Cowan Simulation 500E for X-Plane 12

www.CowanSim.com

500E USER MANUAL

Thank you for purchasing the Cowan Sim 500E!

A special thanks goes out to the livery painters. These guys are top notch livery painters and created several of the 500E liveries. More to come.

David Erard and Julien Lebrun aka Dark Angel.

https://forums.x-plane.org/index.php?/profile/599076-david-erard/

https://forums.x-plane.org/index.php?/profile/319475-darkangel1010/

Install: To install simply extract the .zip file to your X-Plane 12 “Aircraft” folder. (or copy “Cowan Simulation - 500E” folder to the “Aircraft” folder)

Uninstall: To uninstall simply delete the “Cowan Simulation - 500E” folder from your “Aircraft” folder.

To Update: Delete your previous version and install or install a second copy.

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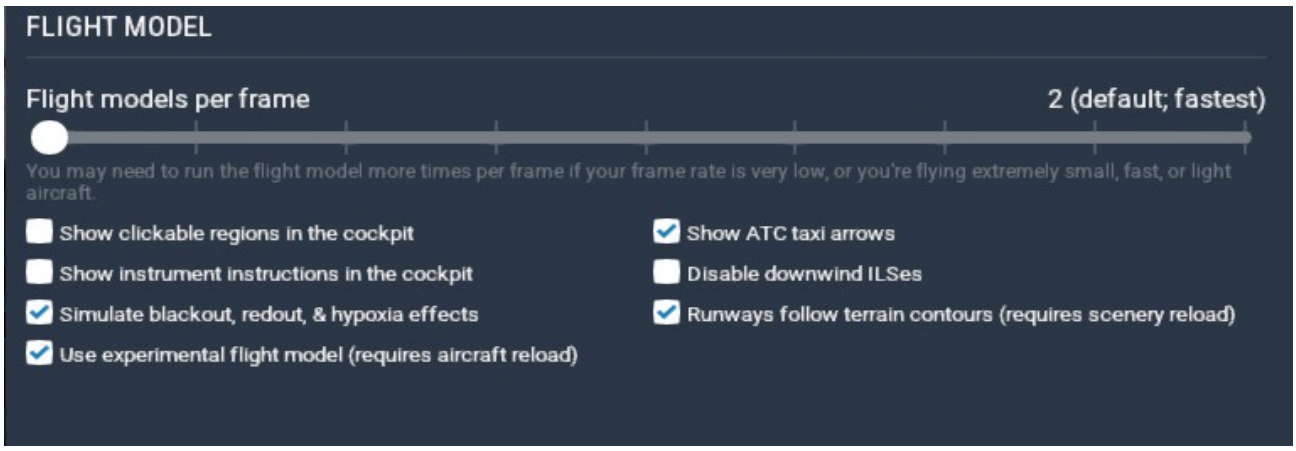
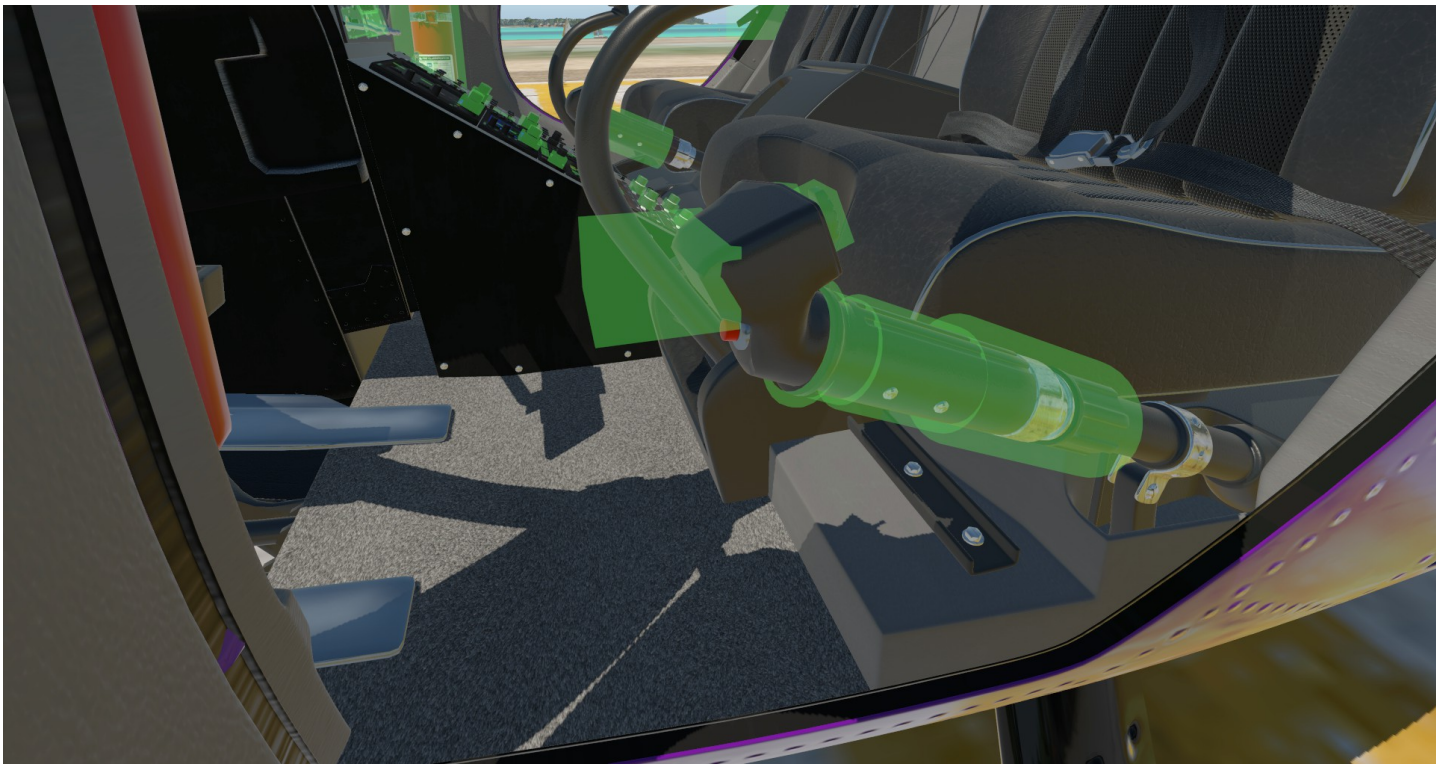
X-Plane Flight Model Settings

“Flight models per frame” was set at the lowest option of 2 (default; fastest) when designing the flight model. This option tells the sim how many times per frame to calculate all of the math involved in the flight model. If you have yours set higher than 2 then that is perfectly fine, the sim will just use more CPU resources. If you have issues with a “bouncing” model then set this higher until it stops.



STARTING



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Starter Button Location / Cold & Dark Starting

The button can be held down or set to be held down automatically using the config menu. If auto is selected then it will simulate you holding it so you can manipulate the throttle when 12-15% N_1 is reached. There is a click spot floating in front of it so you don't have to change your camera/head position to push it.

For Startup and Shutdown procedures please see the **"CHECKLISTS - START-UP"** PDF file in the **"MANUALS"** folder.

Start with Engines Running

If you want to jump in and fly right away you can start up with the engines running. Everything is coded to start up ready to go except for increasing the throttle into the green.

Auto Starting

You can auto start the 500E by hitting Ctrl + Shift + E or by using the "Automated start-up" in the upper menu or configuration popup. The automated start will do everything for you.

ROTOR BRAKE

The rotor brake is located to the right on the panel near your head or right shoulder. Pushing the rotor brake handle all the way back disengages the rotor brake. Pulling the handle slowly forward will increase rotor brake pressure to slow the rotors down and stop them after shutting down the engines.

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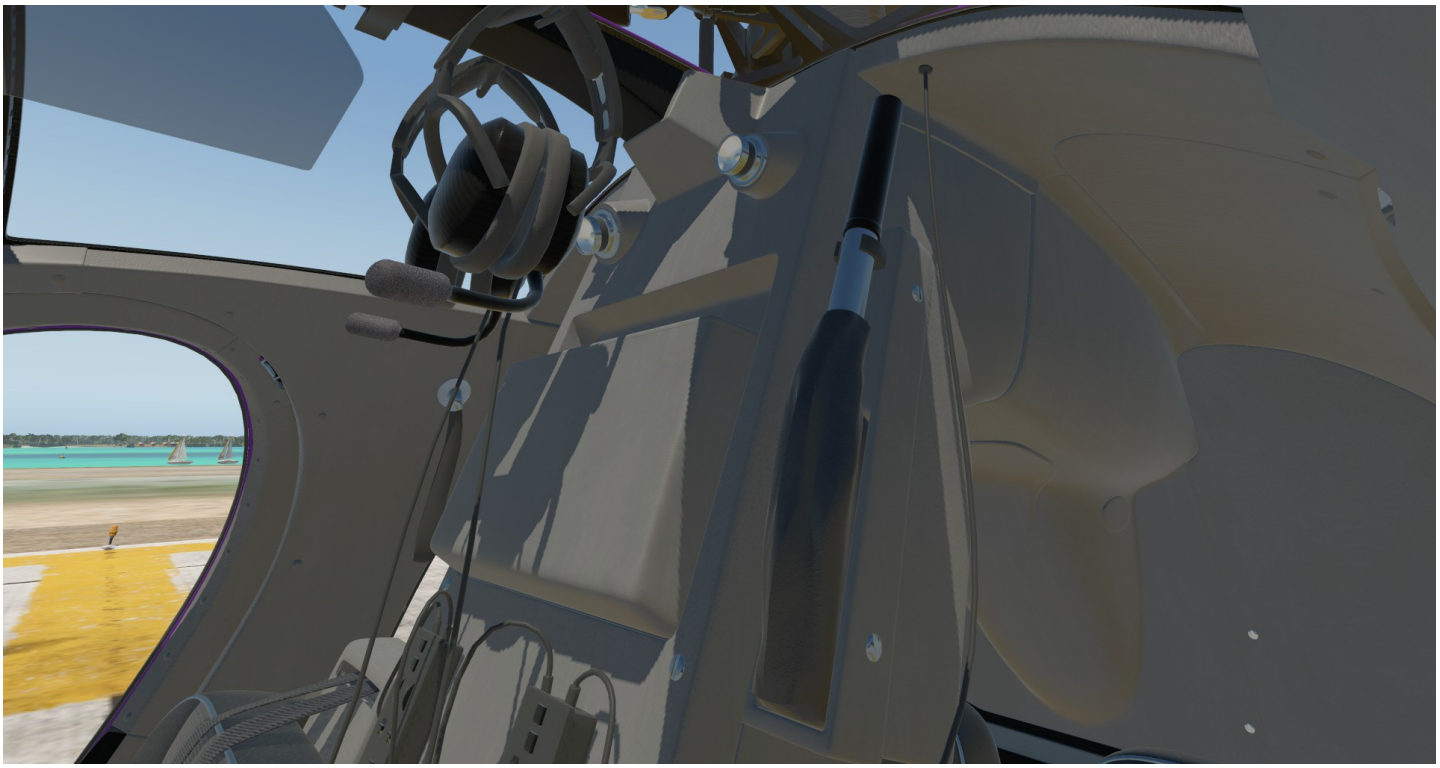

Operating the Idle Stop

The idle stop ring is located on the collective, right at the top of the throttle twist grip. The idle stop ring is designed to prevent cutting off the throttle when at or above ground idle.

When starting cold and dark the throttle is cut off. When rolled up, the idle stop ring will pop “in” at minimum ground idle, locking the throttle from being twisted back down. To unlock it simply click the ring and roll the throttle down to cut off.

When starting with the engine running the throttle is set at idle for you. Simply roll the throttle into the green to get going.

After landing rotate the throttle to the idle stop, then click the ring to roll down to cut off and shutdown.

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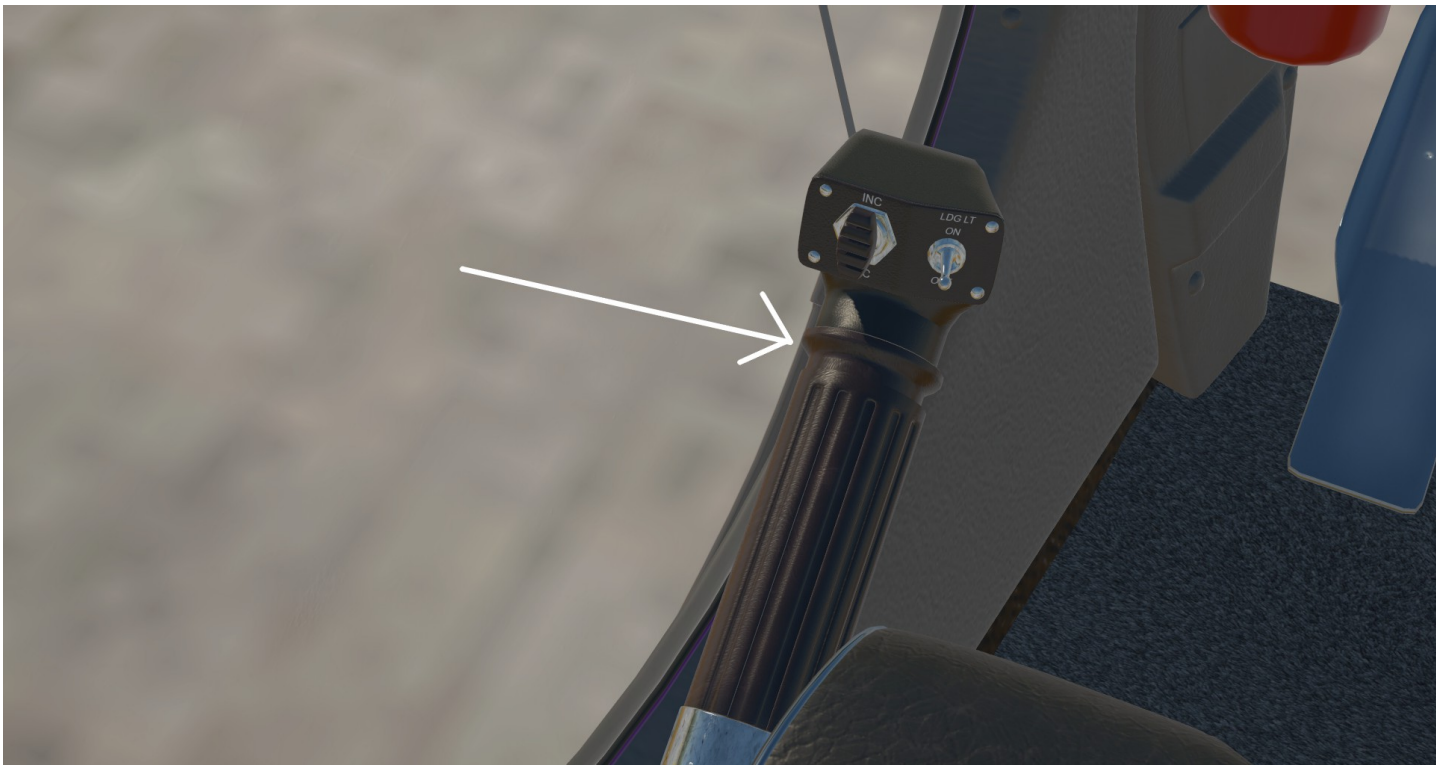

RPM INC DEC SWITCH

The “RPM INC/DEC” switch can be used to “beep” up or down the RPM while the governor is active. You can increase to a max of 104% N_2 for take off and landing. 102% N_2 is the minimum and 103% N_2 is right in the middle of the green and default for normal flight.

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Flying the 500E

Like many helicopters, the 500E requires some left anti-torque peddle input while hovering and a little at low speeds as well. While forward flight speed increases less left peddle input is needed. Pay attention to the trim ball on the lower part of the attitude indicator. Try to keep the ball centered when flying by adjusting left and right anti-torque peddle input.

This manual is a simple starting point. Further instructions on flying techniques are beyond the scope of this document. Practice makes perfect.

AviTab

Thank you to the author of AviTab! If you don't have the AviTab plugin then it's highly suggested since it's integrated with the 500E. AviTab is a functional tablet, or iPad, with moving maps, the ability to view PDF documents such as this manual or charts, and it's VR compatible. Get AviTab for free here: AviTab

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Manipulators (click spots)

There are a lot of manipulators throughout the 500E. If you want to get a good look at them all you can select “Show Instrument Click Regions” in the X-Plane “View” menu. This will show the, normally invisible, objects that are used to manipulate things and interact with the model as see below.

Reality XP GTN 750 Integration

The RXP GTN 750 is integrated. If you have this add-on installed you can access the GTN 750 by using the configuration menu. Clicking on “Reality XP GTN750” will replace the default “530” and “430” with the GTN 750.

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https://reality-xp.com/

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Trimming

The trim hat switch located on the top of the cyclic works just as any other helicopter would. Pushing up will trim the nose down, pushing down will trim the nose up, pushing left will trim roll left and right, right. These can be mapped to your hardware of choice and all use default X-Plane 12 commands.

Virtual Reality Pilot View

With the built in custom plugin you can go to the clipboard and change your position using the up, down, left, right, forward and backward arrows. Once in the perfect spot then hit the Save Position button. This writes directly to the vrconfig file. An aircraft reload is necessary for this to work. Your spot will be save for future flights.

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Timer – Battery Voltage – OAT

The timer is a default X-Plane 11 timer. To reset it there is a hidden click spot in the center of the “SELECT” and “CONTROL” buttons. This throws a lot of people off. Clicking “VOLTS” will show you the battery volts in this format “24E”. Clicking “OAT” will show the outside air temperature in Celsius or Fahrenheit. Clicking select will change timer modes and clicking “CONTROL” will start and stop the timer.

Battery Drainage

A ground power unit will be added in a future update. When sitting with the power on and no engines running the generators, the batteries will drain. This will cause hard or long starts and the battery caution and warning lights will remain illuminated until the batteries have fully charged.

X-Plane Graphics Settings

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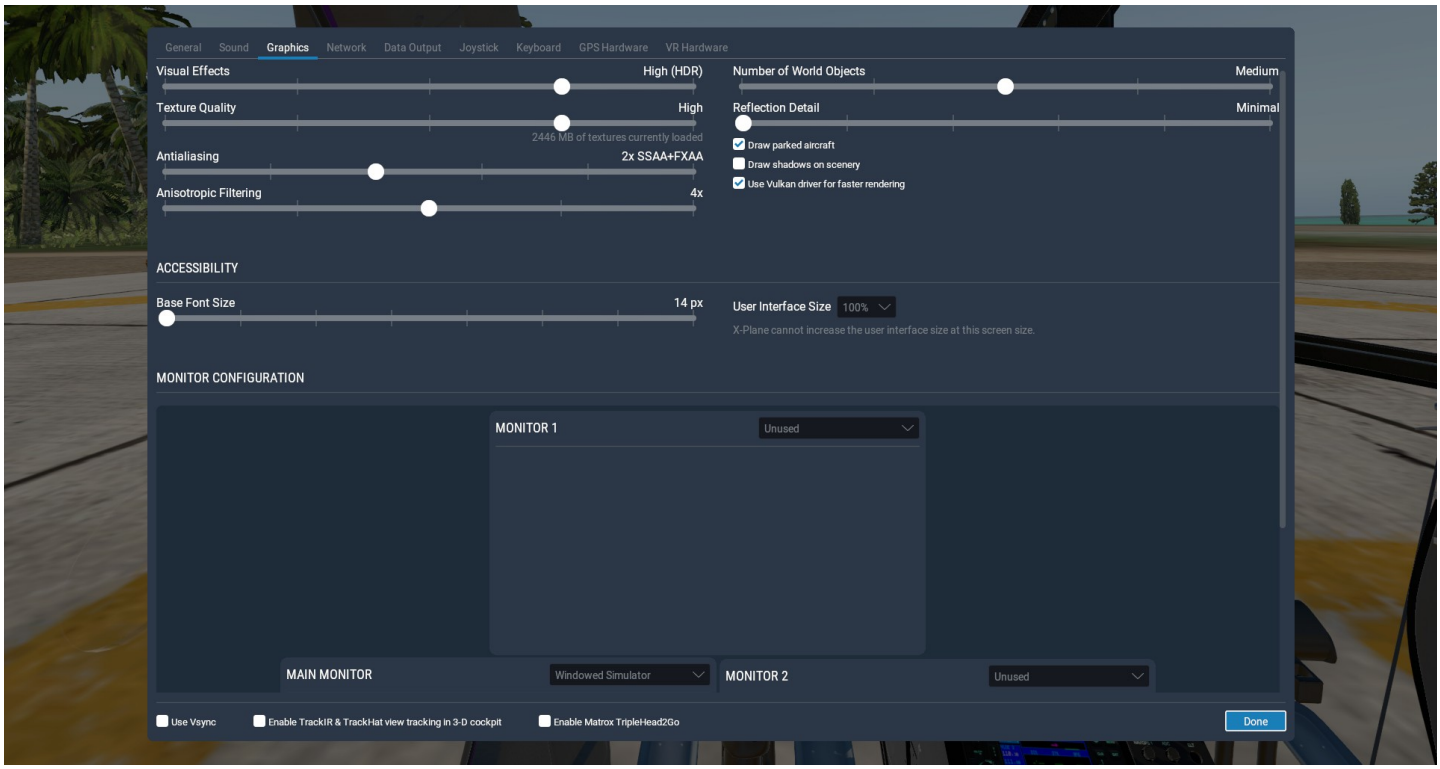
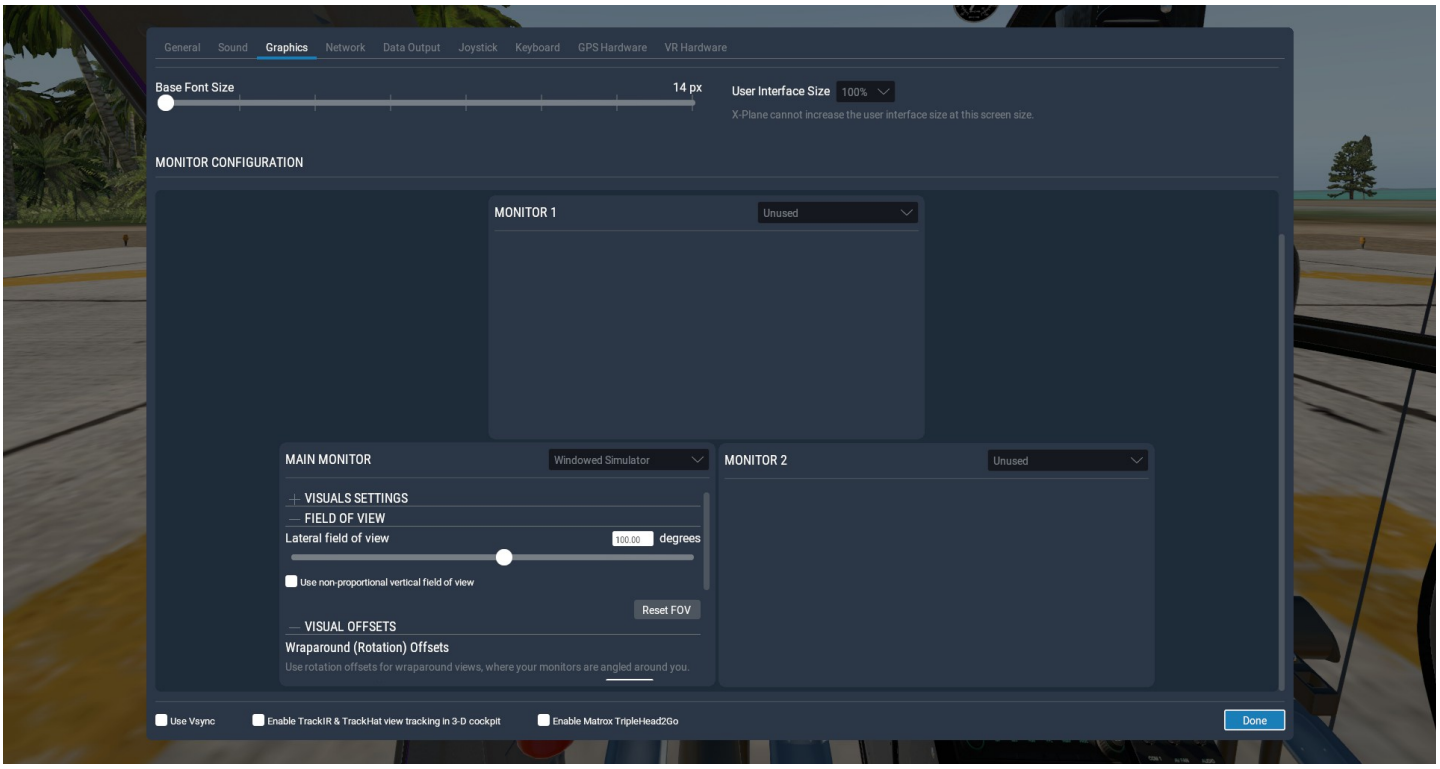
Setting up your graphics in X-Plane 12 is important for the best experience. This helicopter was designed to work best with lateral field of view set at 100%. A lot of this is personal preference, but this is the recommendation from CowanSim.

The other graphic settings depend upon your computer system and it's ability. For your reference, these are the settings this bird was developed on.





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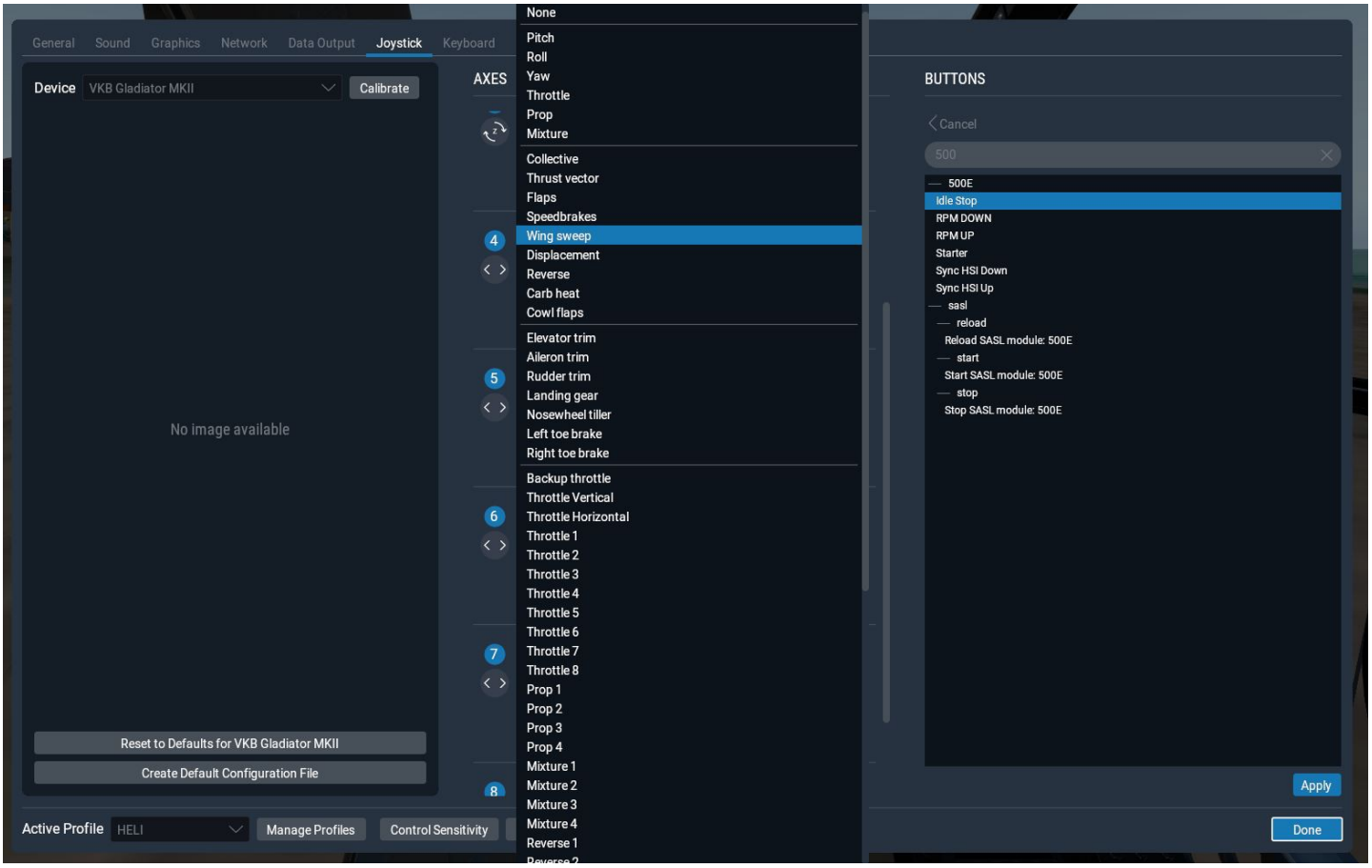
X-Plane Hardware Mapping

This model uses the “Wing Sweep” axes instead of the “Throttle” axes for the twist grip throttle while using hardware for a throttle. If you're only using a mouse or VR controller then you can ignore these settings. Make sure you reverse the axes for your collective if you're using a joystick.



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