Tweak At Z plugin for Cura

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Source
See http://github.com/Dim3nsioneer/Cura-Plugins/wiki/Tweak-At-Z-plugin

Authors
Steven Morlock (Smorloc), smorloc@gmail.com: V1.0
Ricardo Gomez (RicardoGA), ricardoga@otulook.com   V2.0
Stefan Heule (Dim3nsioneer), dimensioneer@gmx.ch   V3.0.1-4.0

The Tweak At Z plugin works with these GCODE flavors:

- RepRap GCODE (all versions),
  e.g. used by Ultimaker Original (UMO) and Original+ (UMO+)
- UltiGCode (V3.1+, value reset V4.0+) ,
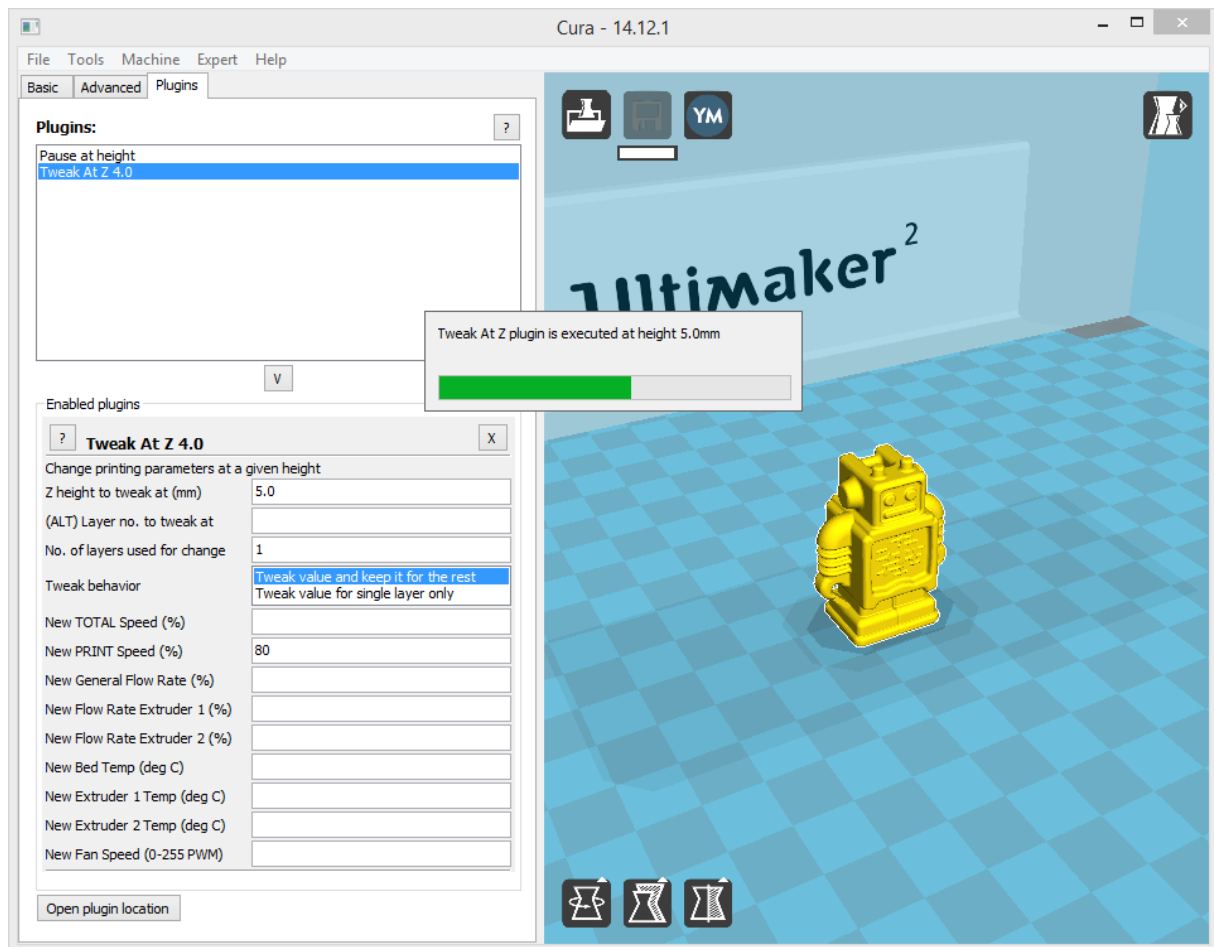 *e.g. used by Ultimaker^2 family (UM^2)*

Installation
(for Cura version with no / different TweakAtZ version bundled)

1. Close Cura if opened
2. Copy 'TweakAtZ.py' to the plugin folder of the Cura installation
   e.g on Windows: C:\Program Files (x86)\Cura_15.01\plugins
3. Start Cura

Description

General purpose: Change printer settings at certain z heights / layer numbers.

Screenshot of TweakAtZ 4.0

Version restrictions

V1.0 only works with Cura up to V13.04. For Cura 13.06.4+ use Tweak At Z V2.0+.
The status bar feature only works on Cura versions from 14.12.

Input description (V4.0)

Z height to tweak at (mm)	Specifies the tweak height in millimeters
(ALT) Layer no. to tweak at	Alternatively specifies the tweak layer number; if it is specified the tweak height from the previous input will be ignored
No. of layers used for change	Default value 1; specifies the number of layers used for a gradual / linear change of the specified printer settings
Tweak behavior	*Tweak value and keep it for the rest* changes the setting and keeps the change until the end of print / the top of the object is reached; *Tweak value for single layer only* changes the setting for only the layer specified by layer no. or by z height and resets it on the next layer
New TOTAL speed	Alters both print speed and travel speed by applying a speed factor during print
New PRINT speed	Alters print speed only by recalculating speed settings in the gcode (for G1 commands only)
New General Flow rate	Alters the flow rate multiplicator for ALL extruders
New Flow Rate Extruder 1	Alters the flow rate multiplicator for the first extruder only
New Flow Rate Extruder 2	Alters the flow rate multiplicator for the second extruder only
New Bed Temperature	Alters the print bed temperature
New Extruder 1 Temperature	Alters the temperature of the first hotend / extruder
New Extruder 2 Temperature	Alters the temperature of the second hotend / extruder
New Fan Speed	Alters the fan speed; Full speed is 255 PWM

Remarks / additional features

Values that are not explicitly specified will remain unchanged.

Since V3.0.1 the plugin resets the original values when falling below target Z again (e.g. when starting the next object within a single print job (*Print one at a time* option in Cura 14.01+) when using RepRap flavor. **Since V4.0 this does also apply to UltiGCode (full functionality requires firmware 14.12+ on the UM^2)!**

Since V3.0.1 it is possible to set the internal state of the plugin directly by using the following comment inside the GCODE (e.g. in the start.gcode):

```
;TweakAtZ-stateX
```

where X stands for:

0	Plugin deactivated
1 (default)	Plugin activated
2	Plugin active, but below target Z
3	Plugin active, partially executed (multilayer)
4	Plugin active, past target Z

Feature List by version

Feature	Version					
	1.0	2.0	3.0.1	3.1.2	3.2	4.0
Tweak speed (speed multiplicator)	UMO	UMO	UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak first extruder temperature	UMO	UMO	UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak second extruder temperature	UMO	UMO	UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak third extruder temperature	UMO	UMO	UMO	(UMO) (UM^2)	(UMO) (UM^2)	
Tweak bed temperature		UMO	UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak general flow rate (multiplicator)			UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak fan speed				UMO UM^2	UMO UM^2	UMO UM^2
Tweak flow rate first extruder					UMO UM^2	UMO UM^2
Tweak flow rate second extruder					UMO UM^2	UMO UM^2
Tweak print speed only						UMO UM^2
Tweak at z height	UMO	UMO	UMO	UMO UM^2	UMO UM^2	UMO UM^2
Tweak at layer number				UMO UM^2	UMO UM^2	UMO UM^2
Reset previous values when printing one-at-a-time			UMO	UMO	UMO	UMO UM^2
Reset speed to 100% at the end of printing					UMO UM^2	UMO UM^2
Gradually tweak values over multiple layers						UMO UM^2
Tweak only single layer						UMO UM^2
Progress bar works with						Cura 14.12+
Bundled with Cura since			14.03	14.06	14.09	15.01

UMO: supported with RepRap flavor; UM^2: supported with UltiGCode; () = deactivated

Please report bugs and issue feature requests to:
www.github.com/Dim3nsioneer/Cura-Plugins/issues

TweakAtZ documentation   created by Dim3nsioneer