

PentaSphere

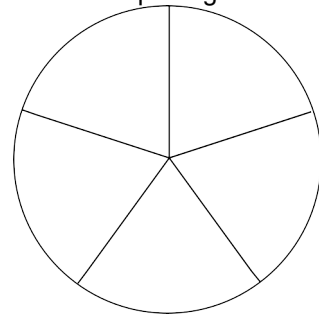


You're in luck if you know someone who can create a sphere plane for screwing in the five microphone pipes. If not, you may find this setup helpful.

The stand with the red ball can carry a lot of weight, which is too much for regular light stands. So, we use a solid light stand with a TV spigot that has a 3/8" thread on each side.

If you zoom into the middle of the setup, you will see a small trick we used:

The pentagram.



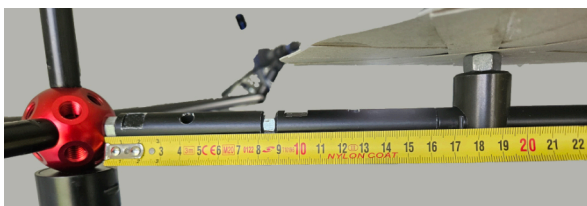
It's pretty easy to draw, or you can use a drawing program on your computer.

We printed the pentagram and glued it onto cardboard. Then, we drilled a hole in the center and attached it to a rapid adapter in the middle of the setup. The "center" is 18 cm behind the red ball. (see the picture on the left)

We used a string to mark the distance of 72 cm from the rapid adapter. You can mark this with a marker or a piece of tape.

When the string is positioned straight over the arms of the pentagram, you will know exactly where to place your omnis.

Then, measure **the distance between each microphone, which should be 85 cm.**



Preparations of modules:

To avoid unnecessary complications, it's good to prepare some modules to make mounting more convenient. The following picture shows these modules from top to bottom as described.

„Back-bars“

The back-bars consist of a two 10 cm and a 26 cm rod. For convenience you should screw the 10 cm rods on the inside, close to the cube.

The „center-bar“ consists of two 26 cm rods

The „side-bars“

The side-bars are a 10 cm and a 50 cm rod

The „middle-bar“

This consists of two 10 cm and a 50 cm rod. As you can see on the pictures, this bar holds a rapid adapter for the pentagram. There is a red ball on one end and a cube on the other. The one with the cube is used for the back „arms“ and the red ball for the front „arms“. Just in our example, you can change it.

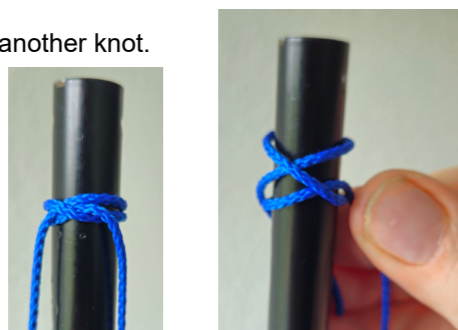


This time, we start with the middle bar! To do so, we need both light stands prepared at the same height.

Hold the middle bar in one hand and screw the first light stand into either the cube or the red ball, then screw in the other light stand. Your setup should resemble the one on the right.

Secure the 2.5-meter-long blue nylon string to the top of the 26-centimeter rod on top of the red ball. For easy mounting, you should take the middle of the string. Make sure the slings at the end reach the ends of the side bars.

You could use a clove hitch or another knot.

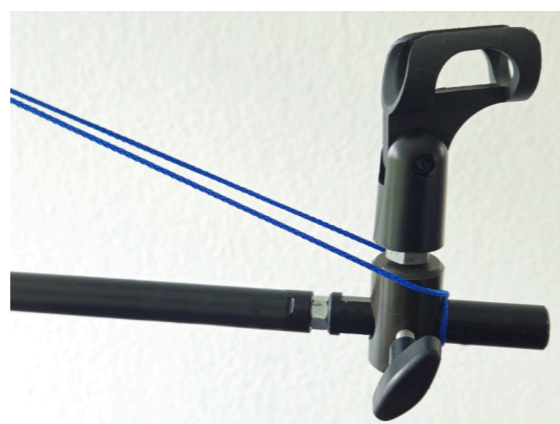


Now, screw both side bars into the red ball. **Be careful;** the light stand may fall because the side bars have strong leverage. We recommend screwing in the side bars simultaneously or holding the stand with one hand while screwing in a side bar.



Now it's time to fasten the nylon strings and tighten the tensioners.

Mount a rapid adapter on each arm of the front-bar and put a microphone clamp on top already. Sling the nylon string around the rod as shown in the picture.



Then, measure 63 cm from the outside of the red ball to the inside of the rapid adapter and secure the string. It should be snug but not too tight. Next, move the rapid adapter outward by 2 cm (about one inch), which will tighten the string. Make sure the rapid adapter screw is fastened well. Do the same with the other arm of the front bar.

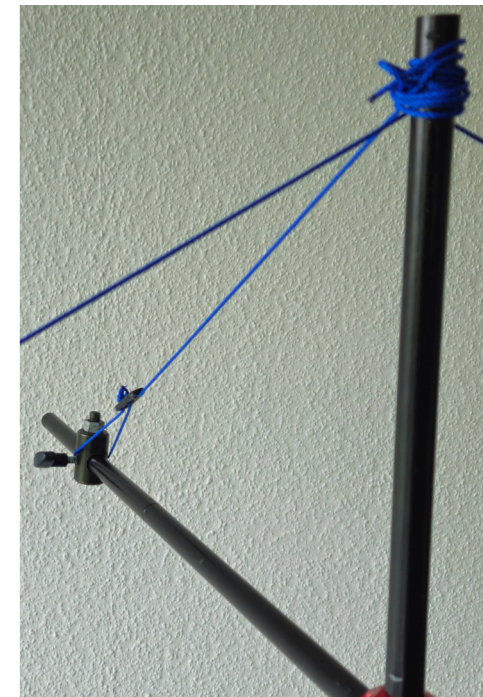
Let's continue with the „center-bar“! Just screw it in and for safety hold the stand in the other hand.

Prepare the nylon string for the center-bar and fix the end without the sling at the top of the rod on the red ball.

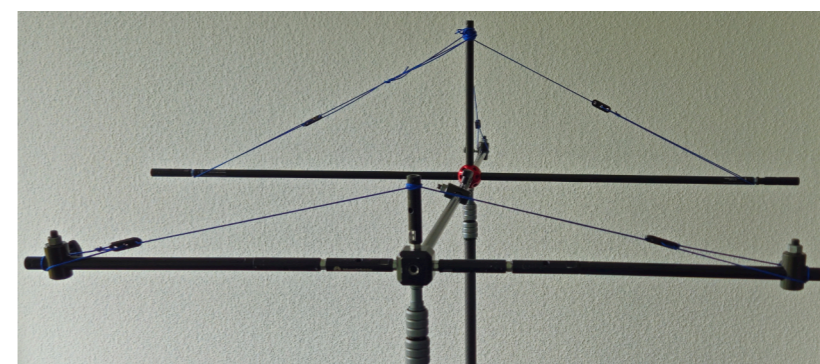
To fix the nylon string, we screw one rapid adapter onto the center-bar and put the sling around it as you have done before. The outside of the rapid adapter is about 40 cm away from the outside of the red ball. Depending on the length of your microphones, you have to adjust this measure accordingly.



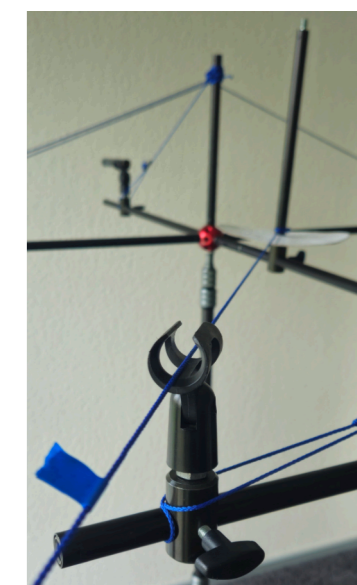
Now also use the same technique to tighten the string. Move the rapid adapter a little bit back, tighten the string, not too tight and move the rapid adapter back into the desired position.



Now, we will screw in the back bars and secure them in the same way that we did with the front bars. The only difference is that the middle rod is slightly smaller. This is to save weight. The use of a higher rod is an option, but it also has a higher weight. And if you want to carry the whole gear for a longer distance ...



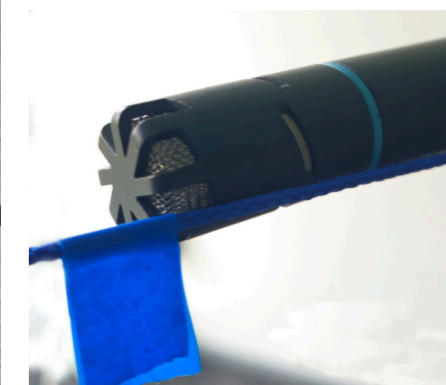
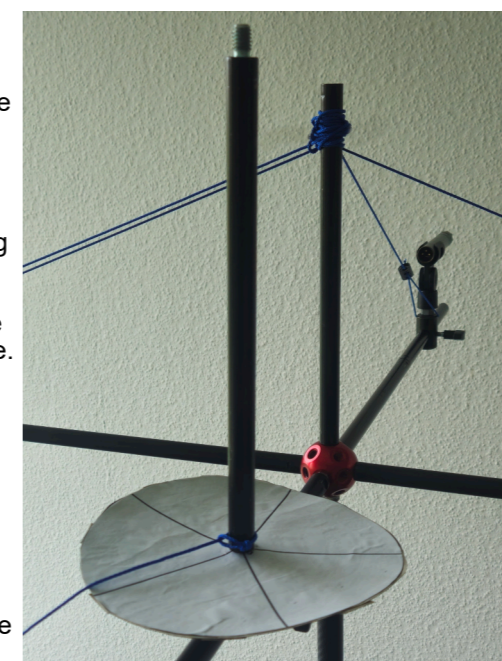
Once you're finished, your setup should look like this.



Now, we attach the pentagram to the middle bar's rapid adapter. On top, we screw in one of the rods from the large IRT-cross that we will build shortly.

Sling the short nylon string around the rod and measure 76 cm from its middle. Mark this distance with a pen or piece of tape. This measurement will be used for all five omnis on this plane.

This part is a bit tricky because you need to adjust the position of the five rapid adapters and remeasure. We recommend to practice





This is the lower plane, with all microphones adjusted to the desired directions and distances.

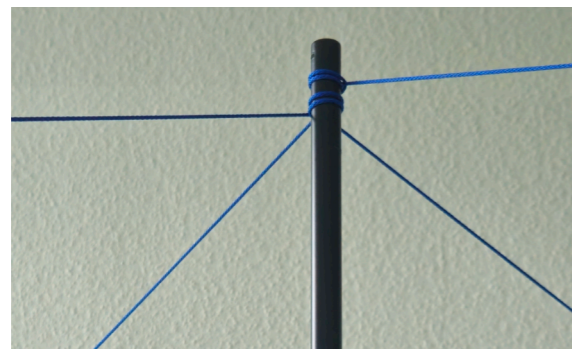
Ensure that the distance between each pair of microphones is 86 cm. You may need to push some microphones forward or backward slightly. It's worth it to be as exact as possible.

Now we reach the next, higher level. It starts ... with a red ball. But this time we need a small, but very important part. A little tiny washer

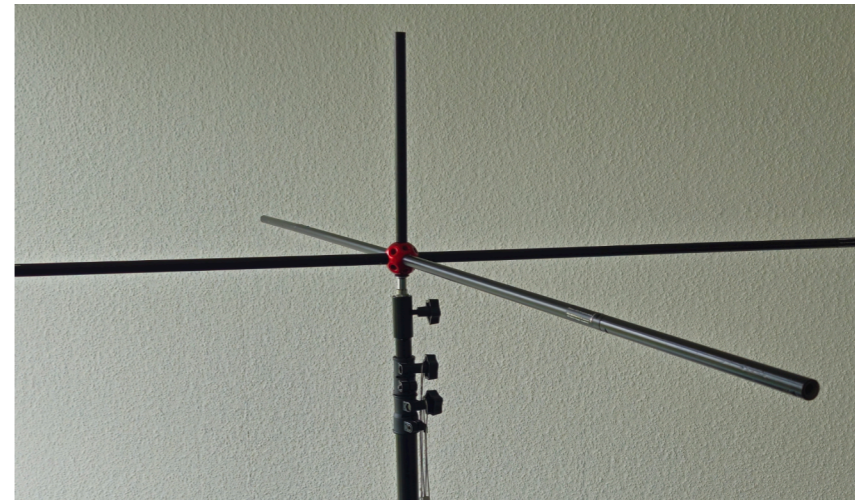
Although it's tiny, it's important to balance the load we are going to put on the spidot.



Now, screw the rod from the pentagram onto the top of the red ball, as shown in the picture on the left. This will be the attachment point for the two nylon strings. Make sure the strings are oriented at a 90° angle to each other.



The red arrow points to connection of the 50 cm and the 26 cm rod. For more clarity we didn't screw them together all the way, but you **must** screw them tightly, otherwise things may break easily.

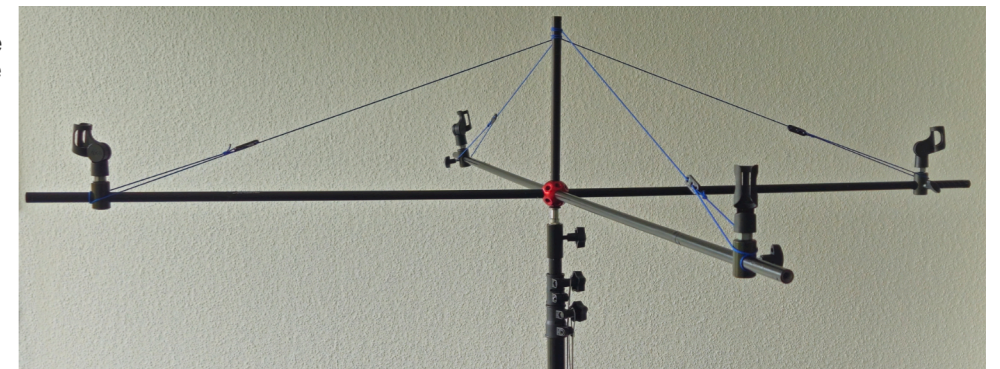


This is what it should look like before attaching the nylon strings, rapid adapters, microphones, and clamps.

Do not put any load on the rods until the nylon strings are fixed. The lever is quite high, and all materials have their limits. It's best not to exceed them.

This is what it looks like, once you attached the rapid adapters, the microphone clamps and the nylon strings. Here we use the same procedure to tighten the strings, as we've done before.

If you look closely you see that the clamps a little bit off-axis, as this is more convenient to connect the XLR connectors later on.

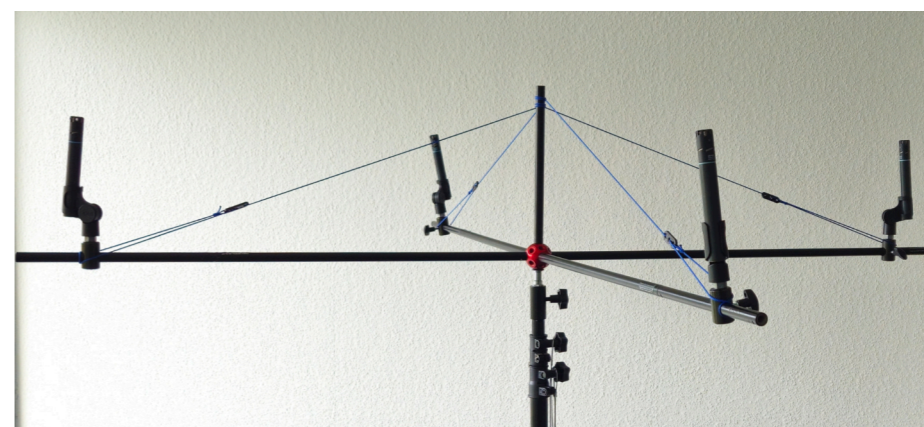


As a good starting point for the position of the rapid adapters you should start with a distance of 65 cm from the outside of the red ball to the inner side of the rapid adapter. Depending on your gear this may vary.



To find the final position you should make sure, the distance between all pair of microphones of the upper plane is exactly 100 cm.

It may be necessary to adjust the angle of the clamps and/or the rapid adapter. This may be a little tricky.

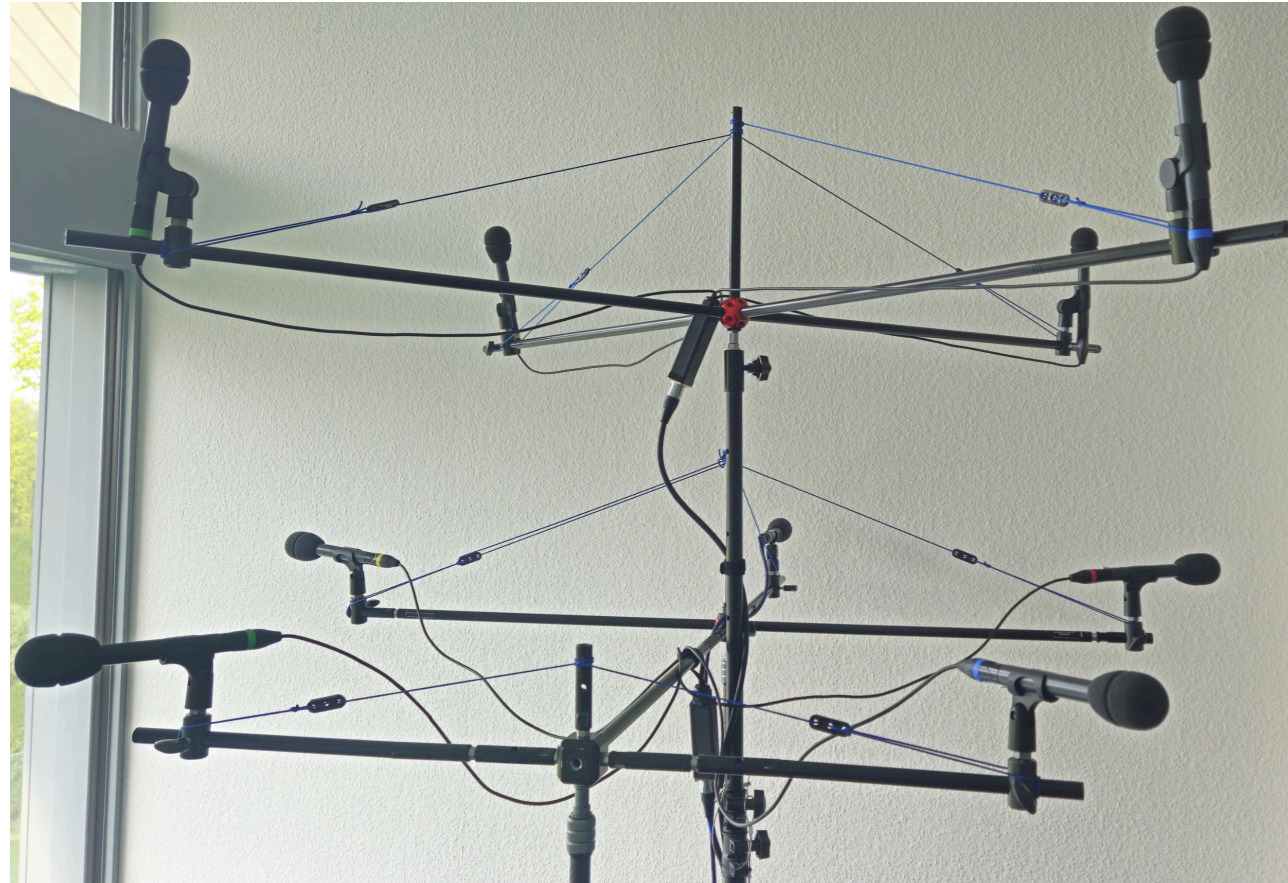


This picture shows the final stage of the upper plane with all microphones attached. We recommend to fix the 4-channel splitter now, as it is much more convenient to work at this height.

Once you are done position the upper plane tripot at the position of the rapid adapter on the middle-bar. This is the „middle“ of the complete array. **Make sure it doesn't touch the middle-bar at all.**

Here is one way to connect microphones to the four-channel multicores that we often use. One multicore connects the four omnis of the upper plane. Note that this is the maximum distance. To reduce weight, we put away the four microphones with four 10 cm rods which would make handling the XLR connectors easier. However, you may use this alternative method, as it is you to carry all the weight.

Connecting the microphones of the lower plane is easy. Just sling the cables around the middle-bar and you have a solid fixture for the splitter. The center microphone is connected with an extra microphone cable. You may change the order; it doesn't matter.



Unfortunately, the needle-nose pliers and the combination pliers are missing from the picture below. You should **definitely** have them on hand, since things can get a bit fiddly at times.

Of course, the large lighting stand doesn't fit in the backpack and has to be carried separately. Its weight is about 3.3 kg. Make sure, you have some spare batteries with you. Sometimes recordings take longer than expected.

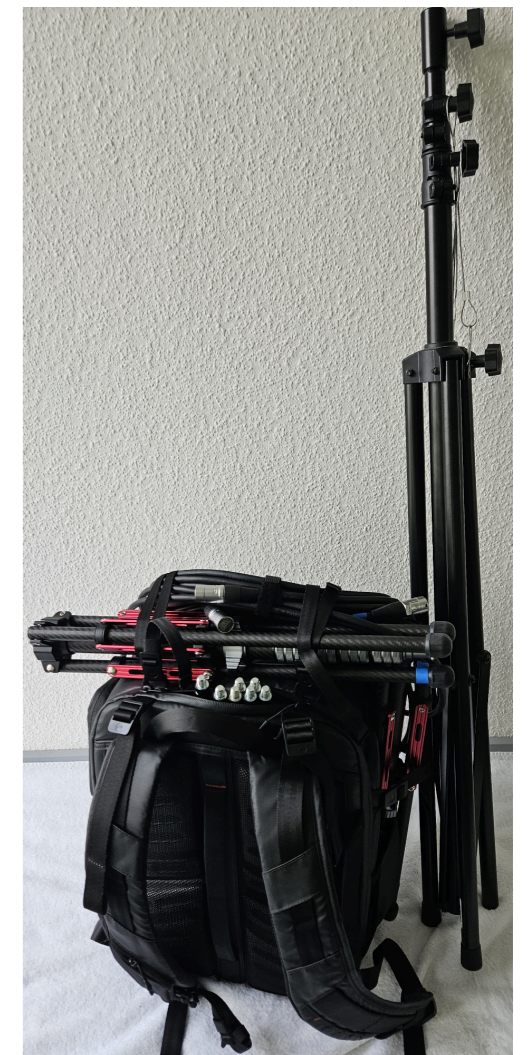


This is what it looks like when you pack all the gear into a backpack. In this case, the backpack has a volume of about 27 liters. Your mileage may vary depending on your gear.

The backpack has a total weight of approximately 16 kilograms. The extra tripod weighs about three kilograms. All in all, it's not too heavy, but not light either.

Now it's time to go outside and make some amazing recordings!

P.S.: Depending on the size of your backpack, it may be a better choice to substitute the 50 cm rods with two 26 cm rods. This is additional weight, but you may be able to close the backpack's zipper completely.





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If you have any feedback, any idea how to improve things, we would be more than happy to hear from you.

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