

## Trisquare V1

*Trisquare is a free, open-source visual algorithm. V1 was uploaded on [github.com](https://github.com) in March 2025.*

### ABSTRACT

Rooms have three dimensions: Length, Width, and Height. In rooms with spatial bass, three subwoofers are placed strategically to, "...maximize their independence...",<sup>1</sup> from each other.

### GET STARTED

To map out subwoofer placement, divide the room into three layers:

1. **Floor**
2. **Shoulder-height** (roughly halfway up the wall)
3. **Ceiling**

Each layer will be mapped onto a 3x3 square grid.

### STEP 1 - FLOOR

The first step is to decide where the largest subwoofer will sit on the floor.

1. **Place the largest subwoofer on the floor.** Choose any location on the floor grid. Mark this spot with an "F" in the center box on the **Floor Grid**.
2. **Extend the influence of this subwoofer:** In the boxes next to the "F" (both horizontally and vertically), place an "F" (without the double dot) to show the area affected by the subwoofer.
3. **Replicate the placement on other grids:** Now, on both the **Shoulder-height Grid** and **Ceiling Grid**, place an "F" in the same five positions as the floor grid.

### STEP 2 - SHOULDER-HEIGHT

The shoulder-height layer is roughly halfway up the wall (about 1/2 of the wall height). Slight variations are fine.

1. **Place a smaller subwoofer at shoulder-height:** Choose an empty box on the **Shoulder-height Grid** where a small subwoofer will sit. Mark this box with an "S" and place a double dot "S..".
2. **Extend the influence of this subwoofer:** In the four boxes extending horizontally and vertically from the "S.." box, place an "S" (without the double dot) to represent the affected area.
3. **Replicate the placement on the Ceiling Grid:** On the **Ceiling Grid**, mark the same five boxes with "S".

### STEP 3 - CEILING

For the ceiling layer, a smaller subwoofer will be placed as high as possible—either on the ceiling or near the ceiling on the wall.

1. **Place a subwoofer on the ceiling:** Choose an empty box on the **Ceiling Grid** to place a small subwoofer. Mark this spot with a "C" and place a double dot "C..".
2. **Extend the influence of this subwoofer:** In the four boxes extending horizontally and vertically from the "C.." box, place a "C" (without the double dot) to represent the area affected by the subwoofer.

This method uses three layers (Floor, Shoulder-height, and Ceiling) to optimize the placement of subwoofers, ensuring each subwoofer is working independently.

1. Geddes, Earl (30 October 2011). "Why Multiple Subs?" (PDF). [gedlee.com](https://www.gedlee.com). Retrieved 28 February 2025.