

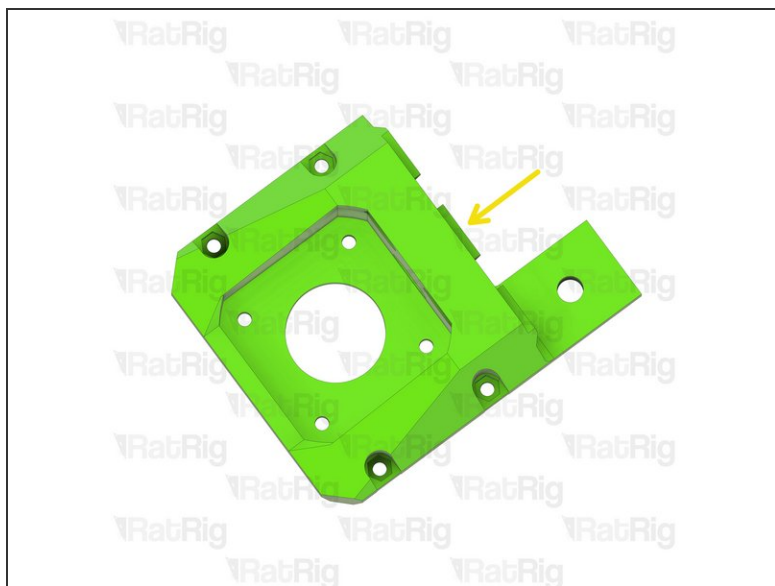
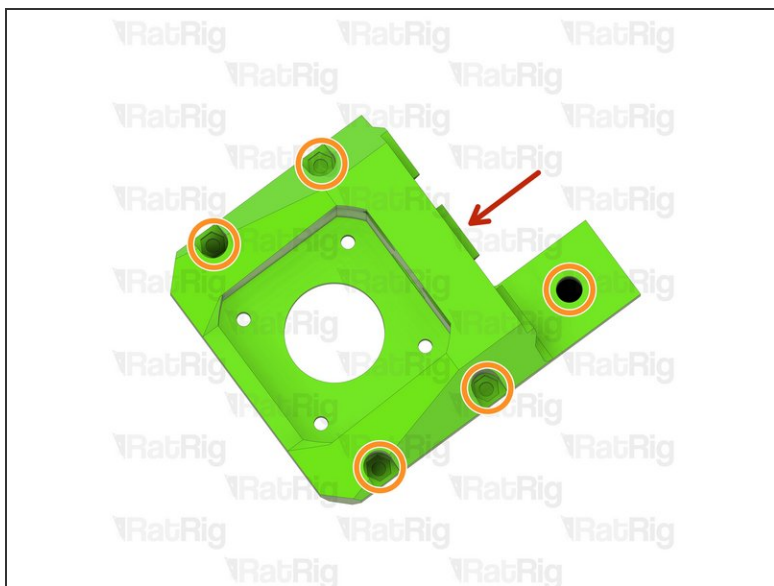
Rat Rig

00. Preparations

Written By: Simon Davie

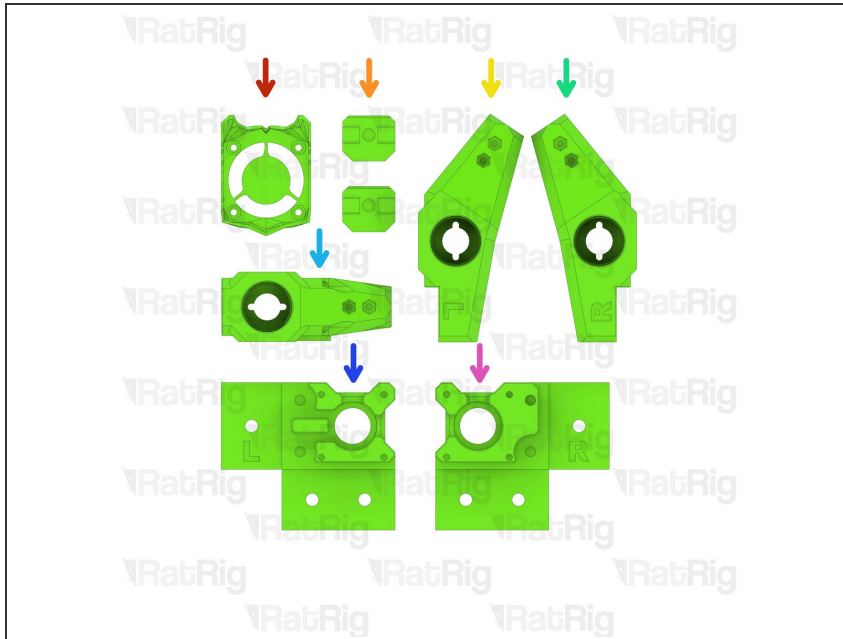


Step 1 — Prepare the printed parts



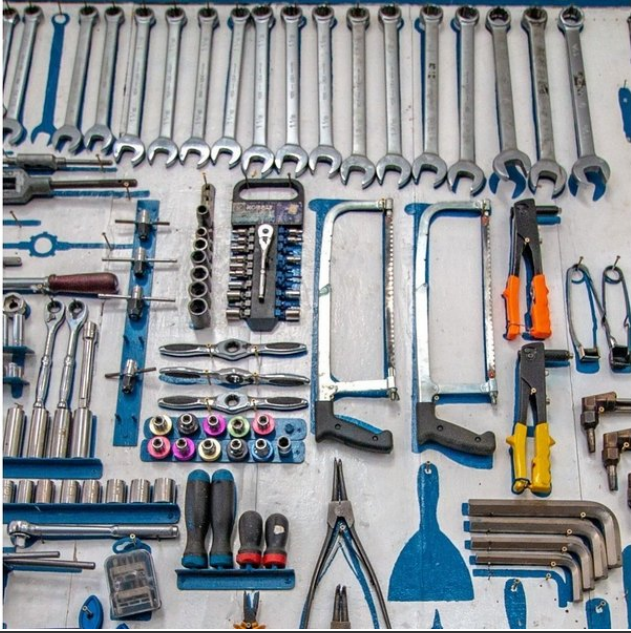
- ① Several of the V-Core 3.1 printed parts have sacrificial layers which need to be removed prior to assembly
- ① It is recommended to remove them by using a screwdriver, a hex key, or a drill, to push through the layers. This clears the holes for the screws.
- lead_screw_motor_cage_back_3.1 printed part
- Sacrificial layers to be cleared
- Prepared printed part

Step 2 — Sacrificial layers - Part list



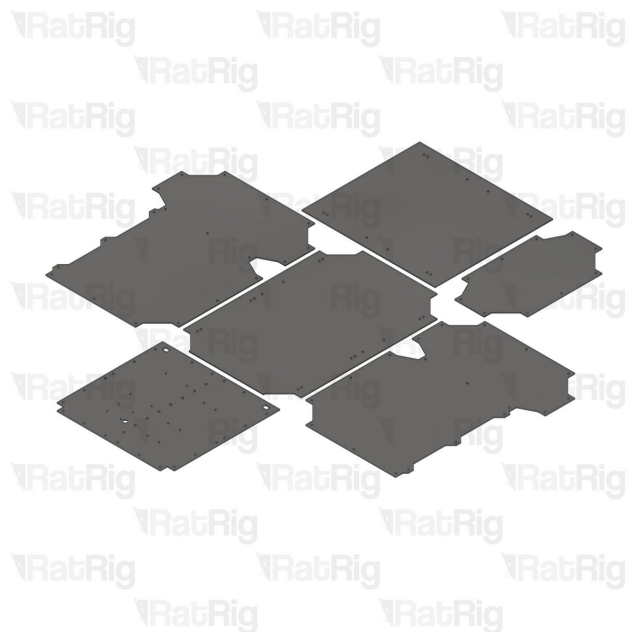
- i** The following printed parts have sacrificial layers which require clearing:
- ratrig_eva_shroud
 - 2x 3030_panel_mount_horizontal
 - bed_arm_left_3.1
 - bed_arm_right_3.1
 - bed_arm_back_3.1
 - xy_motor_cage_top_left_3.1_cutout
 - xy_motor_cage_top_right_3.1_cutout

Step 3



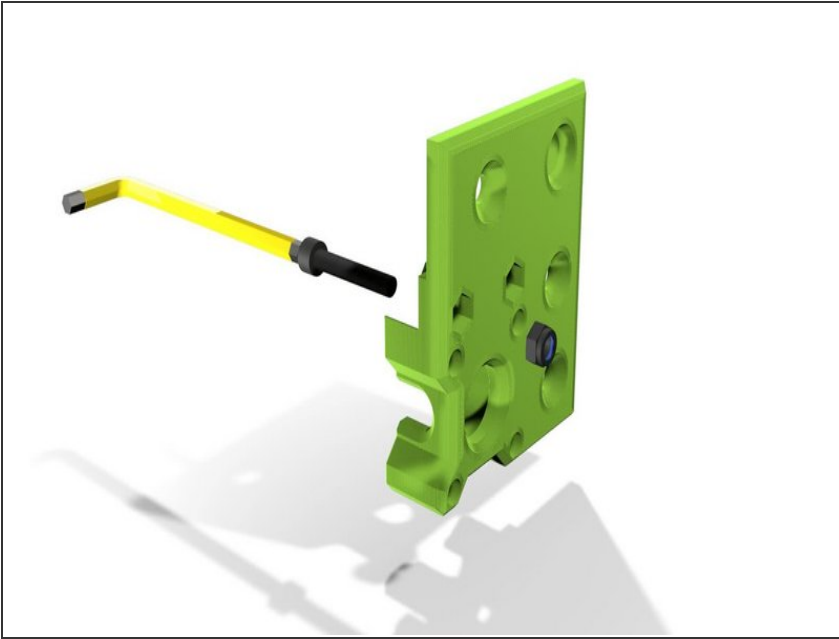
- i** It is recommended to have the following tools available for assembling the V-Core 3.1:
- Allen Key / Hex Wrenches in the following sizes: 2.5mm, 3mm, 4mm, 5mm & 6mm
 - Wire cutters & a wire stripper
 - Tape measure or calipers
 - Crimping tool
 - Cross slot / Philips screwdrivers
 - Flat / straight screwdrivers
 - Engineers Square

Step 4 — Electronics & enclosure panels



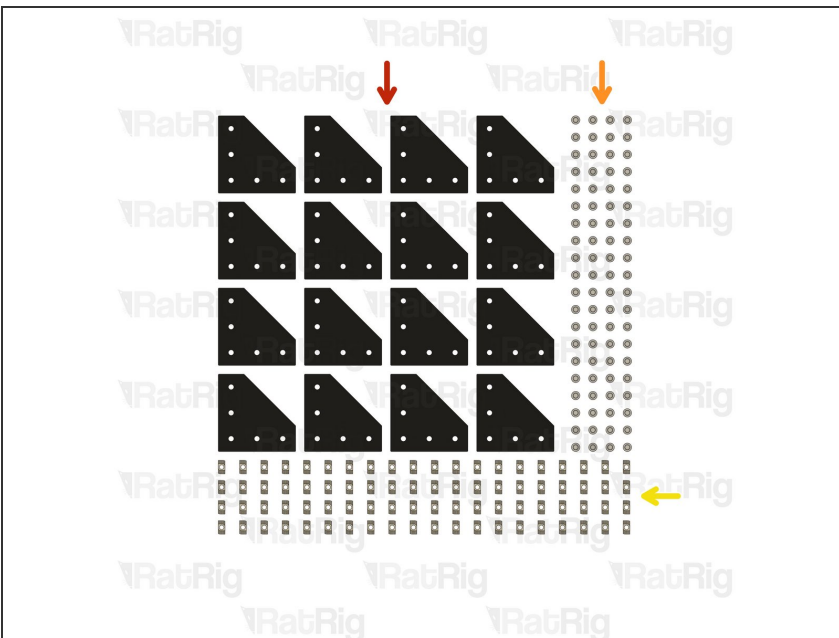
- ⚠** The V-Core 3.1 panels are not provided as part of the kit, and must be sourced separately
- i** It is **highly** recommended to source the electronics panel prior to beginning the V-Core 3.1 build, as it is very difficult to install the full panel on an assembled frame
- Source files, in multiple formats, are available for all panels on [the Rat Rig GitHub repository](#)

Step 5 — Installing hex nuts into printed parts



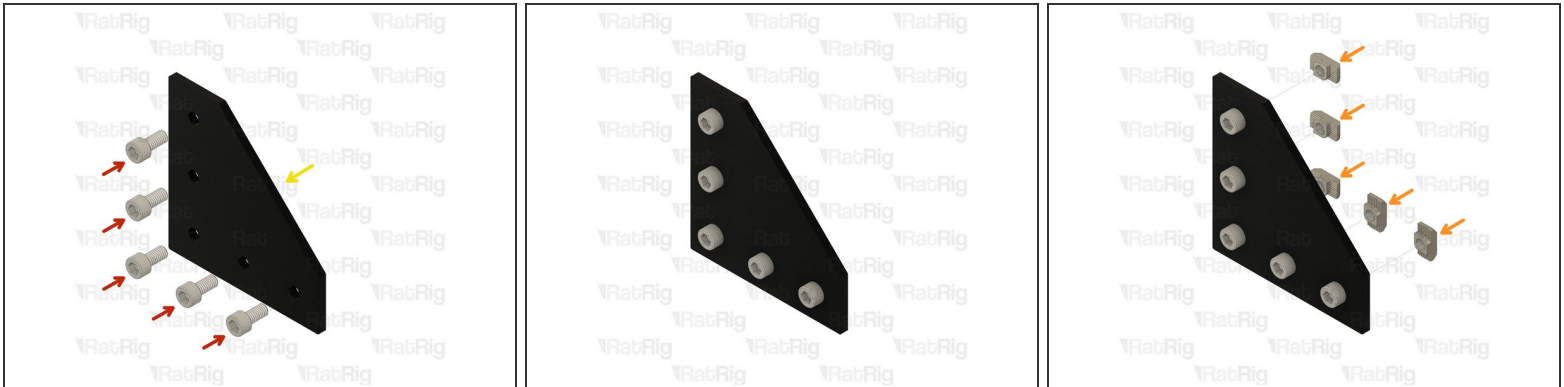
- i** Occasionally you will need to install a hex nut into a printed part
- i** The hex nut needs to be fully pulled into the printed part to ensure there are no issues with assembly or cross threading
- i** This animation shows an example of how to use a cap head screw to pull a hex nut into a printed part

Step 6 — Prepare the parts for the corner plates



- 16x 3030 Corner Plate
- 80x M6x12 Cap Head Screw
- 80x 3030 Drop-in T-Nut - M6

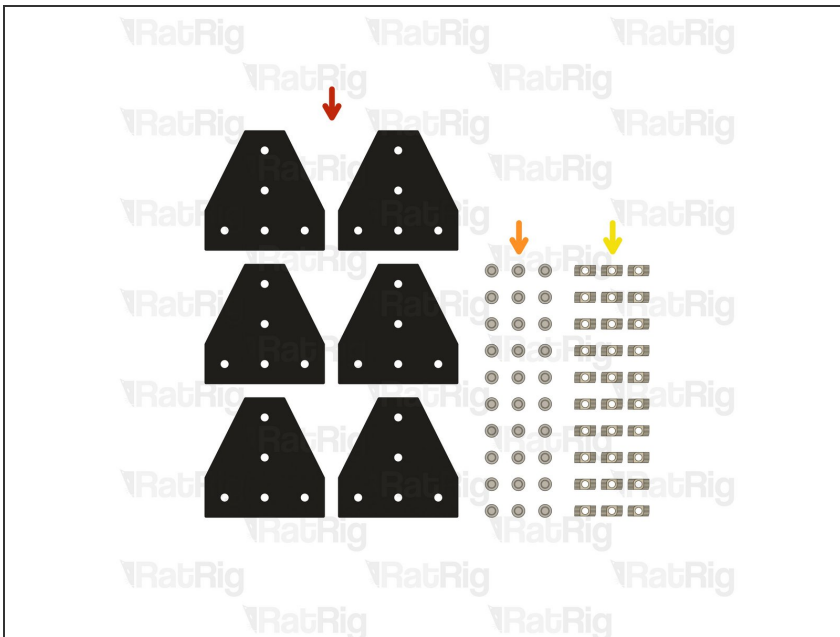
Step 7 — Assemble the corner plates (x16)



- M6x12 Cap Head Screw
- 3030 Drop In T-Nut M6
- Corner Joining Plate for 3030

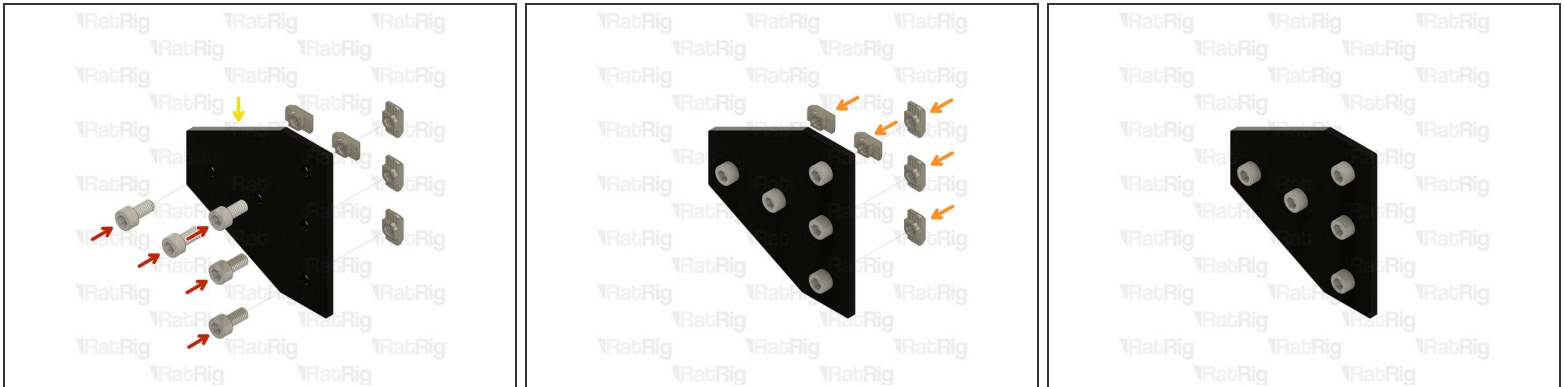
i Loosely thread the 3030 T-Nuts onto the M6x12 screws. Do not tighten them at this point.

Step 8 — Prepare the parts for the T-plates



- 6x T-Shape Joining Plate for 3030
- 30x M6x12 Cap Head Screw
- 30x 3030 Drop-in T-Nut - M6

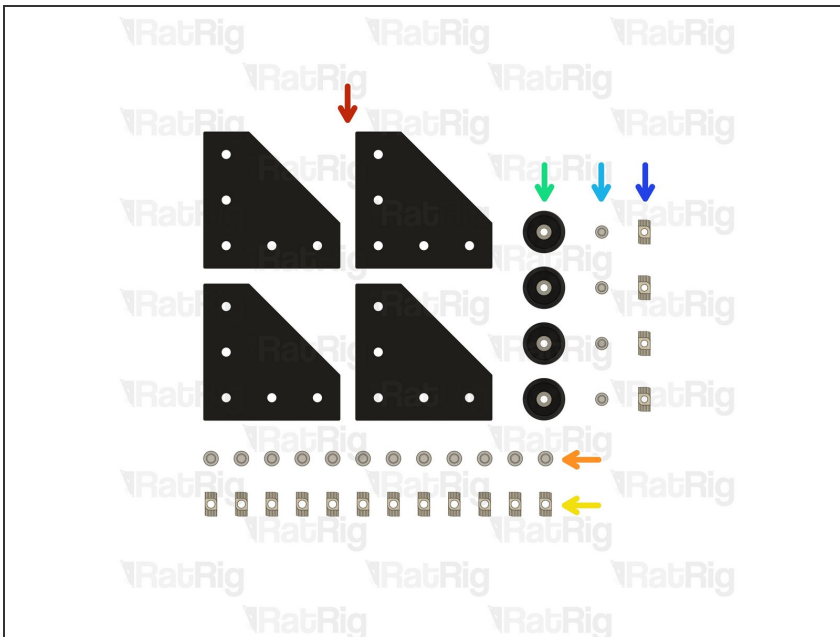
Step 9 — Assemble the T-Shape Plates (x6)



- M6x12 Cap Head Screw
- 3030 Drop In T-Nut - M6
- T-Shape Joining Plate for 3030

i Loosely thread the 3030 T-Nuts onto the M6x12 screws. Do not tighten them at this point.

Step 10 — Prepare the parts for the base corner plates



- 4x 3030 Corner Plate
- 12x M6x12 Cap Head Screw
- 12x 3030 Drop-in T-Nut - M6
- 4x Rubber Foot with Metal Insert
- 4x M5x18 Cap Head Screw
- 4x 3030 Drop-in T-Nut - M5

Step 11 — Assemble the base corner plates A (x2)


- M6x12 Cap Head Screw
- M5x18 Cap Head Screw
- Rubber Foot with Metal Insert
- 3030 Corner Plate
- 3030 Drop-in T-Nut - M6
- 3030 Drop-in T-Nut - M5

i Loosely thread the 3030 T-Nuts onto the screws. Do not tighten them at this point.

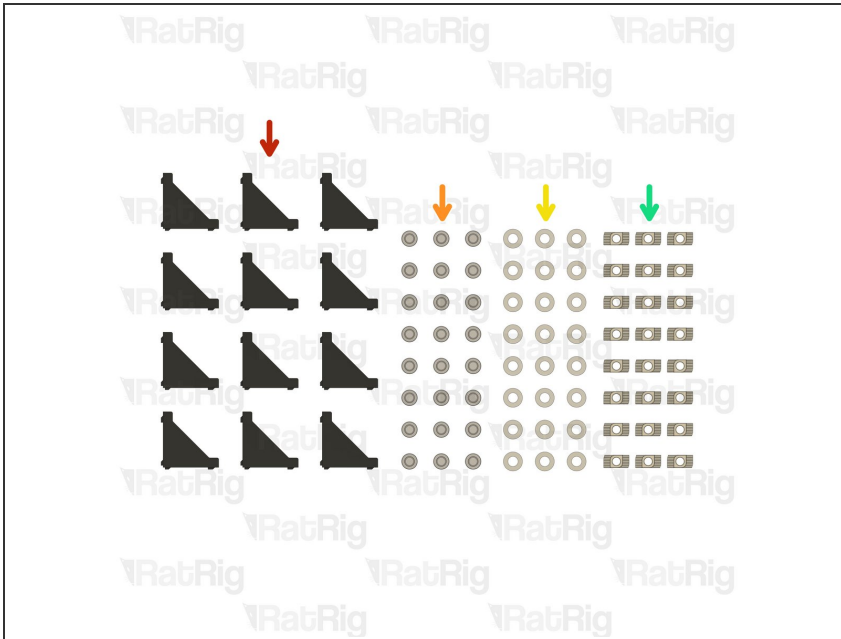
Step 12 — Assemble the base corner plates B (x2)



- M6x12 Cap Head Screw
- M5x18 Cap Head Screw
- Rubber Foot with Metal Insert
- 3030 Corner Plate
- 3030 Drop-in T-Nut - M6
- 3030 Drop-in T-Nut - M5

 Loosely thread the 3030 T-Nuts onto the screws. Do not tighten them at this point.

Step 13 — Prepare the 90 degree corner parts



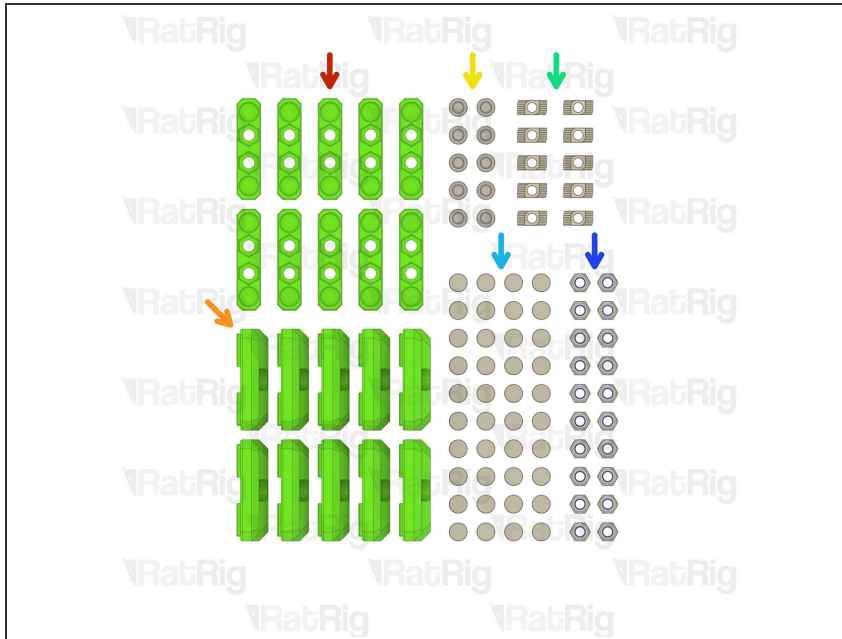
- 12x 90 Degree Cast Corner
- 24x M6x12 Cap Head Screw
- 24x M6 Washer
- 24x 3030 Drop-in T-Nut - M6

Step 14 — Assemble the 90 degree corners (x12)

- M6x12 Cap Head Screw
- M6 Washer
- 3030 Drop-in T-Nut - M6
- Cast 90 Degree Corner Bracket for 3030

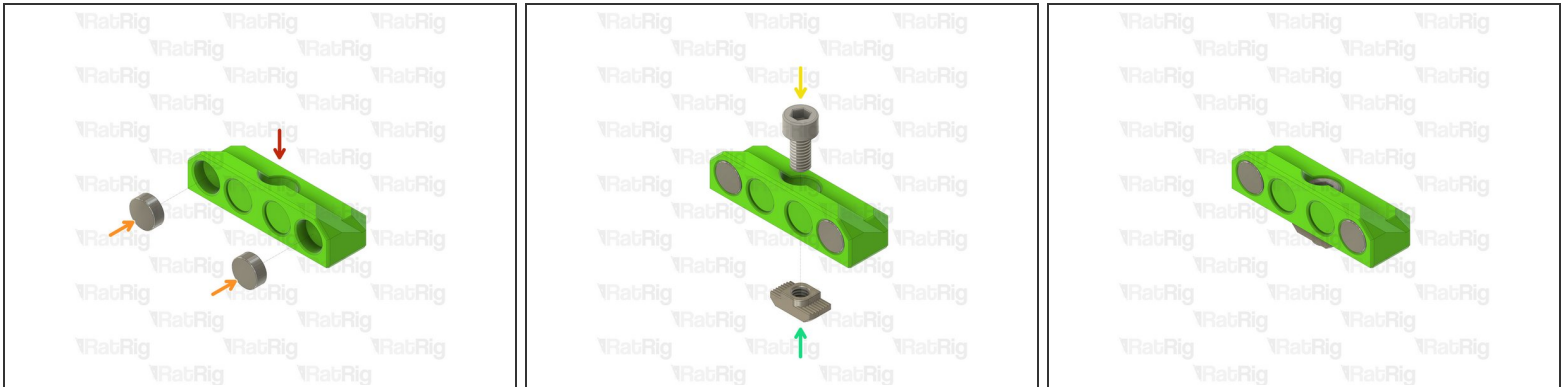
i Loosely thread the 3030 T-Nuts onto the M6x12 screws. Do not tighten them at this point.

Step 15 — Prepare the magnet holder parts



- 10x panel_magnet_holder printed part
- 10x panel_magnet_mount printed part
- 10x M6x12 Cap Head Screw
- 10x 3030 Drop-in T-Nut - M6
- 40x Neodymium Disc Magnet - 10x4mm
- 20x M6 Nylon Locking Hex Nut

Step 16 — Assemble the frame magnet mounts (x10)



- panel_magnet_mount printed part
- Neodymium Disc Magnet - 10x4mm
 - ⓘ The magnets are designed to be a tight fit into the printed part. If they are loose, or you wish to secure them further, place a few drops of cyanoacrylate glue into the printed part before adding the magnet
- M6x12 Cap Head Screw
- 3030 Drop-in T-Nut - M6
 - ⓘ Loosely thread the 3030 T-Nuts onto the M6x12 screws. Do not tighten them at this point.

Step 17 — Assemble the panel magnet mounts (x10)



- Neodymium Disc Magnet - 10x4mm

- panel_magnet_holder printed part

⚠ Pay attention to the orientation of the magnets when installing them into the printed parts. Use the assemblies from the previous step to verify the magnets attract to each other, rather than repel from each other!

i The magnets are designed to be a tight fit into the printed part. If they are loose, or you wish to secure them further, place a few drops of cyanoacrylate glue into the printed part before adding the magnet

- M6 Nylon Locking Hex Nut

Step 18 — Next guide



- Continue with the next guide: [01. Enclosure 2.0 Frame Assembly](#)