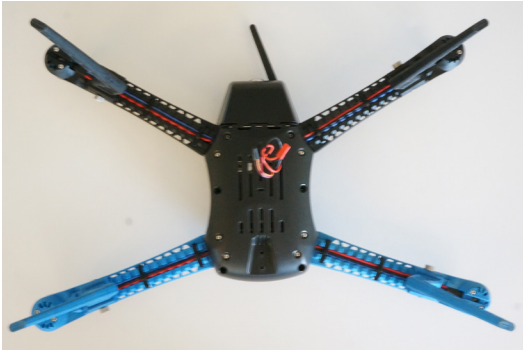# IRIS+

3DR

Upgrade Kit Instructions

Thank you for purchasing an IRIS+ Upgrade Kit. You're now ready to transform your IRIS into an IRIS+.

You will need:
-Phillips-head screwdriver
-2 mm hex key
-Glue for foam, preferably hot glue but Gorilla Glue or RC modeling adhesive will also work.
-Small, flat, prying tool for removing DF13 connectors.

You will reuse the screws and cables from your original IRIS, so don't lose them during disassembly.

1 Disassemble

Remove the screws in the bottom shell and inside the battery compartment.

For more specific instructions on removing the replacing the shells, visit 3dr.com/iris/info.

In the next step, you'll temporarily disconnect some of the cables connecting to Pixhawk:
DF13 connectors are difficult to remove without damaging the ports. Use the prying tool to lift the edges of the connector gently away from the port. Once the connector is separated from the port by a few millimeters, it will be easy to remove from the port. Do not pull on the wires or use heavy pressure when handling connectors. A video demonstrating DF13 connector removal can be found under the Upgrade Kit section at 3dr.com/iris/info.
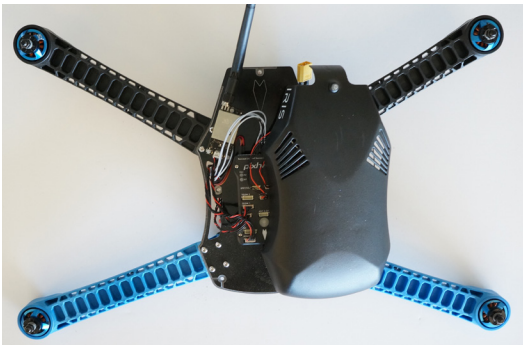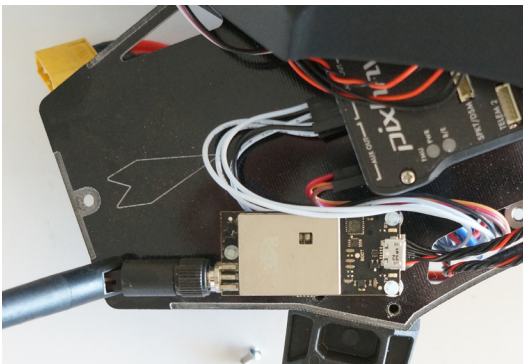
Turn IRIS over, and remove the top shell. If there are any cables held together with zip ties, carefully cut the zip ties. Remove all cables from the pins at the end of Pixhawk, and disconnect the cables from the following Pixhawk ports:
-GPS
-POWER
-TELEM
-BUZZER
-SWITCH
-USB

On the I2C splitter (rectangular module with a row of five connectors), find the cable that connects the splitter to Pixhawk's I2C port. Leave that cable in place, and disconnect all other cables from the I2C module.
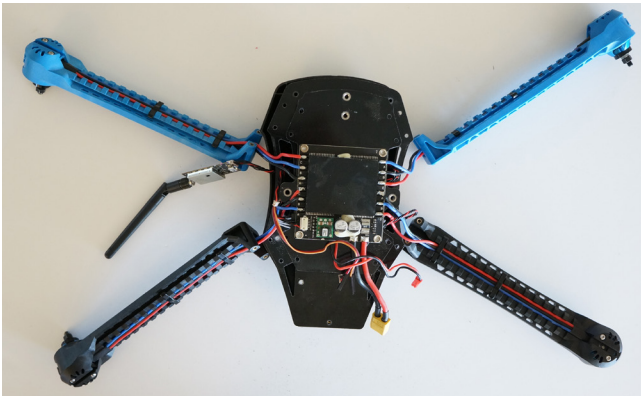
You should now be able to pull the top shell away from the bottom shell completely. Set it aside for now.

Remove the three white, plastic screws holding the telemetry radio in place.
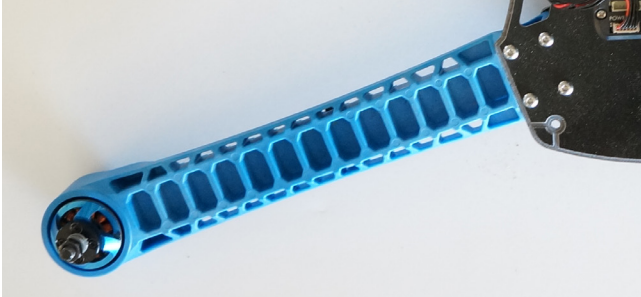
Remove the four screws holding each arm in place.

Turn IRIS over, and remove the bottom shell. You should be able to pull the arms partially away from the body of IRIS.

Now you'll need to disconnect the two plates by tearing the foam. Try to separate the foam from the plate with the ESC as cleanly as possible at the surface of that plate so there is minimal foam attached to the smaller plate.
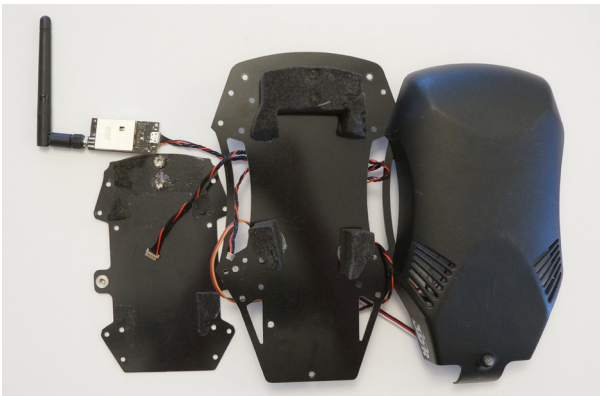
Once the smaller, bottom plate is detached from the foam. Turn it over and remove the four screws attaching the ESC to the plate. You should now be able to remove the ESC and the arms entirely from the plate.

2 Reassemble with IRIS+ parts
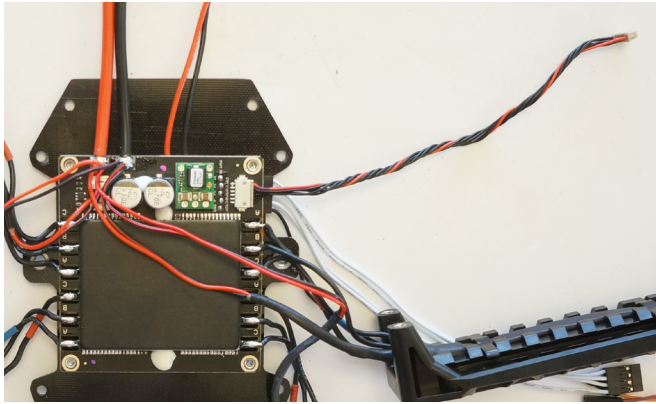
Now you'll switch to reassembling IRIS with the parts from the Upgrade Kit, starting with the preconnected arms, motors, legs, and ESC.

First, disconnect the red-and-black six-wire cable from the old ESC, and connect to the same port on the new ESC.
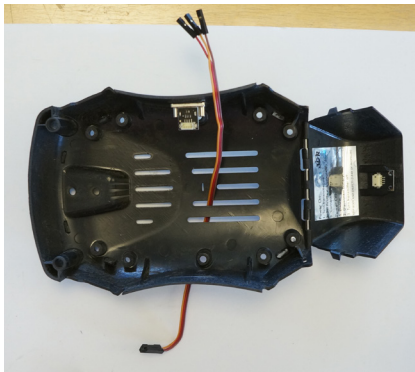

Before you attach the ESC to the bottom shell, you'll need to arrange the cables so they will be situated properly to connect to Pixhawk.

Locate the gimbal cable: red, brown, and yellow three wire with split connectors. Thread it through the slots in the bottom shell. (LED and USB cables not pictured.)
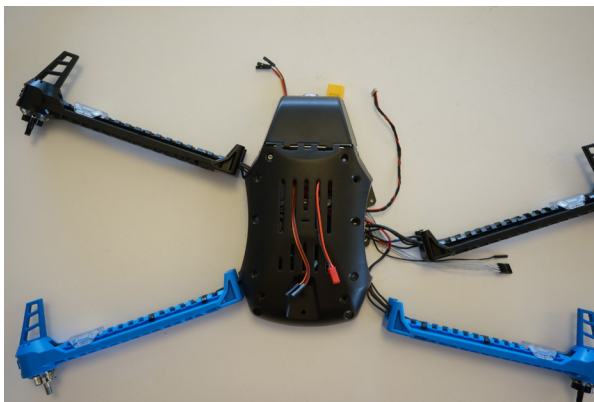
Thread the red-and-black two-wire cable with the red JST connector through the slots in the bottom shell.

Place the bottom shell against the plate and ensure that the six-wire power cable, the four-wire white cable, the gimbal cable, and the single-wire black cable thread through the space between the shell and the plate so that they can connect to Pixhawk. Be aware of the placement of the USB module on the side of the bottom shell, and place it carefully in relation to the plate so it isn't damaged.
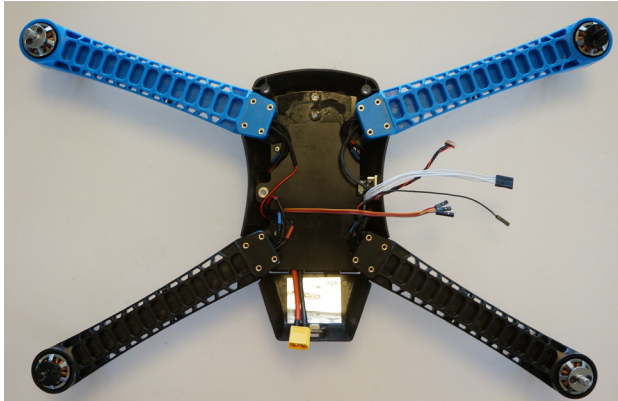
Now you'll connect the arms to the bottom shell and bottom plate using the longer screws. Align the two holes in each arm with the holes in the plate and shell, and insert the screws from outside the bottom shell. Be careful not to damage the external USB module and plate it carefully above the plate.

This image shows the correct orientation of the cables after attaching the arms. (LED cable not pictured.)
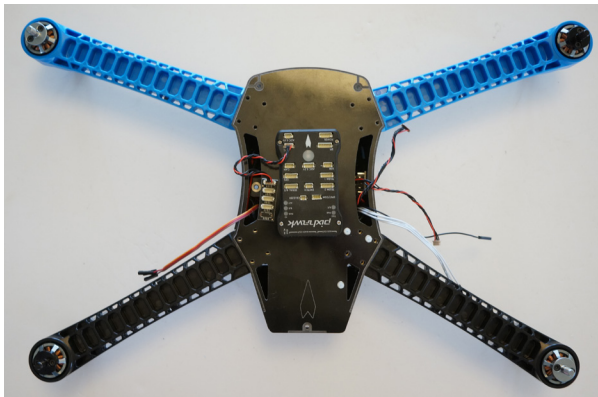
To attach the top plate, you'll need to ensure the correct arrangement of the cables before you glue on the foam. The cables that you threaded up from the previous step (four-wire white cable, the gimbal cable, and the single-wire black cable), the USB module cable, and the LED cable need to be oriented so they can connect to Pixhawk. When you attach the top plate, make sure to thread the cables through the slots in the side of the plate: route the LED cable between the foam and the arm and up through the slot in the plate closest to the I2C splitter (cable routing not pictured), route the gimbal cable through this same slot, and route the other cables through the slot of the other side of the Pixhawk. Ensure that all cables are clear of the areas on the bottom plate where the foam will attach to the top plate.

When you're ready to attach the top plate, add glue to the places on the bottom plate where the foam was detached, and add the top plate. Apply pressure to set the glue, and remember to arrange the cables as you place the top plate.
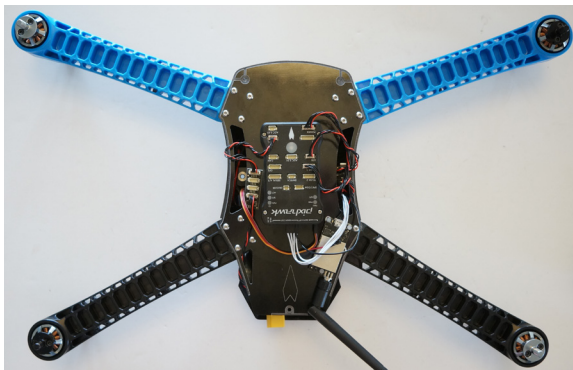
Attach the top plate to the arms using the four small screws for each arm.

Now you're ready to start reconnecting the cables to Pixhawk. Connect the POWER and USB cables from the group that you feed up from the previous step. Reattach the telemetry radio using the three plastic screws, ensuring that you don't apply too much pressure to the screws that might cause them to strip, and connect the cable to the TELEM port.

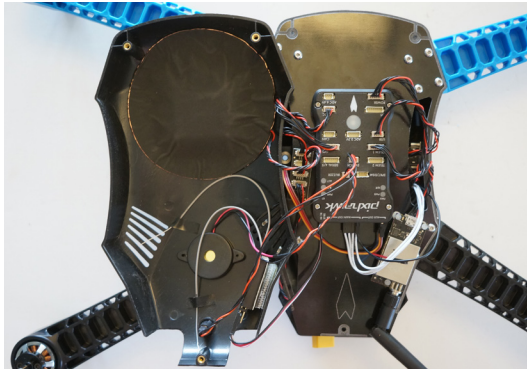Connect the cable from the LED module to the I2C splitter.

Examine the white four-wire cable. The connector has a small triangle at the position of one of the wires: this is wire 1. Connect this cable to the MAIN OUT signal (s) pins 1-4 with wire 1 connecting to 1. This is critical for your IRIS to fly correctly.

Connect the black single-wire cable to the MAIN OUT ground (-) 1 pin. On the gimbal cable, connect the orange wire to the AUX OUT signal (s) 1 pin and the brown wire to the AUX OUT ground (-) 1 pin. Leave the red wire unconnected.
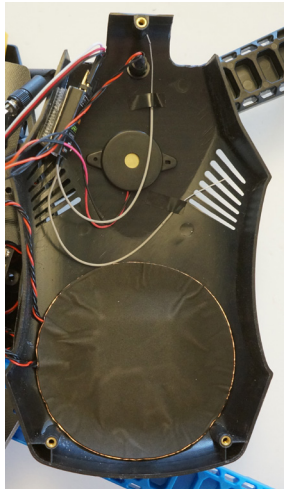
Now add the GPS shield to the top plate. Remove the adhesive backing, and stick the shield to the inside of the top shell around the GPS module so that it is completely covered and the cables are arranged as neatly as possible.

Lastly, you'll connect the components from the top shell to Pixhawk and reattached the top shell.

Connect the two cables from the GPS: connect the six-wire cable to the GPS port and the four-wire cable to the I2C splitter.

Connect the buzzer cable to the BUZZER port and the safety button to the SWITCH port.
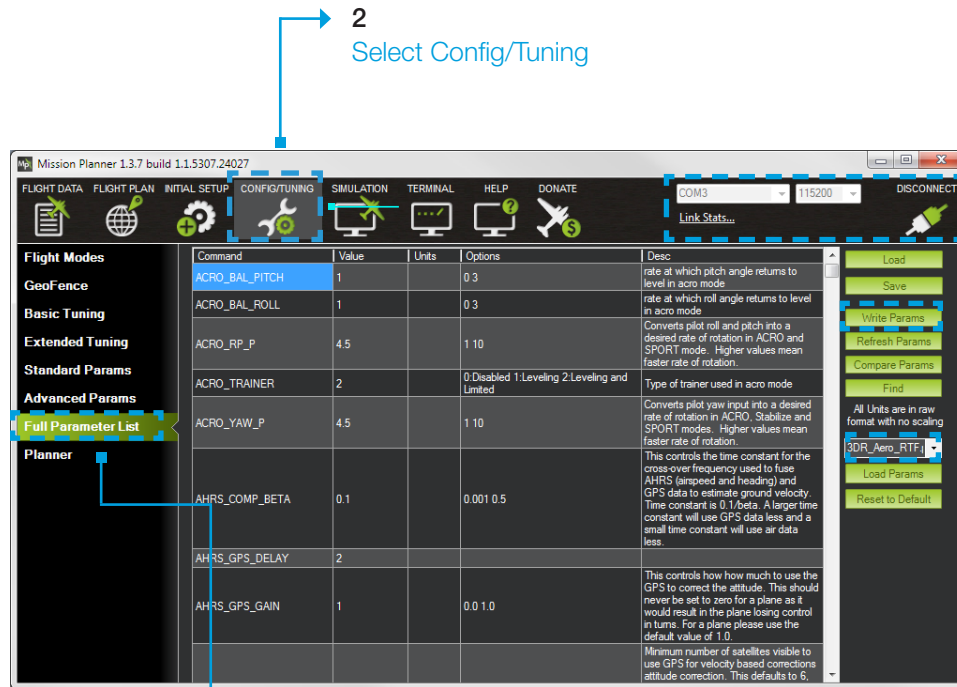
Connect the red-white-and-black three-wire cable to Pixhawk's RC IN pins with the black wire connected to ground (-), the red wire connected to power (+), and the white wire connected to signal (s).

If you haven't performed the Pixhawk Adjustment Improvement Update on your IRIS, we recommend completing this process before attaching the top shell. For instructions, select Pixhawk Adjustment under Improvement Updates at 3dr.com/iris/info.

Place the top shell over the plate, ensuring not to pinch any of the wires. Hold the shells together, turn IRIS over, and secure the shell using the remaining screws. Don't forget the screw inside the battery compartment.

You're not done quite yet! Visit 3DR.com/IRIS/info and perform an **ESC calibration** and a **compass calibration** by following the video tutorials under the Upgrade Kit section.

3 Update Parameter File and Add Stickers to Controller

2
Select Config/Tuning

1
Connect to Mission Planner
Connect the telemetry radio to your laptop, power IRIS, select the COM port, set the rate to 57600, and select Connect.

5
Select Write Params
to save the new parameters. The parameter loading process is now complete.

4
Select IRIS+
Select the drop-down menu to view available parameter files, and select 3DR_Iris+.param.

3
Select Full Parameter List

Your IRIS is now programmed with the new mode configuration of IRIS+. Before your next flight, add the new mode stickers to your controller, and review the IRIS+ manual and checklist included with the upgrade kit.

Follow Me support for IRIS+ Upgrade users is coming soon! Please visit 3dr.com/iris/info and check the Upgrade Kit section for updates on configuring and using Follow Me with your upgraded IRIS+.

Advanced user note: The IRIS+ parameter file contains important tuning updates for the new propellers, motors, and battery as well as the new mode configuration, including altitude hold instead of stabilize as the default mode. If you would like to modify the modes, please do so using the Initial Setup - Flight Modes screen after updating the parameter file.

4 Add Propellers and Tall Legs

Propellers

IRIS uses four propellers: two with black nuts and two with silver nuts. Attach the propellers with black nuts to the motors with black tops and the propellers with silver nuts to the motors with silver tops.
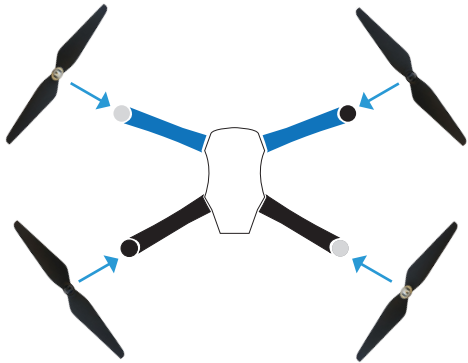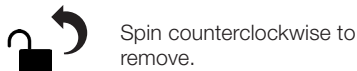
Each propeller has locking and unlocking direction symbols. To attach, spin the propeller in the direction of the locking symbol. The propellers will automatically tighten onto the motors when you arm IRIS before takeoff.
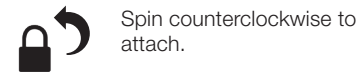
For propellers with black nuts:
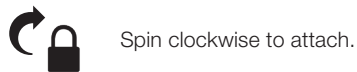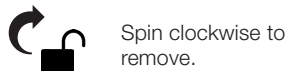
Spin clockwise to attach.
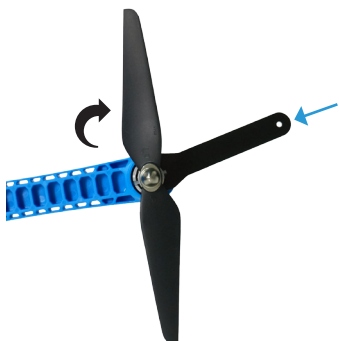
Spin counterclockwise to remove.

For propellers with silver nuts:

Spin counterclockwise to attach.

Spin clockwise to remove.

To remove, hold the motor in place with the propeller tool, and spin the propeller in the direction of the unlocking symbol.

Tall legs
Switch to tall legs to use IRIS with the Tarot Gimbal or for extra clearance on landing.

Use the small (1.5 mm) hex key to loosen the set screw in the bottom of the leg.

Slide out the leg to remove it, and replace with the tall leg. Tighten the set screw until it sits flush with the surface. Do not tighten the screw beyond this point.

These legs are a tight fit and require considerable force to remove. Because of this, be careful not to place your fingers in the path of the leg as you remove it. This can expose your hand to the sharp edge of the leg when it pulls free of the arm. We recommend using your thumbs to push the leg out while ensuring that your other fingers are away from the end of the arm.