

LayerS Peek

3D Print Viewer

Complete User Guide

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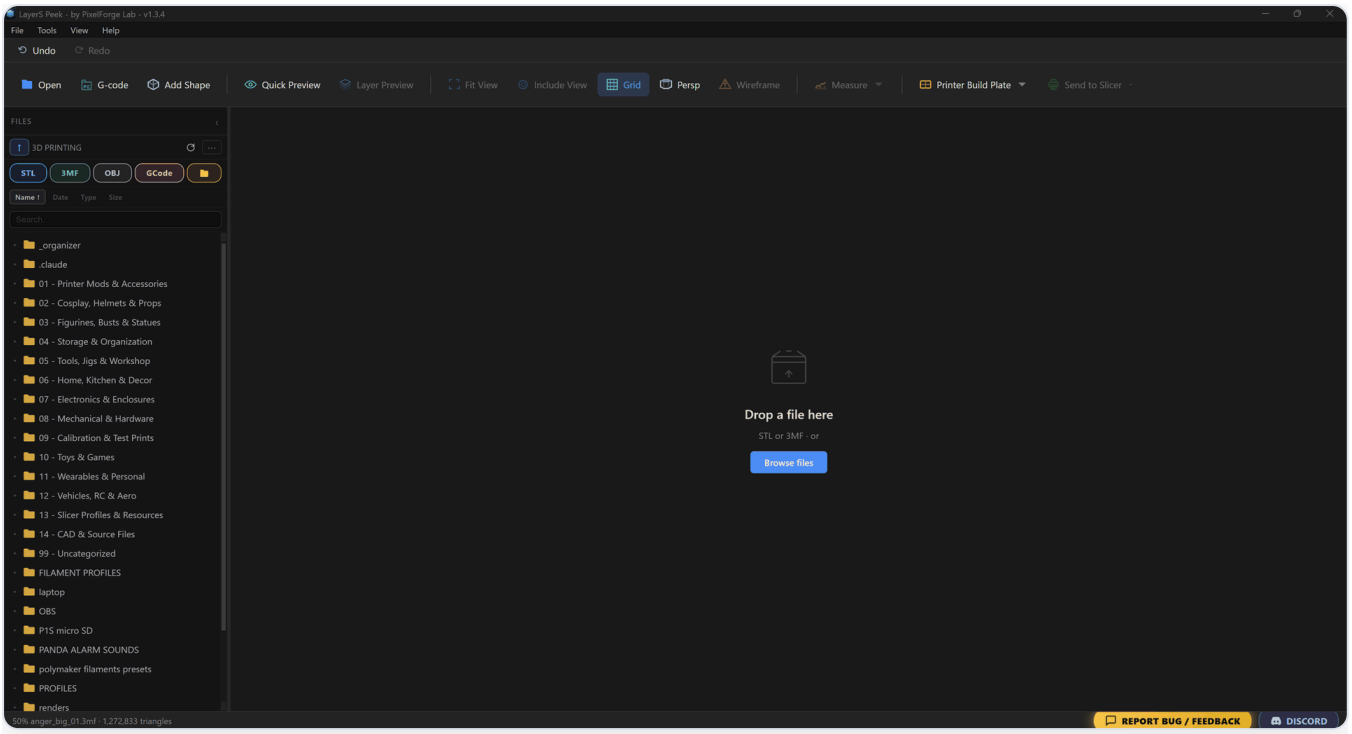
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LayerS Peek

3D Print Viewer

by PixelForge Lab

1 · Introduction & System Requirements

LayerS Peek is a Windows desktop application for viewing and inspecting STL, 3MF and OBJ files — the three most common 3D printing formats. It is designed for makers, engineers and designers who need a fast, lightweight viewer with measurement and inspection tools without the overhead of a full slicer.

The application is built on Electron and Three.js, giving it native Windows integration alongside GPU-accelerated 3D rendering. It supports full-colour multi-material Bambu Studio 3MF exports and is able to display per-triangle filament colours exactly as the slicer intended.

Key highlights

- Opens STL, 3MF and OBJ files instantly via drag-and-drop, dialog or file browser
- Full-colour Bambu Studio 3MF support with per-filament paint colours
- **Quick Preview** — browse a whole folder of models with the arrow keys, with a live 3D preview of each
- **Layer Preview** — visualise a model building up layer by layer at any layer height
- Precision measurement tool with vertex/edge snapping and axis-locked constrained mode
- Orthographic and perspective cameras with a six-face navigation cube
- Printer Build Plate overlay for Bambu Lab printers
- Fully configurable keyboard shortcuts
- Resizable file browser panel for navigating model libraries

System requirements

Component	Minimum	Recommended
OS	Windows 10 (64-bit)	Windows 11
GPU	Any DirectX 11 compatible GPU	Dedicated GPU with 2 GB VRAM
RAM	4 GB	8 GB or more
Disk	300 MB free space	1 GB free space
Display	1280 × 720	1920 × 1080 or higher

2 · Installation

LayerS Peek is distributed as a single Windows installer (`.exe`) built with NSIS. Installation is per-user by default and does not require administrator privileges.

Installing

1. Download the latest installer — **LayerS Peek Setup x.x.x.exe** — from the releases folder.
2. Double-click the installer. It will install silently and launch the application when done.
3. A shortcut is placed on the Desktop and in the Start Menu automatically.

Updating

To update, simply run the newer installer on top of an existing installation. Your settings and shortcuts are saved in the Windows user data directory and are preserved across updates.

Uninstalling

Go to **Settings** → **Apps**, search for "LayerS Peek" and select **Uninstall**. Alternatively, use **Add or Remove Programs** in Control Panel.

> **NOTE**
>
> Your personal settings (default folder, custom keyboard shortcuts) are stored separately and will **not** be removed by the uninstaller. Delete the folder `%APPDATA%\3d-print-viewer` manually if you want a complete clean removal.

3 · Interface Overview

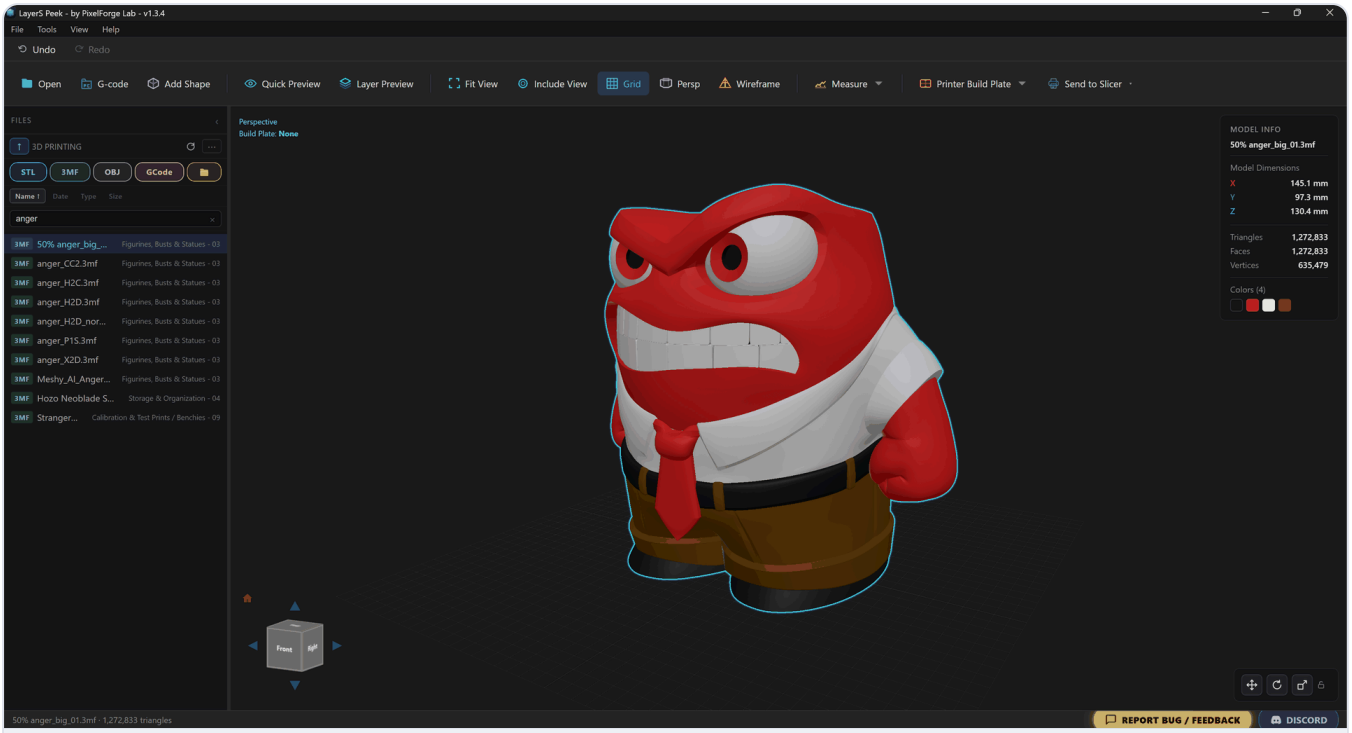


Fig. 1 — Main application window with a coloured 3MF model loaded (Anger character, Bambu Studio export)

3.1 Menu Bar

The thin bar at the very top of the window contains three menus: **File**, **Tools**, and **View**. Click any menu title to open its dropdown. While a menu is open, hovering over another title switches to that menu without an extra click. All menu items show their associated keyboard shortcut on the right.

3.2 Toolbar

The toolbar below the menu bar gives single-click access to the most frequently used actions. All toolbar buttons are also reachable via menu or keyboard shortcut.

Button	What it does
Open	Opens a file dialog to browse for an STL, 3MF or OBJ file.
Quick Preview	Switches to Quick Preview mode — an icon grid of a folder's models on the left, with a live 3D preview of the selected file filling the rest of the window. See Section 8.4.
Wireframe	Toggles wireframe rendering on/off. Useful for inspecting internal geometry.
Layer Preview	Reveals the model from the bottom up, layer by layer, as a slicer preview would. See Section 8.3.
Fit View	Resets camera to the default isometric angle and zooms to fit the model.

Include View	Keeps the current camera angle but zooms to fit the model in the viewport.
Grid	Toggles the viewport floor grid on or off. The button is highlighted when the grid is visible (default on).
Persp / Ortho	Toggles between Perspective and Orthographic projection. The button label reflects the current mode.
Measure ▾	Opens the measurement mode selector. Choose *Free Measure* or *Precise Measure*. The button shows the active mode name when a mode is active.
Printer Build Plate ▾	Selects a Bambu Lab printer model to show a scaled build plate grid overlay in the viewport. Select *Off* to hide it.

3.3 File Browser Panel

The collapsible panel on the left side of the window lets you browse folder trees without leaving the application. Click a supported file to load it instantly. The panel width is adjustable — drag the divider between the panel and viewport to resize. To collapse the panel entirely, click the toggle arrow at its top.

The toolbar inside the panel provides several ways to find files quickly:

- ↑ **(Up)** — navigate to the parent folder.
- ⋯ **(Browse)** — open a folder picker dialog to jump to any folder.
- **Filter pills** (STL · 3MF · OBJ) — show or hide files by type. Active pills are highlighted; click again to toggle.
- **Sort buttons** (Name · Date · Type · Size) — click to sort the file list by that column. Click again to reverse the direction. An arrow (↑ / ↓) indicates the active sort.
- **Search box** — type to find files whose name contains the search term. It searches *every* folder beneath the one you are in, not only the branches you have expanded, so you can type a name from the top of your library and it will be found wherever it lives. Each result shows the folder it came from on the right. Click × to clear.

Hover tooltip — hovering over any file in the browser shows a tooltip with its **size** and **last-modified date**, so you can identify the right version without loading it.

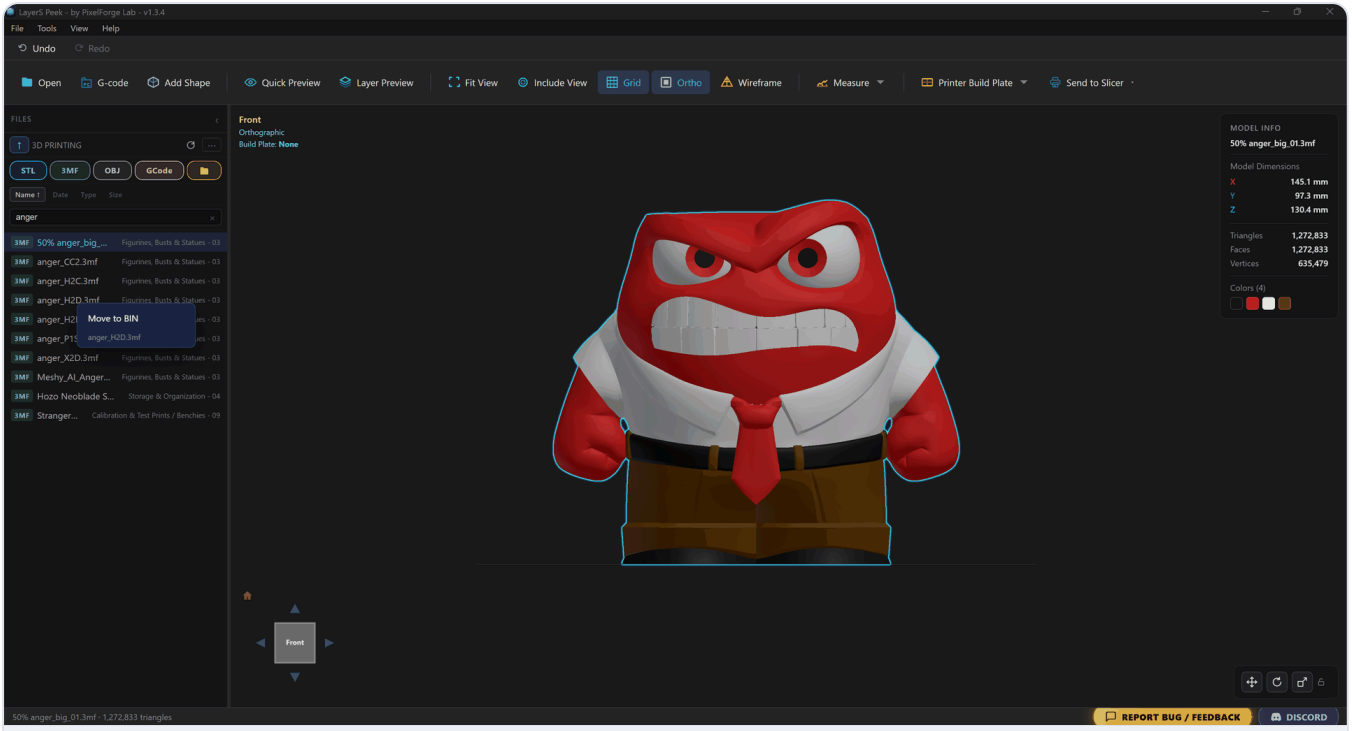
> **TIP**
>
> Set a **Default Folder** in *File → Settings…* so the browser opens to your model library automatically every time you launch the app.

Refreshing, and removing files

The **refresh** button beside the folder name re-reads the folder, for files you have added outside the app — downloaded, unzipped or copied in while LayerS Peek was open. It keeps the folders you have expanded open, and the same button exists in Quick Preview.

Right-click a file and choose **Move to BIN** to get it out of your library. The file is not erased: it moves into a folder called **BIN** at the top of the library you are browsing, keeping the folders it came from, so two files with the same name cannot overwrite one another and anything can be dragged back. Empty the BIN yourself, in Explorer, when you are sure.

> **Moving files to BIN frees no disk space.** They are still on the drive, just out of the way — which is why the panel shows what the BIN is holding once it has anything in it. The BIN folder itself is hidden from the file panel and from search, so deleted files do not come back as results.



Right-clicking a file in the panel — **Move to BIN** takes it out of the library without erasing it

3.4 Viewport & Overlays

The large central area is the 3D viewport. It always contains:

- **View label** (top-left corner) — shows the current camera face name (e.g. *Front*, *Top*), projection mode, and active Build Plate.
- **Navigation gizmo** (bottom-left) — a coloured 3D cube plus four arrow buttons (▲▼◀▶) and a home icon. Click a cube face to snap to that view; click an arrow to step one face at a time; click the home icon to reset the camera back to the original angle when the model was first loaded.
- **Quick Fit / Include buttons** — two small icon buttons above the navigation gizmo for fast camera resets without reaching the toolbar.
- **Model Info panel** (top-right corner) — appears once a model is loaded and shows the file name, triangle count, face count, vertex count, and a row of colour swatches for each filament colour in the model.

3.5 Status Bar

The thin bar at the bottom of the window shows the active file name and triangle count once a model is loaded. Error messages also appear here.

4 · Opening & Loading Files

4.1 Supported File Formats

Format	Extension	Notes
STL	.stl	Binary and ASCII. Single colour (blue by default).
3MF	.3mf	Full colour support including Bambu Studio multi-filament exports with per-triangle paint colours. Also reads standard `m:colorgroup` / `basematerials` colour data.
OBJ	.obj	Geometry only (no MTL material file). Single colour.

> **BAMBU STUDIO 3MF**
> When you export a painted model from Bambu Studio, the app reads filament colours directly from `Metadata/project_settings.config` inside the 3MF archive and displays each face in its assigned filament colour. There is no extra setup required.

4.2 Ways to Open Files

Drag & Drop

Drag any STL, 3MF or OBJ file from Windows Explorer and drop it anywhere in the LayerS Peek window. The file loads immediately. This is the fastest method.

When no file is loaded, the viewport shows a drop zone with a **Browse files** button as an alternative to dragging. Clicking it opens the same file dialog as the toolbar Open button.

File Open Dialog

Click **Open** in the toolbar, choose **File** → **Open File** from the menu bar, or press <kbd>Ctrl</kbd>+<kbd>O</kbd>. A standard Windows file browser opens filtered to supported extensions.

File Browser Panel

Use the left-side panel to navigate your folder structure. Click any `.stl`, `.3mf` or `.obj` file in the tree to load it without opening a dialog. Set a default starting folder in *File → Settings…*.

Windows File Association

The installer registers LayerS Peek for `.stl`, `.3mf` and `.obj` files. Set it as the default application for a file type (right-click a file → *Open with* → *Choose another app* → tick *Always use this app*) and double-clicking any model in Windows Explorer opens it directly in LayerS Peek. If the app is already running, the file loads into the existing window rather than opening a second one.

Quick Preview

When you are not sure which file you want, **Quick Preview** lets you step through every model in a folder with the arrow keys and see each one in 3D before committing. See Section 8.4.

4.3 Loading Progress Indicator

When a file is loading, a circular progress indicator appears over the viewport. A smooth ring fills from 0 % towards 100 % as the file is parsed and the geometry is built. When loading completes the ring jumps to 100 % and the overlay fades out automatically.

For most STL files this happens in under a second. Large, highly-detailed Bambu 3MF files with many coloured faces may take a few seconds — the indicator ensures you always know the app is working.

5 · 3D Navigation

5.1 Mouse Controls

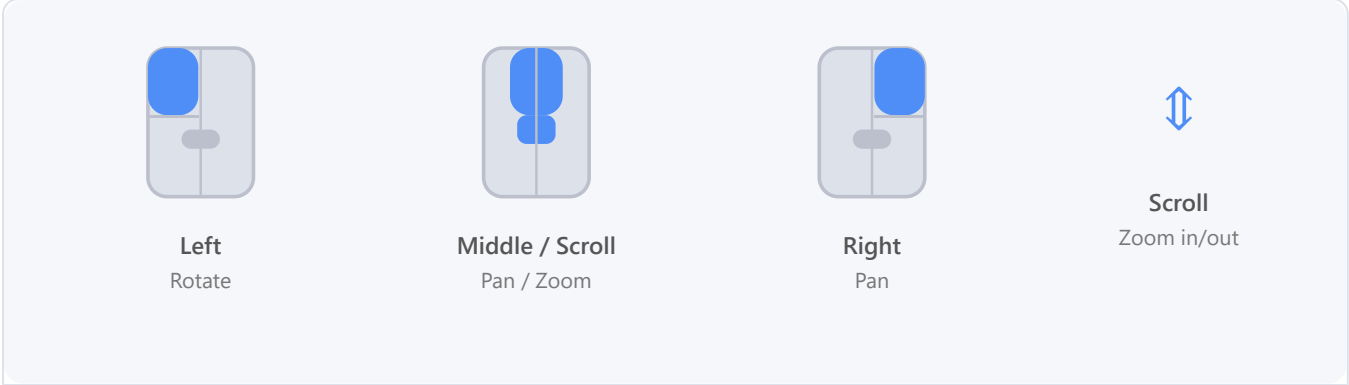


Fig. 2 — Mouse button assignments in the viewport

Action	Mouse button
Rotate the model	Left button — drag
Pan the camera	Middle button — drag or Right button — drag
Zoom in / out	Scroll wheel

5.2 Navigation Cube

The navigation gizmo in the bottom-left corner of the viewport shows the current camera orientation in real time. It combines a clickable cube with arrow buttons and a home icon.

- **Click a face** — snap to that orthographic view exactly (e.g. click *Front* to look straight at the front of the model).
- **Click an edge** — snap to a 45° edge-on view between two faces.

- **Click a corner** — snap to a diagonal isometric view.
- **Arrow buttons (▲▼◀▶)** — positioned around the cube; each steps the camera one face at a time in that direction (e.g. ▲ from Front goes to Top).
- **Home icon** (★, top-left of the gizmo) — resets the camera to the exact position and angle it had when the current model was first loaded, including restoring Perspective mode. Use this to return to the original view after extensive navigation.

After snapping to any view, you can still rotate freely with the left mouse button.

5.3 View Modes — Perspective & Orthographic

Perspective view (the default) renders the model as the human eye sees it — objects farther away appear smaller. This is the most natural view for inspecting how a model will look when printed.

Orthographic view removes perspective distortion. Parallel lines remain parallel regardless of depth, which is essential for taking accurate measurements or comparing dimensions visually. The toolbar button and the `P` / `O` shortcuts switch between modes.

5.4 Fit View & Include View

- **Fit View** `F` — resets the camera to the default isometric angle and zooms to fit the model in the viewport. Use this to return to a neutral starting position.
- **Include View** `I` — keeps the *current camera angle* but adjusts the zoom and pan so the whole model is visible. Use this after rotating to a specific face and wanting to reframe.

Both buttons are also available as small icon buttons directly above the navigation cube for easy access during navigation.

5.5 View Label Overlay

A semi-transparent label in the top-left corner of the viewport always shows:

- The nearest cardinal face name (*Front*, *Back*, *Left*, *Right*, *Top*, *Bottom*, or blank for diagonal angles)
- The current projection: *Perspective* or *Orthographic*
- The active Build Plate, or *Build Plate: None* when no overlay is selected

6 · Model Selection & Dragging

You can pick up and reposition a loaded model directly in the viewport without switching to any special mode.

Selecting a model

Click anywhere on the model surface with the **left mouse button**. A white outline box appears around the model indicating it is selected. The outline automatically follows the model's bounding volume.

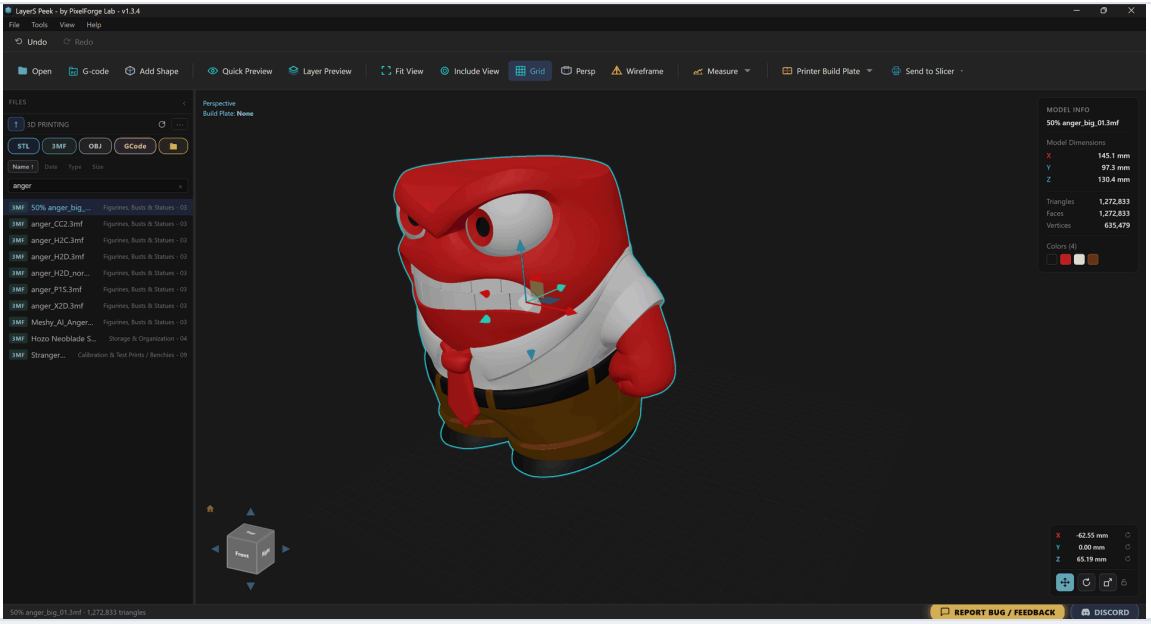
To deselect, click on empty space in the viewport (not on the model).

Dragging a model

With the model selected, hold the left button down on the model and drag. The model slides along the **horizontal XZ plane** (the build plate plane) — it cannot be lifted off the plate.

> **TIP**
>
> Dragging is useful for repositioning a model relative to the Build Plate overlay to check whether it fits within your printer's bed dimensions.

> **NOTE**
>
> Dragging is disabled while a Measurement Mode is active. Exit the measurement tool first (`Esc` or click Measure again in the toolbar) before dragging.



Model selected and dragged along the XZ plane — white bounding box outline indicates selection

7 · Measurement Tools

The built-in measurement tool lets you click two points on a model and read the straight-line distance between them in millimetres. Two modes are available: **Free** and **Precise**. Both are accessed from the **Measure** ▾ dropdown in the toolbar or from *Tools* in the menu bar.

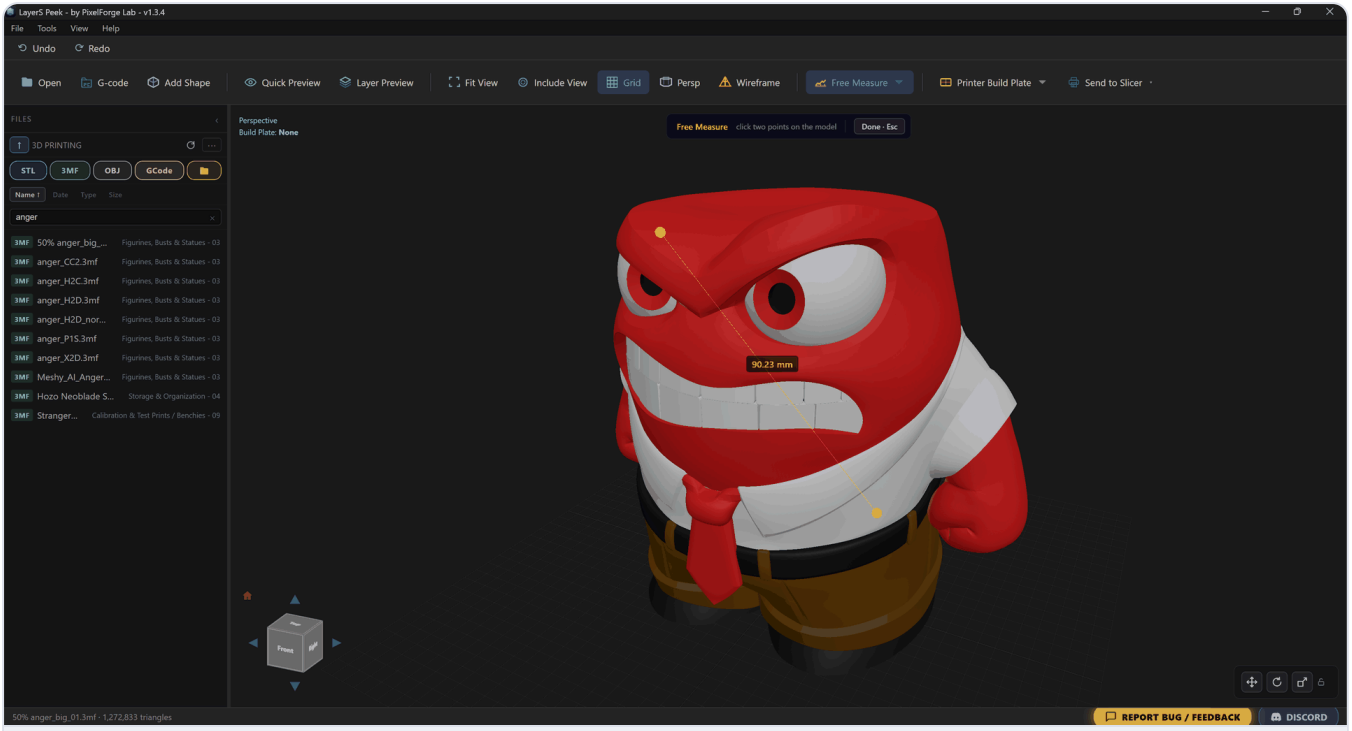


Fig. 3 — Free Measure active: two points placed on the model with a live distance label (85.37 mm)

7.1 Free Measure Mode

Activate with `Shift` + `M` or *Tools* → *Free Measure*.

In Free Measure you click any two points on the model surface. The tool measures the exact 3D straight-line distance between those two points.

1. Activate Free Measure. The cursor changes to a crosshair when hovering over the model.
2. Click to place **Point A** anywhere on the model surface. A yellow sphere marks the point.
3. Move the cursor towards **Point B**. A dashed yellow line previews the measurement as you move.
4. Click to place **Point B**. The distance label appears at the midpoint of the line showing the result in **mm**.
5. To start a new measurement, click a third point — this automatically clears the old measurement and starts fresh from the new point.
6. Press `Esc` or select another mode to exit measurement entirely.

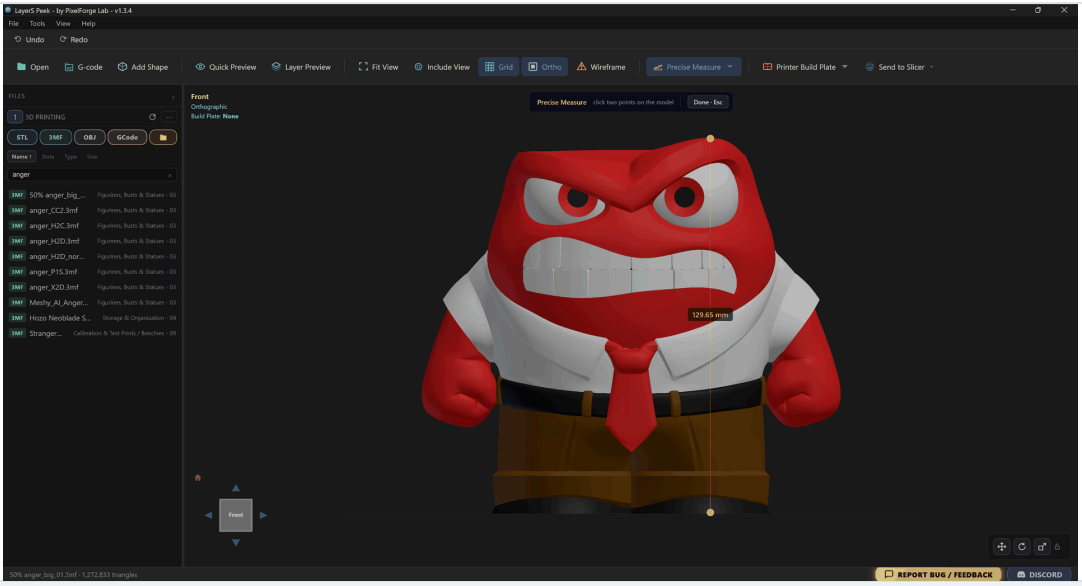
7.2 Precise Measure Mode

Activate with `M` or *Tools → Precise Measure*.

Precise Measure constrains the second point to a single world axis — either **vertical** (Y axis — model height) or **horizontal** (X or Z axis — model width/depth). The active axis is determined automatically by how you move the cursor relative to the first point, based on the current camera view.

- 🟦 **Blue constraint line** — the measurement is constrained to the *vertical* axis (height).
- 🟧 **Orange constraint line** — the measurement is constrained to the *horizontal* axis (width or depth).

Precise Measure works correctly from all six orthographic views (Front, Back, Left, Right, Top, Bottom) and from any perspective angle. The vertical/horizontal detection automatically adapts to the camera orientation.



Precise Measure active — axis-constrained measurement showing 93.69 mm height on the model

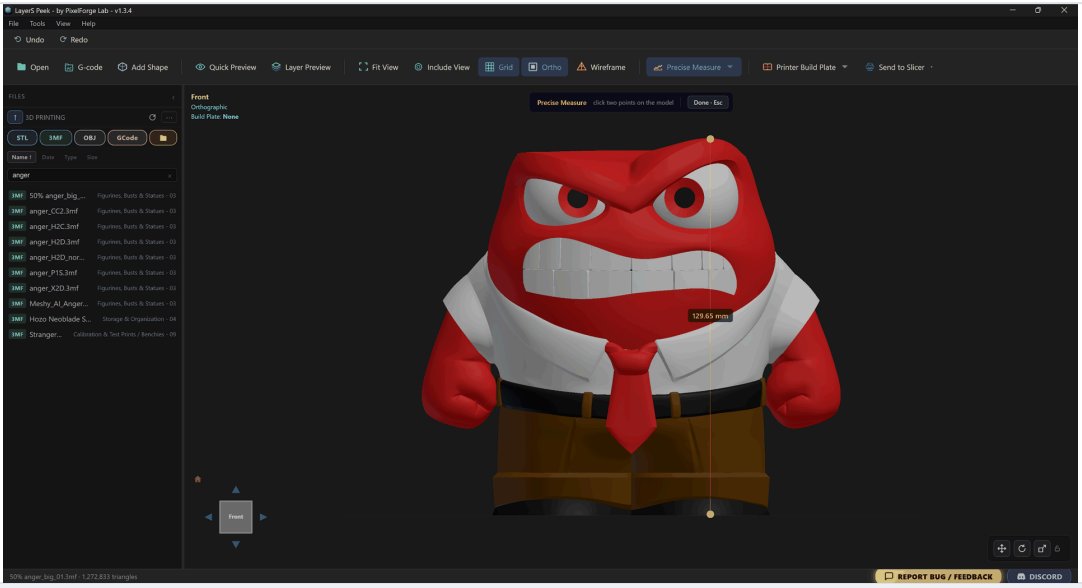
> **BEST PRACTICE**
>
> For the most accurate height measurements, snap to the **Top** or **Front** view using the navigation cube before placing your points. Use Orthographic mode to eliminate perspective distortion.

7.3 Vertex & Edge Snapping

Both measure modes include automatic snapping to geometry features within 15 screen pixels of the cursor:

Snap type	Preview colour	What snaps
Vertex	Cyan sphere	Exact corner / vertex of the mesh triangle under the cursor
Edge	Green sphere + thick green line	Closest point on the nearest triangle edge
Surface	Yellow sphere	Raw raycast hit point on the model surface (no snap feature nearby)

The preview sphere scales with camera distance so it always appears the same visual size on screen regardless of zoom level. The green edge highlight line is drawn thick enough to be visible even on complex geometry.



Precise Measure active — axis-constrained measurement showing 93.69 mm height on the model

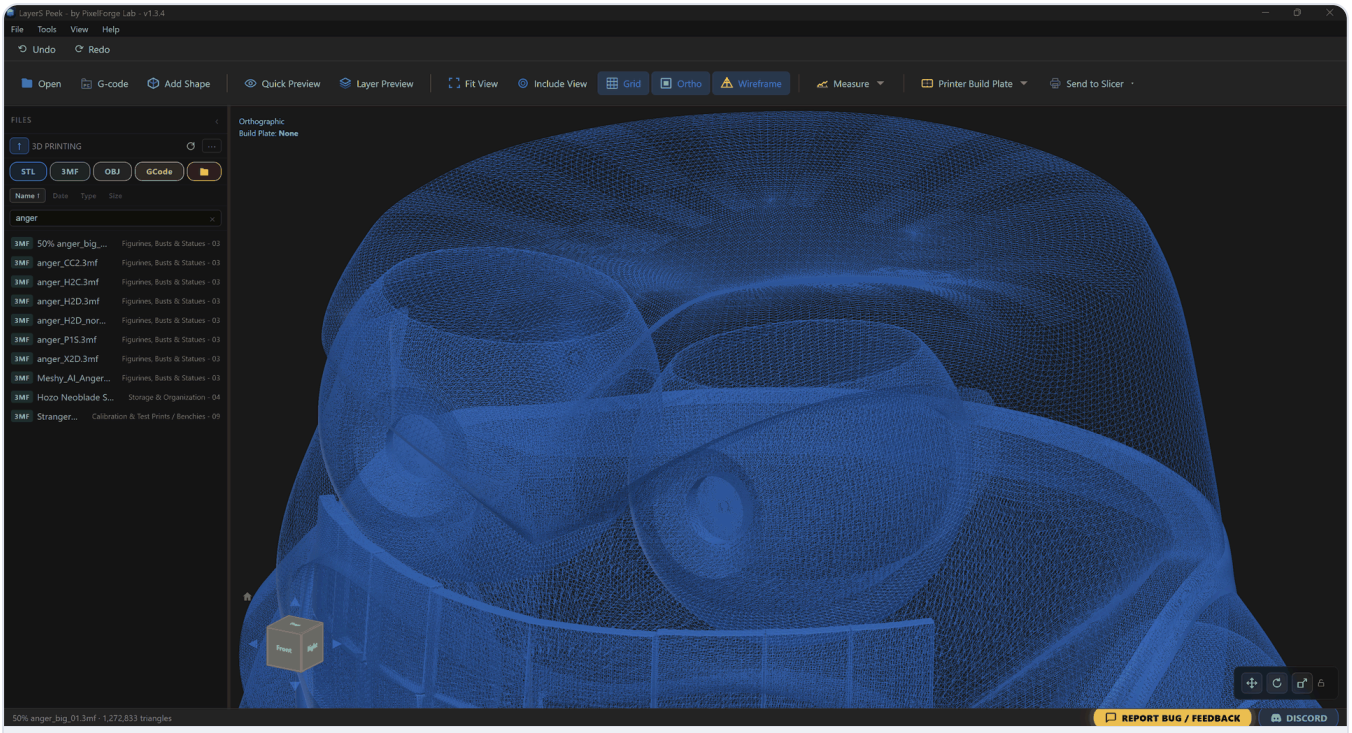
8 · Visualization Options

8.1 Wireframe Mode

Press `W`, click **Wireframe** in the toolbar, or go to *Tools* → *Wireframe* to toggle wireframe rendering. In wireframe mode every triangle edge of the mesh is drawn as a line and all faces are transparent. This is useful for:

- Inspecting mesh density and triangle distribution
- Detecting non-manifold geometry or holes
- Looking through the model to see internal structures

Press `W` again or click the button to return to solid rendering.



Wireframe mode — every triangle edge is visible; faces are rendered transparent

8.2 Printer Build Plate Overlay

The Build Plate overlay displays a photo-realistic image of the selected Bambu Lab printer's physical build plate at the correct scale in the viewport. The printable area is framed by a blue border rectangle — everything inside the border is the usable 3D printing surface. Visual elements such as the handle clip, cable connectors and label strip appear outside the border for reference. The overlay is semi-transparent so the model and grid remain visible beneath it.

To activate, click **Printer Build Plate** ▾ in the toolbar (or *Tools → Printer Build Plate*) and select your printer from the list. The plate image appears at ground level and the View Label updates to show the selected printer. When no model is loaded, the camera automatically snaps to a top-down view so the plate fills the screen.

Your own printers

The built-in list covers Bambu Lab machines. For anything else — Creality, Prusa, Snapmaker, Elegoo, Anycubic or a printer nobody has built yet — add it yourself: choose **Manage build plates…** at the bottom of the same menu, enter a name and the bed size in millimetres, and click *Add*. It is selected straight away and remembered for next time.

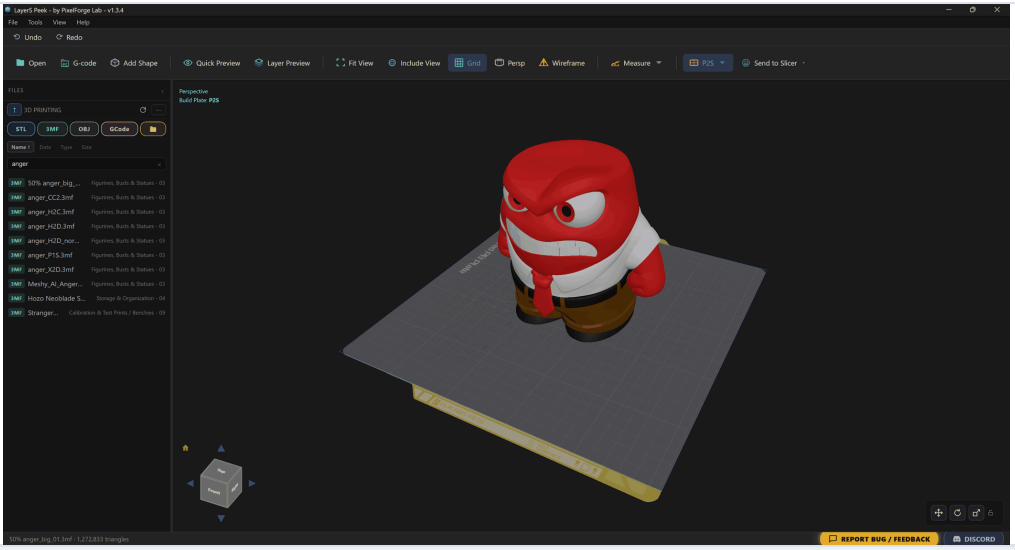
Your own plates are drawn without a photo, since there is no artwork for a machine we do not know about: a dark bed with a 10 mm grid, a centre cross and the same blue printable-area border. The name you gave it is printed flat on the bed near the front edge, so with several plates saved you can tell at a glance which one you are looking at. The print volume check works against them exactly as it does for the built-in printers.

The same dialog removes printers you do not own, including the Bambu ones, to keep the menu to machines you actually use.

> Removing a built-in printer only hides it — nothing is destroyed. **Restore Bambu printers** brings every one of them back, and deliberately leaves the plates you added yourself alone.

Printer	Bed size (mm)
X1C, P1P, P1S, P2S, X2D, A1	256 × 256
A1 Mini	180 × 180
A2L	330 × 320
H2D	350 × 320
H2S	340 × 320
H2C	330 × 320

Select **Off** from the list to hide the overlay.



Printer Build Plate overlay — X2D bed (256 × 256 mm) with a multi-colour 3MF model loaded in the viewport

8.3 Layer Preview

Layer Preview shows how a model would be built up on a printer, one layer at a time. Click **Layer Preview** in the toolbar with a model loaded to switch it on.

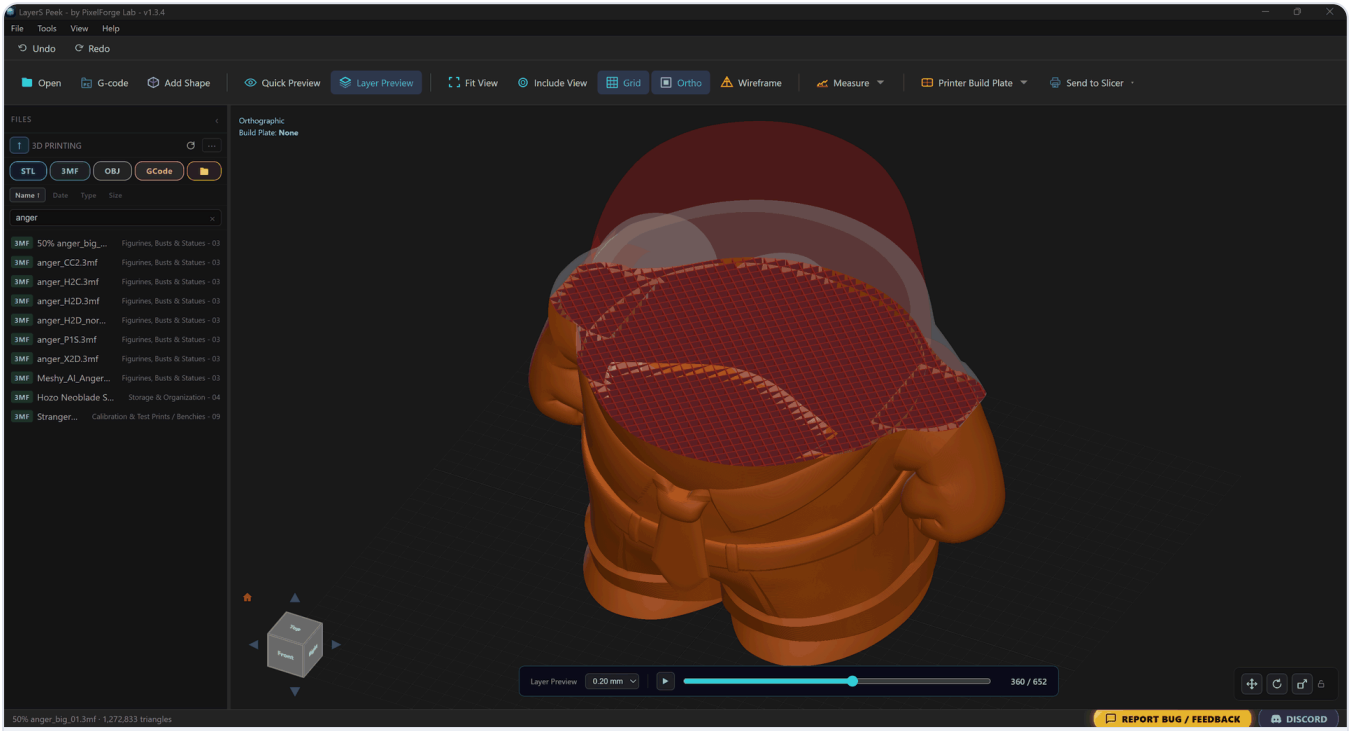
The model is redrawn in printed-filament orange and revealed from the bottom up, with a faint ghost of the remaining geometry above the current layer so you can always see the finished shape. Horizontal layer lines are shaded onto the surface to give the characteristic printed look.

A control bar appears at the bottom of the viewport:

- **Layer height selector** — choose from 0.08 mm to 0.30 mm. The layer count and the spacing of the rendered layer lines both update to match your choice.
- **Play / Pause** — animates the build from the first layer to the last.
- **Layer slider** — drag to scrub to any layer manually.
- **Layer counter** — shows the current layer and the total, e.g. *100 / 100*.

> **NOTE**
>
> Layer Preview is a **visual simulation only** — it does not slice the model and produces no G-code or toolpaths. It is meant for judging how a part will look when printed, layer orientation and where visible layer lines will fall. Selecting any other tool turns Layer Preview off automatically.

The cut face is capped with a cross-section of the model, with infill walls running down into the part, solid layers at the floor and the lid, and open space between the walls. It is drawn from the model's own geometry, so it is correct at any height — holes and internal voids included — but it is a visualisation, not a slice: the infill pattern is not read from a slicer profile, because the app has never seen one.



Layer Preview part-way up a model — the cut is capped with infill walls and solid layers rather than an empty shell

8.4 Quick Preview

Quick Preview is the fastest way to look through a folder full of models — the equivalent of flicking through a folder of photos in your file explorer, but with real 3D models. Click **Quick Preview** in the toolbar to switch to it — it opens on whatever folder the file panel is already showing, and the folder you end up in is still there when you switch back.

The whole window changes: the normal file browser and viewport are replaced by a large icon grid of the current folder on the left, and a live 3D preview of the selected model on the right.

- **Left and right arrows** (<kbd>←</kbd> <kbd>→</kbd>) — step through the models in the folder one at a time. The preview updates as you go and wraps around at either end.
- **Up and down arrows** (<kbd>↑</kbd> <kbd>↓</kbd>) — jump a whole row up or down in the icon grid, so you can cross a big folder quickly. The step matches however many columns are on screen, so it still works after you resize the panel.
- **Click a file tile** — jump straight to that model.
- **Click a folder tile** — open that folder (a single click is enough here).
- ↑ **(Up)** — go to the parent folder. ⋯ **(Browse)** — pick any folder on disk.
- **Filter pills** (STL · 3MF · OBJ · 🗀) — show or hide entries by type, exactly as in the normal file browser.
- **Resizable panel** — drag the divider to fit more or fewer columns of icons.
- Orbit, pan and zoom the preview with the mouse just like the main viewport.

Press <kbd>Esc</kbd>, click ✕ **Exit Preview**, or click the toolbar button again to return to the normal view. Whichever model you were looking at comes with you — it is loaded into the main viewport, and the file panel on the left opens the folder it came from with that file highlighted. So you can browse until you find the right file, exit, and carry straight on with measuring, Layer Preview and the rest.

> **TIP**
>
> While in Quick Preview, only the tools that apply to it stay active — **Wireframe** and **Persp / Ortho**. Everything else is greyed out until you exit, so you always know what will and won't do something.

9 · Editing & Advanced Tools

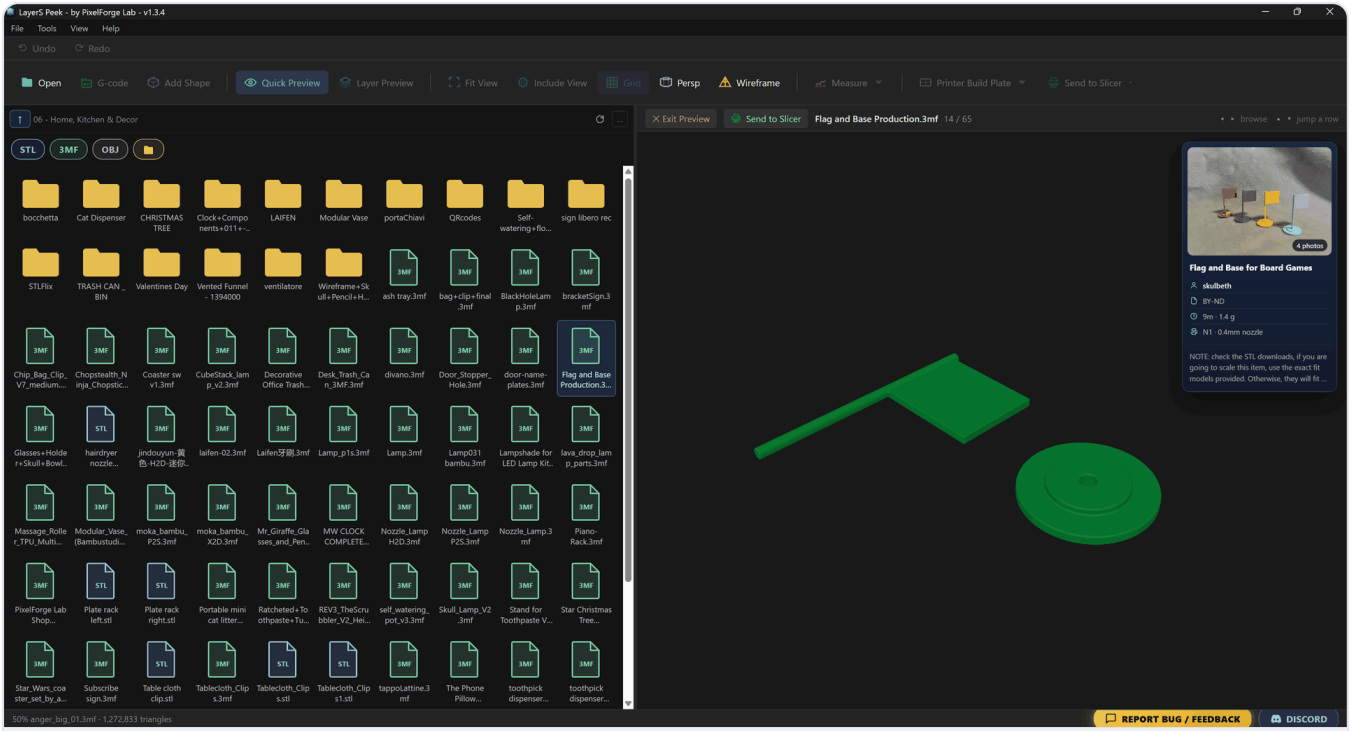
Everything in this section is part of the **desktop application**. The free web app at *layerspeek.com* covers viewing, measuring, Quick Preview and Layer Preview; the tools below are what the desktop licence adds.

What a 3MF says about itself

When the model being previewed is a 3MF, a panel appears at the top right of the viewport with what the file knows about itself: a photograph of the thing printed, taken from the listing it was downloaded from, its title, who designed it, the licence it carries, its description, and — if the project was sliced before it was saved — how long it takes to print and how much filament it uses.

All of this is read straight out of the file. Nothing is sent anywhere, no account is involved, and it works with no connection at all. Files you sliced and saved yourself carry the same fields empty, so you will see a picture and little else, or nothing at all. That is normal, and not a fault.

Where the file carries a link back to where it came from, a **View on MakerWorld** button opens it in your browser. Only a minority of files have one.



Quick Preview with a downloaded 3MF selected — the panel on the right carries the designer's own photograph, the licence, the print time and the filament weight, all read out of the file

9.1 G-code Viewer

LayerS Peek opens sliced G-code as well as models. Use *File → Open G-code*, or drop a `.gcode` file onto the window. Bambu Studio's `.gcode.3mf` archives are supported directly — there is no need to extract the G-code first.

Once loaded, a **layer slider** appears down the right-hand side of the viewport. Drag it to move through the print one layer at a time; everything above the current layer is hidden, so you see exactly what the printer will have built at that point. The layer number and Z height are shown as you drag.

A **Travel moves** toggle shows or hides the non-printing repositioning moves. Leaving them off gives a clean picture of the printed object; turning them on is useful when you are hunting for stringing, unnecessary travel or a suspicious retraction pattern.

> **Layer Preview vs the G-code Viewer.** Layer Preview (Section 8.3) estimates how a model *would* slice — it is a visual approximation and produces no G-code. The G-code Viewer shows the real toolpaths your slicer actually generated. Use Layer Preview before slicing, the G-code Viewer after.

9.2 Move, Rotate & Scale

Select a model and the transform gizmo appears at its centre. Three modes are available from the toolbar or the Tools menu:

Mode	What the handles do
Move	Three coloured arrows drag the model along the X, Y and Z axes. Dragging the model body itself slides it across the build plate.
Rotate	Three rings spin the model around each axis. The live angle is shown while you drag.
Scale	Handles resize the model. The status bar keeps showing the resulting dimensions in millimetres, so you can scale to a target size.

Transforms are for inspection and fit-checking — LayerS Peek is a viewer, not a slicer, so changes are not written back to the original file.

9.3 Working with Several Models

The desktop app holds more than one model in the scene at a time. Open or drop additional files and they are added alongside what is already loaded rather than replacing it.

Each model is an independent item: click to select it, drag it, transform it, or press Delete to remove just that one. This is the quickest way to check whether several parts will fit on one plate together.

A 3MF file containing several separate objects is **split automatically**, so each object inside the file becomes its own item you can move and delete individually.

9.4 Undo & Redo

Every move, rotation, scale, addition and deletion goes onto an undo stack.

Action	Shortcut
Undo	Ctrl + Z
Redo	Ctrl + Shift + Z

The toolbar Undo and Redo buttons grey out when there is nothing left to undo or redo.

9.5 Add Shape

Add Shape drops a primitive — cube, cylinder or sphere — straight into the scene. Once placed, a primitive behaves exactly like a loaded model: select it, move it, scale it, delete it.

Primitives are handy as a physical reference. Scale a cube to 20 × 20 × 20 mm next to a part to judge its size at a glance, or drop a cylinder in to check whether a hole looks big enough before you print.

9.6 Print Volume Check

With a printer selected under *Tools → Printer Build Plate*, LayerS Peek continuously checks every model in the scene against that printer's build volume.

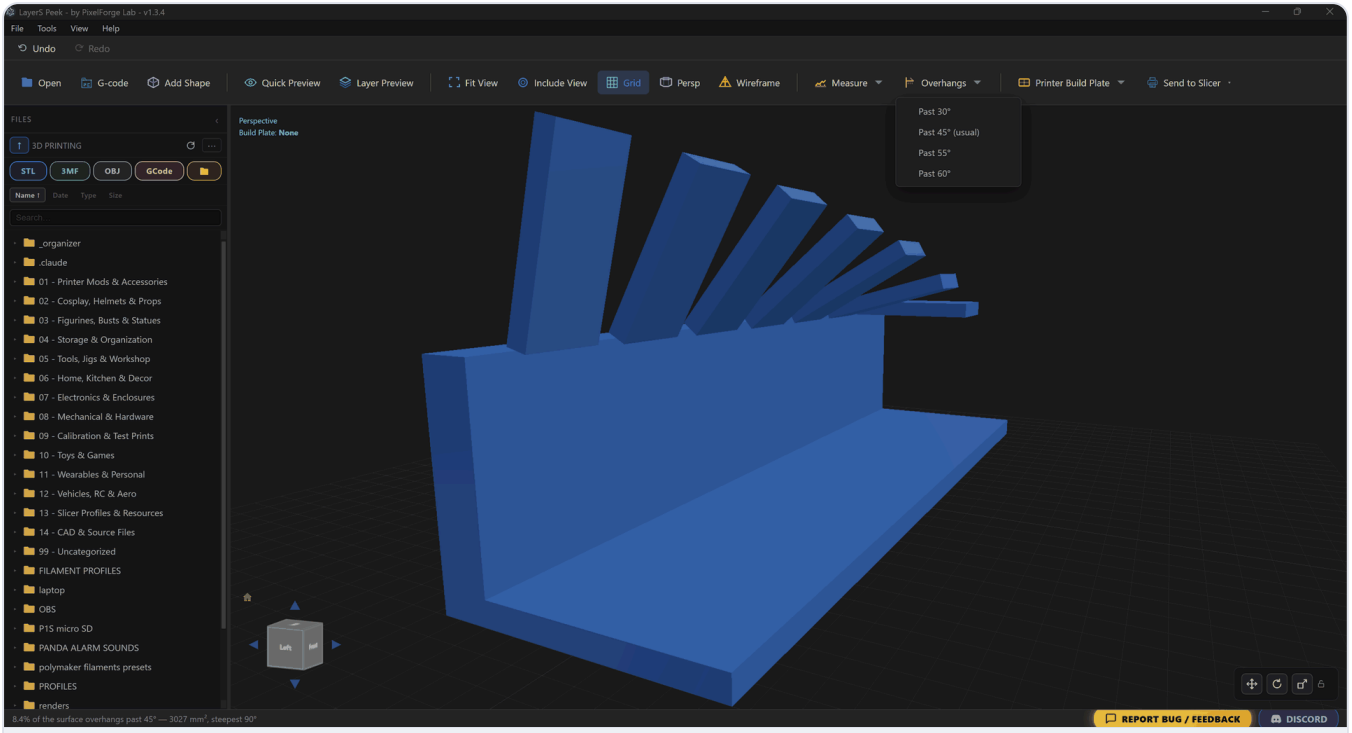
Anything that does not fit is outlined in **red**, and the status bar says which dimension is the problem. The check re-runs as you move, rotate and scale, so you can see the outline clear the moment a part comes back inside the volume.

> The check uses the model's bounding box against the printer's stated build volume. It tells you whether a part physically fits — it does not account for what your slicer may add around it, such as a brim, skirt or purge tower.

9.7 Overhang Check

A face that leans too far from vertical has nothing underneath it on the way up. Your printer will try to bridge it, and past a certain angle it stops managing — the slicer props it with support, which costs time and filament and leaves scars on the surface when you snap it off. **Overhangs** in the toolbar shows you which faces those are, while you can still do something about it.

Pick an angle from the dropdown, or open the panel and use the slider. The angle is measured the way printers quote it: **from vertical**, so a wall is 0° and a flat ceiling is 90°. 45° is what most FDM printers bridge unaided, which is why it is the usual answer — but it is only an answer for an average printer. If yours comfortably manages 55°, tell it 55 and stop being warned about faces that were never going to be a problem.

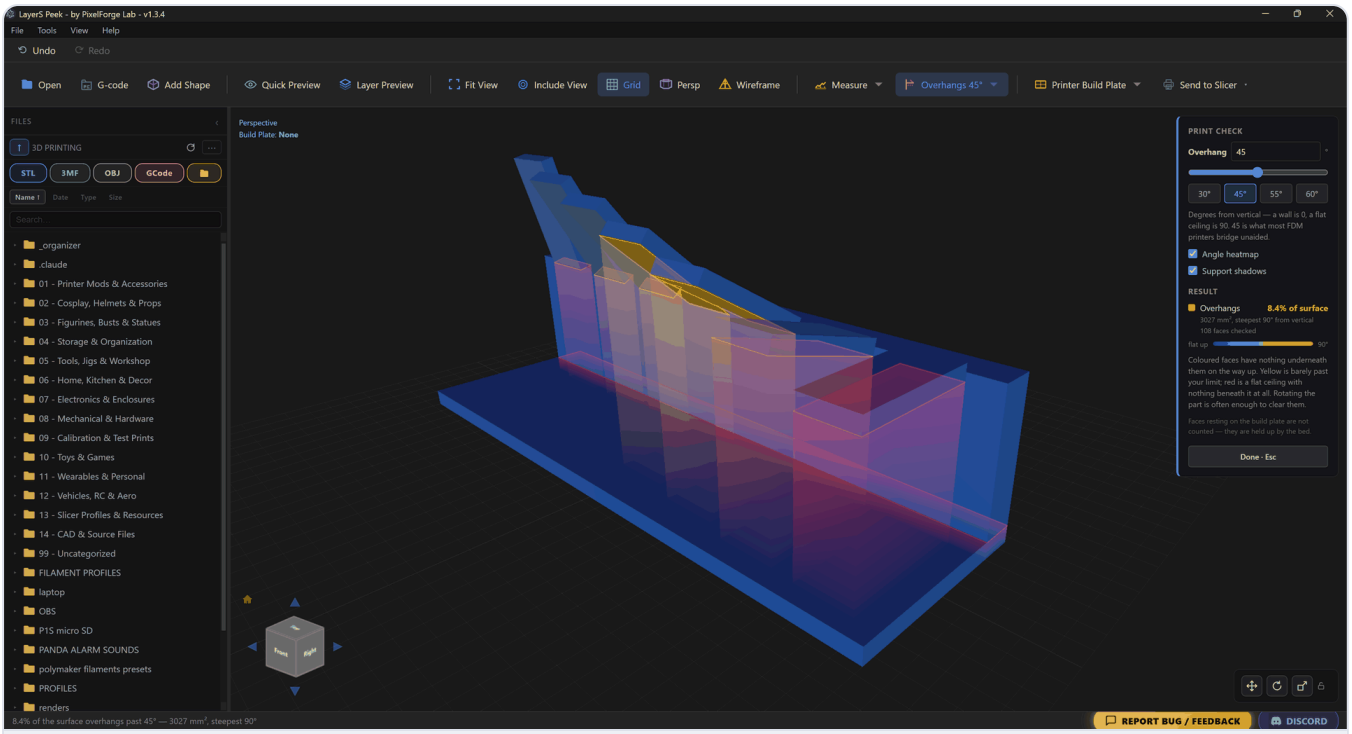


The **Overhangs** dropdown. Once the check is running, the same menu carries a **Turn off** entry

Reading the colours

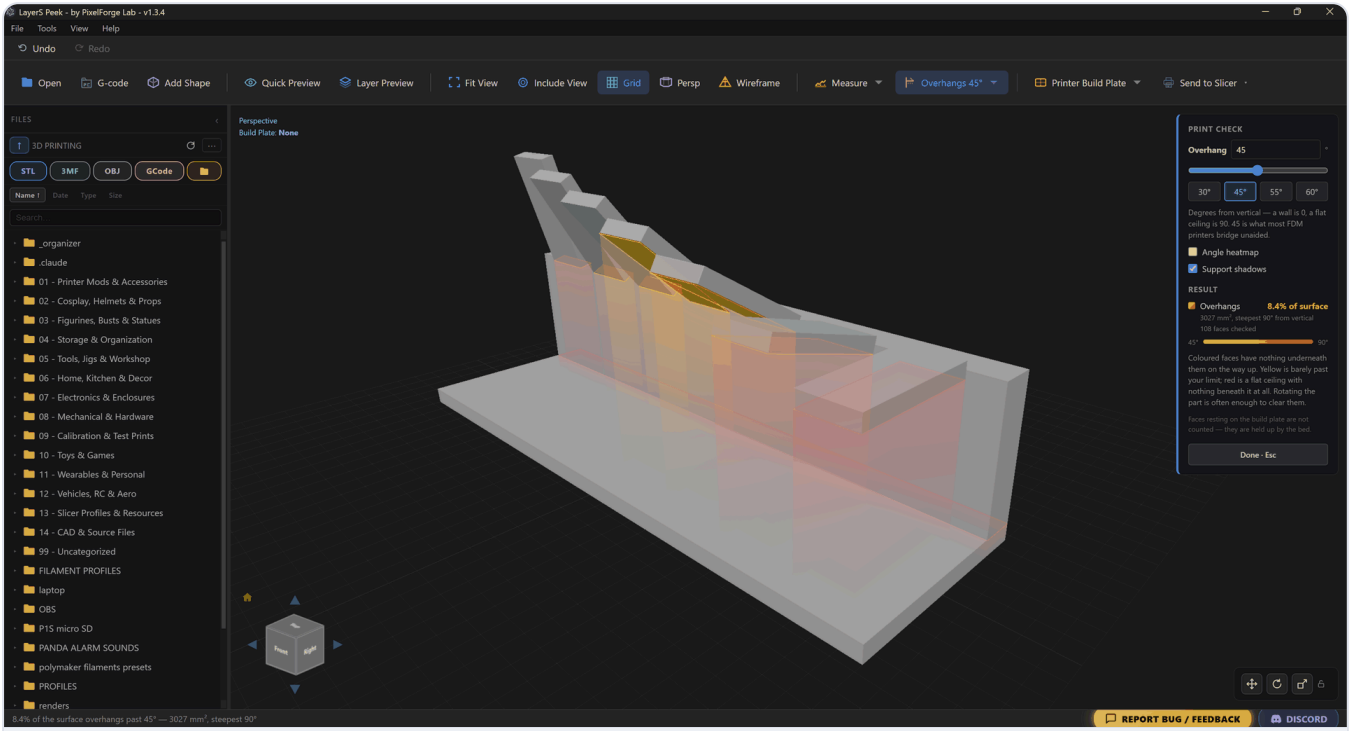
The model is recoloured for the duration — its own colours go away, because red overhangs on a red model are invisible and on a multicolour print they compete with colours that already mean something else.

With **Angle heatmap** ticked the whole surface is coloured by how far each face leans: deep blue for a face pointing at the ceiling, lighter towards vertical, paler still as it approaches your limit, and then a deliberate step to yellow *at* the limit, through orange, to red at a flat ceiling. The step is not a glitch. It is the one angle on the scale that decides anything, and a smooth fade would hide it.



The heatmap on a test fan whose fins lean 15°, 30°, 40°, 50°, 60°, 75° and 90° from vertical. At a 45° limit the first three stay blue and the rest cross into yellow, orange and red

Untick it and the model goes plain white instead, with only the faces that fail picked out. That is the quicker read when you simply want to find the problem; the heatmap is the better one when you want to know how close the rest of the part is to joining it.



The same model with the heatmap off — white everywhere except the faces past the limit

Support shadows

Each flagged region also drops a translucent curtain to the build plate, fading as it falls. That is roughly the shape of the support your slicer would build, and seeing it is the difference between "8% of the surface overhangs" and "*that* is what I would be printing and then snapping off". Untick **Support shadows** to hide them; the colours and outlines stay.

> **The curtains fall to the plate, not to whatever is beneath them.** Where an overhang sits above another part of the model, a real support would stop at that surface and the curtain will pass through it. It is there to show you where support *starts*, not to measure how much of it you will use.

What is not counted

Faces resting on the build plate are ignored — a model's own flat base is a perfect 90° overhang by this measure, and reporting it would bury every real one underneath it. The panel reports the overhanging area in mm^2, what share of the total surface that is, the steepest angle found, and how many faces were examined.

Rotating a part is very often enough to clear its overhangs, and the check re-runs as soon as you commit a rotation, so you can turn a model until the red goes away.

> This is a geometric check, not a slice. It reads the angle of every face in the model and nothing else — it has never seen your slicer profile, your layer height or your cooling settings, all of which change what your printer will really manage.

9.8 Saving an Arrangement

Once a plate is arranged the way you want it — parts moved, rotated, scaled, a second copy added — that arrangement can be saved out as a file of its own. Use **File → Save As 3MF** (`Ctrl` + `Shift` + `S`) or **File → Save As STL**. **Save** (`Ctrl` + `S`) writes back to wherever you last saved; before that it asks.

- **3MF** keeps every part separate and named, in millimetres, so a plate of six parts opens in a slicer as six objects you can still select individually.
- **STL** welds everything into a single mesh. That is simply what the format is — it has no concept of separate objects.

Parts are written sitting on the bed, centred on the build plate you have selected, the right way up for a slicer. Saving *never* writes over the file you opened: doing so would throw away that file's colours, its designer and its licence.

> **Colours are not carried over.** A multicolour 3MF stores a filament assignment per triangle; a saved arrangement is plain geometry, so a painted model comes back unpainted. Keep the original file if the colours matter.

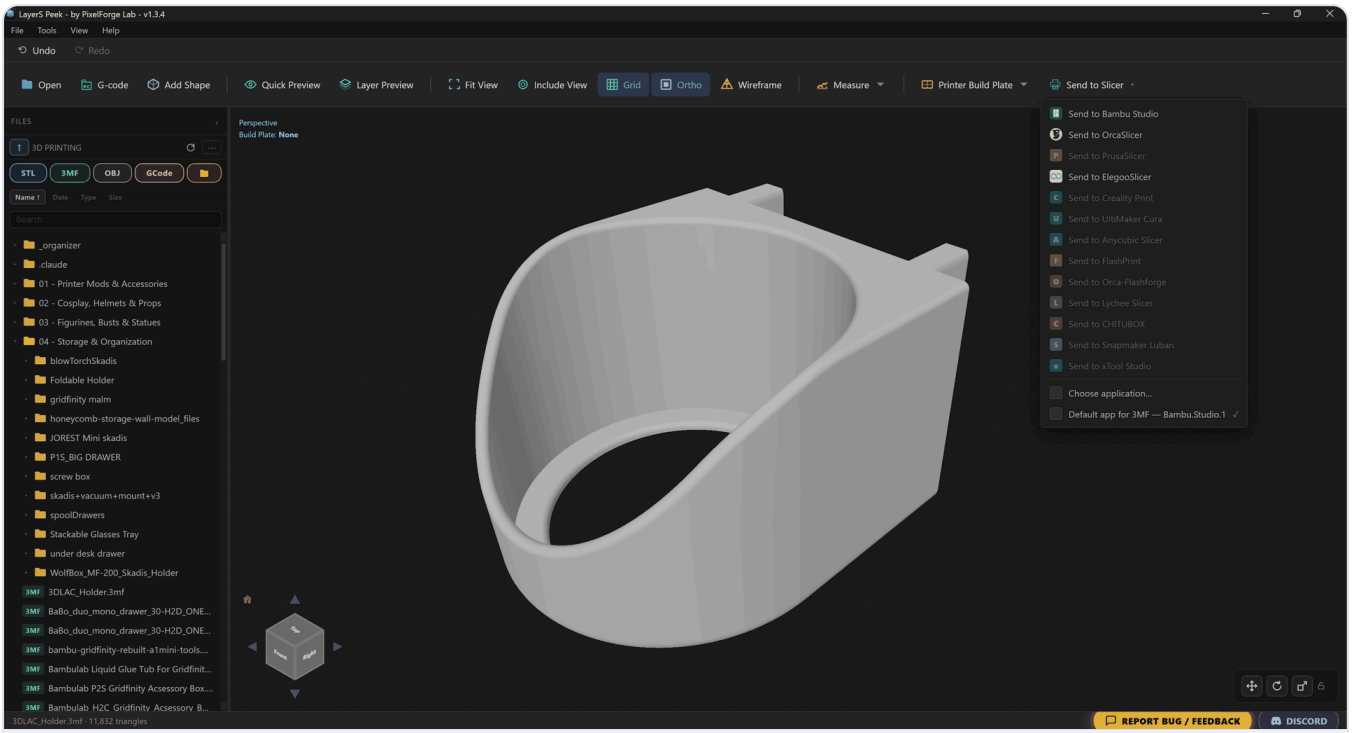
9.9 Send to Slicer

A printer prints G-code, and the thing that turns a model into G-code is your slicer. **Send to Slicer** in the toolbar exports what is on the plate, as you have arranged it, and opens it there — the same handover as double-clicking a file, but carrying your arrangement with it. From **Quick Preview** the same button sends the file exactly as it is on disk, since nothing there has been rearranged.

The button has a list behind it covering thirteen slicers: Bambu Studio, OrcaSlicer, PrusaSlicer, ElegooSlicer, Creality Print, UltiMaker Cura, Anycubic Slicer, FlashPrint, Orca-Flashforge, Lychee Slicer, CHITUBOX, Snapmaker Luban and xTool Studio. Pick one and it is remembered, so afterwards the button reads *Send to Bambu Studio* and one click sends it there.

> **Icons appear once the slicer is installed.** Each entry shows that program's own icon, read from the program itself — so a slicer you install later simply turns up with its proper icon, with nothing to download or set up. Slicers you do not have are shown greyed out with a plain mark instead, and clicking one tells you it was not found. If you have it but it lives somewhere unusual, use **Choose application…** to point at it once.

The last entry, **Default app for 3MF**, hands the file to whatever Windows normally opens 3MF files with, and names it so you know what you are about to launch. It is unavailable when that happens to be LayerS Peek itself, since the file would simply come back here.



The slicer list. The three installed here show their own icons, read from the programs themselves; the rest are greyed out until you install them

9.10 Trying the paid tools free

Everything in this section can be unlocked for **12 hours, free**, without buying anything — by playing the game hidden behind the golden egg.

Look for the **golden egg** in the toolbar. It appears in the free web app at *layerspeek.com*, and in the desktop app until a licence key is entered. Click it and a small Benchy sailing game opens.

Milestone	Reward
Watch 5 videos	**12-hour trial** of the full desktop app — earned by playing inside the desktop app
Watch 10 videos	**30% off** the desktop app, applied automatically at checkout

Sail the Benchy around and collect the spools you find. Each one plays a short video — watch at least half of it and it counts towards your total. A counter in the game shows how far along you are.

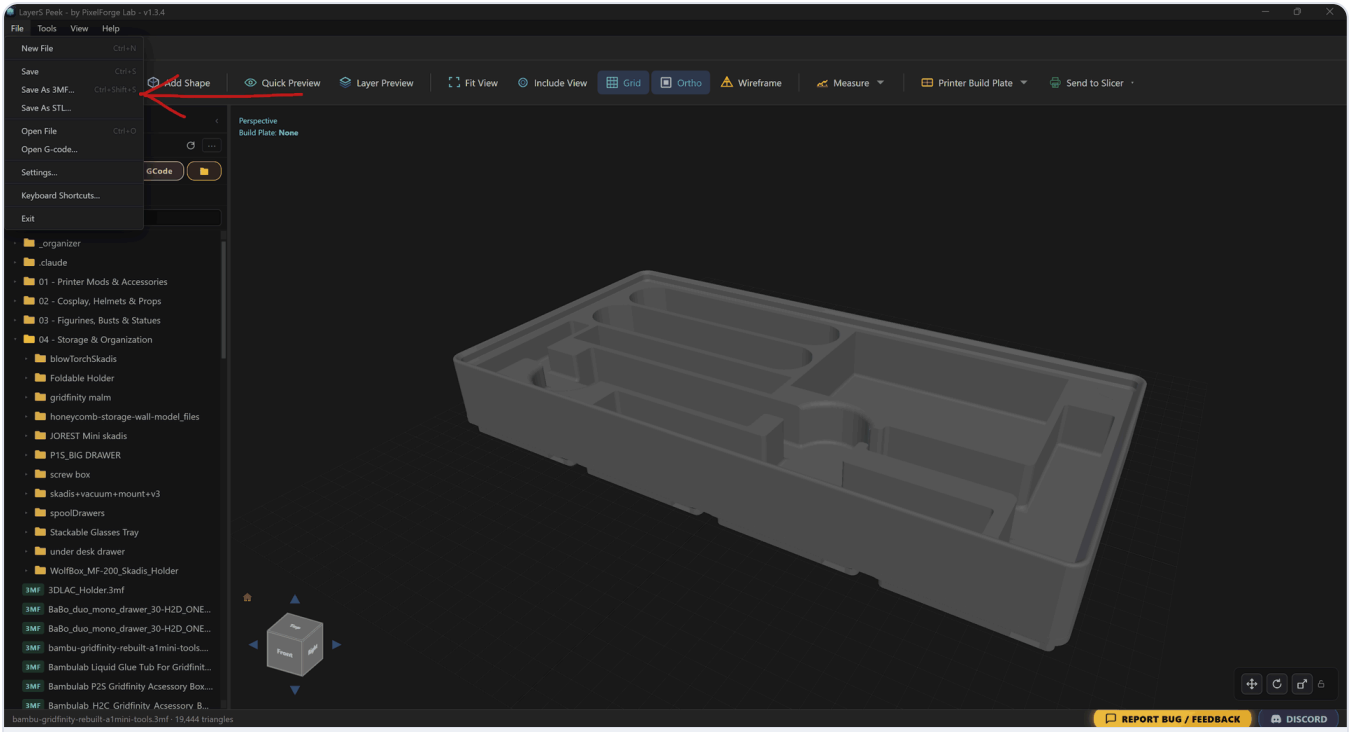
You have **24 hours** from the first spool to reach a milestone, and you do not have to do it in one sitting. Close the game, come back later, and it picks up where you left off with your videos still credited.

Once the trial starts, a countdown appears in the status bar showing how long is left. When it runs out, the paid tools switch off again and everything you were using stays exactly where it was.

> **One trial per machine.** The trial can be earned once. The 30% discount is separate — earn it and it is applied for you the next time you open the upgrade page, whether you buy straight away or later.
> The free web app is unaffected by either reward — it stays the free tier. The discount can be earned from the game in either place, but the trial unlocks the desktop app, so it is offered only when the game is played inside it.

10 · Menus & Settings

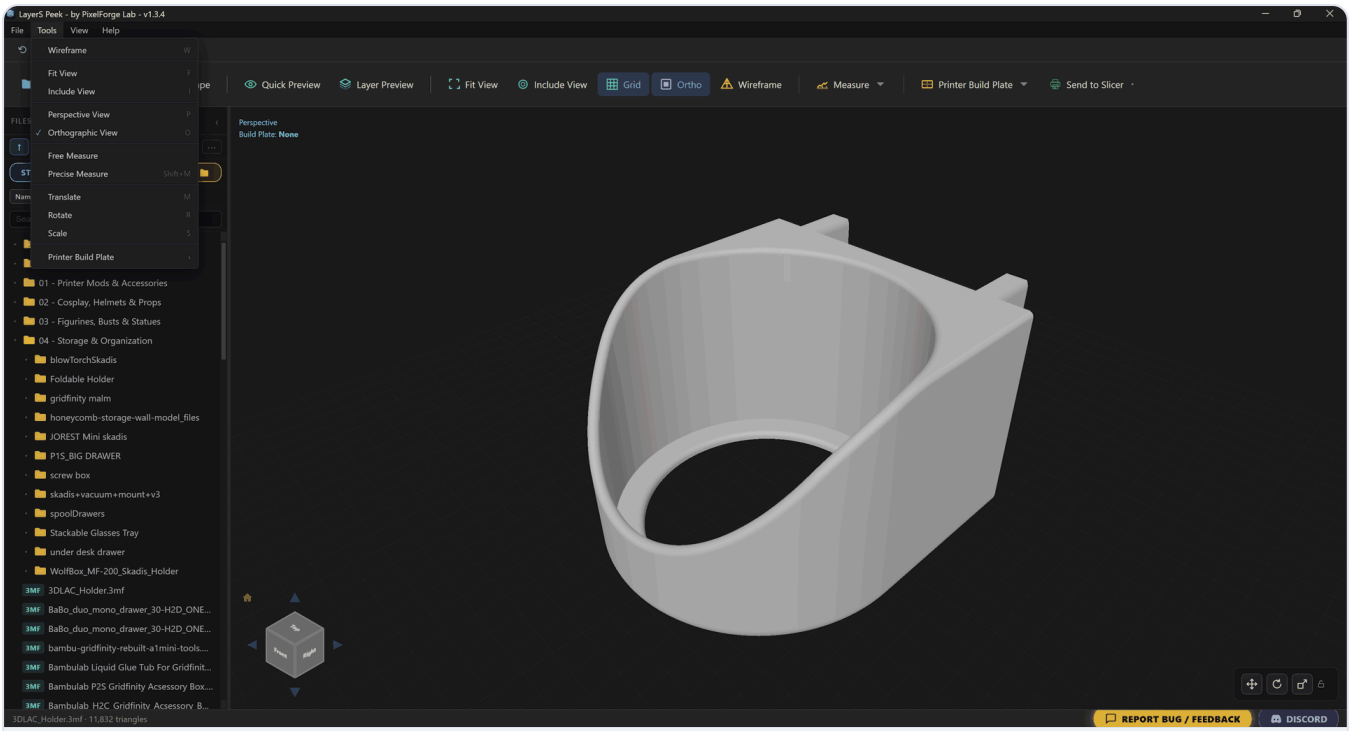
10.1 File Menu



File menu — Open File, Settings, Keyboard Shortcuts, and Exit

Item	Action
Save	Writes the arranged plate back to wherever you last saved it. Before that it asks where. `Ctrl` + `S`
Save As 3MF...	Saves the plate as a 3MF, parts kept separate and named. `Ctrl` + `Shift` + `S`
Save As STL...	Saves the plate as a single STL mesh.
Open File	Opens a file dialog. Keyboard shortcut: `Ctrl` + `O`
Settings...	Opens the Settings dialog where you can set the default folder for the file browser.
Keyboard Shortcuts...	Opens the Keyboard Shortcuts dialog to view or customise all shortcuts.
Exit	Closes the application.

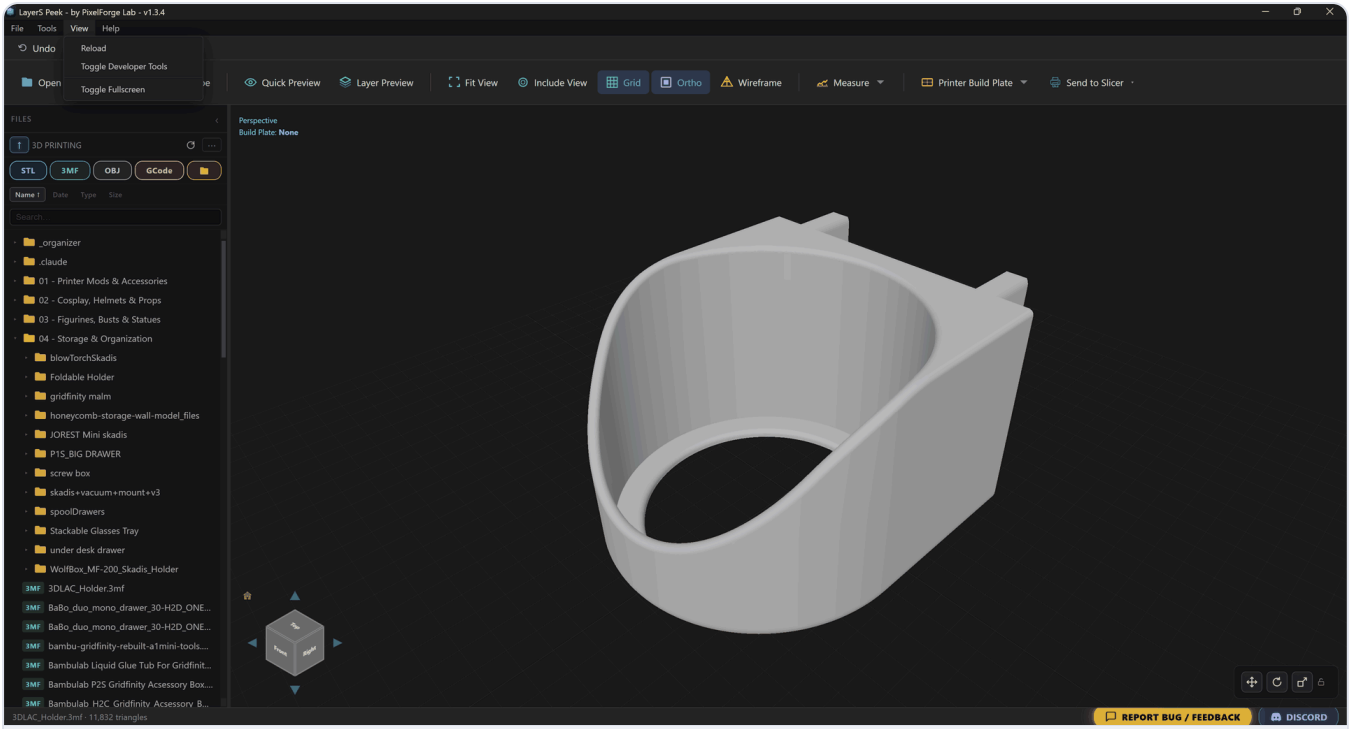
10.2 Tools Menu



Tools menu — all viewport tools with keyboard shortcuts shown on the right

Item	Action	Shortcut
Wireframe	Toggle wireframe rendering. A checkmark shows when active.	`W`
Fit View	Reset camera to default angle and zoom.	`F`
Include View	Zoom to fit at current angle.	`I`
Perspective View	Switch to perspective projection.	`P`
Orthographic View	Switch to orthographic projection.	`O`
Free Measure	Activate unconstrained point-to-point measurement.	`Shift` + `M`
Precise Measure	Activate axis-constrained measurement.	`M`
Printer Build Plate ›	Opens a submenu of available Bambu printers.	—

10.3 View Menu



View menu — Reload, Toggle Developer Tools, Toggle Fullscreen

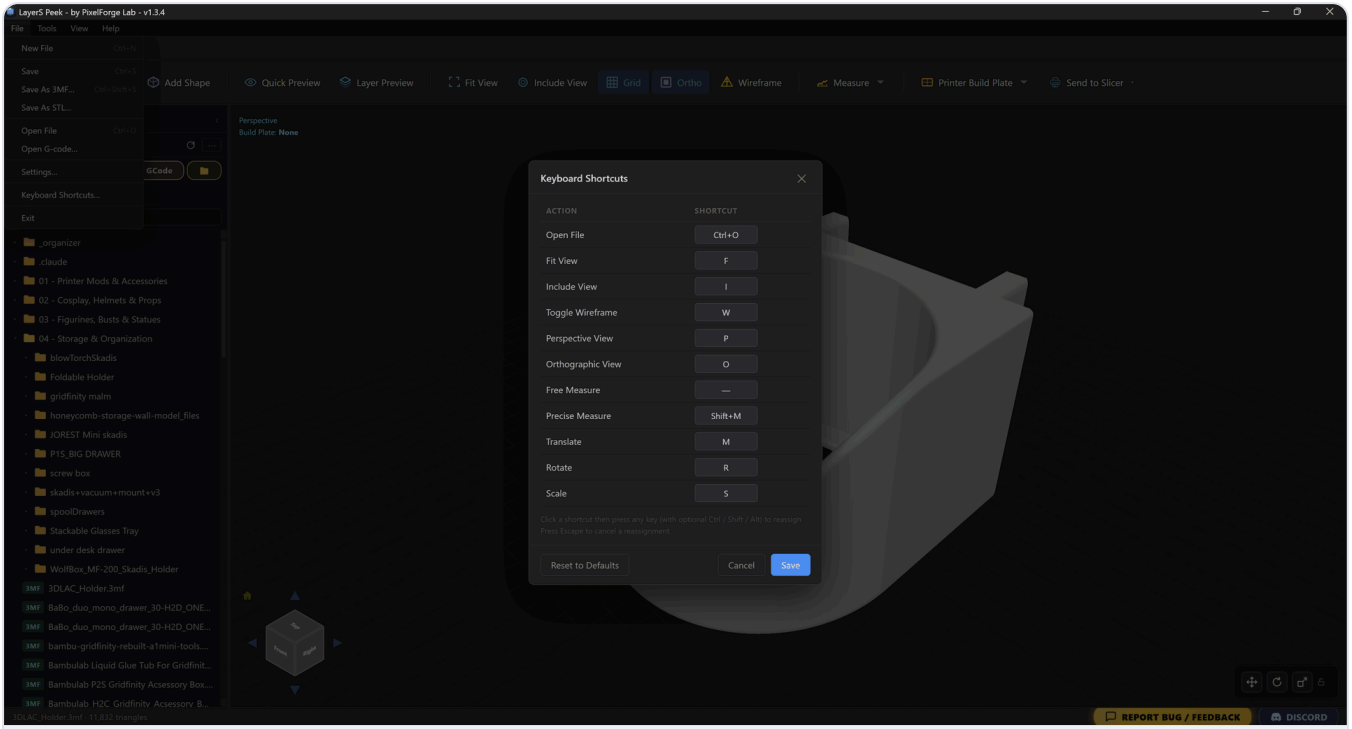
Item	Action
Reload	Reloads the application (useful during development).
Toggle Developer Tools	Opens the Chromium DevTools panel for debugging.
Toggle Fullscreen	Switches the window between windowed and full-screen mode.

10.4 Keyboard Shortcuts & Customisation

Open the Shortcuts dialog from *File → Keyboard Shortcuts…*. The dialog shows every available action with its current shortcut binding.

1. Click the shortcut button next to the action you want to change. It changes to blue and shows *"Press a key…"*
2. Press any key combination (optionally holding `Ctrl`, `Shift`, or `Alt` first).
3. The new binding is shown immediately. Press `Esc` to cancel that specific reassignment.
4. Click **Save** to apply. Changes persist across restarts.

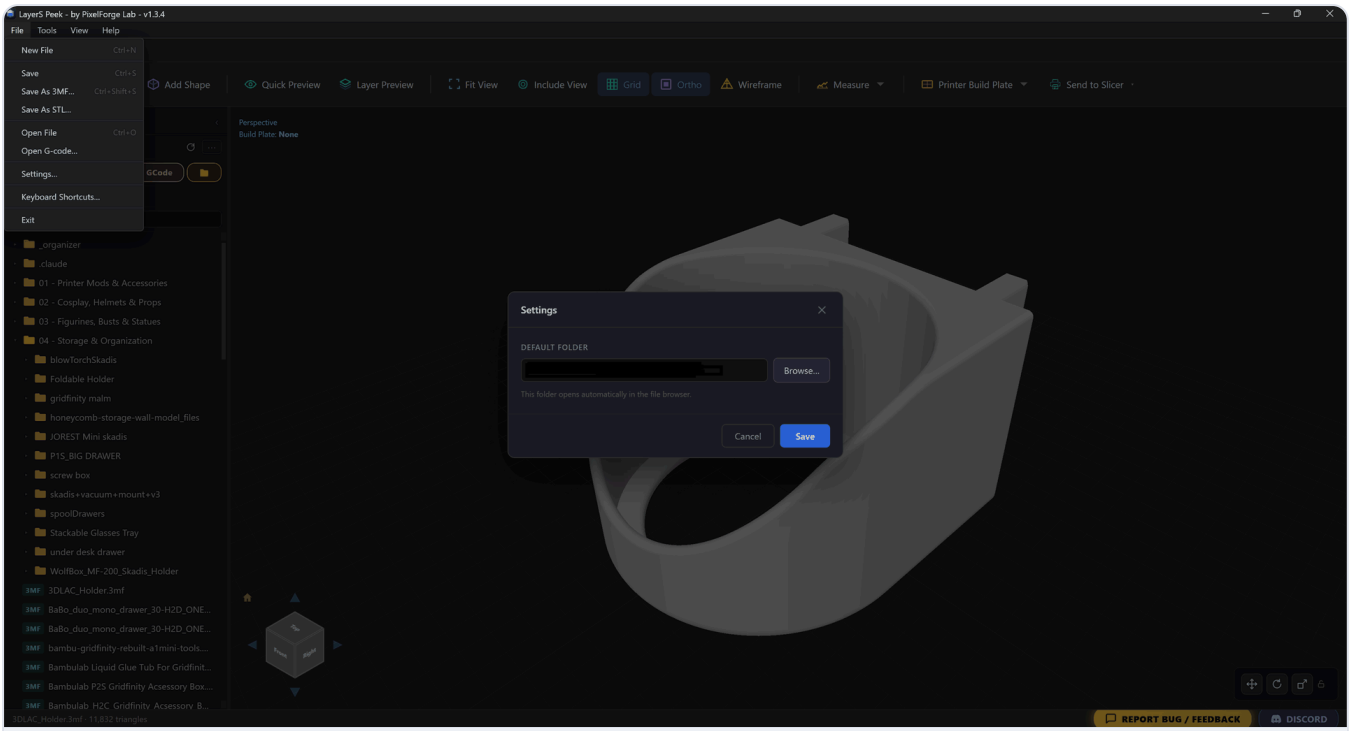
Click **Reset to Defaults** to revert all shortcuts to the original bindings at once (you still need to click Save afterwards).



Keyboard Shortcuts dialog — click any binding button and press a new key to reassign it

10.5 Settings — Default Folder

Open *File → Settings…* to configure the default folder that the file browser opens to on launch. Click the browse button, navigate to your models folder, and click Save. The folder is remembered across sessions.



Settings dialog — set the default folder that opens automatically in the file browser on launch

10.6 Help Menu

Everything for getting unstuck, and for reaching the person who builds this.

Item	What it does
Guide	Opens this guide.
Check for Updates	Checks whether a newer version has been released and offers the download. You no longer have to remember to do this — the app checks by itself each time it opens (see below). Updates are always free.
Report Bug / Suggest Feature	The fastest way to get something fixed or built — see below.
Join the Discord	Opens the LayerS Peek Discord in your browser.
Newsletter	Leave an email address to be told when a new version is released. Nothing else is sent to it, and every email carries an unsubscribe link.
About LayerS Peek	Version number and licence details.

The window remembers itself

LayerS Peek reopens at the size and position you left it, and maximised if that is how you left it. The first time you ever run it, with nothing to remember, it opens maximised — a 3D viewport is worth the screen. If the window was last on a monitor that is no longer plugged in, it comes back on a screen you still have rather than somewhere invisible.

Being told about new versions

Each time the desktop app opens it quietly asks whether a newer version has been published. If there is one, a slim bar appears along the top of the window with the new version number and a **Download** button, which opens the release page in your browser. Install it over the top — your licence key and settings are kept.

If you are not interested in that particular version, close the bar with the ✕. It stays closed for that version only; the next release will tell you again. Nothing is downloaded or installed without you asking, and if the check cannot reach the internet it simply says nothing.

> The web app at *layerspeek.com* is always the current version, so it has no update bar — reloading the page is all an update takes.

Reporting a bug

Use **Report Bug / Suggest Feature**, from the Help menu or the button in the status bar. It sends your app version, system details and operating system along with the message — which is usually what identifies the problem, and saves a round of questions.

Leaving an email address is optional, but without one there is no way to reply or to ask for the file that caused it.

> Feature requests genuinely get built. The custom build plates in Section 8.2 exist because two people asked for them — one through this form, one on Discord.

Discord

The LayerS Peek Discord is the fastest way to reach me, and where new releases are announced first. There are channels for help, bug reports, feature requests, and for showing off what you have printed.

discord.gg/454ymY5mKT

11 · Keyboard Shortcuts Reference

These are the factory-default shortcuts. All shortcuts except `Esc` can be customised via *File → Keyboard Shortcuts…*

Action	Default Shortcut	Notes
Open File	`Ctrl` + `O`	Works at all times, even without a model loaded
Fit View	`F`	Requires a model to be loaded
Include View	`I`	Requires a model to be loaded
Toggle Wireframe	`W`	Requires a model to be loaded
Perspective View	`P`	No-op if already in Perspective
Orthographic View	`O`	No-op if already in Orthographic
Free Measure	`Shift` + `M`	Press again or press `Esc` to exit
Precise Measure	`M`	Press again or press `Esc` to exit
Exit Measurement	`Esc`	Always exits any active measurement mode (not customisable)
Quick Preview: previous / next model	`←` `→`	Quick Preview only; wraps around at either end
Quick Preview: row up / down	`↑` `↓`	Quick Preview only; steps by the number of columns on screen
Exit Quick Preview	`Esc`	Keeps the model you were previewing in the main viewport

> **CONFLICT REMINDER**
>
> `Ctrl` + `O` opens a file, while plain `O` switches to Orthographic. These are separate bindings and do not conflict. Shortcuts do not fire while typing in input fields.

12 · Version History

Below is the complete release history of LayerS Peek, from the initial prototype to the current release.

Current Release

v1.3.5 Overhang check · Support shadows · Copy path

- **Overhang check.** Paints the faces that have nothing underneath them on the way up, with a slider from 1° to 90° so you can use the angle your printer really manages. Reports the affected area in mm², its share of the surface, and the steepest angle found.
- **Support shadows** — a translucent curtain falls from each overhang to the plate, roughly the shape of the support your slicer would build.
- **Angle heatmap** colours the whole surface by lean, cool below your limit and warm above it, with a hard edge at the limit itself. Turn it off for a plain white model with only the failures picked out.
- **Copy path** on right-click, in the file panel and in Quick Preview.
- **The file panel highlights the file you are viewing** — it never did before, so picking something in Quick Preview left you hunting for it afterwards.
- **The toolbar wraps** onto a second row instead of losing its right-hand end on a narrow window.
- Every screenshot in this guide has been retaken, and there is a new chapter for the overhang check.

Previous Releases

v1.3.4 3MF details · Saving · Send to Slicer · BIN

- **Quick Preview shows what a 3MF knows about itself** — the designer's own photograph of the printed thing, the title, who made it, its licence, the description, and the print time and filament weight where the project was sliced. Read straight out of the file, with nothing sent anywhere.
- **Save and Save As.** Arrange a plate and save it as a 3MF with every part kept separate and named, or as an STL. Parts land on the bed, centred on your build plate. It never writes over the file you opened.
- **Send to Slicer**, with a list of thirteen slicers behind the button. The ones you have installed show their own icon, read from the program itself, so a slicer installed later appears on its own. Your choice is remembered.
- **Delete files without leaving the app.** Right-click in the file panel or in Quick Preview and the file moves to a **BIN** folder at the top of your library, keeping the folders it came from. Nothing is erased; empty the BIN yourself.
- **A refresh button** in both browsers, for files added outside the app.
- **The window remembers its size and position**, including whether it was maximised.
- **Layer Preview shows what is inside the part** — a real cross-section with infill walls, solid floor and lid layers, and open space between the walls. It works on multicolour models, which previously came out tinted rather than recoloured.
- A taller toolbar grouped by purpose, a wider file panel, and the welcome window's sections now fold away.

v1.3.3 Large 3MF files · Update notifications

- **Large 3MF files open instead of killing the app.** A 3MF is a zip archive, so a 115 MB file can hold well over a gigabyte of XML once uncompressed — and the old parser built a document in memory several times larger again. Past a certain size the app ran out of memory and the window went black with no explanation. The geometry is now read straight out of the file without building that document at all.
- **If something does go wrong, you are told what.** A crash previously left a black screen with nothing to read and no way to report it. You now get the error itself, a **Reload** button and a **Copy details** button, so a problem can be sent on rather than guessed at.
- Loading and searching large files are both quicker as a side effect.
- **The app tells you when a new version is out.** A slim bar appears at the top of the window with the new version number and a **Download** button. It could always check under *Help → Check for Updates*, but only if you thought to look — so people stayed on old versions for months without knowing there was anything newer.
- Dismissing the bar hides that one version only. The next release still gets to tell you.
- Desktop only — the web app at layerspeek.com is always the current version, so there is nothing to announce and nothing to download.
- **Search looks through every folder**, not only the ones you have expanded. Type a name from the top of your library and the file is found wherever it is, with the folder it came from shown beside it.

v1.3.2 Build plates for any printer · Faster loading

- **Add your own build plate** at any bed size, with a name printed on the plate itself, remembered between sessions. The built-in list was Bambu-only, which left every other printer without a plate at all. See Section 8.2.
- **Remove printers you don't own**, including the Bambu ones, so the menu only holds machines you actually use.
- **Restore Bambu printers** brings the built-ins back in one click, and never touches the plates you added yourself — removing a built-in only hides it.
- The print volume check works against your own plates as well as the built-in ones.
- **Big files open much faster** — a 750,000-triangle model used to freeze the window for about a second before it appeared. It now shows straight away, and the vertex count in the Model Info panel fills in a moment later.
- **Quick Preview: up and down move a whole row** in the icon grid instead of behaving like left and right. See Section 8.4.
- **Leaving Quick Preview keeps the model you were looking at**, and the file panel jumps to the folder it came from.
- The back-a-folder arrow is bigger and in colour, in both the file panel and Quick Preview.
- **The folder you are browsing survives the switch** between the file panel and Quick Preview, in both directions, instead of resetting every time.

v1.3.1 Opens maximised

- **Opens maximised** — the desktop app fills the screen on launch instead of a 1280×800 window. The title bar and window controls stay, so it can still be moved and resized.
- Ongoing improvements to the Benchy game behind the golden egg — soundtrack, a wider video rotation, faster spawns, and sessions that resume where you left off. The game is served from the web, so these reach every version without an update.

v1.3.0 G-code · Transforms · Multi-model · Undo/Redo

- **One version across web and desktop** — the staged release tiers are gone. Both the web app and the desktop app now ship from the same version number, and the difference between them is simply which features each platform includes.
- **G-code viewer** *(Desktop)* — opens `.gcode` files and Bambu `.gcode.3mf` archives, with a layer slider for scrubbing through the print and a toggle for showing or hiding travel moves. See Section 9.1.
- **Move, Rotate & Scale** *(Desktop)* — a transform gizmo for positioning models, with live angle and dimension readouts while dragging. See Section 9.2.
- **Several models at once** *(Desktop)* — additional files are added to the scene instead of replacing what is loaded, and each model can be selected, transformed and deleted on its own. See Section 9.3.
- **Multi-object 3MF splitting** *(Desktop)* — a 3MF containing several separate objects is split so each becomes an independent scene item.
- **Undo & Redo** *(Desktop)* — Ctrl+Z and Ctrl+Shift+Z across every edit, with toolbar buttons that grey out at the ends of the stack. See Section 9.4.
- **Add Shape** *(Desktop)* — drop cubes, cylinders and spheres into the scene as scale references or fit checks. See Section 9.5.
- **Print volume check** *(Desktop)* — models exceeding the selected printer's build volume are outlined in red, re-evaluated live as you move and scale. See Section 9.6.
- **Feedback notifications** — bug reports and feature requests sent from the app are now emailed straight through, so nothing sits unread.

v1.2.3 Quick Preview · Layer Preview · Build Plate Images

- **Quick Preview** — a new browsing mode that replaces the file browser and viewport with a large icon grid of a folder's models plus a live 3D preview. Step through models with the arrow keys, click a folder to go into it, and filter by type with the STL / 3MF / OBJ pills. See Section 8.4.
- **Layer Preview** — visualises a model building up layer by layer in printed-filament orange, with a ghost of the remaining geometry above the current layer. Selectable layer height from 0.08 mm to 0.30 mm, a scrub slider and a play/pause build animation. Visual only — no slicing or G-code is produced. See Section 8.3.
- **Double-click to open** — setting LayerS Peek as the default application for STL, 3MF or OBJ files now loads the file you double-clicked. The installer registers these file associations automatically.
- **Report Bug / Suggest Feature** — a feedback button in the status bar and under the Help menu, for sending bug reports and feature requests directly from the app.
- **Photo-realistic build plate images** — the Printer Build Plate overlay now shows the actual physical plate image for all 11 Bambu Lab printers (X1C, P1P, P1S, P2S, X2D, A1, A1 Mini, A2L, H2D, H2S, H2C). The plate image is pixel-accurate: the printable area is aligned exactly to the blue border rectangle, with the handle, cable connectors and label strip displayed outside the border for visual reference.
- **Top-down camera snap** — when a build plate is selected and no model is loaded, the camera automatically snaps to a top-down orthographic-style view so the plate image fills the viewport.
- **Grid toggle button** — a new *Grid* button in the toolbar (between Include View and Persp/Ortho) toggles the viewport floor grid on and off. The button is highlighted when the grid is visible.
- **Circular loading overlay** — a semi-transparent overlay appears over the viewport whenever a file is being parsed. A circular progress ring fills smoothly from 0 % to 100 % and fades out automatically when loading completes.
- STL and OBJ files are deferred one animation frame before parsing so the loading overlay renders before the main thread is blocked.

v1.2.2 Menu Bar & Keyboard Shortcuts

- **Menu bar** — a thin bar at the top of the window with three menus: *File*, *Tools* and *View*. Hover-navigation between menus while one is open. All items show their keyboard shortcut on the right.
- **File menu** — Open File, Settings…, Keyboard Shortcuts…, Exit.
- **Tools menu** — all viewport tools (Wireframe, Fit View, Include View, Perspective, Orthographic, Free Measure, Precise Measure, Printer Build Plate sub-menu).
- **View menu** — Reload, Toggle Developer Tools, Toggle Fullscreen.
- **Keyboard shortcuts** — all tools now have default keyboard shortcuts (see Section 11). Shortcuts are globally active in the viewport and do not fire while typing in input fields.
- **Keyboard Shortcuts dialog** — click any binding and press a new key to reassign it. Customisations are saved to disk and persist across sessions. A "Reset to Defaults" button restores the original bindings.
- The native Windows menu bar was removed; all menus are now rendered inside the application.

v1.2.1 Measurement Tool

- **Free Measure mode** — click any two points on the model to display the straight-line distance in millimetres. A dashed yellow line and label update live as you move the cursor.
- **Precise Measure mode** — axis-locked variant. The second point is automatically constrained to either the vertical (Y) or horizontal (X/Z) world axis depending on cursor movement relative to the first point. Works correctly from all six orthographic views and from arbitrary perspective angles.
- **Vertex snapping** — cyan preview sphere snaps to the nearest triangle vertex within 15 px.
- **Edge snapping** — green preview sphere + thick green edge highlight line snaps to the nearest triangle edge.
- **Measurement marker spheres** scale with camera distance so they always appear the same on-screen size.
- `Esc` clears the active measurement and exits measure mode.
- Clicking a third point while a measurement is displayed clears the old measurement and starts fresh from the new point.
- The Measure button in the toolbar shows a dropdown with both modes; it displays the active mode name when a mode is on.

v1.2.0 View Label, Quick Buttons & Pan

- **View label overlay** — permanent top-left overlay showing the current face name, projection mode (Perspective/Orthographic) and active Build Plate printer.
- **Quick Fit / Include View buttons** — two small icon buttons directly above the navigation cube provide single-click camera resets without reaching the toolbar.
- **Middle mouse pan** — the middle mouse button now pans the camera (same as right mouse), matching standard CAD application conventions.
- Toolbar "Bed" label renamed to **Printer Build Plate** for clarity.

v1.1.9 Model Selection & Drag

- **Click-to-select** — left-clicking the model shows a white BoxHelper outline around it indicating it is selected.
- **Drag on XZ plane** — while selected, dragging the model moves it along the horizontal build-plate plane. Z movement is locked.
- Clicking empty space deselects the model and removes the outline.
- Orbit controls are suspended during drag to prevent camera movement conflict.

v1.1.8 Navigation Cube Gizmo

- **Navigation cube** — a coloured, interactive cube rendered in the bottom-right corner of the viewport. Each face is clickable to snap to that orthographic view. Edges and corners also clickable for angled views.
- The cube rotates in real time to always reflect the current camera orientation.

v1.1.0 – v1.1.7 Stability & Feature Refinements

- Resizable file browser panel with drag divider and collapse toggle.
- Logarithmic depth buffer to prevent z-fighting on models with coplanar surfaces.
- Shadow casting from directional light onto the grid floor.
- Fit View and Include View differentiated (previously a single button).
- Perspective / Orthographic toggle button added to toolbar.
- Printer Build Plate grid overlay for Bambu Lab X1C, P1S, P1P, A1, A1 Mini, A2L and H2D.
- Settings dialog for configuring the default file browser folder.
- Various performance and rendering improvements for large 3MF files.