

# Endstop

**Feature Name:** Endstop

**Feature Name in Annotation:** Endstop

## Source of Information

Domain knowledge, Code comment, Source Code, G-code documentation

## Strategy Used:

Through 3D printer construction, we learned that there are endstop hardwares for controlling the minimum and maximum points of axes. Then we started from the largest and most central logic file MarlinMain.cpp, and browsing through the code comment and source code for whether the comments, variables and method names contain keywords such as “endstop”. Sometimes, both method comments and variables within a method contain a lot of endstops, however the method name is called “gcode M120” which has nothing to do with endstop. We used G-code M120 to find the code entry points of the feature. According to G-code documentation, there are certain G-codes i.e. M132, M119, M120, M121, M540, M666 that are directly related to settings for the endstops.

**Feature Description:** This feature is mandatory for Marlin, and it is responsible for recording end points or reference points of all axes. The reference points are then reported and stored in Marlin after it is triggered, and those reference points are used for calculating relative distance to be traveled on each axis. The endstops also work as an indicator for terminating motion on an axis if the endstop is hit on the same axis.

**Time spent:** This feature is one of 18 features that were located by manually going through all code files of Marlin using our source code method. It took one person 25 hours to identify all 18 features.

## Feature Characteristics:

Feature Name	LoFC	SD	TD	Completely Wrapped by ifdef
Endstop	198	14	17	No

## Ratios of sources (%)

RL	PR	CM	Ifdef	DK	CC	SC	GD
0	0	0	0	45	5	30	20

**RL:** Release Log; **PR:** Pull Request; **CM:** Commit, **Ifdef:** Ifdef Expression; **DK:** Domain Knowledge; **CC:** Code Comment; **SC:** Source Code; **GD:** G-Code Documentation.