MultiPart Studio

User manual

Local cuts, joints and customization for Bambu Studio.



Version 0.15.0

mlopes dev

10/15/2026

The program's interface is in Portuguese. Labels appear in bold Portuguese, followed by their English meaning in parentheses.

Version 0.15 · Windows 10 and 11

MultiPart Studio splits a 3D model into parts for printing and lets you give each part its own look. It cuts **only the part you choose** — the wing, the neck, the arm, the eyebrow. Accepted cuts come out closed; you choose the joint and the depth of skin cutouts. Then you can apply **texture**, a **shield**, and a **name and number** molded onto the surface, and export to Bambu Studio.

Contents

1. Why MultiPart Studio exists
2. Install and open
3. The screen
4. Step 1 — **Abrir** (Open)
5. Step 2 — **Marcar o corte** (Mark the cut)
6. Step 3 — **Encaixe** (Joint) and cut type
7. Step 4 — **Personalizar** (Customize) (texture, badge, name and number)
8. Step 5 — **Suas peças** (Your parts) and export
9. **Soldar** (Weld) (undo a cut)
10. Save, undo and never lose your work
11. **Configurações** (Settings) and online update
12. Shortcuts
13. Common problems
14. Support
15. What's new by version

---

1. Why MultiPart Studio exists

In Bambu Studio, a cut is an infinite plane: to remove a dragon's wing, it also cuts the foot, the tail and anything else on the same line. In MultiPart Studio, the cut applies only to the part you marked. The rest of the model is not touched.

The original file is **never changed**. Everything you do stays in the MultiPart Studio project (**.mlcut**) until you export.

2. Install and open

With the installer: run the installer downloaded from the website (**MultiPart-Studio-Setup.exe**) and click **Avançar** (Next) until the end. The program gets a shortcut on the Desktop and in the Start menu, and **.mlcut** files now open with it (double-click).

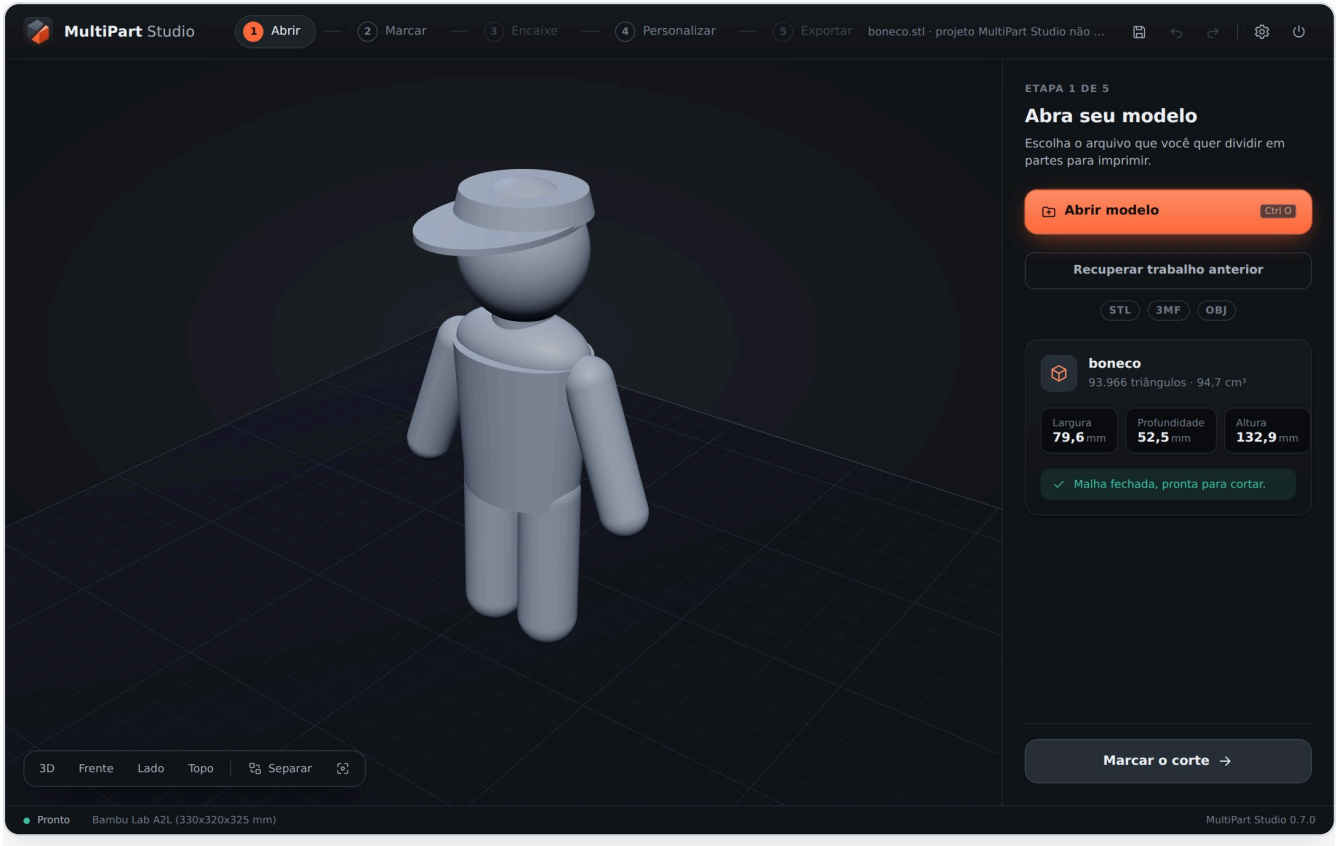
Already had the program? The installer recognizes the installed version and updates it in the same folder, keeping the previous one. Up to version 0.6 the program was called **ML CUT**: when you update, the name, icon and shortcuts change to **MultiPart Studio** — projects, textures and settings stay where they were.

Portable version: open the portable folder and double-click the program's executable. No installation needed.

> Tip: drag an STL, 3MF, OBJ or .mlcut file onto the MultiPart Studio icon and it opens with the model already loaded.

The version appears in the bottom-right corner (e.g., `MultiPart Studio 0.15.0`). When you contact support, give this number.

3. The screen



The MultiPart Studio screen with a model open

- **Top:** the 5 steps (**Abrir → Marcar → Encaixe → Personalizar → Exportar** (Open → Mark → Joint → Customize → Export)), the file name with the time of the last save, **Salvar projeto** (Save project) (floppy disk), **Desfazer** (Undo), **Refazer** (Redo), the **gear** (settings and updates) and **Sair** (Exit).
- **Measurements:** every slider has a number next to it — **click it and type** the exact value (comma or period; `↑` / `↓` move one step, `Shift` ten; `Enter` confirms, `Esc` cancels). The typed value can go past the end of the slider, up to the program's limit.
- **Center:** the 3D model.
  - **Right** button + drag: rotate the view.
  - **Middle** button + drag: move the view.
  - **Scroll wheel:** zoom.
  - **3D, Frente, Lado, Topo** (3D, Front, Side, Top) buttons: preset views.
  - **Separar** (Explode): moves the parts apart so you can see each one.
  - **Isolar** (Isolate): work on just one part. Click **Isolar** and then the part (or point the mouse at it and press `H`). The others disappear from the screen and the camera starts to **rotate around that part** — nothing gets in the way. Selection, cutting, texture and everything else work normally; if you cut the isolated part, the new parts stay visible. **Mostrar tudo** (Show all) (top corner, or `H` again) brings back the whole model. **Isolar** doesn't hide anything from the project or the export: it only affects the view. In the parts list (step 5), the crosshair button isolates the part on that row.
- **Right:** the panel for the step you're in.
- **Footer:** the chosen printer, the status ("Pronto" (Ready), "Cortando..." (Cutting...)) and the version.

Colors in the view: the part that will come off is **orange**; the confirmed selection is **yellow**; the selection preview is **teal**; the badge and name preview is **orange**.

---

4. Step 1 — Abrir (Open)

1. Click **Abrir modelo** (Open model) (`Ctrl + O`) or drag the file into the window.
2. Supported formats: **STL, 3MF, OBJ** and the **.mlcut** project. Measurements are read in millimeters.
3. The panel shows **width, depth and height** and whether the mesh is **closed**. Only a closed mesh becomes a solid part.
4. Click **Marcar o corte** (Mark the cut).

> A 3MF file with several parts (Bambu multipart): each part becomes a part in the list.

Recuperar trabalho anterior (Recover previous work): opening another file doesn't erase your earlier work. The last 10 are kept and come back with this button, together with undo and **Soldar** (Weld).

---

5. Step 2 — Marcar o corte (Mark the cut)

At the top of the panel there are two modes: **Plano** (Plane) and **Seleção inteligente** (Smart selection).

5.1 Plano (Plane) mode

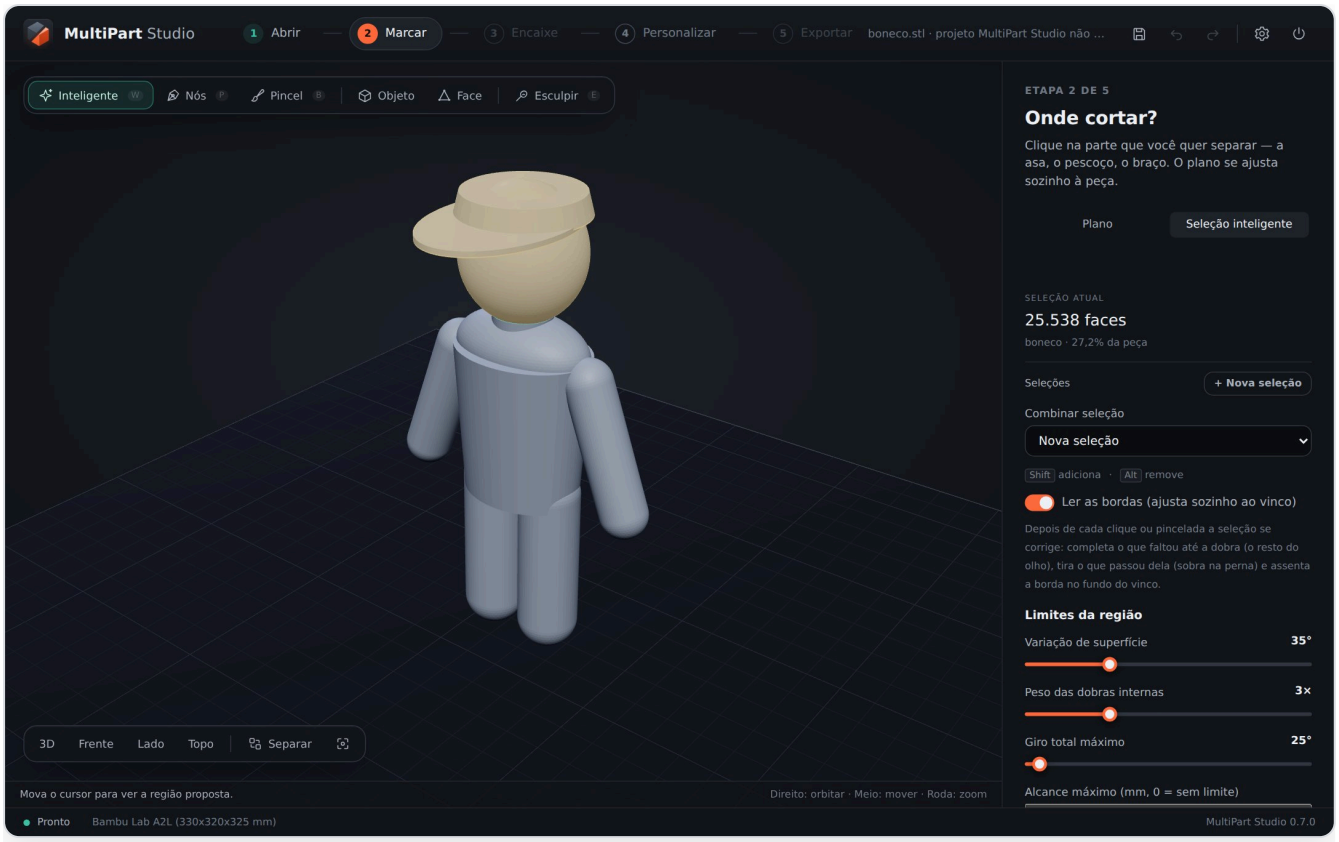
Use it when the cut is a straight "slice": neck, leg, arm.

1. **Click the part you want to separate.** The cutting disc appears across it, following the direction of the part. What will come off turns orange.
2. Adjust if needed:
   - **Direção do corte** (Cut direction): **Seguir a peça** (Follow the part), **Horizontal** or **Vertical**.
   - **Inclinar frente/trás** (Tilt front/back) and **Inclinar para os lados** (Tilt sideways): a diagonal cut, at any angle.
   - **Raio do corte** (Cut radius): the size of the disc. Anything outside it is not cut ("sem limite" (no limit) = the whole part at that height).
   - **Posição** (Position): moves the plane forward or backward, in mm.
   - **On-screen arrows:** drag the **red** arrow (sideways), the **green** one (front/back) or the **blue** one (up/down). Hold `Shift` to move 1 mm at a time.
   - **Dots on the edge of the disc:** drag them to tilt with the mouse (`Shift` = 5° at a time).
   - **Voltar o corte ao ponto clicado** (Reset the cut to the clicked point): undoes the drags.
   - **Inverter o lado que sai** (Flip the side that comes off) (`I`): switches which side is the part.
3. Made a mistake? Click somewhere else or press `Esc`.
4. Click **Escolher encaixe** (Choose joint).

5.2 Seleção inteligente (Smart selection) mode

Surface and whole part: painting marks the skin you're looking at; it shouldn't pick up the back side or another part behind it. Selecting a whole arm still works for removing the complete arm. For shallow details, choose **Raso** (Shallow), **Casca** (Shell) or **Bolso** (Pocket) and enter the depth in the **Encaixe** (Joint) step. Check the preview; the whole-part option takes priority when you want to remove the entire volume.

Use it when the cut follows a shape: eye, eyebrow, sleeve, shoe, the head with the beak, the cup in the hand. **The selection tells the program where to cut** and the cut edge comes out smooth, without the jagged teeth of the triangles.



Smart selection: the head marked

Tools (bar at the top of the view):

Tool	Key	How to use it
Inteligente (Smart)	`W`	Move the mouse over the model to see the proposed region (teal) and click to confirm. The region stops at the folds of the surface. With **Inteligente pega o objeto inteiro** (Smart picks the whole object) (default), the click picks the whole object up to the fold around it (the entire eye), skin only. **Every object can be selected:** if the click doesn't find a fold (a small, curved part like an eyebrow, or a welded part with an irregular seam), the program closes the region along the seam or crease around what you clicked and picks the whole detail.
Nós (Nodes)	`P`	An outline you draw yourself. Click to create points; drag while creating to curve; close on the first point. **Arredondar contorno** (Round contour) (`R`) makes the curve smooth, passing through all the nodes, with no corners. The selection follows the outline **exactly**, and the preview already shows the final result. `Delete` deletes the node; `Enter` applies; `Esc` cancels.
Forma (Shape)	`O`	**Círculo, Elipse, Quadrado ou Quadrado arredondado** (Circle, Ellipse, Square or Rounded square) (choose in the panel). Drag on the part from the center outward: size and proportion follow the mouse. `Shift` = perfect circle/square. Drag **inside** the shape to move it. **Largura** (Width), **Altura** (Height), **Canto** (Corner) and **Girar** (Rotate) can also be typed in the panel. The shape stays **stuck to the skin**: rotate or move the view and it moves along. The edge is perfect: it cuts a triangle in the middle if needed, with no teeth sticking out or in. With **Parar na borda do objeto** (Stop at the object's edge), it doesn't go past the object where you clicked. `Enter` or **Aplicar forma** (Apply shape) confirms; with `Alt` , the shape **removes** from the selection.
Pincel (Brush)	`B`	Drag over the surface. With `Alt` , it erases exactly where you passed (the screen shows the result a few seconds after the stroke; there is no preview during an Alt stroke). **Raio** (Radius) changes the size. **It picks up only the shell** (the skin) of the part where you paint: a cut cap (the flat face of an earlier cut), the inside and other parts never get in. With **Seleção exata** (Exact selection), the stroke from your hand or **drawing tablet** is **smoothed automatically**: the edge comes out smooth like the Shape's, with no bumps or teeth. Without **Seleção exata**, what you paint adds to the selection and the program only closes the tiny holes.
Objeto (Object)	`V`	Click a part to select the whole part.
Face	`F`	Click triangles, one by one.
Esculpir (Sculpt)	`E`	See item 5.8.

> Outline and brush pick up only the faces **visible in the current view**. To get the other side, rotate the model and go over it again with `Shift` .

O clique pega (The click picks) (**Inteligente** tool):

- **Até as dobras** (Up to the folds) (default): the region grows up to the creases of the surface.

- **Parte saliente** (Protruding part): picks **the entire part that sticks out of the body** — beak, ear, wing, arm, horn — even when it blends into the body with no crease at all (a rounded, sculpted joint). The program measures the **thickness** of the part: the protruding part is thin and the body it comes out of is thick; where it gets thicker, the selection stops. Click the **tip** of the part (e.g., the tip of the beak). The first time on a large part it takes a few seconds. If you click the body, it warns you that it doesn't get thinner there.

Combinar seleção (Combine selection): **Nova seleção** (New selection), **Adicionar** (Add) (`Shift`) or **Remover** (Remove) (`Alt`). Removing with **Nós**, **Pincel** or **Forma** takes **exactly** what you went over out of the existing selection — what was removed doesn't come back, whether the automatic options are on or not.

Encolher / Expandir (Shrink / Expand): the **–** and **+** buttons (keys `[` and `]`).

Assentar no contorno (Snap to contour) (smooth edge at the bottom of the crease): when on, after each brush stroke, click or outline, the edge moves by itself to the bottom of the crease (eye, eyelid, mouth), within a 3 mm band around what you did. You get a smooth line, with no brush teeth, no stray dots and no tiny holes. Away from a crease, the edge stays where you drew it. `Ctrl + Z` goes back.

Parar na borda do objeto (Stop at the object's edge): when on (default), **Forma** and **Pincel** stay on the object where you started and stop at its fold, with a smooth edge; a tiny hole the camera didn't see inside the object gets included; nothing hidden gets included.

Inteligente pega o objeto inteiro (Smart picks the whole object): when on (default), the **Inteligente** click grows up to the surrounding folds without the turn limit — the whole eye, not a piece of it. A long sliver sticking out of the object (an old cut) is left out.

Seleção exata (Exact selection): when on, **Pincel** and **Nós** cut exactly where you passed, going through a triangle if needed (half a triangle is half a triangle). **Alt erases exactly** what you went over and nothing comes back. No automatic correction touches the stroke (no tiny-hole filling, no crease snapping). A selection made earlier with the **Inteligente** click becomes the base: the exact brush adds and removes on top of it.

Assentar no contorno (off by default — keeps the click instant; turn it on when you want): when on, after each **Inteligente** click the edge settles at the bottom of the crease, smooth. **Pincel and Face stay exactly as you painted them**; to snap the brush stroke too, turn on **Assentar também no Pincel e na Face** (Also snap Brush and Face).

Ler as bordas (Read the edges) (fits itself to the crease): when on, after each **Inteligente** click the selection corrects itself: it fills in what was missing up to the fold (the rest of the eye), removes the excess that went past it and settles the edge at the bottom of the crease. When the click wraps around the part (collar, belt, bracelet), the edge goes up to the fold all the way around, including the side the camera can't see — no gray band is left on the back. With **Shift**, each **Inteligente** click is adjusted on its own and added to what was already there: the new click goes in whole (a collar clicked after the shirt doesn't lose the band near the head). **Pincel and Face don't go through this: the drawing stays as you made it.**

Attached parts go along: when you separate the head, whatever is attached to it (beak, mouth, eye) goes with it, whole — the part comes out closed.

The green line is the edge used for the cut.

5.3 Region limits (Inteligente (Smart) tool)

Setting	What it does
Variação de superfície (Surface variation) (35°)	How much the surface can bend from one triangle to the next before it counts as a "wall". Lower = stops sooner.
Peso das dobras internas (Inner fold weight) (3×)	Inward folds (eyelid, sleeve over the arm) count more. Higher = doesn't leak through the inner fold.
Giro total máximo (Maximum total turn)	How much the surface can turn between the click and the edge. All the way to the right = no limit.
Alcance máximo (Maximum reach) (mm)	Maximum distance from the click. 0 = no limit.
Ajustar a borda às dobras (Fit the edge to the folds)	Moves the edge to the nearest fold.
Não passar por dobra arredondada (Don't cross rounded folds)	Soft folds also stop the selection.
Ignorar ruído da malha (Ignore mesh noise)	Hair, seams and texture don't make the edge jagged.
Borda lisa (Smooth edge) (2 mm)	How much the edge is smoothed.

> The **Inteligente** tool stops at sharp corners (the edge of a block). To pick up the corners, add them with the **Pincel** (Brush) (`Shift`) or raise **Variação de superfície**.

5.4 Selection cut options

- **Suavizar a borda do corte** (Smooth the cut edge): smooth edge, no teeth (on).
- **Sem pino: corte boleado** (No pin: rounded cut): with the **Automático** (Automatic) cut type and no pin, the part comes out with a rounded bottom and the body with a cavity of the same shape.
- **Peça inteira (copo, bola, garrafa segurada)** (Whole part (cup, ball, held bottle)): the part hidden under the hand comes along; the hand gets the cavity.

Click **Usar esse corte** (Use this cut) to go to the joint.

5.5 Multiple selections (layered cut)

This lets you remove several parts at once: top, band and brim of a hat; iris, eye and head.

1. Select the first part.
2. Click **+ Nova seleção** (+ New selection). The selection becomes **Seleção 1** (Selection 1) (yellow) and **Seleção 2** (Selection 2) starts, in another color.
3. Select the next one. Repeat as many times as you want. **One selection never overlaps another.**
4. Click a selection in the list to go back to it and fix it. The ✕ deletes the selection.

5. **Usar esse corte** (Use this cut) › choose the joint › **Cortar** (Cut). Each selection becomes a part.

- A selection inside another (the iris inside the eye) comes out together with the outer one and is then cut from it.
- **Pino longo** (Long pin) with several selections: **a single pin** goes through all the layers on the same axis.
- One `Ctrl + Z` undoes the whole layered cut.

5.6 Acabamento (Finishing): cracks, Curativo (Patch), Alisar (Smooth out), Vinco limpo (Clean crease), Reparar (Repair)

In **Seleção inteligente** (Smart selection) mode, **Acabamento** (Finishing) box:

- **Achar rachaduras** (Find cracks): automatically marks the thin tears that AI-made meshes often have. Check the marking (`Alt` + brush removes anything that isn't a crack) and click **Costurar** (Stitch).
- **Costurar (Curativo)** (Stitch (Patch)): removes what is marked and closes it following the surrounding surface. Works for any defect: paint with the **Pincel** (Brush) and click **Costurar**.
- **Alisar (automático)** (Smooth out (automatic)): removes noise (orange peel, jaggedness) without touching corners or creases. No point moves more than 0.2 mm.
- **Apagar sem preencher** (Erase without filling): for **thin debris** — a hanging sliver from an old cut, a burr, a tooth, a spike. With the **Pincel**, paint over the debris (it can include a bit of the part around it) and click **Apagar sem preencher**. Everything **thinner than the set value** ("Tira o que for mais fino que" (Removes anything thinner than), default 0.5 mm — click the number to type) is removed from the painted area, **including the back side** of the sliver, which the brush can't reach. Nothing is added; the part's skin, corners and creases stay as they were. Only a stub of up to 0.3 mm is left at the root (smaller than one print line). Difference from **Apagar e preencher** (Erase and fill): that one removes a detail (a shield) and continues the surface over it; this one only removes what is thin. `Ctrl + Z` goes back.
- **Vinco limpo** (Clean crease): for a seam, collar, hem or corner **with teeth/spikes** — the typical defect of AI-generated models (Meshy, Hunyuan, Tripo), where the crease is only one triangle wide and zigzags. With the **Pincel**, go over the seam **covering the teeth** (a 1 to 3 mm band; it can be long: the whole collar) and click **Vinco limpo**. The program finds the path of the seam, measures its shape (crease, step, corner or ridge) and rebuilds the same shape **smooth and continuous** along the path, with a finer mesh only there. Outside the band, nothing changes; the part stays closed. Any teeth left? Paint again a bit wider and click again. `Ctrl + Z` goes back.
- **Reparar peça** (Repair part): removes small loose bits floating next to the part **and fixes the mesh** that Bambu Studio would flag as defective (duplicate points, edges shared by 3 or more triangles). The shape doesn't change. A large part takes up to 1 minute. On parts made in old versions, repair **before** marking the selection.

5.7 Apagar e preencher (Erase and fill)

Removes the selected part (a shield on the chest, an emblem, a raised detail) and **rebuilds the surrounding surface over the hole**, continuing the ribbing and folds of the clothing. `Ctrl + Z` brings it back.

5.8 Esculpir (Sculpt)

Esculpir (Sculpt) tool (`E`), in **Seleção inteligente** mode:

- **Suavizar** (Smooth): smooths without wrinkling (seam, step, facet).
- **Positivo / Negativo** (Positive / Negative): raises or sinks the surface.
- **Preencher** (Fill): raises only the low spots (shallow marks, scratches).
- **Aplainar** (Flatten): makes the area flat.
- **Afinar quina** (Sharpen edge): go over a rounded edge and it becomes sharp again.
- **Raio** (Radius) in mm and **Força** (Strength) in %. `Shift` smooths without switching brushes; `Alt` inverts positive/negative.

> Low strength and several passes give the cleanest finish.

6. Step 3 — Encaixe (Joint) and cut type

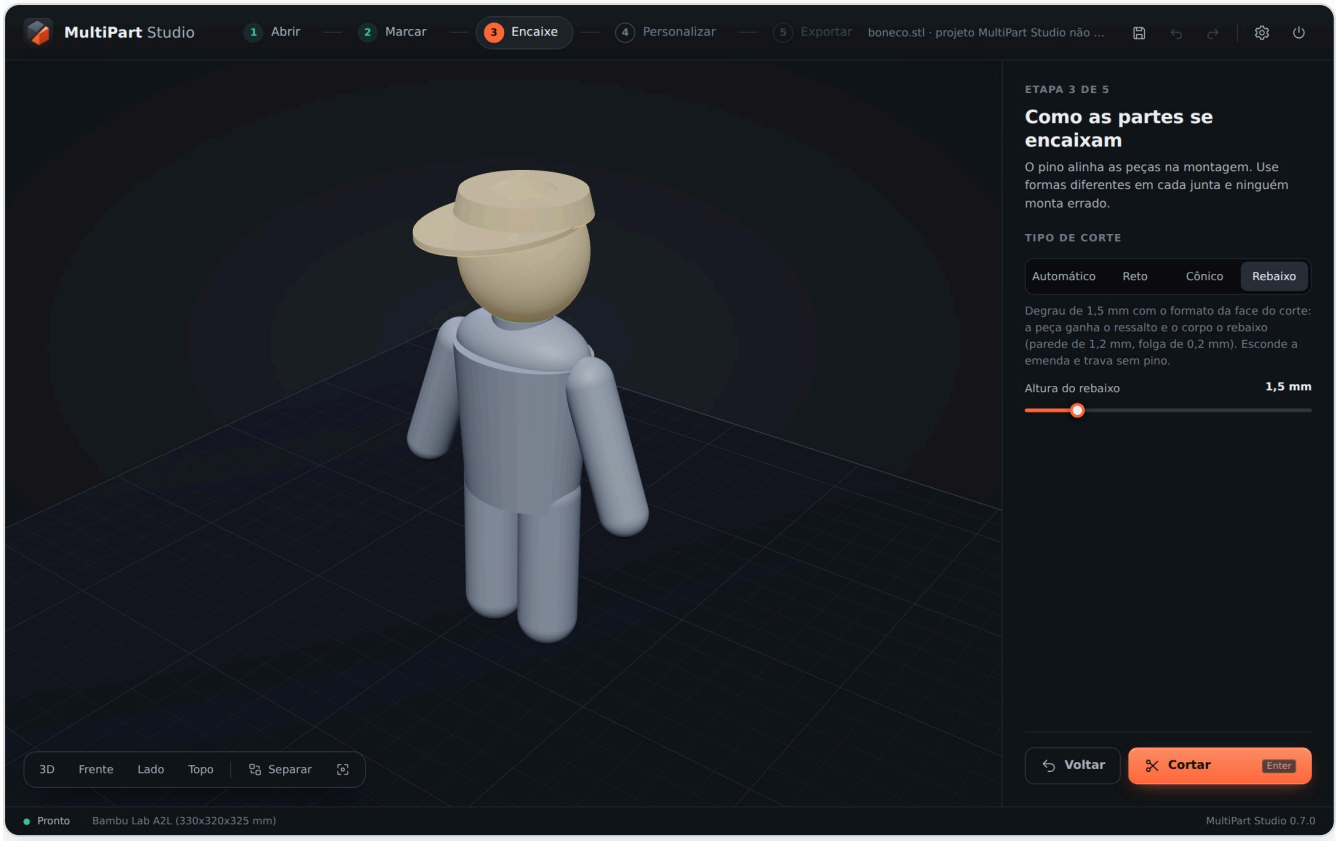
6.0 Onde cortar (Where to cut) (0.11.3)

When the selection touches more than one part, the panel shows **Onde cortar** (Where to cut): each part with a color (also painted on the part) and a toggle. Example: the sabiá's body (shirt + collar) touches the **head** (on top) and the **foot** of the body (at the bottom, where it rests on the base).

- **Ligado** (On): cuts there. The pin goes on the largest edge that stays on.
- **Desligado** (Off): that part goes along with the selection — there is no cut or pin there.

To separate the whole body from the head: leave **Em cima** (Top) on and turn off **Embaixo** (Bottom). The blue pin preview moves to the neck. With everything on, the cut is the same as before.

6.1 Tipo de corte (Cut type)



Tipo de corte: Rebaixo (Cut type: Recess)

This is the first choice in the step. **What you choose is respected:** MultiPart Studio never switches one type for another on its own — if something doesn't fit, it keeps your choice and tells you why.

Type	What you get	When to use it
Automático (Automatic)	The program decides: straight with a pin when the edge is straight; follows the edge when it's curved; without a pin, eye/nose/mouth come out as **Raso** (Shallow) and the rest as a straight cut that follows the edge. Never conical.	When you don't want to think about it.
Reto (Straight)	A flat face on the plane of the edge, with the chosen pin or no pin. If the pin doesn't fit: it stays straight and the warning explains.	Head, arm, leg — prints lying on the flat face.
Rebaixo (Recess)	A step shaped like the cut face itself: the part gets a **lip** and the body a **recess** (1.2 mm wall + material clearance). Hides the seam line. Accepts a **pin** (since 0.11.9): the pin goes in through the bottom of the step. An edge that wraps around or isn't flat (collar × head): it follows the marked edge and the seam goes straight into the skin, in a smooth line.	Shoulder/sleeve, head/torso, torso/waist, collar × head.
Raso (Shallow)	A shallow cutout: the part becomes a **thin shell of the skin itself** (default 1.5 mm — type the depth) and the body gets a **cavity** of the same shape. **Straight** wall, perpendicular to the skin; the bottom follows the curve; material clearance. No pin, no cone. In **Automático** with no pin, the program already makes a **Raso** cut on its own when the selection is a skin detail.	Eye, nose, mouth, eyebrow, facial details.
Casca (Shell)	The part is the marked **layer of skin** with the thickness you type (default 2 mm), **going inward**, following the curve; an upright wall (perpendicular to the skin) along the outline; the body gets a joint of the same shape and the material clearance. Where the area touches a cut cap, the shell goes up to the cap and comes out flush with it. No pin. A large area (a whole head of hair) takes 2 to 3 minutes.	**Hair, beard, mustache** — remove them to print already in their color.
Bolso reto (Flat pocket)	**Upright wall** along the outline and a **flat bottom** (default 2 mm below the deepest point of the area — type any depth you want). The bottom stays **flat**, even on a curved outer surface. For a bottom that follows the skin, choose **Raso** or **Casca**. If the area wraps around the whole part and doesn't allow a flat pocket, the program explains and preserves the original. The part comes out with the front of the skin, a straight wall and a **flat back**, smaller only by the material clearance all around so it goes in without forcing; it sits in the pocket, flush with the skin. No pin. Mark it with **Forma** (Shape) (a perfect ellipse for the eye), **Nós** (Nodes) or **Pincel** (Brush).	Eye, eyebrow, mustache, emblem — a colored part that fits into the face (like Mario's head).
Haste (Rod) (0.14.0)	The selected rod (handle, spear, stick) comes out **whole**, with everything that belongs to it. A through-hole where it passes through the hand; a joint hidden behind it where it goes into the body. Options: up to the first contact, or whole.	Rose in hand, trident, spear, staff, sword — print lying down and assemble with no seam at the wrist.

Altura do rebaixo (Recess height): default 1.5 mm; the slider goes up to 20 mm and you can type more (15 mm, 25 mm…) — the limit is what fits in the body. If the body gets thinner just below the cut, MultiPart Studio uses the largest height that fits and warns you. Face too narrow for the step: it explains and doesn't cut.

Recess on the contour (0.11.9): when the marked edge wraps around the part or isn't flat (the collar around the neck, the head fitted into the collar) — or when the flat step doesn't fit — the **Rebaixo** follows the edge you marked. The seam goes in by the recess measurement **straight into the skin**, in a smooth line (the triangle teeth disappear), and each side is solid down to that depth: the head sinks into the collar and anything irregular the cut leaves stays inside, hidden. The measurement goes from 0.6 to 6 mm (default 1.5 mm). It takes longer (about 1 minute on a collar). A chosen pin also applies.

Recess with pin (0.11.9): choose the pin as in **Reto** (round, square, triangular; attached, separate or long). It goes in through the bottom of the step, in the middle of the lip. If the automatic pin doesn't fit in the step, the recess comes out without a pin and the warning says so; a hand-picked pin that's too big: the app explains and doesn't cut.

Curved base (an eyebrow on the forehead, a detail on a round surface): when the edge doesn't fit in a plane, **Reto** and **Rebaixo** cut following the skin — the part takes the whole detail with the joint underneath; with **Rebaixo**, the step is set back 1.2 mm from the edge (in a thin area, like a 2–3 mm eyebrow, the wall shrinks on its own down to 0.3 mm).

6.2 Pin

Shape	What it's for
Redondo (Round)	Rotates in the hole.
Quadrado (Square)	Doesn't rotate.
Triangular	Doesn't rotate and only goes in one way.
Sem pino (No pin)	Just the cut.

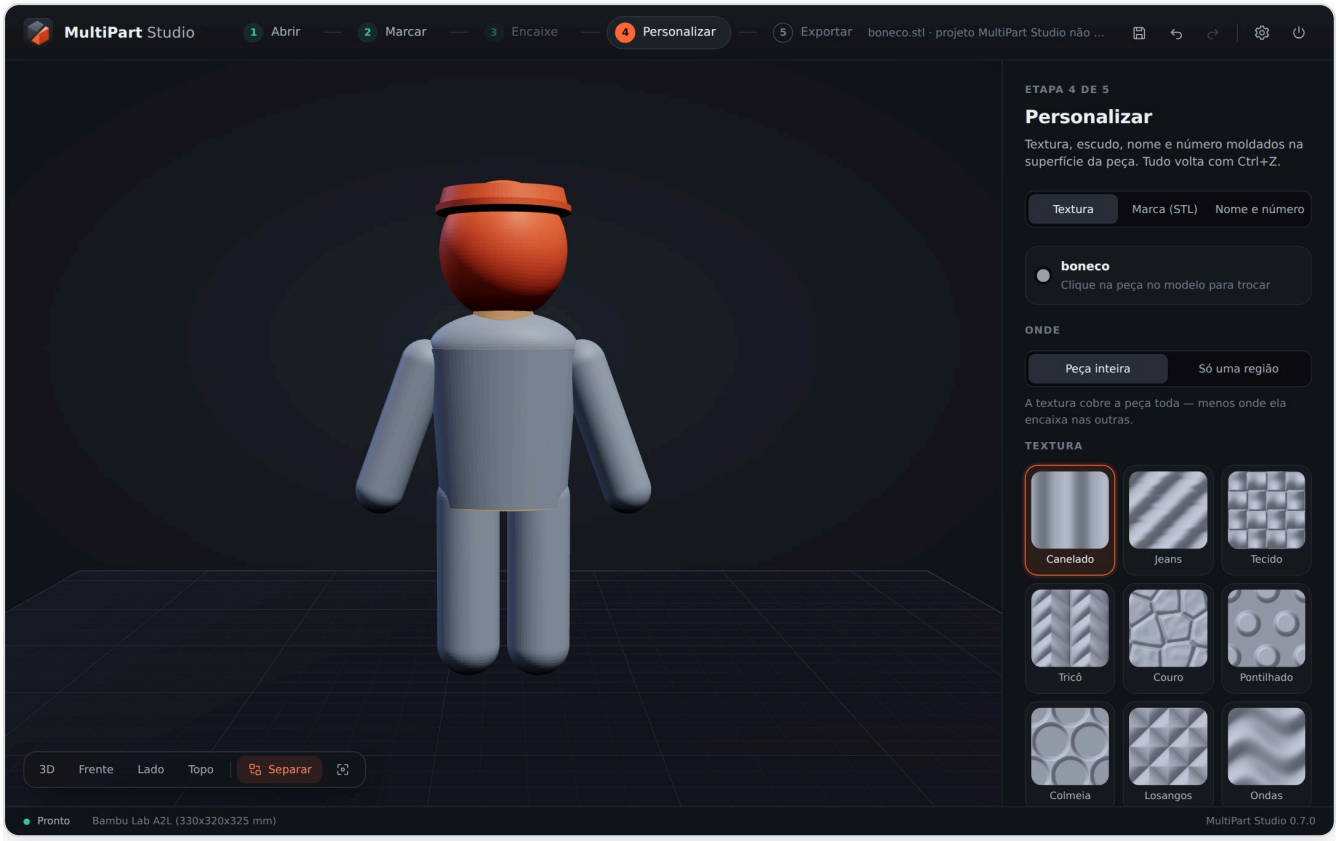
- **Preso na peça** (Attached to the part): the pin comes out together with the part and goes into a cavity in the body.
- **Pino separado** (Separate pin): both parts get a cavity and the pin comes loose. Print the pin lying down: it's stronger.
- **Pino longo** (Long pin): goes through and joins 3 or more parts.
- **Existing long pin (0.11.5):** if a long pin you already placed goes through the new cut (e.g., the torso pin that passes through the collar and into the head), **Cortar** (Cut) doesn't ask anything: it cuts without a new pin and the pin hole keeps passing through both parts, just like in the other parts. The preview tells you which pin it is. Applies to **Automático**, **Contorno** (Contour) and **Reto** (in **Automático** the cut follows the marked edge, like **Contorno**).
- **Tamanho** (Size): in **Automático**, the largest pin that fits without leaving a thin wall. Turn it off to choose the width.
- **Ângulo do pino** (Pin angle): rotates only the pin. The blue preview shows the fitting direction.
- **Material**: sets the clearance around the pin and the recess (PLA 0.2 mm, PETG 0.3 mm…).

Click **Cortar** (`Enter`). The cut can be **canceled** at any time.

> **Assembly tip:** use a different shape at each joint — triangular neck, square wing, round tail. No one can fit the wrong part.

7. Step 4 — Personalizar (Customize)

Gives each part its own look, **no modeling skills needed**. Three tabs: **Textura** (Texture), **Marca (STL)** (Badge (STL)) and **Nome e número** (Name and number). Click the part on the model to choose which part to work on. Everything can be undone with `Ctrl + Z`.



Personalizar › Textura (Customize › Texture): in orange, what stays smooth for fitting

7.1 Textura (Texture)

1. **Onde** (Where): **Peça inteira** (Whole part) or **Só uma região** (Only a region). For a region, the selection tools (**Inteligente** (Smart), **Pincel** (Brush), **Nós** (Nodes)...) appear right in this step: mark the area (the sleeve, only the front of the shirt).
2. **Textura** (Texture): choose from the thumbnails.

Texture	Looks like
Canelado (Ribbed)	Upright ribs — team jersey
Jeans (Denim)	Diagonal twill
Tecido (Fabric)	Cross weave
Tricô (Knit)	V stitches of wool knit
Couro (Leather)	Irregular pores and wrinkles
Pontilhado (Dotted)	Dots in a honeycomb layout
Colmeia (Honeycomb)	Hexagons with a raised rim
Losangos (Diamonds)	Knurling like a tool grip
Ondas (Waves)	Wavy stripes
Areia (Sand)	Fine grain (hides the layer lines)

3. **Tamanho da trama** (Pattern size) and **Profundidade** (Depth) (click the number to type the exact value). With a 0.4 nozzle, the relief shows up well from 0.3 mm.
4. **Como as linhas correm** (How the lines run):
   - **Retas (paralelas)** (Straight (parallel)) (default): the lines go in a single direction across the whole part — front, back, sides, top and bottom. If they run top to bottom on the front, they run top to bottom everywhere; on the bottom and top they cross straight over, without meeting at a point (no star, no swirl). The texture only follows the surface.
   - **Em volta da peça** (Around the part): the lines wrap around an axis (good for round, long parts, like an upright leg or arm). At the ends they meet in the middle. Then choose the direction: **Em pé (vertical)** (Upright (vertical)) or **Seguir a peça** (Follow the part) (a sleeve lying down gets the texture along the arm). **Girar a textura** (Rotate texture) changes the angle (denim, stripes). In **Em volta da peça** mode, **Mesma direção na peça inteira** (Same direction on the whole part) appears (on): the upright rib stays upright even where the part bends up or down. When it's off, the top and bottom get their own map (the way old versions did it).
5. **Proteger encaixes e faces de corte** (Protect joints and cut faces) (on): where the part touches the others, the cut faces, pins, cavities and recess stay **smooth** — they appear in **orange** before you apply. That way everything still fits. Turn it off only on a part with flat faces and no joints.
6. **Ver prévia** (View preview): the part appears with the texture on screen, without changing anything. Rotate the model to check. Changed a setting? The preview goes away — click it again.
7. **Aplicar textura** (Apply texture): saves exactly what's in the preview.

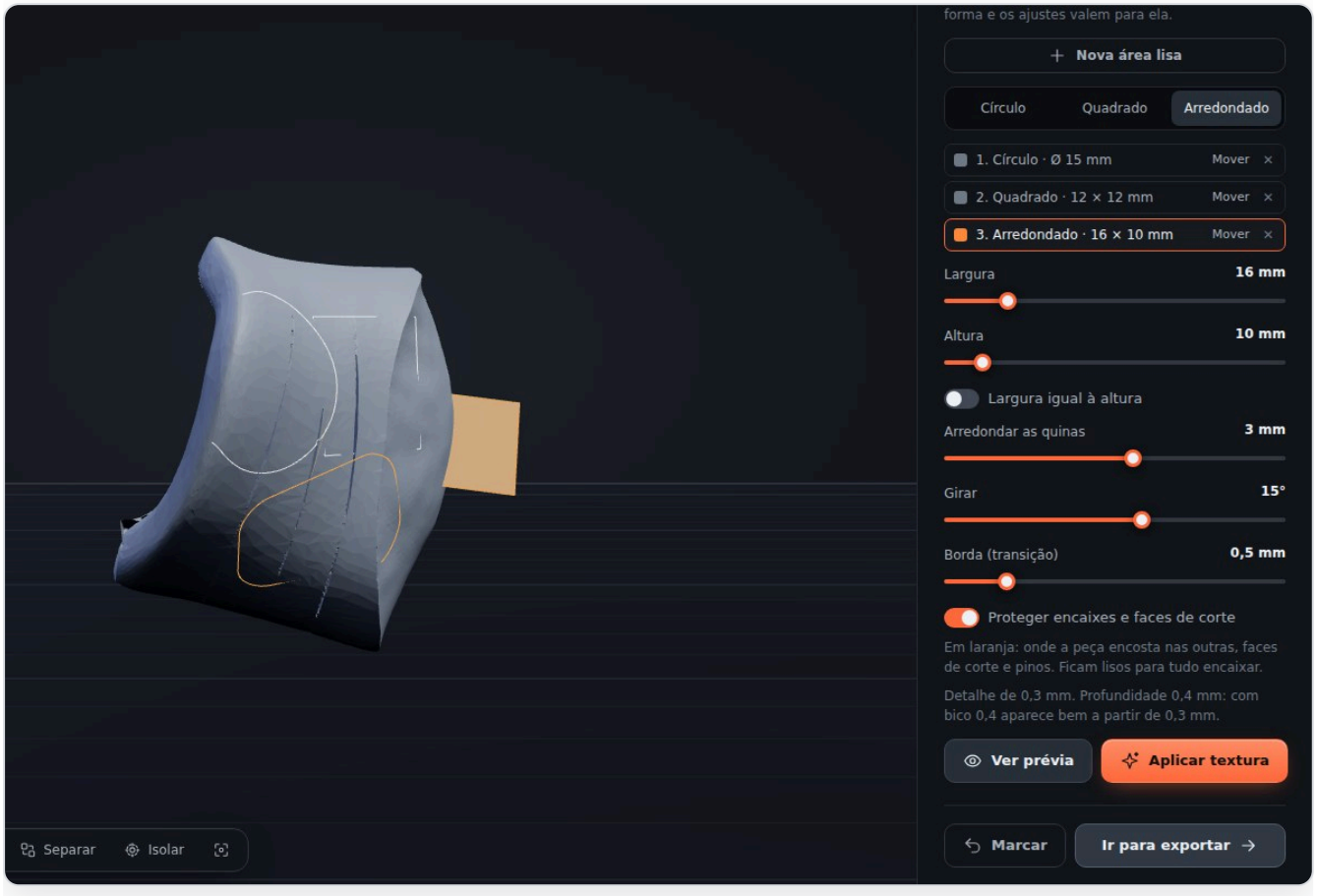
A part that already has a texture: applying again **replaces** the texture (it doesn't stack) — the program keeps the skin from before the texture. **Remover textura** (Remove texture) returns the part to that skin. In a project textured in an old version, the program looks for the earlier skin (in the cut or in the undo history) and offers **Usar a pele de antes da textura** (Use the skin from before the texture).

Smooth areas (for stickers)

Going to put a sticker (DTF, UV) on the textured part? Leave a **smooth** spot, without texture:

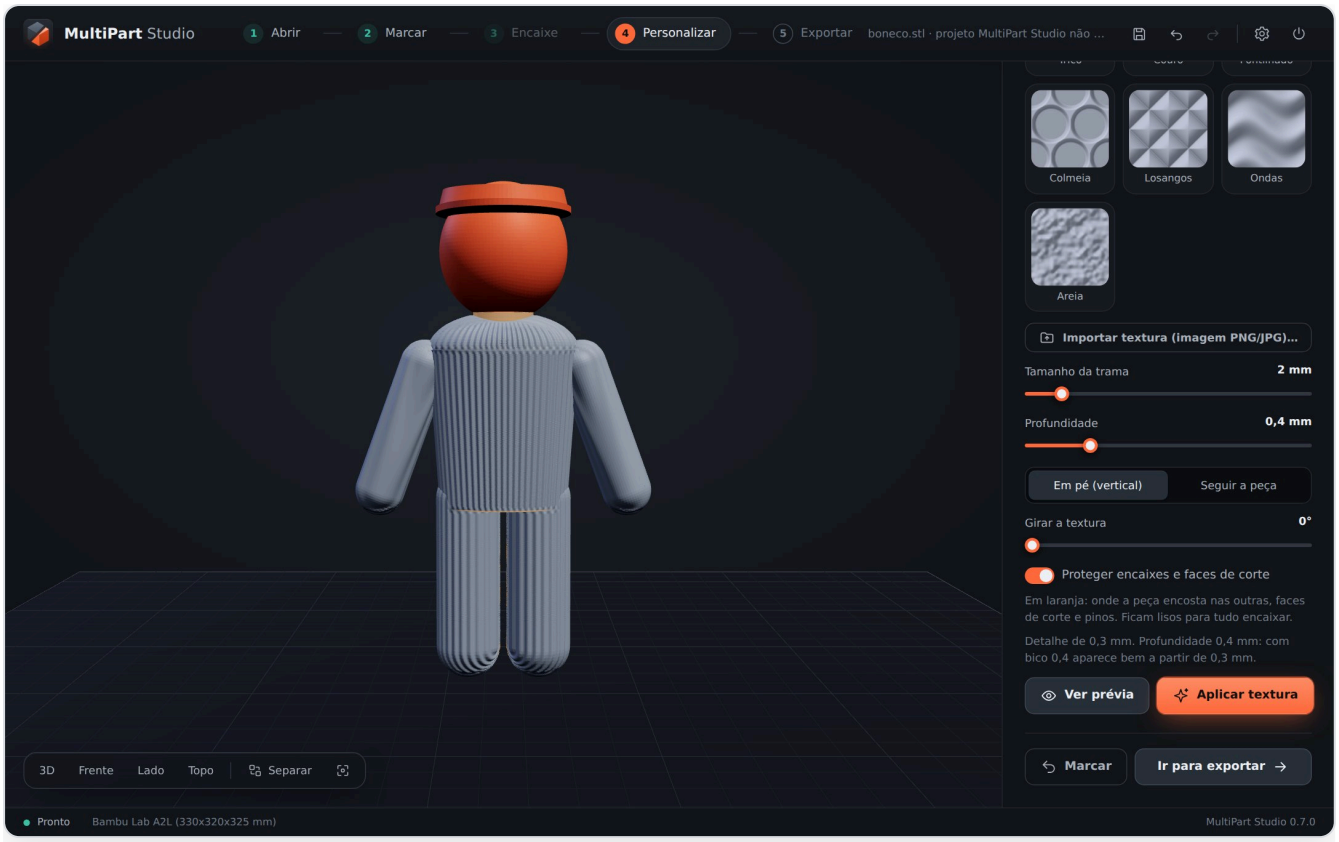
1. **Nova área lisa** (New smooth area), choose the shape — **Círculo** (Circle), **Quadrado** (Square) (sharp corners) or **Arredondado** (Rounded) — and click the part where the sticker goes.
2. Adjust **Largura** (Width) and **Altura** (Height) (with **Largura igual à altura** (Width equal to height) on, both move together; off, the circle becomes an ellipse). For **Arredondado**, **Arredondar as quinas** (Round the corners) sets the corner radius. **Girar** (Rotate) lines it up with the sticker. **Borda** (Edge) is the transition from smooth to texture (0.5 mm = crisp edge).
3. The outline appears on top of the part (orange = the chosen area). Make as many as you want; **Mover** (Move) and then click the new spot; ✕ deletes. Click an area in the list to change its shape and settings.
4. **Ver prévia** / **Aplicar textura** as usual: inside the area it stays **completely smooth**, ready for DTF.

If the skin under the area already has relief — a part textured before cutting or welding, when the program no longer has the earlier skin — the smooth area **smooths that relief too**: it keeps the part's curve and removes the old texture, without a trace. Skin that is already smooth is not touched.



Three smooth areas: circle, sharp-corner square and rounded with a 3 mm corner

The area is measured **on the skin itself**, like a real sticker: on a thin sleeve, shoulder or collar it bends with the part and comes out the size you asked for (20 mm wide = 20 mm along the surface). Inside it, the smooth skin stays exactly as it was — not pushed out, not pushed in — and it never goes through to the other side of a thin part. The texture around it rises and falls half the depth relative to the skin: the outline protects the edge of the sticker.



Canelado (Ribbed) applied to the body

> The texture is real geometry: the file gets bigger (a whole shirt with a 2 mm pattern goes over 1 million triangles). Larger pattern = lighter file.

7.1.1 Import your own texture

Any image can become a texture — your own drawing, a downloaded pattern, a photo of fabric.

1. **Importar textura (imagem PNG/JPG)** (Import texture (PNG/JPG image)) and choose the file.
2. The image is read in **grayscale: light = high, dark = low**. A color image works too.
3. **Emendar espelhando** (Mirror tiling) (on): repeats the image mirrored, so it tiles without a seam even if it wasn't made to repeat. Turn it off if your image already tiles on its own (seamless).
4. **Inverter (escuro = alto)** (Invert (dark = high)) when the design comes out reversed.
5. Adjust **Tamanho da trama** (Pattern size) (the size of one repeat of the image on the part) and **Profundidade** (Depth), **Ver prévia** (View preview) and **Aplicar** (Apply).

The imported texture is saved in MultiPart Studio and appears in the grid every time you open the program. The ✕ in the thumbnail's corner removes it from the list.

> Tip for making your own: a square image, 256 to 512 px, black background and white design, with soft edges (a slight blur) — the part comes out without jagged steps.

7.2 Marca (STL) (Badge (STL)) — shield, logo

1. **Escolher STL do escudo ou logo** (Choose shield or logo STL). It can be lying down or standing up: the thinnest dimension becomes the thickness.
2. **Click the part where the badge will go.** The preview appears in orange, molded to the curve of the surface.
3. Adjust **Largura** (Width) (mm) and **Girar** (Rotate). Click somewhere else to move it.
4. **Relevo (para fora)** (Embossed (outward)) or **Gravado (para dentro)** (Engraved (inward)), and the **Altura** (Height) or **Profundidade** (Depth).
5. **Resultado** (Result):
   - **Faz parte da peça** (Part of the piece): the badge becomes part of the part itself (one color only).
   - **Peça separada (outra cor)** (Separate part (another color)): the badge becomes a new part, to print in another color. With **Gravado**, it is **embedded flush with the skin** (like an embroidered crest on a shirt).
6. **Ver prévia** (View preview): the part appears exactly as it will turn out (the separate badge already in the other color), without saving anything. Rotate the model to check.
7. **Aplicar** (Apply): saves what's in the preview.

7.3 Nome e número (Name and number)

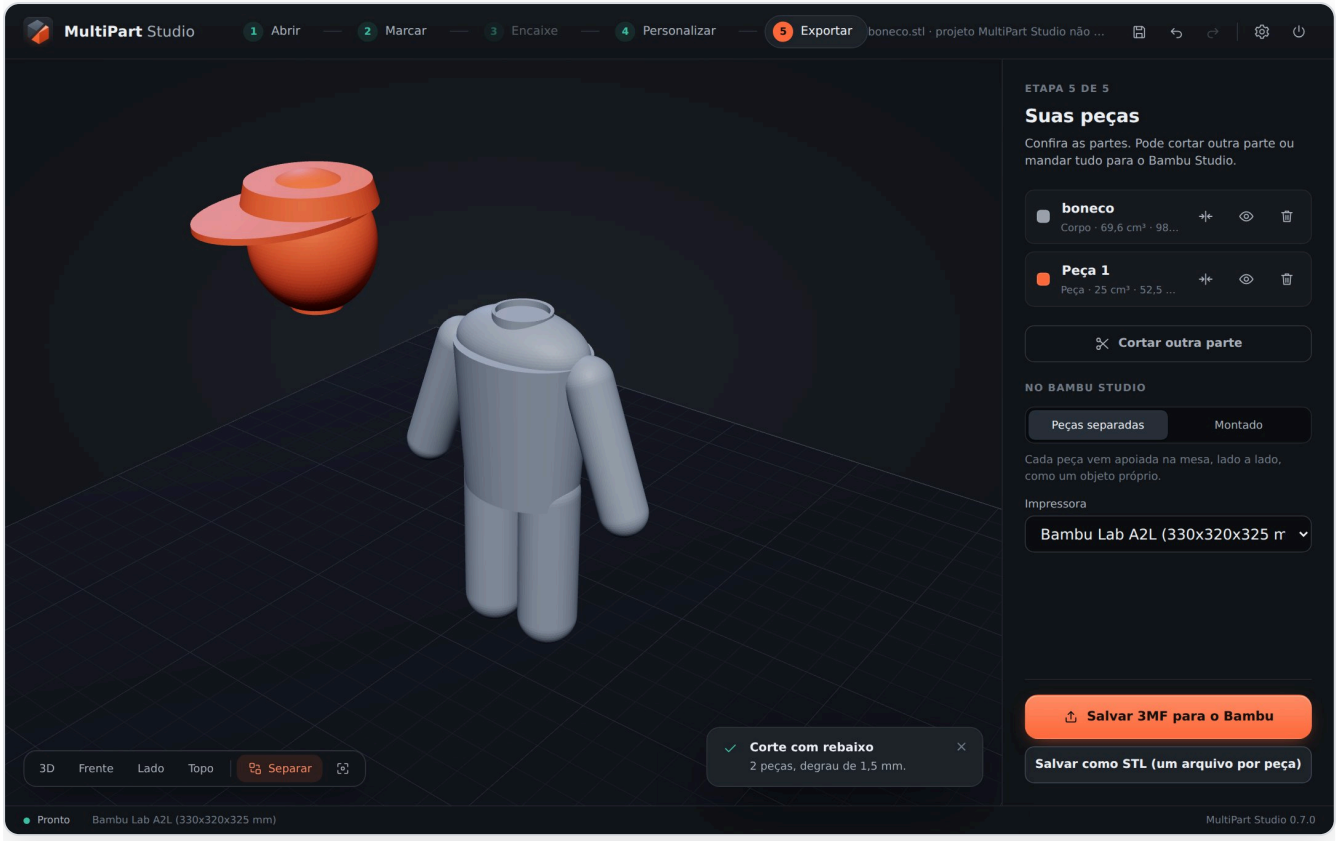
1. Type the text. `Enter` = second line (name on top, number below).
2. Choose the **font**: Anton, Bebas Neue, Oswald, Graduate (collegiate), Roboto Black or Teko (jersey numbers). Or **use uma fonte do seu computador** (use a font from your computer) (.ttf, .otf).
3. **Contorno em volta das letras** (Outline around the letters): an extra border from 0 to 2 mm.
4. **Click the part** where the text will go and adjust it as with the badge (width, rotation, embossed/engraved, separate part).
5. **Ver prévia** (View preview) to check the result and **Aplicar** (Apply).



Number 10 embedded, as a separate part for another color

> For a white number on a black shirt: **Gravado + Peça separada** (Engraved + Separate part). In Bambu, export **Montado** (Assembled) and paint the number part white.

8. Step 5 — Suas peças (Your parts) and export



Suas peças (Your parts), ready for Bambu Studio

In the parts list you can **rename** (click the name), **hide** (eye), **isolate** (crosshair), **delete** (trash can — comes back with `Ctrl + Z`) and **weld** (item 9).

The eye decides what goes to Bambu: only parts with the eye on are exported. Above the list, **Todas** (All), **Nenhuma** (None) and **Inverter** (Invert) turn all of them on or off at once — to send only the pants, click **Nenhuma** and turn on just that part.

Cortar outra parte (Cut another part): goes back to step 2.

No Bambu Studio (In Bambu Studio):

- **Peças separadas** (Separate parts): each part lying on the build plate, ready to slice.
- **Montado** (Assembled): a single object with the parts in place — use it for badges and numbers in another color.

Impressora (Printer): choose yours (build plate size).

Salvar 3MF para o Bambu (Save 3MF for Bambu): opens directly in Bambu Studio. The **.mlcut** project is saved along with it, with the same name.

Salvar como STL (Save as STL): one file per part. A file with the same name in the folder is **replaced** by the new one.

Where it saves: the save window opens in the **last folder you used** to export. After saving, the program opens that folder with the file already highlighted, and the message shows the full path. If the file is open in another program and can't be replaced, it warns you — the previous file isn't lost.

> In Bambu, if a part ends up off the build plate, press **A** (**Arrange**). A message saying the 3MF is not from Bambu Lab is normal.

---

9. Soldar (Weld) (undo a cut)

- **One part:** in the list, the **Soldar** (Weld) button (arrows meeting) joins the part with the part it came from. If nothing changed after the cut, you get back the **exact original part**.
- **Several parts:** in step 5, click the parts you want to join (in the list or on the model — orange glow) and then **Soldar N peças** (Weld N parts). The seam is smoothed automatically.

`Ctrl + Z` separates them again.

---

10. Save, undo and never lose your work

- **Salvar projeto** (Save project) (`Ctrl + S`) saves the **.mlcut** with the parts **and the history**: when you reopen it, `Ctrl + Z` and **Soldar** (Weld) still work. `Ctrl + Shift + S` = save as. While it saves, the message **"Gravando projeto... N%"** ("Saving project... N%") appears in the corner with a progress bar. A large project (200 MB or more) takes up to about 1 minute: **don't close the program or press any other button until the message disappears**. If you close it in the meantime, MultiPart Studio waits for the save to finish before exiting. If something goes wrong (full disk, file open in another program), the previously saved file stays intact.
- **Sair** (Exit): the power button at the top (or the window's X). If there are unsaved changes, MultiPart Studio asks: **Sim** (Yes) saves and exits (new project: you choose where to save), **Não** (No) exits without saving, **Cancelar** (Cancel) keeps you working.
- The top shows **"salvo hh:mm"** ("saved hh:mm") after each save, and **"projeto MultiPart Studio não salvo"** ("MultiPart Studio project not saved") while what's open is an STL or 3MF.
- **The 3MF is only for Bambu:** it doesn't carry the cuts, the undo history or **Soldar**. To continue working, always open the **.mlcut**.
- **Automatic session:** while you work, MultiPart Studio saves what changed in its own folder. If the computer shuts down, when you open it again it asks **"Continuar de onde parou?"** ("Continue where you left off?").
- **Desfazer / Refazer** (Undo / Redo): `Ctrl + Z` / `Ctrl + Y`. With a selection open, undo goes back through the selection first.

11. Configurações (Settings) and online update



Configurações (Settings) — updates

The **gear** at the top (next to **Sair** (Exit)) opens the **Configurações** (Settings), with three tabs. The **?** button (or **F1**) opens the **Ajuda** (Help) on the website.

- **Atualizações** (Updates)
  - **Procurar agora** (Check now): asks the official server if there's a new version. Only a version **newer** than yours appears.
  - **Atualizar agora** (Update now): MultiPart Studio keeps a **copy of the current version**, downloads the new one, **checks the file's signature (SHA-256)**, asks if you want to **save the project**, saves the session and **restarts already on the new version**. If any step fails, nothing is replaced and the program stays as it was.
  - **Lembrar depois** (Remind me later) hides the notice until the next check; **Pular esta versão** (Skip this version) stops announcing that version (the next one appears normally).
  - **Procurar ao abrir o programa** (Check when the program opens) (on by default): when it opens, MultiPart Studio checks silently. If there's something new, an **orange dot** lights up on the gear and a notice appears — click it to see. **It never downloads anything on its own.**
  - **Voltar a uma versão anterior** (Go back to a previous version): lists the copies kept before each update. **Voltar para esta** (Go back to this one) reinstalls that version (the current one is also kept).
- **Licença** (License) (0.12.0):

    - **7-day free trial** the first time you open the program, no sign-up. If there's no internet at that moment, the trial starts anyway; the server confirms it when there's a connection.
    - **Ativar a chave** (Activate the key): paste the key from the email (`ML-XXXXX-XXXXX-XXXXX-XXXXX`). You can paste it with spaces or in lowercase: the program fixes it on its own.
    - **Planos** (Plans): monthly, yearly or lifetime. The buttons open the MultiPart Studio page on the website. During the **testing phase**, sales aren't open yet. **Cortesia** (Courtesy) is a license with an expiration date given by ML Lopes Design.
    - **2 computers, one at a time.** The tag shows **Em uso em outro PC** (In use on another PC) when the license is open on another computer. **Usar neste computador** (Use on this computer) brings the license to this computer.
    - **Liberar este computador** (Release this computer): removes the key from this PC and frees up the slot, for example when you switch computers. The customer area on the website (**Minha conta e computadores** (My account and computers)) can also release it.
    - **Without internet:** up to 7 days. After that, or if the Windows date goes back in time, the program asks you to **Conferir agora** (Verify now) with internet.
    - Without a valid license or trial, **Cortar** (Cut) and **Exportar** (Export) are locked and the program opens this tab explaining why. Opening, viewing and saving the project remain available.
- **Sobre** (About): the version, the program folder and your data folder, with an **Abrir** (Open) button for each.

Updating needs internet only when checking and downloading. Everything else in MultiPart Studio works without internet.

12. Shortcuts

Key	What it does
`F1`	Help (opens in the browser)
`Esc`	Exits **Ajustar pino** (Adjust pin)
`Ctrl + O`	Open model
`Ctrl + S` / `Ctrl + Shift + S`	Save project / Save as
`Ctrl + Z` / `Ctrl + Y`	Undo / redo
`F`	Frame the model (outside selection)
`H`	Isolate the part under the mouse / show everything again
`I`	Flip the side that comes off (**Plano** (Plane) mode)
`Esc`	Clear the marking / cancel the outline / clear the part selection
`Enter`	Apply the outline / use the selection / cut (step 3)
`W` `P` `O` `B` `V` `F` `E`	**Inteligente** (Smart), **Nós** (Nodes), **Forma** (Shape), **Pincel** (Brush), **Objeto** (Object), **Face**, **Esculpir** (Sculpt)
`C`	Center the view on the selection
`[` / `]`	Shrink / expand the selection
`Shift` / `Alt`	Add to / remove from the selection (**Esculpir**: smooth / invert)
Right button + drag	Rotate the view
Middle button + drag	Move the view
Scroll wheel	Zoom

13. Common problems

What you see	What to do
"O modelo tem furos" ("The model has holes")	The mesh isn't closed. In Bambu Studio: right-click the object › **Fix model**, save and open it again in MultiPart Studio. Thin tears in AI-made meshes: **Acabamento › Achar rachaduras › Costurar** (Finishing › Find cracks › Stitch).
"Não consegui fazer um corte reto nessa borda" ("I couldn't make a straight cut on this edge")	The edge wraps around the part or is too crooked for a plane. Mark the edge in a straighter spot, or use **Automático** (Automatic) or **Raso** (Shallow) (eye, nose, mouth).
"O rebaixo não cabe nesse corte" ("The recess doesn't fit in this cut")	Lower the recess height or use **Reto** (Straight).
"Um pino de X mm não cabe nesse corte" ("An X mm pin doesn't fit in this cut")	Make the pin smaller, turn on **Automático**, or use **Rebaixo** (Recess) or **Sem pino** (No pin).
"A borda da seleção se cruza" ("The selection edge crosses itself")	The selection has a tiny hole or a spike on its edge. Use **Crescer/Encolher** (Grow/Shrink) once and cut again. Since 0.11.5, the spot where two surfaces of the model touch (collar × head) no longer causes this error.
"Não deu para manter o furo do pino que já atravessa esta peça" ("Couldn't keep the hole of the pin that already goes through this part")	The hole of the old long pin didn't close properly for the cut. Adjust the selection (**Crescer/Encolher**) and try again.
The texture "só tem faces planas, de corte ou de encaixe" ("only has flat, cut or joint faces")	The marked area is entirely flat (a part with flat faces). If there's no joint there, turn off **Proteger encaixes e faces de corte** (Protect joints and cut faces).
The badge "passa da borda da peça" ("goes past the edge of the part")	Reduce the width or click closer to the middle of the surface.
The brush doesn't pick up everything	Brush and outline pick up only what shows in the view. Rotate the model and go over it again with `Shift`.
The selection leaks into another part	Lower **Giro total máximo** (Maximum total turn) or **Variação de superfície** (Surface variation), or raise **Peso das dobras internas** (Inner fold weight). Remove the excess with `Alt` + brush.
The cut or the texture takes a long time	Models with millions of triangles take a few seconds. You can **Cancelar** (Cancel).
"Sem conexão" ("No connection") when checking for updates	Check your internet and try again. A company firewall may block **github.com**.
"A pasta não aceita gravação" ("The folder doesn't allow writing") when updating	MultiPart Studio was copied to a protected folder (e.g., Program Files). Reinstall it with the installer — it installs into your user folder.

14. Support

When asking for help, send:

- the **version** (bottom-right corner);
- the **neutralinojs.log** file, which is in the program folder;
- if possible, the **.mlcut** project and a screenshot.

15. What's new by version

What was added in each version, from newest to oldest.

License: 7-day trial, monthly, yearly, lifetime or courtesy (0.15.0)

> Starting with 0.15.0, licensing is **turned on**. We're in a **testing phase**: plan sales open soon. Questions: the contact form on the MultiPart Studio page on the website (**Ver planos** (See plans) button). If you receive a **Cortesia** (Courtesy) license, you'll see its expiration date in the **Licença** (License) tab.

The first time you open it, MultiPart Studio unlocks a **7-day full trial**, no sign-up: cut, export and save, everything unlocked. The orange tag at the top (**Teste · 7 dias** (Trial · 7 days)) shows how much time is left. After that, choose a plan on the website, **monthly, yearly or lifetime**, and activate the key that arrives in your email in **Configurações › Licença** (Settings › License).

Without a license, the program **opens and displays** your models and projects, but **Cortar** (Cut) and **Exportar** (Export) are locked.

Each license works on **2 computers, one at a time**. If you open it on your laptop while the studio PC is using it, **Em uso em "PC-ESTUDIO"** (In use on "PC-ESTUDIO") appears. Click **Usar neste computador** (Use on this computer) and the other one pauses on its own within 5 minutes. When one closes the program, the other comes back on its own.

Without internet, it works for up to **7 days** since the last check. **Ajuda** (Help): the **?** button at the top or the **F1** key.

Thin parts and statues (0.14.0)

For any part with a thin rod, a veil, a cape, or an area that traps supports. All worked out for 3D printing.

Corte Haste (Rod cut) — remove a handle, spear, trident, staff or stick that's attached to the model and print it separately.

1. Step 2, **Seleção inteligente** (Smart selection): paint a stretch of the rod, away from the hand. About 2 to 3 cm is enough. Confirm.
2. Step 3, **Tipo de corte: Haste** (Cut type: Rod). Choose:

    - **Até o primeiro contato** (Up to the first contact) (default): the rod stops where it first touches something.
    - **Inteira** (Whole): follows whatever touches it from the side and stops where it fully enters the body.
3. **Cortar** (Cut). The program follows the rod in both directions, even if it's curved:
    - where it **passes through** a hand or wrist, the rod comes out **whole** (rebuilt inside, with no seam at the wrist) and the hand gets a **through-hole** with the material clearance. When you assemble it, the rod goes through the hole;
    - where it **goes into** the body or the base, it gets a **joint hidden behind it**: a tab thinner than the rod, which stays in its shadow and doesn't show;
    - flowers, leaves, the tip and decorations on the rod itself go along with it.
4. Print the rod **lying down**. Below Ø 2 mm, use a **0.2 nozzle** (the warning reminds you).

If the rod doesn't touch anything, or if **Inteira** mode would cut a thin wall, the program refuses and explains. **Soldar** (Weld) returns the original part.

Espessura (Thickness) (button below the view) — paints what is too thin to print.

- The colors:
    - red: below 0.8 mm;
    - orange: up to 1.2 mm;
    - yellow: up to the chosen limit.
- The limit: 1.0 mm (0.2 nozzle), 1.6 mm (0.4 nozzle) or 2.4 mm.
- The list separates **Haste** (Rod) (handle, stick: use the Rod cut) and **Lâmina** (Thin sheet) (veil, leaf, flap: from 0.8 mm up it prints with a 0.4 nozzle). Click to go to the region.

Suportes (Supports) (button below the view) — shows the supports the slicer will add, with the part in the position it appears on screen (standing).

- The colors:
    - **blue**: goes down to the build plate, comes off easily;
    - **yellow**: rests on the part itself and leaves a mark underneath;
    - **magenta**: gets **trapped**, surrounded by the part (inside the cape, under the veil, between the arm and the body). It shows through the model, like an X-ray.
- The support angle: 35°, 45° (the slicers' default) or 55°.
- The position line compares the 6 print orientations and tells you which one traps the least.
- To get rid of what gets trapped, separate that part (cape, veil, arm) with a cut. Each piece prints with the gap facing out.

Altura do pino (Pin height) (**Ajustar pino** (Adjust pin)) — now the **loose pin** can also change height. It grows or shrinks by half at each end, and the holes follow. The attached pin could already change. Pin too shallow? Increase the height. If the wall can't take it, the program refuses and explains.

Adjusting the pin after the cut, and proportional pin (0.13.0)

Ajustar pino (Adjust pin) (step 5, **Suas peças** (Your parts)): change the size of a pin that has already been cut. Works for old cuts too. You don't need to undo (Ctrl+Z) or weld, and later cuts aren't lost.

1. Click **Ajustar pino** and then the pin, on its side or tip. If it's hidden inside the joint, use **Separar** (Explode), **Isolar** (Isolate) or hide the other part. Clicking the hole, or the face around the base of the pin, also works (0.13.1).
2. The panel shows the current pin (shape, size, length), which part the hole is in, and the **clearance**, which is kept. If the measured clearance matches the chosen material's, the material's value is used exactly; if the cut was made with a different clearance, the measured value is used.
3. Type the **diameter** (or the **side**, for square and triangular pins) and, for an attached pin, the **length**. **Usar** (Use) applies the suggestion: 40% of the cut's width at that spot.
    - The blue cylinder shows the new pin through the model.
4. **Prévia** (Preview) rebuilds the joint and **Confirmar** (Confirm) applies it. **Ctrl+Z** undoes.

What changes and what doesn't:

- only the pin area changes: the old pin is removed, the old hole is filled in and the new one is opened with the **same clearance**;
- the pin's shape and position stay the same;
- the rest of the parts don't change;
- **Soldar** (Weld) still returns the original part.

If the new pin leaves less than 1.2 mm of wall around the hole, or is larger than the face it grows from, the program refuses and explains.

Proportional automatic pin (selection cut): the automatic pin now starts at **40% of the cut's width**, between 4 and 30 mm, with a length of about 0.6 × the pin. A 60 mm waist gets a pin of about 24 mm (before, 10 mm at most). If it doesn't fit, it shrinks until it fits, as before. The material clearance hasn't changed. **Plano** (Plane) mode stays the same.

Recess with pin and recess on the contour (0.11.9)

In the **Rebaixo** (Recess) type you can now choose the **pin**: it goes in through the bottom of the step. And when the marked edge wraps around or isn't flat (the **collar** around the head), the **Rebaixo** follows the edge you marked: the seam goes in by the recess measurement **straight into the skin**, in a smooth line, with no teeth or slivers — the head sinks into the collar and anything irregular the cut leaves stays hidden inside. Details in the **Tipo de corte** (Cut type) section.

Rounding the contour through nodes (0.11.7)

In the **Nós** (Nodes) tool, after marking the points, click **Arredondar contorno** (Round contour) (or press **R**). The curve passes exactly through all the nodes and becomes smooth, with no little corners at the nodes — the nodes don't move. **Ctrl+Z** puts it back as it was. Use it when the drawing is all round (eye, button, spot); for a drawing with sharp corners, don't use it.

Skin selection that stops at the edge (0.11.6)

Parar na borda do objeto (Stop at the object's edge) (on by default): **Forma** (Shape) and **Pincel** (Brush) stay on the object where you started — the eye, the eyebrow — and stop at its fold with a smooth edge, no teeth. If the ellipse goes past the eye, only the eye goes in. Nothing hidden gets in (the back part, behind the eye, is left out). Turn it off for the shape to pick up all the skin it covers.

Inteligente pega o objeto inteiro (Smart picks the whole object) (on by default): one click on the eye picks the whole eye, up to the fold of the eye socket — skin only. Turn it off to go back to the click with the **Limites da região** (Region limits) (turn, reach).

The **Forma stays stuck to the skin**: once it's placed, rotate or move the view and it goes along, in the same spot on the model.

Depth later: the selection is only the skin. How deep it goes you choose in the **Encaixe** (Joint) step — **Automático** (Automatic) or **Raso** (Shallow) (e.g., 1, 2 or 10 mm, the bottom follows the skin) or **Gaveta** (Drawer) (straight inward).

Gaveta (Drawer) (0.11.0) — straight, clean cut

Mark the part (**Pincel** (Brush), **Inteligente** (Smart), **Forma** (Shape) or **Nós** (Nodes)). In the **Encaixe** (Joint) step, **look straight at it** and choose **Gaveta** (Drawer). The drawer direction is the view direction at that moment (the "Usar direção da vista atual" (Use current view direction) button redoes it). Type the **Profundidade da gaveta** (Drawer depth): how far the part goes inward, measured from the most protruding point of the area.

The program cleans up the outline in the drawing (no spikes, teeth or tiny holes; smoothed line) and pushes that outline straight in to the depth you typed, with a flat bottom. The part comes out exactly with the marked outline; the body gets the cavity, with the material clearance on the wall (the clearance is taken from the body). Anything the drawer passes through without being marked stays whole in the body. Nothing grows or gets stitched on its own: if the wall runs close to a parallel skin, a warning tells you — always check in the **Prévia do recorte** (Cutout preview) before confirming.

Selection (0.11.1): Pincel, **Nós** and **Forma** pick up all the skin you paint, including old cut faces and faces touching another part (the inside of the mouth, for example). The toggle "não pegam face de corte antigo..." ("don't pick up old cut faces...") brings back the old behavior and is off by default.

Removing a part by volume — 0.10.0

Mark the part with **Pincel** (Brush), **Inteligente** (Smart), **Forma** (Shape) or **Nós** (Nodes). In the **Encaixe** (Joint) step, look straight at it and choose **Retirar volume** (Remove volume). The program measures how far the selection reaches in that direction and, the first time you choose it, suggests that reach plus 1 mm. You can type another **Profundidade total** (Total depth), from 0.01 to 100 mm.

The depth starts at the most protruding point and goes into the model down to a flat back face. The removal takes the material inside the projected area, without creating a thin shell. Body and part come out closed, with no pin and no clearance in this mode. **Prévia do recorte** (Cutout preview) lets you check; **Confirmar este recorte** (Confirm this cutout) applies the result. If you rotated and want to change the cut direction, click **Usar direção da vista atual** (Use current view direction) and calculate a new preview. Rotating just to inspect does not change the chosen direction.

Bolso reto (Flat pocket), **Rebaixo** (Recess), **Raso** (Shallow), **Contorno** (Contour) and the joints are still available. There is no automatic switch to **Retirar volume**. An area that includes separate parts, or an unsuitable depth, can create fragments: in that case the cut is refused and the original is preserved. Checked on test models with a 15 mm relief and an open mouth; the old rebuilt selection of the sabiá's mouth was still refused and is not presented as solved.

In selection, adding hidden skin now requires **Peça inteira** (Whole part). Adjustments confirmed with Alt are kept in the cut. Ctrl+Z undoes and Ctrl+Y redoes.

Erasing a relief and continuing the surface — 0.9.1

Select the whole detail (shield, emblem or raised feature), including its edge and a small margin of the shirt. Click **Apagar e preencher** (Erase and fill). The program rebuilds the area using the height and slope of the surrounding surface; recognized bands continue through the erased area. **Ctrl+Z** returns to the original and lets you select/erase again.

Detailed selections received a fix for the memory error. The seam is smoothed, but a transition may still be visible on AI-generated models. Check the finish before exporting; there is no guarantee of recovering the design hidden under the relief.

Moving the view — 0.9.0

Did the zoomed-in face disappear behind the top bar? Click the work area and use ↓ to move the model down. ↑ moves it up; ←/→ move it sideways. **Shift + arrow** moves faster. Zoom and rotation stay the same. If a field has focus, the arrows adjust that field: click the work area to go back to moving the view. The middle mouse button is still available.

Prévia do recorte (Cutout preview) — 0.8.0

In the **Encaixe** (Joint) step, choose type, depth and pin. Click **Prévia do recorte** (Cutout preview) to calculate the current type; **Cortar** (Cut) opens the choice and also shows the preview before applying a single cut. Rotate the model to check. **Voltar ao original e ajustar** (Back to original and adjust) lets you change and calculate again. **Confirmar este recorte** (Confirm this cutout) applies exactly the result shown. Changing the parameters or going back to the **Marcar** (Mark) step discards the preview. The preview does not modify the project and is not saved. Batch cuts keep the previous flow: check one selection at a time.

Raso (Shallow) follows the curvature of the skin, going in by the chosen depth. **Bolso reto** (Flat pocket) keeps a flat bottom and may be refused on an area that wraps around the part. **Peça inteira** (Whole part) keeps removing the complete limb in **Automático** (Automatic); an explicitly chosen type takes priority. Cuts that create fragments are refused and the original is preserved.

Seleção exata (Exact selection) — 0.7.35

The **Pincel** (Brush) comes with **Seleção exata** (Exact selection) turned on. The edge follows your stroke and splits the triangles it passes through. **Nós** (Nodes) and **Forma** (Shape) also cut along the outline. **Alt** removes the painted area; **Ctrl+Z/Ctrl+Y** undo/redo the selection. To select whole triangles, turn off **Seleção exata** or use **Face**. **Objeto** (Object) still selects the whole part. This follows your drawing; automatic fitting to the crease is a separate option.

Choose before cutting — 0.7.34

When you click **Cortar** (Cut), choose **Seguir o contorno marcado** (Follow the marked contour) to follow the edge of the part, or **Fazer uma face plana** (Make a flat face) for a flat section. **Usar o tipo escolhido** (Use the chosen type) keeps **Bolso reto** (Flat pocket), **Rebaixo** (Recess), **Raso** (Shallow) or **Casca** (Shell) with the measurement you set. **Voltar sem cortar** (Go back without cutting) cancels without changing the part. Pin and the **Sem pino** (No pin) option are still available in the **Encaixe** (Joint) step. **Plano** (Plane) mode keeps its own flow.