Guide to using XCSoar with Oculus

Version 1.0

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This guide describes the main aspects to comfortably use XCSoar when using the Oculus to fly with the Condor Soaring simulator. It is assumed that the user already has XCSoar running on the same computer that runs the Condor and that it is connected to the Condor.

To make all of this work, there are two main aspects to cover:
1. Control XCSoar with the joystick
2. Fix XCSoar in the Oculus gaming environment

Let's see it.

Operating XCSoar with the joystick

To be able to control the XCSoar with the joystick we will use AutoHotkey. This is a program that allows you to develop scripts that perform certain actions when key combinations are pressed.
The first thing to do is install the program that can be downloaded from the AutoHotkey page (https://www.autohotkey.com/).
Once installed, you have to write the script that sends XCSoar the joystick commands you want. To do this, you can use the notepad directly, ensuring that the file with an ".ahk" extension is saved.
Here are some indications of the main parts of the script, based on the one I use, which you can download here to start messing around:

https://drive.google.com/file/d/1IohpkbPxE8KN9XyzaynfJnst8O_o0gDw/view?usp=sharing

The following table leaves the file code in case you want to paste it in the notepad (first column) as well as certain explanations / tips (second column).

CÓDIGO DEL SCRIPT	COMENTARIO/EXPLICACIÓN
```InstallKeybdHook #Persistent #NoEnv ; Recommended for performance and compatibility with future AutoHotkey releases. ;#Warn ; Enable warnings to assist with detecting common errors. SendMode Input ; Recommended for new scripts due to its superior speed and reliability. SetWorkingDir %A_ScriptDir% ; Ensures a consistent starting directory. SetTitleMatchMode, 2 DetectHiddenWindows, On #SingleInstance force ; Sets up joystick POV/button watcher SetTimer, WatchJoy, 5 return```	All this I do not know what it means, nor do I need to, it works so do not change it.
```; Joystick buttons routed to XCSoar 1Joy2::SendToXCS("{Escape}")```	This is how you configure the joystick keys that you want to send to the XCSoar. IN this example, when pressing button 2 of the joystick (1joy2), an "Escape" is sent to the XCSoar, which exits any menu.
```1Joy7::SendToXCS("{z}") 1Joy8::SendToXCS("{a}") 1Joy12::SendToXCS("{m}")```	Here are other examples with which I control the "z", "a" and "m" keys when I press buttons 7, 8 and 12 on the joystick, respectively. I have this to configure the MacCready. For this you have to do one more thing that I count after this table.

| ```
1Joy9::
        SendToXCS("{6}")
        SendToXCS("{Up}")
        SendToXCS("{Up}")
        SendToXCS("{Enter}")
        SendToXCS("{Escape}")
Return
``` | With this I have managed to press button 9 of the joystick to start to release water in XCSoar (adjusting the poles accordingly). Pressing it again will stop releasing water. To all this, I have configured button 9 in Condor to release water, so everything is synchronized. |

CÓDIGO DEL SCRIPT	COMENTARIO/EXPLICACIÓN
| ```
; Main top-level cursor behaviors, plus MOST cursor
; movement in submenus
^!Up::SendToXCS("{Up}")
^!Down::SendToXCS("{Down}")
^!Left::SendToXCS("{Left}")
^!Right::SendToXCS("{Right}")

WatchJoy:
POV := GetKeyState("1JoyPOV")  ; Get position of the POV
control.
KeyToHoldDownPrev := KeyToHoldDown  ; Prev now holds
the key that was down before (if any).

; Some joysticks might have a smooth/continous
POV rather than one in fixed increments. ; To
support them all, use a range: if (POV < 0)   ; No
angle to report    KeyToHoldDown := ""
else if (POV > 31500)          ; 315 to 360 degrees:
Forward    KeyToHoldDown := "Up" else if POV between 0
and 4500     ; 0 to 45 degrees:
Forward
   KeyToHoldDown := "Up" else if POV between 4501 and
13500  ; 45 to 135 degrees:
Right
   KeyToHoldDown := "Right"
else if POV between 13501 and 22500 ; 135 to 225
degrees: Down
   KeyToHoldDown := "Down"
else                 ; 225 to 315 degrees: Left
   KeyToHoldDown := "Left"
``` | All this makes it possible to zoom (up / down) and change the screen (left / right) in XCSoar with the joystick crosshead. I've reused it from somewhere, so I haven't touched it much. |
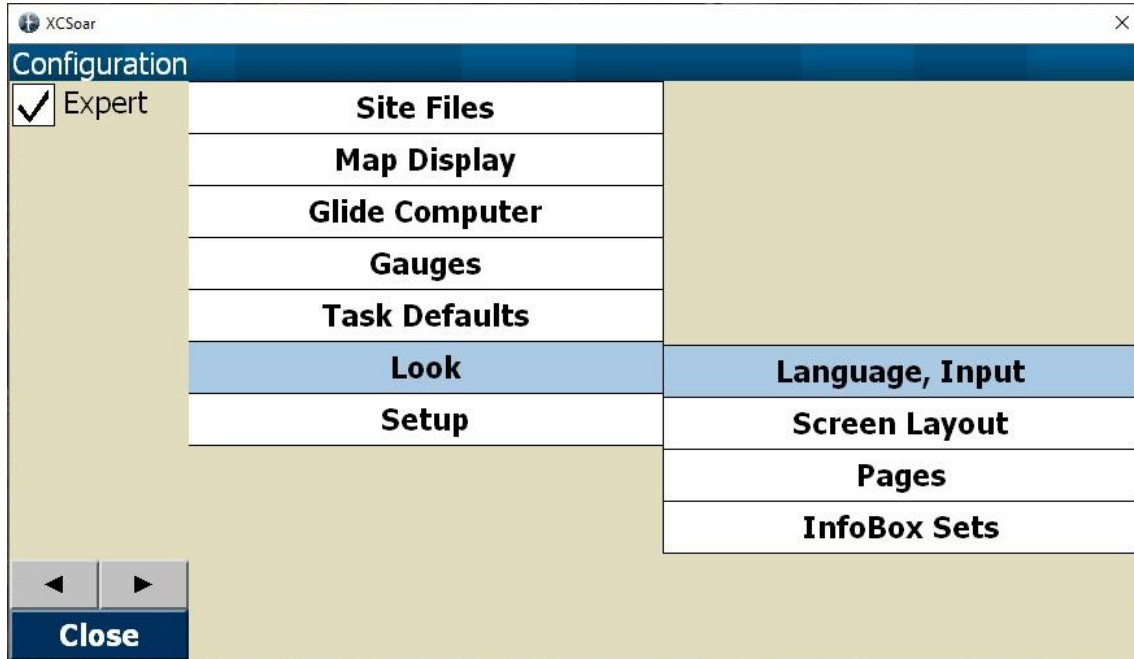| CÓDIGO DEL SCRIPT | COMENTARIO/EXPLICACIÓN |

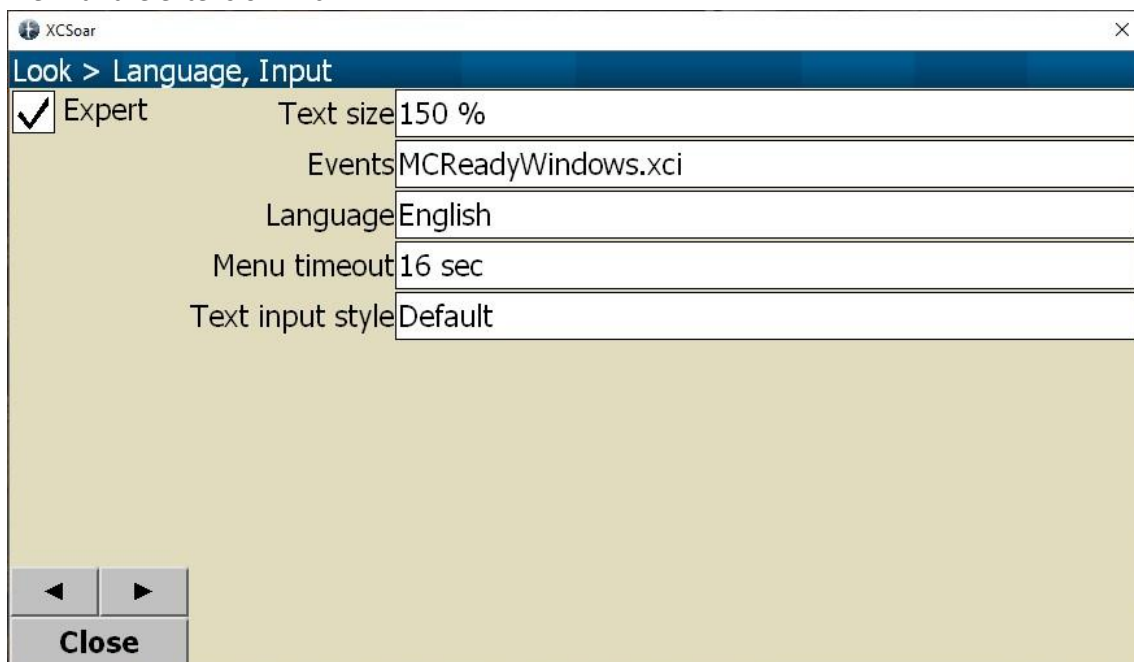|	

if (KeyToHoldDown = KeyToHoldDownPrev) ; The correct key is already down (or no key is needed).   return ; Do nothing.
 	
; Otherwise, release the previous key and press down the new key:
SetKeyDelay -1 ; Avoid delays between keystrokes. if KeyToHoldDownPrev   ; There is a previous key to release.
   SendToXCS("{" . KeyToHoldDownPrev . " up}") ; Release it. if KeyToHoldDown   ; There is a key to press down. SendToXCS("{" . KeyToHoldDown . " down}")   ; Press it down. return
 	
; Handles piping individual keys to XCSoar
SendToXCS(k)
{
        ; Yes, this is pretty much belt AND suspenders ... and it's still not
        ; quite enough for all scenarios, due to some quirks in either AHK, XCS, or both
        WinGet, WinID, ID, XCSoar
        ControlSend, ahk_parent, %k%, ahk_id %WinID%
        ControlGet, WinHwnd, Hwnd,,, XCSoar
        ControlSend,ahk_parent, %k%,ahk_id %WinHwnd%
        return
}
	This final part ensures that everything goes well and that the commands are sent to XCSoar even if it is not selected.

As I mentioned above, to be able to modify the MacCready with the joystick you have to do an additional step: create certain inputs for XCSoar.

In XCSoar you can load a file that relates certain commands of the computer, Android or whatever to certain functions. This ability is a bit limited for now (I'm still digging into it to do more), but at least it allows us to play MacCready with keyboard commands. To access it, you have to go to the XCSoar system configuration, and then to the language and input options. I

put a screenshot (I have it in English, in Spanish it should be something similar):

Once you enter these options, you will see a field called "Events", where you will have to load file with the extension ".xci":

This file is, again, a small code that can be created in the notepad, as long as you save it with that extension, and then load it, put it somewhere in the XCSoar folder and then load it in the events field. I'll give you my file in case you want to use it directly:

https://drive.google.com/file/d/1dRULKSNwuBXCsScNqSDCp-8QNf9KpuhE/view?usp=sharing
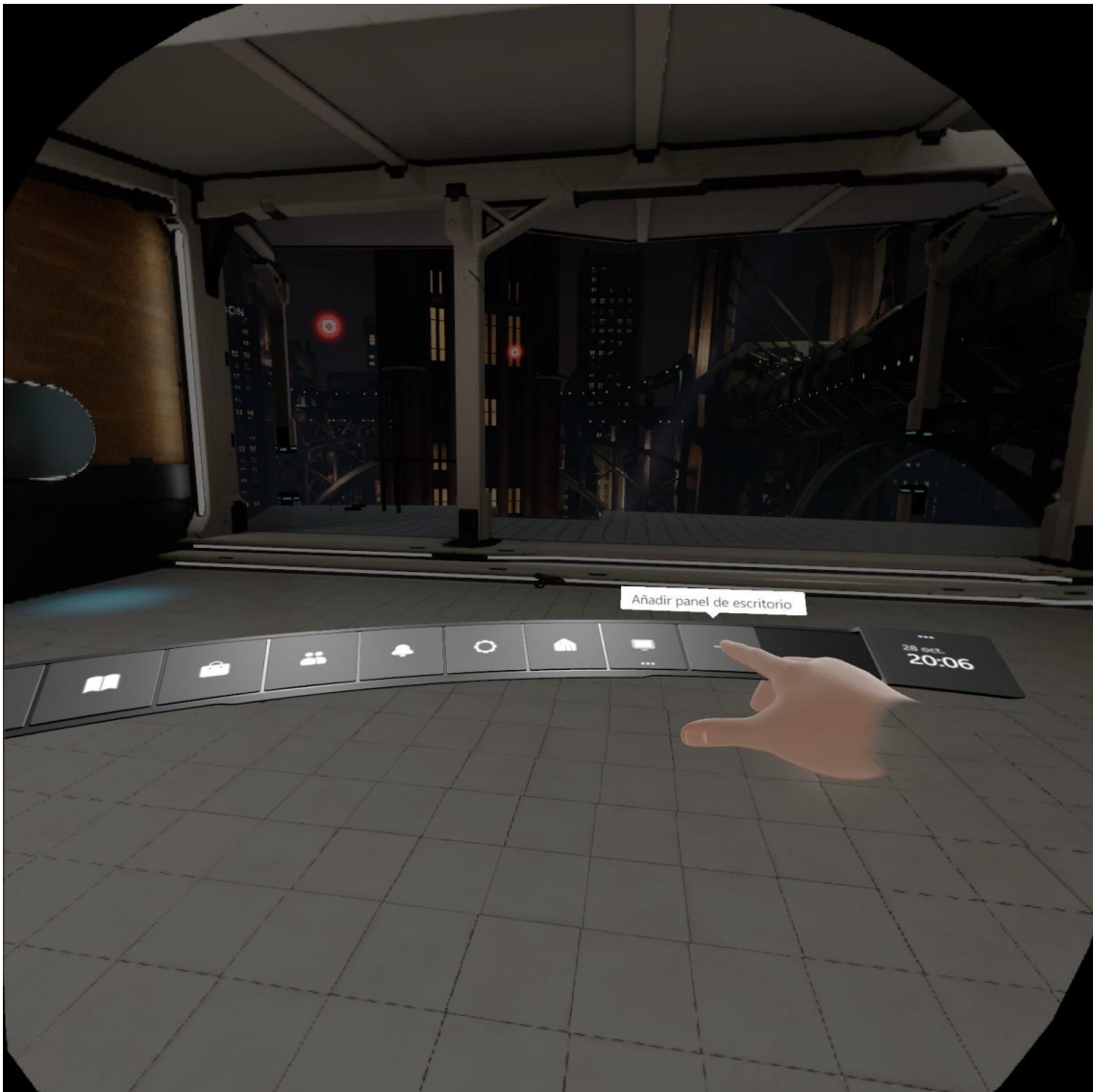
I put some details of this code below:

CÓDIGO DEL SCRIPT	COMENTARIO/EXPLICACIÓN
mode=default type=key data=m event=MacCready auto toggle mode=default type=key data=a event=MacCready up mode=default type=key data=z event=MacCready down	Como véis estoy asignando lo siguiente: • Letra "m" cambia el MacCready entre automático y manual • Letra "a" sube MacCready • Letra "z" lo baja Esto está alineado con los comandos que he puesto en el código del AutoHotKey antes.

With this everything would be ready. In summary:

1. AutoHotKey installed
2. AutoHotKey script created and saved somewhere on the computer (wherever you want)
3. XCSoar event file created, saved in the XCSoar folder and selected in the configuration
All you need to do is double-click the AutoHotKey script (every time the computer is restarted, it deactivates and you have to reopen it) and it will be working.

Fix XCSoar in the Oculus gaming environment

To set XCSoar (or any other window) inside the Oculus, you have to click (with the Oculus remote) on the plus sign in the main panel:

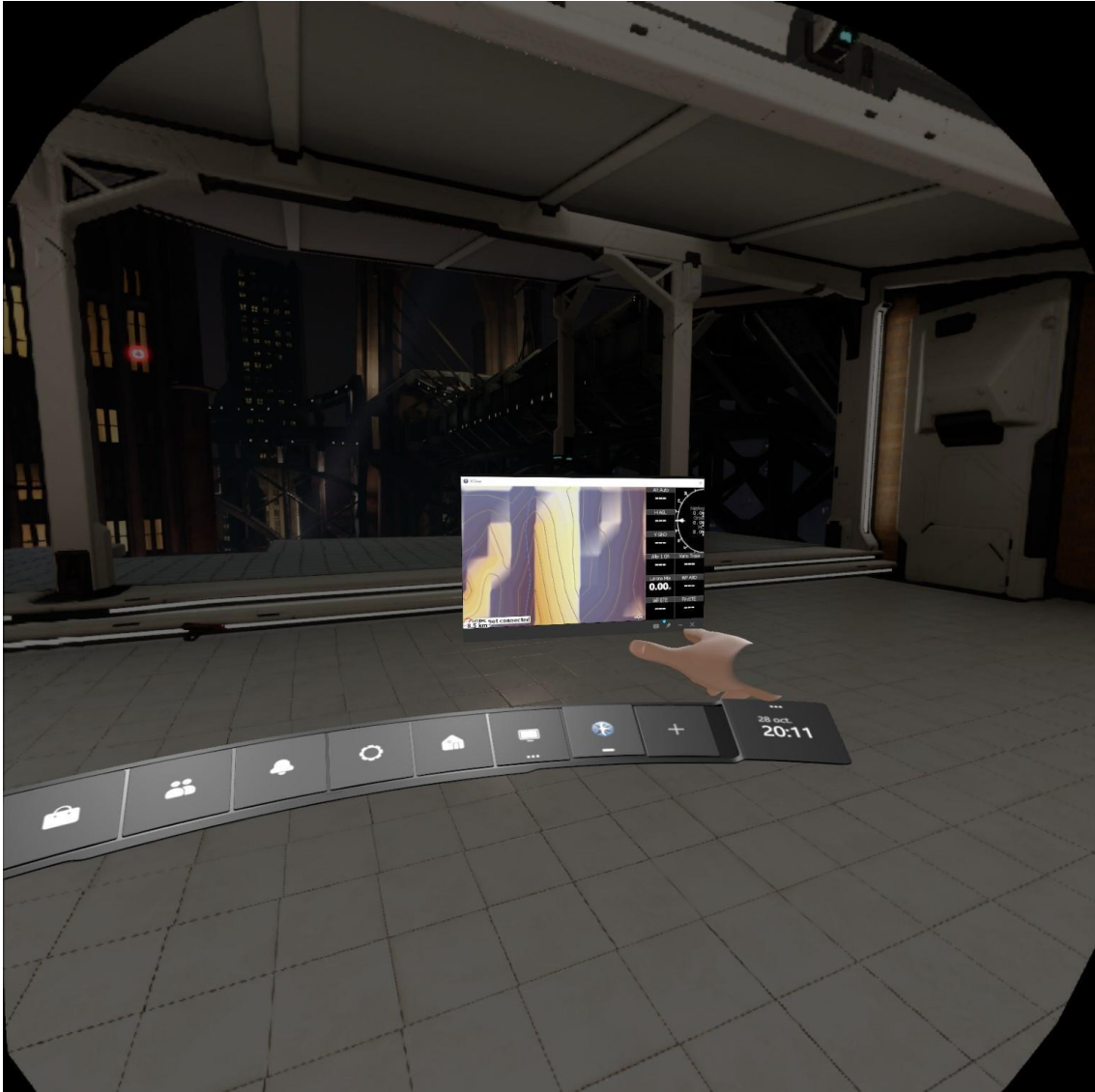Then you have to select XCSoar from the list (it has to be already open on the computer).

The XCSoar window will appear, which you can move wherever you want by "grabbing" it with the side button of the Oculus remote, moving it with the remote and adjusting the size (left /

right) and distance (up / down) with the remote control. wherever you want:

Sometimes the XCSoar goes black. To correct it, you just have to move the window again until the image is seen again.Then you have to fix it where it is, by clicking on the pin at the bottom If all that is done, you can already see the XCSoar "inside" the cockpit.right of the XCSoar

window:

hat way it will always stay on top of anything (including Condor). At first it is a bit difficult to find the best place so that it does not disturb the rest of the sailboat's instrumentation, but then it is done immediately.

Sometimes the window disappears when starting a race. If that happens, you have to pause the race (or put the autopilot) to avoid sticking it, and hit the button with the Oculus symbol (shaped like an "O" lying down) on the right control. You return to the Oculus menu where you have to follow all the previous steps. Pressing the Oculus button again turns to Condor.