What does support on build plate only mean?

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Abstract. Supports may start only on the build plate, never on the model, so an overhang above another part of the print gets none. Every major slicer ships it off.

Keywords: supports, slicer-settings

Table 1. The number

Slicer	Setting and where it is	Default	Tooltip
Bambu Studio	"On build plate only": Process, Support	Off; every Bambu Lab process profile inherits it off	"Don't create support on model surface, only on build plate"
OrcaSlicer	"On build plate only": Process, Support	Off	"This setting only generates supports that begin on the build plate."
PrusaSlicer	"Support on build plate only": Print Settings, Support material, Options for support material and raft. Also a choice in the right panel's "Supports" menu, next to None, For support enforcers only and Everywhere	Off, in Prusa's own printer profiles too	"Only create support if it lies on a build plate. Don't create support on a print."
UltiMaker Cura	"Support Placement" set to Touching Buildplate instead of Everywhere, in the Support section; called "Placement" in Recommended mode	Everywhere	"Adjusts the placement of the support structures. The placement can be set to touching build plate or everywhere. When set to everywhere the support structures will also be printed on the model."

1 What does support on build plate only mean?

Support on build plate only tells the slicer to start supports only on the bed, never on the model's own surfaces. Overhangs with a clear drop to the bed still get supports; an overhang that sits above another part of the model prints with none. It is off by default in Bambu Studio, OrcaSlicer, PrusaSlicer and UltiMaker Cura.

1.1 The number

Labels, locations, defaults and tooltips are read from source at Bambu Studio v02.09.01.70, OrcaSlicer v2.5.0, PrusaSlicer version_2.9.7 and UltiMaker Cura 5.14.0. Bambu Lab's base process profile and PrusaResearch.ini were checked for overrides. UltiMaker's own printer definitions keep Everywhere. A few bundled third-party printer profiles switch to Touching Buildplate, among them the BIQU B1, BIQU Hurakan and Mixware Hyper S.

1.2 Why does an overhang above the model get no support?

Because the slicer keeps only support that can stand on the bed. Bambu Studio, OrcaSlicer and PrusaSlicer share this code: they collect the outline of every layer below and remove any overhang area that falls inside it, under the source comment "Don't support overhangs above the top surfaces." An overhang over open bed gets its supports as usual. One above a lower part of the model gets nothing, however high it sits. An overhang only partly above the model is supported only where it has a clear drop.

Prusa's help page says "Supports can start only on the print bed," and asks you to check in the preview that every part is either supported or at an overhang angle the printer can manage. UltiMaker warns that limiting support to the build plate "can lead to unstable or insufficient support structures."

1.3 When should you use support on build plate only?

When every overhang above the model can print without support, or when clean upper surfaces matter more than those overhangs:

- **To keep supports off the model's surfaces.** UltiMaker notes that supports printed on a model can scar it unless the support material is soluble. Prusa says small imperfections may appear where supports start growing from a surface.
- **To cut excess support.** Prusa calls the option "a really quick way to get rid of excess supports," mostly on organic shapes.

To judge whether a given overhang can go without, see what overhang angle needs support and printing overhangs without supports.

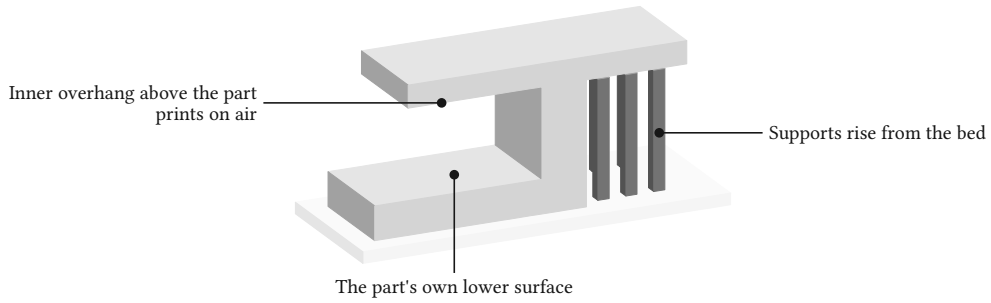


Figure 1. With support on build plate only, the overhang over open bed gets supports from the bed, while the overhang above the part's own lower surface prints with no support.

1.4 When should you leave it off?

When an overhang above the model needs support: with the option on, it prints on air. Three ways to keep the rest of the model clean anyway:

- **Turn it off and block supports** on the faces you want clean (how to block supports in one area).
- **Keep it on and paint a support enforcer** on that one overhang. Bambu Studio, OrcaSlicer and PrusaSlicer exempt enforced areas from the build-plate-only trim in their normal-support code. Normal supports, Grid or Snug style, still stand on the model under the enforcer.
- **Print the support in a soluble material** such as PVA (polyvinyl alcohol), which UltiMaker's scarring warning excludes (how PVA supports work).

1.5 How do tree supports behave on build plate only?

The branches lean around the model to reach the bed, and a branch that cannot get there is removed instead of landing on the model. Cura's description says tree support "allows the branches to crawl around the model to support it from the build plate as much as possible."

The branch angle caps how far a branch can lean. Bambu Studio's and OrcaSlicer's tooltips say a larger angle lets branches print more horizontally and reach farther. PrusaSlicer uses its "Maximum Branch Angle" "when the branches have to avoid the model."

Where no route exists, the branch is dropped. Bambu Studio's and OrcaSlicer's tree code says so in a comment: "Can't rest on model and unable to reach the build plate. Then we must drop the node and leave parts unsupported." PrusaSlicer's organic supports and Cura's tree supports, the code Bambu Lab ported for its Tree Organic style, refuse to start a branch where no path to the bed exists. A tree can still catch an overhang above the model near its edge by leaning out past that edge; one with no way out prints unsupported.

Cura offers a softer rule for trees. With Placement on Everywhere and Support Structure on Tree, a "Rest Preference" setting appears, offering "On buildplate when possible" and "On model if required" (the default there). Per its description, structures that can't be placed where preferred go elsewhere, "even if that means placing them on the model." Touching Buildplate hides the setting and allows no landing at all.

How the two support families differ overall: tree vs normal supports.

1.6 How to check it on your own print

1. **Turn it on.** Bambu Studio and OrcaSlicer: Process, Support, tick "Enable support", then "On build plate only". PrusaSlicer: choose "Support on build plate only" in the right panel's "Supports" menu, which also switches on support generation and auto-generated supports. UltiMaker Cura: in Recommended mode, turn Support on and set Placement to Touching Buildplate. In Custom mode the setting is "Support Placement" in the Support section.
2. **Slice and look under every overhang in the preview,** as Prusa advises. Any overhang above another part of the model now stands unsupported.
3. **Judge each one.** If your printer handles that angle, leave the overhang unsupported. Otherwise use one of the fixes above, or reorient the part.
4. **With tree supports, if branches vanish next to the model,** raise the branch angle so they reach farther: "Branch angle" in Bambu Studio's Tree Support group (Advanced mode), "Tree support branch angle" in OrcaSlicer, "Maximum Branch Angle" in PrusaSlicer's Organic supports group and in Cura (search for it in Custom mode). In Cura you can instead go back to Everywhere and set Rest Preference to "On buildplate when possible".

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