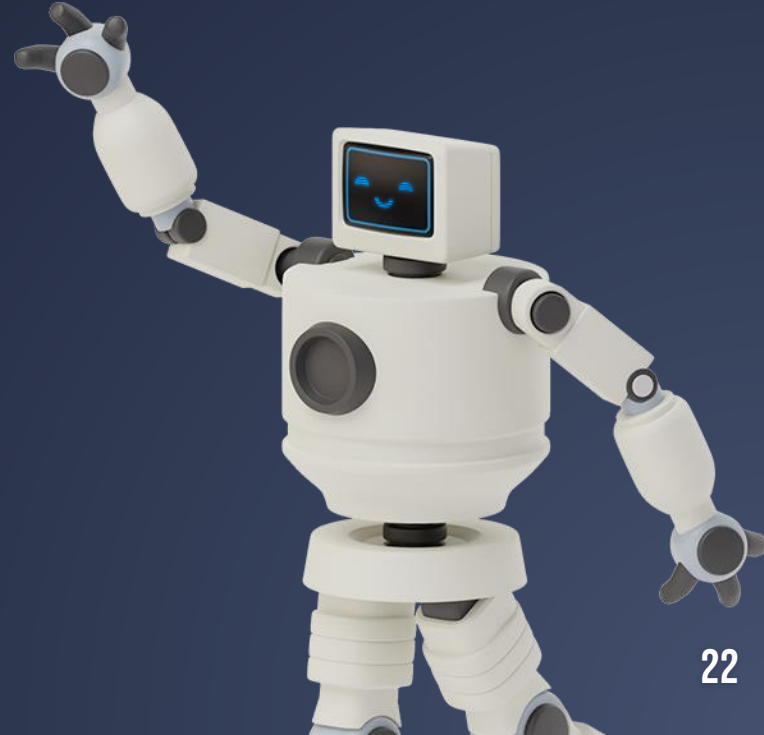
- Dilimleme işleminin sonunda, kullanıcı dosyayı doğrudan bir 3D yazıcıya gönderebilir veya örneğin bir SD karta veya kalem sürücüyü kaydedebilir. Günümüzde dosyayı wi-fi üzerinden de gönderebiliyoruz
- 3D baskı için birkaç dilimleme yazılımı olduğundan, kullanıcının seçebileceği birçok seçeneği vardır.



# Dilimleyici Örnekleri



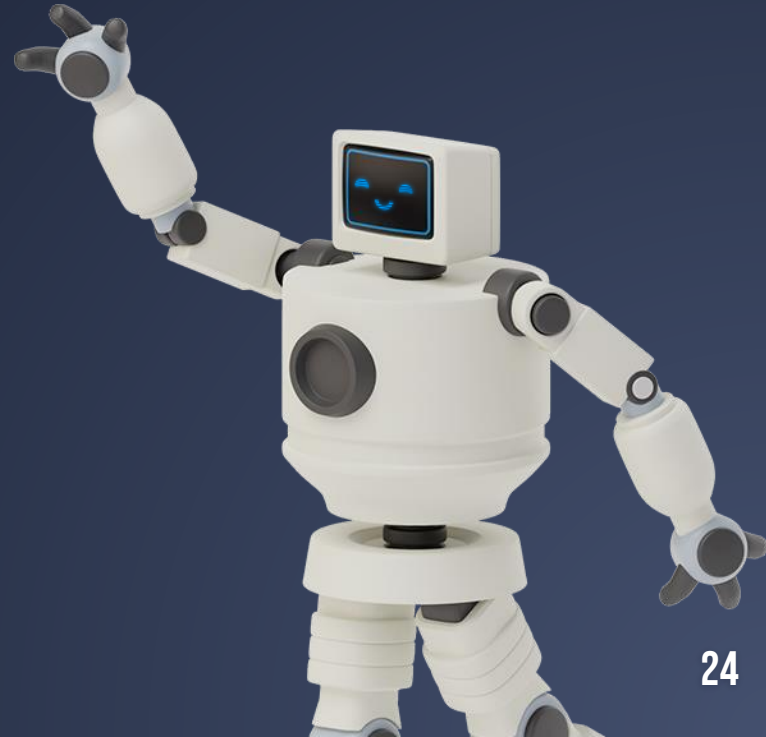
# 3D çizim yazılım türleri



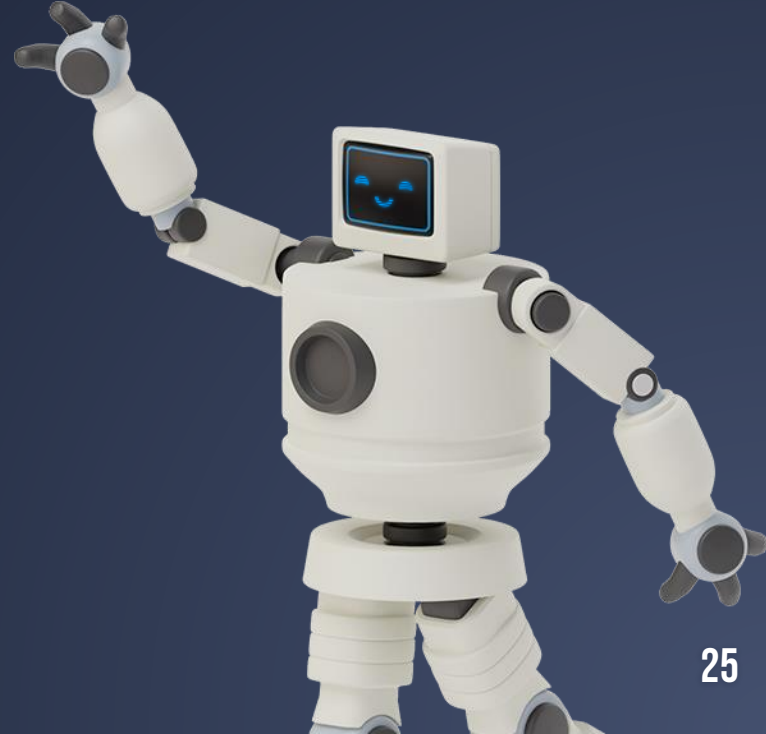
# 3D çizim yazılımı türleri

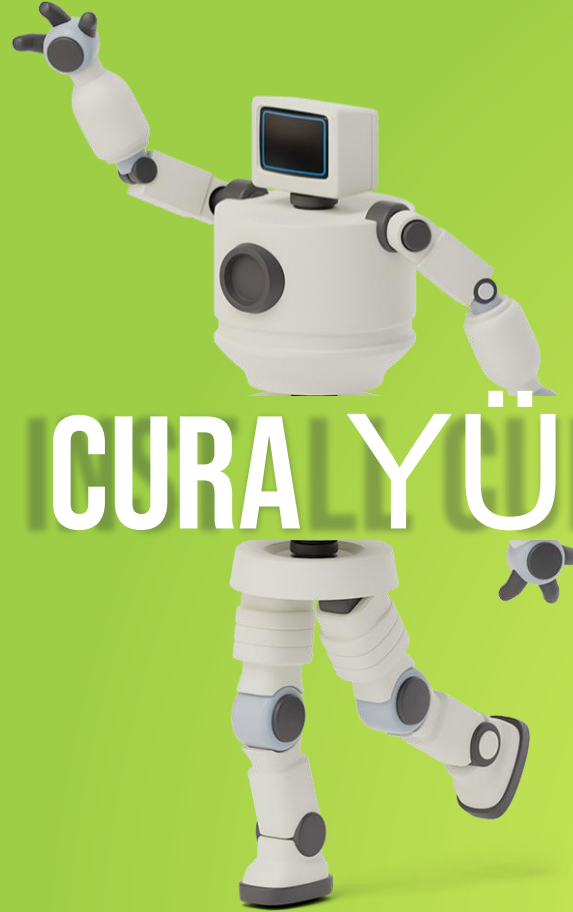


# ONSHAPE



# Hesap Oluřturma





CURA YÜKLEMEK

# CURA YÜKLEMESİ

Linki kopyalayıp yapıştırın(<https://ultimaker.com/software/ultimaker-cura>) on your browser to download Cura Software.

## Ultimaker Cura

Trusted by millions of users, Ultimaker Cura is the world's most popular 3D printing software. Prepare prints with a few clicks, integrate with CAD software for an easier workflow, or dive into custom settings for in-depth control.



Ultimaker Cura 4.11

[Download for free](#)

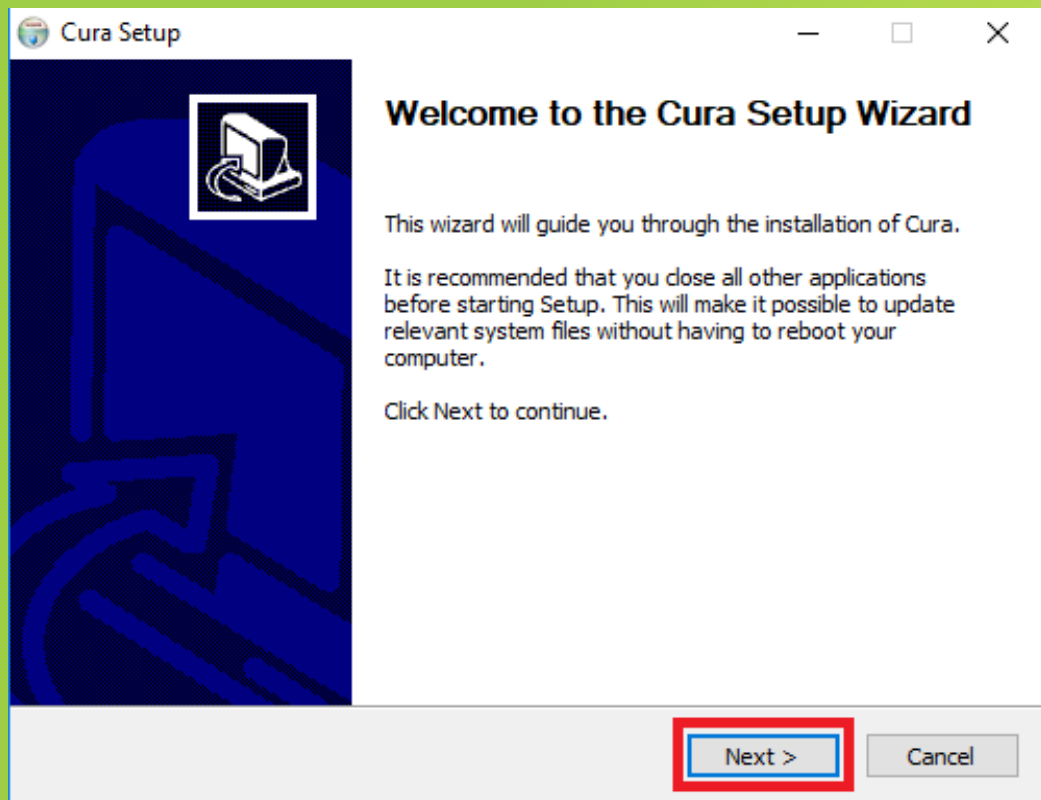
[Own an Ultimaker?](#)

[Find previous versions](#)

[System requirements](#)

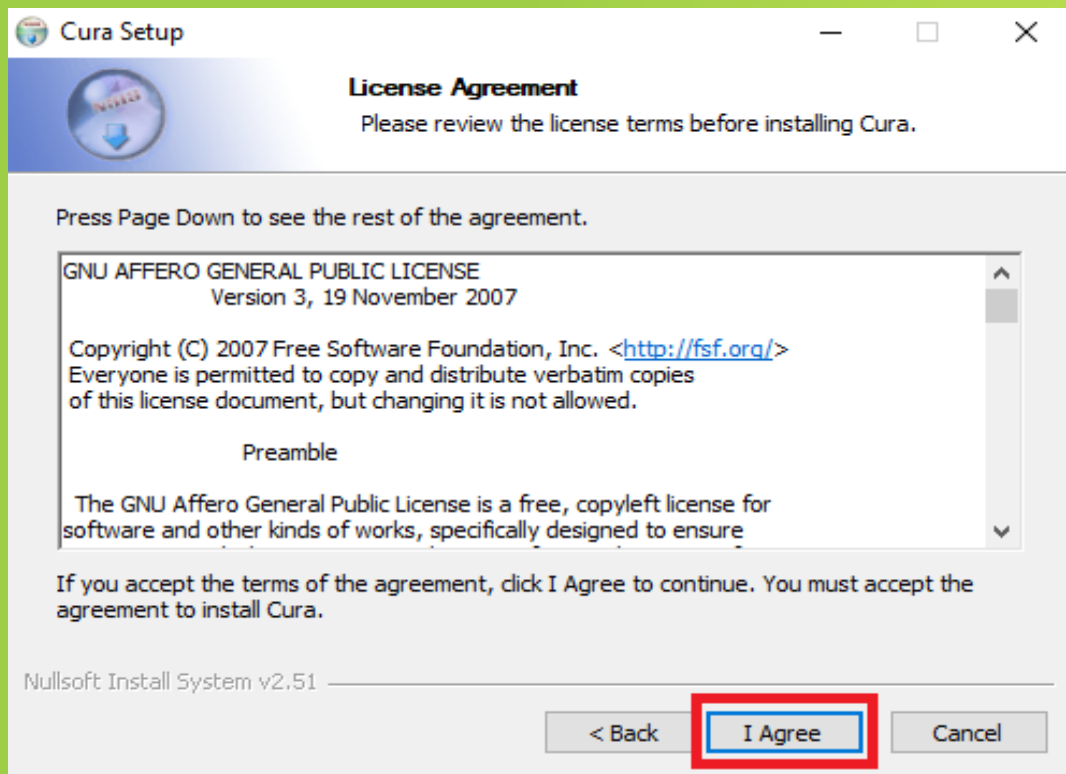


# CURA Yüklemesi

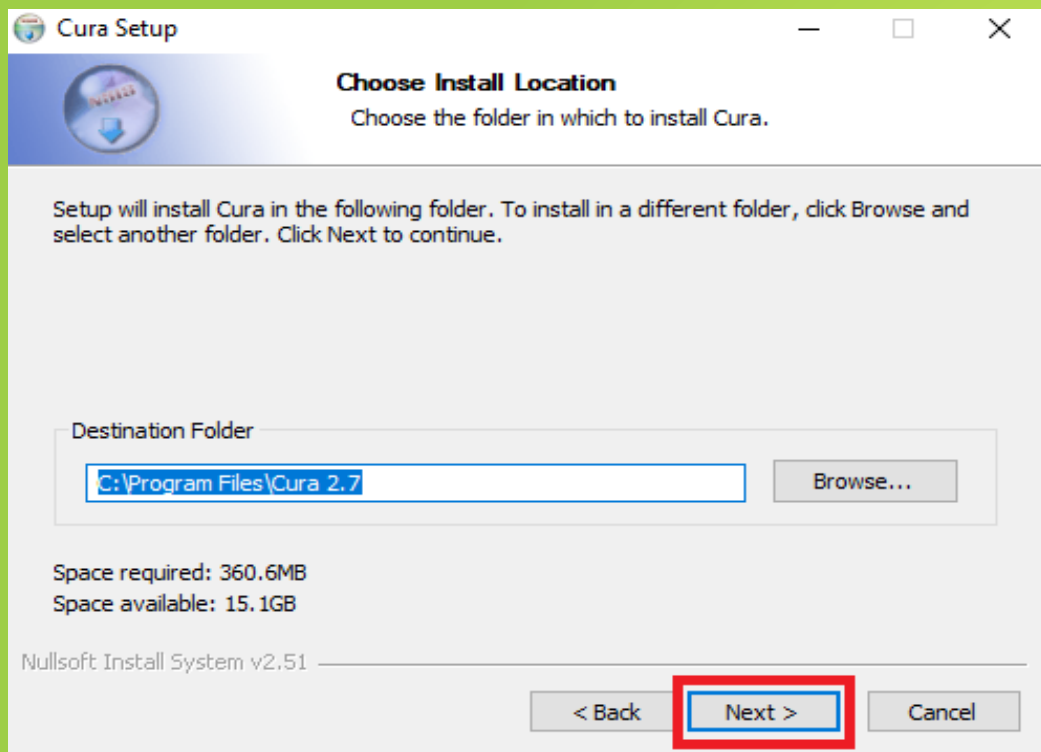




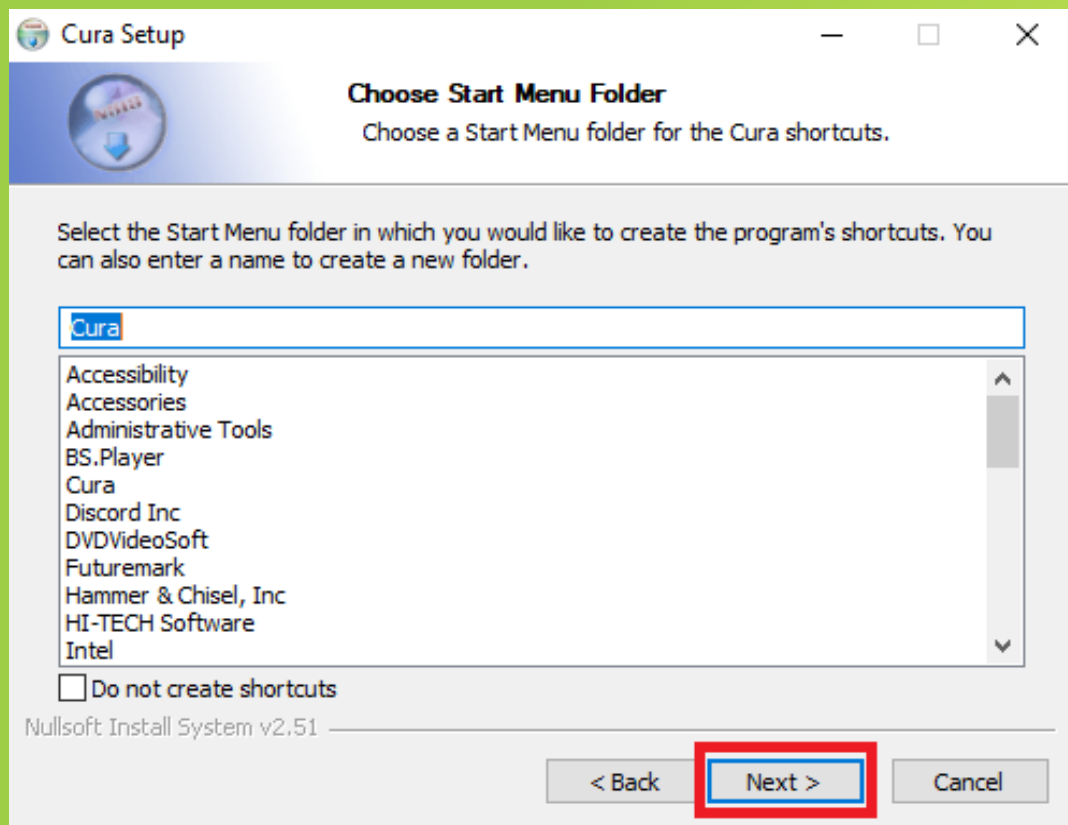
# CURA yüklemesi



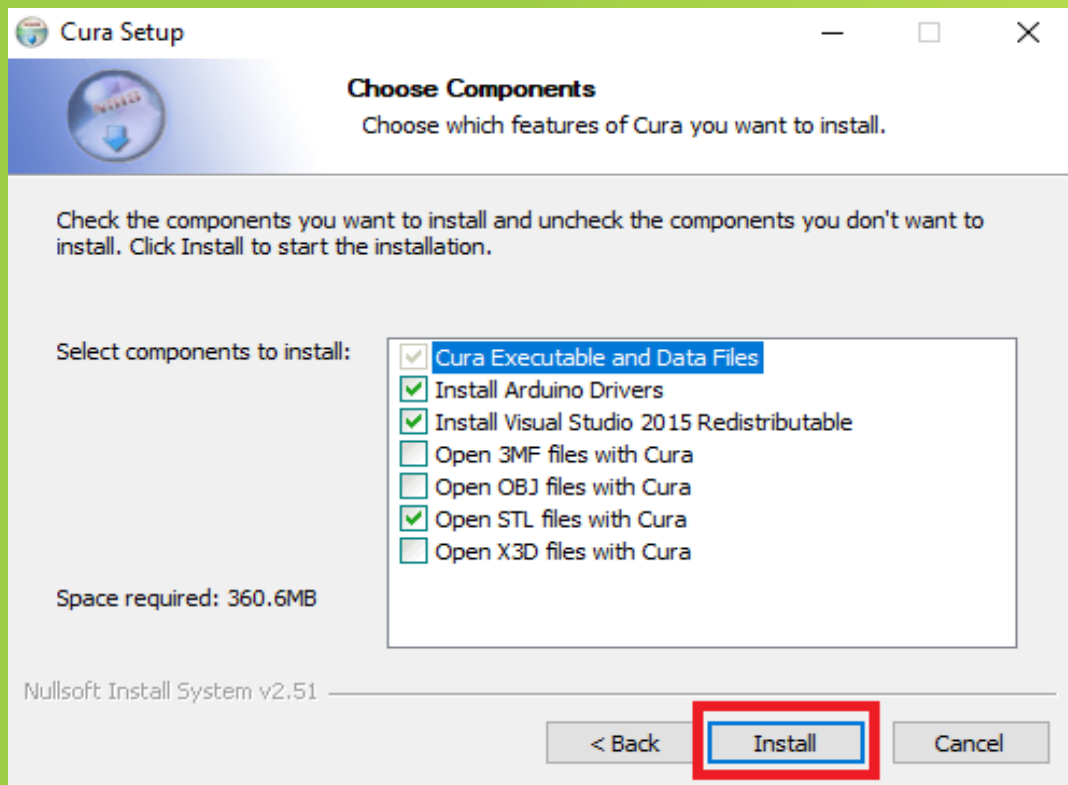
# CURA yüklemesi



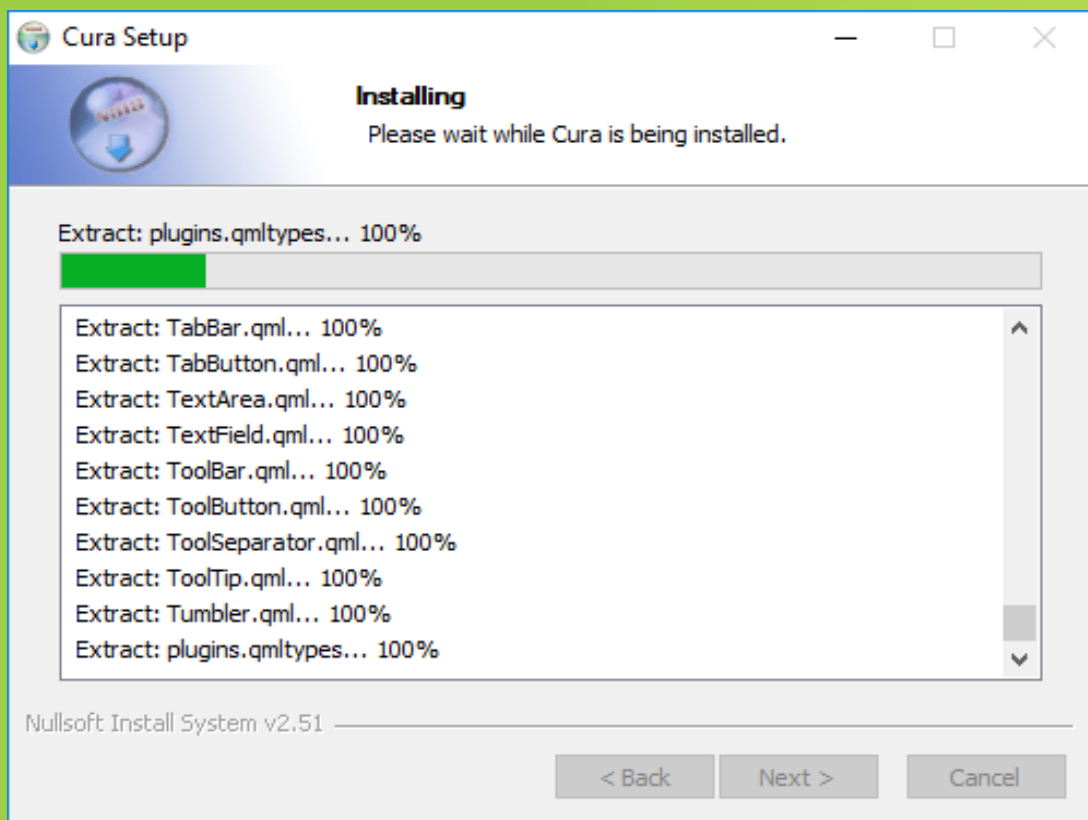
# CURA yüklemesi



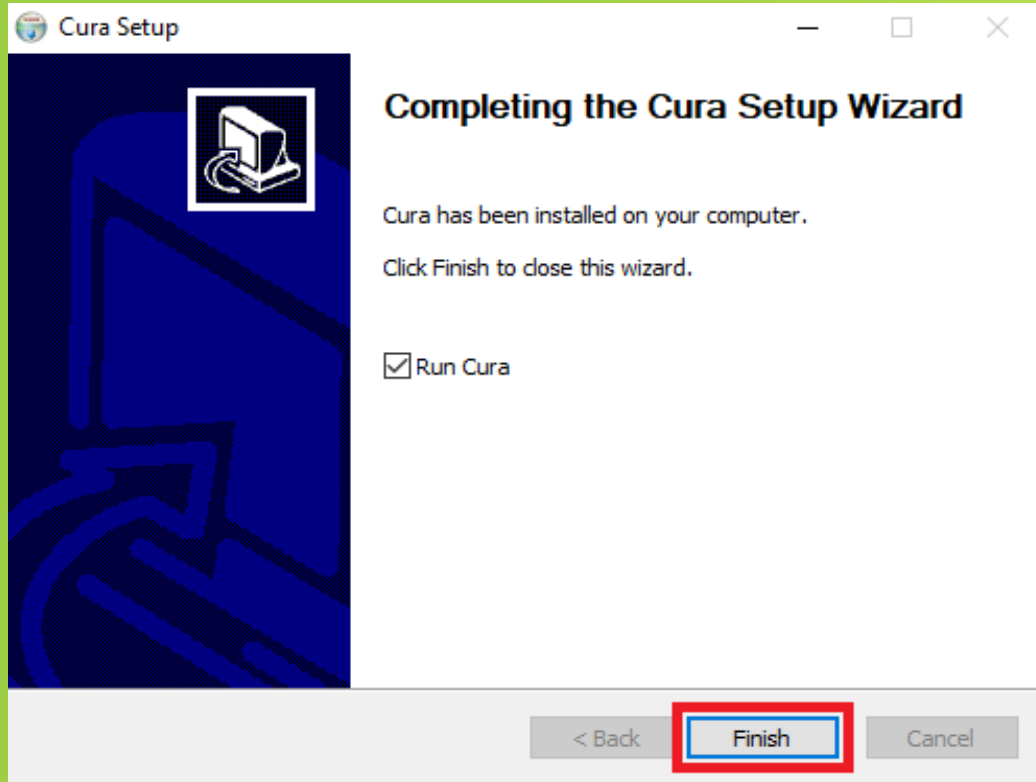
# CURA yüklemesi



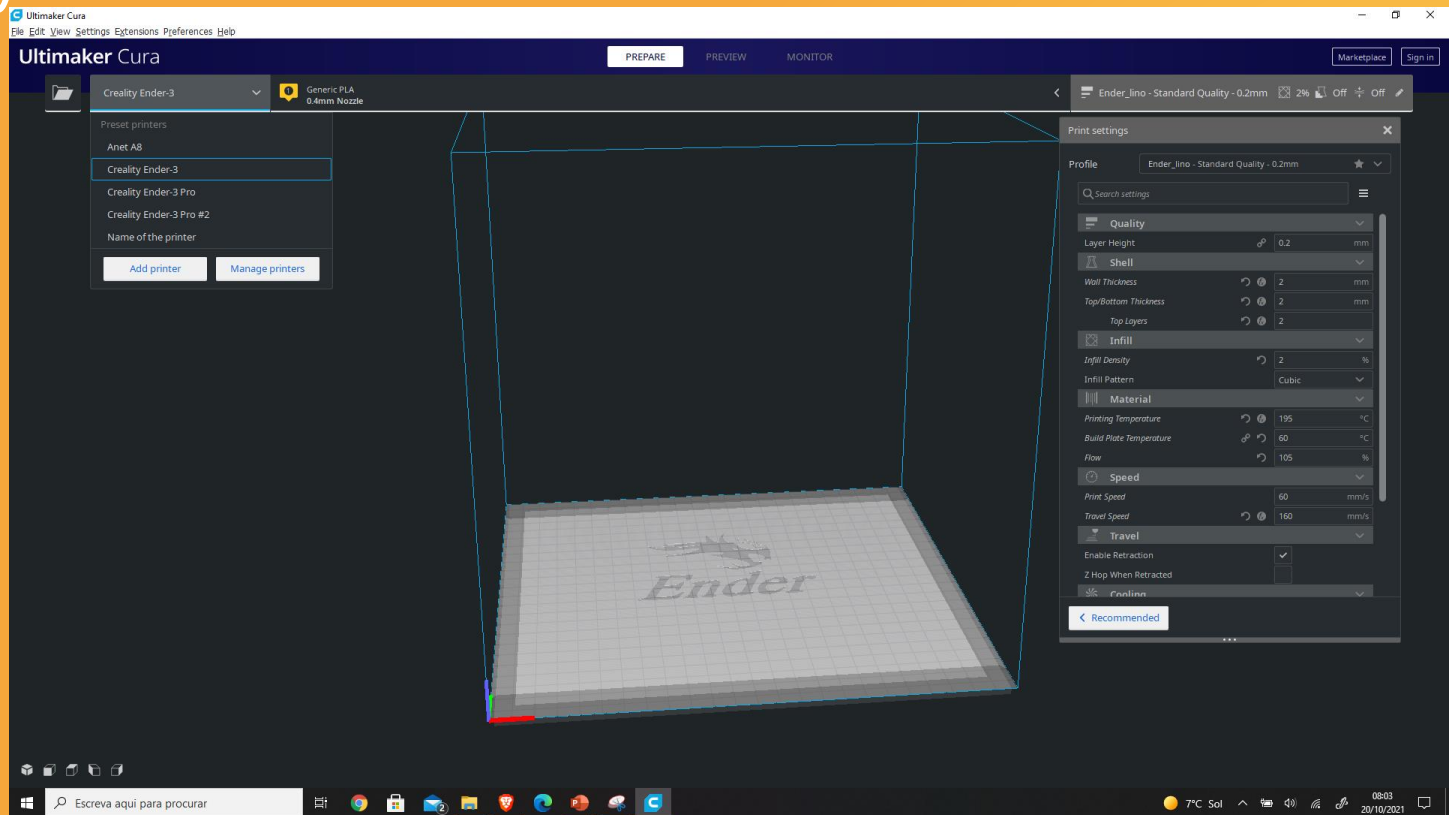
# CURA Yüklemesi



# CURA Yüklemesi



# Yazıcıyı CURA'ya ekleyin



# Yazıcıyı Cura'ya ekleyin

The screenshot displays the Ultimaker Cura software interface. The main window shows a 3D model of a rectangular object on a grid, with the text "Ender" visible on the bottom surface. The interface is divided into several panels:

- Top Bar:** Includes the "Ultimaker Cura" logo, menu options (File, Edit, View, Settings, Extensions, Preferences, Help), and tabs for "PREPARE", "PREVIEW", and "MONITOR".
- Left Panel:** Shows the "Preset printers" list with "Creality Ender-3" selected. Below the list are "Add printer" and "Manage printers" buttons.
- Right Panel:** Displays the "Print settings" for the selected profile "Ender\_lino - Standard Quality - 0.2mm". The settings are organized into sections:
  - Quality:** Layer Height: 0.2 mm
  - Shell:** Wall Thickness: 2 mm, Top/Bottom Thickness: 2 mm, Top Layers: 2
  - Infill:** Infill Density: 2 %, Infill Pattern: Cubic
  - Material:** Printing Temperature: 195 °C, Build Plate Temperature: 60 °C, Flow: 105 %
  - Speed:** Print Speed: 60 mm/s, Travel Speed: 160 mm/s
  - Travel:** Enable Retraction: , Z Hop When Retracted:

The Windows taskbar at the bottom shows the search bar with the text "Escreva aqui para procurar" and the system tray with the date and time "08:03 20/10/2021".



# Yazıcıyı Cura'ya ekleyin

The image shows the Ultimaker Cura software interface. The main window displays a 3D model of a printed part on a grid. A dialog box titled "Add Printer" is open in the center, with the text "Add a printer" and "There is no printer found over your network." Below this, there are buttons for "Refresh", "Add printer by IP", "Add cloud printer", and "Troubleshooting". The dialog also has "Cancel" and "Add" buttons.

On the right side, the "Print settings" panel is visible, showing various parameters for the "Ender\_3ino - Standard Quality - 0.2mm" profile:

- Profile: Ender\_3ino - Standard Quality - 0.2mm
- Quality: 0.2 mm (Layer Height)
- Shell: 2 mm (Wall Thickness), 2 mm (Top/Bottom Thickness), 2 (Top Layers)
- Infill: 2 % (Infill Density), Cubic (Infill Pattern)
- Material: 195 °C (Printing Temperature), 60 °C (Build Plate Temperature), 105 % (Flow)
- Speed: 60 mm/s (Print Speed), 160 mm/s (Travel Speed)
- Travel: Enable Retraction (checked), Z Hop When Retracted (unchecked)

The Windows taskbar at the bottom shows the search bar with "Escreva aqui para procurar" and the system tray with the date and time: 08:03 20/10/2021.

# Yazıcıyı Cura'ya ekleyin

The screenshot displays the Ultimaker Cura interface. At the top, the menu bar includes 'File', 'Edit', 'View', 'Settings', 'Extensions', 'Preferences', and 'Help'. The main toolbar shows 'PREPARE', 'PREVIEW', and 'MONITOR' buttons. The current project is 'Ender\_3' with a 'Generic PLA 0.4mm Nozzle'. The 'Print settings' panel on the right is open, showing a profile named 'Ender\_3ino - Standard Quality - 0.2mm'. The 'Print settings' panel includes sections for Quality (Layer Height: 0.2 mm), Shell (Wall Thickness: 2 mm, Top/Bottom Thickness: 2 mm, Top Layers: 2), Infill (Infill Density: 2 %, Infill Pattern: Cubic), Material (Printing Temperature: 195 °C, Build Plate Temperature: 60 °C, Flow: 105 %), Speed (Print Speed: 60 mm/s, Travel Speed: 160 mm/s), and Travel (Enable Retraction: checked, Z Hop When Retracted: checked). A 'Recommended' button is visible at the bottom of the panel.

The 'Add Printer' dialog box is open in the center, titled 'Add a printer'. It has two tabs: 'Add a networked printer' and 'Add a non-networked printer'. Under the 'Add a non-networked printer' tab, a list of printers is shown under the 'Ultimaker BV' manufacturer. The 'Ultimaker S5' printer is selected. The details for the 'Ultimaker S5' are displayed on the right side of the dialog: Manufacturer: Ultimaker B.V., Profile author: Ultimaker, and Printer name: Ultimaker S5. 'Cancel' and 'Add' buttons are at the bottom of the dialog.

The Windows taskbar at the bottom shows the search bar with the text 'Escriba aquí para procurar', several application icons, and the system tray with the date '20/10/2021' and time '08:03'.

# Yazıcıyı Cura'ya ekleyin

The image shows the Ultimaker Cura software interface. The main window displays a 3D model of a printed part on a build plate. Overlaid on this is the 'Add Printer' dialog box, which is used to select a printer profile. The dialog is divided into 'Add a networked printer' and 'Add a non-networked printer' sections. Under 'Add a non-networked printer', the 'Creality3D' manufacturer is selected, and the 'Creality CR-10' printer is chosen. The 'Print settings' panel on the right shows the current profile 'Ender\_1no - Standard Quality - 0.2mm' with various parameters such as Layer Height (0.2 mm), Wall Thickness (2 mm), Infill Density (2%), and Printing Temperature (195 °C).

Ultimaker Cura

PREPARE PREVIEW MONITOR

Marketplace Sign in

Creality Ender-3 Generic PLA 0.4mm Nozzle

Ender\_1no - Standard Quality - 0.2mm 2% Off Off

Add Printer

Add a printer

Add a networked printer

Add a non-networked printer

BQ

Builder

Cocoon Create

Creality3D

Creality CR-10

Creality CR-10 Max

Creality CR-10 Mini

Creality CR-10S

Creality CR-10S Pro

Creality CR-10S4

Creality CR-10S5

Creality CR-20

Creality CR-20 Pro

Creality CR-6 SE

Creality CR-X

Creality CR-10

Manufacturer: Creality3D

Profile author: troucho.com

Printer name: Creality CR-10

Cancel Add

Print settings

Profile: Ender\_1no - Standard Quality - 0.2mm

Search settings

Quality

Layer Height: 0.2 mm

Shell

Wall Thickness: 2 mm

Top/Bottom Thickness: 2 mm

Top Layers: 2

Infill

Infill Density: 2%

Infill Pattern: Cubic

Material

Printing Temperature: 195 °C

Build Plate Temperature: 60 °C

Flow: 105%

Speed

Print Speed: 60 mm/s

Travel Speed: 160 mm/s

Travel

Enable Retraction:

Z Hop When Retracted:

Finelines

Recommended

Escreva aqui para procurar

7°C Sol

08:03 20/10/2021

# Yazıcıyı Cura'ya ekleyin

The image shows the Ultimaker Cura software interface. The main window displays a 3D model of a printed part on a grid. A dialog box titled "Add Printer" is open in the center, showing a list of printers under "Add a non-networked printer". The "Creality Ender-3" printer is selected, and its details are shown on the right: Manufacturer: Creality3D, Profile author: trough.com, and Printer name: Creality Ender-3. The "Print settings" panel is open on the right, showing various settings for the "Ender\_1no - Standard Quality - 0.2mm" profile. The settings include Quality, Shell, Infill, Material, Speed, and Travel. The Windows taskbar is visible at the bottom, showing the search bar and system tray.

Ultimaker Cura

File Edit View Settings Extensions Preferences Help

PREPARE PREVIEW MONITOR

Marketplace Sign in

Creality Ender-3 Generic PLA 0.4mm Nozzle

Ender\_1no - Standard Quality - 0.2mm 2% Off + Off

Print settings

Profile Ender\_1no - Standard Quality - 0.2mm

Search settings

Quality

Layer Height 0.2 mm

Shell

Wall Thickness 2 mm

Top/Bottom Thickness 2 mm

Top Layers 2

Infill

Infill Density 2 %

Infill Pattern Cubic

Material

Printing Temperature 195 °C

Build Plate Temperature 60 °C

Flow 105 %

Speed

Print Speed 60 mm/s

Travel Speed 160 mm/s

Travel

Enable Retraction

Z Hop When Retracted

Creality Ender-3

Recommended

Creality CR-10 Max

Creality CR-10 Mini

Creality CR-10S

Creality CR-10S Pro

Creality CR-10S4

Creality CR-10S5

Creality CR-20

Creality CR-20 Pro

Creality CR-6 SE

Creality CR-X

Creality Ender-2

Creality Ender-3

Creality Ender-3 Pro

Creality Ender-4

Creality Ender-5

Creality Ender-5 Plus

Cubicom

Cancel Add

Manufacturer: Creality3D

Profile author: trough.com

Printer name: Creality Ender-3

Escreve aqui para procurar

7°C Sol 20/10/2021

# ADD THE PRINTER TO CURA

The screenshot displays the Ultimaker Cura interface. At the top, the window title is "Untitled - Ultimaker Cura" with a menu bar containing "File", "Edit", "View", "Settings", "Extensions", and "Preferences Help". The main header shows "Ultimaker Cura" and navigation buttons for "PREPARE", "PREVIEW", and "MONITOR". A "Marketplace" button and a "Sign in" link are also present.

The main workspace shows a 3D model of a printer bed with a grid. A blue wireframe box highlights the "Add Printer" dialog box, which is titled "Add Printer" and contains "Machine Settings".

The "Machine Settings" dialog is divided into two main sections: "Printer" and "Extruder 1".

**Printer Settings:**

- X (Width): 235 mm
- Y (Depth): 235 mm
- Z (Height): 250 mm
- Build plate shape: Rectangular
- Origin at center:
- Heated bed:
- Heated build volume:
- G-code flavor: Marlin

**Printhead Settings:**

- X min: -26 mm
- Y min: -32 mm
- X max: 32 mm
- Y max: 34 mm
- Gantry Height: 25 mm
- Number of Extruders: 1

**Start G-code:**

```
; Ender 3 Custom Start G-code  
G92 E0 ; Reset Extruder
```

**End G-code:**

```
G91 ;Relative positioning  
G1 E-2 F2700 ;Retract a bit
```

A "Next" button is located at the bottom right of the dialog.

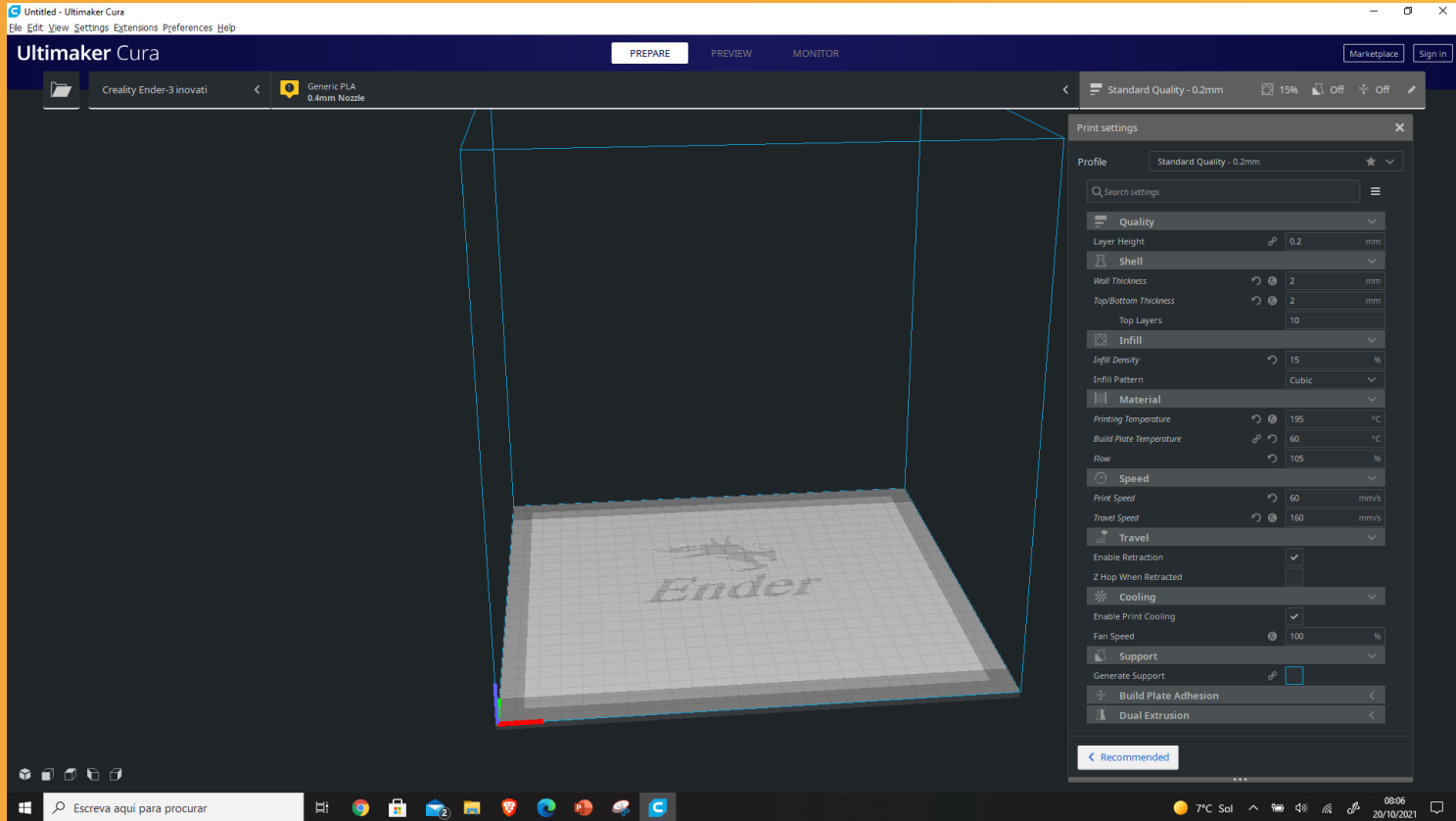
To the right of the dialog, the "Print settings" panel is visible. It shows the "Standard Quality - 0.2mm" profile selected. The settings are organized into sections:

- Quality:** Layer Height: 0.2 mm
- Shell:** Wall Thickness: 0.8 mm, Top/Bottom Thickness: 0.8 mm, Top Layers: 4
- Infill:** Infill Density: 20 %, Infill Pattern: Cubic
- Material:** Printing Temperature: 200 °C, Build Plate Temperature: 50 °C, Flow: 100 %
- Speed:** Print Speed: 50.0 mm/s, Travel Speed: 150.0 mm/s
- Travel:** Enable Retraction: , Z Hop When Retracted:

A "Recommended" button is at the bottom left of the print settings panel.

The Windows taskbar at the bottom shows the search bar with the text "Escreva aqui para procurar", several application icons, and system information: "7°C Sol", "08:04", and "20/10/2021".

# Yazıcıyı Cura'ya ekleyin

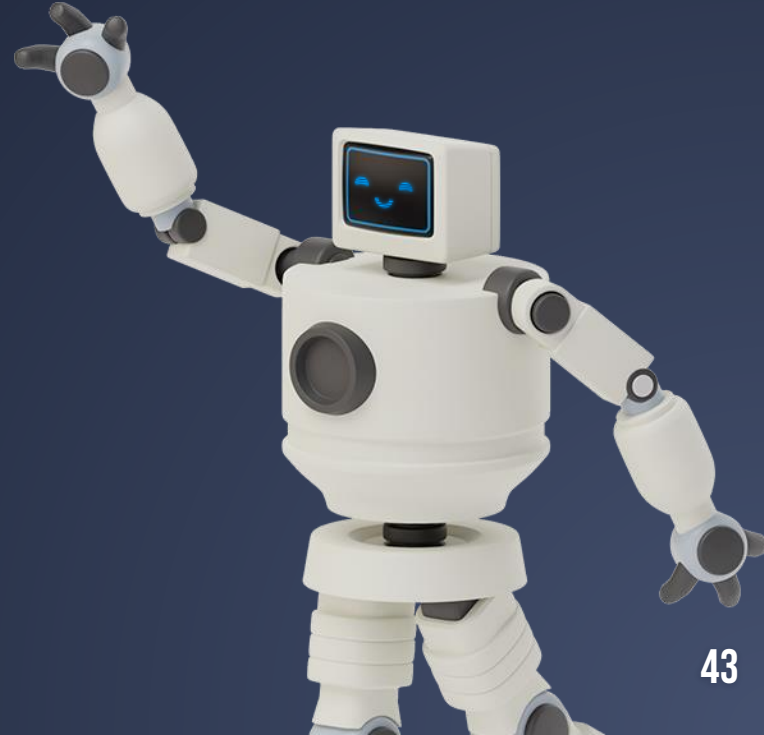


The image shows the Ultimaker Cura software interface. The main window displays a 3D model of a printer bed with a grid and the text "Ender" on it. The interface includes a top menu bar with "File", "Edit", "View", "Settings", "Extensions", "Preferences", and "Help". Below the menu bar, there are tabs for "PREPARE", "PREVIEW", and "MONITOR". The current profile is "Standard Quality - 0.2mm". The right-hand side of the interface features a "Print settings" panel with various adjustable parameters:

- Quality**: Layer Height: 0.2 mm
- Shell**: Wall Thickness: 2 mm, Top/Bottom Thickness: 2 mm, Top Layers: 10
- Infill**: Infill Density: 15 %, Infill Pattern: Cubic
- Material**: Printing Temperature: 195 °C, Build Plate Temperature: 60 °C, Flow: 105 %
- Speed**: Print Speed: 60 mm/s, Travel Speed: 160 mm/s
- Travel**: Enable Retraction: , Z-Hop When Retracted:
- Cooling**: Enable Print Cooling: , Fan Speed: 100 %
- Support**: Generate Support:
- Build Plate Adhesion**:
- Dual Extrusion**:

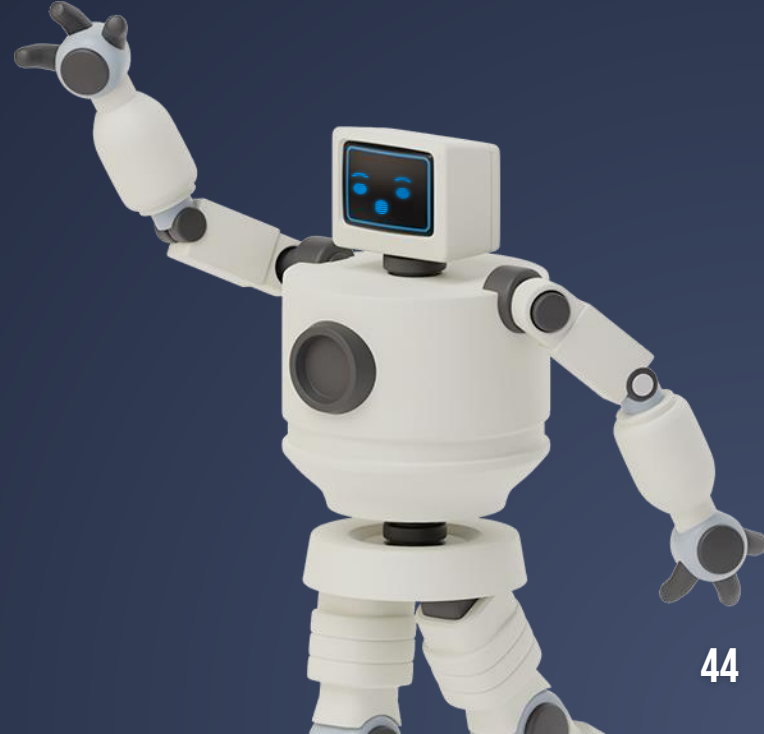
The bottom of the screen shows the Windows taskbar with the search bar "Escreva aqui para procurar" and the system tray displaying "7°C Sol" and the date "20/10/2021".

# Parçanızı Yerleştirme



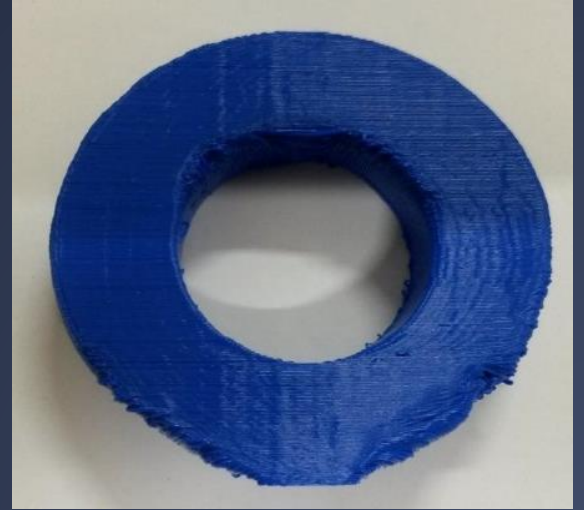
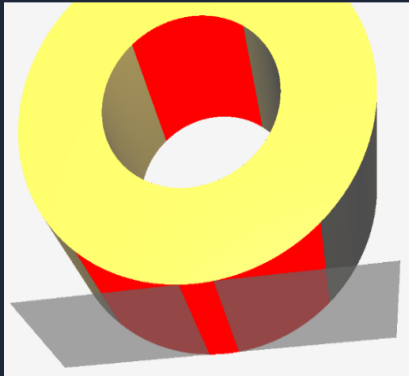
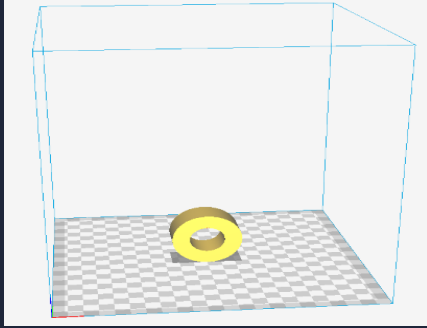
# Parçanızı Yerleştirme

Bir parçayı / nesneyi dilimleyiciye yerleřtirmek, dikkat gerektiren bir iřlemdir çünkü yerçekimi nedeniyle bir nesne herhangi bir açıda yazdırılamaz. Yerçekimi her zaman dikkate alınmalıdır, çünkü bu tür baskı, dolgu katmanını katman katman biriktirir ve seçilen yazıcı ařağıdan yukarıya dođru çalıřır.

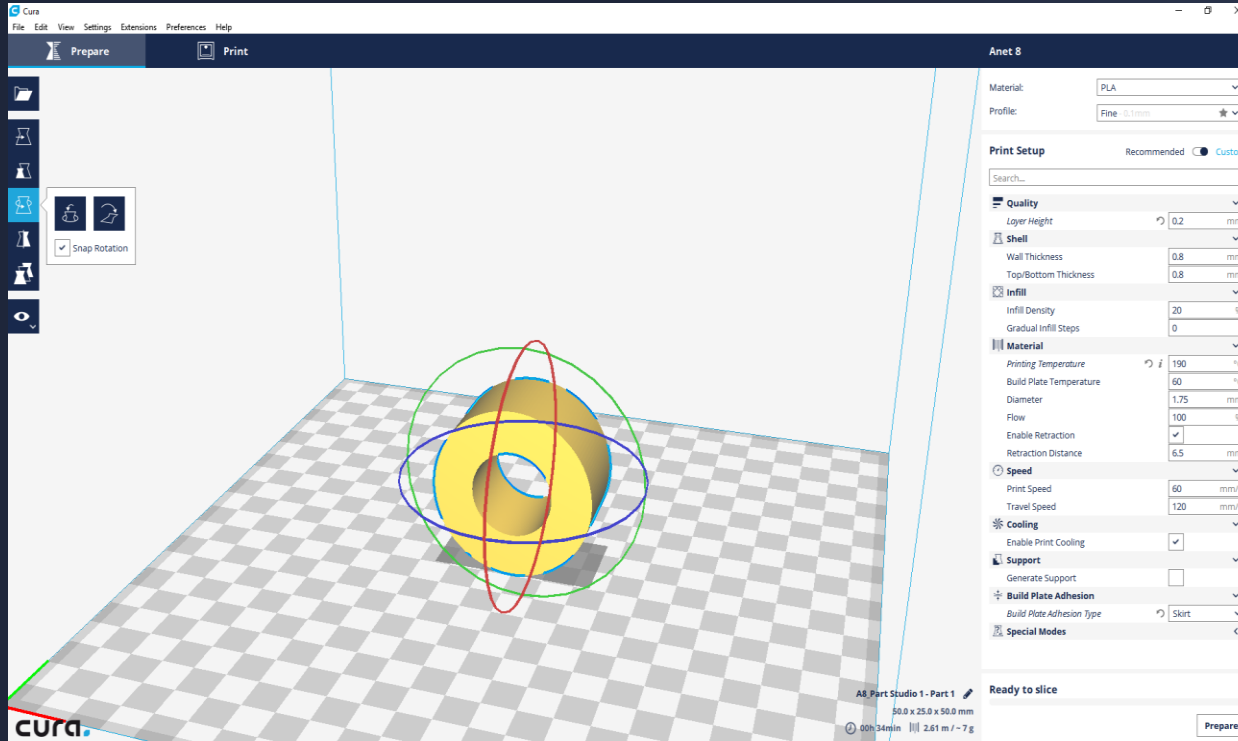




# Parçanızı Yerleştirme



# Parçanızı Yerleştirme



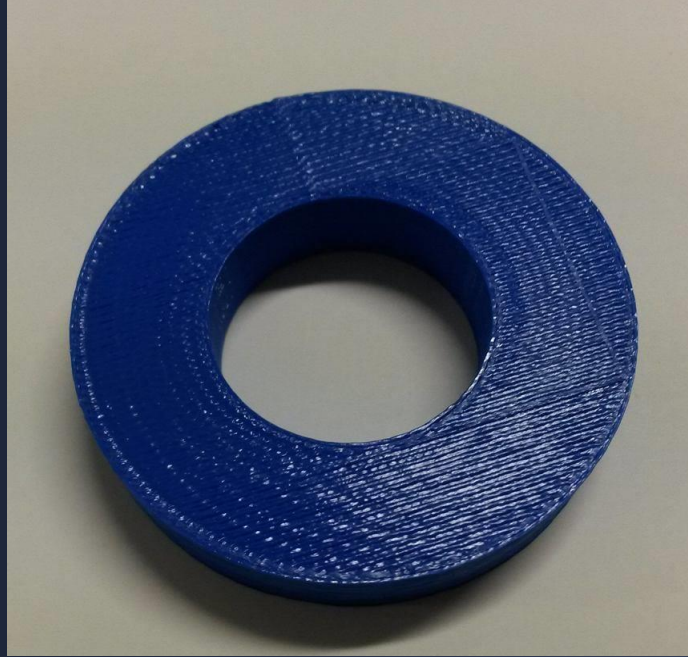
# Parçanızı Yerleştirme

The screenshot displays the Cura software interface. The main window shows a 3D model of a yellow cylindrical part on a checkered build plate. The part is surrounded by red, green, and blue rotation axes. The interface includes a menu bar (File, Edit, View, Settings, Extensions, Preferences, Help) and a toolbar with icons for Prepare and Print. The settings panel on the right is titled "Anet 8" and contains various configuration options:

- Material: PLA
- Profile: Fine - 0.1mm
- Print Setup: Recommended (selected), Custom
- Quality: Layer Height: 0.2 mm
- Shell: Wall Thickness: 0.8 mm, Top/Bottom Thickness: 0.8 mm
- Infill: Infill Density: 20 %, Gradual Infill Steps: 0
- Material: Printing Temperature: 190 °C, Build Plate Temperature: 60 °C, Diameter: 1.75 mm, Flow: 100 %, Enable Retraction: checked, Retraction Distance: 6.5 mm
- Speed: Print Speed: 60 mm/s, Travel Speed: 120 mm/s
- Cooling: Enable Print Cooling: checked
- Support: Generate Support: unchecked
- Build Plate Adhesion: Build Plate Adhesion Type: Skirt
- Special Modes: <

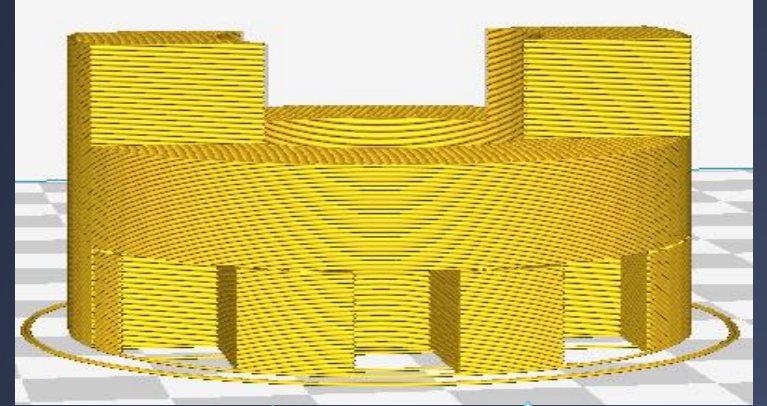
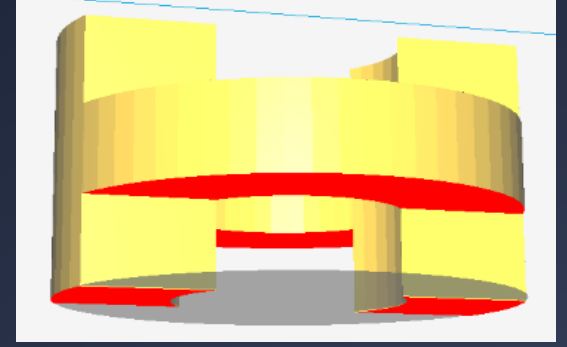
At the bottom of the interface, the status bar shows "AA\_Part Studio 1 - Part 1", "50.0 x 50.0 x 25.0 mm", "00h 34min", and "2.61 m / - 7 g". The "Ready to slice" button is visible in the bottom right corner.

# Parçanızı Yerleştirme



# Destek yapıları

Destek yapısı, parçanın temas yüzeyi yetersiz olduğunda 3D baskının başarısına yardımcı olur. Bu, düşük baskı kalitesine neden olur. Bunun üstesinden gelmek için, orijinal nesneye destekleyici yapılar eklenebilir ve ardından kaldırılabilir.



# Destek yapıları nasıl uygulanır

