What is the difference between tree and normal supports?

Asked 3D Content Team
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Abstract. Normal supports fill the space under an overhang with straight columns; tree supports branch from a trunk and touch it at 0.8 mm tips, using less filament.

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1 What is the difference between tree and normal supports?

Normal supports drop straight columns under the whole overhang, onto the bed or part below. Tree supports rise as a trunk that branches around the part and touches it at tips, 0.8 mm across by default. Slicer makers say trees use less filament and scar less; Bambu Lab says normal supports leave a better surface under large flat overhangs.

1.1 The number

Table 1. The number

	Normal supports	Tree supports
Bambu Studio	Type “normal(auto)”, Style Grid or Snug	Type “tree(auto)”, Style Tree Slim, Tree Strong, Tree Hybrid or Tree Organic
OrcaSlicer	Type “Normal (auto)”, Style Grid or Snug	Type “Tree (auto)”, Style Organic, Tree Slim, Tree Strong or Tree Hybrid
PrusaSlicer	Style Grid or Snug	Style Organic
UltiMaker Cura	Support Structure: Normal	Support Structure: Tree
Contact with the part	The whole underside of the overhang. Grid expands it to rectangles; Snug follows the overhang’s outline	Branch tips, 0.8 mm across by default
Where it stands	Straight below the overhang: on the bed, or on the part if the part is below	Branches lean away from the part to reach the bed where they can
Filament	“Uses a lot of material” (UltiMaker)	Less, per Bambu Lab, Prusa and OrcaSlicer; Tree Strong uses more
Print time	“Takes a long time to print” (UltiMaker)	“Reduced print time” (UltiMaker), “fast” (Prusa); slicing takes significantly longer (UltiMaker)
Removal and marks	More scarring unless the support is soluble (UltiMaker)	Less scarring (UltiMaker); Organic “easily removable” (Prusa); Tree Strong “sometimes difficult to remove” (Bambu Lab)
Shapes the makers match it to	Large flat overhangs (Bambu Lab); heavy or extensive overhangs (Polymaker)	Complex objects whose overhangs are mostly small and not flat (Bambu Lab)

The names and the tip size are read from the source of Bambu Studio v02.09.01.70, OrcaSlicer v2.5.0, PrusaSlicer version_2.9.7 and UltiMaker Cura 5.14.0. Cura sets its tip at twice the support line width: 0.8 mm at a 0.4 mm nozzle. The other rows quote the Bambu Lab Wiki, OrcaSlicer Wiki,

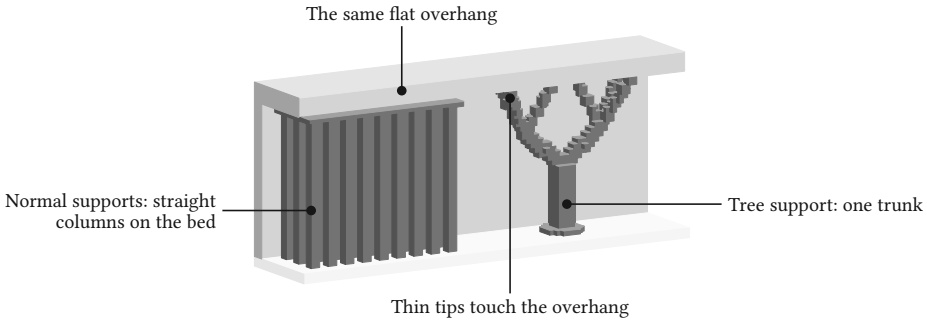


Figure 1. Normal supports fill the space under the overhang with straight columns from the bed, while a tree support rises as one trunk and touches the same overhang only at its branch tips.

Prusa Knowledge Base, UltiMaker Support and Polymaker Wiki.

1.2 Why do tree supports touch the part at fewer points?

Because a tree carries only sample points of the overhang down to the bed, while normal support projects the whole overhang down as one body. Bambu Lab's wiki calls those points nodes, each a small circle. On the way down the circles may grow for strength and move away from the object, so the branches are less likely to hit it.

Cura's description adds where the branches go: they "crawl around the model to support it from the build plate as much as possible."

Normal supports meet the whole underside of the overhang, and the style sets how far they spread. Prusa says Grid has a well-defined minimum area that makes it very stable, but it leaks out along the walls of the part. Snug keeps the overhang's shape, with possibly less stable tall, thin pillars. A tree meets the overhang only at its tips, and Bambu Lab's wiki says closer tips give a better surface but harder removal.

1.3 Are tree supports better, and when should you use them?

The makers match each family to an overhang shape rather than calling one better:

- **Large flat overhangs:** Bambu Lab says normal supports usually leave a better surface there than tree supports. Polymaker calls normal supports more reliable under heavy or extensive overhangs.
- **Complex objects with small overhangs that are not flat:** Bambu Lab says tree supports there give stronger support, less material and less time with a similar surface.
- **Both on one part:** Tree Hybrid in Bambu Studio and OrcaSlicer prints tree branches but switches to normal grid under large flat overhangs.
- **Tall, narrow supports:** Polymaker says trees are more prone to being knocked off the build plate when the base is narrow or the print is tall and wobbly (supports falling over).
- **Material:** UltiMaker says tree support "is not suitable for all materials"; flexible filament has its own answer.

Defaults differ. Once you enable support, Bambu Lab's process profiles give Type "tree(auto)" with the Default style, which Bambu Studio turns into Tree Organic (Tree Hybrid with adaptive layer height or a soluble interface). Prusa's MK4S and CORE One profiles set Snug, and Cura defaults to Normal.

1.4 Do tree supports use less filament?

The makers say yes. UltiMaker says normal support "uses a lot of material", Prusa calls Organic "cheap to print", and OrcaSlicer's wiki says tree supports are designed to minimize material. One published slice puts numbers on it: the University of Wisconsin-Madison ME Design Lab sliced a small cross-shaped test part in Bambu Studio. Normal supports took 3.9 g of support filament, tree supports 1.87 g, under half.

The tree style matters too. Bambu Lab says Tree Slim generates a much smaller support volume and Tree Strong uses more material.

1.5 Snug vs tree supports: which uses less filament?

No maker or published test we found weighs Snug against a tree style on the same part. Bambu Studio, OrcaSlicer and PrusaSlicer all describe Snug as saving material compared with Grid. Bambu Studio says Tree Slim, and OrcaSlicer says Tree Slim and Organic, "save a lot of material." To settle it for your part, slice it both ways (step 2 below).

1.6 Do tree supports take longer to print?

Not according to the makers, though the part decides. UltiMaker lists "reduced print time" as a tree benefit and Prusa calls Organic "fast" to print. Bambu Lab ties the time saving to complex parts with small overhangs. In the Wisconsin slice both versions took 26 minutes, and the lab notes that some models print much longer with trees because the nozzle travels more. Slicing is slower: UltiMaker says tree support "takes significantly longer to slice."

1.7 Are tree supports easier to remove?

Usually, by the makers' account. UltiMaker says tree supports scar the model less, and Prusa says Organic supports are easily removable and do not scar the surface. Bambu Studio's tooltip credits Organic's fewer interfaces for its easier removal.

Three things make a tree harder to remove:

- **Tree Strong:** Bambu Lab says its connected branches are sometimes difficult to remove.
- **Closer tips or higher branch density:** Bambu Lab and Prusa say both give better overhangs but harder removal.
- **A thicker tip:** Bambu Studio's tooltip says it sticks better but leaves heavier marks.

Prusa warns that support pieces can be surprisingly sharp and sometimes fly off when they snap, so wear safety glasses. The removal method itself is in how to remove supports, and stuck supports in why supports are hard to remove.

1.8 How to check it on your own print

1. **Find the setting.** Bambu Studio and OrcaSlicer: the process settings, Support tab, "Type" and "Style" under "Enable support" (Style shows in Advanced mode). PrusaSlicer: Print Settings, Support material, "Style" (Advanced or Expert mode). UltiMaker Cura: Support in the Recommended view, or "Support Structure" in Custom. Step-by-step paths: how to add tree supports.
2. **Slice the part twice,** once with normal and once with tree supports, and compare the slicer's filament and time estimates. To find which uses least, add Snug and a second tree style.
3. **Check the preview where supports meet the part.** Normal columns standing on a visible face will mark it: Prusa notes small imperfections where supports start on the model.
4. **Match the support to the overhang:** normal or Tree Hybrid under a large flat overhang, tree for small overhangs on a complex shape.
5. **Watch a tall tree's base.** If branches wobble or a trunk stands on a narrow base, see supports falling over.

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